FORSCHUNGEN IN EPHESOS XII/7

Alessandro Naso (Ed.)

AMBER FOR ARTEMIS

Amber Finds from the Artemision at Ephesos

With contributions by
Silvia Alaura, Laura Ambrosini, Marco Bonechi, Vanora Estridge, Sarjit Kaur, Tripta Kaur, Michael Kerschner, Alessandro Naso, Martina Ott, Caroline Posch, Serena Privitera, Andrea M. Pülz, Nunzia Laura Saldalamacchia, Edith Stout

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Sabine Ladstätter (†), Martin Steskal

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Österreichisches
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TABLE OF CONTENTS

PREFACE OF THE EXCAVATION MANAGEMENT

It is a central goal of the Ephesos excavation to systematically review projects that, for various reasons, have not yet been fully presented. On the one hand this is rewarding, on the other hand it is a great challenge, especially when there are gaps in the documentation of old excavations. It is all the more pleasure for the directors of the Ephesos excavation to be able to present a particularly extraordinary as well as complex group of finds: the amber finds from the Artemision at Ephesos. Not surprisingly, the full presentation of these finds has been long awaited. It is the most extensive find complex of amber objects known so far from a Greek sanctuary. Alessandro Naso and his team were able to show that the majority of the small jewelry elements belong to a single girdle, for which comparative examples can only be found in Oenotrian princess tombs in modern-day Basilicata in Southern Italy. This proves a hitherto completely unknown contact of Ephesos, which was not involved in the colonization of Southern Italy, with the Gulf of Taranto. It appears that this contact was established already in a very early time, i.e. in the first half of the 7th century BC. On the basis of the amber finds from the Artemision the complex object biography of such rare prestige objects can be shown: the raw material originates from the Baltic, came to Italy, there it was processed and came to Ephesos, whereby also local production of amber elements could be proven – either for finishing or repair. The knowledge that can be derived from this is impressive and will bring sanctuary research an important step forward. It is of great value that Alessandro Naso and his team provide an analysis of the finds in detail not only technically and typologically, but also within their find contexts, whereby for the first time a short-lived rebuilding phase of the first temple could be proven – the Naos 1a – under whose floor the amber girdle had been deposited as a building sacrifice.

The editors congratulate the team of authors led by Alessandro Naso, who have contributed their individual expertise to this volume. They are: Silvia Alaura, Laura Ambrosini, Marco Bonechi, Vanora Estridge, Sarjit Kaur, Tripta Kaur, Michael Kerschner, Martina Ott, Caroline Posch, Serena Privitera, Andrea M. Pülz, Nunzia Laura Saldalamacchia and Edith Stout. An important element of the provenance analysis was infrared spectroscopy carried out at the Amber Research Laboratory at Vassar College, Poughkeepsie, NY, and performed successfully by Edith Stout, Vanora Estridge, Sarjit and Tripta Kaur. Among the many individuals and institutions involved in the success of the volume, the series editors would like to mention in particular the colleagues from the team of the Ephesos excavation and from the Efes Müzesi Selçuk, who provided excellent working conditions. For the Efes Müzesi these are especially director Cengiz Topal and Feride Kat. At the Istanbul Arkeoloji Müzesi, the director at the time, Zeynep Kızıltan, and the curator at the time, Mine Kiraz, were extraordinarily helpful. At the British Museum we feel indebted to the curator Alexandra Villing.

The high quality of the volume is based on the outstanding work of several people who must be highlighted here: Niki Gail (photography), Barbara Beck-Brandt and Judith Kreuzer (editing), Nikky Math and Isabella Benda-Weber (graphics and plans), and Andrea Sulzgruber (final layout of the plates).

The research would not have been possible without the excellent cooperation with the General Directorate of Cultural Heritage and Museums in Ankara for which the Ephesos excavation is always grateful. Finally, the editors would like to thank the publishing house of the Austrian Academy of Sciences for including the volume in its publishing program and for funding through the Academy's Holzhausen Legat. Thanks are also due to the University of Naples Federico II for the financial support of the printing costs.

This volume provides a unique insight into world of amber, an organic gemstone that has captured the human imagination for centuries. The series editors are convinced that this volume will be appreciated by the scientific community. The systematic presentation of old excavations and their finds is, however, consistently maintained.

Sabine Ladstätter – Martin Steskal
Vienna, September 2023

PREFACE OF THE EDITOR AND ACKNOWLEDGEMENTS

The present publication may be the first book entirely devoted to pre-Roman amber finds from a single site, and it can be said that its roots run deep.

I had read the first reports on the amber carvings from the Artemision of Ephesos in summer 1991 while studying for my PhD. At the time, I was enjoying a fruitful period of study in Mainz, in the library of the Römisch-Germanisches Zentralmuseum (today Lebniz-Zentrum für Archäologie – LEIZA). I was intrigued by the new discoveries, amber being familiar to me as it is considered a common find in Central Italy but undoubtedly rare in Ionia. In those days, I could hardly imagine that, about twenty years later, I would begin research on the finds. I would have been even less likely to guess that, more than thirty years later, I would be publishing a book devoted exclusively to those amber carvings.

It is a real pleasure to mention and thank several colleagues in Vienna, Innsbruck and elsewhere, who supported the project in various ways. The late Sabine Ladstätter and Michael Kerschner entrusted me with publishing the amber finds from the Artemision at Ephesos. As director of the Austrian Archaeological Institute and head of the Ephesos Excavation, Sabine Ladstätter followed my research with great interest and patience, granting my team and me the use of several facilities in Selçuk and elsewhere, and finally suggested a book should be published in this series. Michael Kerschner first proposed that the amber finds from the Artemision should be the subject of a systematic study, and introduced me to the complex world of the Artemision »mit Rat und Tat.« He and Andrea M. Pülz provided literature and information from the archive of the Artemision excavation in Vienna and, as experienced staff members of the Artemision, wrote a chapter about the find contexts of the amber in the sanctuary. Niki Gail took beautiful photographs of the amber finds. With unstinting patience, Barbara Beck-Brandt carefully followed the gestation of this book, almost step by step, while the excavation profiles and the maps charting find distribution were masterfully drawn by Isabella Benda-Weber and Nicola Math to give visual shape to the information we had collected. Ruth Schleithoff (Berlin) composed the drawings in wonderfully laid-out plates.

A generous grant offered by the Oesterreichischen Nationalbank, Jubiläumsfonds, OeNB Projekt Nr. 15575 allowed my team and me to take trips to museums in Türkiye and England: I would like to thank the anonymous reviewers of the project for their advice and the administration staff of the OeNB for their assistance during each stage of the project.

The Leopold-Franzens-University Innsbruck (LFUI), financed the earliest research phases with the Berufungsgelder granted to my Chair of Pre- and Protohistory. I am grateful for their support to Karl-Heinz Töchterle, Klaus Eisterer and Walter Leitner, former Rector, Dean of the Faculty of Philosophy and History and Head of the Department of Archaeologies. At LFUI, I am indebted to Robert Rebitsch, Project Service Office, for his helpful advice regarding funding possibilities and to Andreas Matuella and Julia Stadler, both at the Department for Archaeologies, for taking care of the administrative aspects.

The University of Naples Federico II provided some funds to complete the manuscript and to support the printing of the book.

In my capacity as author, I would like to express my warmest gratitude to the General Direction of the Antiquities of the Republic of Türkiye: I wish to mention particularly Zeynep Kızıltan, former Director of the Istanbul Archaeological Museums, and Cengiz Topal, Director of the Ephesos Archaeological Museum in Selçuk, for granting permission to study the amber carvings from the Artemision at Ephesos which are held in Istanbul and Selçuk, and which Feride Kat

(Selçuk) and Mine Kiraz (Istanbul) respectively made accessible. In England, I am indebted to Alexandra Villing of the British Museum, London, for facilitating work there.

It is my pleasure to express my deep gratitude to many colleagues and friends for their advice on single finds and helpful discussions. Firstly Alfonsina Russo Tagliente (Rome) and then Salvatore Bianco (Lecce) introduced me to the impressive amber finds from the Oenotrian graves in modern-day Basilicata. Paolo Bellintani (Trento), Cecilia D'Ercole (Paris) and Marco Pacciarelli (Naples) discussed with me some amber finds from Italy. Giacomo Bardelli (Naples), Patrizia von Eles (Imola), Francesco Quondam (Rome, Vienna) and Roberto Spadea (Rome) provided information about unpublished amber finds from Numana, Verucchio, Francavilla Marittima and other sites in Calabria respectively. Volkmar von Graeve and Gamze Günay von Graeve (Izmir) showed me unpublished amber finds from Miletos. Alexander Mazarakis Ainian (Volos) provided general information about unpublished finds from Kythnos and useful literature. Stéphane Verger (Paris, Rome) described a few amber finds from Claros. Several colleagues were kind enough to provide specialist literature on various topics, which has been particularly useful during the COVID-19 pandemic and the library lockdown: I wish to warmly thank Vilma Basilissi (Rome), Elizabeth Baughan (Richmond), Salvatore Bianco (Lecce), Angelo Bottini (Florence), Alessandro Cocorullo (Paris), Massimo Cultraro (Catania), Raimon Graells (Alicante), Sandrine Huber (Lille), Borut Križ (Novo mesto), Ilze Loze (Riga), Dirce Marzoli (Madrid), Oscar Mei (Urbino), Monica Miari (Bologna), Aleksandar Palavestra (Belgrade), Alessandra Ricci (Istanbul), Maria Antonietta Rizzo (Rome), Christoph Reusser (Zürich), Giuseppe Scardozzi (Lecce), Udo Schlotzhauer (Berlin), Jutta Stroszeck (Athens), Geoffrey D. Summers (Ankara), Gregory P. Warden (Lugano) and Denis Zhuravlev (Moscow). Last but not least, I wish to thank Piero Guzzo, who read an early draft of the research and offered useful suggestions. I am grateful to the two anonymous revierwers for their suggestions and comments. I apologise to anybody I may have left out.

I am very thankful for the invitations to give public lectures extended by Alfonsina Russo Tagliente (Rome), Olivier de Cazanove and Francis Prost (both in Paris), Luca Cerchiai and Mauro Menichetti (both in Salerno) and Maurizio Harari (Pavia). Those lectures were more profitable for me than for my patient audience, and I was able to discuss the preliminary results of the research with several colleagues.

The book, conceived as an international initiative, takes advantage of the contributions provided by Silvia Alaura, Laura Ambrosini and Marco Bonechi (all CNR - ISPC, Rome): S. Alaura and M. Bonechi reviewed the cuneiform sources about amber in the Near East, and L. Ambrosini classified the style of the figured amber. The volume includes the analysis of the amber samples carried out by Edith Stout with Vanora Estridge, Sarjit and Tripta Kaur in the world-class laboratories of Vassar College (Poughkeepsie, NY). In 2018 I enjoyed a fruitful period as visiting professor at the Université Paris I Sorbonne thanks to the generous invitation of Olivier de Cazanove and Francis Prost, both of whom I wish to thank warmly.

Last but not least, I am glad to acknowledge the support of my enthusiastic Austro-Italian working team, which includes Martina Ott (Feldkirch), Caroline Posch (Vienna), Serena Privitera (Pordenone) and Nunzia Laura Saldalamacchia (Naples) as co-authors. Among them, Martina and Serena played a unique role: the former also as the author of several photographs and Serena as a skilled draughtsperson. Manuela Bonadies and Martina Zinni (both Rome) improved some drawings.

Olivia Diana Ercoli (Rome) was patient enough to review and improve my basic English, Nicola Wood is to thank for the careful English proofreading.

All errors and omissions are my responsibility.

Alessandro Naso
Rome

Among amber finds, the bust from Ephesos has some comparisons with objects from Southern Italy, where amber carving was well established. The hairstyle is similar to the one shown in a sub-Daedalic pendant from Rutigliano in modern-day Puglia, depicting a male (?) crouching figure: several through-borings of the pendant testify that it was reused[343]. Another comparison can be established with a sub-Daedalic amber head from tomb 96 of the Oenotrian cemetery of Chiaromonte in modern-day Basilicata, belonging to a necklace and dated to the early 6th century BC[344].

Laura Ambrosini

As often documented in the case of amber objects, several borings show that the bust was used more than once. It is difficult to determine whether the bust was really used as part of an artefact before it was assigned to a new role, or if the change of purpose occurred while it was still in the workshop because of a change of plan occurring during the carving phase.

The arrangement of the borings, all running in different directions, helps clarify the original purpose of the bust, which was assigned at least two different positions, probably at different times.

The three pairs of borings drilled at the base are irregular and have a sinuous course similar to a meander: although it is hard to interpret them, they seem to suggest they were not meant for suspension purposes, but rather to fix the bust onto a base with corresponding through-holes. Dowel pins, of perishable materials, flexible enough to be fashioned into sinuous shapes, i.e. straw or vegetable fibres, were probably used to connect the bust to a base[345]. Apart from the taste for polymateric (i.e. multi-material) objects in antiquity, one can invoke several reasons to explain why the statuette was conceived in two parts (bust and base). The size of the naturally available raw lumps of amber, a material which was exotic and rare at Ephesos, surely provides a quite convincing reason. The figurine's base could have been made of ivory. This material is often combined with amber in polymateric objects, as attested by small finds from the Artemision[346]. Alternatively, the figurine's base could have been sculpted of another material, such as bone or wood. If so, the first function of the bust could be that of a standing polymateric statuette.

The upper horizontal boring is wider than the lower ones, enough for a thread or a wire to pass through, so it might be used for the suspension of the bust along with a string necklace or a belt, probably as the highlight element associated with beads and pendants of various non-figurative shapes. Female depositions in tombs in the Oenotrian cemeteries of Latronico and Chiaromonte in Basilicata yielded some belts, as is illustrated by the Artemision girdle (below, chap. 2.4); the sub-Daedalic amber head from tomb 96 at Chiaromonte mentioned earlier formed part of a necklace[347]. Later finds document a widespread use of female heads of amber inserted as pendants in

343 Montanaro 2012, 72 no. B.II.5; 135 fig. 68 pls. 21–22. The pendant was found in grave 122/1977 of the Purgatorio cemetery. The grave was sealed in the 2nd half of the 6th–early 5th cent. BC, but also contained earlier finds such as this pendant (late 7th–early 6th cent. BC [?]). This evidence was noted by Riccardi 2010, 348 f., followed by Montanaro 2012, 134 f. 204 and Montanaro 2015, 182, who mentions another reused amber object from grave 122/1977. The pendant discussed in the text has through-borings running in different directions and showing that the pendant changed both function and position.

344 M. L. Nava in: Lacrime d'ambra 2002, 15 fig. 7; 56 no. 152; A. Mastrocinque in: Magie 2005, fig. at 45, on the left, 46; Bianco 2005, 99; S. Bianco in: Ambre 2007, 241 no. III.262; Riccardi 2010, 348 f.; Montanaro 2012, 204 fig. 110; Rocco 2020, 5 fig. 7.

345 The use of straw and other unidentified organic materials to connect amber discs to one another is documented in fibulae at Verucchio dated to the 8th and 7th cent. BC (von Eles 2015, 75 type 74; 76 type 75).

346 Ivory figured elements originally belonging to polymateric statuettes have been found at Perachora, Samos and Delphi (Stubbings 1962, 406 f. no. A 9), Ephesos (Bammer 1992a, 186 pl. 6 a–b) and Eleutherna on Crete (Stampolidis 1992, with a particular focus on composite figures in ivory and wood from the Geometric and Archaic periods). Fibulae (see below, **cat. 489**–**490**) and *astragali* (see below, **cat. 532**) can be mentioned as polymateric objects in amber and ivory from the Artemision at Ephesos. See also below, **cat. 659**. See below, **cat. 2**–**3** for bone or ivory pins with amber heads.

347 S. Bianco in: Ambre 2007, 238 no. III; 247 (belt, grave Latronico 83, early 7th cent. BC); 242 no. III; 264 (belt, grave Chiaromonte 156, dated to the late 8th cent. BC in: Bianco 2020, 111 fig. 14).

necklaces in Southern Italy[348]. In this case, the second purpose of the bust could be as a pendant as part of a necklace. As a votive offering, the bust could portray Artemis herself or her devotee[349]. The question remains unanswered.

The bust can be ascribed to the mid-Daedalic style and dated to the second half of the 7th century BC, probably within the third quarter of the century.

Alessandro Naso

Human head (cat. 2) **pls. 7, 2; 38, 2**

Excavation inv. ART 870352.1; AMS inv. 141/61/87 (T 12)

Human head (cat. 3) **pls. 7, 3; 38, 3**

Excavation inv. ART 870352.2; AMS inv. 142/61/87

The heads **cat. 2** and **3** form a pair and are examined together[350]. Despite the small size, from a stylistic point of view, one can appreciate the general characteristics of the face, such as the circular eyes and the pointed nose, which occur in the sculptures of the Geometric period, grouped by several scholars around the bronze *sphyrelata* from Dreros (Crete) and which are dated to the late 8th/early 7th century BC[351]. Gold and silver statuettes from the Artemision[352] and bone plaques from the sanctuary of Artemis Orthia at Sparta show that in small-scale sculpture these features survived in female figurines until the end of the 7th century BC[353].

Amber human (female [?]) heads with polos are inserted in the bows of two bronze fibulae found in the female tomb 26 of Piazza Azzarita in Bologna in Northern Italy, closed in the first half of the 6th century BC[354]. Amber figures representing two ducks and a couchant lion, respectively, are exceptionally inserted in the bows of two bronze fibulae from Verucchio[355] and Bologna, respectively[356]. Small amber animal-shaped pendants are documented in several sites in Northern and Central Italy and are dated to the 8th and 7th centuries BC[357].

Laura Ambrosini

In the case of the two heads, no traces indicate their original position, except for the borings. This absence suggests that either the two items were accurately disassembled from their context to be offered to Artemis, or else that the organic contexts have perished. In either case, it is hard to determine the type and shape of the objects to which they originally belonged.

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348 Montanaro 2012, 72–99 pls. 23–51 fig. 47.

349 Denti 2019 reviews Daedalic heads from Greece and Southern Italy.

350 The two heads are very similar, and in the literature their inventory numbers have often been mixed up.

351 Blome 1982, 13–15 pl. 4, 1–2; Coldstream 2004, 284 fig. 91; Boardman 2006, 2–4. 8 fig. 1 (with important observations on technique and chronology).

352 Pülz 2009, 214 f. cat. 1–3 pls. 1–3, colour pls. 1–3. 41–43 for the chronology.

353 Dawkins 1929, 216 CXII, 2–3, pl. 112; Marangou 1969, 169 f. nos. 114–115 figs. 140–141 (last quarter of the 7th cent. BC); Burr Carter 1985, 169 f. fig. 66.

354 Malnati 2007, 150 nos. III 76–77; Locatelli – Malnati 2007, 62 fig. 13 n. 32 (the fibula III.77 is said to come from grave 28 of Piazza Azzarita in Bologna). Female bronze heads on fibulas are documented in the 1st half of the 7th cent. BC in cemeteries at Bologna (Arsenale Militare, unpublished) and at Pontecchio Marconi (von Eles 1987, 112 nos. 58–59 fig. 74). Dr. Anna Dore (Museo Civico Archeologico, Bologna) kindly informed me that the fibulae were found in Bologna in the Arsenale Militare and not in the Arnoaldi cemetery, as reported in the literature.

355 Verucchio, grave Lippi 27/1972, inv. 11392: Verucchio 1994, 161 no. 533 pl. 61, fig. 81; Boiardi – von Eles 2003, 110 f. fig. 10; 119 pl. 4, 20; Gentili 2003, 211 no. 30 pl. 191; Orsini 2010, 192 f. no. 58 fig. 58; von Eles 2015, 84 type 80.

356 Bologna, grave 131 Arnoaldi: Negroni Catacchio 1993, 195 f. fig. 4 C; Macellari 2002, 314 f. no. 12 pl. 35; Dore 2010, 95 no. 17 fig. 17.

357 Useful reviews are available in Negroni Catacchio 1978, 176–192; D'Ercole 2013, 31–35.

As in the case of the amber bust **cat. 1**, both heads show several borings, which probably reflect different functions and purposes. Probably the borings were drilled at different times, to give both objects different functions and new positions; as both heads show similar borings, the same destination for both pieces can be assumed. As for the bust **cat. 1**, it is difficult to determine whether the heads were actually used as parts of an artefact before being reused or if the change of purpose occurred in the workshop, as a rethinking during the carving phase.

The evidence shows that the first holes to be drilled were the vertical blind ones on the top of the heads, because in the head **cat. 2** this boring is filled with a tiny amber plug. Stopped bores filled with amber occur on human amber heads, and »it is not apparent why the holes were bored and then plugged«[358]. If the vertical boring had reached all the way to the base, the heads could be inserted as an item in an ornament, probably using a gold wire. The blind boring is wider than the through-holes on the heads, but not wide enough to allow the passage of a bronze wire[359]. Can one presume that in both cases, the fragility of the heads forced the artist to interrupt the boring process and to find another destination for both heads? It is quite likely. The vertical through-boring was a risky operation; it was presumably the last stage in the working process of an amber bead, as documented by the unfinished beads of the Tyrins type found in the amber workshop at Campestrin near Frattesina (commune of Grignano Polesine, province of Rovigo), dated to the 12th century BC[360]. The presence of the same unfinished borings in both heads forces us to assume the simultaneous presence of at least two amber cutters in the workshop at Ephesos, because only one hole has been filled. In our opinion the detail proves the activity of more than one skilled worker – otherwise, the same worker would have meted out the same treatment to both heads. It seems improbable that only one head (**cat. 2**) could be destined for a new purpose and that the blind hole of the other head (**cat. 3**) would really be filled with perishable material.

Still conceived as a pair, the heads' new purpose was to serve as female ornaments. During the 7th century BC pins in gold, silver, bronze, bone and amber were remarkably popular in the Artemision at Ephesos: P. Jacobsthal noted that the Artemision »yielded more pins than any Greek sanctuary except the Argive Heraeum«[361]. Ephesian pinheads are known outside Ephesos at least in Chios, Samos and perhaps Miletos[362]. Pinheads of gold, bronze, crystal, bone, and amber in the shape of flowers and fruits commonly occur in the broad range of pins documented in the Artemision at Ephesos. Figured pinheads are a Near Eastern feature and they are rare at Ephesos and other Greek sites[363]. Particularly noteworthy are two gold specimens from the Artemision at Ephesos, the first from the British and the second from the Austrian excavations: a tiny square gold finial with a female face on each side referencing the Phoenician schema of the »woman at the window«[364], and a gold pin with two addorsed female heads in Daedalic style[365], both dated to the second half of the 7th century BC. Figured amber pinheads are not common: in central Sicily, in the sanctuary of Polizzello (commune of Mussomeli, province of Caltanissetta), a rich votive deposit including several amber beads came to light, as well as a tiny fragment of amber, with a Janus-like human face roughly reproduced, assigned to a pinhead[366].

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358 Causey 2011, 122 f.

359 The Artemision finds offer useful comparisons regarding the beads for the fibulae: the borings of the beads inserted in the bows of fibulae have a minimum diameter of 0.35 mm (see below, **cat. 489**–**523**).

360 Bellintani et al. 2015, 422–426. In Frattesina two amber pinheads from the Final Bronze Age have been found (Negroni Catacchio et al. 2006, 1450 fig. 4).

361 Jacobstahl 1956, 33. 37. 88 (amber), recently confirmed by Pülz 2009, 89. Brøns 2017, 427 mentions the pins from the Artemision in Ephesos. See below, chap. 2.7.

362 Jacobstahl 1956, 34.

363 Jacobstahl 1956, 52–86. 63–65 for Ephesos. A Janus-shaped female ivory pinhead from the Idaean Cave at Crete has been classified as a Near Eastern import from the 8th cent. BC (Galanaki 2003).

364 Hogarth 1908a, 102 pl. 3, 8; Marshall 1911, 74 no. 963 pl. 10; Jacobstahl 1956, 64 fig. 268, with further literature; Pülz 2009, 45 f.

365 Pülz 2009, 217 cat. 10 pl. 4 and colour pl. 4, 45–47.

366 Tanasi 2009, 95. 101 no. 45 fig. 45; Stanco – Tanasi – Privitera 2012, 26. The amber deposit from Polizzello has

The two through-borings of the amber heads, one being oblique and the other horizontal, must have been used to anchor each amber head to its support, but it is hard to imagine both sets of borings in the same object being used simultaneously. All the borings are too small to allow the passage of a bronze pin[367]. We must therefore either suggest a pin of organic material (ivory, bone, wood) or a gold wire[368]. The comparisons mentioned above, from the votive offerings in the Artemision, would suggest at least one possible context for the reused heads. According to this hypothesis, each head could be fitted on the top of a pin with the face bent forward, as the oblique holes would indicate[369]. It seems unlikely that both heads decorated the same (gold) pin as addorsed masks. However, the oblique course of the two through-borings could suggest such a purpose and position: Janus-like pinheads are relatively rare in continental Greece and Ionia, with some notable exceptions, such as the ivory pinhead from Crete mentioned earlier and various gold pins from the Artemision. The two heads were likely mounted on two different pins; P. Jacobsthal noted that several pins seem to constitute pairs and are mostly votive offerings, coming from sanctuaries[370].

Could a gold wire pass through the oblique borings, as part of a circular object, such as an earring or a necklace? Would this allow the two heads to decorate the ends of this object, always as a pair? This hypothesis is still only a theoretical possibility, to our knowledge as yet unsupported by any comparisons.

The horizontal through-borings are perhaps the last step in the working process of the two heads. The horizontal through-holes are in the lower part of both objects: the presence of the vertical blind hole in the upper part of each head forced the worker to drill the new one in the lower part, which was still free. The new holes damaged the faces' general appearance, and they are not suitable for suspension as single pendants, because if suspended, the heads would pivot under their own weight and turn upside down. From this perspective, it is preferable to think of a string necklace, in which the heads could be suspended together with other pendants, which would keep them in place, facing the right way up. The diameter of the through-borings is compatible with the passage of a textile yarn or a thread.

According to the comparisons listed, the two heads can be assigned to the Late Geometric–Early Orientalising period and can be dated around 700 BC.

Alessandro Naso

Scarab (cat. 4) **pls. 8, 1**

Excavation inv. ART 860344; AMS inv. 65/41/86 (A 10)

The use of amber in the field of glyptic is quite rare, due to the natural characteristics of fossil resin[371], and in this case highlights the function of scarabs as amulets, because in antiquity healing properties were attributed to the resin[372].Two amber scarabs from the tomb of Tutankhamen, dated to the second half of the 14th century BC, are among the earliest evidence for the use of amber to

been mentioned by Cultraro 2010, 389. 391 fig. 4. I owe this quotation to L. Ambrosini.

367 The Artemision finds offer useful comparisons: the borings of the beads inserted in the bows of fibulae have a minimum diameter of 0.35 mm (see below, chap. 2.5). In Central Italy amber finials on bronze pins and wands are known. In the rich warrior grave AA1 in Veii dated to around 750 BC, a thin bronze wand has also been found, not belonging to a fibula, with an amber insert in the shape of a truncated cone (Boitani 2004, 142 II.d.15). A bronze pin with a compressed sphere of amber on the top has been found at Longola in Campania (Cicirelli 2012, 157 fig. 274. G1).

368 Several gold pins, now fragmented, originally bearing an inlay or sustaining a head, have been found in the Artemision: for a selection see Pülz 2009, 270–272 nos. 245. 251–253 colour pls. 13–14.

369 The head of a bronze pin from Denmark, dated to the 7th cent. BC, reproduces a human face with an oblique neck and the face bent forward: in the final position of the pin, the poise would have changed (Jacobstahl 1956, 85 fig. 317).

370 Jacobsthal 1956, 96 f.

371 Boardman 1967, 128. 152 (133–135 for Greek scarabs and scaraboids); Devoto – Molayem 1990, 162; Boardman 2001, 377.

372 Causey 2011, 70–88.

carve scarabs[373]. Amber scaraboids have been found in Greek sanctuaries at Delos[374], in the Artemision at Ephesos[375], at Perachora[376], at Lindos on Rhodes[377] and at Eretria[378]; from the middle of the 8th century BC onwards, amber scarabs and scaraboids are documented in Etruria[379].

Scarabs may have played a particular role in the Artemision at Ephesos – one of the architects of the Artemision, Theodoros of Samos, was also a highly appreciated gem carver: according to Herodotus, he created a precious emerald ring for the tyrant Polycrates of Samos[380].

Laura Ambrosini

J. Boardman assigned the scarab to a Syrian workshop[381]. The find context in area E of the Limestone Basis D, related to the destruction layer of Dipteros 1, yielded pottery belonging to the late 7th and the first third of the 6th century BC and suggests a chronology around 600 BC[382].

Alessandro Naso

Bird-shaped protome (cat. 5) **pls. 8, 2; 38, 5**

Excavation inv. ART 870352.3; AMS inv. 143/61/87 (T 12)
Amber pendants in the shape of a bird's head are rare. In the Artemision at Ephesos, three ivory duck heads have been discovered, all differing in size, quality and style, as well as gold and silver statuettes and brooches reproducing small birds[383]. An amber bird comes from a tomb of the Kerameikos cemetery in Athens, dated to the third quarter of the 8th century BC[384].

Very stylised, tiny amber ducks were inserted as spacers in multi-string necklaces and belts in Oenotrian female burials of the 8th century BC at Francavilla Marittima, in modern-day Calabria, in several necropolises of the 7th century BC in modern-day Basilicata, and at Sala Consilina in southern Campania. Amber birds of several shapes dating to the 6th and the 5th century BC were found in Serbia at Novi Pazar, Atenica and other sites, and in the Artemision at Ephesos. Amber pendants shaped as double protomes of bird heads have been discovered in Early Iron Age tombs at Torano Castello and Crichi in modern-day Calabria. Similar finds have come to light on the Eastern Adriatic coast in burials explored at Nin in Croatia and Osovo in Bosnia[385].

The carved ambers representing ducks or swans discovered in sanctuaries dedicated to the cult of Artemis have been connected to the Greek myth concerning the origins of the fossil resin[386]. According to one version of the myth, when the Greek hero Meleager died, his sisters were changed into birds by Artemis, and migrated from Greece to the lands beyond India, where

373 von Bissing 1931, 63; Cultraro 2007, 57; Causey 2011, 90, with references.
374 One scaraboid: Deonna 1938, 309 no. 161, A 2882 (not reproduced).
375 Smith 1908, 165 pl. 48, 3 found two scaraboids west of the basis. They were not identified in the recent research.
376 Three scaraboids: Dunbabin 1962, 524 nos. H 24–H26 pl. 195.
377 Some scaraboids: Blinkenberg 1931, 112 no. 250 pl. 11.
378 One scarab, one scaraboid: Huber 2003, 93 nos. O 193–194.
379 Walters 1926, 102 no. 852 (Clusium); Massaro 1943, 41 nos. 11–11a (Veii and Vetulonia); Hölbl 1979, 224–226; E. Mangani in: Ambre 2007, 168 (Sasso di Furbara near Cerveteri); Giovanelli 2012. A bronze scaraboid with two prancing horses has been found at Populonia in a grave used in the 7th cent. BC (Minto 1922, 49. 153 fig. 27).
380 Hdt. 3, 40–41: A. Mastrocinque in: Magie 2005, 48. According to Herodotus, Polycrates cast his precious ring into the sea and later found it again in a great fish presented to him by a fisherman (Kaplan 2016).
381 Boardman 1990, 4. 6 n. 13.
382 Kerschner – Konuk 2020, 168–170 for the scarab context; 179 for the mention of the scarab.
383 Gold brooches and pendants: Hogarth 1908a, 97. 106 = Pülz 2009, 50–54 nos. 25–33; silver figurines and brooche: Hogarth 1908a, 116 f.; three ivory duck heads: Hogarth 1908, 165 f. nos. 30–32 pls. 25, 7a. b; 10a.b; 11a. b (= Atakan 2008, 174 no. 128) .
384 Dunbabin 1962, 521 with literature.
385 All mentioned finds are discussed below, chap 2.4.
386 Causey 2011, 58.

they wept tears of amber for their dead brother. Birds and waterbirds are often reproduced on bone and ivory votive offerings at the sanctuary of Artemis Orthia at Sparta[387], and in isolated Laconian finds, such as a bronze *thymiaterion* from Tarentum showing Artemis dancing with a bird on her head[388], as well as on the bronze hydria from Grächwil[389].

According to the comparisons and its style, the amber protome can be dated from the second half of the 8th to the mid 7th century BC.

Laura Ambrosini

The duck protome was probably the head of a pin made of either metal, ivory or bone. The fixing system was meant to keep the protome in place.

Alessandro Naso

Female statuette (cat. 540) **pls. 8, 3; 58, 540**

AMI inv. 2912

This statuette, despite its size, finds some stylistic comparisons in the small votive Greek and eastern Greek sculpture, mostly made in clay and ivory, inspired by Near Eastern models[390]. One common characteristic is the lack of arms and hands and the absence of any definition of the legs in the frontal view. Instead breasts and glutes emphasise its female gender. The lack of visible limbs could mean the body is represented as shrouded by a long and heavy cloth, covering arms, hands and legs. The lack of genital organs may support this hypothesis, since their accentuation can be a peculiarity of nude female images, »so as to emphasise the sexual potency«[391]. Several female figures, in gold and ivory, are documented at the Artemision at Ephesos, and mostly represent dressed figures[392]. The veil covering the head is a distinctive feature of several statuettes from the Artemision at Ephesos, such as two gold ones, and some ivory figures found both in this sanctuary and in a tomb at Bayındır near Elmalı in Southwest Türkiye[393]. Compared to the smaller amber figure, the remarkable size of these female figurines allowed the artist the chance to include more details, such as the veil worn over a polos and tucked into a sizeable belt. T. Şare convincingly considered the pieces from Ephesos and Bayındır as belonging to the same stylistic group and dated them to the late 7th century BC. She suggested the group should be classified as a West Anatolian production, strictly connected to the cult of Artemis Ephesia[394]. The arrangement of the hair, which aims to reproduce a veil covering, is also attested on an ivory statuette from the Heraion of Samos, dated to the late 8th/early 7th century BC[395] and on faience finds from various sites, dated to the second half of the 7th century BC[396]. The same style of the amber figure also characterises a small basalt head from the votive deposit of Kamiros on Rhodes[397].

Laura Ambrosini

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387 Dawkins 1929, 216 f. pl. 113 (carved on bone plaques); 235 pls. 156. 158 (incised on the lower surfaces of ivory animals carved in the round); Burr Carter 1985, 172 f. 245–248.

388 Fischer-Hansen 2009, 233 f. fig. 13.

389 Guggisberg 2004.

390 Pülz 2009, 33–39, with references; see also Şare 2010.

391 Böhm 1990, *passim*; quotation from Webb 2016, 122 with references.

392 For the gold statuettes see Pülz 2009, 39, with references; the ivories, which are of exceptionally high quality, are not entirely published (Hogarth 1908a; Seipel 2008, 161–166 nos. 109–111. 114).

393 Pülz 2009, 214 cat. 1 pls. 1–2 colour pls. 1–2; 216 cat. 6 pl. 3 and colour pl. 3 for the gold figures; Şare 2010 for the ivories from Bayındır.

394 Şare 2010.

395 Böhm 1990, 159 no. E15–I pl. 15 b.

396 Webb 1978, 149 f. nos. C 25– C 28 pl. 16; Webb 2016, 122 discusses this group of figurines.

397 Jacopi 1932, 287 no. 3; 289 fig. 13.

Amber statuettes are very rare in the 8th and 7th centuries BC[398] and become more numerous only later. In Etruria the workshops at Veii and Vetulonia played a special role, and in the 7th century BC several types of geometric and figured artefacts appear, including also female figures: the Circolo dei Monili and Circolo di Bes at Vetulonia, both dated to the early 7th century BC, constitute remarkable contexts, requiring further research[399].

An exceptional context is tomb VI at Satricum in Latium, dated between 650 and 640 BC, which yielded over 500 amber pendants; stylistically, these are actual statuettes, carved in the round. The Satricum figurines portray women with their arms arranged in either the *pudica* pose or placed on the abdomen, reflecting the iconography of Astarte, as developed in the Near East: some pendants are similar to the Ephesos exemplar, and are characterised by stocky forms and claw-like feet[400]. Other amber pendants, reproducing a female figure in the *pudica* pose have been found in Central Italy, mostly in Etruria and Latium vetus, both as interments in burials dated to the first half of the 7th century BC and as votive offerings in sanctuaries from the end of the 7th century BC[401]. The rich occurrence of amber finds in Italy, both as statuettes and pendants, allowed several scholars to suggest that carved amber may have followed the route from Italy to Greece[402].

The absence of hands and the lack of a separation between the legs in frontal view are both features which survive in later finds, such as in a now lost amber statuette found in 1743 at Adria in Northern Italy, and luckily known through a drawing (pl. 8, 4)[403]. The work can probably be considered as a votive offering dedicated to a female deity in a local sanctuary. The chronology of the Etruscan presence at Adria and the work's style both support the dating of this statuette to sometime around the middle of the 6th century BC[404].

According to its style and the comparisons listed, the amber statuette from Ephesos can be dated to the second half of the 7th century BC.

Alessandro Naso

398 In the 2nd half of the 8th cent. BC, two amber female statuettes were deposed in southern Etruria in the rich female grave Laghetto 2161 at Caere (Rizzo 2018, 70–72 fig. 41). Closely related to these statuettes are some pendants, such as those reproducing a man from Veii, grave QF HH 11–12 (Berardinetti Insam 2001, 102 f. no. I.G.5.33.3) or some reproducing women from Narce (Russo Tagliente 2016, 397–399, with previous bibliography).

399 For the two graves see still Falchi 1891, 96–102 (Circolo dei Monili) and 104–109 (Circolo di Bes); Randall McIver 1924, 107 fig. 25: von Hase 1989, 1054 fig. 20; Colombi 2018, 173 pl. 79, 2–3 (female statuettes from Circolo dei Monili). Good photographs of some amber finds from Vetulonia are in Cygielman – Palmieri – Rafanelli 2005 and Cygielman –Spaziani – Rafanelli 2009. The carved ambers from Vetulonia have mainly been reviewed by Massaro 1943 and Pagnini 2006. An amber pendant reproducing a woman seated on a throne with a baby's head between her legs from the rich grave of the Monili in Vetulonia, early 7th cent. BC (Falchi 1891, 101 pl. 7, no. 4; Colombi 2018, 173 pl. 79, 1) finds a comparison in a similar amber statuette (or a pendant [?]) reproducing a woman seated on a throne, probably imported from Etruria, found in modern-day Basilicata, grave Alianello 546, early 6th cent. BC (the statuette dates to the 7th cent. BC): S. Bianco in: Magie 2005, 101 f.; Bianco – Preite 2014, 422; by contrast Rocco 2020, 6 fig. 14 interpreted the image as the reproduction of a Greek female deity. A review of amber female statuettes dating to the late 6th–5th cent. BC is given in: Palavestra – Krstić 2006, 134–137.

400 Waarsenburg 1995, 404–455 for the amber pendants and 427–429 for the Astarte figurines, which have also been produced in faience (Webb 2016, 122). The female pendants (Waarsenburg 1995, 416–418. 468 f. nos. 6, 1–9) have been reproduced with good photographs in: Arancio – Massimi 2012, 77–79.

401 Pagnini 2006, 146; for Etruria and Latium vetus see L. M. Michetti in: Ambre 2007, 161 f. A pendant representing a woman from Praeneste, grave Galeassi also belongs to the group (Ambrosini 2015, 41 no. 8).

402 Waarsenburg 1995, 428 with previous literature.

403 Robino 2009, 78 f. pl. 19. I owe the particular information on this statuette to L. Ambrosini.

404 Recently the presence of a cult to Hera Argiva at Adria has been suggested (Rossignoli 2004, 210 f. 214 f.; Robino 2009, 79).

ern Italy and Ionia is well documented through the Greek foundations in Italy: Greek settlers were in touch with Oenotrian people, who produced a great variety of amber ornaments. Furthermore, of the six established pendant types, four show clear and numerous comparisons in the Italian peninsula in general and its southern half in particular. Also, these sites mainly date to a similar time frame as the Artemision deposit. These observations might indicate a development of similar tastes in jewellery between the Greek settlers and the local population. They might account for the rich supply of amber objects at the Ephesian Artemision. On the other hand, comparable pendants also appear within the rich princely graves on the Balkans, which would also indicate contacts between Asia Minor and the regions adjoining the northern border of the Greek world. This is an especially interesting aspect. Except for the main areas of Greek influence, this is the only area in which we find comparisons for pendants of types 4 and 6. However, the sites in which these types appear mainly date significantly later than the Artemision amber deposit. Therefore, apart from the possibility of local and independent innovation, it seems that impulses to import or create these kinds of ornaments originated within the Greek world and only reached the northern regions after a considerable amount of time. Regrettably this explanation is not entirely satisfactory: we agree with Hogarth, who so fittingly stated that this class of jewellery is »notoriously difficult to ascribe to definite periods, since articles of personal ornament usually continue long in use, and are handed down as heirlooms through many generations«[784].

To conclude, we can affirm that in the Archaic period, throughout the Mediterranean, pendants made from amber represent important components of jewellery, mostly worn by women, presumably for their apotropaic, magical and healing properties. Either as part of lavish necklaces, pectorals or girdles, the six different pendant types appear in different regions and over different time spans. They seem to feature a broad spectrum of influences from different regions, from Central Anatolia to the west coast of the Aegean, ranging from the Balkans and the Italian peninsula and to the shores of Corsica. Nevertheless, these contacts were unlikely to be one-sided, but rather worked in both directions over a considerable period of time.

Caroline Posch

2.4 SPACERS (CAT. 350–488. 631–634)

2.4.1 Introduction

Spacers are amber plates of various shapes which show parallel through-borings drilled from side to side through their thickness[785]. The purpose of the spacer-plates is to act as intermediary pieces and separate the different strings of beads of a suspended ornament, such as a necklace, collar, pectoral, girdle, etc. In such cases, spacers can be used as end-pieces, to collect the strings together and keep them in order. The spacer-plates acquired particular value, because they implied the ownership of a large number of beads.

Amber spacer-plate necklaces of various shapes are documented in the Late Neolithic and the Copper Age in Central Europe during the Funnel Beaker Culture and the Passage Grave Culture. They become more frequent from the Early Bronze Age onwards in several European regions, corresponding to modern-day Latvia, Bohemia, Germany, France, Austria, Switzerland, Greece and Crete[786]; recent finds also document their distribution in Northern Italy[787]. We know that during the Early Bronze Age the Wessex Culture witnessed a particular flourishing of spacer-plate

[784] Hogarth 1908a, 240.

[785] The position of the through-borings, drilled side by side through the depth of the amber, is crucial to define a spacer and to distinguish it from carved ambers stitched on dresses, which have frontal through-borings.

[786] du Gardin 2003, 192–197; Maran 2013.

[787] Marzatico 1997 (Cles, dated to the Middle Bronze Age, 16th–15th cent. BC) and Salzani et al. 2006, 1608 f. fig. 1 (grave Olmo di Nogara 122, dated to the Late Bronze Age, »età del bronzo recente«).

necklaces in Great Britain[788]. A careful review of the geographic distribution and chronology of the Bronze Age spacers allowed C. du Gardin to presume that in this period each centre had its workshop and that possibly the earliest Central European examples inspired the spacers in Great Britain and Greece. By contrast, C. Gaslain suggested a Mediterranean origin for the ornaments and J. Maran classified the spacers from Wessex as earlier attestations, which could have influenced firstly the Mycenaean contexts in the Aegean and secondly the specimens in the Central European area[789].

In the Early Iron Age, from the 8th century BC onwards, spacer-plates and multiple necklaces of amber are widely documented, especially in Italy. Rectangular-shaped spacer-plates with rounded corners have been found in female graves in Veneto[790] and Emilia-Romagna at Brescello, Bologna and Verucchio[791]. In Central Italy they are known in Etruria at Vetulonia[792] and Veii[793]; in Latium at Satricum and Osteria dell'Osa[794]; in Marche at Novilara, Ripatransone, Colli del Tronto and Matelica[795]; and in Northern Abruzzo at Tortoreto[796]. In Southern Italy specimens are known in northern Campania at Cumae and Longola di Poggiomarino[797], in northern Apulia[798] and in Calabria[799]. In the Italian contexts, several Oenotrian cemeteries in modern-day Basilicata stand out. Accurate excavations of the inhumation burials of the Oenotrian cemeteries of Guardia Perticara, Alianello, Chiaromonte, and Latronico have been carried out. This led to the identification of several types of multi-wire female amber ornaments, such as necklaces, pectorals and girdles. In several graves, the same burial yielded very elaborate parures of suspended amber ornaments comprising several necklaces, pectorals and girdles, with ample use of spacers. The funerary interments are still unpublished in their entirety. However, the amber ornaments published in preliminary reports, and related graves are dated from the early 7th to the early 6th century BC[800] (pl. 16, 2).

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788 Harding 1993; Woodward – Hunter 2015, 261–388.

789 du Gardin 2003, 192–7. *Contra:* C. Gaslain in: Magie 2005, 69. A balanced overview is presented in Maran 2013.

790 Venetian find site unknown: Moosleitner 1997 (with seven strands), dated to the 8th–7th cent. BC. Pieve d'Alpago, grave 10, around 550 BC: Voltolini 2016, 43 f. and 58 no. 19.

791 For the amber necklace from Brescello (Reggio Emilia), dated to the 2nd half of the 7th cent. BC: Macellari 2014, 98–100 fig. 1 and R. Macellari in: Etruschi 2019, 428–431 no. 294.6. For the rectangular-shaped spacers with eight, nine and ten through-borings from Bologna and Verucchio: Cygielman – Pagnini 2006, 117 no. 315, with previous literature to up-to-date with L. Bentini – P. von Eles in: Etruschi 2019, 363–375.

792 Rectangular-shaped spacers with six, eight and nine through-borings on the short sides have been found in the Circolo del Tridente, dated to the early 7th cent. BC: Cygielman – Pagnini 2006, 117 f. nos. 315–319 fig. 33 c. e. i pl. 23, r. s. t. u; colour photo in: Cygielman – Spaziani – Rafanelli 2009, nos. 5 a–c. Other spacers from Vetulonia are mentioned by Colombi 2018, 173 n. 1959.

793 Rectangular-shaped spacers: Cavallotti Batchvarova 1965, grave HH 11–12, 132 no. gg 3 fig. 52 (with three holes); Bartoloni – Pandolfini 1972, grave PQ 4 a, 309 no. 10 fig. 76 (with five holes); Fabbricotti 1975, grave EF 13, 94 no. 27 fig. 18 (with four holes).

794 Satricum, tomb VI, 650–640 BC: Waarsenburg 1995, 411 f. 473 nos. 6, 63–66 (trapezoidal); 6, 67–72 (rectangular) pl. 87 (four specimens with three borings and one specimen with six borings). Osteria dell'Osa: Bietti Sestieri – De Santis 1992, 437 type no. 90a–c pl. 44 (rectangular, with two, three and four borings, from several tombs).

795 Macellari 2014, 100, includes literature for rectangular spacers from cemeteries of Novilara, Ripatransone and Colli del Tronto, dated to the 8th–7th cent. BC. For Matelica see E. Biocco in: Potere 2008, 71 no. 50 (rectangular, with seven borings through the short side intersecting with two other borings drilled in the long side), from the grave Crocefisso 108 belonging to the late 8th–early 7th cent. BC.

796 Tortoreto, cemetery of Colle Badetta: Arbace – Belfiore 2018, 38 f. (with eight borings), early 8th cent. BC (colour photo, without information), belonging to a necklace. Information about the unpublished finds from Colle Badetta is given in Iezzi 2006, Lapenna 2010 and Papi 2022.

797 Cumae: Borriello 2007, 211 no. III.189 (with five borings); for Longola di Poggiomarino: Cicirelli 2007, 217 no. III.209 (with five borings).

798 Two spacers with seven through-borings have been found at Carlantino (province of Foggia), Santo Venditti, grave 11 (6th cent. BC): De Benedittis – Santone 2006, 53 no. 5.

799 Benedetti – Cardosa 2006, 1579 fig. 3 (tiny, for two and three strands).

800 Macrì 2009 and Bianco – Preite 2014 offer a general review of Oenotrian cemeteries and their study. S. Bianco in: Magie 2005, 88–101 mentioned amber necklaces and girdles from the graves Chiaromonte 140, 142, 152 and 156, Alianello 286 and Latronico 83. S. Bianco in: Ambre 2007, 238–243 published detailed descriptions of several

Outside of Italy, rectangular amber spacer-plates occur in Early Iron Age burials in Southern Germany, Austria and Switzerland from the 7th to the 5th century BC[801]. Amber spacers are documented in Slovenia at Most na Soči, Magdalenska Gora and Novo mesto, in Serbia at Novi Pazar, from the 7th to the 5th century BC and the 6th to the 5th century BC[802] respectively.

In Ionia outside Ephesos, square amber spacer-plates are rare; some still unpublished specimens dated to the 7th century BC have been found at Miletos[803]. In modern-day Greece no specimen of square amber spacer-plates dating to the 7th century BC has been identified.

There is ample evidence to prove that from the early 7th century BC the same suspended ornament could often include beads and spacers of different colours and materials – amber, bone, glass, clay and so on. The contrast between the different colours of the materials, such as the white bone and the red amber, was decisive in the final assemblage of the ornaments[804].

Finds from female burials dated mostly in the 8th and 7th centuries BC from Verucchio and other Italian sites show clearly that bone spacers were put to another functional use. These objects were connected to the weaving process, and in particular to the tablets employed in producing the borders of precious textiles. Small narrow pieces keep the threads apart to avoid entanglement[805]. The bone spacers used in the weaving process are flat, pierced by several holes, and generally associated with spools and spindle-whorls. As these features do not apply for any of the Artemision finds, a possible function of the Ephesian spacers as weaving tools seems very unlikely.

2.4.2 Typology

The spacers from the Artemision can be assigned to eight main shapes (pl. 17).

Type 1: Triangular-shaped end spacer-plates (cat. 350–351) (with five borings)
pls. 18, 1. 2; 49

Spacers of triangular or trapezoidal shape are documented already in the Middle Bronze Age in France and Germany. They are characteristic end-pieces of multiple-row necklaces and were used

finds (see below).

801 Kossack 1959, 115–117 fig. 18 C (distribution in South Bavaria and Hallstatt) pl. 109, 5 (rectangular spacer-plate with six through-borings); Kromer 1959, 145 pl. 123, nos. 4–5 (Hallstatt grave 694); Tischer 1994, 34 f. pl. 26, no. 12 (rectangular spacer-plate with nine sets of V-shaped borings); Stahl 2006, 27 listed other artefacts; Primas 1965/1966, 194 fig. 3, 8 and Voltolini 2016, 47 f. fig. 3 (Pianezzo, South Switzerland, 5th cent. BC).

802 A. Crismani in: Ambre 2007, 120 no. III.8 (Most na Soči, grave 3070, late 7th–early 6th cent. BC); Tecco Hvala 2012, 283 fig. 105 no. 6 (Magdalenska Gora, grave Preloge 13/117, 6th–5th cent. BC); Križ – Turk 2003, 94 no. 42 = Križ 2017, 130 no. 5 (Novo mesto, 5th–4th cent. BC); Palavestra – Krstić 2006, 276 f. and Palavestra 2009 (Novi Pazar). Later amber spacers are reported from Novo mesto: Križ 2017, 48 and 133 no. 13 (4th cent. BC).

803 Small amber rectangular spacers (inv. Z.09.73.273 and some additional fragments) have been found in the bothros of the Aphrodite sanctuary at Zeytintepe. They have been dated to the 7th cent. BC (von Graeve 2013; von Graeve 2107). In the summer of 2012, Prof. V. von Graeve and Dr. G. Günay von Graeve kindly showed me the Milesian amber finds.

804 Bone spacer-plates and amber beads or, by contrast, amber spacer-plates and glass or clay beads are documented in several interments in Italy: a comprehensive list lies outside the purposes of this research. For bone spacers see the following note.

805 Gleba 2008, 152 f. figs. 98. 104–105 collected and discussed the finds of bone spacers from Italy; another bone spacer from a rich grave in San Giovanni in Persiceto (province of Bologna) has been published by Christiansen and Petersen 2017, 478 no. II.21 (Copenhagen, Ny Carlsberg Glyptotek, inv. HI 353). Unpublished finds have been identified in graves 25/1984 (6th cent. BC) and 55/2000 (7th cent. BC) of the cemetery Mossa at Fermo, and in grave 14 of the cemetery at Pitino (commune of San Severino Marche, province of Macerata), dated to ca. 600 BC. Among the finds listed by M. Gleba, the specimens from the Oenotrian cemetery of Incoronata (commune of Pisticci, province of Matera) in the hinterland of Metaponto play a different role. These objects are made of bronze and are part of female ornaments (Chiartano 1994, 50 f.); they were probably used as rattles and meant to produce sound (Pacciarelli 2007, 119; Saltini Semerari 2019, 35).

to collect together all the strings of one ornament[806]. Usually, triangular spacers have parallel borings: the number of borings can vary from 2–7 or even more. In the 7th century BC spacers were adopted in Central Italy at Satricum in the rich tomb VI, which belongs to the most extensive amber contexts in the Mediterranean, totalling over 500 objects[807]. The rich female Oenotrian graves explored in Southern Italy in modern-day Basilicata yielded very elaborate parures of amber ornaments still in their original position. These include necklaces but also other suspended ornaments, such as pectorals and girdles, all in the same burial[808].

Triangular and trapezoidal spacer-plates are less common than rectangular ones. The striking similarities between the two examples from Ephesos (**cat. 350**–**351**) with regard to their respective find-spots, size and number of borings, show that both might belong to the ends of the same ornament, deposited during the infilling of Naos 1 in the building phase called Naos 1a (see below)[809].

Type 2: Rectangular-shaped spacer-plates (cat. 352–353. 356. 631. 633–634) pls. 49. 62

Spacers of rectangular shape are intermediary pieces, which may belong to necklaces if they were meant for a vertical position, or to pendants if they were supposed to hang in a horizontal position. In spacer-plates of rectangular shape, the through-borings are generally drilled on the long side through the short side. Both in the Bronze and in the Iron Age, some rectangular spacers can have simple parallel or more complex borings in different combinations, such as V-shaped and Y-shaped borings[810]. The rectangular spacers from Ephesos **cat. 352**–**353**. **633**–**634** have different numbers of parallel borings. The spacers **cat. 356** and **631** show several borings through the short sides intersecting one boring, which runs lengthwise through the centre of the object. The vertical perforation was probably destined to hang up a pendant. It belonged to the lower row of the ornament[811].

Rectangular-shaped spacer-plates can be used with the long sides in a vertical position in necklaces and girdles or with the long sides in a horizontal position in extremely elaborate pendants, as testified by some pendant-pectorals found in female graves dated to the 6th and 5th centuries BC from Veneto, Slovenia and Switzerland[812].

Regarding the rectangular-shaped spacer-plates, the different sizes and the find-spots mean they can all be assigned to different suspended ornaments, which have not yet been reassembled, including also **cat. 634**, which is characterised by horizontal and vertical borings. These ornaments were deposited in foundation deposits both in the »Hortfund« in Naos 1a (**cat. 352**–**353**. **356**) and in Naos 2 in the Green Schist Basis (**cat. 631**. **633**–**634**), which yielded beads of various materials, including amber. Suspended ornaments may contain amber beads together with bone, ivory, rock-crystal and glass beads.

806 See du Gardin 2003, 181 fig. 4, 1–3.

807 Waarsenburg 1995, 411 f. 473 nos. 6, 63–66 pl. 87. Tomb VI of Satricum yielded at least six triangular-trapezoidal end-spacers, belonging to a minimum original number of three amber suspended ornaments such as diadems, necklaces, pectorals, or girdles. The ornaments have not been precisely identified in the publication. This is due to the poor state of conservation and the lack of information concerning the exact find-spot in the tomb, which yielded a remarkable quantity of pendants.

808 Basilicata: S. Bianco in: Ambre 2007, 238 no.III.247 (girdle, grave Latronico 83, early 7th cent. BC); 239 nos. III.251 and 254 (necklace and girdle, grave Chiaromonte 152, late 7th cent. BC); 242 no. III.264 (girdle, grave Chiaromonte 156, early 6th cent. BC). S. Bianco in: Magie 2005, 88–101 reported other amber necklaces and girdles from the graves Chiaromonte 140, 142 and Alianello 286.

809 Both end-spacers were found in the same metrical unit (*870352*).

810 See du Gardin 2003, 183–191 figs. 5–8 (Bronze Age); Tischer 1994, 34 f. pl. 26 no. 12 (Early Iron Age).

811 A close comparison for the combination of vertical and horizontal borings on the same spacer is provided by a rectangular spacer from the grave Crocefisso 108 at Matelica. It shows seven borings on the long side and two on the short side, and is dated to the late 8th–early 7th cent. BC: E. Biocco in: Potere 2008, 71 no. 50.

812 For the pectorals from Pieve d'Alpago, dated around 550 BC, and Pianezzo, dated in the 5th cent. BC, respectively, see Voltolini 2016, 47 f. fig. 3, with previous literature. Another example occurs at Most na Soči in the grave 3070 (625–575 BC): A. Crismani in: Ambre 2007, 120 no. III.8.

Type 3: Uniquely shaped spacer-plates (cat. 354–355) pl. 49

The two spacer-plates have the same unusual shape, adapted to a double-row ornament. Although roughly comparable to spacers in the form of a dumbbell documented during the Bronze Age in Central Europe[813], they find a fair comparison in Iron Age contexts only in Central Italy, at Satricum, in the rich tomb VI[814]. In the harbour sanctuary at Chios, a similar amber ornament has also been found, but it is drilled longitudinally[815]. Their precise role is not clear. It is hard to understand the original position of these spacers and to determine if they belonged to a necklace or a pendant: the tiny dimensions are suitable for a small two-row pendant. The rare shape is probably due to a local development for a specific (multi-material [?]) ornament, which has not yet been identified.

Types 4–6: Bird-shaped spacers (cat. 357–417) pls. 18, 3; 50; 51

It is well known that during the Early Iron Age various types of birds took on a religious meaning and became a popular motif in several materials and classes of objects in the Aegean, and Central-Eastern Europe[816]. In the 8th century BC the symbolic meaning is stressed by amber pendants carved as the double protome of a bird; these occur in burials at Torano Castello and Crichi, in modern-day Calabria in Southern Italy[817], at Nin and Osovo on the Eastern Adriatic coast, in modern-day Croatia and in Bosnia[818]. To the third quarter of the 8th century BC date three amber spacers carved as double protomes of birds and recalling the tradition of the sun ship: they were found in the very rich female burial 74 explored in southern Campania at Montevetrano near Pontecagnano[819]. The leading role played in Etruria by the amber workshops of Veii is stressed by a single pendant in the shape of a bird found in a rich female grave, which is dated to the third quarter of the 8th century BC[820].

The origin of amber bird-shaped spacers can be traced back to Southern Italy, to an area of modern-day Calabria. Finds are documented there, at Francavilla Marittima in the Oenotrian cemetery at Macchiabate, in female burials dated around 750 BC[821]. Other still unpublished finds from Francavilla Marittima, such as carved ambers from the graves Temparella 39 and 84,

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813 See du Gardin 2003, 191 fig. 9, 7 (Unetice). A three-boring specimen from Kakovatos dated to the Late Bronze Age has a similar shape (du Gardin 2003, 191 fig. 9, 6), but it is flat (Sgouritsa Polychronakou – Nikolentzos 2016, 251 C fig. 2).

814 Satricum, tomb VI, 650–640 BC: Waarsenburg 1995, 408. 471 no. 6.33 pl. 83 (three spacers).

815 Boardman 1967, 240 no. 262 fig. 162.

816 See respectively Benson 1970, 28–31 pls. 24–25 for the Aegean area, Kossack 1954, 50–58; Kossack 1999, 120. 137. 163–165; Teržan 2013 for Central Europe; Damiani 2011 for Italy.

817 Kilian 1970, 244 f. 288–290 with a bibliography for Southern Italy. Negroni Catacchio 1975/1976, 34; Negroni Catacchio 1978, 181 and Spadea 2004, 91 (Crichi); de La Genière 1977, 404, 86 (Torano Castello). Similar finds from Tiriolo have only been mentioned (de La Genière 1972, 237 f.): an expert connoisseur of Calabrian finds such as R. Spadea is not aware of any bird-shaped amber pendant from Tiriolo (R. Spadea, personal communication). A (probably) similar pendant has been found in Southern Campania in the necropolis of Sala Consilina in the female grave 278, dated to the early 7th cent. BC (mentioned by Roncoroni 2006, 56. 58 f.; Romito 2019, 622).

818 de La Genière 1972, 237 f. with references. For Nin: Batović 1968, 15–25 pl. 11 (male graves 6 and 27, 8th cent. BC); Palavestra – Krstić 2006, 46 f. fig. 17. Amber pendants reproducing various kinds of birds occur in Serbia at Novi Pazar, Atenica and other sites, belonging to the late 6th–early 5th cent. BC, and they have been accurately published by A. Palavestra (Palavestra – Krstić 2006, 178–193 and Palavestra 2009).

819 Iannelli 2011, 178 no. 211. The spacers probably belong to a suspended two-row ornament (girdle [?], chain [?]), whose shape is unknown.

820 Cavallotti Batchvarova 1965, 202 no. ii fig. 104, from the grave II 9–10, dated to the phase Veii IIB2 (Guidi 1993, 76. 90. 99 f.); Negroni Catacchio 1978, 180 fig. 8. The pendant probably belongs to a suspended ornament together with other amber objects from the same burial.

821 de La Genière 1972, 237 f. with references; Zancani Montuoro 1976, grave S 60, 24 f. fig. 7; Zancani Montuoro 1979, grave U(liveto) 16, 72 fig. 25 h; S. Bianco in: Magie 2005, 91; Benedetti – Cardosa 2006, 1583 fig. 4 (below), classified as a button; Cossalter 2009, 347 (mention). Similar finds from Sybaris are mentioned: Negroni Catacchio 1978, 180 (referring to a personal communication by P. Zancani Montuoro).

date to the third quarter of the 8th century BC and include bird-shaped amber spacers of various sizes[822].

As already mentioned (above, chap. 2.4.1) the inhumation burials of the Oenotrian cemeteries revealed several types of multi-wire female amber ornaments, such as necklaces, pectorals and girdles, which contained bird-shaped spacers. The funerary interments are still unpublished in their entirety. However, the amber ornaments have been published in preliminary reports and the related graves have been dated from the late 8th to the early 7th century BC. In particular, the necklaces and the girdles from the rich graves Latronico 83, Chiaromonte 156 and Chiaromonte 140 offer comparisons to identify the amber spacers from Ephesos as bird-shaped spacers, and to clarify their original functions[823].

Among the amber finds from the Artemision at Ephesos, two types of bird-shaped spacers are documented, each showing two different perforation systems, which were probably used in the same ornament, which in turn was meant to be used for two different functions. The different shape of the spacers does not seem to play as important a role as the one played by the different perforation systems. According to this system, therefore, spacers will be assigned to one of two types, based on the number of perforations rather than on the shape. Except for the differences in the bore-hole systems, all bird-shaped spacers from the Artemision form a homogeneous group and very likely belong to the same ornament[824].

Type 4: Bird-shaped spacers with three borings (cat. 357–361. 368. 370. 373–381. 387–389. 393–394. 397–403. 405–406. 411. 414) pls. 18, 3; 50; 51

Bird-shaped spacers with three borings may have a triangular (**cat. 357**–**361**. **397**–**403**. **405**–**406**. **414**) or a rectangular-shaped base (**cat. 368**. **370**. **373–381**. **387–389**. **393–394** and **411**)[825]. Each element is perforated through on the front and back. The boring on the back is always transversal from face to face. By contrast, the borings on the frontal side can show different systems, and they can be V-shaped (**cat. 357**–**361**), T-shaped (**cat. 368**. **370**. **373**–**381**. **387**–**389**. **393**–**394**. **411** and **414**) or curved (**cat. 397**–**406**). The variation in frontal borings probably depends on the shape and size of each spacer – one needs well-defined corners to drill V-shaped borings – while the front is often rounded and only allows curved borings. T-shaped borings occur on the smallest pieces, where the size of the piece only allows for one boring in the middle, connected to the frontal, transversal boring.

Bird-shaped spacers with three borings (type 4) are thicker than bird-shaped spacers with two borings (type 5). Those with three borings (type 4) have been used to connect two horizontal rows of the ornament and to sustain a vertical row of pendants on the front of the ornament. They were originally placed on the ornament's lower row.

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822 Dr. F. Quondam (Rome, Vienna) kindly showed me the drawings of still unpublished finds from some graves at Francavilla Marittima (Temparella 39, Temparella 84 and Uliveto 16), consisting of several bird-shaped spacers and furnished the related information. He will soon comprehensively publish the funerary interments of the cemetery (Quondam [forthcoming]).

823 Preliminary reports and reproductions of single ornaments are found in S. Bianco in: Magie 2005, 91–93 and Bianco 2020, fig. 21 (grave Chiaromonte 140, late 8th cent. BC); S. Bianco in: Magie 2005, 94–99; S. Bianco in: Ambre 2007, 238 no. III.247; Bianco 2020, 111 (grave Latronico 83, early 7th cent. BC); S. Bianco in: Ambre 2007, 242 no. III.264; Bianco 2020, fig. 14 (grave Chiaromonte 156, late 8th–early 7th cent. BC); Preite 2016, 121–126. 189–191 gives a bibliography for each site.

824 60 amber bird-shaped spacers were concentrated in the metrical units *870232* (18 items), *870246* (27 items), *870281* (9 items) and *870352* (6 items), as M. Kerschner noted for the contexts of carved ambers found in the Artemision in the 1987 excavation season (Kerschner 2005, 138 n. 88). For additional observations about the provenience of the spacers inside the Artemision see above, chap. 1.1 and below, chap. 5.5.

825 The spacers **cat. 368**, **370**, **373**–**374**, **376** belong to the bird-shaped spacers type 1, although they actually have two borings, because they are not entirely preserved and some parts are missing.

Type 5: Bird-shaped spacers with two borings (cat. 362–367. 369. 371–372. 382–386. 390–392. 395–396. 404. 407–408. 410. 412–413. 415–417) pls. 18, 3; 50; 51

Bird-shaped spacers with two borings have a quite irregular, rectangular base, which in some exemplars tends to become almost trapezoidal[826]. These spacers are flat and thin; the borings run transversally from face to face on the front and back. Bird-shaped spacers with two borings (type 5) have been used to connect the components of a single row of a girdle horizontally. They formed the central rows in the ornament.

Type 6: Bird-shaped spacer, special shape (cat. 409) pl. 51

This spacer stands out on account of its large size, (H 1.4 cm against 0.5–0.6 cm) and for the unique boring system, having three through-borings, one horizontal through the base and two vertical. Probably, having been broken during the working process, it was adapted for a special purpose. It was meant either to connect the interior rows of the ornament or to hang up a pendant, as attested by the presence of vertical borings. As it constitutes a unique piece, it is actually impossible to determine its approximate original position in the ornament.

Type 7: Triangular spacer-plates (cat. 418–472) pls. 18, 4; 51; 52

Small geometrical spacer-plates are quite rare as stand-alone amber ornaments as they are usually used to connect single elements or pendants of different shapes. They occur in Italy, mostly in Oenotrian graves from the early 7th century BC and in Picenian graves from the 6th century BC, and are always combined in several rows of similar elements[827]; in the late 6th to the 5th century BC they also appear in the Central Balkans. Regarding Southern Italy, one can repeat the description offered regarding the bird-shaped spacers: the inhumation burials of the Oenotrian cemeteries of Latronico and Chiaromonte yielded several types of multi-wire female amber ornaments, particularly girdles and pectorals, including triangular, square and lozenge-shaped spacers. Publication of the funerary interments in their entirety has yet to be undertaken. However, the amber ornaments have been published in preliminary reports, and the related graves have been dated from the late 8th (graves Chiaromonte 152 and 156) to the early 7th century BC (grave Latronico 83). The girdles from these three rich Oenotrian graves offer useful comparisons to help identify the functions of the triangular-shaped spacers from the Artemision at Ephesos[828]. Other suspended amber ornaments constituted of several rows of beads, and including square spacers, have been found in a burial remarkably rich in amber artefacts (more than 500), namely, tomb VI at Satricum in Latium vetus, dated 650–640 BC[829]. Suspended amber ornaments of unknown destination (diadems [?], pectorals [?], girdles [?]), composed of triangular and square spacers, are reported in female depositions in modern-day Abruzzo, as in grave 75 in the cemetery of Campovalano (commune of Campli, province of Teramo), dated to the first half of the 6th century BC, and in

826 The spacers **cat. 363**, **365**, **367**, **369** and **372** actually feature only one transversal boring on the frontal side, but they are not entirely preserved.

827 The Picenian grave Moie di Pollenza 4, dated to the 8th cent. BC also comprises a chain composed of two rows of triangular pendants (Percossi – Frapiccini 2004, 85 unnumbered figure).

828 Preliminary reports and reproductions of single girdles: S. Bianco in: Magie 2005, 94–99; S. Bianco in: Ambre 2007, 238 no. III.247 and Bianco 2020, 111 (grave Latronico 83, early 7th cent. BC); S. Bianco in: Ambre 2007, 242 no. III.264 and Bianco 2020, fig. 14 (grave Chiaromonte 156, late 8th–early 7th cent. BC); S. Bianco in: Magie 2005, 91–93 (grave Chiaromonte 140). The grave Chiaromonte 152, originally dated to the late 7th cent. BC (S. Bianco in: Ambre 2007, 239 no. III.254) is now dated to the late 8th cent. BC (Bianco 2020, 111 figs. 15–16); M. Tagliente in: Magie 2005, fig. at p. 76; Bianco – Preite 2014, 420; Bianco 2020, 111 f. figs. 17–20 (grave Chiaromonte 325, late 8th–early 7th cent. BC); Preite 2016, 121–126. 189–191 gives additional bibliography for each site.

829 Satricum, tomb VI, 650–640 BC: Waarsenburg 1995, 408. 471 nos. 6.40–6.41 pl. 83 (14 spacers each with two perforations).

grave 5 in the cemetery explored near the abbey of San Clemente at Casauria (commune of Tocco Casauria, province of Pescara), dated to the first half of the 5th century BC[830]. A suspended ornament composed of rows of square and triangular plates, similar to the Oenotrian ornaments, has been identified in the incredibly rich female grave »tomba della Regina« in Numana, dated to the end of the 6th century BC. The grave yielded more than 3,000 carved ambers, which makes this one of the richest burials not only in Central Italy but in the whole of the Mediterranean[831]. The sequence from Numana, a harbour site closely connected to the opposite shore, directly across the eastern Adriatic, allows us to understand the presence of similar objects found in the Central Balkans. According to A. Palavestra, these are probably linked to the spread of Italian models and dated to the turn of the 6th to the 5th century BC.

Based on the perforations of triangular and square spacers, Palavestra identified a suspended ornament in the funerary context explored at Novi Pazar and suggested the hypothetical reconstruction of a necklace. The Serbian scholar also published similar finds from other Central Balkan localities[832].

The small triangular spacer-plates from Ephesos are all very similar: each has three borings drilled, on in each corner from face to face. Except for 12 examples (**cat. 418**. **420**–**429** and **439**), all other 43 spacers (**cat. 419**. **430**–**438**. **440**–**472**) show a frontal engraving of a circle enclosing a central point. All spacers are very similar to each other in shape and size, and all are accurately polished on both sides, so it is highly likely they all belonged to the same object. Their respective find-spots confirm this hypothesis, as the triangular spacer-plates were found in the 1987 campaign in the same four metrical units, lying side by side[833]. The evidence offered by Oenotrian girdles mentioned above suggests that the triangles originally formed two different horizontal strings, which hung opposite each other by their apexes. The lack of a vertical boring indicates that the two rows of triangular spacer-plates were originally placed towards the top of the ornament to which they belonged.

Type 8: Round spacer-plates (cat. 473–488. 632) pls. 52. 53

By classing the ambers according to the perforation systems, the 16 spacers can be divided into three subtypes, the ones with one boring (type 8a, **cat. 473**), those with two connected borings (type 8b, **cat. 474**–**475**) and those with two unconnected borings (type 8c, **cat. 476**–**488**). Spacers of the third type, **cat. 476–482**, **484**–**485**, show a circle with a central point engraved on one side. Except for the differences in the borings, the round spacers are very similar: they are quite flat, thin and well polished on both sides.

The round spacer-plates form a group essentially similar to the triangular spacers as they share the same ornamentation. The unadorned round spacers (**cat. 473**–**475**) are slightly larger than, or similar to the decorated ones (**cat. 483**. **486**–**488**). It is likely that they all belonged to the same

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830 Campovalano grave 75, 14 trapezoidal-shaped spacers with vertical and horizontal perforations: P. Boccolini in: Chiaramonte Treré – d'Ercole 2003, 58 no. 36 pl. 65, no. 8; 149 for the chronology. Tocco Casauria, grave 5, triangular- and square-shaped spacers with vertical and horizontal borings: Terrosi Zanco 1975, 245 f. (only mentioned); Papi 1979, 80–83 fig. 22 pl. 15, 7.

831 The grave as a whole is still unpublished: main preliminary reports see Landolfi 1997; M. Landolfi in: Piceni 2001, 350–365; and especially focusing on amber, M. Landolfi in: Ambre 2007, 174–178. The girdle is exhibited in the museum in Numana, no. 92975 and is still unpublished, but mentioned by Bardelli 2021, 13 fig. 7. Dr. G. Bardelli (Naples) is working on the grave's furnishings to publish them comprehensively.

832 Palavestra 2003, 221 fig. 9; Palavestra – Krstić 2006, 276 f. fig. 68 with a full description of finds from other Central Balkans sites; Palavestra 2009, 167–169 fig. 3.

833 Fifty-five triangular amber spacers were concentrated in the metrical units *870232* (9 items), *870246* (19 items), *870281* (4 items), *870352* (23 items), as M. Kerschner noted for the contexts of carved ambers found in the Artemision in the 1987 excavation season (Kerschner 2005, 138 n. 88). For additional observations about the provenience of the spacers inside the Artemision see below, chap. 5.5.

ornament. They were found in the »Hortfund« in Naos 1a[834].

Comparisons for round spacers outside of Ephesos cannot be established. Probably they must be considered as a special shape developed in the Artemision at Ephesos for a particular purpose. They have been tentatively associated in the reconstruction of a single suspended ornament (see below).

2.4.3 Conclusions

Except for a few pieces, the spacers were mostly found in the »Hortfund« in Naos 1a, which indicates that they probably originally belonged to the same, multi-row suspended ornament[835].

The shape of type 1 end-spacers immediately points to the original presence of one suspended ornament, to which both these pieces belonged.

Type 2 spacers may belong to necklaces and to pendants, but in both cases, the original ornament remains unidentified; this is also the case for the two spacers of type 3, probably a locally developed shape.

Type 4 and 5 bird-shaped spacers show the same style, and they belonged to the same ornament. The total number of the two types of bird-shaped spacers are quite similar (32 examples for type 4 and 28 for type 5), indicating that the original ornament probably had two rows of spacers, each composed of roughly 30 pieces. The bird-shaped spacers of type 5 were placed in the upper or in the middle part of the ornament and the bird-shaped spacers of type 4 occupied the lowest row, sustaining other suspended pendants thanks to their vertical boring.

The bird-shaped spacer of type 6 is a unique piece, probably the result of a reworking of broken amber, which was reused as it was made of a precious substance.

Type 7 triangular-shaped spacers form a homogeneous group of 55 items and they belonged to the same ornament: in colour and style they are very similar to the bird-shaped spacers (types 4 and 5, 60 pieces in all) and they show the same engraved ornamentation, a circle with a central point. Sharing a similar aspect and their respective find-spot being located within the same metrical units, it is highly probable that all 115 bird-shaped and triangular spacers belonged to the same suspended multi-row ornament. Their pertinence to the same ornament is confirmed by the find-spot: the »Hortfund« in Naos 1a, particularly for both end-spacers of type 1 and round spacer-plates of type 8.

It is highly likely that small and perishable components were lost when the filling layer under the central base of the Artemision was infiltrated by groundwater over an extended period of time or during the modern excavation (see above, chap. 1). One can conclude that the total number of bird-shaped spacers of types 4 and 5 (60 pieces) corresponds roughly to the total quantity of the triangular spacers of type 7 (55 pieces) and that both constitute only a part of the elements originally offered to the deity.

Based on comparisons with amber ornaments from Southern Italy and the role of girdles as a votive offering to Artemis in Ephesos, it is very likely that the suspended ornament was a girdle composed of hundreds of carved ambers (for the reconstruction and the discussion see below, chaps. 5.5–6).

Alessandro Naso

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834 15 carved spacers were found in *870232* (2 items), *870246* (10 items), *870281* (1 item) and *870352* (2 items), respectively. Another round spacer was found in a different metrical unit *870146*.

835 Except two pieces found in 1990 (*900146*) and in 1994 (*940486*), 136 carved spacers of the types 1–8 were found in 1987 in the »Hortfund« in Naos 1a, in the metrical units *870232* (30 items), *870246* (56 items), *870281* (15 items) and *870352* (35 items).

2.5.3 Conclusions

To summarise, all amber fibulae from Ephesos consist exclusively of the organic parts, and are made of amber and bone. Among the amber beads from fibulae belonging to type 1 and on the basis of **cat. 521**–**522**, it is assumed that the metal parts were made of bronze. The pair of fibulae (**cat. 489**–**490**) of type 3 from the Artemision is very similar to composite fibulae with amber inlays from Emilia-Romagna (Verucchio) and Campania (Pontecagnano and Pithekoussai). They undoubtedly recall specimens from other Greek sanctuaries, which are directly comparable to those found in Southern Italy. The amber beads certainly ascribable to fibulae are quite small, have a length not exceeding 4 cm and one boring to fix them on the bow. Their shape, size and perforation mean they are comparable to several examples from Italy, especially from Emilia-Romagna. The specimens with more than one boring are also similar to fibulae common in Southern Italy. Composite fibulae with amber segments of type 2 are completely disassembled and it is possible to identify some amber segments belonging to the same fibula only in one case (**cat. 497**–**500**). There are no significant traces of metals, but a bone disc usually positioned between two amber segments has survived. The segments are characterised by a round shape, small size and one central boring. It is difficult to find pertinent parallels because of their very poor state of preservation, but they appear to be comparable to early shapes of fibulae with a short catch-plate. As very fine and prestigious weaving implements commissioned by high-ranking people, amber fibulae were used to fix and adorn ceremonial and funeral costumes. Consequently, they were also suitable as votive offerings for female deities. This use is well documented in Greece in the sanctuaries of female divinities like Athena at Ialysos on Rhodes or Hera at Perachora. The fibulae were probably related to the offering of perishable and organic items such as precious fabrics and clothing accessories which have not survived. In the iconographic evidence, fibulae and pinheads have been used with a wide range of garments such as the peplos, chiton, himation and chlamys in the Greek sphere[915].

It may be argued that the origin of the fashion for coated fibulae travelled along the same channels as luxury goods, which in turn benefitted from the movement of people across the Mediterranean and was likely to increase with the establishment of Greek foundations in Italy.

The fibulae could be interpreted both as imports or as local products, the result of the circulation of common models. Indeed, one can assume that single craftsmen from major amber-working centres such as Verucchio may have played an important role in the production and the circulation of these luxurious items, if they were able to reach the distant sanctuary of Artemis at Ephesos or to inspire local imitations. Raw materials and unfinished products of ivory and amber (**cat. 535** and **651**) point to the presence of a carving workshop in the sanctuary.

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2.6 INLAYS (CAT. 524–533. 653–655)

2.6.1 Introduction

Inlays are carvings destined to be visible only on one side, having a well-polished outer surface, usually rounded, while the opposite side is usually rough and flattened. Once they were carved into a certain shape, the inlays were applied to a base provided with matching blind cavities, where the inlays could be fixed in various ways, depending on the materials composing the base. Inlays have a long history: the remains of one of the earliest items of ivory furniture known, a gilded chair dated to the early 2nd millennium BC from Acemhöyük in Anatolia, date back to the Middle Bronze Age. It also includes four sphinxes, whose eyes were originally inlaid with discs,

[915] See the review in Brøns 2014; Brøns 2017.

now lost, which are thought to have been made of faience[916]. In the Late Bronze Age in the Near East, the custom of decorating wooden furniture with ivory inlays was developed further[917]. One of the earliest archaeologically attested ivory beds was found in Syria at Ras Shamra, the ancient Ugarit, and it is dated to the 13th century BC[918].

After the appearance of early furniture of the Late Bronze Age, several Iron Age sites in the Near East yielded thrones and beds with ivory inlays, which are mentioned in the annals of Assyrian kings as booty or tribute. A beautiful set of Phoenician carved ivories, belonging to the late 9th/early 8th century BC, included decorated pieces of luxury furniture, which were discovered in a building »Bâtiment aux ivoires« of the palace at Arslan Tash, the ancient Hadatu, in Northern Syria[919]. These and other finds from Near Eastern sites show that from the first half of the 8th century BC, skilled workers used gold leaf, paint, coloured pastes and especially glass inlays on Phoenician ivories to increase the polychromy of the carved artefacts[920].

During the Orientalising period, Near Eastern items spread into the Mediterranean Far West. This meant that the custom of polychromy also reached Central Italy. A critical context is the Bernardini tomb at Praeneste, closed in the second quarter of the 7th century BC and full of imports from several areas. Among the Bernardini ivories, F. Canciani was able to distinguish stylistically different types. On the one hand, there were ivories bearing glass inlays, which were assigned to Syrian-Phoenician carvers. On the other hand were ivories with amber inlays showing a Phoenician influence. Unfortunately, the Bernardini ivories are no longer part of the objects they originally decorated. The wooden items are not identified with any certainty[921]. Baltic amber as a raw material was relatively uncommon in the Near East but by contrast, was largely available in Central Italy: here Near Eastern carvers and their (local) apprentices used and appreciated amber to increase the polychromy of ivories and bone artefacts. Amber also acquires a special meaning for modern scholars, because it allows them to assign such artefacts to the local activity of skilled workers and not to consider them as imported items.

In the course of the 8th to 7th centuries BC, amber inlays were mostly used in Central Italy to enrich not just ivory and wooden artefacts, but sometimes also luxury objects meant for various purposes, such as polymateric sceptres[922], bronze fibulae[923], metal swords[924], gold jewels[925] and single items such as bronze and iron axes, coated with ivory, and encrusted with amber[926], and an ivory musical horn[927].

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916 Simpson 2013 suggested the reconstruction of the ivory chair from Acemhöyük.

917 Gruber 2004 collected and analysed Near Eastern ivory inlays.

918 For the ivories of Ras-Shamra see Gachet-Bizollon 2007, 135–146. 275–281 and Baughan 2013, 211 f. fig. 142. Beds with ivory inlays are mentioned in the inventory of the properties of Ahatmilkou, daughter of the king of Soumour, as reported by Gubel 2009, 223 with previous literature.

919 On the ivories from Arslan Tash see Fontan 2014 and more extensively Fontan – Affanni 2018.

920 For a general view see Lightfoot 1991, 68; for single sites see Aruz – de Lapérouse 2014, 150 (Nimrud) and Fontan 2014, 156 (Arslan Tash).

921 The carved ivories from the Bernardini tomb have been critically reviewed by F. Canciani in: Canciani – von Hase 1979, 7 f. 65 nos. 108–110 (with glass inlays). 68 no.120 (with amber inlay).

922 From Veii, grave Casale del Fosso 1036, mid 8th cent. BC: L. Drago in: Arancio – Massimi 2012, 91 no. IV.1 (with notice of another specimen from the grave Casale del Fosso 800). From Caere, tomb San Paolo I, 2nd quarter of the 7th cent. BC: Rizzo 2015, 39. 177 no. I.244.

923 Nine bronze fibulae with amber inlays have been found at Falerii Veteres in the grave Montarano NNE 2 (late 8th cent. BC): G. Ligabue in: Arancio – Massimi 2012, 67 no. II.13.

924 Amber pommel on a silver sword from the Bernardini tomb at Praeneste, closed in the 2nd quarter of the 7th cent. BC: F. Canciani in: Canciani – von Hase 1979, 9. 44 no. 39; R. Zaccagnini in: Arancio – Massimi 2012, 81 no. II.31 with other literature. An iron sword from Veii with amber inlays is mentioned, but it is now lost (Naso 2006b, 362 f.).

925 See, for instance, the gold pectorals from female burials in Etruria and Latium, recently discussed by Ambrosini 2015, 57–64 no. 14 (early 7th cent. BC).

926 From Chiusi, grave Rione Carducci, early 7th cent. BC: Minetti 2004, 110 no. 27.2.

927 The elephant tusk worked as a musical horn shows amber triangular inlays and was found at Praeneste in the Barberini tomb, closed in the 2nd quarter of the 7th cent. BC: R. Zaccagnini in: Arancio – Massimi 2012, 83 f. no. II.32.

The workshops at Verucchio play a very special role in the use of amber during the 8th to 7th centuries BC: here, amber inlays were applied to bronze and iron items, meant for both male and female use, such as horse bits, swords, knives, girdles, pectorals, bronze and clay vases[928]. The extensive range of commodities produced here characterises Verucchio as one of the finest amber-working sites, if not the finest, not in Italy alone, but in the whole of the Mediterranean until the 650s BC[929]. In the Adriatic area after the decline of Verucchio, the central amber-working district shifted to Picenum, an area corresponding to the southern part of modern-day Marche; significantly, 6th-century BC amber inlays are not so widely attested as before in Italy and are confined to very select items, particularly in the Marche, as shown by two bone statuettes and a recently found ivory box, both from Belmonte Piceno, and probably by a couple of female sandals from Numana[930].

It is generally acknowledged that amber, ivory and bone inlays are documented earlier in Italy than in the Aegean and that these elements originally belonged to wood furniture whose shapes are clearly identifiable only in a handful of cases. In the Italian peninsula amber, ivory and bone inlays have been recovered in northern Etruria, in tombs dated to the 7th century BC at Quinto Fiorentino[931] and Chiusi[932], and to the early 6th century BC at Cortona[933], Castelnuovo Berardenga[934], in the Giglio wreck[935] and in unknown sites[936]. Triangular ivory and amber inlays related to boxes or furniture have recently been identified at Caere in a princely tomb dated to the first half of the 7th century BC, probably to 675–650 BC[937]. A workshop was identified at Poggio Civitate, which was active in the second half of 7th century BC and specialised in carving bone and ivory. Its remains also included unfinished finds, which have been partially published[938]. In Latium vetus, amber inlays are reported from tomb VI at Satricum, dated to 650–640 BC[939], and probably in

928 Boiardi et al. 2006 give an overview of the extensive use of amber to decorate a range of objects, such as the clay kantharoi from the graves Lippi 30/1972 and Moroni 1969/A (Boiardi et al. 2006, fig. 4).

929 For a general view of Verucchio see von Eles – Pacciarelli 2018. The literature of amber finds, and amber working in Verucchio is impressive: the main phases are described in Verucchio 1994; Boiardi et al. 2006; von Eles et al. 2009; Bentini et al. 2020.

930 Graves of Belmonte Piceno yielded two female bone statuettes which originally had the faces inserted as amber inlays (grave 83) and recently an astonishing ivory box with figured amber inlays (grave 1/2018), both examined by Weidig 2021. Bone plates with amber inlays are reported for the female polymateric sandals found in the grave »della Regina« at Numana, dated to 520–500 BC: M. Landolfi in: Piceni 2001, 359 no. 131.

931 The tholos tomb Montagnola, built in the mid 7th cent. BC (3rd quarter [?]) and probably still used until the early 6th cent. BC yielded ivory sherds with amber inlays, presented in Caputo 1989/1990, 49–55 and Mastrocinque 1991b; other bibliography of the tomb and the funerary interments is in Esposito et al. 2015 and Maggiani 2020.

932 Two bone eyes with amber inlays have been found in the chamber tomb of Poggio alla Sala, 630–620 BC: Minetti 2004, 161 no. 36.17; 392–394 for the chronology.

933 The Tomb Melone del Sodo I, dated to the late 7th–early 6th cent. BC (Bruschetti 1992; Zamarchi Grassi 2005) also yielded a beautiful ivory handle with amber inlays in the shape of a palmette with volutes, assigned to the lid of a pyxis (A. M. Esposito in: Arezzo 1984, 122 f. no. 70; A. M. Esposito in: Saarbrücken 1986, 79 and 232 no. 1; Bruschetti 1992, 182).

934 The tomb B del Poggione, closed in the early 6th cent. BC, also yielded many ivory, bone and amber inlays, related to several not clearly identifiable objects: Mangani 1990/1991, 62–65 nos. 226–275 figs. 46–50.

935 For the ivory or bone inlays from the Giglio wreck: Bound 1991a, 236 fig. 87. For amber from the Giglio wreck see below 3.8, Raw and unfinished amber. The wreck also yielded a wooden leg of a kline, decorated with glass and bone discs, which has been tentatively connected to the inlays: Bound 1991a, 235 f. fig. 86; Cristofani 1995, 131–138; Colonna 2006, 658; Baughan 2013, 64.

936 Twenty-five square amber inlays of different sizes belonging to an unknown item from Etruria are preserved in the Metropolitan Museum of Art, inv. 1992.11.48: De Puma 2013, 278 no. 7.62.

937 Rizzo 2015, 26. 68–70 nos. I. 26–I. 33 (ivory); 71 f. no. I. 34 (amber).

938 The carving finds from the workshop at Poggio Civitate have been reviewed by Nielsen 1984a, Nielsen 1984b and Nielsen 1995. For the chronology of the related building see Winter 2019, 82–84.

939 A set of amber inlays comprising round (15 exx.), rectangular (5), triangular (11), trapezoidal (2) and crescent (1) inlays not assigned to any object has been discovered at Satricum in tomb VI: Waarsenburg 1995, 473 nos. 6.73–6.80 pl. 86.

the 6th century BC at the sanctuary near the church of Sant'Omobono in Rome[940]. In the Marche, the unique finds from Belmonte Piceno mentioned earlier are followed by amber, ivory and bone inlays relating to wooden objects at Numana and San Severino Marche dating to the late 6th century BC[941]. In Sicily some graves and the sanctuary of Athena at Syracuse dating to the 7th and 6th centuries BC yielded finds[942]; a very fine inlay of amber and ivory originally belonging to a leg of furniture has been found in the indigenous sanctuary at Polizzello, dated to the mid 6th century BC[943] (pl. 21, 1, 1) The round amber inlays recovered in some Greek graves at Metaponto belong to the first half of the 6th century BC[944].

In modern-day Greece ivory, bone and amber inlays related to wood *klinai* have been found at Athens in the Kerameikos cemetery in four graves, dating from ca. 560 to 540 BC. The shaft grave in Mound G, from around 560 BC, yielded some ivory and amber inlays. However, the most famous kline of the series, accurately discussed by U. Knigge and recently reviewed by E. Baughan, was discovered in shaft grave 3 (HW87) of the South Mound, dated to ca. 540 BC[945]. The elaborate inlay ornament of the kline includes petals, rays of stars, discs and other elements, which form palmettes, volute capitals with amber eyes and other motifs, systematically alternating bone and amber inlays for chromatic effect. Thanks to the conservation of its inlay ornaments, the kline from grave 3 (HW87) constitutes the critical monument for the study of Greek wooden furniture with inlays. The kline belongs to type B, according to the typology established by H. Kyrieleis following earlier classifications, and its inlaid ornamentation has been classified as Eastern Greek work (pl. 21, 1, 2)[946].

Using the *kline* from Athens as the main comparison, U. Fischer was able to suggest a reconstruction as a furniture leg ornament for the amber, bone and ivory inlays which came to light in the Hallstatt D2–D3 (late 6th–early 5th cent. BC) Celtic grave of Grafenbühl at Asperg in the Heuneburg district in the heart of south-western Germany (pl. 21, 1, 3). In the same region, two other graves yielded similar inlays in small quantities (pl. 21, 2)[947]. In the case of the Grafenbühl

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940 The inlays are mentioned and illustrated, but not described (Pisani Sartorio 1977, 56 f. fig. 18; Virgili 1989, 53 f. fig. 28).

941 Both pieces are unpublished: the inlays from the kline of the grave della Regina at Numana are briefly mentioned (Landolfi 1997, 234; M. Landolfi, in Ambre 2007, 172). A single bone or ivory petal from the Picenian settlement of Pitino (commune of San Severino Marche, province of Macerata) is on display in the Museo Archeologico at San Severino Marche, without inv. no. For a preliminary report of the excavation see Lollini 1965.

942 Syracuse, sanctuary of Athena: Orsi 1919, 499 fig. 91; Syracuse, Fusco cemetery: Orsi 1893, grave XXVIII, 456 f. and Verger 2019, 390 and 394 (twice the same grave XXVIII); Syracuse, Giardino Spagna cemetery: Cultrera 1943, grave I, 43 no. 4 (together with red-figured pottery); grave XIX, 58 no. 5 (together with Etruscan bucchero kantharoi of type Rasmussen 3e, 600–550 BC); grave XLVI, 73 no. 5. The inlays from Syracuse are often associated with bronze nails, probably showing a local peculiarity in the ornamentation of the *klinai*, also partly documented at Metaponto (Bottini – Vullo 2019, graves 590 and 595, discussed by Verger 2019, *loc. cit.*).

943 Polizzello, sacello B, mid 6th cent. BC: Perna 2005; Naso 2007, 26–28; Panvini 2008, 212. 218 fig. 2; Palermo 2008, 266 fig. 13; Tanasi 2009, 44 fig. 59; 86 no. 166: Baughan 2013, 61 (dated to the 1st half of the 6th cent. BC).

944 Bottini – Vullo 2019, 69 no. 10 (grave 566, early 6th cent. BC); 99 no. 13 (grave 590); 102 no. 5 (grave 595, both dated to the 1st half of the 6th cent. BC); 156 for the chronology.

945 Knigge 1976, 7. 60–83 *(kline)*; 80 f. (other inlays); 84 f. no. 3 pl. 18 (grave and funerary interments); Kunze-Götte et al. 1999, 6 no. 5 for amber inlays from Shaft Grave 2. Baughan 2013, 60–64 reviews the remains of inlays on *klinai* from the Kerameikos graves.

946 For *klinai* types A and B see Kyrieleis 1969 and Baughan 2013, 15 with additional literature. In the 19th cent. O. Rayet presumed an Eastern Greek role in the *klinai* production, which was then analysed by W. K. Pritchett in the 20th cent. (Pritchett 1956, 227–230). Later beds with bronze linings in Greek tombs and sanctuaries have been mentioned by Touloumtzidou 2017, 214 f.

947 The inlays from the Grafenbühl, near Asperg, were discussed and assigned to the leg of a kline by Fischer in 1990. However, they were later considered to belong to a throne by Jung 2007, with a few convincing hypotheses, as noted by E. Baughan (Baughan 2013, 64). Other amber inlays from Celtic graves in the Heuneburg district, like those from Hundersingen and Ludwigsburg, are discussed in Zürn 1970, 14 f. fig. 6, 1–7 (Hundersingen: three rectangular panels, an eye and three petals) and 6, 8–9 (Ludwigsburg: two petals). Although their shapes fit well in the repertoire of inlaid furniture, they are too scarce to identify the objects to which they belonged.

grave, earlier inlaid objects have also been recovered: in particular, two sphinxes made of ivory and deer antler, respectively, the second having a human face carved from amber and belonging stylistically to the 600s BC. The two fittings were initially applied to an as yet unidentified wooden item; some gilded bronze rivets, surely not originally part of the original furniture, show that the sphinxes were reused for a new purpose in the Celtic settlement. A passage of the lexicon by Patriarch Photios (ca. AD 810–893) mentions sphinxes with amber eyes applied on *klinai*. It seems to match the findings of the Grafenbühl grave and could indicate the reuse of sphinxes as ornaments on the *kline*[948].

Finally, ivory inlays belonging to Classical and Late Classical *klinai* came to light on the northern coast of the Black Sea, on the Kerch peninsula at Kul'-Oba in a grave belonging to the late 5th to mid-4th century BC, as well as in another burial on the opposite Taman peninsula, and at Olbia Pontica[949].

Wooden *klinai*, thrones, and coffins depicted on Athenian red-figured vases often include double volutes, palmettes, rosettes and other ornaments painted in dark colours, which can all be interpreted as reproducing polymateric inlays, including amber[950].

These finds on the northern coast of the Black Sea are closely connected to the Greek foundations in the region. The colonists originally came from Ionia and particularly from Miletos: the search for ivory inlays on wooden furniture in Ionia can identify only scanty finds. Examples for Ionia are found in the Artemision at Ephesos[951], in the »Löwengrab« at Miletos, around 550 BC (pl. 21, 3)[952] and in a sanctuary at Mykale[953]. Furthermore, ivory inlays have been found in Mound II at Gordion in Phrygia, dated to ca. 600 BC, and have been assigned by the excavators to a wooden sarcophagus[954]. Some amber inlays have been found in the harbour sanctuary at Chios[955] and in the sanctuary of Apollo at Eretria[956]; in continental Greece, some finds in Thessaly from the sanctuary of Athena Itonia at Philia deserve to be mentioned[957]. Seven ivory inlays forming straight and rounded petals have been found at Metaponto in Basilicata, in the grave 610[958].

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948 Literary sources are collected by Mastrocinque 1991b and also discussed by Naso 2007, 21. The scepticism expressed by E. Baughan about the presumed pertinence of the sphinxes to the kline as reuses seems inspired by a purely Greek view. It appears slightly excessive if applied to Central Europe (Baughan 2013, 64). Baughan does not consider either the non-Greek cultural environment of the Heuneburg district or the Celtic tradition of restoring Mediterranean imports, which included changing their original destination.

949 I was not able to find an exhaustive study of the remains of the kline in the literature about the famous grave of Kul'-Oba, as kindly confirmed by D. Zhuravlev (Moscow): Sokolskiy 1971, 89–92; Knigge 1976, 82; Firsov – Zhuravlev 2007, 276–282. Wood *klinai* with inlays have been found in the Taman peninsula (Maximova 1979, 95–98) and at Olbia Pontica (Zhuravlev 2002, 75 no. 288).

950 Naso 2007, 15 (coffins). 17 *(klinai)* and 32 fig. 13 (thrones). For an extensive collection of images of *klinai* on Greek, mostly Athenian, vase paintings see Baughan 2013, 30–33. 44–49 fig. 32 (type A legs). 49–60 figs. 35–36 (type B legs).

951 Hogarth 1908, 192 pl. 35, no. 23 (round); 196 pl. 40, nos. 9–10 (rounded petals or pointed buds); 13 (elongated triangle) and 15–16 (buds), mentioned by Knigge 1976, 70; Naso 2007, 29 and Baughan 2013, 64. The dimensions range from 3.5 cm (no. 16) to 5 cm (no. 13). Pointed buds and elongated triangles, once made up into a lotus star, alternated with one another.

952 Several inlays are reported, and the one reproduced consists of a bone rosette containing a bone disc and an amber eye: Forbeck – Heres 1997, 31 f. fig. 28; Naso 2007, 15 fig. 1. The finds are lost. Other round amber inlays have been found in the bothros of the Aphrodite sanctuary at Zeytintepe, possibly connected to bone and ivory *astragali*, also recovered in that bothros. For the chronology of the bothros, still closed in the 7th cent. BC, see von Graeve 2013, von Graeve 2017 and von Graeve 2019.

953 Lohmann 2012, 103 reported briefly the finds of ivory inlays.

954 Körte – Körte 1904, 110–117; Knigge 1976, 70. One can invoke a modern reworking of the Gordion finds to assess the old interpretations critically, following E. Simpson's similar remarks about some wooden furniture from Mound III of Gordion (Simpson 1996, 188 f. 201).

955 Boardman 1967, 240 nos. 563–566 (circular and triangular).

956 Huber 2003, 83. 54–55 nos. O106–O110 (circular and rectangular).

957 Kilian-Dirlmeier 2002, 74 nos. 1147–1149 pl. 72 (round eyes).

958 Bottini – Vullo 2019, 76 no. 17 figs. 18 and 94 (grave 610, 1st half of the 6th cent. BC).

Unfortunately, the small quantities of inlays yielded by Ionian sites are not enough to identify the objects to which they belonged. It is uncertain whether the amber inlays were meant for *klinai*, thrones or coffins, although a wooden *kline* would likely be in a chamber tomb without beds cut out in the rock, as in the case of the »Löwengrab« at Miletos. The sanctuary of Zeus at Olympia also yielded some amber inlays, but they are related to figured bronzes[959]. The existence of lyres inlaid with ivory and amber is documented in Late Classical Athens, in both literary and epigraphic sources[960].

Finally, an ivory furniture panel was found at Kerkenes Dağ, in the mountains of Central Anatolia. It was carved in relief, showing a frieze of five animals, having gilding and amber insets. It had once belonged to a chair. E. Dusinberre classified it as a Western Anatolian or Lydian work and dated it to 580–570 BC[961]. It must be noted that no stylistic relationship can be established between the amber inlays from the Ionian site and the panel from Kerkenes Dağ, inspired by a Near Eastern style.

2.6.2 Shapes of the inlays

All the inlays from the Artemision (pl. 22, 1) repeat shapes documented by the inlays mentioned above, but the closest comparisons are with the type B furniture leg ornaments from Polizzello, Athens grave 3 (HW87) and the Grafenbühl tomb near Asperg (pl. 21, 1).

Eyes (cat. 524–528. 533) pls. 21, 1; 57

Except for **cat. 524**–**528** and **533** are round inlays, with a diameter ranging from 0.8–1.2 cm. **Cat. 524** is flat on both sides, **cat. 525**–**526**. **528** and **533** show an upper side that is convex, rounded and polished. Such eyes are included in every type of design on wooden furniture inspired by early Greek architecture. For instance, in the *kline* from the Kerameikos grave 3, eyes form part of several compositions, ranging from the volutes of the palmettes and the Ionic-style feet on both legs, to the larger volutes of the capital at the headboard end[962]. **Cat. 528** shows a surviving bone disc inlay like the one mentioned from the so-called Löwengrab at Miletos, which is now lost and was constituted by an amber rosette, a bone disc and an amber eye (pl. 21, 3). **Cat. 533** shows remains of a horizontal blind hole on the lower side, the perforation probably being due to a prior destination, as it was probably first used as a bead. Reuse is quite common for a rare material such as amber was in Ionia, and indicates that carving could have been carried out in the Artemision itself.

The five eyes mentioned above were found scattered around the site. **Cat. 527** does not belong to this series and is slightly larger and thicker than the other pieces. It shows a slight cavity on both faces, each containing the remains of metals. These have been identified by a fluorescence analysis as iron and copper in a ratio of 4 : 1, with traces of silver and lead (see **cat. 527**). It is uncertain to which object **cat. 527** may belong. This object was deposed on the floor in Naos 1a in the »Hortfund«.

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959 See the descriptions in Furtwängler 1890, 208. The generic reference by Strong 1966, 23 to amber finds from the Heraion of Samos (Walter – Vierneisel 1959, 27) probably refers to the amber inlays which, according to D. Ohly, were used for the filling of the eyes in the exceptional ivory statuette of the »Jüngling«. This work is dated to the 2nd half of the 7th cent. BC (Walter 1959; Ohly 1959, 55): but, in my opinion, the eyes were more likely to be made of glass or faience.

960 Aristoph. Eq. 532 quoted by West 1992, 55. Ohly 1959, 55 quoted an inventory of a Parthenon treasure, 398 BC: IG II–III 1388 line 80.

961 Dusinberre 2002.

962 Knigge 1976, fig. 22.

Petals (cat. 529–530) pls. 21, 1; 57

The two pieces have different shapes: **cat. 529** is straight, **cat. 530** is larger and more rounded.

Unfortunately, **cat. 529** is missing its lower end. It is uncertain whether it was a petal, perhaps belonging to a palmette, or a rosette, as a petal. It may have been meant as a bud of a lotus star, in which petals are truncated at the end, and buds are pointed. The last of these possibilities seems more likely because of the small size of the inlay. **Cat. 530** represented a rounded petal and belonged to the base of a palmette or possibly to the top of a volute capital, as documented for the Athenian *kline* (pl. 21, 1, 2).

Rectangular panel (cat. 531) pls. 22, 1, 4; 57

Four rectangular panels, larger but of the same proportions as **cat. 531**, were originally placed in the abacus on the top of each leg in the Kerameikos *kline* and in the Grafenbühl furniture leg (pl. 21, 2. 3).

Astragalus (cat. 532) pl. 57

Ivory, artificial *astragali* with amber inlays will be illustrated only through the new find **cat. 532**. The work belongs to a series of objects primarily documented in the Artemision in the British excavations. D. G. Hogarth called them artificial *astragali* to distinguish them from natural *astragali* (in English, »knucklebones«). A number of natural *astragali* have also been found in the Artemision. The English excavations yielded 99 complete, and 35 partly preserved halves of ivory artificial *astragali*. The different types have been classified by Hogarth. Other pieces have been recovered in the Austrian excavations[963].

Cat. 532 is an artificial bone *astragalus*. It shows a close similarity to some ivory pieces, as well as to some round amber inlays. It bears an incised ornamentation on one face, to distinguish one face from another, according to the use of *astragali* as dice to throw. *Astragali* may have several functions. According to D. G. Hogarth, »… our *astragali* are specimens used for divination in the Artemision, and, in the majority of cases, at any rate, dedicated thereafter to the Goddess«. A. Greaves reviewed the finds of *astragali* in Greek sanctuaries. He explored the possible use of both natural and artificial *astragali* in divination. He focused in particular on the finds from the sanctuary of Apollo at Didyma, the most famous oracle site in Ionia, and on those from the Artemision at Ephesos[964]. Among the *astragali* from Greek sanctuaries, a colossal (27.9 × 39 × 24.5 cm) bronze inscribed knucklebone, weighing 93.07 kg – equivalent to 220 Milesian minas – and dated around the third quarter of the 6th century BC plays a unique role. It was found on the acropolis at Susa in Persia and is now preserved in the Musée du Louvre. It bears an inscription mentioning Apollo and two Milesian offerers. Scholars believe it was once a votive offering in the sanctuary at Didyma. It was then looted by the Persian army in 494 BC during the sacking of Miletos and Didyma, and brought to Susa[965]. *Astragali* can have several meanings as votive offerings to a deity, particularly if the find-spot is not associated with divination. According to their gaming and gambling function, they can express gratitude for successful gambling which

963 Hogarth 1908a, 190–192 pl. 36, 1–40 (artificial *astragali*) and 192 pl. 36, 41–44 (natural *astragali*). The specimens from the Austrian excavations are unpublished. Klebinder-Gauß 2007, 184 f. provided an overview of the finds of *astragali* in the Artemision of Ephesos.

964 The quote is from Hogarth 1908a, 191. The large presence of *astragali* oracles in sanctuaries in Greece and Asia minor is stressed by Greaves 2012, 183–192 and Greaves 2013, 511–513 for the finds from the Artemision. Further bone and ivory *astragali* (see inv. Z.08.477.110) have been found in the *bothros* of the Aphrodite sanctuary at Zeytintepe, still closed in the 7th cent. BC, according to von Graeve 2013, von Graeve 2017 and von Graeve 2019.

965 Paris, Musée du Louvre, inv. Sb 2719. The Greek inscription from Susa has been commented and translated by Eidinow 2013, 54 f.

the oracle had been asked to grant, and they can also become amulets. More recently B. Carè has opened a new perspective regarding metal replicas of *astragali*; by connecting them to a value, rather than a functional use in games and divination, this researcher considers them as substitutes for sacrificed animals[966].

Discs (cat. 653–655) pl. 64

The three discs are classified as inlays because all show a convex upper face and a flat back. They have one horizontal (**cat. 653**), five (**cat. 654**) and three (**cat. 655**) vertical through-borings, respectively, and **cat. 655** has another horizontal through-hole. Both **cat. 654** and **cat. 655** are quite thick, and the holes are large enough to hold pins of various materials (ivory [?], bone [?], wood [?]) connecting each disc to one or more other items, resulting in a composite polymateric object. **Cat. 654** in particular might be the base of a composite object, the central bore-hole being larger than the other four, thus revealing two different functions for the different-sized holes. A similar amber bead with five vertical through-holes has been found in a rich female grave, Preloge 13/117, in Magdalenska Gora. The bead is dated to the Certosa phase (6th–5th cent. BC) and was found with other amber ornaments, also comprising a five-row necklace[967].

2.6.3 Conclusions

The review of the archaeological record shows that amber was a western peculiarity. Also, amber inlays were mostly applied to ivory and bone objects in the Mediterranean, firstly in western areas, and later in the eastern regions.

The amber inlays from the Artemision belong to two different series, one comprising the item **cat. 532** and the other, the remaining specimens. As **cat. 532** is an artificial *astragalus*; it is a special inlay, belonging to a well-documented series of votive offerings from the sanctuary of Artemis at Ephesos, and it was probably meant for several purposes.

As single elements in the Artemision, all the other amber inlays completely conform with the geometrical style of the Eastern Greek furniture tradition, as evidenced by the close comparisons with the type B furniture leg ornaments from Polizzello, Athens and the Grafenbühl tomb near Asperg: the eyes **cat. 524**–**526**, **528** and **533**; petals or buds **cat. 529**–**530**; and rectangular panel **cat. 531** may once have belonged to volutes, palmettes, rosettes or lotus stars (pl. 21, 1). In the pieces of furniture examined, however, amber inlays were less abundant than bone and ivory inlays. U. Knigge clearly stated this in the edition of the most complete *kline* from the Kerameikos grave 3 (HW87). The lack of amber among the ivory inlays from the British excavations in the Artemision also proves the point[968]. A systematic search for ivory and bone inlays has not been carried out among the Artemision finds. A single piece was identified, which very probably belonged to the same ornament as the amber inlays, i.e. a burnt leaf-shaped ivory filler inlay, which was once placed between the two diverging volutes of a capital (pl. 22, 2)[969]. The piece from the Artemision is flat on both sides and was burnished, probably to imitate the dark colour of amber, a substance quite rare in Ionia, and thus substitute amber in the leg of an unidentified object. It is noteworthy that both the described ivory inlay and the amber inlay **cat. 533** come from a secondary deposition in a layer explored in the area east of

966 For metal replicas of *astragali* see the detailed review of Carè 2019, with additional literature for several aspects of the topic. A book on the *astragali* is announced (Carè [forthcoming]).

967 Tecco Hvala 2012, 283 fig. 105 no. 9; 305 for the chronology.

968 The composition of the Kerameikos *kline* is commented by Knigge 1976, 63. For the already mentioned finds from the Artemision see Hogarth 1908a, 192 pl. 35, no. 23; 196 pl. 40, nos. 9–10. 13. 15–16.

969 Excavation inv. ART 940260.1: Naso 2013, 270 fig. 27 (lower row, first on the left). For some comparisons see Knigge 1976, 65 f. fig. 23 (amber inlay); Baughan 2013, 54 figs. 35 c and 36 b (Athenian vase paintings).

the Sekos 2 wall. This layer has been interpreted as filling for the floor level of Limestone Basis B, and dated around 600 BC[970].

Amber inlays were scattered throughout the sanctuary of Artemis, and no particular concentration can be identified. Some have been found in layers also containing precious votive offerings and remains of sacrifices. The amber petal or bud **cat. 529** was found in the area east of Limestone Basis D in an ashy layer with animal bones and votive offerings, also including remains of gold and two electrum coins[971]. The rectangular panel **cat. 531** was found beneath the south-west corner of Croesus' temple in a layer also yielding gold finds, dated to the late 7th to the early 6th century BC[972].

The find-spots and the scarcity of inlays, not even enough to compose a single ornament, would indicate that these are the remains of carving activity, carried out in or in the immediate surroundings of the sanctuary of Artemis, as was common in major Greek sanctuaries. The sanctuaries of Artemis Orthia at Sparta, Apollo at Delos and Hera at Perachora yielded both ivories and bone objects. These consisted mostly of fibulae, with amber inlays and unfinished pieces of amber, ivory and bone proving the existence of local carving workshops[973]. In the Artemision at Ephesos a remarkable number of unpublished pieces, scattered throughout the sanctuary, document every stage of the work in the production chain for both ivory (pl. 23) and bone (pl. 24), from the collecting of natural animal bones to the unfinished pieces left at various work stages, including also test-pieces[974]. These finds are too many and too tiny to be votive offerings or sacrificial residues. They are workshop remains and constitute valuable proof of the existence of a carving workshop for bone and ivory in the sanctuary of Artemis at Ephesos, a hypothesis already reached for gold jewels and bronze ornaments[975]. The rich ivory artefacts gifted as votive offerings in the Artemision show the long tradition of carving activity in the area[976], which can also include inlaid items. Regarding amber, the local carving is documented by several reworked items and by two lumps of raw, only partly worked amber (catalogue **cat. 535** and **641**; see below, chap. 2.8).

Stylistically the amber inlays from the Artemision are rooted in the Eastern Greek traditional ornaments for wooden furniture[977]. They constitute precious proof of the existence of local carving

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970 The two metric units are *940260* for the ivory inlay and *940268* for the amber inlay, respectively, and they have been examined by Kerschner 1997, 104. 181 figs. 3. 10. 11, 224–226 (»Aufschüttung B«: 140–155). In the filling, an electrum coin was also found: Kerschner – Konuk 2020, 93 no. 107.

971 For the fragment of gold sheet see Pülz 2009, 344 no. 631; for the context Kerschner – Konuk 2020, 113. 150 figs. 33. 92, nos. 97–98 for the electrum coins.

972 For the stratigraphy of the area see Weißl 2002, 333 f. fig. 13 and Pülz 2009, 152 plan 1. For the gold finds see Pülz 2009, 293 no. 343 (appliqué). 309 no. 411 (miniaturistic vase). sheets (328 no. 515; 332 no. 544; 343 no. 624) and the refuse from the workshop (354 nos. 699–700).

973 Dunbabin 1962, 528 f. with other literature on the carving activity in the mentioned sanctuaries. In Western Greece the remains of a bone workshop, including several unfinished objects stylistically dated to the 5th cent. BC, have been recovered in the centre of modern-day Taranto (Dell'Aglio – Lippolis 1995, 105; Dell'Aglio 2002, 192 f.; Dell'Aglio – Masiello 2019).

974 The research on unfinished ivory and bone pieces in the Artemision finds is far from systematic, but the related pieces are enough to prove the existence of a locally well-established carving activity.

975 Klebinder-Gauß 2007, 204 f. and Pülz 2009, 23 with literature for the hypothesis of metal workshops in the Artemision. Here I wish to mention the presence, in a layer datable not later than the late 7th cent. BC, identified by means of sherds of fine local painted pottery, of the fragmentary lower part of a coarse ware crucible (excavation no. ART 820175.1), still containing consistent remains of metals, which have been identified by a fluorescence analysis as copper and iron with traces of tin. I would like to thank Prof. Dr. Manfred Schreiner and Dr. Michael Melcher, Institute for Natural Sciences and Technology in the Art at the Academy of Fine Arts, Vienna for the spontaneous collaboration and the execution of the analysis at Selçuk.

976 A complete review of the carving ivories from the Artemision is missing: the pieces found in the British excavations have been edited by C. Smith and D. G. Hogarth (Hogarth 1908a, 155–185. 186–198), and a selection of the later finds has been published in an exhibition catalogue (Seipel 2008, 159–186). The role played by local skilled carvers at Ephesos in the late 7th cent. BC has been stressed by T. Şare (Şare 2010).

977 In the Artemision several bronze nails originally belonging to furniture have been found (Klebinder-Gauß 2007,

activity, whose roots can be traced back to the late 7th to the early 6th century BC. We can therefore ascribe to this period the early phases of amber inlays created for wooden furniture in Ionia, partly filling a chronological gap with the earlier finds from the western Mediterranean[978].

Alessandro Naso

2.7 PINHEADS (CAT. 534. 656–658)

2.7.1 Introduction

P. Jacobstahl once remarked that the Heraion of Argos and the Artemision of Ephesos had yielded the largest ensembles of pins in the Aegean belonging to the Archaic period. In the Argive Heraion, about 2,800 pins were recovered, which is more than all the pins found in Archaic tombs in Greece. The pins found in this sanctuary were mostly made of ivory and bronze, and no pinheads made from amber were recorded[979]. At Ephesos, in addition to pins made from electrum, gold, silver, bronze, ivory and bone (almost 280 specimens in the British excavations and almost 100 metal specimens plus fragments in the Austrian ones) one example of an amber head for a pin was found in the Austrian (**cat. 534**)[980] and three examples in the British excavations (**cat. 656**–**658**).

2.7.2 Typology

Type 1: Pinhead with rosette button-top (cat. 656) pls. 25, 1. 2 a; 64

Globular pinhead with an inserted neck, followed by a circular flattened rosette-shaped button-top. The artefact features a central vertical blind bore-hole.

Type 2: Pinhead with floral button-top (cat. 657) pls. 25, 1. 2 b; 64

Globular pinhead with an inserted neck, followed by a circular floral button-top. Its lower section features a cylindrical ending, defined by a bulge and a vertical blind bore-hole.

Type 3: Pinhead with grooves (cat. 658) pls. 25, 1; 64

Globular pinhead with a grooved surface, followed by an inserted neck and ending with a flattened cylindrical bottom. At its base is a vertical blind bore-hole.

Indeterminable (cat. 534) pl. 57

Globular head, sustained by a carved ring-shaped relief on the bone pin, which is inserted in a through-hole. The fragment is tentatively classified as a pinhead, but the original object it belongs to is not securely identifiable.

191 f.). The destination of different nails, based on their shape, has been established according to the typology suggested for the finds from the Heraion of Samos (Peltz 2011).

978 As noted by Verger 2019, 390.

979 Jacobsthal 1956, 33. 96. Brøns 2017, 427 mentions the pins from the Artemision.

980 The pinheads from the Artemision have been reviewed by G. Klebinder-Gauß, who published the bronze pinheads found in the Austrian excavations (64 specimens and 273 fragments: Klebinder-Gauß 2007, 71–77 nos. 217–304 and 10 white metal specimens: Klebinder-Gauß 2007, 278 nos. D4–D13), and by A. Pülz, who published the gold pinheads from the Artemision (19 specimens: Pülz 2009, 89–93. 221 f. no. 28; 268–272 nos. 235–253).

2.7.3 Conclusions

The three items **cat. 656–658** are classified as pinheads, because the perforations did not penetrate the whole object. The shape resembles ivory pinheads of the same period from the Artemision itself and the Artemis Orthia sanctuary at Sparta[981].

Cat. 656–657 are stored in the British Museum and were defined by the present writer as type 1 and 2. Both have a globular shape, with an inserted neck and a round rosette button-top, and a vertical perforation running about halfway through the body. In form and general appearance, they both resemble the pomegranate pendants of type 5. Both show a bulge and cylindrical finish. A third pinhead (**cat. 658**), defined as type 3, was recorded in the Archaeological Museum of Istanbul: it has a globular shape; its surface is entirely covered by shallow, horizontal grooves; and it ends with a cylindrical bulge and a vertical blind bore-hole running through its base.

Although Hogarth stated that about 20 amber pinheads appeared in three varieties within the Green Schist Basis, only the three described above could be recorded in the British Museum and the Archaeological Museum in Istanbul. Hogarth noted three varieties:

a) Horizontally fluted spheroids with or without finial tuft
b) orange-shape, plain or with horizontal ribbing
c) conical spheroids plain or horizontally ribbed.

Regarding these descriptions, variety a seems most likely to match our type 1, while 2 and variety b probably correspond to our type 3. The three objects were all found without a needle, so that no clear statement can be made regarding the materials, but it seems likely that the needles were made of bone or ivory[982]. In other sites which yielded a significant number of comparable pins for types 1 and 2 made of gold, electrum, silver, ivory and bronze, like Perachora, Sparta[983], Delos, Corinth and Aphaia, no amber pinheads have come to light. Comparable »vase-shaped« amber pinheads have been identified only at Kato Phana on Chios[984].

Caroline Posch

2.8 RAW AMBER AND UNFINISHED PIECES (CAT. 535. 651) PLS. 25, 3; 63

The raw amber lump **cat. 535** from the Artemision was only partially worked; however, its uneven colour was revealed when it was cut, showing large, random yellow patches, so work was suspended, and probably the lump was never used again. It can be considered as a workshop's reject and can be considered as precious as two gold cast residues from the same find-spot[985], as it constitutes valuable evidence of local amber cutting activity. Another unfinished piece is **cat. 651**, whose blind holes and short lines allow us to suppose its function as a test-piece. From this perspective, it also constitutes evidence of local working in the Artemision (pl. 25, 3).

Raw amber nodules are quite rare and, if broken, are not easy for archaeologists to identify. Some finds from Miletos and Chios can be mentioned, and some comparisons from Italian contexts dating from the 9th to the 6th century BC are known. Regarding the Greek world and Ionia, a few amber pieces, apparently without traces of working, have been found in the *bothros* of the Aphrodite sanctuary at Zeytintepe explored at Miletos, sealed as early as the 7th century BC: the small pieces are in a very poor state of conservation, and the identification as raw amber is questionable[986].

981 Hogarth 1908a, 187 pl. 33, nos. 1. 6; Dawkins 1929, pl. 136, 4.
982 Strong 1966, 44.
983 Dawkins 1929, pl. 136, 4.
984 Lamb 1934/1935, 154 f.
985 Pülz 2009, 354 nos. 699–700.
986 The related pieces have the following excavation nos.: Z.09.23.26, Z.09.59.25, Z.09.119.7, Z.09.120.14. Preliminary reports on the bothros are given in von Graeve 2013, von Graeve 2017 and von Graeve 2019.

In the early 20th century K. Kourouniotes mentioned unworked amber lumps at Phanai on Chios, but these are unpublished[987].

In Southern Italy at least two Early Iron Age find-spots should be mentioned. Grave 206 of the Torre Galli cemetery in Calabria, a rich male burial belonging to the first half of the 9th century BC, also yielded a piece of uncut amber, identified by IR (Infrared) analysis as Sicilian amber or simetite[988].

Several pieces of uncut amber have been found in northern Campania in the Early Iron Age and Orientalising settlement of Poggiomarino, in layers dated from the 9th to the early 7th century BC. These lumps and the original shapes of amber beads and fibulae coated with amber slices, dating from the 9th to the early 7th century BC, indicate that amber was carved locally. DRIFT (diffuse reflectance for infrared Fourier spectroscopy) analysis revealed the samples from Poggiomarino were of both Baltic and non-Baltic origin, the latter remaining unspecified[989].

In Central Italy raw amber nodules have been found in at least two graves at Vetulonia in Etruria, dated to the first half of the 8th century BC[990]. The archaic votive deposit explored in Latium vetus at the acropolis of Satricum also includes at least six nodules of raw amber[991].

Two, possibly three, small pieces of uncut amber have been found in the Archaic wreck off Giglio island (Tuscany), trapped in a thick layer of pine pitch. The wreck excavators presumed that originally the vessel carried more amber, but this floated away or was washed away by underwater currents when the ship sank. The cargo of the Giglio-Campese ship consisted of fine wares from several factories in Greece and Etruria; Etruscan and Greek trade amphoras made from various materials containing olive oil, wine, pine pitch and olives; metal ingots of iron, copper and lead; and other wares, which allowed dating of the wreck to around 580–570 BC[992].

Usually, raw amber has been interpreted as evidence of local cutting and working in the area of each find-spot. M. Bound raised another interesting perspective, relating to the finds from the Giglio wreck: the British scholar presumed the amber pieces could be used as currency for trading aboard ship, as for some copper nuggets yielded by the same wreck (*aes rude*)[993]. It is hard to find a comparison for this stimulating hypothesis because the actual archaeological record is mostly based on evidence from contexts of a different nature, such as burials and sanctuaries. It may be difficult to imagine the raw lump (**cat. 535**) from the Artemision being used as currency – after all, this was an expensive, exotic import which had proved disappointingly defective and was consequently rejected.

Both unfinished amber pieces from the Artemision indicate the activity of local carvers. It is well known that major Greek sanctuaries hosted handicraft workshops, meant to satisfy the demand for votive offerings: apart from bone, ivory and amber carvers, bronzesmiths and goldsmiths were also active in the Artemision, as posited by G. Klebinder-Gauß and A. M. Pülz respectively[994].

Alessandro Naso

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987 Kourouniotes 1916, 193. 211; Boardman 1967, 238.

988 Pacciarelli 1999, 188 no. 10 for the funerary interments and G. Guerreschi in: Pacciarelli 1999, 219 for the IR analysis of the amber. As already mentioned, female graves belonging both to baby girls and women in the cemetery of Torre Galli yielded an amber necklace composed of beads and pendants of various shapes (Pacciarelli 1999, 75. 86 f. 140).

989 Cesarano – Bellintani 2012, 165 for a review of amber finds from Poggiomarino, and Bellintani – Angelini 2012 for the results of the DRIFT analysis.

990 Cygielman – Spaziani – Rafanelli 2009, nos. 12–13 (pages unnumbered).

991 Waarsenburg 1995, 430 f. pl. 88. The early votive deposit of the temple of Mater Matuta at Satricum is one of the largest, if not the largest, in Latium vetus, and it was used from the late 9th to the 3rd quarter of the 6th cent. BC (Gnade 2008, 25).

992 For the amber: Bound 1991a, 232 fig. 77; Bound 1991b, 28 fig. 74. For a global interpretation of the Giglio wreck: Cristofani 1996 (Eastern Greek origin); Colonna 2006 (Etruscan origin).

993 Bound 1991a, 232; Bound 1991b, 28.

994 See above, chap. 2.6 for literature about the metalworking in the Artemision at Ephesos.

5 AMBER FINDS FROM THE ARTEMISION AT EPHESOS: CONCLUDING REMARKS

5.1 AMBER IN ANCIENT GREEK LITERARY SOURCES

Already in antiquity several writers mention amber as an exotic material, remarking on its properties and origins. The Greek word ἤλεκτρον means both amber and the gold-silver alloy, so one has to check every passage to understand the meaning in each separate case. In the Homeric poems ἤλεκτρον is already used as meaning amber: the description in the »Odyssey« of a skilled Phoenician worker wishing to sell a necklace of gold and amber has been thoroughly discussed since the time of W. Helbig[1202]. Recently S. Rausch devoted a systematic study to the images of the north in the Greek literature from Homer to late Hellenism and he assumed that no established images of the north existed in ancient Greece. The critical review by Rausch included an accurate collection of the ancient Greek literature and a review of the statements of modern scholars. In the broader context of his research, Rausch also examined closely the passages in Greek literature with the word ἤλεκτρον meaning amber. According to Rausch, in the 7th to 5th centuries BC amber was not seen as a secured northern import, as claimed by some modern scholars, but the place of origin of the amber and the connected Eridanos river were located in several regions in the north (Hesiod, Choirilos), west (Aischylos, Euripides »Hyppolitos‹), and east (Euripides »Phaethon«, Ktesias)[1203]. Rausch concluded that for ancient Greeks in the 7th to 5th centuries BC, amber was a substance of unknown origin and a mythical product. The Greek representations of the north changed considerably in the course of the centuries, and in the Hellenistic era a new image of the north was coined. According to the passages of the Greek literature critically analysed by Rausch, in that broader context the place of origin of the amber was also definitively connected to the north in the 4th century BC through the travels of Pytheas of Massalia and the geographer Timaeus's knowledge[1204]. Further details regarding the properties assigned to the fossil resin in antiquity included the salutary ones, but depend on literary traditions after the 7th century BC. Therefore, they were probably unfamiliar to those offering the amber objects found in the Artemision of Ephesos.

5.2 MODERN STUDIES ON AMBER

The first modern studies about the topic »amber in antiquity« were written by single scholars as general introductions to clarify the precious substance's meaning, value and distribution routes. The ›classic‹ article by J. M. de Navarro on the different distribution routes of the fossil resin developed in the Bronze and Iron Ages deserves particular mention[1205]. In the following years, the growing interest in amber stimulated the appearance of the first museum catalogues on amber collections[1206]. Several

[1202] The main comments on the Homeric passage (Hom. Od. 15, 459) are Helbig 1887, 20; Wenskus 1985, 93; Rausch 2013, 34. 254 T29; Psoma 2020.

[1203] Ancient literary sources on amber have been collected and commented by Mastrocinque 1991a, 11–55; D'Ercole 2008, 19–28; Orsini 2010, 235–276; Rausch 2013, 32–35 collected and reviewed ancient Greek sources about amber from Homer to Euripides with special attention to the geographical provenance and to the origin of the amber in the Greek literature (Rausch 2013, 251 T17; 254 T29; 257 T37; 272 T113; 273 T124; 282 T168).

[1204] Post-classical literary sources about amber have also been collected and discussed by Magnani 2002, 222–233.

[1205] de Navarro 1925. The existence of amber routes in pre-Roman time has been now evaluated with nuanced positions by T. Stöllner (Stöllner 2004) and A. Palavestra (Palavestra 2007).

[1206] Siviero 1955 (Naples, Archaeological Museum); Strong 1966 (London, British Museum).

conference proceedings were devoted to the topic and 1982 marked the beginning of a series of periodic scientific meetings focusing on amber[1207]. The many exhibitions on amber, with catalogues that usually contain up-to-date overviews and also include unpublished finds played an important role[1208]. The latest museum catalogues, such as those of the Bibliothéque Nationale and the Louvre in Paris and the Getty Museum in Malibu, are devoted to figured items[1209]. From the 1990s onwards, detailed studies and research about the finds from single sites have been carried out, and ensured the identification of the peculiarities of several workshops in different countries. Several scholars stressed the central role played during the Early Iron Age in the Mediterranean basin by Italian workshops and the influence they had on other production centres, as will be clarified (below, chap. 5.3).

Some Mediterranean contexts dated to the 7th to the 6th century BC emerge as particularly rich and meaningful for their amber finds (pl. 26, 2): tomb VI in Satricum (province of Latina) in Latium vetus dated to 650–640 BC and yielded more than 500 figured ambers of high quality, assigned by D. Waarsenburg to a carver from Rhodes[1210]. The 8,377 pieces from Novi Pazar (Serbia), dated to the late 6th to the early 5th century BC, have been stylistically connected to finds from Southern Italy and attributed by A. Palavestra to a single princely grave, with some difficulty, owing to the lack of information about the related excavations[1211]. Both scholars stressed the active role of amber workshops in the Italian peninsula – where carvers of different origins were active[1212] – the two researchers highlighted the influence they had on other districts, with D. Waarsenburg positing the Aegean area and A. Palavestra pointing to the Balkans. Among unpublished finds, one has to stress the astonishingly rich female grave, known as »tomba della Regina«, at Numana (province of Ancona), dated to 520–500 BC, which has yielded approx. 3,000 amber ornaments, already mentioned (above, chap. 2.4). Its edition will shed new light on the princely female graves in the Mediterranean in the late 6th century BC[1213]. Pre-Roman amber ornaments from Central Europe have been collected and reviewed[1214].

5.3 THE ROLE OF THE ITALIAN PENINSULA IN AMBER MANUFACTURING IN PRE-ROMAN TIMES

Recent research by P. Bellintani pointed out that the beginning of Italian leadership in amber manufacturing dates back at least to the Late Bronze Age and the 12th century BC, according to the chronology of 11 unfinished beads of Tiryns type identified at Campestrin di Grignano Polesine (province of Rovigo) near Frattesina di Fratta Polesine in the Po Valley in Veneto. The unfinished pieces belong to the remains of a Late Bronze Age amber workshop, and include other workshop residues[1215].

1207 Studi 1975; Baltic 1985; Conference 1–5; see also Cellarosi et al. 2016.; Negroni Catacchio – Gallo 2021. Detailed bibliographies about amber in archaeology are furnished by H. Hughes-Brock in: Conference 4, 236–257 (1993–2003) and in: Conference 5, 304–351 (2000–2005).

1208 Venice 1978; Verucchio 1994; Ganzelewski – Slotta 1996; Magie 2005 (and Zürich 2010 as editio minor); Palavestra – Krstić 2006; Nava – Salerno 2007; Arancio – Massimi 2012.

1209 D'Ercole 2008 (Paris, Bibliothèque Nationale); D'Ercole 2013 (Paris, Louvre) and Causey 2019 (Malibu, J. P. Getty Museum).

1210 Waarsenburg 1995, 404–455 provided an accurate review of the literature about amber in pre-Roman Italy.

1211 Palavestra – Krstić 2006, 93–286.

1212 See now Rocco 2020.

1213 Some significant female grave groups from Italy and the Aegean have been illustrated in Princesses 2012: for the grave Chiaromonte 325, now dated to the late 8th–early 7th cent. BC (Bianco 2020, 111 figs. 17–20), see S. Bianco in: Princesses 2012, 326–335 (dated to the 1st half of the 7th cent. BC).

1214 Stahl 2006 (until the La Tène period) and Nüsse 2011 (from the La Tène period onwards) collected and discussed Central European amber finds.

1215 Bellintani et al. 2019 and Salzani et al. 2020 for preliminary reports about the settlement of Campestrin; Bellintani et al. 2015, 422–426, Bellintani 2016 and Bellintani et al. 2021 for the analysis of the amber from Campestrin; and for a broad view about the amber trade in the Late Bronze Age inculding the beads of Tiryns type in the Mediterranean.

Laboratory analysis has played a significant role in identifying the provenance of the raw amber used in the archaeological items. The late Curt Werner Beck (1927–2008) developed laboratory analyses to determine the amber's provenance and successfully applied infrared spectroscopy (Fourier transform infrared spectroscopy, FTIR). Without doubt Beck remained the world leading authority in amber studies for over 50 years, and he founded the Amber Research Laboratory at Vassar College in Poughkeepsie, where it is still housed today[1216]. The high level of succinic acid in Baltic amber, already proved by previous laboratory studies carried out using different methods, has been confirmed by FTIR analysis and allows us to call it succinite. By contrast, the variety of amber from Sicily contains less succinic acid than Baltic amber and is thus called simetite from the Simeto river, where this type of amber originates[1217].

Succinite was largely exchanged, travelling from the Baltic area through several routes as early as the 2nd millennium BC: it has been identified as the material of 41 amber beads found on the south-west coast of Türkiye at Uluburun in a shipwreck dated by dendrochronology to 1364 ± 15–26 BC (Late Helladic III A)[1218].

Although simetite from Sicily was already used during the Copper Age in the Italian peninsula at Laterza (province of Taranto) and later at Cesena (province of Forlì-Cesena)[1219], in Italy Baltic amber had a longer history and is so far attested in several pile-dwellings in Northern Italy in the second phase of the Early Bronze Age, during the first half of the 2nd millennium BC (ca. 1800–1650 BC)[1220]. A single bead of Baltic amber found in the settlement of Villaggio delle Macine near Albano (province of Rome) is dated to the early phase of the Medium Bronze Age (Ital. *BM 1*, ca. 1650–1550 BC) and allows us to extend the distribution area of succinite in the Medium Bronze Age to Central Italy[1221]. The fossil resin used at Campestrin is of Baltic origin, and was used locally to make beads of the Tiryns type in the Late Bronze Age (12th cent. BC) – so for the moment Campestrin can claim to be the earliest known working site of Baltic amber in the Central Mediterranean, and the origin of Tiryns type amber beads, mostly concentrated in Northern Italy (pl. 27)[1222].

The laboratory analysis provided evidence of the contemporary use in the same site in the Italian peninsula of both Baltic and non-Baltic amber, where the latter's origin remains unidentified; this is attested by samples from the Early Iron Age settlement at Poggiomarino in northern Campania (province of Naples) analysed by DRIFT (diffuse reflectance infrared Fourier transform spectroscopy). The same is suspected for samples from Sardinian sites[1223].

1216 See the database <https://pages.vassar.edu/> (accessed on 19. 06. 2020).

1217 A detailed overview of the different sources of amber in Europe and their peculiarities has been provided by the contributions of several scholars in Ganzelewski – Slotta 1996, 77–382.

1218 Pulak 2005, 82. 588–589; Stöllner 2005, 466 f.

1219 Beck 1971 and Beck – Hartnett 1993 for the FTIR analyses of the amber samples from Laterza, actually dated to the Copper Age (M. L. Nava – A. Salerno in: Ambre 2007, 82 f.); Miari et al. 2017, 301–303 n. 10 for an amber bead from grave 1 at Gattolino (Cesena, province of Forlì-Cesena); Miari – Benazzi 2018, 11 f. M. Miari (Soprintendenza Archeologia Belle Arti e Paesaggio per la Città metropolitana di Bologna e le province di Modena, Reggio Emilia e Ferrara, Bologna) kindly informed me that a radiometric date to 3619 ± 45 cal BP 2σ 2140–1880 (95.4 %) BC, has been obtained for grave 1 at Gattolino, i.e. in the Early Bronze Age.

1220 Bellintani 2016, 278 f.; Angelini – Bellintani 2017.

1221 The amber bead from the Villaggio delle Macine has been published by Bellintani et al. 2007.

1222 Bellintani 2016, 281 f. stressed the role of Campestrin. Archaeologists named the ›Tiryns shape‹ a particular form of cylindrical bead with a raised ring in the middle and an axial hole because it was first identified in the hoard deposed at Tiryns. The distribution map of the amber beads of Tiryns shape in the Mediterranean, provided in Naso 2019, fig. 1 (here pl. 27) also includes amber beads of Allumiere types, which are coeval. On the beads of Tiryns shape see recently Harding 2020, 16 f. and Bellintani et al. 2021.

1223 The results of the DRIFT analysis of samples from Poggiomarino are published by Bellintani – Angelini 2012 and the possibilities of local working have been explored by Cesarano – Bellintani 2012. Amber samples from Sardinia have been analysed by Bellintani et al. 2012; Lo Schiavo – D'Oriano 2018, 132 f. give further literature. The provenience of the non-Baltic amber analysed at Poggiomarino is as yet not further identified. In Sicily the use of both local simetite and imported succinite is documented (Cultraro 2010).

The Adriatic basin provided the natural terminus of the resin fossil's trade routes linking the Baltic area to the Mediterranean; its coasts played a leading role in amber carving and in the redistribution of the raw substance. The amber workshops on the Adriatic side of the Italian peninsula show a tendency to shift from north to south over time: the Late Bronze Age manufacturing at Campestrin is located in Veneto, in the Po Valley, near the central hub of Frattesina di Fratta Polesine, where Baltic amber was available, as well as Near Eastern raw materials such as ivory and ostrich eggs[1224]. By contrast, in the late 9th to the early 8th century BC, in the Early Iron Age, Verucchio in Romagna became the main amber-working centre. Its flourishing ended ca. 650 BC but was strongly connected to its role as the terminal of the Adriatic trade routes, and as a redistribution centre for amber in Central Italy, including the routes bound for the Tyrrhenian regions[1225]. After 650 BC, the leading role in amber working along the Adriatic was taken by the region of Picenum, an area corresponding to the southern part of modern-day Marche, where an essential amber-working centre was established at Belmonte Piceno in the Tenna Valley[1226]. Amber workshops active in the Italian peninsula in the Adriatic area, at Belmonte Piceno and Numana, influenced Slovenia's amber production at Novo mesto and in Serbia at Novi Pazar in the 7th and 6th centuries BC[1227].

From the eastern Italian coast, amber was further redistributed to other districts in Italy. In Central Italy, particular attention was soon devoted to figured artefacts; early specimens dating from the late 8th century BC onwards have been found in Etruscan funerary interments at Vetulonia and Veii and elsewhere in Ager Faliscus and Latium vetus; this is attested by tomb VI in Satricum, mentioned earlier[1228]. Both northern and southern Campania yielded rich funerary interments also comprising elaborate female amber ornaments[1229]. In Southern Italy, amber was remarkably popular among the Oenotrians in modern-day Northern Calabria at Macchiabate, near Francavilla Marittima[1230], and particularly in south-western Basilicata. Here, cemeteries have yielded an impressive amount of amber and opulent parures of suspended ornaments belonging to rich female interments, mostly dated between the late 8th and early 6th centuries BC[1231]. In Apulia, amber was mainly used during the Bronze and Iron Ages and from the 7th century BC onwards (pl. 28, 1)[1232]. In Northern Italy, amber jewels were widespread in Veneto's eastern region and its

[1224] Bietti Sestieri et al. 2019, with previous literature, deals with various aspects of the handcraft production in Frattesina. Harding 2020 stressed the role of Frattesina in the European prehistory, and Cardarelli 2021 the position of Frattesina in the Italian peninsula. Cwaliński – Czebreszuk 2020 analysed the contacts between western and eastern shores of the Adriatic during the Bronze Age.

[1225] For the cultural sequence of Verucchio see von Eles – Pacciarelli 2018, and for the handcraft production, see Bentini et al. 2020, both with literature. The scanty number of Eastern Mediterranean imports and, in contrast, the abundance of Central European products in Verucchio are a consequence of the trade relations based on amber. The decline of Verucchio after 650 BC is the reason for the scarce redistribution of raw amber in Etruria, and Latium vetus, where graves after that date are generally less rich in amber finds than before.

[1226] On Picenian figured amber see Warden 1994. For non-figured amber from Picenum see Negroni Catacchio 2003. The main amber finds from Belmonte Piceno are discussed by Weidig 2021, 79–90: above, chap. 2.6.

[1227] Križ 2017 for Novo mesto; Palavestra – Krstić 2006 for Novi Pazar and other Balkan sites.

[1228] Figured amber sculptures from Italy have been collected by N. Negroni Catacchio: see Negroni Catacchio et al. 2006. Amber sculptures from Veii and Vetulonia have been commented on by Pagnini 2006, with literature. Further finds from Veii are published in D'Ercole 2013, 31–35. See also Negroni Catacchio-Gallo 2021, 236–249.

[1229] A detailed overview of amber finds from Campania is available in Ambre 2007, 185–231; further finds of female ornaments from Calatia in Northern Campania indicate active local workshops (Laforgia 2016, 41–57).

[1230] The excavations carried out at Francavilla Marittima explored several tomb groups, partly published by P. Zancani Montuoro (Zancani Montuoro 1976, Zancani Montuoro 1978, Zancani Montuoro 1984). A complete perspective of this important site, including also further finds, will be available in the new publication being prepared by F. Quondam (Quondam [forthcoming]).

[1231] Magie 2005 and Bottini 2007 for the amber finds from Basilicata, with particular attention to necklaces and girdles. Macrì 2009 and Bianco – Preite 2014 reviewed the main Oenotrian cemeteries in Basilicata and furnished literature. Overviews on single cemeteries: Tagliente 1989 and S. Bianco in: Princesses 2012, 337 f. (Alianello); Russo Tagliente 1992; Bottini et al. 2018 and Bianco 2020 (Chiaromonte); Bianco 2011 and Bianco 2012 (Guardia Perticara).

[1232] Tunzi Sisto 2006 published the Bronze Age amber finds from Trinitapoli; Montanaro 2012, 31–58 listed the amber finds in Apulia dated from the 7th–4th cent. BC.

western districts, in the Golasecca culture area, particularly in the 7th to 5th centuries BC[1233]. The main Mediterranean islands of Sicily and Sardinia yielded amber finds dating to pre-Roman times[1234].

One can conclude that for quite a long time an actual *ambermania* dominated several pre-Roman Italian regions[1235]. A subsequent decrease in amber artefacts has been noted for the late 6th century BC in contexts in Etruria and Latium. J. Bouzek believes this might be due to the threat posed to the amber trade routes by such peoples as the Scythians and Celts. Trade routes in all regions north of the Alps were affected in ways which were so significant that only a few Baltic amber goods actually reached the Mediterranean shores[1236].

5.4 AMBER FINDS IN THE AEGEAN IN THE EARLY IRON AGE

In the late 8th to the early 7th century BC skilled carvers with different origins (Syrian [?], Phoenician [?]) ›discovered‹ amber in Italy and they immediately appreciated and worked it, as the Bernardini ivories from Praeneste show (above, chap. 2.6). Can one presume that as a consequence of this awareness, amber as a raw material spread to the Eastern Mediterranean? And that skilled carvers travelled together with it?

It is generally believed that amber was popular in the Greek world, as a votive offering in sanctuaries (pl. 28, 2) and in funerary interments in tombs (pl. 28, 3), and more frequently employed during the Geometric than in the Archaic period.

The following tables show data about the contexts and quantities of amber finds in the Greek world, including North Africa and excluding Magna Graecia and Sicily, to provide an updated general framework for the finds from Ephesos[1237].

In the Greek world, amber was not very common, either as a votive offering or as part of a funerary interment, and did not reach the popularity it enjoyed in the Italian peninsula. Some years ago, it was observed that the amber contents of the Satricum tomb VI outnumbered the entire Greek amber record[1238]. This observation is still valid, if we do not count the finds at Ephesos; also, over time, new discoveries have increased the total amount of ambers from Greece, the Ionian finds from Miletos providing a particularly exceptional case. A similar observation can be made regarding the amber finds from the Artemision, if compared with the amber finds from other Greek sanctuaries: the Artemision yielded more carved amber than all Greek sanctuaries put together. But the finds from Ephesos are outstanding not only for their quantity but also for their quality. The significant number of finds at the sanctuary of Athena at Lindos does not seem to correspond to any quality of artistry, although ambers are only summarily described and a new publication would seem necessary. Figured amber carvings, represented at Ephesos by only a few pieces, are very rare in Greece, as T. J. Dunbabin observed[1239], because, generally speaking, ancient Greeks preferred to carve ivory rather than amber[1240].

1233 On amber in Veneto in the Iron Age, see M. de Min in: Ambre 2007, 112–115. For amber jewels in the Golasecca culture area, see Panero 2017 with literature and de Marinis 2017, 221–226.

1234 See the aforementioned literature.

1235 The best overview of amber finds in the Italian peninsula during the Bronze and Early Iron Age is the catalogue of the exhibition Ambre 2007.

1236 Bouzek 1992, 367, followed by Waarsenburg 1995, 405. The hypothesis needs an appropriate testing.

1237 Previous lists have been compiled by Dunbabin 1962, 520; Strong 1966, 23; Kilian-Dirlmeier 2002, 274–275, Liste 33 (devoted exclusively to sanctuaries).

1238 Waarsenburg 1995, 428 n. 1118.

1239 Dunbabin 1962, 522 n. 5.

1240 The rarity of amber finds in the Aegean, and the Near East was not correctly assessed: for a long time, the amber statuette representing an Assyrian king (Boston, Museum of Fine Arts, inv. 38.196) was classified as authentic, until it was identified as a modern forgery by O. W. Muscarella (Muscarella 2000, 177).

Table 6 a Amber finds from Greek sanctuaries in the Aegean and North Africa

Site	Literature	Typology	Quantity
1 Ephesos	this volume	figures, beads, pendants, inlays, fibulae	659
2 Lindos, Athena	Blinkenberg 1931, 109–113	beads, inlays, fibulae, pendants	212
3 Miletos, Aphrodite	unpublished	beads, spacers	ca. 150
4 Perachora, Hera	Dunbabin 1962, 520–525	beads, fibulae, scarabs	54
5 Sparta, Artemis	Dawkins 1929, 386	beads, inlays, fibulae, pendants	ca. 50
6 Crete, Idaean Cave	Sakellarakis 1988, 184–187	beads	47
7 Aetos	Heurtley – Robertson 1948, 117	beads	46
8 Kithnos, Apollo + Artemis	Mazarakis Ainian 2019, 106	beads	37
9 Chios, Harbour sanctuary	Boardman 1967, 238–240	beads, inlays, pendant	ca. 34
10 Philia, Athena Itonia	Kilian-Dirlmeier 2002, 271	beads, inlays, fibulae, pendants	18
11 Chios, Kato Phanai	Lamb 1934/1935, 154 f.	beads, inlays, fibulae	ca. 16
12 Eretria, Apollo	Huber 2003, 83. 86	beads, inlays	12
13 Pherai, Artemis Enodia	Kilian 1975, 204	fibulae	7
14 Cyrene, Artemis	Pernier 1931, 202 fig. 26	inlays	more than 4
15 Delos, Artemis + Hera	Deonna 1938, 309 no. 161; Gallet de Santerre – Tréheux 1948, 220 no. 69	beads	2
16 Claros, Apollo	unpublished	beads	few
17 Olympia, Zeus + Hera	Furtwängler 1890, 208	beads	2
18 Crete, Dictaean Cave	Boardman 1961, 71. 73	beads	2
19 Samos, Hera[1241]	Kyrieleis 1985, 429	fibula	1
20 Tocra, Demeter + Kore	Boardman 1966, 166 no. 105	bead	1
21 Siphnos, Artemis (?)	Brock 1949, 27 no. 7	bead	1

Table 6 b Amber finds from Greek cemeteries in the Aegean

Site	Literature	Typology	Quantity
Fortetsa, Crete	Brock 1957, 54	beads	70
Eretria, child grave	Blandin 2007, I 98 f.; II 77	beads	29
Lefkandi, graves	Sherratt 2010, 129	beads	ca. 15
Arkades, graves	Levi 1931, 477	beads	several
Praisos, Crete, grave 28	Marshall 1905, 65	beads, pendant	several
Tinos, grave	Levi 1926, 215	beads	3
Athens, grave	Kübler 1954, 197	pendant	1
Thera, grave	Pfuhl 1903, 238	beads	few
Eretria, grave	Blandin 2007, I 49 f.	bead	1
Ialysos, grave	Jacopi 1929, 118	lion figure	1
Eleusi, grave	AE 1898, 103 a. 107	*non vidi*	–

[1241] The amber disc belonging to a fibula from Samos is mentioned by Martelli 1988/1989, 21 f., l). See above, chap. 2.6 for a possible other amber find from Samos.

In the Greek sanctuaries, beads are the most common amber find. However, the original ornaments they belonged to remain unknown: finds from the Italian peninsula show that beads were mostly used for necklaces, but they can also compose other suspended ornaments, such as breast coverings, elaborate pendants and girdles[1242]. Inlays constitute significant but often underestimated amber ornaments, which are used to embellish wood and ivory objects such as furniture, boxes, and metal artefacts, but mostly fibulae. Amber inlays are widely distributed in the Greek world outside Ephesos, and in the 8th and 7th centuries BC, they were used in jewellery, bronze statuary, and decorative work on ivory or wood. The sanctuaries of Artemis Orthia at Sparta, Hera at Perachora, Apollo at Eretria, and Athena Itonia at Philia also yielded amber inlays, presumably destined to embellish ivory items and mostly dating to the 7th century BC. Several bronze fibulae, whose bows were decorated with alternating segments of amber and ivory or bone, and inlaid with amber discs, came to light in the sanctuaries of Artemis at Sparta, Hera at Perachora, and Athena at Lindos, as well as at the Artemision at Ephesos. Already C. Blinkenberg, T. J. Dunbabin, D. E. Strong, and later P. G. Guzzo identified Italian handicraft as the inspiration for the Greek fibulae coated with ivory or bone and inlaid with amber[1243]. The largest production areas of this type of fibula in Italy are located in Verucchio and Campania respectively (above, chap. 2.5).

The distribution of characteristic Ephesian artefacts highlights the supremacy of Ephesos in the Ionian amber-working landscape: a fine connoisseur such as Paul Jacobstahl was able to define an Ephesian shape of bone pinheads with amber inlays, whose single specimens have been found in the sanctuaries of Apollo at Chios, Hera at Samos and perhaps at Miletos[1244].

The role of Ephesos is outstanding compared to other Greek sanctuaries, not only for the quantity but also for the quality of the amber finds, as a brief review of items in the sanctuary of Artemis can confirm.

5.5 AMBER FINDS IN THE ARTEMISION

According to the information provided by D. Hogarth, the carved ambers from the British excavations were found in and around the Central Basis in some find-places[1245]. In this research it was possible to identify only some published objects with the catalogue entries of this volume, because in 1908 few objects were reproduced with photographs and the catalogue numbers for both the Archaeological Museum Istanbul and the British Museum are missing. The secured information is the following. A large amount of amber, including fibulae (**cat. 635**–**652**), ›almost all‹ pendants (**cat. 592**–**630)**, and pinheads (**cat. 656**–**658)** was found in the basis. Spacers (**cat. 632** and **634)**, a disc (**cat. 654**), and a fitting element or hinge (**cat. 659)** were discov-

[1242] The parure of the female grave Chiaromonte 325, late 8th–early 7th cent. BC, exhibits several suspended ornaments, including beads: Bianco 2020, 113–117 figs. 14–20.

[1243] Dawkins 1929, 224 f. pl. 132 (spectacle fibulae) and Droop 1929, 198 pl. 82 a–b. e–f. i–k for Sparta (fibulae with alternating segments of amber and ivory); Blinkenberg 1926, 198; Blinkenberg 1931, 90 nos. 132–133 pl. 9 (spectacle fibulae); 86 pl. 8 no. 103 (three fibulae with alternated segments of amber and ivory) for Lindos; Dunbabin 1962, 433–437 nos. A124 –A194 (c. 60 spectacle fibulae). 439–442 nos. A239–A264 (fibulae with alternated segments of amber and ivory). 523–524 nos. H–H7 for Perachora; Kilian-Dirlmeier 2002, 29 nos. 371–373 (3 fibulae with amber coatings). D. Waarsenburg followed suggestions proposed by the mentioned scholars and presumed an import from Italy to the Aegean for some objects such as bronze fibulae coated with amber (Waarsenburg 1995, 428 n. 1118, with literature), thoroughly analysed in this regard by P. G. Guzzo (Guzzo 1982). The amber finds from Verucchio threw new light on the topic of the amber-coated fibulae. Amber workshops were presumably active at several sites: according to F. Lo Schiavo, a particular type should be Pithecusan (Lo Schiavo 2006, 259 type 172.2; Lo Schiavo 2010, type 172.2, 391 f. nos. 2859–2867). The specimens of the Pithecusan type were mostly found at Pithecusae, but two further examples have been found in southern Campania. Two comparable exemplars came to light, at Perachora (Dunbabin 1962, 440 no. A240) and Lindos (Sapouna Sakellarakis 1978, no. 1581), respectively.

[1244] The amber pins of Ephesian type outside Ephesos have been identified by Jacobstahl 1956, 34 and 88, with literature (Lamb 1934/1935, 154).

[1245] Hogarth 1908a, 214–216.

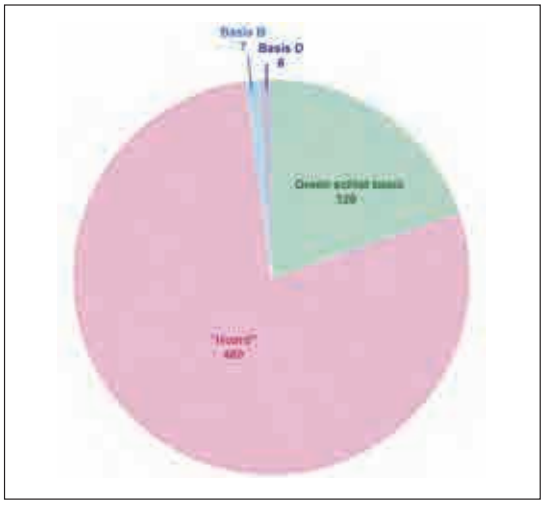

Diagram 2 Main amber finds in the Artemision. 1. Green Schist Basis – 2. »Hortfund« – 3. Limestone Basis D – 4. Limestone Basis B

ered in the area west of the basis. Beads (**cat. 541–591)** come ›from all parts‹. The statuette **cat. 540** was discovered in the area east of the basis. As already noted, the finds in the Green Schist Basis belong to the rich foundation deposit for Naos 2: it consisted of approx. 800–1,000 small precious objects in gold, silver, electrum, ivory and amber, including 24 electrum coins[1246].

According to the excavation data of the Austrian excavations, the amber finds were concentrated inside the sanctuary of Artemis in four areas, two larger and two smaller ones, which have been carefully analysed by M. Kerschner in some contributions focusing on the find-spots of the electrum coins in the sanctuary and reviewed by him and A. M. Pülz in this volume. Further single amber finds are also known. The reconstruction of the stratigraphic sequences of the contexts of the electrum coins can be used as a reference because, in the same layers, the coins were associated with carved amber and other precious votive offerings: the related layers are generally datable no later than the 7th century BC. The careful and recent evaluation of each detail related to the excavation and the related finds allows us to offer only a brief synthesis here: further details can be found in the contributions of M. Kerschner and A. M. Pülz already mentioned[1247]. The four main areas are listed here (diagram 2; pl. 29):

1. The filling of the Green Schist Basis was dug out in 1904–1905, during the British Museum excavations lead by D. G. Hogarth (pl. 29). The Green Schist Basis is located inside the second temple of Artemis, Naos 2, and the votive offerings include electrum coins and hundreds of small jewels of gold, silver, ivory, and amber. D. G. Hogarth interpreted them as belonging to a foundation deposit and classified it as a closed context, now dated around 640–620 BC[1248]. The related amber finds are easy to identify in the present volume because they are preserved in the Archaeological Museum in Istanbul and the British Museum in London (**cat. 540**–**659**); they comprise 120 amber items, all belonging to the following categories:

Figured	1	
Beads	51	
Pendants	39	
Spacers	4	
Fibulae	19	
Inlay	1	
Pinheads	3	
Indeterminate	1	
Unfinished	1	**Total 120**

2. The »Hortfund« of Naos 1a was explored in 1987 by the Austrian Archaeological Institute (pl. 29). In the second half of the 7th century BC, the first temple of Artemis, Naos 1, was damaged by flooding

[1246] Kerschner 2017, 46–48; Kerschner 2020, 206–211, with literature.
[1247] M. Kerschner – A. M. Pülz, above chap. 1.
[1248] Kerschner 2017, 46–48; Kerschner 2020, 206–223; Kerschner – Konuk 2020, 114–123.

so that reconstruction at a higher level – Naos 2 – became necessary. Naos 1 was infilled with a rammed earth layer, as Hogarth described it, of approx. 0.50 m, the surface of which formed the floor of the subsequent Naos 2. Before the Rammed Earth Layer was infilled, a hoard (Ger. »Hortfund«) was deposited intentionally on the floor of the then abandoned Naos 1 in the building phase identified in the contribution to this volume by M. Kerschner and A. M. Pülz and called Naos 1a. A shallow pit was probably made for this purpose or an existing void in the ground was used to deposit the precious votive offerings. This hoard consisted of approx. 1,500 small objects made of precious materials, such as gold, electrum, silver, bronze, ivory, faience, rock crystal, glass, and amber. Naos 1a was short-lived and was followed by the newly built Naos 2. The foundation deposit for Naos 2 was deposed in the Green Schist Basis and it was excavated in 1904–1905. As the third temple, Sekos 1, was built in the late 7th century BC, Naos 2 must be dated sometime before that and Naos 1a immediately before Naos 2. Dates around 650–640 BC for Naos 1a and around 640–620 BC for Naos 2, respectively, may be presumed[1249]. The »Hortfund« dates to 650–640 BC and includes the following amber finds:

Table 7 a Amber finds of the »Hortfund«: main metrical units

	870232	**870246**	**870281**	**870352**	
Figured				3	3
Beads	62	78	35	30	205
Pendants	8	3	5	14	30
Spacers	30	56	15	34	135
Fibulae	4	2	6	14	26
Inlays		1			1
Indeterminate		1			1
Total	**104**	**141**	**61**	**95**	**401**

Table 7 b Amber finds of the »Hortfund«: other metrical units

	870233	**870245**	**870272**	**870298**	**870324**	**870341**	**870348**	**870349**	**870353**	**870354**	
Beads	3	1	1	3	3	10	12	8	1	4	46
Pendants	2					1	2		4		9
Spacers						1		1			2
Fibulae									2		2
Total	**5**	**1**	**1**	**3**	**3**	**12**	**14**	**9**	**7**	**4**	**59**

The four main metrical units yielded 401 amber finds, to which must be added a further 59 ambers recovered in the metrical units explored in the adjacent areas, so a total of 460 amber elements from the »Hortfund«[1250] with the following typology:

Figured	3	
Beads	251	
Pendants	39	
Spacers	137	
Fibulae	28	
Inlays	1	
Indeterminate	1	**Total 460**

[1249] Kerschner 2005, 134–140; Kerschner – Konuk 2020, 123–128.

[1250] This is a minimum number, because fragments (**cat. 294**–**296**) are not included. See concordance list 1 for the further ambers from the adjacent metrical units explored in the excavation season 1987, here listed in the contribution by M. Kerschner and A. M. Pülz, above chap. 1.

3. The filling east of the northern Limestone Basis D was excavated in 1984–1990 by the Austrian Archaeological Institute in an area located at a distance of approx. 15–20 m north-west of the contemporaneous temple, Sekos 2 (pl. 29)[1251]. According to the recent interpretation suggested by M. Kerschner, it is likely that sacrificial residues and precious votive offerings, including gold, bronze, ivory, faience, and some amber objects, which were found around and east of the Limestone Basis D, constitute a secondary deposition of objects, which had accumulated gradually over time. Votive offerings, among them a few amber objects, and sacrificial remains were deposited in an ashy layer in around 590 BC[1252]. Among the amber objects, two artefacts deserve a special mention: a couple of very fine beads (**cat. 275**–**276**, type 6d), perhaps originally belonging to spinning tools, acting as decorative elements of wooden distaffs.

Table 8 Amber finds beneath the Limestone Basis D

	860000	**860155**	**860203**	**860217**	**860344**	
Figured					1	
Beads	2			1		
Inlays		1			1	
Indeterminate						
Total	**2**	**1**		**1**	**1**	**6**

4. The area of the Limestone Basis B, situated 8 m east of the contemporaneous Sekos 2, was excavated by the Austrian Archaeological Institute in 1993 and 1994. Basis B was built around 600 BC and formed part of the enlarged floor area surrounding the temple[1253]. Beneath the Basis B and thus preceding it, a sequence of two major fillings (labelled A and B) and five depositional layers (C–G) was found. Both fillings were infilled to level the space for the floor area around 600 BC. They contained a few amber objects and precious votive offerings belonging to the late 7th century BC (pl. 29)[1254]. Among the amber finds, only the spacer **cat. 474** was found in »Opferschicht D«, a layer earlier than the Basis B and dated to 620–615 BC.

Table 9 Amber finds beneath the Limestone Basis B

	940014	**940085**	**940110**	**940135**	**940146**	**940242**	**940268**	
Beads		1	1			1		
Pendants	1			1				
Spacers						1		
Inlays							1	
Total	**1**	**1**	**1**	**1**		**2**	**1**	**7**

Single amber ornaments have also been found in other parts of the temenos: a unique find would be the female bust **cat. 1**, one of the most relevant figured pieces, which came to light in the open space to the south, in the area in front of the temple. In this area, no other amber finds or precious items have come to light[1255].

[1251] Kerschner 2020, fig. 15.

[1252] Kerschner – Konuk 2020, 145–155. On the dating: Kerschner – Konuk 2020, 163–167.

[1253] Kerschner 2020, 234 f. fig. 15.

[1254] Kerschner 1997, 182 for the chronology of »Opferschicht D«, 225 for the stratigraphic sequence; recent general overview in Kerschner – Konuk 2020, 137–143 figs. 23–28.

[1255] The stratigraphic sequence and the finds from this area (Ger. »südlicher Tempelvorplatz«) have not yet been studied systematically, and therefore it is not yet possible to define the context of the bust (M. Kerschner, pers. comm.). For the open space to the west, see Kerschner – Konuk 2020, 147 with n. 230; 168.

These contextual datings provide a *terminus ante quem* for the production of the amber objects. The date indicated by the most recent finds of a stratigraphic context is the date of the deposition of this layer. The individual objects contained in it may, however, be older, possibly even significantly so.

Figured

Figured carved ambers are very rare in the Aegean. The Artemision yielded the female bust **cat. 1**, the pair of human heads **cat. 2**–**3**, the scarab **cat. 4**, the bird protome **cat. 5**, and the female statuette **cat. 540** (pl. 30, 540). The most relevant pieces, such as the bust (**cat. 1**) and the two female heads (**cat. 2**–**3**), are pierced by unnecessary through-borings. Evidently, these are traces of these works' previous uses. Reuse was common in the amber-carving field because of the high value of the resin fossil. This occurrence is particularly likely in a region such as Ionia, so far removed from the amber's land of origin[1256]. The Daedalic bust **cat**. **1** initially belonged to an unidentified polymateric artefact and was reused, probably in a suspended horizontal ornament such as a chain or a necklace. The heads **cat. 2**–**3** form a pair and can originally be connected to metal pins, which were among the most popular female votive offerings in the sanctuary of Artemis. Probably the two amber heads belong to the same tradition as the two gold pinheads, each with two human heads, also from the Artemision and already mentioned (above, chap. 2.1), which reproduce the deity or her devotees. Finally, they were probably used as pendants on a chain or a necklace. The geometric style characterises the two heads and indicates that these are indeed among the earliest amber objects offered to Artemis, if not the earliest of all. The bird protome **cat. 5** and the female statuette **cat. 540** are quite rare items with few comparisons and were probably carved at Ephesos. Figured amber finds from the Artemision are strictly connected to local carving activity in other materials, especially ivory. In general, figured amber finds from the Artemision are dated no later than 600 BC.

Beads, pendants, and spacers

The artefacts of these categories are the most numerous of all: 342 beads, 92 pendants, and 143 spacers make up a total of 577 specimens (pl. 31). 460 items were found in the »Hortfund« of Naos 1a, and 426 of them belong to the three categories addressed here. The remaining elements were recovered in one significant concentration, in the Green Schist Basis, and in two smaller clusters inside the sanctuary. Based on their shape, 342 beads have been classified according to seven main types and eight subtypes for a total of 15 more or less different shapes. The comparisons identified for each shape demonstrate the substantial coincidence in the chronology among main types because, outside Ephesos, beads of different shapes often belong to the same ornament. Two types, cylindrical beads with faceted surfaces (type 4b) and cylindrical beads with spiral ends (type 4c), find few comparisons outside Ephesos, supporting the hypothesis of a local production. The beads of the type 6d might originally have belonged to a spinning tool such as a wooden distaff. The 92 pendants have been classified into 6 types and 12 subtypes for a total of 18 shapes. In addition to well-known shapes, such as the ubiquitous type 3 bulla-shaped pendants, common to several amber carving traditions in different countries and probably related to the myth of the origins of amber itself, there are other works, perhaps of local origin, such as the type 4 bottle-shaped and the type 6 wineskin-shaped pendants for which documentation is quite scarce. Depending on the direction of the through-borings, one has to distinguish between horizontal and vertical pendants, which might occur in different positions within the same ornament, as shown by close comparisons.

Finally, 143 spacers are the most significant elements of the groups because they reveal the original presence of multi-row suspended ornaments, which one can imagine in several positions

[1256] Causey 2011, 122 f.

around the breast, neck, and waistline of the women, as pectoral jewellery, necklaces and girdles. Similar bird-shaped spacers with a different pattern of through-borings, i.e. either horizontal and vertical (spacers type 4) or only horizontal (spacers type 5), have also come to light. They point to the presence of multi-row suspended ornaments including upper and lower rows. From the lowest row of the ornament, vertical pendants hung from threads strung through the vertical borings of the spacers. The similarities in size, shape, and colour of several beads and pendants and all the spacers also point to the hypothetical reconstruction of an elaborate, multi-row ornament composed of hundreds of carved ambers. The finds' position proves that the whole jewel was deposited in the floor of Naos 1a, presumably in a shallow pit made for this purpose, around 650–640 BC as part of the »Hortfund«. The lavish artefact explains the difference between the high number of amber offerings at Ephesos and the relative scarcity of amber finds in other Greek sanctuaries. The imbalance depends upon the presence of this one ornament (below, chap. 5.6). The most peculiar elements are the bird-shaped spacers, and these find close comparisons with similar ornaments in the examples of the Oenotrian handicraft of northern Calabria and south-western Basilicata in Southern Italy. Triangle-shaped spacers (type 7) also occur in girdles from Italian contexts. However, in these cases, the triangular spacers are usually combined with lozenge-shaped spacers: only in the Artemision at Ephesos are exclusively triangle-shaped spacers documented. This fact helps to prove that these spacers are carvings executed outside of Italy.

Fibulae

The votive offering of an uncertain number of fibulae, corresponding to about 20 specimens, does not constitute the whole of the original gift – presumably fibulae were offered together with precious textiles and dresses (pl. 19, 2). It is likely that the offerers were mostly women, as the typology of the fibulae and the female deity of the sanctuary indicate.

I. Kilian-Dirlmeier explored the general possibilities as to whether male or female offerers made specific votive offerings to Greek deities.

The scholar observed the popularity of offerings such as metal pins and fibulae in several sanctuaries dedicated to female deities and concluded that the female offerings were most numerous, meaning women were the most common offerers in Greek sanctuaries. Male offerings were less common, either because they were made of perishable materials or on account of their actual smaller quantity[1257]. The inspiration of the fibulae coated with ivory or bone and inlaid with amber (**cat. 489**–**490** plus single pieces belonging to further specimens for a total of 4–5 fibulae) came to the Greek world from Italy, where such fibulae are concentrated particularly at Verucchio and in Campania[1258]. Fibulae and pins are dress-fasteners and were likely also offered together with garments in Greek sanctuaries[1259].

Inlays

The amber inlays from the Artemision are stylistically rooted in the Eastern Greek tradition of ornaments for wooden furniture. Together with bone inlays, they constitute precious proof of the existence of a local carving activity; as the recovered inlays are too few to belong to a complete ornamentation set, they probably testify to work in progress on wooden inlaid artefacts (pls. 21, 1; 22, 1). The inlaid items (*klinai* [?], boxes [?]) have not been identified because no concentration of inlays has been found – instead, the objects were scattered over the entire sanctuary area

[1257] Kilian-Dirlmeier 2002, 219–223.

[1258] See above, chap. 2.5.3. S. Bianco recently noted some influence exerted by the handicraft of Verucchio on the few fibulae coated with amber from Basilicata (Bianco 2020, 115). A fibula from the grave Chiaromonte 258 has been reproduced by Montanaro 2016, 365 f. fig. 4.

[1259] Brøns 2017, 421–430.

(pl. 32). The inlays from the Artemision play an important role in the framework of Greek inlaid wooden furniture. Their date, in the late 7th century BC places them among the earliest, if not the earliest, attestation of inlay in Greece and allows researchers to fill the chronological gap between the earlier finds in Etruria, where amber was largely available, and those in the Greek world[1260].

Pinheads

Pins made from electrum, gold, silver, bronze, ivory and bone were a very popular votive offering in the Artemision at Ephesos[1261]. Some amber pinheads have been found, without needles, which were probably made of bone or ivory (pl. 25, 1). Amber pinheads were probably an Ephesian special production.

Raw and unfinished amber

When compared to the number of areas potentially requiring huge amounts of inlays, the number of unfinished amber lumps (**cat. 535** and **651**: pl. 25, 2) and the scanty number of inlays indicate that fossil resin was worked locally at the Artemision and illustrate the high value assigned to the precious substance. In the sanctuary of Artemis, there is archaeological evidence indicating that materials such as gold, bronze, and carving of bone and ivory were worked locally (above, chap. 2.6).

5.6 A GIRDLE FOR ARTEMIS

436 amber pieces belonging to several categories of carved ambers, namely 258 beads, 42 pendants, and 136 spacers, have been found in the extremely circumscribed area of the »Hortfund«. They show similar style, dimensions, colour, and, if present, a similar type of decoration, so that one can imagine they all once belonged to one single votive offering, a female ornament. 136 spacers are clear clues to the identification of the ornament as a suspended one, constituted by several rows of carved ambers, which were distanced and kept in order by the spacers. Surprisingly good comparisons between the spacers from Ephesos and artefacts from Oenotrian female graves in Southern Italy allow us to identify the suspended ornament: the shapes and numbers agree with the identification of the presumed ornament as a multi-row girdle (above, chap. 2.4). This chapter aims to explore this possibility and reach a plausible idea of the original aspect of the girdle.

Amber girdles have been identified in Oenotrian female graves in modern-day south-western Basilicata, datable from the late 8th to the early 6th century BC, as mentioned (above, chap. 2.4). They have several rows of ornaments, composed of beads, spacers of various shapes (geometric and bird-shaped), pendants of various shapes (with vertical and horizontal through-borings), but all of them have two end-spacers at both extremities used to collect together the various strings of the ornament (pl. 33).

In the Artemision, the spacers were found in four metrical units, i.e., ART 870232, ART 870246, ART 870281 and ART 870352 (pl. 34, 1). The two end-spacers (type 1) are similar in shape and size, each showing five borings, and were found in the same metrical unit in the »Hortfund«, i.e. ART 870352 (pl. 34, 2): they may belong to the ends of the same girdle and are precious indications of the existence of only one ornament originally made up of five rows, sustaining a lower row of pendants. Several spacers, bird-shaped (28 spacers, type 5), triangular (55 spacers, type 7), and round (16 spacers, type 8), respectively, belonged to the upper rows of the ornament, while bird-shaped spacers with three borings (32 spacers, type 4) and some pendants all belonged to the lowest row (pl. 35, 1. 2). The original aspect of the upper part of the girdle is highly hypothetical,

[1260] On the topic, see Naso 2007, 24–26; Baughan 2013, 62–65; Verger 2019, 390.
[1261] Jacobstahl 1956, 33.

a layout comprising opposing rows of triangular spacers so far constituting the only certainty. Pendants with vertical borings (17 pendants, type 5a) might be hung from the lowest row of the girdle thanks to the vertical boring of the type 4 bird-shaped spacers. To the lowest row also belong pendants with a horizontal boring (9 pendants, type 5b), possibly mixed with some others with a vertical boring: both type 5a and type 5b pendants have a similar decoration, which is visible only if the pendant is hanging downward. Another 16 pendants and several beads of various shapes should belong to the same girdle, and were strung along horizontal and vertical rows. One has to presume a quite strict structure, in which the spacers with several through-borings played the most important role, providing both connectivity and a certain solidity to the entire composition. This is particularly true for both ends of the ornaments, where the end-spacers constituted a crucial point for the girdle and where one can locate the round spacers with several borings (15 spacers, types 8b and 8c). The textile thread was surely a key element (pl. 36, 1. 2), and one should postulate that it ran more than once through the borings and was reinforced by well-tied knots.

We must point out that we will probably never know what the girdle offered to Artemis really looked like: the original appearance might be similar to the one we can only imagine. If we try using all the carved ambers found in the »Hortfund« and some others, we can reach a total of about 450–500 components – this takes into account that a percentage of the tiny amber objects was inevitably lost or destroyed in the groundwater or during the modern excavation of the sanctuary[1262]. The evidence of two end-spacers indicates the original presence of one girdle. The suggested reconstruction is based on the actual quantity of carved amber found in the »Hortfund«, but the original length of the girdle remains highly hypothetical (pl. 36, 3)[1263].

I am inclined to exclude the presence of beads of glass, faience, and other materials in the composition of the girdle, in spite of the fact that beads of this type have been found in the Artemision and that they were also numerous in the »Hortfund«: the quantity of amber beads is sufficient to presume the original presence of a girdle completely composed of amber[1264]. On the other hand, the beads of materials other than amber inserted in a few examples of polymateric ornaments from Oenotrian female graves would indicate the possible inclusion of beads of glass, faience, and other materials in the girdle from the Artemision[1265]. It is appropriate to conclude that before passing a definitive judgement we must wait for the final publication of all the beads found in the »Hortfund«, as these are still unpublished.

The votive offering of a unique artefact such as the amber girdle in the sanctuary of Artemis at Ephesos raises a series of questions. Were girdles a common votive offering to Artemis? Was the girdle a local product or was it imported to Ephesos, where it remained an isolated artefact? When was it offered, and by whom?

After all, in Greek sanctuaries outside Ephesos, girdles were a well-known votive offering to female deities but were usually made of bronze[1266]. G. Klebinder-Gauß has recently explored

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[1262] On possible steps in the excavation process during which very small objects may have been lost see Kerschner – Konuk 2020, 157–159 figs. 37–38.

[1263] As a comparison, it may be worth remembering that the girdle found *in situ* in the grave Chiaromonte 156 consists of almost 300 components (S. Bianco in: Ambre 2007, 242 no. III.264, here pl. 33, 2).

[1264] Pulsinger 2008 provided an overview of beads of glass and other materials found in the Artemision. These beads are being prepared for publication by A. M. Pülz and B. Pulsinger, Pulsinger – Pülz (in preparation).

[1265] As composite ornaments, one can mention the diadem with bone, ivory, glass, amber and scarabs from Alianello, grave 315 (C. Gaslain in: Magie 2005, 61; S. Bianco in: Princesses 2012, 339–343) and the girdle with bronze, ivory and amber beads from the grave Alianello 594 (M. Tagliente in: Magie 2005, 80; S. Bianco in: Magie 2005, 94). Both graves date to the 7th cent. BC. M. Kerschner (personal communication) suggested that possibly amber beads were lost and they may have been substituted with beads of other material such as glass or faience, amber being rare in the Aegean.

[1266] Klebinder-Gauß 2007, 93–108 provides an overview of the main cases of girdle finds in Greek sanctuaries devoted to female deities and explored the possible meanings of the votive offerings. A particular belt buckle made up of a gold plate within a bronze frame has been found in the sanctuary of Artemis at Ephesos (Pülz 2009, 136 f. 313 no. 433). D'Acunto 2000 reviewed the images of belts in the Greek statuary of the 7th cent. BC.

the purpose of votive offerings of girdles to deities in general, and to Artemis in particular, in the publication on the bronze girdles brought to light in the Artemision at Ephesos. The ancient literary tradition stressed certain moments in the life of a woman such as virginity, marriage and giving birth, which justified the gift of an ornament closely connected to the waistline and therefore mostly to the function of procreation. Other meanings linked to religious beliefs were sometimes associated with female adornments. An example is provided by female necklaces with bronze pendants. Ornaments of this type were deposited around 600 BC as funerary interments in a grave in Megara Hyblaea (province of Syracuse) and in the second half of the 6th century BC as votive offerings in the sanctuary at Satricum (province of Latina)[1267]. However, this type of link has never been suggested for girdles.

To determine the place where the girdle was produced, we must examine the framework of the relationship between the Ionian world and the Oenotrian cultures in which amber girdles are common. In the composition of the complex belt, bird-shaped spacers play a particularly important role, as they can assume both a religious meaning and a functional purpose (above, chap. 2.4). The earliest finds of amber bird-shaped spacers are documented in the Oenotrian cemetery of Macchiabate (commune of Francavilla Marittima, province of Cosenza), in female burials dated to the third quarter of the 8th century BC onwards – others appear somewhat later, in the female Oenotrian burials in Basilicata, dated from the late 8th to the early 7th century BC (above, chap. 2.4). A relationship between Southern Italy and Ephesos was possible through Siris. This Eastern Greek city was founded by the Ionians from Colophon on the coast of modern-day Basilicata and its active role as a link between Ionian and Oenotrian aristocracies has recently been suggested[1268]. According to a common pattern in the colonial relationships, one can presume marriages between Greek colonists and Oenotrian women, so that the personal relationships became a driving force in the general framework of the contacts between the Greek cities of the Eastern Mediterranean and Southern Italy or the Italian Far West[1269].

The Oenotrian finds from Francavilla Marittima indicate that the fashion for amber girdles was created in Southern Italy in the last quarter of the 8th century BC, and although it developed further in Basilicata, it failed to influence the production of a similar ornament in Ionia: here the girdle appears as an isolated element, and anyway, in no case was amber itself as common as it was in the Italian peninsula. Although the Ephesian girdle follows Italian (Oenotrian) prototypes and the stylised bird figures adopted for the spacers depend upon earlier Italian models, the carver was able to create a personal style, as testified by the rendering of the bird-shaped spacers and by the use of triangular spacers. Therefore, I am inclined to consider the execution of the girdle as a special commission assigned to a skilled (Oenotrian [?], East Greek [?]) carver active at Ephesos, who had become familiar with the carved ambers from Southern Italy within the framework of the relationships between the Oenotrian people and the Greeks of Siris or of other Greek foundations. The circles incised on several ambers are also an Ephesian peculiarity, almost a workshop's trademark: the same is true for the round spacers (spacers, type 8), which have been tentatively associated with the girdle. The hypothesis of local work is, of course, open to doubt, because no other amber girdles from Ephesos or from Ionia have come to light: in future, amber finds will make it possible to verify this hypothesis.

According to local usage, the girdle was first offered to Artemis by a woman and then deposed in the filling on the floor of Naos 1 before Naos 1a was built. The polished and glossy surface of several ambers shows that the pieces were used for a short time so that one can imagine a very

[1267] Verger 2010, 298–305 and Verger 2011.

[1268] See Guzzo 2013, 161 f. no. 2 fig. 2, 191 cat. 5. Similar relationships in the territory of Sybaris have been evaluated by Guzzo 2017 and Guzzo 2022. Ionian emigrations in the western Mediterranean have been analysed by Gras 1991.

[1269] The literature on foreign women and mixed marriages is relevant, and I would be so bold as to refer to my recent contribution on the topic, with previous literature (Naso 2020).

brief exposition followed by the deposition in the earth. The most probable date for the chronology of the girdle is around 650 BC or a little later, before the deposition date of the filling of Naos 1a, placed around 650–640 BC. The jewel was probably buried wrapped in a cloth, as the high number of fibulae with amber coating and belonging to the same votive deposit indicates: some of them may have been used to close the cloth bag containing the precious amber girdle and other ornaments. The cloth bag might possibly also include a precious dress and other perishable offerings. Over time, the continuous infiltration of groundwater into the sanctuary's central area wore out and destroyed the cloth and dispersed the carved amber over a larger area[1270].

Who offered the amber girdle to Artemis? Foreign votive offerings and western offerers are generally rare at the Artemision, which is closely connected to local offerers and Lydian kings, as shown by the inscription on the marble columns of Dipteros 1, mentioning the dedication of the columns by the Lydian king Croesus[1271]. For this reason, the votive offering by an Oenotrian woman, whose possible presence in Ionia has never been suggested, seems quite unlikely: the idea of a local production corroborates the hypothesis of a Greek offerer. The amber girdle was probably offered to Artemis by a Greek woman capable of appreciating a new ornament, locally produced under the influence of Oenotrian jewels from Southern Italy. The girdle should be considered as a work produced as a special commission because at Ephesos it remained a unique piece. The close connections between the Ionians settled in Siris and the Oenotrian élites (below, chap. 5.7) favoured the reception of an Oenotrian style belt in Ionia.

5.7 RELATIONSHIPS BETWEEN IONIA AND MAIN ITALIAN AMBER-WORKING DISTRICTS

What were the overall relationships between Italian localities and Central Ionia? What do we know about the cultural contacts between these two regions? Can one mention further reasons and identify any clues to identify a restricted area?

From the first half of the 8th century BC, the Greek foundations in Southern Italy favoured the extensive spread over the peninsula of their distinctive cultural elements, first among these, of course, the Greek alphabets[1272]. On the other hand, the Greeks ›discovered‹ new customs and new materials in Italy and increased the range of their craftsmanship. The relationships were both complex and articulated: recent research has perceptibly changed the previous outlook concerning the first contacts between Greek ›colonists‹ and local inhabitants in Southern Italy and composed a fascinating picture involving a mix of cultures, dominated by interaction and hybridity[1273]. In this new perspective, the area of the modern-day Basilicata plays a very important role, showing how complex and various these relationships could be. The area overlooking the Gulf of Taranto between the Spartan colony itself and Sybaris was free of Greek foundations in the 8th century BC and only around 650 BC was the Greek colony of Siris founded there[1274]. In the territory in which Siris was founded, Greek finds predating the foundation of that city have been recovered – their interpretation is debated in the framework of the issue about the location of early Siris. It is worthwhile to describe briefly the knowledge accrued so

[1270] Kerschner 2020, 195 and fig. 11 shows the actual presence of groundwater in the Artemision central area.

[1271] Rumscheid 1999, 28 f. fig. 5; Kerschner 2006 collected and discussed the Lydian votive offerings from the Artemision; Kerschner 2020, 235–239 stressed that the construction of the temple began in 580–570 BC and was finished 120 years later, in the 2nd quarter of the 5th cent. BC.

[1272] Parker – Steele 2021 is devoted to the spread of the Greek alphabets in the Mediterranean.

[1273] Several contributions in Donnellan et al. 2016a and Donnellan et al. 2016b raised new ideas on the topic. Ancient literary sources about the Oenotrians settled in Basilicata have been discussed by Mele 2017, 228–230.

[1274] Guzzo 2017 suggested a balanced review of the relationship between Oenotrians and Greeks in the territory of Sybaris. See now Guzzo 2022.

far about the territory around Siris, as shown some years ago in an important symposium[1275]. Recent publications of the cemeteries of Siris in the area of modern-day Policoro (province of Matera) provided fresh data and, by renewing our perspective, allowed the (re)opening of the debate.

The south-west cemetery of Schirone at Siris yielded at least 125 burials, all placed within rare pithoi from Rhodes and Corinth and in trade amphoras from Miletos, Chios, Samos, Clazomenai, Lesbos, Athens, Corinth and from other as yet unidentified Eastern Greek production areas, all dating to the first half of the 7th century BC[1276]. The burial rites and the absence of rich funerary interments allowed researchers to assign the cemetery to a Greek community and to identify the area of Schirone as the earliest cemetery created for the first immigrants from Eastern Greece and the Aegean. According to Mario Lombardo and further scholars, these were indeed the first settlers of this area before the actual foundation of Siris, which is dated ca. 650 BC[1277]. The large range of original provenance of the ›foreign people‹ from Eastern Greece and elsewhere is exemplified firstly by the trade amphoras, whose early shapes find few comparisons in Ionia itself, and secondly, by certain special finds, such as the unidentified (Eastern Greek [?]) trade amphora bearing a presyllabic Cypriot inscription[1278]. The settlement patterns of the earliest phase included mixed groups of people both of various overseas origins and locals, and this favoured the cultural contacts and the exchange of diverse types of knowledge, techniques and customs between individuals of different provenance and languages. The resulting mixed society is well reflected in the approx. 450 burials explored in the Western cemetery of Madonnelle at Siris, dated from the late 8th to the late 7th century BC; it mostly comprised cremations similar to those at Schirone, which are assigned to Greek individuals, but also included other inhumations showing individuals buried in a crouching position in accordance with local burial rites[1279]. The existence of single huts inhabited by indigenous people is attested by single sites dated to the late 8th to the early 7th century BC, including huts and coeval graves of individuals buried in a crouching position in the settlement area. Schematically, it seems to identify at least three types of burials in the territory of modern-day Policoro, related to the different settlement patterns of the district, i.e. 1. cemeteries with Greek cremation burials (Schirone); 2. cemeteries with Greek cremation burials and local people inhumated in a crouching position (Madonnelle); and 3. local people buried in a crouching position in the settlement area[1280]. A detailed interpretation of these data lies outside of the aims of this book. One can summarise that in general, the territory around Siris shows clearly how close the relationships between Greeks and Oenotrians were from the late 8th to the early 7th century BC onwards. Moreover, the intensity of cultural contacts in this area probably also favoured the presence of mixed communities and mixed marriages. How does this reflect upon the votive offering of an amber belt in the Artemision at Ephesos?

According to the schema developed by C. Ulf, cultural contacts among peoples of various origins are characterised by reciprocity[1281], so that one can look for Ionian elements in Italy and Italic elements in Ionia[1282]. Generally speaking, we can identify the main flow from Ionia to Italy

[1275] Siris 1986.

[1276] The funerary interments from the necropolis at Schirone have been published by Berlingò 2005 and Berlingò 2016.

[1277] Lombardo 2000, 200–204. 230–238 collected and discussed ancient literary sources about Siris.

[1278] The Cypriot inscription was identified by G. Pugliese Carratelli (Pugliese Carratelli 1971) and the amphora was later published by Berlingò 2005, 344 no. 16 figs. 10–12.

[1279] 68 funerary interments from the necropolis at Madonnelle have been published by Berlingò 2017.

[1280] Giardino 2010 furnished an overview of the archaeological sites around Policoro, recently analysed by Altomare 2022, 127–134 no. 75 (Policoro), with previous literature. De Stefano 2022, 20–33.

[1281] C. Ulf reviewed the literature on the theoretical approach to cultural contacts in antiquity and believes reciprocity is a key element in contacts among people of different cultures (Ulf 2009, 106–110).

[1282] Good examples are known from the 6th cent. B.C: J. Spier was able to identify a gem-cutter trained in an East Greek workshop, who probably travelled west to Etruria in the late 6th cent. BC and he, in turn, had an Etruscan apprentice, the Master of the Boston Dionysos. Other members of the same East Greek workshop probably influenced gem-engravers in Lydia (Spier 2000). J. Barron presumed the adoption of Latin names by East Greeks (Barron 2004).

and a minor one flowing in the opposite direction from Italy to Ionia and the Aegean: amber is one of the few elements travelling from west to east[1283]. According to this view, the votive offering of an amber girdle influenced by Oenotrian artefacts in a Greek sanctuary in Ionia leads to the search for any contacts going in the opposite direction, namely, from Ephesos to Italy, and more specifically from Ephesos to modern-day Basilicata. We will also follow the same procedure for the Adriatic district, as we have seen how this constituted the main hub for amber trade in pre-Roman times all over the Mediterranean.

The perspective we suggest is supported by some finds from Basilicata, which have recently been identified, some as purely Eastern Greek works, and others as probably Eastern Greek imitations of Phrygian products, all dated to the second half of the 7th century BC. Their identification as personal ornaments (fibulae and pins) corroborates the hypothesis of a movement of people between Southern Italy and Ionia, particularly Ephesos, where close comparisons with the Artemision votive offerings have been identified[1284]. One can also take this argument one step further. A silver fibula from grave 154 of the Oenotrian cemetery of Chiaromonte, similar to Phrygian jewels, has been connected to Northern Greek or Balkanic fibulae. Two silver necklaces from the female graves 142 and 157 of the same cemetery are isolated in those contexts and can actually be connected to jewels from Cumae in Campania; it is worthwhile to point out that, regarding this comparison, we do not have in-depth knowledge of the jewels from cities such as Siris and Sybaris[1285]. Common to each jewel from Chiaromonte is the combination with other precious items, such as a gilded pendant in the necklace (grave 142), a silver chain with two silver pendants in the fibula (grave 154), or a silver pendant on the necklace (grave 157). New jewels have been created by joining various objects of different origin. All three of the graves mentioned belong to the first half of the 6th century BC[1286]. A further silver find has come to light in the *anaktoron* explored at Torre di Satriano (province of Potenza) in Basilicata, which yielded the impressive remains of a building dated from ca. 550 BC onwards, and a silver brooch reproducing a bird with open wings, identifiable either as an eagle or more probably as a hawk[1287]. There are no stylistic comparisons for the jewel in Southern Italy, but the subject is strictly connected to the series of gold and silver brooches found in the Artemision at Ephesos and probably also in other Ionian localities[1288]. The Ionian brooches reproduce a hawk with open wings. On the one hand, this bird is connected to Artemis through Cybele, whose early cult influenced the worship of the Greek deity in the sanctuary at Ephesos. On the other hand, the hawk (Gr. μέρμνος) was the heraldic animal of the Mermnad dynasty of Lydia, whose connections with Ephesos were deep. According to W. Rudolph and G. Platz-Hoerster, similar brooches were produced in the second half of the 7th century BC by the same workshop, active at Ephesos, which had »more than one master and worked for at least one

[1283] Greek foundations in Italy have been and are subject to countless studies, which are continuously reassessed: see Donnellan et al. 2016a and Donnellan et al. 2016b. With special regard to Anatolia and Etruria, the proceedings of the conference held in Rome 2016 are a reference point (Baughan – Pieraccini 2023).

[1284] Verger 2014; Verger 2016.

[1285] Similar silver jewels are also documented in Greek cities in Sicily such as Megara Hyblaea and Syracuse (P. G. Guzzo, personal communication).

[1286] Guzzo 2014, 153 with previous literature for the jewels from the three Oenotrian graves, the best images of which have been reproduced in Trésors 1998, pls. 20 (grave 142). 21–23 (grave 154). 25 (grave 157). Verger 2014, 20 suggested the silver fibula from the grave Chiaromonte 154 should be classified as a work of Northern Greek or Balkan origin, but he did not discuss any of the jewel's other features.

[1287] P. G. Guzzo in: Osanna – Guzzo 2015, 9–11 no. 2. A female grave of the late 5th cent. BC at Orsara di Puglia (province Foggia) also yielded a bronze brooch with silver coating reproducing a hawk with open wings, which is probably a late echo of the Ionian brooches (Bruscella 2016, 239 no. 32k).

[1288] In the Artemision at Ephesos several gold and silver brooches have been found, both in the English excavations (six gold examples reproducing hawks »with open wings«: Hogarth 1908a, 97 nos. IV.21. IV.22–X.35. IV.23. IV.24–X.41. IV.27. IV.28–X.40, for the back: IV.28–X.40; IV.22–X.35, IV.24–X.41), and in the Austrian excavations (two specimens, in gold and silver respectively: Pülz 2009, 221 cat. 26 and 27 pls. 4–5 colour pl. 5, 51–52). Seven other silver brooches are preserved in North America, and one gold brooch is in Berlin (Pülz 2009, 51 f.).

generation«[1289]. According to P. Jacobstahl, another possible example of Ionian or Ephesian import to Italy is a silver pin found several years ago on the Tyrrhenian coast, in northern Calabria, at Santa Maria del Cedro (province of Cosenza) in the territory of Laos. The pin was found in a female grave with other Greek funerary interments, later than the pin itself, which can be dated no later than the first half of the 6th century BC: the imported jewel had probably been held as a precious heirloom for several years before being placed in the grave[1290]. Both the brooch and the pin, conceived as personal ornaments, can be originally related to Ionian women and probably to Siris: the brooch could have been considered as an exotic *keimelion* in an indigenous context, while the pin might originally have belonged to an Ionian (Ephesian [?]) woman in Italy.

Very interesting results emerge when comparing the stylistic characteristics of the silver ornaments and the results of the laboratory analysis of the silver used for the necklaces from the graves Chiaromonte 142 and 157, for the fibula from the grave Chiaromonte 154 and for the brooch from Torre di Satriano: the composition of the silver used in each jewel gave different results, showing the use of different metals, each with its own unique peculiarities[1291]. These results seem to corroborate the idea of distinct provenances, although unknown, for each type of silver, and perhaps also of the jewels themselves, thus confirming the possible existence of open societies in Basilicata in the first half of the 6th century BC.

It is hard to identify Ephesian or Ionian elements on the Adriatic shores of Italy: notoriously, Aegean imports to Verucchio are very few[1292]. On the other hand, Adriatic artefacts indicate contacts with the Aegean already in the 7th century BC, as in the case of three bronze fibulae found in the sanctuary of Hera at Samos, one of them probably produced in Emilia-Romagna at Verucchio[1293]. Regarding Verucchio, one can also presume the export of precious textiles, which is hard to verify archaeologically[1294]. From a *longue durée* perspective, this relationship is also documented later. A special shape of Etruscan bronze funnel from Panticapaeum on the northern shore of the Black Sea, probably produced in Emilia-Romagna in the late 6th century BC, bears a Greek inscription declaring it as a votive offering to Artemis Ephesia: it was first brought from Italy to Ephesos and then offered in a sanctuary in the remote Greek colony of Panticapaeum founded by Milesians[1295]. The find shows how broad and intense the connections in the Mediterranean and beyond were, and how our present-day understanding is still casual and unsystematic.

To sum up, a review of our actual knowledge indicates the presence of settlements inhabited by Ionians and Oenotrians on the Ionian coast of Basilicata, in the area of Policoro, from the 8th century BC onwards, which means that these two peoples enjoyed close relationships with one another. The archaeological record also includes personal belongings of Ionian women connected to the indigenous world and testifies to the use of mixed jewels, obtained from precious elements

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[1289] Quote from Rudolph 1995, 57. 75 f. cat. 13 F; see also Platz Horster 2001, 23 f. for the connection of the hawk with female deities.

[1290] Galli 1932, 325–328 for the grave; 326 fig. 2 for the silver pin, classified as Ionian by Jacobstahl 1956, 34 fig. 133; Guzzo 1993, 298. Similar shapes occur in bronze in the Artemision at Ephesos: Klebinder-Gauß 2007, 71 f. and 240 no. 288, pl. 20.

[1291] R. Teghil – A. Smaldone in: Osanna – Guzzo 2015, 14–17.

[1292] Bentini et al. 2020, 385 f. mention a few Aegean imports to Verucchio. The Greek imports to Emilia dating back to the 7th–6th cent. BC have been listed and commented by Lippolis 2000.

[1293] Among the three specimens of bronze fibulae, a pair of navicella-type fibulae is well known (von Hase 1997, 297 figs. 5.4) and a dragon-shaped fibula has recently been identified (Bentini et al. 2020, 385 f. fig. 3 for this fibula). The origins and the early worship phases in the sanctuary at Samos have been reviewed by Walter et al. 2019 (169 f. for the mention of amber finds in the Artemision at Ephesos).

[1294] The Iron Age textiles from Verucchio, which are one of the most relevant textile groups throughout the Mediterranean, have been reviewed by Stauffer 2012, Ræder Knudsen 2012 and Stauffer – Ræder Knudsen 2015. The remains of raw blue pigments (Isatis tinctoria) were identified in the graves Lippi 32/2006 and Lippi 40/2006 and have been connected to their usage as colouring for textiles (Rottoli et al. 2015, 112. 117; Bentini et al. 2020, 386).

[1295] Naso 2015, 167 no. 78 with previous literature (funnel of the San Martino in Gattara type). On the offerer's name see Vinogradov 1997, 505–507. On archaic Panticapaeum see Treister 2007.

of different origin, also connected to Ionia and Ephesos. The connection between the sanctuary of Artemis at Ephesos and the Oenotrians, whose artisans were able to develop the models for the amber belts, seems to be thus attested. Therefore, we can conclude that the model of the girdle was developed in Italy and then transmitted to Ionia. Probably the girdle was a special commission assigned to a skilled (Oenotrian [?], East Greek [?]) carver active at Ephesos, who had become familiar with the carved ambers from Southern Italy within the framework of the relationships between the Oenotrian people and the Greeks of Siris or of other Greek foundations in Southern Italy.

The connections between Verucchio and the Adriatic area and Ephesos and Ionia are not as strong as those linking Basilicata and Ephesos. Nonetheless, they can be substantiated by some clues, which provide enough evidence to presume that the import of raw amber to Ephesos actually travelled through the Adriatic channel. Probably skilled carvers of different origins travelled to Ionia together with the raw amber. The dense Mediterranean framework of the 8th to the 7th century BC included a whole universe of nuances and gradations, and the identification of single actors is not easy[1296].

5.8 THE ARTEMISION AS AN AMBER-WORKING CENTRE

The development of a taste common to female aristocracies in the late 8th to the 7th century BC is a well-known phenomenon in Mediterranean and Central European societies. It also includes elements traditionally associated with the female sphere, such as careful work on clothes, using precious wool-crafting tools. Therefore, it is hardly surprising to find similarities between the images reproduced on a late Hittite stone funerary stele from Maraş (South-Eastern Türkiye) in the 8th century BC, and on an ivory statuette of a spinner from Ephesos or on an Etruscan bronze rattle from Bologna in the 7th century BC[1297] (pl. 37, 2). The female offerer of the amber girdle to Artemis belonged probably to these elites.

The importation to Ephesos of a substance such as amber, an extremely exotic substance in the Eastern Mediterranean, is an exciting phenomenon. If the early date of the two Geometric heads (**cat. 2**–**3**) is correct, this would mean amber was already known in Ephesos before the girdle's arrival. In this context, we must stress the Baltic origin of the amber used in Ephesos, according to the samples analysed by FTIR (above, chap. 3), and the presence of unfinished pieces, as these prove the importation of amber as a raw material (above, chap. 2.8).

The two Ephesian heads (**cat. 2**–**3**) have a properly Geometric style so that one can presume their production occurred directly in Ionia and at Ephesos. They may possibly be the work of local carvers, more familiar with ivory carving than with amber: this is attested by various drillings, the reuse and the different functions of the two heads and of other figured pieces. The amber-working testifies a very high level of technical ability already in the early finds because the drillings are

[1296] Bourdin et al. 2021.

[1297] Schachner – Schachner 1996 and Gruber 2004, 89 fig. 48 for the late Hittite stele. Şare 2010, 72 fig. 12 furnished literature about the ivory statuette from the Artemision at Ephesos and suggested it was a distaff handle. The literature on the rattle from Bologna ranges at least from Morigi Govi 1971 to Torelli 2011, 201 f. Iron Age textiles from Italy are collected and discussed by Gleba 2012 (231 for wool-working tools). Regarding wool-working tools in precious materials, one can mention amber sets from several burials belonging to the late 8th–early 7th cent. BC in Verucchio such as the graves Lippi 24/2005 (pl. 37, 2), 47/2006 (pl. 37, 3), 23/2005 (pl. 37, 4), 58/2007 (respectively Le ore 2007, 180 nos. 122–123; Princesses 2012, 257 no. 27; Poli – Privitera 2018; Ghini – Poli 2018) and from Vaglio, grave 102 (early 6th cent. BC: M. Tagliente in: Magie 2005, 76–78). A useful selection of funerary interments belonging to upper-class women are collected in Princesses 2012: see particularly S. Bianco in: Princesses 2012, 326–335 for the grave Chiaromonte 325, dated to the late 8th–early 7th cent. BC. The evidence related to the occurrence of wool-working tools and sets in Central European female graves is discussed by Fath – Glunz-Hüsken 2011.

small and fine and the surface perfectly polished[1298]. The clear and transparent substance was carefully chosen. If we are right to assign them originally to pinheads, both amber heads are deeply rooted in a typical Ephesian production, probably made expressly for use as votive offerings in the sanctuary of Artemis, but open to the Near Eastern tradition of the figured pinheads. The use of amber for an Ephesian speciality, such as the pins, can help to clarify the import of raw amber to Ephesos, a substance quite rare and almost exotic in the Aegean in the 7th century BC, as the few comparisons show.

Can one presume an import of the raw amber through Italy? The answer seems positive: along the coasts and inland areas of the Italian peninsula the resin fossil was so popular that one can describe Italy falling prey to an actual *ambermania* at the time. On the other hand, an import through Anatolia seems quite unlikely: very few amber finds have been discovered in this region, and the most relevant, such as the carved ivory panel with gilded and amber inlays from Kerkenes Dağ, date to 580–570 BC (above, chap. 2.6)[1299].

Which Italian region would be likely to serve as a trade hub for the import of raw amber to Ionia? The natural terminal of the Baltic amber used in Ephesos was in the Adriatic basin, an area where the role of Verucchio in amber trade was overwhelming from the second half of the 8th century to 650 BC. This view is confirmed by the amber finds from the Balkanic sites, generally later than the 8th to the 7th century BC[1300]. The redistribution of raw amber undertaken in Italy by the Etruscan élites of Verucchio brought the highly desirable resin fossil by both land and sea routes through the Tyrrhenian and Adriatic shores into central and southern regions of the Italian peninsula, not only to Etruria, Latium vetus and Campania, but also further south, to modern-day Basilicata, Puglia and Calabria. Typical amber products of these regions, such as the fibulae from Emilia-Romagna and Campania and the girdles from Basilicata, find good comparisons in the carved amber from Ephesos and show how large and intense the range of contacts between the Adriatic and Tyrrhenian Italy with Ionia was. It is hard to choose one region or another, or one place or another as the main trade hub for the amber trade from Italy to Ionia. However, the presence of Greek foundations in Southern Italy, such as Siris, leads us to prefer the southern regions. Archaeological evidence leads us to presume that more than one region in Italy could act as a source for the raw amber brought to Ephesos. After all, although the main find, i.e. the girdle, is connected to Basilicata, the fibulae coated with amber and ivory or bone inlaid with amber are rare in Basilicata and seem strictly related to artefacts from Emilia-Romagna and Campania. Future discoveries will no doubt verify this interpretation. Probably skilled carvers travelled together with the raw amber from the Italian peninsula to Ionia.

The relationship may account for the development of similar tastes in amber ornaments in both regions. In Ephesos some ivory statuettes, including the one conventionally called Megabyzos, whose name is now corrected to Megabyxos[1301], show women with long necklaces formed by beads and pendants that in the real world may have been of glass or amber or both of these materials, possibly illustrating the local importance of amber[1302].

The systematic review of the carved amber reveals the existence of shapes occurring only in Ephesos, such as the Daedalic bust (**cat. 1**) and some beads (types 4b and 4c), pendants (type 6) and spacers (types 3, 7 and 8): they have been tentatively assigned to local carvers, who developed an individual style, destined to satisfy the consumption of goods and the demand for votive offerings at the sanctuary of Artemis. Further artefacts can be assigned to these skilled workers,

[1298] I was not able to identify the ancient source of information (Pliny, nat. [?]) on the use of pumice and shark's skin for the first cleaning and then of gypsum powder and finer skin for the final polishing of an amber surface (Virgili 1989, 54).

[1299] Dusinberre 2002.

[1300] In several contributions, A. Palavestra stressed the influence of Italian on Balkanic amber workshops: Palavestra – Krstić 2006, passim.

[1301] According to the new spelling suggested by Bremmer 2004.

[1302] The ivory statuettes from the Artemision have been reviewed by Işık 2001; Radner 2001; Seipel 2008, 159–186.

such as wooden furniture and ivory or bone objects with amber inlays, which correspond to the taste which spread to Eastern Greece and was strictly limited to beds, thrones and boxes, as depicted on Athenian vase paintings. The few inlays identified in the Artemision were significantly not placed in the »Hortfund«, but were found scattered throughout the entire area of the sanctuary, and are too few to compose the intricate decoration which such items would have needed: one can presume they belonged to unknown artefacts, and that the work was abandoned or still in progress when the inlays were placed in the earth fillings. Their early date, certainly not after the late 7th to the early 6th century BC, is relevant because it allows us to assess, at least in this period, the introduction in the Aegean of the taste for amber inlays, which was a peculiarity developed during the 7th century BC in a district rich in amber such as the western Mediterranean. Before the discovery of the Ephesian finds, the earliest amber inlays from Greece and Ionia had been dated from 550 BC onwards.

The location of the carving workshop active in the Artemision is not known, either on the ground or through special finds[1303], but its activity can be reconstructed thanks to a significant quantity of amber and ivory remains. The Artemision at Ephesos can be added to the Greek sanctuaries having local workshops to satisfy the demand for votive offerings[1304].

Alessandro Naso

[1303] The most characteristic amber-carving tool was the bow drill, mostly consisting of perishable materials such as wood and leather and having a metal bit (De Grossi Mazzorin 2012, 40 fig. 2.5). It is hard to identify a drill bit among excavated metal finds, as it can easily be confused with metal artefacts such as nails and other tools.

[1304] Many Greek sanctuaries yielded remains from metalworking, and lists of these have been compiled by Martelli 2004, 15 f. and D'Andria 2020, 122 f.

cat. 342 **pl. 49, 342**
Excavation inv. ART 870281.39; AMS inv. 16/2/99.39
Fragment of an elongated oval pendant with an oval section and a cylindrical neck, surmounted by a round button-top, characterised by four surviving radiating grooves. The object is fractured vertically lengthwise, so only half of the pendant is preserved. There are two drillings, one perforating the artefact lengthwise from bottom to top and one, probably secondary, boring just over the neck of the pendant, running horizontally from its front to its back. The fracture is covered by an ancient patina. Red amber. H 2.2 cm; D max. 1.2 cm; D hole 0.25 cm; D horizontal hole 0.3 cm.

Type 5b: Pomegranate pendants with a horizontal bore-hole (cat. 333–339. 343–344)

cat. 343 **pls. 12, 9; 49, 343**
Excavation inv. ART 892609.2; AMS inv. 7/2/90
Globular pendant with a round section with a protruding neck, characterised by two grooves, surmounted by a round button-top with radiating incisions. The pendant is perforated at its base with two intersecting drillings. Red amber. H 1.5 cm; L 1 cm; D hole 0.1 cm.

cat. 344 **pl. 49, 344**
Excavation inv. ART 870353.6; AMS inv. 80/61/87
Globular pendant with a round section with a protruding neck, characterised by two grooves, followed by a round button-top with radiating incisions. The pendant is perforated at its base by intersecting drillings. Due to corrosion, the object has a massive hole at the front, which perforates almost half of the object. Red amber. H 1.4 cm; D 1.1 cm; D hole 0.1 cm.

Type 5a: Pomegranate pendants with a vertical bore-hole (cat. 320–332. 340–342. 345)

cat. 345 **pl. 49, 345**
Excavation inv. ART 870353.4; AMS inv. 78/61/87
Drop-shaped, oval pendant with a round section, which features a protruding neck and a cylindrical button-top. The object is perforated vertically from its bottom to its top. Red amber. H 2.2 cm; D max. 1.4 cm; D hole 0.25 cm.

Fragments

cat. 346 **pl. 49, 346**
Excavation inv. ART 870232.15; AMS inv. 15/2/99
Upper part of a fractured globular pendant with an oval section; its lower section is completely broken. The object is perforated horizontally at its base. Red amber. H 0.7 cm; L 0.7 cm; D hole 0.1 cm.

cat. 347 **pl. 49, 347**
Excavation inv. ART 870232.96; AMS inv. 15/2/99
Fragment of a globular pendant with an oval section; its whole upper part is fractured, therefore no clear statement can be made regarding its shape. A vertical perforation runs through the whole object. Yellow amber, translucent. H 1.1 cm; L 1 cm; D hole 0.15 cm.

cat. 348 **pl. 49, 348**
Excavation inv. ART 870281.55; AMS inv. 16/2/99
Possible fragment of a circular-shaped projection with an oval section, which features a horizontal drilling. The lower part of the object is fractured. Red amber. D 0.4 cm; D hole 0.1 cm.

cat. 349 **pl. 49, 349**
Excavation inv. ART 900374.3*
Possible fragment of a pendant with remains of a horizontal drilling. A typological designation of this piece is not possible due to its bad state of conservation. Yellow amber. L 0.5 cm; W 0.3 cm.

Caroline Posch

Spacers (cat. 350–488)

Type 1: Triangular-shaped end spacer-plates (cat. 350–351)

cat. 350 **pls. 18, 1; 49, 350**
Excavation inv. ART 870352.29; AMS inv. 169/61/87
Triangular-shaped spacer with five through-borings from the base to the top, one in the centre, two on each side. One boring is visible in the fracture; the end of one side is slightly fractured. Red amber. H 0.9 cm; L 3.7 cm; T 0.5 cm; D bore-holes 0.1 cm.

cat. 351 **pls. 18, 2; 49, 351**
Excavation inv. ART 870352.30; AMS inv. 170/61/87
Triangular-shaped spacer with four through-borings, one in the centre, two on one side and one on the opposite side. One end is missing. Dark yellow amber. H 1.3 cm; L max. 4.25 cm; T 0.6 cm; D bore-holes 0.08–0.09 cm.

Type 2: Rectangular-shaped spacer-plates (cat. 352–353)

cat. 352 **pl. 49, 352**
Excavation inv. ART 870232.93; AMS inv. 15/2/99
Fragment of a rectangular-shaped spacer, corresponding to an end, with two through-borings on the long side. A corner is missing. Red amber. L 2.1 cm; T 0.9 cm; D bore-holes 0.2 cm.

cat. 353 **pl. 49, 353**
Excavation inv. ART 870352.128; AMS inv. 17/2/99
Fragment of a rectangular-shaped spacer, corresponding to an end with two through-borings on the long side. Truncated at both ends. The sections of the broken sides are quite polished. Red amber. L 1.7 cm; W 1.7 cm; D bore-holes 0.2 cm.

Type 3: Uniquely shaped spacer-plates (cat. 354–356)

cat. 354 **pl. 49, 354**
Excavation inv. ART 870281.54; AMS inv. 16/2/99
Tiny fragment corresponding to an end of a two-row spacer, similar to no. 355 (excavation inv. 870341.77) with a through-boring. Red amber. H 0.5 cm; D hole 0.1 cm.

cat. 355 **pl. 49, 355**
Excavation inv. ART 870341.77; AMS inv. 17/2/99
Spacer, almost cylindrically shaped, with a central part and two sides, divided by two grooves; a through-boring on the length of each side. Whole. Red amber. H max. 1.1 cm; W max. 0.6 cm; T 0.5 cm; D holes 0.1 cm.

cat. 356 **pl. 49, 356**
Excavation inv. ART 870352.28; AMS inv. 168/61/87
Large triangular-shaped spacer with three through-borings, one larger in the middle of the long side and intersecting the other two, which are on the short side, and smaller. A fracture runs through one of the bore-holes on the short side. An end is missing, the surface is scratched. Matt, red amber. L max. 4.6 cm (originally 5.1 cm); W 2.3 cm; T 0.6 cm; D holes 0.25–0.4 cm.

Types 4–6: Bird-shaped spacers (cat. 357–417)

cat. 357 **pl. 50, 357**
Excavation inv. ART 900486.3*
Fragment of the projection of a triangular application. The object features a triangular section and a horizontal drill hole, visible in fracture. Translucent red amber. H. 0.6 cm; W 0.5 cm; D hole 0.15 cm.

cat. 358 **pl. 50, 358**
Excavation inv. ART 870352.4; AMS inv. 144/61/87
The element has a triangular base, which is perforated by one horizontal boring on each corner. The upper part is at a 45° angle to the base. Translucent yellow amber. L max. 1.2 cm; H 0.9 cm; T 0.6 cm; D holes 0.1 cm.

cat. 359 **pl. 50, 359**
Excavation inv. ART 870352.5; AMS inv. 145/61/87
Similar to cat. 358. Whole. Translucent yellow amber. L max. 1.4 cm; H 0.9 cm; T 0.4 cm; D holes 0.05 cm.

cat. 360 **pl. 50, 360**
Excavation inv. ART 870352.6; AMS inv. 146/61/87
Similar to cat. 358. Whole. Translucent yellow amber. L max. 1.4 cm; H 0.9 cm; T 0.5 cm; D holes 0.05 cm.

cat. 361 **pl. 50, 361**
Excavation inv. ART 870352.7; AMS inv. 147/61/87
Similar to cat. 358. Whole. Translucent yellow amber. L max. 1.1 cm; H 0.9 cm; T 0.5 cm; D holes 0.05 cm.

cat. 362–378 **pls. 18, 3; 50, 364. 366–378**
cat. 362
Excavation inv. ART 870246.121; AMS inv. 14/2/99
cat. 363
Excavation inv. ART 870246.122; AMS inv. 14/2/99
cat. 364
Excavation inv. ART 870246.123; AMS inv. 14/2/99
cat. 365
Excavation inv. ART 870246.124; AMS inv. 14/2/99
cat. 366
Excavation inv. ART 870246.125; AMS inv. 14/2/99
cat. 367
Excavation inv. ART 870246.126; AMS inv. 14/2/99
cat. 368
Excavation inv. ART 870246.127; AMS inv. 14/2/99
cat. 369
Excavation inv. ART 870246.128; AMS inv. 14/2/99
cat. 370
Excavation inv. ART 870246.129; AMS inv. 14/2/99
cat. 371
Excavation inv. ART 870246.130; AMS inv. 14/2/99
cat. 372
Excavation inv. ART 870246.131; AMS inv. 14/2/99
cat. 373
Excavation inv. ART 870246.132; AMS inv. 14/2/99
cat. 374
Excavation inv. ART 870246.133; AMS inv. 14/2/99
cat. 375
Excavation inv. ART 870246.134; AMS inv. 14/2/99
cat. 376
Excavation inv. ART 870246.135; AMS inv. 14/2/99
cat. 377
Excavation inv. ART 870246.136; AMS inv. 14/2/99
cat. 378
Excavation inv. ART 870246.137; AMS inv. 14/2/99

Seventeen bird-shaped elements similar to cat. 358, but with two different boring systems on the base. The first type, to which belong cat. 362, 364, 366, 368, 370–371, 373–378, has three through-borings: two are transversal and one longitudinal. The transversal boring on the front is connected to the longitudinal boring. Cat. 368, 370, 373–374, 376 belong to the first type, although they have two borings, because they are not whole and some parts are missing.
Cat. 363, 365, 367, 369, 372 belong to the second type and actually have one transversal boring, but they are not whole and some parts of the back are missing: the original presence of a second boring is highly probable.
In both types the upper part is at a 45° angle to the base. Translucent yellow and translucent red amber. The dimensions vary from max. (cat. 362) L 1 cm; H 0.9 cm; T 0.6 cm to min. (cat. 363) L 0.8 cm; H 0.5 cm; T 0.35 cm; D holes 0.1 cm.

cat. 379 **pls. 18, 3; 50, 379**
Excavation inv. ART 870246.138; AMS inv. 14/2/99
Bird-shaped element, similar to cat. 362 and with three borings: the transversal boring on the front is connected to a longitudinal boring. Whole. Translucent yellow amber. L max. 1 cm; H 0.9 cm; T 0. 4 cm; D hole 0.1 cm.

cat. 380 **pls. 18, 3; 50, 380**
Excavation inv. ART 870246.118; AMS inv. 14/2/99
Bird-shaped element, similar to cat. 362 and pierced by three borings: the transversal boring on the front is connected to a longitudinal boring. Whole, red amber. L max 1 cm; H 0.6 cm; T 0.2 cm; D hole 0.1 cm.

cat. 381–388 **pls. 18, 3; 50, 381–388**
cat. 381
Excavation inv. ART 870246.100; AMS inv. 14/2/99.l
cat. 382
Excavation inv. ART 870246.101; AMS inv. 14/2/99.m
cat. 383
Excavation inv. ART 870246.102; AMS inv. 14/2/99.n
cat. 384
Excavation inv. ART 870246.103; AMS inv. 14/2/99.o
cat. 385
Excavation inv. ART 870246.104; AMS inv. 14/2/99.p
cat. 386
Excavation inv. ART 870246.105; AMS inv. 14/2/99.q
cat. 387
Excavation inv. ART 870246.106; AMS inv. 14/2/99.r
cat. 388
Excavation inv. ART 870246.107; AMS inv. 14/2/99.s
Eight bird-shaped elements similar to cat. 358, but with two different boring systems on the base. The first type, to which belong cat. 381, 387 and 388, has three borings: the transversal boring on the front is connected to the longitudinal boring. The elements cat. 382–386 actually have one transversal boring, but they belong to the second type with two transversal borings, because all are incomplete and some parts are missing.
In both types the upper part is at a 45° angle to the base. Translucent yellow and translucent red amber. L max. (cat. 387) 0.6 cm; H 0.7 cm; D holes 0.1 cm.

cat. 389 **pl. 50, 389**
Excavation inv. ART 870232.35; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 362, with three borings: the transversal boring on the front is connected to the longitudinal boring; traces of the boring on the back are visible in fracture. The upper part is at a 45° angle to the base. Both ends of the base are broken and missing. Dark yellow amber. L max. 0.8 cm; H max. 0.7 cm; T 0.3 cm; D hole 0.1 cm.

cat. 390 **pl. 50, 390**
Excavation inv. ART 870232.36; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 362, with three borings: the transversal boring on the front is connected to the longitudinal boring; on the back of the element, a fracture runs through the bore-hole. The upper part is at a 45° angle to the base. One end is missing. Red amber. L max. 0.9 cm; H max. 0.7 cm; T 0.3 cm; D hole 0.1 cm.

cat. 391 **pl. 50, 391**
Excavation inv. ART 870232.37; AMS inv. 15/2/99 (5)
Fragment of a bird-shaped element, with a transversal boring on the base. Remains of the upper section have survived. Yellow, matt amber. L max. 0.5 cm; H max. 0.7 cm; T 0.2 cm; D hole 0.1 cm.

cat. 392 **pl. 50, 392**
Excavation inv. ART 870232.38; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 363 with a transversal boring on the base. The upper part is at a 45° angle to the base. One end is missing. Yellow, matt amber. L max. 0.7 cm; H max. 0. 5 cm; T 0.3 cm; D hole 0.1 cm.

cat. 393 **pl. 50, 393**
Excavation inv. ART 870232.39; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 362, with three borings: the transversal boring on the front is connected to a longitudinal boring; on the back of the element, a fracture runs through the bore-hole. The upper part is at a 45° angle to the base and its top is missing. Red amber. L max. 0.8 cm; H 0.9 cm; T 0.3 cm; D holes 0.1 cm.

cat. 394 **pl. 50, 394**
Excavation inv. ART 870232.40; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 362, with three borings: the transversal boring on the front is connected to a longitudinal boring; on the back of the element, a fracture runs through the bore-hole. The upper part is at a 45° angle to the base. One end is missing. Dark yellow amber. L 0.7 cm; H max. 0.5 cm; T 0.3 cm; D holes 0.1 cm.

cat. 395 **pl. 50, 395**
Excavation inv. ART 870232.49; AMS inv. 15/2/99 (5)
Bird-shaped element, similar to cat. 363 with a transversal boring on the base. The upper part and the back are missing. Yellow, matt amber. L max. 0.6; H max. 0.7 cm; T 0.2 cm; D hole 0.1 cm.

cat. 396 **pl. 50, 396**
Excavation inv. ART 870232.50; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 363 with a transversal boring on the base. The upper part is at a 45° angle to the base. Translucent, yellow amber. L max. 0.9 cm; H 0.7 cm; T. 0.3 cm; D hole 0.1 cm.

cat. 397 **pl. 50, 397**
Excavation inv. ART 870232.51; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 358. The upper part is missing. Translucent, yellow amber. L. max. 1.1 cm; H 0.8 cm; T 0.6 cm; D holes 0.1 cm.

cat. 398 **pl. 50, 398**
Excavation inv. ART 870232.52; AMS inv. 15/2/99 (3)
Bird-shaped element, similar to cat. 358. The upper part is at a 45° angle to the base. The top of the upper part is missing. Translucent, yellow amber. L max. 1.2 cm; H 0.7 cm; T 0.6 cm; D holes 0.1 cm.

cat. 399–405 **pls. 50, 399–51, 405**
cat. 399
Excavation inv. ART 870232.101; AMS inv.15/2/99
cat. 400
Excavation inv. ART 870232.102; AMS inv.15/2/99
cat. 401
Excavation inv. ART 870232.103; AMS inv.15/2/99
cat. 402
Excavation inv. ART 870232.104; AMS inv.15/2/99
cat. 403
Excavation inv. ART 870232.105; AMS inv.15/2/99
cat. 404
Excavation inv. ART 870232.106; AMS inv.15/2/99
cat. 405
Excavation inv. ART 870232.107; AMS inv.15/2/99
Seven bird-shaped elements with two different boring systems on the base. The first type, to which belong cat. 399–403 and 405, has three borings: the transversal boring on the front is connected to the longitudinal boring. The second type, to which belongs cat. 404, has one boring on the base. The upper part is at a 45° angle to the base and is missing or broken in some pieces. Translucent yellow amber. L max. 1 cm; H 0.9 cm; T max. 0.6 cm; D holes 0.1–0.15 cm.

cat. 406 **pl. 51, 406**
Excavation inv. ART 870232.108; AMS inv. 15/2/99
Bird-shaped element, similar to cat. 358; fractures run through two bore-holes. The upper part and the back are missing. Translucent yellow amber. L max. 1 cm; H 1.3 cm; T max. 0.6 cm; D hole 0.1 cm.

cat. 407 **pl. 51, 407**
Excavation inv. ART 870281.4; AMS inv. 16/2/99
Fragment of the base of a bird-shaped element, with traces of the borings at both ends. Yellow, matt amber. L max. 1.2 cm; T 0.3 cm; D holes 0.1 cm.

cat. 408 **pl. 51, 408**
Excavation inv. ART 870281.75; AMS inv. 16/2/99
Bird-shaped element, with a boring on the base. The upper part is at a 45° angle to the base. The back area is missing. Yellow, matt amber. L 1.1 cm; H 0.7 cm; T 0.2 cm; D holes 0.1 cm.

cat. 409 **pl. 51, 409**
Excavation inv. ART 870281.13; AMS inv. 16/2/99
Bird-shaped element, of a particular size and shape, with one vertical bore-hole and one horizontal bore-hole running through the base. The horizontal boring has been drilled across the vertical boring. The upper part is at a 90° angle to the base. Red, matt amber. H 1.4 cm; W 1.1 cm; D holes 0.15 cm.

catt. 410 **pl. 51, 410**
Excavation inv. ART 870281.21; AMS inv. 16/2/99
Bird-shaped element, with a transversal boring on the base. The upper part is at a 45° angle to the base. Whole. Yellow, matt amber. L max. 1 cm; H max. 0.6 cm; T 0.3 cm; D hole 0.1 cm.

cat. 411–415 **pl. 51, 411–415**
cat. 411
Excavation inv. ART 870281.27; AMS inv. 16/2/99
cat. 412
Excavation inv. ART 870281.28; AMS inv. 16/2/99
cat. 413
Excavation inv. ART 870281.29; AMS inv. 16/2/99
cat. 414
Excavation inv. ART 870281.30; AMS inv. 16/2/99
cat. 415
Excavation inv. ART 870281.31; AMS inv. 16/2/99
Five bird-shaped elements, with two different boring systems on the base. The first type, to which belong cat. 411 and 414, has three borings: the transversal boring on the front is connected to the longitudinal boring. The second type, to which belong cat. 412–413 and 415, has one boring on the base. Cat. 415 shows traces of a further blind hole in the front part of the base. The upper part is at a 45° angle to the base and in some pieces is broken. The colours vary from dark red to translucent yellow. L max. 1 cm; H 0.6 cm; T 0.3 cm; D holes 0.1 cm.

cat. 416 **pl. 51, 416**
Excavation inv. ART 870349.25; AMS inv. 17/2/99
Bird-shaped element, with a transversal boring on the base. The upper part is at a 45° angle to the base. Whole. Translucent, yellow amber. L max. 1.1 cm; H 0.8 cm; D hole 0.1 cm.

cat. 417 **pl. 51, 417**
Excavation inv. ART 870352.125; AMS inv. 17/2/99
Fragment of a bird-shaped element, with a transversal boring on the base. The upper part is missing. Cracked surface. Translucent, yellow amber. L max. 1 cm; H. 0.5 cm; D hole 0.1 cm.

Type 7: Triangle-shaped spacer-plates (cat. 418–472)

cat. 418 **pl. 51, 418**
Excavation inv. ART 870281.17; AMS inv. 16/2/99
Triangle-shaped spacer, flat and rounded, with two horizontal through-borings on the top and on the base; at the centre of the base, a third vertical through-boring is connected to the lower horizontal one. The top and the base are partly missing. Red amber. H 0.9 cm; W max. 0.6 cm; T 0.4 cm; D holes 0.15 cm.

cat. 419 **pl. 51, 419**
Excavation inv. ART 870352.8; AMS inv. 148/61/87
Triangle-shaped spacer, with a horizontal through-boring in each corner. On the main face a circle with a central point is incised. Yellow amber. H 1.3 cm; D holes 0.1 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 420 **pl. 51, 420**
Excavation inv. ART 870352.9; AMS inv. 149/61/87
Triangle-shaped spacer, with a horizontal through-boring in each corner. Two lower corners are missing. Red amber. H 1.2 cm; W max. 0.95 cm; T 0.2 cm; D holes 0.05 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 421 **pl. 51, 421**
Excavation inv. ART 870352.10; AMS inv. 150/61/87
Similar to cat. 420. The top is missing. Red amber. H 1.3 cm; W max. 0.9 cm; T 0.2 cm; D holes 0.06 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 422 **pl. 51, 422**
Excavation inv. ART 870352.11; AMS inv. 151/61/87
Similar to cat. 420. Yellow amber. H 1.25 cm; W max. 0.95 cm; T 0.5 cm; D holes 0.07 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 423–429 **pl. 51, 423–429**
cat. 423
Excavation inv. ART 870246.90; AMS inv. 14/2/99
cat. 424
Excavation inv. ART 870246.91; AMS inv. 14/2/99
cat. 425
Excavation inv. ART 870246.92; AMS inv. 14/2/99
cat. 426
Excavation inv. ART 870246.93; AMS inv. 14/2/99
cat. 427
Excavation inv. ART 870246.94; AMS inv. 14/2/99
cat. 428
Excavation inv. ART 870246.95; AMS inv. 14/2/99
cat. 429
Excavation inv. ART 870246.96; AMS inv. 14/2/99
Seven triangle-shaped elements, similar to cat. 420. Yellow amber. Whole. H max. 0.9 cm; W max 0.75 cm; T 0.25 cm; D holes 0.1 cm.

cat. 430 **pls. 18, 4; 51, 430**
Excavation inv. ART 870246.108; AMS inv. 14/2/99
Similar to cat. 419. Red amber. Whole. H max. 0.9 cm; W max. 0.75 cm; T 0.25 cm; D holes 0.1 cm.

cat. 431 **pl. 51, 431**
Excavation inv. ART 870246.119; AMS inv. 14/2/99
Similar to cat. 419. Red amber. Whole. H max. 0.8 cm; W max. 0.6 cm; T 0.25 cm; D holes 0.1 cm.

cat. 432 **pl. 51, 432**
Excavation inv. ART 870246.120; AMS inv. 14/2/99
Similar to cat. 419. Red amber. Whole. H max. 0.9 cm; W max 0.6 cm; T 0.25 cm; D holes 0.1 cm.

cat. 433–441 **pl. 51, 433–441**
cat. 433
Excavation inv. ART 870246.81; AMS inv. 14/2/99.a
cat. 434
Excavation inv. ART 870246.82; AMS inv.14/2/99.b
cat. 435
Excavation inv. ART 870246.83; AMS inv. 14/2/99.c
cat. 436
Excavation inv. ART 870246.84; AMS inv.14/2/99.d
cat. 437
Excavation inv. ART 870246.85; AMS inv. 14/2/99.e
cat. 438
Excavation inv. ART 870246.86; AMS inv. 14/2/99.f
cat. 439
Excavation inv. ART 870246.87; AMS inv.14/2/99.g
cat. 440
Excavation inv. ART 870246.88; AMS inv.14/2/99.h
cat. 441
Excavation inv. ART 870246.89; AMS inv. 14/2/99.i
Nine triangle-shaped elements, similar to cat. 419. All pieces are incompletely preserved. Yellow amber. H max. 1.4 cm; W max 0.7 cm; T 0.25 cm; D holes 0.1cm.

cat. 442 **pl. 51, 442**
Excavation inv. ART 870232.114; AMS inv. 15/2/99
Tiny fragment of a triangular element, similar to cat. 419, corresponding to the central/upper part. Yellow amber. H max. 0.7 cm; W max. 0.4 cm; T 0.25 cm; D holes 0.1 cm.

cat. 443 **pl. 51, 443**
Excavation inv. ART 870232.41; AMS inv. 15/2/99
Fragment of a triangular element, similar to cat. 419. Red amber. H max. 0.8 cm; W max. 0.5 cm; T 0.25 cm; D holes 0.1 cm.

cat. 444 **pl. 52, 444**
Excavation inv. ART 870232.42; AMS inv. 15/2/99
Similar to cat. 419. The top is missing. Red amber. H max. 1 cm; W max. 1 cm; T 0.4 cm; D holes 0.1 cm.

cat. 445 **pl. 52, 445**
Excavation inv. ART 870232.43; AMS inv. 15/2/99
Similar to cat. 419. Red amber. The top is missing. H max. 0.8 cm; W max. 0.9 cm; T 0.25 cm; D holes 0.1 cm.

cat. 446 **pl. 52, 446**
Excavation inv. ART 870232.44; AMS inv. 15/2/99
Similar to cat. 419. Red amber. Whole. H 1 cm; W max. 0.8 cm; T 0.25 cm; D holes 0.1 cm.

cat. 447 **pl. 52, 447**
Excavation inv. ART 870232.45; AMS inv. 15/2/99
Similar to cat. 419. Red amber. Whole. H 1.2 cm; W max. 0.8 cm; T 0.2 cm; D holes 0.1 cm.

cat. 448 **pl. 52, 448**
Excavation inv. ART 870232.46; AMS inv. 15/2/99
Similar to cat. 419. Red amber. The top and the base are partly missing. H max. 0.9 cm; W max. 0.6 cm; T 0.2; D holes 0.1 cm.

cat. 449 **pl. 52, 449**
Excavation inv. ART 870232.47; AMS inv. 15/2/99
Similar to cat. 419. Red amber. Whole. H 1 cm; W max. 0.8 cm; T 0.25 cm; D holes 0.1 cm.

cat. 450 **pl. 52, 450**
Excavation inv. ART 870232.97; AMS inv. 15/2/99
Similar to cat. 419. Yellow amber. The top is missing. H max. 0.7 cm; W max. 0.7 cm; T 0.25 cm; D holes 0.1 cm.

cat. 451 **pl. 52, 451**
Excavation inv. ART 870281.26; AMS inv. 16/2/99
Similar to cat. 419. Yellow amber. The top is missing. H max. 0.8 cm; W max. 0.8 cm; T 0.25 cm; D holes 0.1 cm.

cat. 452–453 **pl. 52, 452**
cat. 452
Excavation inv. ART 870281.35; AMS inv. 16/2/99
cat. 453
Excavation inv. ART 870281.36; AMS inv. 16/2/99
Two triangle-shaped elements, similar to cat. 419. Yellow amber. The top is missing on both pieces. H max. 0.9 cm; W max. 0.9 cm; T 0.25 cm; D holes 0.1 cm.

cat. 454–471 **pl. 52, 454–471**
cat. 454 Excavation inv. ART 870352.135; AMS inv. 17/2/99
cat. 455
Excavation inv. ART 870352.136; AMS inv. 17/2/99
cat. 456
Excavation inv. ART 870352.137; AMS inv. 17/2/99
cat. 457
Excavation inv. ART 870352.138; AMS inv. 17/2/99
cat. 458
Excavation inv. ART 870352.139; AMS inv. 17/2/99
cat. 459
Excavation inv. ART 870352.140; AMS inv. 17/2/99
cat. 460
Excavation inv. ART 870352.141; AMS inv. 17/2/99
cat. 461
Excavation inv. ART 870352.142; AMS inv. 17/2/99
cat. 462
Excavation inv. ART 870352.143; AMS inv. 17/2/99
cat. 463
Excavation inv. ART 870352.144; AMS inv. 17/2/99
cat. 464
Excavation inv. ART 870352.145; AMS inv. 17/2/99
cat. 465
Excavation inv. ART 870352.146; AMS inv. 17/2/99
cat. 466
Excavation inv. ART 870352.147; AMS inv. 17/2/99
cat. 467
Excavation inv. ART 870352.148; AMS inv. 17/2/99
cat. 468
Excavation inv. ART 870352.149; AMS inv. 17/2/99
cat. 469
Excavation inv. ART 870352.150; AMS inv. 17/2/99
cat. 470
Excavation inv. ART 870352.151; AMS inv. 17/2/99
cat. 471
Excavation inv. ART 870352.152; AMS inv. 17/2/99
Seventeen triangle-shaped elements, similar to cat. 419. Except for cat. 457, 461 and 470, all elements are incomplete. Yellow amber. Cat. 461: H 1.3 cm; W max. 1 cm; T 0.3 cm; D holes 0.1 cm.

cat. 472 **pl. 52, 472**
Excavation inv. ART 870352.175; AMS inv. 17/2/99
Similar to cat. 419. Yellow amber. The top is missing. H max. 0.7 cm; D holes 0.1 cm.

Type 8: Round spacer-plates (cat. 473–488)

cat. 473 **pl. 52, 473**
Excavation inv. ART 870232.2; AMS inv. 15/2/99 (5)
Disc with one horizontal through-boring. Red amber. Whole T 0.5 cm; D 1.1 cm; D hole 0.15 cm.

cat. 474 **pl. 52, 474**
Excavation inv. ART 940146; AMS inv. 32/43/94
Disc with two horizontal through-borings connected to one another in the centre of the disk. Drill traces show that the borings were drilled in four segments. Red amber. Whole. D 1.1 cm; T 0.4 cm; D holes > 0.1 cm.

cat. 475 **pl. 52, 475**
Excavation inv. ART 870352.133; AMS inv. 17/2/99
Disc with two horizontal through-borings connected to one another in the centre of the disc, similar to no. 474. Red amber. Whole. D 1.1 cm; T 0.35 cm; D holes 0.2 cm.

cat. 476 **pl. 52, 476**
Excavation inv. ART 870246.97; AMS inv. 14/2/99
Tiny, almost oval disc with two horizontal through-borings, not connected to one another. On the main face a circle with a central point is incised. Red amber. Whole. L 0.9 cm; W 0.7 cm; T 0.2 cm; D holes 0.1 cm.

cat. 477 **pl. 52, 477**
Excavation inv. ART 870246.98; AMS inv. 14/2/99
Similar to cat. 476. Red amber. Whole. L 0.6 cm; W 0.5 cm; T 0.2 cm; D holes 0.1 cm.

cat. 478 **pl. 52, 478**
Excavation inv. ART 870246.99; AMS inv. 14/2/99
Similar to cat. 476. Red amber. One part is missing. L 0.6 cm; W 0.5 cm; T 0.2 cm; D holes 0.1 cm.

cat. 479 **pl. 52, 479**
Excavation inv. ART 870246.80; AMS inv. 14/2/99
Similar to cat. 476. Red amber. Whole. L 0.7 cm; W 0.5 cm; T 0.2 cm; D holes 0.1 cm.

cat. 480 **pl. 52, 480**
Excavation inv. ART 870246.77; AMS inv. 14/2/99
Similar to cat. 476. Red amber. One part is missing. L max. 0.6 cm; W max. 0.5 cm; T 0.2 cm; D hole 0.1 cm.

cat. 481 **pl. 52, 481**
Excavation inv. ART 870246.78; AMS inv. 14/2/99
Similar to cat. 476. Red amber. Whole. L 0.7 cm; W 0.6 cm; T 0.2 cm; D holes 0.1 cm.

cat. 482 **pl. 52, 482**
Excavation inv. ART 870246.79; AMS inv. 14/2/99 (3)
Similar to cat. 476. Red amber. Whole. L 0.7 cm; W 0.6 cm; T 0.2 cm; D holes 0.1 cm.

cat. 483 **pl. 52, 483**
Excavation inv. ART 870232.17; AMS Inv. 15/2/99 (5)

Similar to cat. 476. Dark yellow amber. Whole. D 0.7 cm: T 0.2 cm; D hole 0.1 cm.

cat. 484 **pl. 52, 484**
Excavation inv. ART 870281.22; AMS inv. 16/2/99
Similar to cat. 476. Yellow amber. Whole. D 0.7 cm; T 0.3 cm; D holes 0.1 cm.

cat. 485 **pl. 52, 485**
Excavation inv. ART 870352.176; AMS inv. 17/2/99
Fragment of a disc similar to cat. 476. Yellow amber. D 0.6 cm; T 0.2 cm; D holes 0.1 cm.

cat. 486 **pl. 52, 486**
Excavation inv. ART 870246.38; AMS inv. 178/61/87
Similar to cat. 476. Red amber. Whole. L. 0.8 cm; W 0.7 cm; T 0.3 cm; D hole 0.11 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 487 **pl. 52, 487**
Excavation inv. ART 870246.39; AMS inv. 179/61/87
Similar to cat. 476. Red amber. Whole. L 0.8 cm; W 0.7 cm; T 0.3 cm; D holes 0.09 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

cat. 488 **pl. 52, 488**
Excavation inv. ART 870246.40; AMS inv. 180/61/87
Similar to cat. 476. Red amber. Whole. L 0.8 cm; W 0.7 cm; T 0.3 cm; D holes 0.1 cm.
Lit.: Bammer 1990, fig. 24; Bammer 1992b, fig. 5 c.

Alessandro Naso

Fibulae (cat. 489–523)

Type 1: Composite fibulae with amber and bone segments inlaid with amber (cat. 489–490)

cat. 489 **pls. 19, 3; 53, 1**
Excavation inv. 870246.53; AMS inv. 193/61/87

The bow of the bronze fibula is coated alternately with four amber and three conical bone segments; the central bone segment has a circular amber inlay on each side and one rectangular amber plaque on the top. The central section of the bow is not visible because the upper rectangular amber plaque is glued. Chipped surface.

cat. 519 **pl. 56, 519**
Excavation inv. ART 870352.153; AMS inv. 17/2/99
Fragment of a triangular, elongated pearl with a central hole along the longest axis. Flat lower and weakly convex upper surface. Red amber. H 0.8 cm; L 2.5 cm; W 1.5 cm; D hole 0.35 cm.

cat. 520 **pl. 56, 520**
Excavation inv. ART 870352.188; AMS inv. 17/2/99
Rectangular-shaped pearl with an off-centre hole along the longest axis. The surface shows an old coating and is broken and chipped on one side. Red amber. H 0.5 cm; L 1.6 cm; W 1.3 cm; D hole 0.35 cm.

cat. 521 **pl. 56, 521**
Excavation inv. ART 870281.37; AMS inv. 16/2/99
Oval-shaped pearl with three parallel bore-holes along the longest axis, the largest in the centre shows remains of the bronze bow. Flat lower surface and convex upper. Red amber, shaded. H 1.3 cm; L 2.6 cm; W 2 cm; D central hole 0.4 cm; D side holes 0.35 cm.

cat. 522 **pl. 57, 522**
Excavation inv. ART 870352.130; AMS inv. 17/2/99
Rectangular-shaped pearl with three parallel bore-holes along the longest axis, the largest in the centre shows remains of the bronze bow. Partially preserved, missing a small piece on one side. Red amber. H 0.5 cm; L 1.6 cm; W 1 cm; D central hole 0.3; D side holes 0.2 cm.

cat. 523 **pl. 57, 523**
Excavation inv. ART 870352.91; AMS inv. 17/2/99
Fragment of a rectangular core with two holes of different sizes for the bow along the longest axis; the element is broken and one portion is missing, likely to have included a third perforation. Yellow amber. H 1 cm; L 2.3 cm; W 2.2 cm; D first hole 0.35 cm; D second hole 0.25 cm.

Nunzia Laura Saldalamacchia

Inlays (cat. 524–533)

cat. 524 **pl. 57, 524**
Excavation inv. ART 800006; AMS inv. 46/38/81
Disc-shaped. One face is matt, one is translucent. Red amber. D 0.8 cm; T 0.15 cm.

cat. 525 **pl. 57, 525**
Excavation inv. ART 880128.121; AMS inv. 96/54/88 (A 15)
Round inlay, polished and convex on the upper side, flat on the lower side. Red amber. H 0.4 cm; D 1.2 cm.

cat. 526 **pl. 57, 526**
Excavation inv. ART 870081*
Fragment of a round inlay. Upper face convex and polished, lower face flat and smooth. Red amber. D 1.1 cm; T 0.3 cm; weight 0.22 g.

cat. 527 **pl. 57, 527**
Excavation inv. ART 870246.13
Round inlay, with a small round cavity on each face. Each cavity shows remains of a metallic dark substance, also present outside the cavity. A fluorescence analysis has revealed that the metallic substance is composed of iron and copper in a ratio of 4 to 1, and identified traces of other metals (silver and lead)[1308]. Yellow amber, consolidated chemically. D inlay 1.4 cm; T 0.6 cm; D cavity 0.6 cm.

cat. 528 **pl. 57, 528**
Excavation inv. ART 809431*
Tiny bone disc, quite irregular, containing a round amber inlay. The profile of the bone disc identifies its function as an inlay. Polished, particularly in the upper part. D disc 1 cm; H disc 0.3 cm; D inlay 0.65 cm.

cat. 529 **pl. 57, 529**
Excavation inv. ART 860155*
Fragment of an inlay in the shape of a flower petal, having a straight pattern and a rounded ending. The upper side is convex, the lower is flat. Red amber. Almost half is missing. H max. 1.6 cm, W max. 0.8 cm, T 0.2 cm; weight 0.19 g.

cat. 530 **pl. 57, 530**
Excavation inv. ART 910611*
Fragment of an inlay in the shape of a flower petal, which has a rounded form. The upper side is convex, the lower is flat. The fragment corresponds to the central part. Red amber. W max. 1.7 cm, L max. 1.5 cm; T 0.4 cm; weight 0.65 g.

cat. 531 **pl. 57, 531**
Excavation inv. ART 860217*
Fragment of a rectangular inlay, preserved only in the width. The upper side is convex and polished, the lower

[1308] We wish to thank Prof. Manfred Schreiner and Dr. Michael Melcher (Institute for Natural Sciences and Technology in the Art at the Academy of Fine Arts, Vienna) for their kind collaboration in the fluorescence analysis of this piece.

is flat and smooth. Red amber. W 1.2 cm; L max. 1.7 cm, T 0.3 cm; weight 0.60 g.

cat. 532 **pl. 57, 532**
Excavation inv. ART 930672; AMS inv. 22/42/93 Bone inlay containing an amber inlay (*astragalus*)[1309].
Object composed of two bobbins, each containing an amber disc on one side, one still preserved. The upper sides of the bobbins are identical: concave, showing an engraved design with single lines along the rim and in the middle. In the middle of each bobbin, a round cavity is destined to be filled with an amber inlay; one is still in position, the other contains remains of a black substance, probably the glue (bolus [?]) used to fix the amber. A line is engraved along the rim on the lower side of both bobbins. Red amber. Whole, with small fractures. L 2.4 cm; W 1.4 cm; H 1.3 cm.
Lit.: Muss 2008c, 14 (classified as ivory with amber inlay) fig. 3.

cat. 533 **pl. 57, 533**
Excavation inv. ART 940268*
Fragment of a round inlay. The upper side is convex and polished, the lower one is flat and smooth. The lower side shows remains of a horizontal blind hole, owing to an earlier use, probably as a bead. Red amber. D 1.1 cm; T 0.4 cm; weight 0.30 g.

Alessandro Naso

Pinhead

cat. 534 **pl. 57, 534**
Excavation inv. ART 809433*
Fragment of the upper part of a bone pin with the amber head still in position. The head is well polished and globular: the bead is sustained by a ring-shaped relief on the pin. The lower stem of the pin is broken and missing. H 1.9 cm; D pin 0.15 cm; D head 0.8 cm; D hole of the head 0.2 cm.

Caroline Posch

Raw amber

cat. 535 **pl. 25, 3**
Excavation inv. ART 880943.132; AMS inv. 107/54/88 (A 15)
Natural piece of raw amber, shapeless and badly broken on two sides. A centre through-boring and a second deep hole are visible in section and are artificial, having perhaps been drilled to cut away a smaller piece. The sections of the broken sides are shiny and polished; the section with a hole is translucent and seems more recent than the other. The amber is red, with several patches of dark yellow. L max 4.2 cm; W max. 4.6 cm; T max. 1.9 cm.

Alessandro Naso

Indeterminable fragments (cat. 536–539)

cat. 536 **pl. 57, 536**
Excavation inv. ART 900380.3*
Very small segment, fragment of unknown designation. The object shows a quite smooth surface. Red amber with yellow bands. H max. 0.6 cm; W 0.5 cm.

cat. 537 **pl. 57, 537**
Excavation inv. ART 900380.4*
Fragment of a rather circular object with a horizontal perforation. Less than half of the object is preserved, so a clear attribution to a typological group is not possible. Red amber. L 1 cm; W 0.6 cm; D hole 0.1 cm.

cat. 538 **pl. 57, 538**
Excavation inv. ART 870246.46; AMS inv. 14/2/99
Fragment of a cylindrical element, perforated vertically through its centre. A typological designation of this piece is not possible (pendant [?], spacer [?]). Possible remains of a second bore-hole are visible at the break point. Dark yellow amber. H 1.4 cm; D 0.5–0.6 cm.

cat. 539 **pl. 57, 539**
Excavation inv. ART 900486.4; AMS inv. DB (1) 604
Fragment of an elongated artefact of rectangular shape with a longitudinal drilling. As it is broken, it is difficult to establish a typological designation. Possible functions range from pearl to pendant, spacer or inlay. Yellow amber. H 1.6 cm: L 0.7 cm; W 4 cm; D hole 0.1 cm.

Caroline Posch

[1309] The typical structure of animal bone is clearly visible in the fractures.

A cylindrical projection with a horizontal perforation and an oval section. The lower part of the object is broken. The surface is covered by a rather smooth patina. Orange translucent amber. D hole 0.25 cm.

cat. 624 **pl. 61, 624**
AMI inv. 2910.4
A cylindrical projection with a horizontal perforation and a square section. The lower part of the object is broken. The surface is covered by a rather smooth patina. Orange translucent amber. D hole 0.25 cm.

Type 5: Fruit pendants (cat. 625–629)

Type 5a: Pomegranate pendants with vertical bore-hole (cat. 625–627)

cat. 625 **pl. 62, 625**
BM inv. 1907.12–1.512
Globular pendant with an inserted neck, surmounted by a circular, rosette-shaped button-top, with five triangular grooves. The object is perforated by a drilling running lengthwise. Dark red amber. H 1.45 cm; L 1.1 cm; W 0.9 cm; D hole 0.1 cm.
Lit.: Strong 1966, 45 pl. 2 a.

cat. 626 **pl. 62, 626**
BM inv. 1907.12–1–513
Oval pendant with an oval section, perforated from the base up to the chipped top. The object's lower section shows an inserted neck and is decorated by a round, floral projection which resembles the calyx of a pomegranate fruit and is partly fractured. A rough patina covers the whole object, including the fractures. Opaque, dark orange amber. H 1.4 cm; L 1 cm; W 0.9 cm; D hole 0.05 cm.
Lit.: Strong 1966, 45 pl. 2 f.

cat. 627 **pls. 12, 10 a; 62, 627**
BM Inv.1907.12–1.514
Oval pendant with an oval section, perforated from its bottom to its top. The object's lower section shows an inserted neck and is decorated by a round, floral projection which resembles the calyx of a pomegranate fruit. The surface of the object is covered by a thick but smooth patina. Opaque, dark red amber. H 1.3 cm; L 0.9 cm; W 0.7 cm; D hole 0.1 cm.
Lit.: Strong 1966, 45 pl. 2 d.

Type 5b: Pomegranate pendant with horizontal bore-hole

cat. 628 **pls. 12, 10 b; 62, 628**
BM inv. 1907.12–1.511
Globular pendant with an inserted neck, surmounted by a circular button-shaped top decorated with eight radiating incisions. The artefact features two intersecting borings at the base; the middle section between the two bore-holes is fractured. Nevertheless, traces of the two distinct drillings are still visible. Dark red amber. H 1.5 cm; L 1 cm; W 1 cm; D hole 0.2 cm.
Lit.: Strong 1966, 45 pl. 2 b.

Fragment

cat. 629 **pl. 62, 629**
BM inv. 1907.12–1.516
Globular pendant/pinhead (?) with an oval section which features an inserted neck surmounted by a cylindrical button-shaped top, chipped on the left side. The surface is rather rough and features a thick patina. The back of the object is fractured. Vertical perforation from end to end. Orange amber. H 1.3 cm; L 1 cm; W 0.6 cm; D hole 0.12 cm.
Lit.: Strong 1966, 45.

Type 6: Wineskin-shaped pendant

cat. 630 **pl. 62, 630**
AMI inv. 2917
Square pendant with a rectangular section, broken at its base. From the pendant's middle, the upper section shows two bulges and a horizontally perforated gable, decorated with a row of vertical incisions. The projection is fragmented. Yellowish patina and otherwise red amber. H 2.7 cm; L 2.3 cm; W 1.3 cm.
Lit.: Hogarth 1908, 215 pl. 47, 5.

Caroline Posch

Spacers (cat. 631–634)

cat. 631 **pl. 62, 631**
AMI inv. 2911.2
Almost rectangular-shaped, flat on one side and convex on the other. Three small through-borings on the short side and one large through-boring on the long side, cutting the small ones. Orange amber with yellowish stripes. A corner is missing. L. 2.7 cm; W max. 1.2 cm; T 0.6 cm; D holes 0.2 and 0.4 cm.
Lit.: Hogarth 1908, 214 pl. 47, 20 (flat side).

cat. 632 **pl. 62, 632**
AMI inv. 2911.3
Disc-shaped, flat on one side and convex on the other. Two cross through-borings run through its width: one boring has a notch on both ends, to give the wire a certain direction; one notch is broken through use. Red and transparent amber. H 0.5 cm; D 1.8 cm; D hole 0.2 cm.
Lit.: Hogarth 1908, 214 f. pl. 47, 21.

cat. 633 **pl. 62, 633**
AMI inv. 2921
Parallelepiped-shaped, has two through borings on the short side near the endings. Three major sides are smooth, the fourth is rough. A corner is broken. Red amber. L 3.1 cm; W max. 1.1 cm; T 0.7; D holes 0.2 cm.
Lit.: Hogarth 1908, 215.

cat. 634 **pl. 62, 634**
AMI inv. 2921
Flat and rectangular, has smoothed corners and five through-borings, equidistant from each other. Intact. Red amber. L 4.1 cm; W 1.6 cm; T 0.5 cm; D holes 0.3 cm.
Lit.: Hogarth 1908, 215 pl. 47, 28.

Alessandro Naso

Fibulae (cat. 635–652)

Type 2: Composite fibulae with amber segments (cat. 635–646)

cat. 635 **pl. 63, 635**
BM inv. 1907. 12–1.642
Conical disc with variable thickness and central hole for the bow. Intact. Red amber. T 0.3–0.6 cm; D 1 cm; D hole 0.3 cm.

cat. 636
AMI inv. 2907.7
Conical disc with gradable thickness and central hole for the bow. Two flat surfaces. Intact. Orange amber. T 0.3–0.4 cm; D 0.3 cm; D hole 0.3 cm.

cat. 637
AMI inv. 2907.10
Probable cylindrical disc with gradable thickness and central hole for the bow. Two flat surfaces. Intact. Red amber. T 0.5 cm; D 0.85 cm; D hole 0.2 cm.

cat. 638
AMI inv. 2907.15
Conical disc with gradable thickness and central bore-hole for the bow. Two slightly flat surfaces. Partially preserved, chipped on one side. Red amber. T 0.3–0.4 cm; D 0.85 cm; D hole: 0.3 cm.

cat. 639
AMI inv. 2907.18
Probable conical disc with gradable thickness and central bore-hole for the bow. Two slightly flat surfaces. Two fragments reassembled. Red amber. T 0.4–0.5 cm; D 1.05 cm; D hole 0.35 cm.

cat. 640
AMI inv. 2907.22
Conical disc with gradable thickness and central hole for the bow. Two flat surfaces. Intact. Red amber. T 0.2–0.5 cm; D 0.9 cm; D hole 0.4 cm.

cat. 641 **pl. 63, 641**
AMI inv. 2907.34
Probable cylindrical disc with gradable thickness and central bore-hole for the bow. Two slightly flat surfaces. Intact. Orange amber. T 1.1 cm; D 0.85 cm; D hole 0.25 cm.

cat. 642 **pl. 63, 642**
AMI inv. 2907.43
Conical disc with gradable thickness and central bore-hole for the bow. Two flat surfaces. Intact. Red amber. T 0.8–1 cm; D 1.2 cm; D hole 0.5 cm.

cat. 643
AMI inv. 2907.56
Probable cylindrical disc with central bore-hole for the bow. Two flat surfaces. Intact. Orange amber. T 0.15–0.2 cm; D 0.9 cm; D hole 0.3 cm.

cat. 644
AMI inv. 2907.59
Conical disc with gradable thickness and central bore-hole for the bow. Two flat surfaces. Intact. Red amber. T 0.35 cm; D 0.7 cm; D hole 0.25 cm.

cat. 645
AMI inv. 2907. 65
Conical disc with gradable thickness and central bore-hole for the bow. Two flat surfaces. Intact. Red amber. T 0.2 cm; D 0.6 cm; D hole 0.3 cm.

cat. 646
AMI inv. 2907.76
Probable conical disc with gradable thickness and off-centre bore-hole for the bow. Red amber. T 0.1–0.2 cm; D 0.6 cm; D hole 0.3 cm.

Type 3: Fibulae with an amber bead on the bow (cat. 647–652)

cat. 647
AMI inv. 2907.29
Oval-shaped pearl with central bore-hole for the bow

along the longest axis. Chipped sides. Red amber. T 0.4–0.9 cm; D 1.1 cm; D hole 0.5 cm.

cat. 648 **pl. 63, 648**
AMI inv. 2907.38
Shapeless pearl with central bore-hole for the bow along the shortest axis. Cracked on one side. Yellow amber. L 1.9 cm; H 1cm; W 1.3 cm; D hole 0.35 cm.

cat. 649 **pl. 63, 649**
AMI inv. 2909.6
Shapeless pearl with central bore-hole along the longest axis. The surface is convex. Red amber. L 5.2 cm; H 2.35 cm; W 4.15 cm; D hole 0.35 cm.
Lit.: Hogarth 1908, 214 pl. 47, 11.

cat. 650 **pl. 63, 650**
AMI inv. 2911.8
Shapeless pearl with central bore-hole along the longest axis. Partially preserved, chipped on one side. Red amber. L 2.4 cm; W 1.6 cm; D hole 0.4 cm.
Lit.: Hogarth 1908, 214 pl. 47, 19.

cat. 651 **pl. 63, 651**
AMI inv. 2915
Shapeless core with central bore-hole along the longest axis. May be also interpreted as raw amber partially worked. Flat lower and convex and concave upper surface. Partially preserved, regular line engravings on the lower surface (no scratches). Red amber. L 6 cm; W 4 cm; D hole 0,4 cm.
Lit.: Hogarth 1908, 214 pl. 47, 13.

cat. 652 **pl. 64, 652**
AMI inv. 2924
Elongated pearl with four parallel perforations along the longest axis, three smaller ones above and one larger one below. The lower bore-hole for the bow showed remains of the bronze bow (Hogarth 1908) which has not survived. Gradable gap between the holes: 0.1–0.3 cm. The lower section shows a flat surface, while the upper section shows a convex one. Partially preserved, chipped on one side. Red amber. L 3.1 cm; H 1.6 cm; W 1.6 cm; D holes 0.35–0.4 cm.
Lit.: Hogarth 1908, 214, pl. 47, 10.

Nunzia Laura Saldalamacchia

Inlays (cat. 653–655)

cat. 653 **pl. 64, 653**
BM inv. 1907.12–1.596d
Disc-shaped, not perfectly round artefact, flat and rough on one side (base [?]), convex and smooth on the other side (upper surface [?]). Horizontal bore-hole. Dark red amber. D 0.75 cm; D hole 0.15 cm.

cat. 654 **pl. 64, 654**
AMI inv. 2916
Disc-shaped amber, flat and rough on one side (base [?]), convex and smooth on the other (upper surface [?]). Five through-borings, the middle one is larger (0.4 cm), the side ones smaller (0.25–0.3 cm); one of the lateral borings is not correctly distanced from the others. On the smooth side there are small ancient gaps, with the same patina as the surface. Almost intact. Red amber. D 3.7 cm; H 0.8–1 cm.
Lit.: Hogarth 1908, 215 pl. 47, 2.

cat. 655 **pl. 64, 655**
AMI inv. 2918
Disc-shaped amber, not perfectly round, flat and rough on one side (base [?]), convex and smooth on the other (upper surface [?]). Three vertical through-borings in the middle; a further horizontal boring connects two vertical borings. Red amber. D 2.5 × 2.3 cm; H 0.6–0.4 cm.
Lit.: Hogarth 1908, 215 pl. 47, 9.

Alessandro Naso

Pinheads (cat. 656–658)

cat. 656 **pls. 25, 2b; 64, 656**
BM inv. 1907.12–1.510
Globular amber pinhead with an inserted neck, followed by a circular rosette button-top, which is partly fractured. The base of the object is also deeply fractured. The artefact features a central boring at its base which perforates about a quarter of the object's thickness. The object features a rather thick patina. Dark red amber. H 1.5 cm; D 0.9 cm.
Lit.: Hogarth 1908, 216 pl. 47, 12; Strong 1966, 45.

cat. 657 **pls. 25, 2a; 64, 657**
BM inv. 1907.12–1.515
Globular pinhead with an inserted neck, followed by a circular floral button-top. The artefact's lowest section features a cylindrical ending, characterised by a bulge. The pinhead shows a vertical boring, which does not perforate the whole object. Rough patina, dark red amber. H 1.25 cm; L 0.9 cm; D 0.7 cm; D hole 0.18 cm.
Lit.: Hogarth 1908, 216 pl. 48, 19; Strong 1966, 45 pl. 2 c.

M. 1,5:1
0 2 cm

1 Female bust cat. 1

2 Human head cat. 2

3 Human head cat. 3

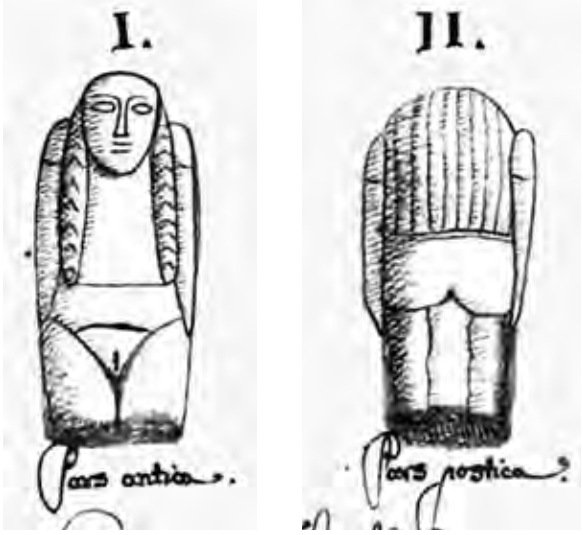
M. 3:1
0 2 cm

Plate 8

1 Scarab cat. 4

2 Duck-shaped protome cat. 5

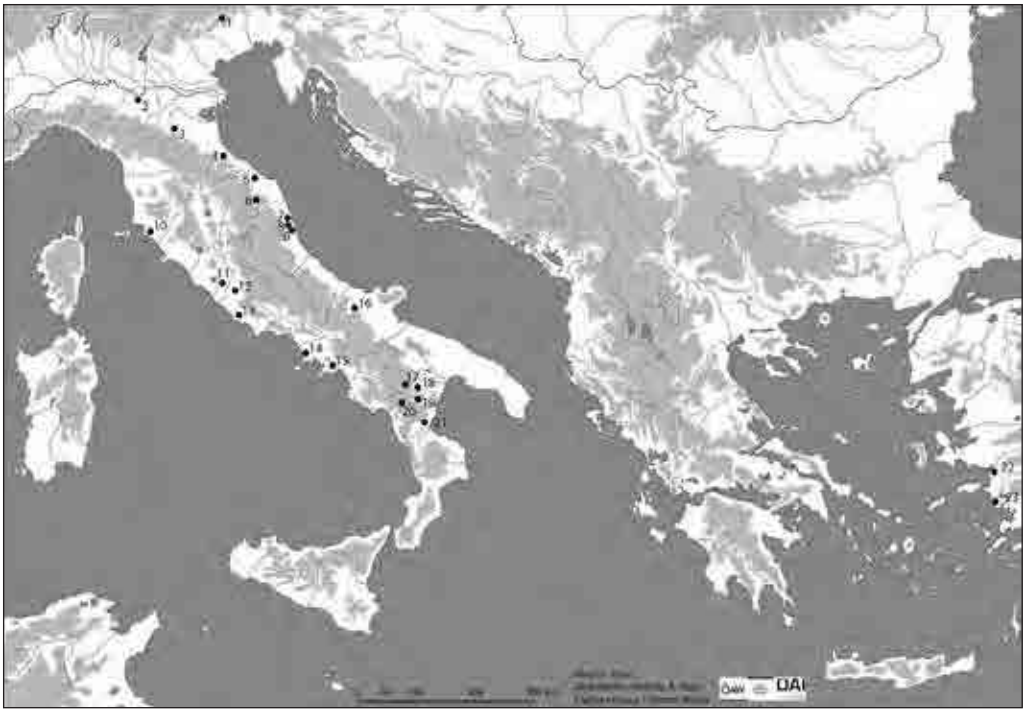
3 Statuette cat. 540



4 Amber statuette from Adria, lost

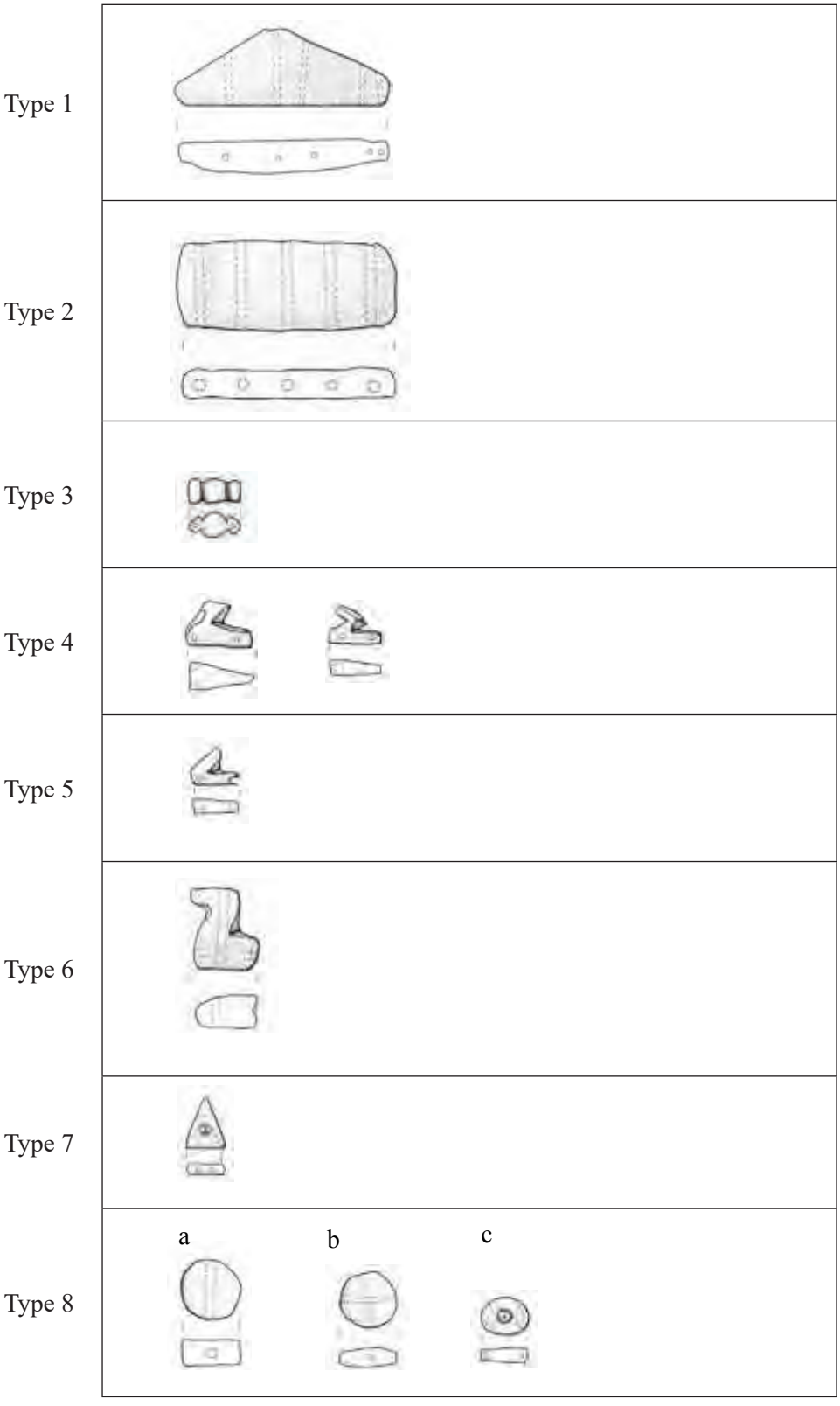
M. 1,5:1
0 2cm

1 Distribution map of the pendants type 6
1 Atenica. – 2 Novi Pazar. – 3 Lisjivo Polje (Donje Luge). – 4 Rogovo Fuse. – 5 Pécha Bonja. – 6 Romaja. – 7 Trebenishte. – 8 Ithaca



2 Distribution map of the amber spacers in Italy and in the Aegean, 8th–6th century BC
1 Pieve d'Alpago. – 2 Brescello. – 3 Bologna. – 4 Verucchio. – 5 Novilara. – 6 Matelica. – 7 Ripatransone. – 8 Colli del Tronto. – 9 Tortoreto. – 10 Vetulonia. – 11 Veii. – 12 Osteria dell'Osa. – 13 Satricum. – 14 Cumae. – 15 Poggiomarino. – 16 Carlantino. – 17 Guardia Perticara. – 18 Alianello. – 19 Chiaromonte. – 20 Latronico. – 21 Francavilla Marittima. – 22 Ephesos. – 23 Miletos

Spacers



Typology of the amber spacers from the Artemision

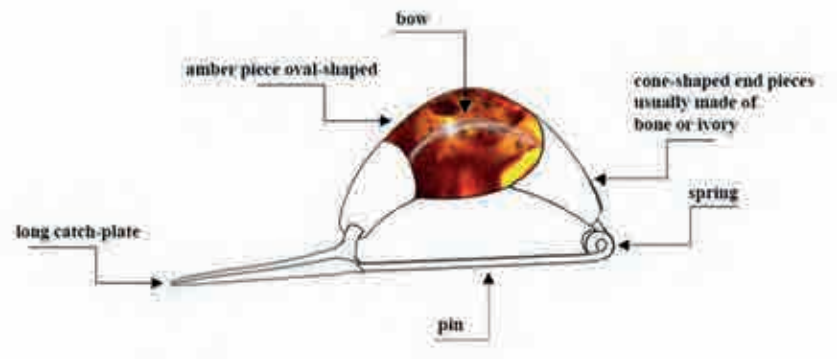
Plate 18

1 Side view of the spacer cat. 350

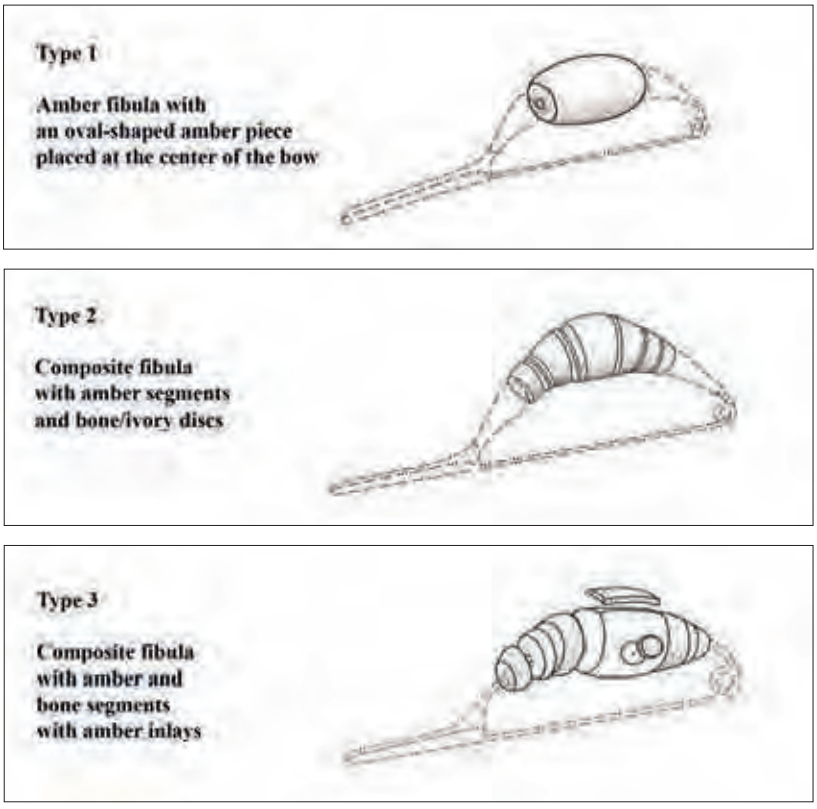
2 Side view of the spacer cat. 351

4 Above view of the spacer cat. 430

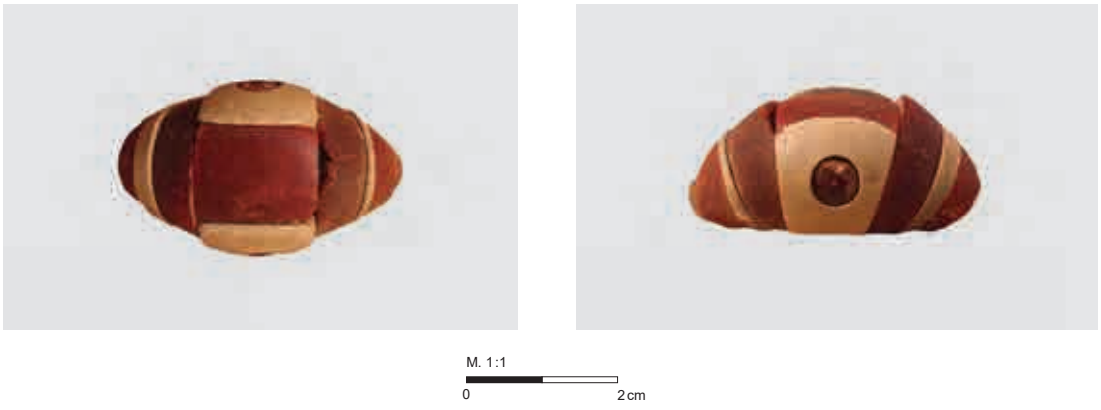
3 Above view of the spacers cat. 362–388 (without scale)



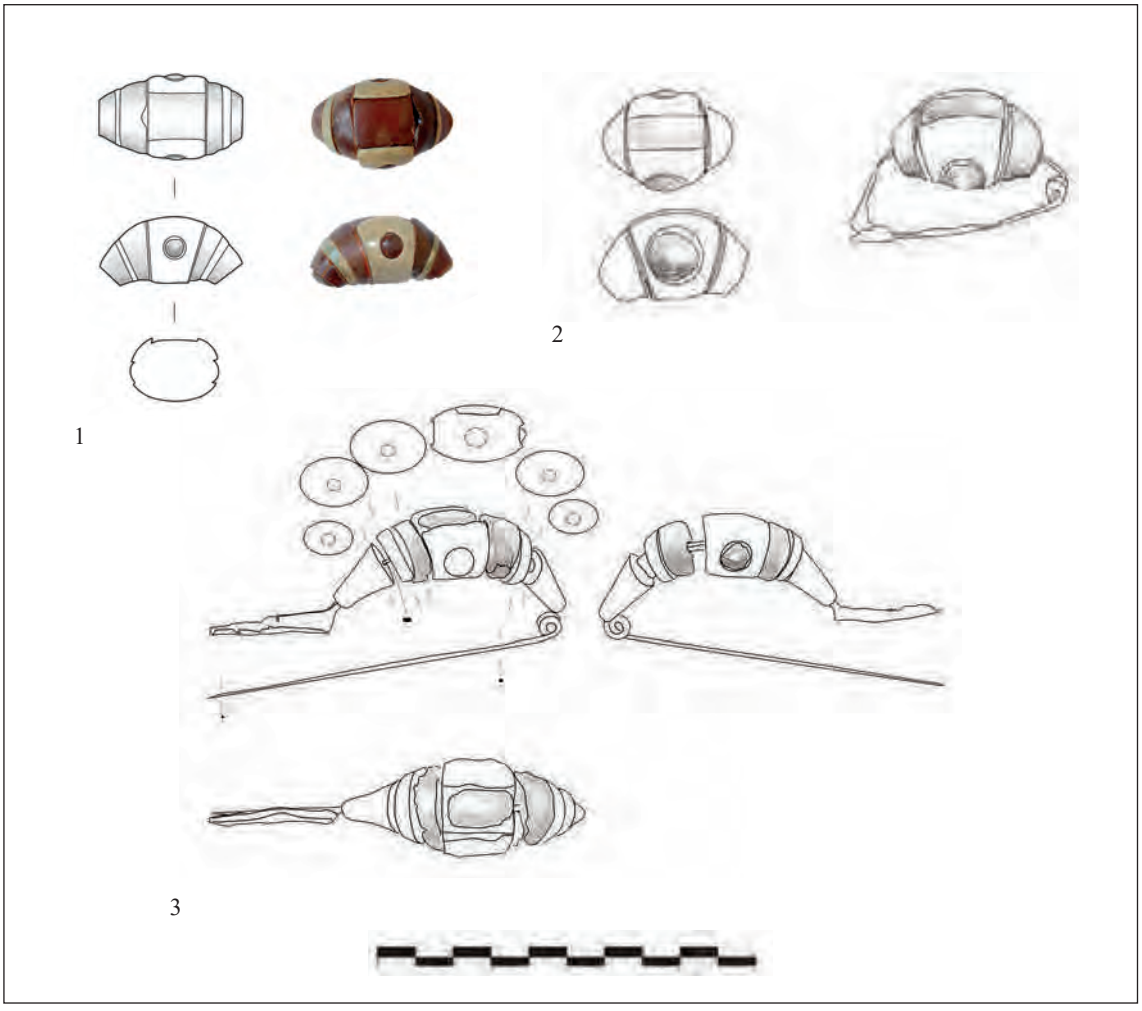
1 Main parts of an amber fibula



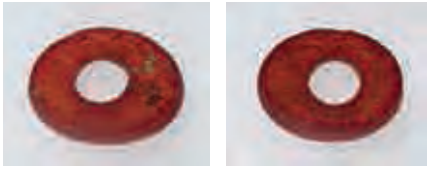
2 Typology of amber fibulae from the Artemision



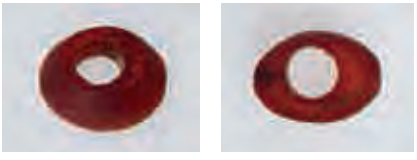
3 Side and above views of the fibula cat. 489



1 Composite fibulae with amber inlays: 1 Ephesos cat. 489. – 2 Verucchio, grave Lippi 40/2006. – 3 Pontecagnano, grave Casella 4898



2 Both sides of the fibula segment cat. 497



3 Both sides of the fibula segment cat. 498

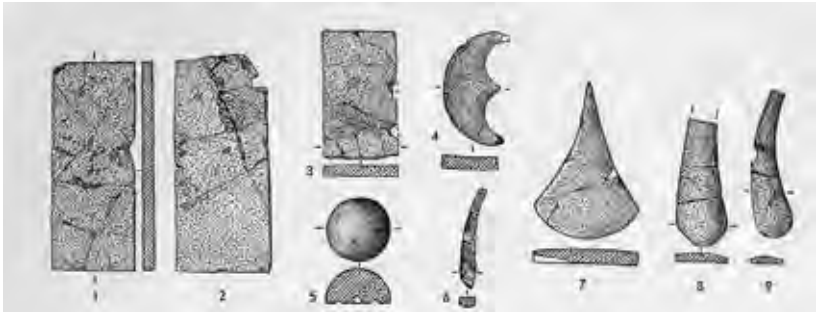
4 Both sides of the fibula segment cat. 499

5 Both sides of the fibula segment cat. 500

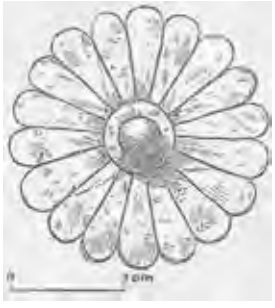
M. 1,5:1

0 2 cm

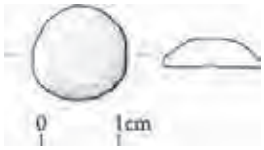
1 Ornamental furniture inlays of amber and ivory: 1 Polizzello. – 2 Athens. – 3 Asperg. – 4 Artemision



2 Amber inlays from Hundersingen (nos. 1–7) and Ludwigsburg (nos. 8–9)

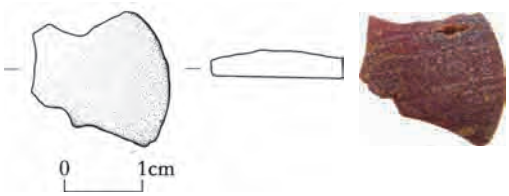


3 Bone and amber inlay from the Löwengrab at Miletos, lost



1

2



3

4

1 Shapes of the amber inlays from the Artemision: 1 cat. 526. – 2 cat. 529. – 3 cat. 530. – 4 cat. 531

2 Leaf-shaped ivory inlay: ART 940260.1a–c

ART 840055.1

1

ART 850562.1

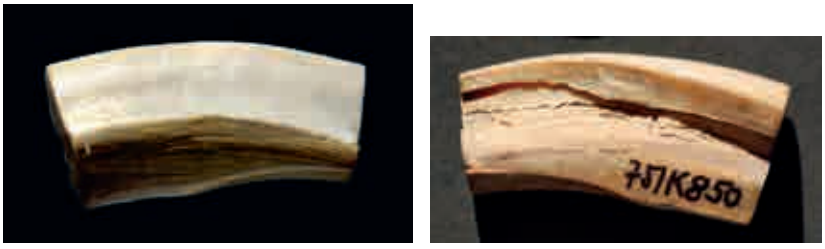
2

ART 770007.1

3

ART 760176.1

4



ART 750850.1

5

ART 720057.1

6

Selection of unfinished ivory remains at various working stages
1 ART 840055.1. – 2 ART 850562.1. – 3 ART 770007.1. – 4 ART 760176.1.– 5 ART 750850.1. – 6 ART 720057.1

ART 720060.1

1

ART 730085.1

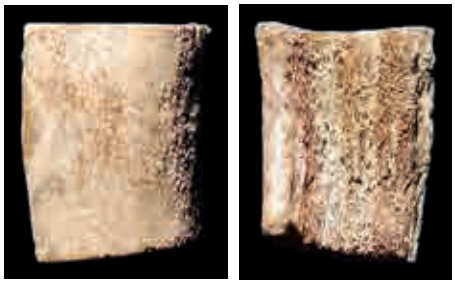
2

ART 750419.1

3

ART 820226.1

4



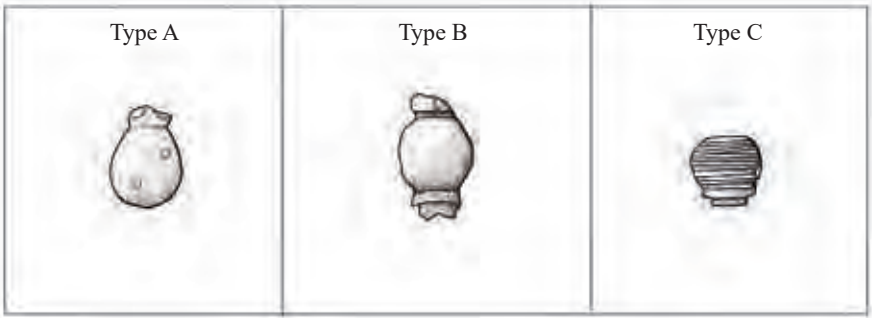
ART 750308.1

5

ART 710826

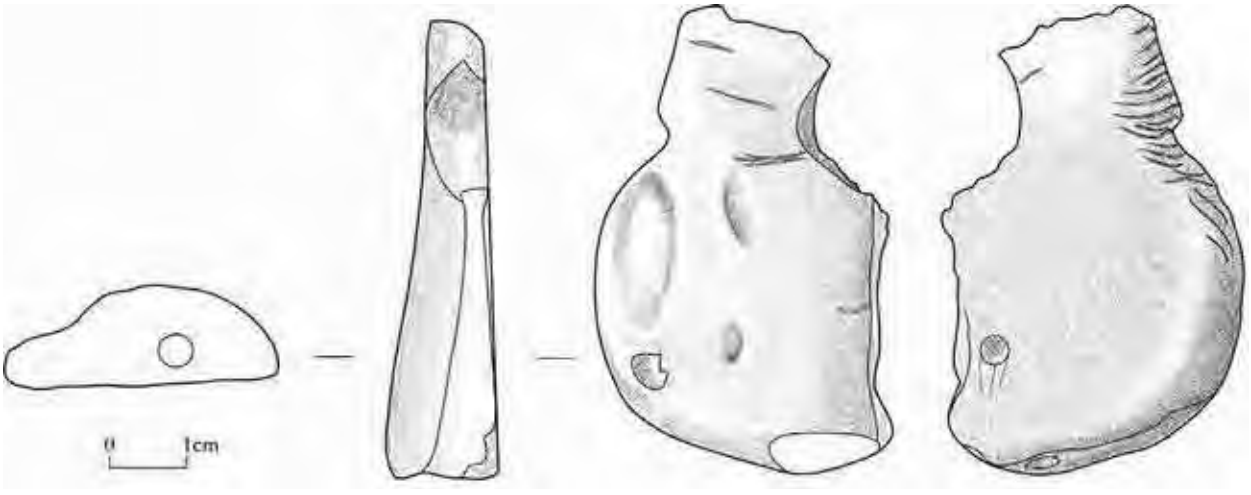
6

Selection of unfinished bone remains at various working stages
1 ART 720060.1. – 2 ART 730085.1. – 3 ART 750419.1. – 4 ART 820226.1. – 5 ART 750308.1 (deer antler). – 6 ART 710826



1 Typology of the amber pinheads from the Artemision

2 Amber pinheads cat. 657 (a) and 656 (b)

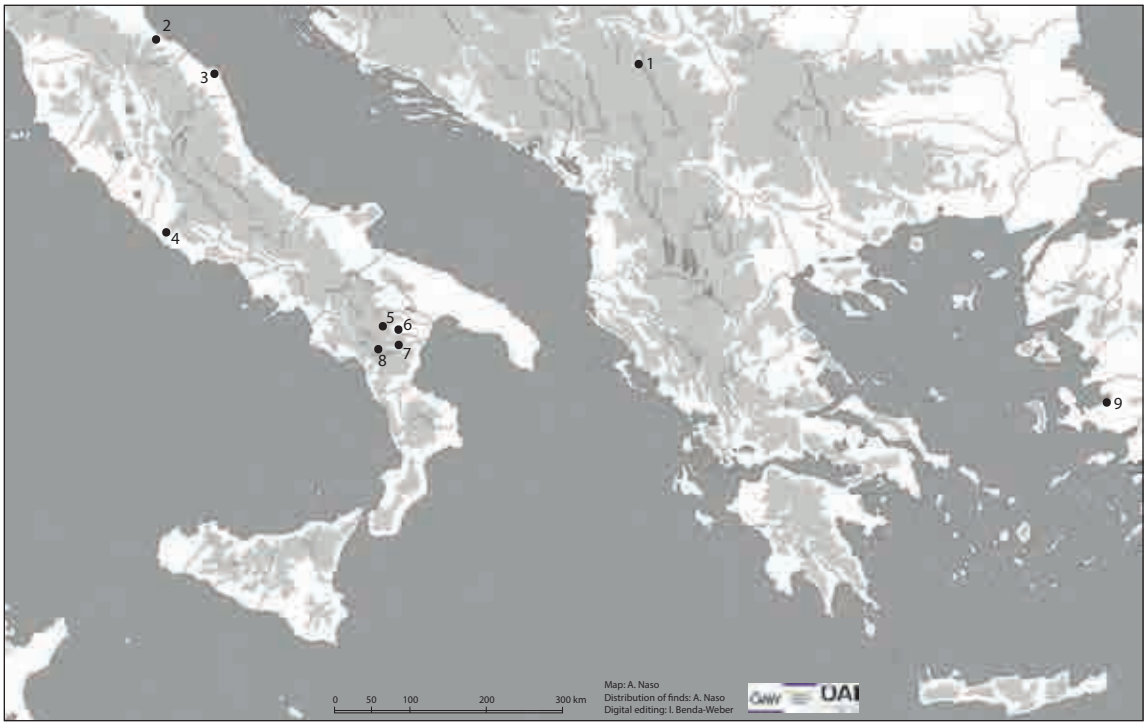


cat. 651

cat. 535

3 Side and above views of the raw amber cat. 535; line-drawing of cat. 651

1 Amber lion-headed cup with lid from Qatna, 15th–14th century BC

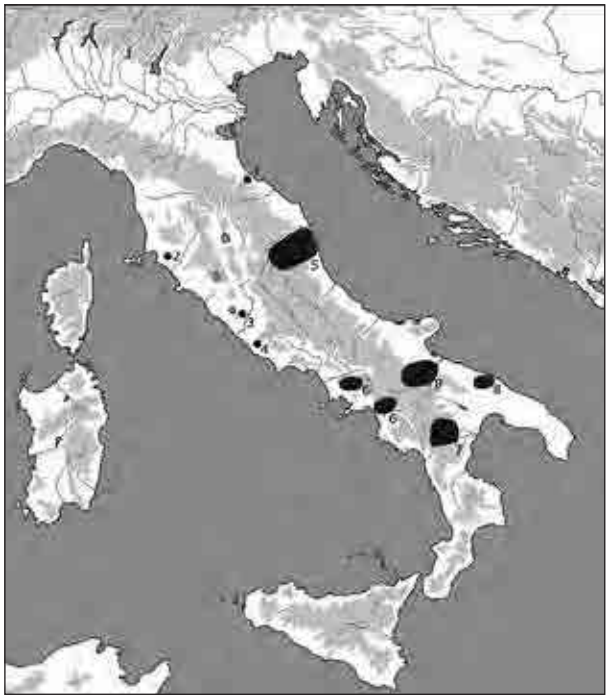


2 Single amber finds containing more than 500 pieces, 8th–6th century BC
1 Novi Pazar. – 2 Verucchio. – 3 Numana. – 4 Satricum. – 5 Guardia Perticara. – 6 Alianello. – 7 Chiaromonte. – 8 Latronico. – 9 Ephesos

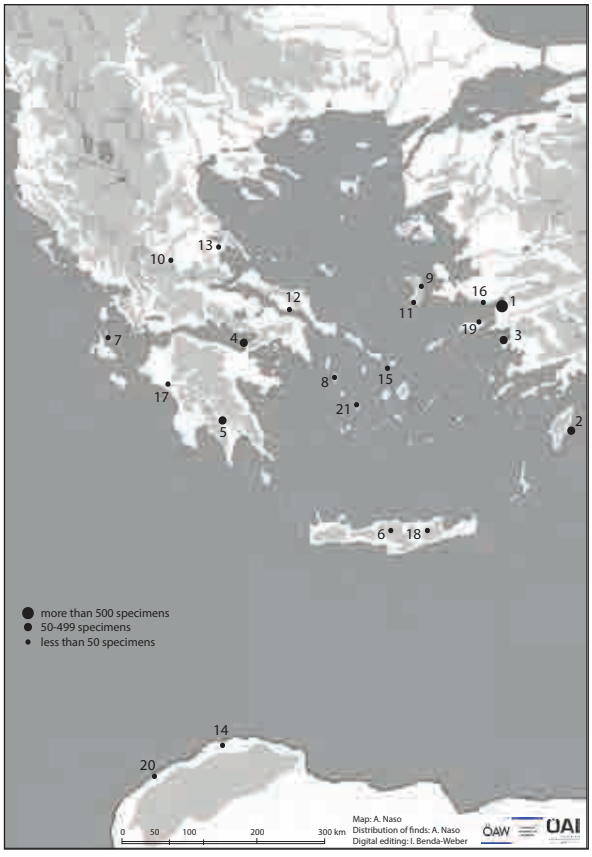
Distribution map of beads Tiryns and Allumiere types

Tiryns beads: 1 Fondo Paviani. – 2 Frattesina. – 3 Bismantova. – 4 Borgo Panigale. – 5 Populonia. – 6 Ponte San Pietro Valle. – 7 Panicarola. – 8 Osteria dell'Osa. – 9 Capitanata. – 10 Lipari. – 11 Nuraghe Attentu, Flumenargia. – 12 Motrox'e Bois. – 13 Vrsi Nin. – 14 Metaxata, Cephalonia. – 15 Salamis. – 16 Tiryns, treasure. – 17 Thisbhe. – 18 Dikteon Cave. – 19 Jalysos. – 20 Ras Shamra. – 21 Camaiore. – 22 Gordievka-Vinnica. – 23 Monte Battaglia. – 24 Clanezzo. – 25 Ponte San Marco. – 26 Coppa Nevigata. – 27 Debeli. – 28 Baska. – 29 Golubnjaca. – 30 Serra Niedda. – 31 Akhziv. – 32 Santa Vittoria Serri. – 33 Privlaka-Nin. – 34 Kritevci. – 35 Vranjic. – 36 Forraxi-Nioi. – 37 Sa Sedda'e Sos Carros, Oliena. – 38 Diakata, Cephalonia. – 39 Ayos Elias, Tiryns. – 40 Elateia. – 41 Zeli. – 42 Pilos. – 43 Lakkithra, Cephalonia. – 44 Romanzesu Bitti. – 45 Nurdòle. – 46 Monte Sant'Anonio, Siligo. – 47 Peschiera. – 48 Campestrin. – 49 Fossa Nera di Porcari. – 50 Riparo dell'Omo Masso, Elba. – 51 Scarceta. – 52 Torre Castelluccia. – 53 Rocavecchia. – 54 Nuraghe Flumenelongu, Alghero. – 55 Prodan. – 56 Elis. – 57 Kallithea. – 58 Klauss. – 59 Agios Ioannis, Leontion. – 60 Teichos Dymaion. – 61 Profitis Elias, grave VI, Tiryns. – 62 Medeon. – 63 Golemi, Agios Georgios. – 64 Barç.

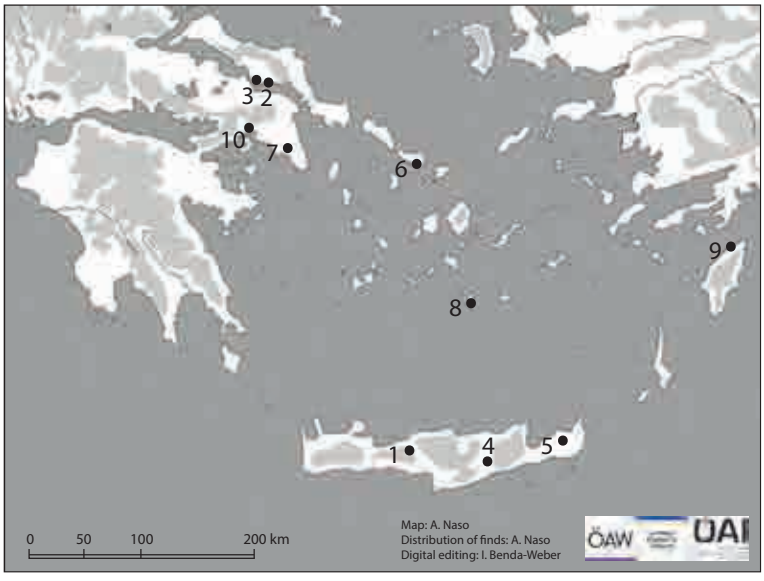
Allumiere beads: 1 Isolino. – 2 Frattesina. – 3 Bismantova. – 4 Allumiere. – 5 Osteria dell'Osa. – 6 Campo del Fico, Ardea. – 7 Motrox 'e Bois. – 8 Nuraghe Attentu. – 9 Palmavera. – 10 Monte Sant'Antonio, Siligo. – 11 Nurdòle. – 12 Golubnjaca. – 13 Sa Sedda 'e Sos Carros. – 14 Gremanu. – 15 Antas. – 16 Gordievka-Vinnica. – 17 Montlingerberg. – 18 Privlaka, Nin. – 19 Valley of Mati. – 20 Baska. – 21 Hauterive-Champréveyres. – 22 Metaxata, Cephalonia. – 23 Thasos. – 24 Sa Carcaredda-Villagrande Strisaili. – 25 Romanzesu Bitti. – 26 Dridu. – 27 Rocavecchia. – 28 Poggiomarino. – 29 Narde. – 30 Cona. – 31 Doss Castel Fai della Paganella. – 32 Su Monte



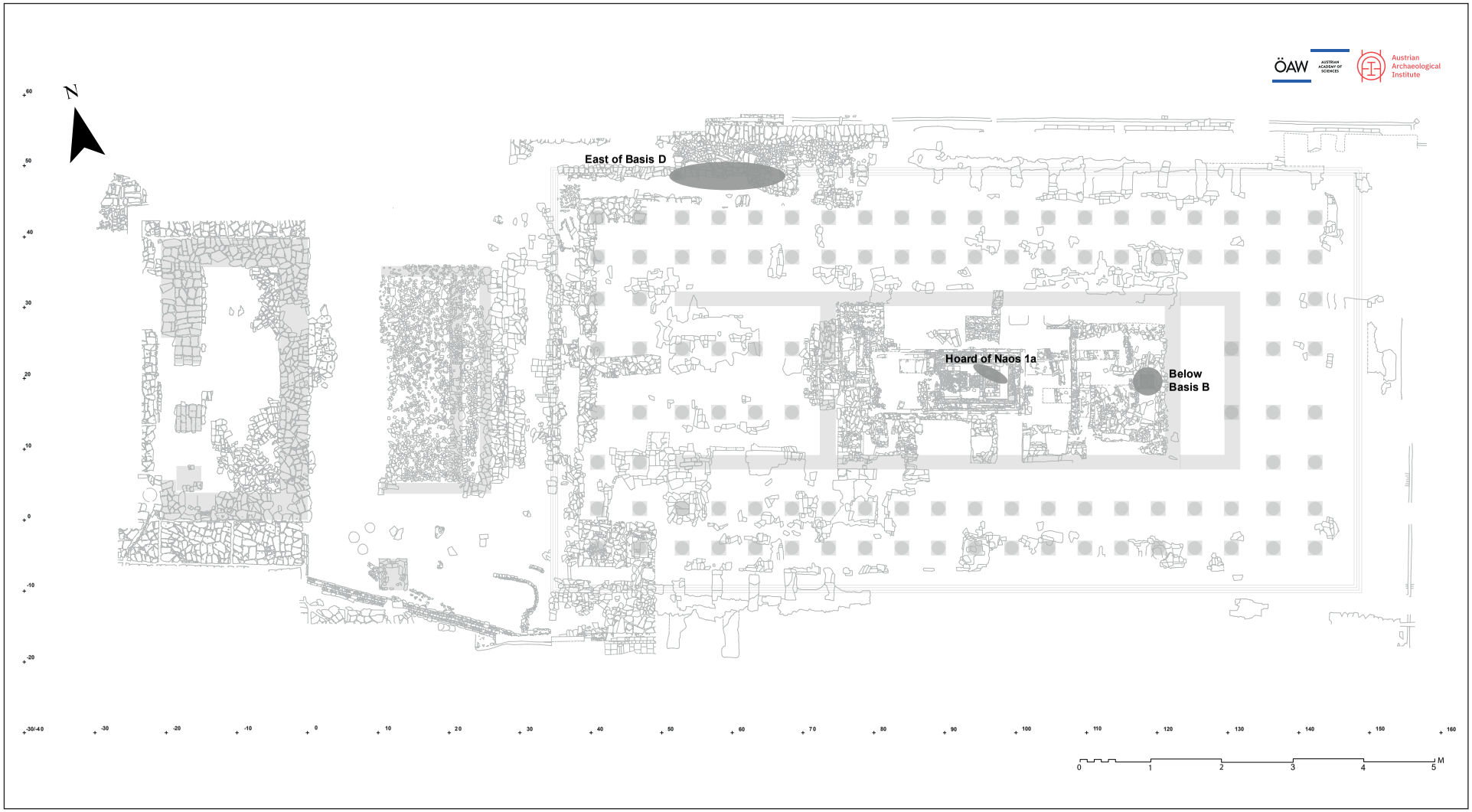
1 Main amber finds in the Italian peninsula
1 Verucchio. – 2 Vetulonia. – 3 Veii. – 4 Satricum. – 5 Piceno. – 6 Campania. – 7 Basilicata. – 8 Apulia



2 Amber from Greek sanctuaries in the Aegean and North Africa
1 Ephesos. – 2 Lindos. – 3 Miletos. – 4 Perachora. – 5 Sparta. – 6 Crete, Idaean Cave. – 7 Aetos. – 8 Kythnos. – 9 Chios, Harbour. – 10 Philia. – 11 Chios Phanai. – 12 Eretria. – 13 Pherai. – 14 Cyrene. – 15 Delos. – 16 Claros. – 17 Olympia. – 18 Crete, Dictaean Cave. – 19 Samos. – 20 Tocra – 21 Siphnos

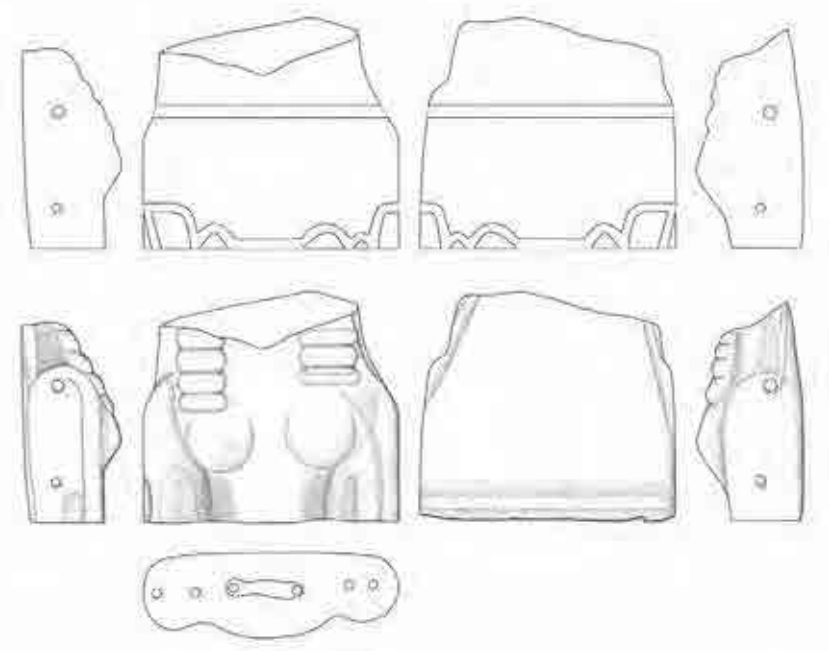


3 Amber from Greek cemeteries in the Aegean
1 Fortetsa. – 2 Eretria. – 3 Lefkandi. – 4 Archades. – 5 Praisos. – 6 Tinos. – 7 Athens. – 8 Thera. – 9 Ialysos. – 10 Eleusis

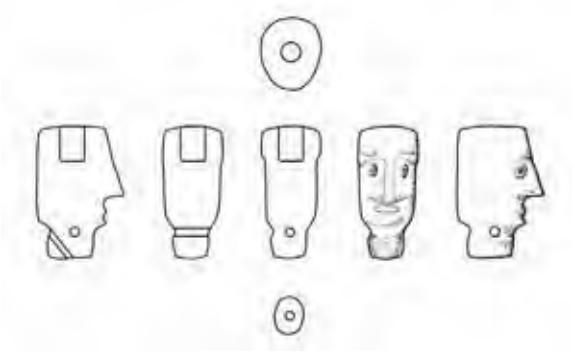


Most important find spots of amber artefacts in the Artemision

Plate 30



1



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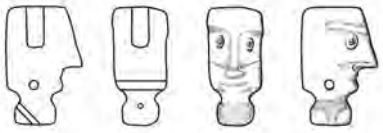

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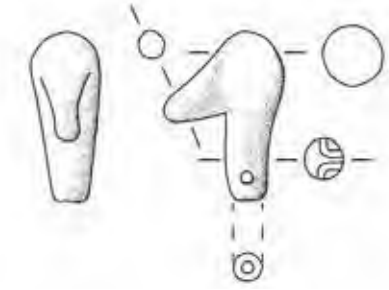

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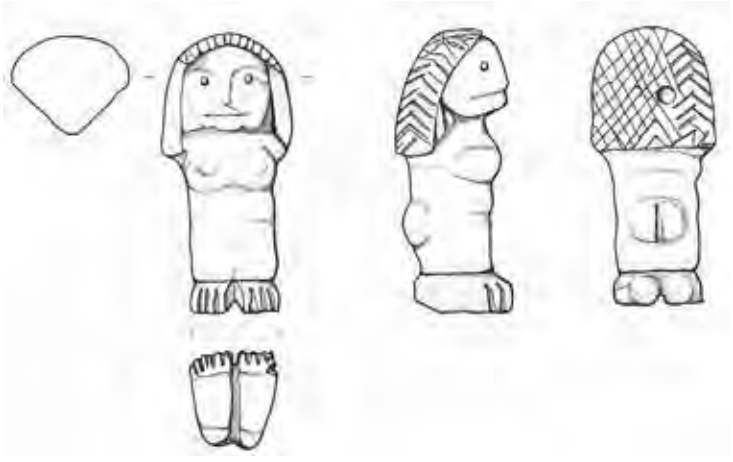
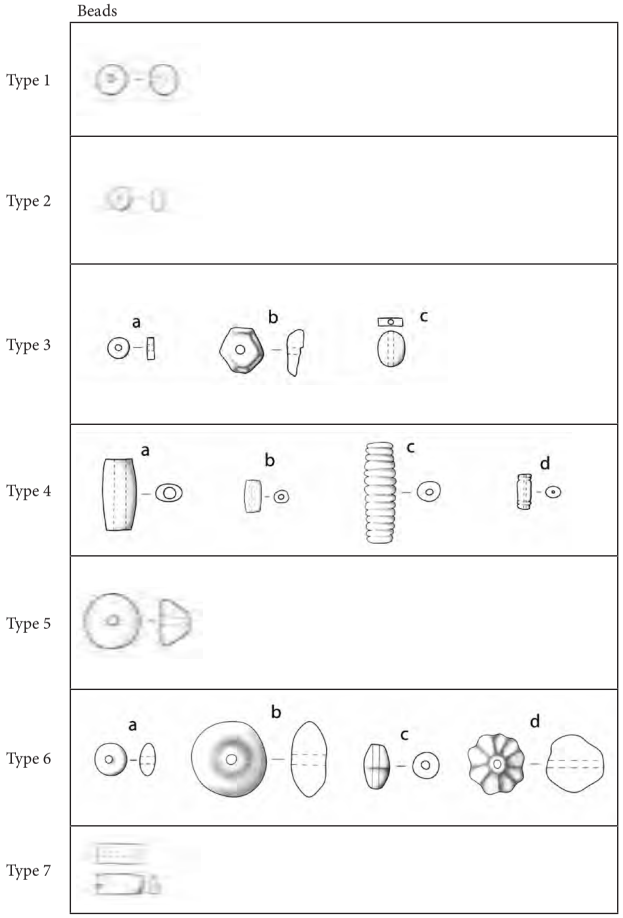


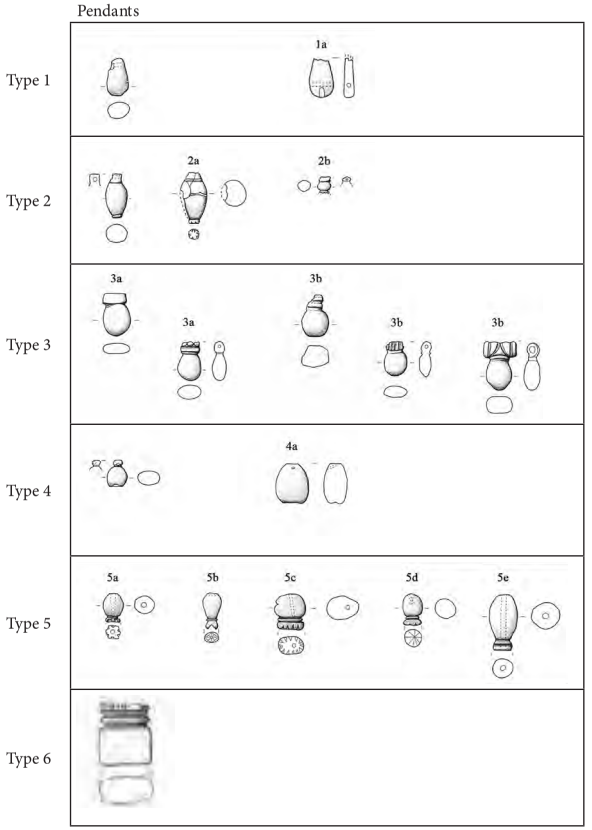
540

0 5 cm

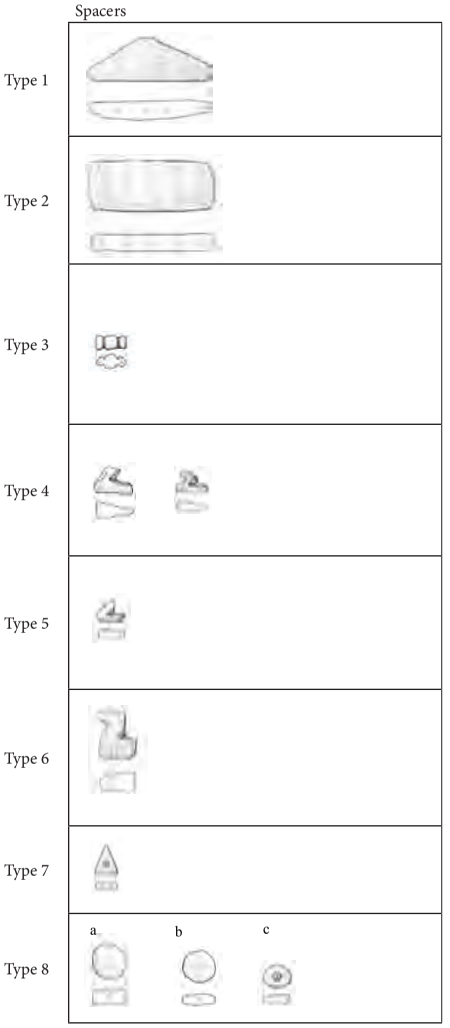
Amber figured finds from the Artemision, cat. 1. 2. 3. 5. 540



1



2

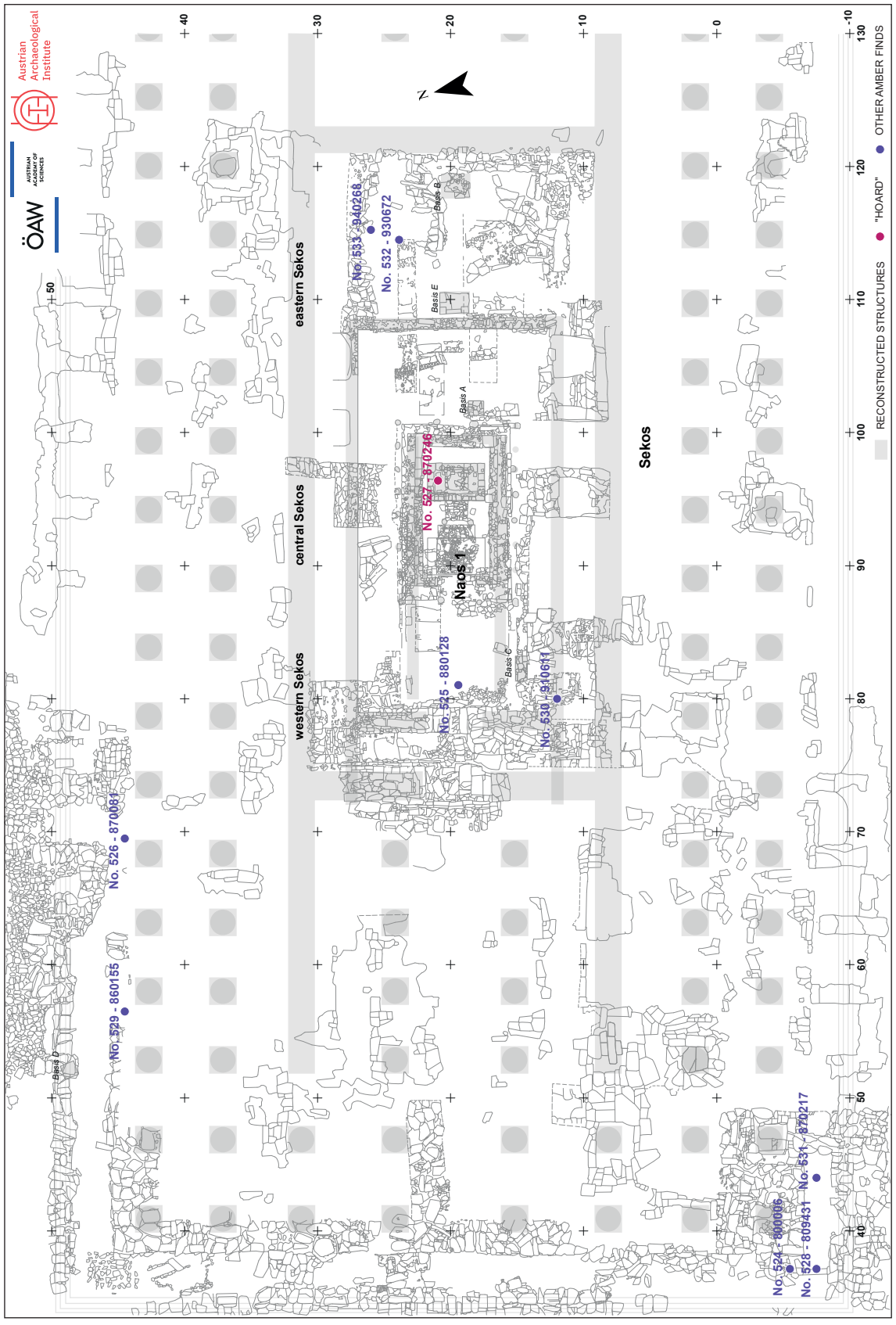


3

Amber beads, pendants and spacers from the Artemision (cf. pls. 9. 11. 17)

Plate 31

Plate 32



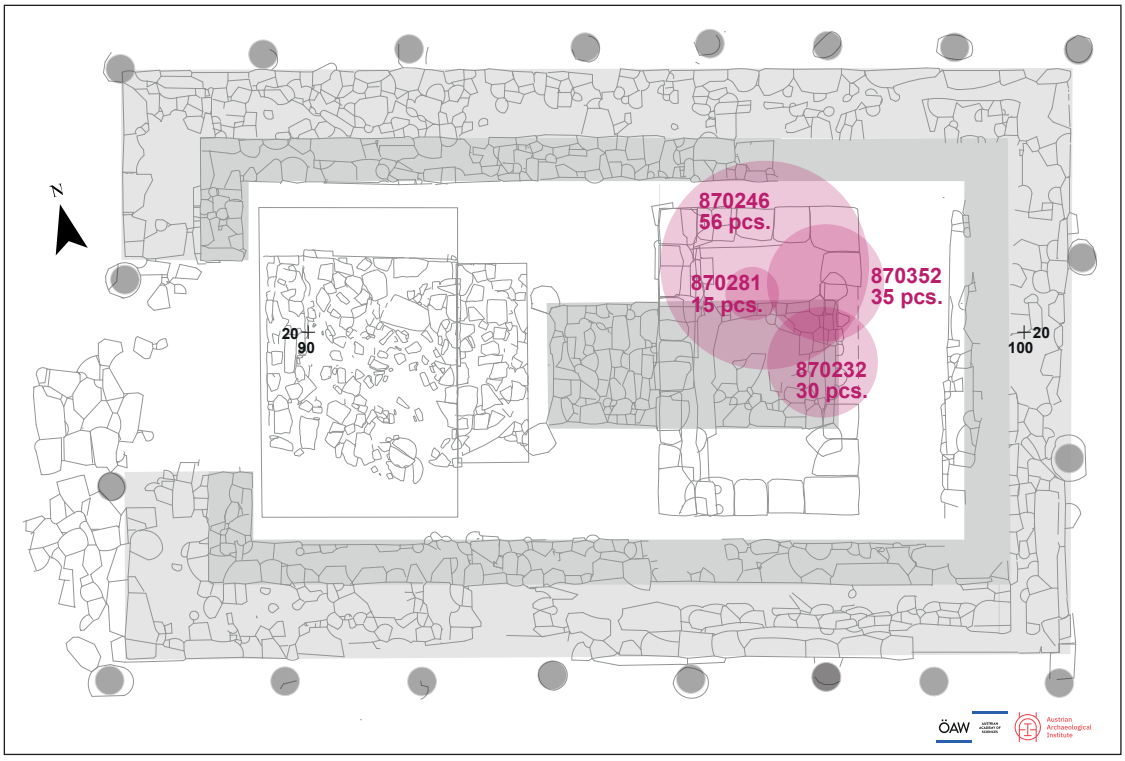
Find spots of amber inlays in the central part of the Artemision

1

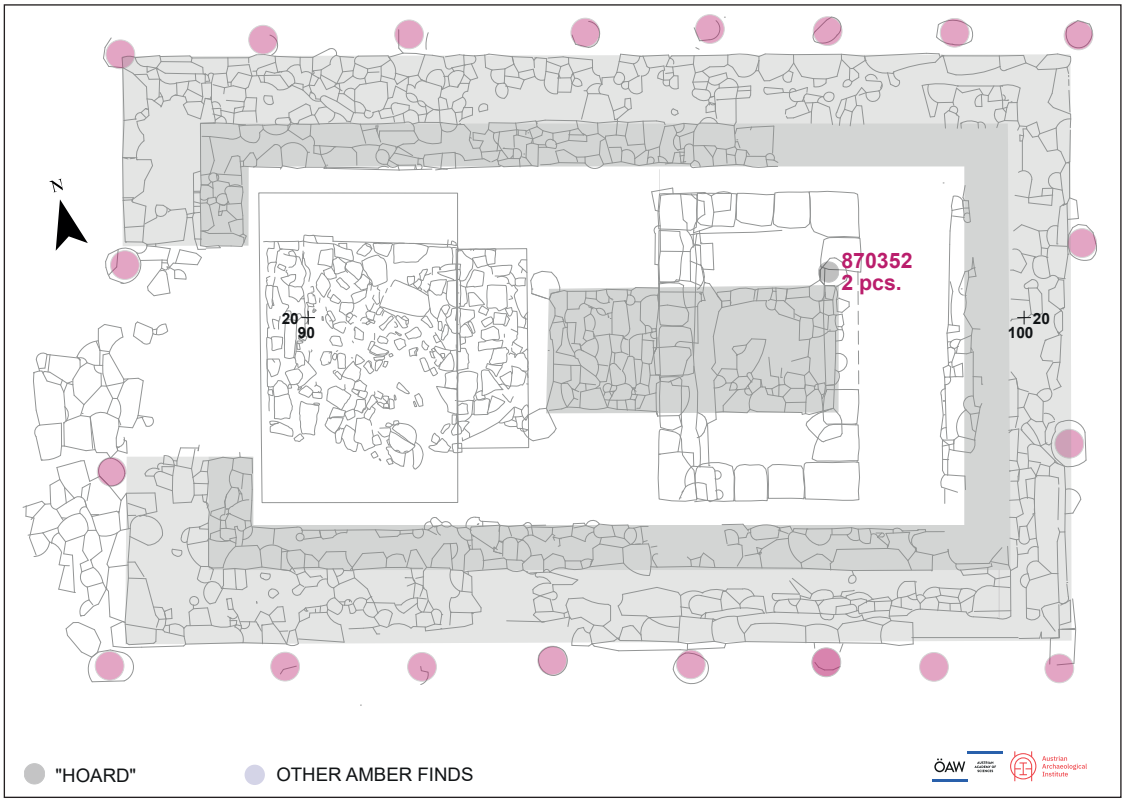
2

3

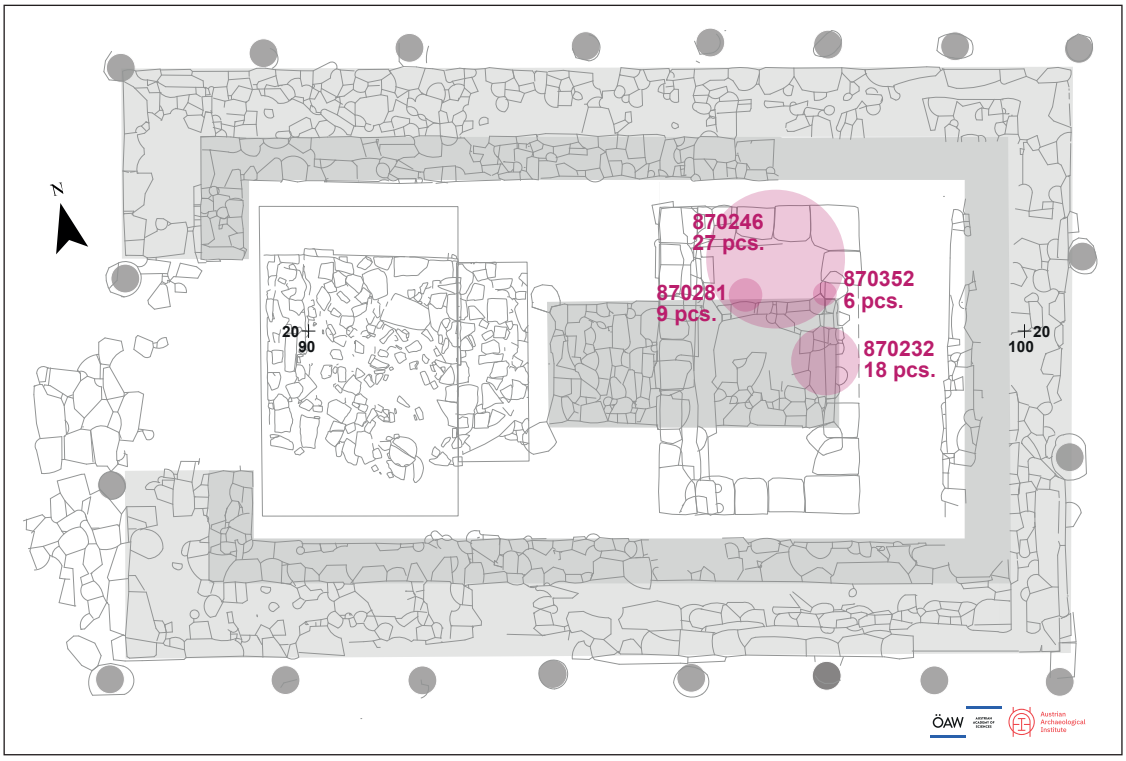
Girdles from Oenotrian female graves in Basilicata, late 8th–early 7th century BC – 1 Chiaromonte grave 152. – 2 Chiaromonte grave 156. – 3 Latronico grave 83



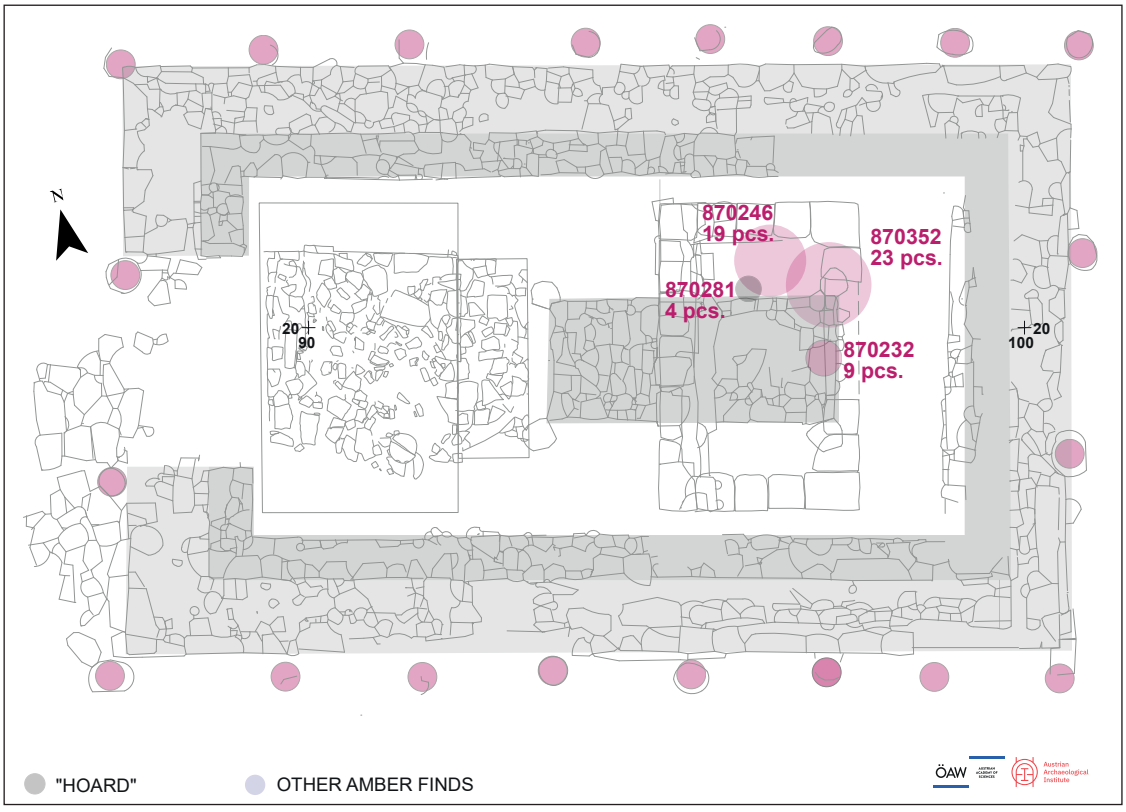
1 Find spots of spacers inside Naos 1a and Naos 2



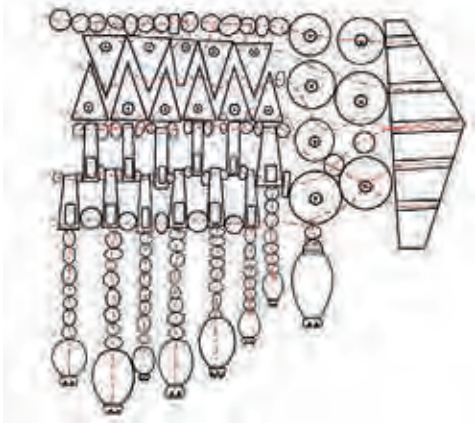
2 Find spots of end-spacers type 1 inside Naos 1a



1 Find spots of bird-shaped types 4–5 spacers inside Naos 1a and Naos 2



2 Find spots of triangle-shaped spacers type 7 inside Naos 1a and Naos 2



1 Reconstruction drawing of a possible composition of the girdle from the Artemision

2 Details of a reconstruction of the girdle from the Artemision: triangular and bird-shaped spacers

3 Reconstruction of the original aspect of the girdle offered to Artemis

1 Artefacts reproducing spinning women with precious tools
1 Stone stele from Maraş. – 2 Ivory statuette from the Artemision of Ephesos. – 3 Bronze rattle from Bologna

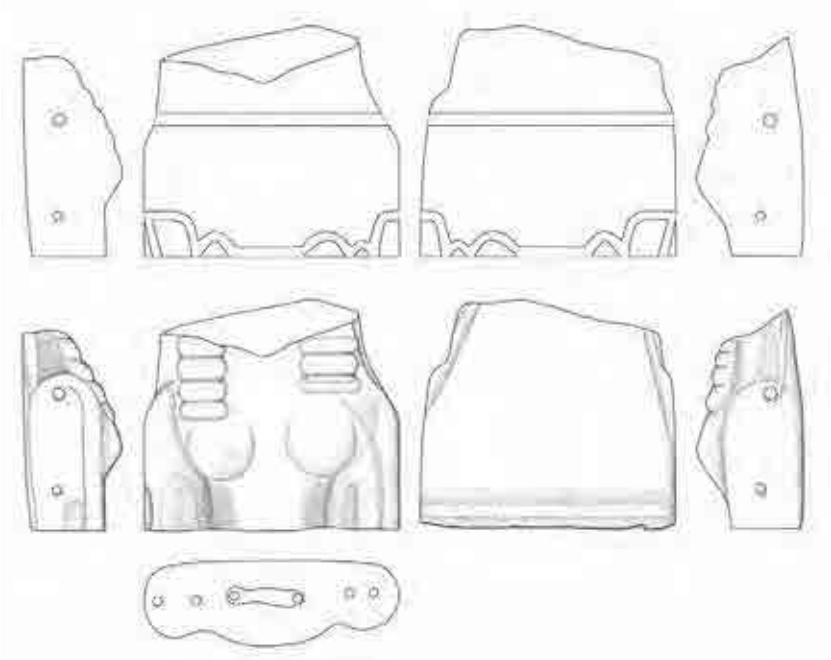
2 Spindle from Verucchio, grave Lippi 24/2005

3 Spindle from Verucchio, grave Lippi 47/2006

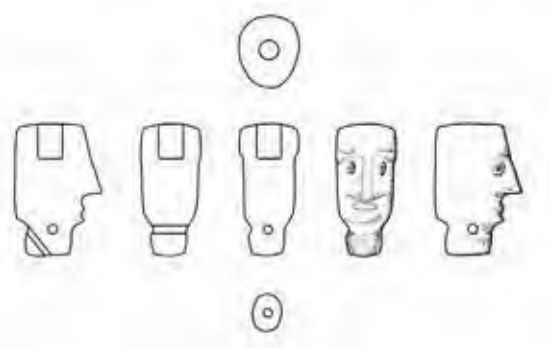
4 Spindle (left) and distaff (right) from Verucchio, grave Lippi 23/2005

Figures without scale.

Plate 38



1



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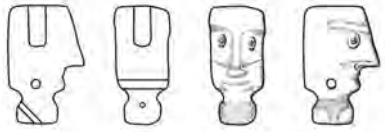
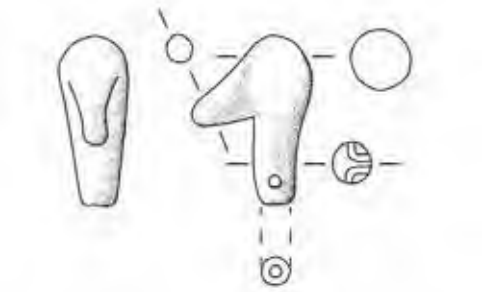
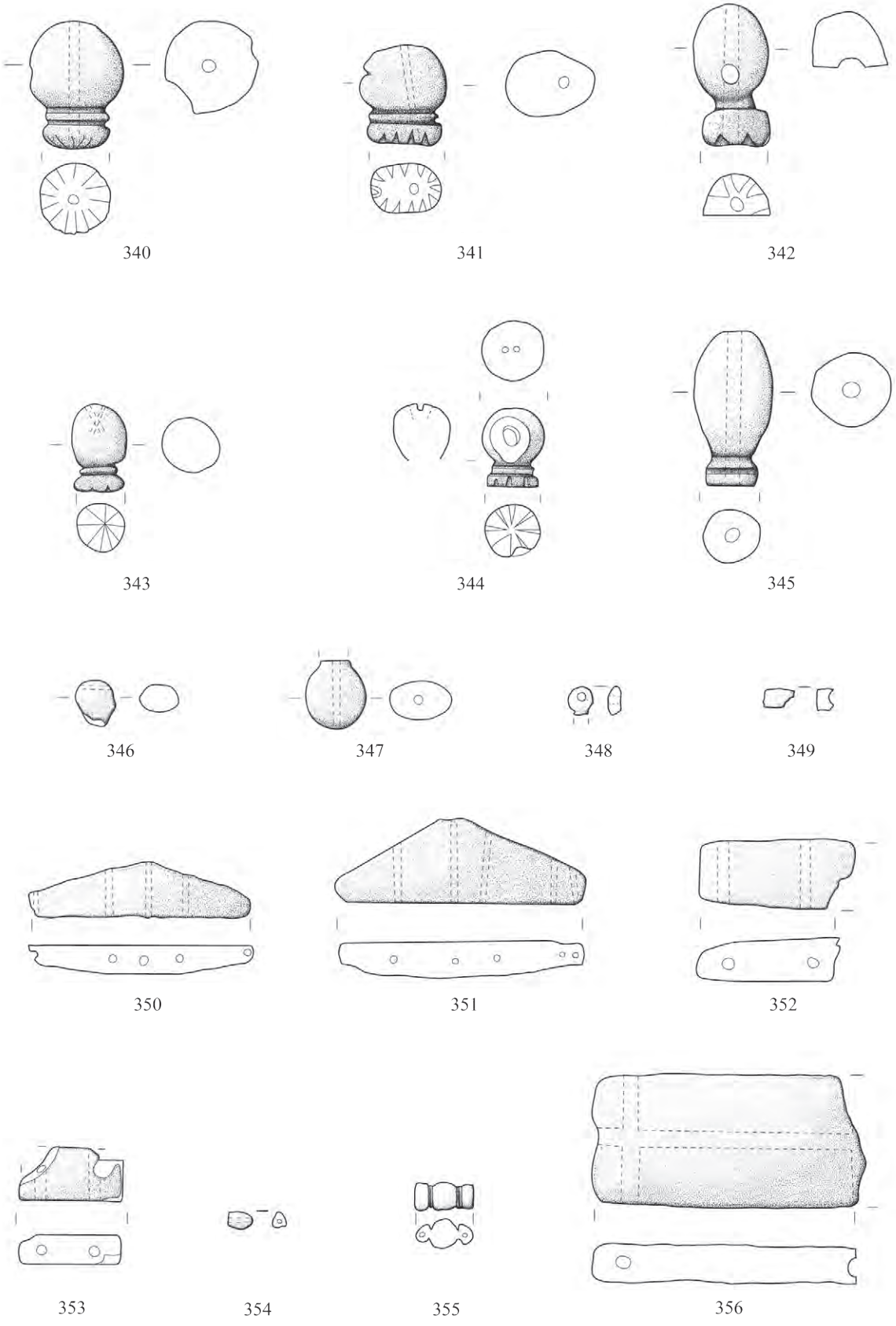


3



5

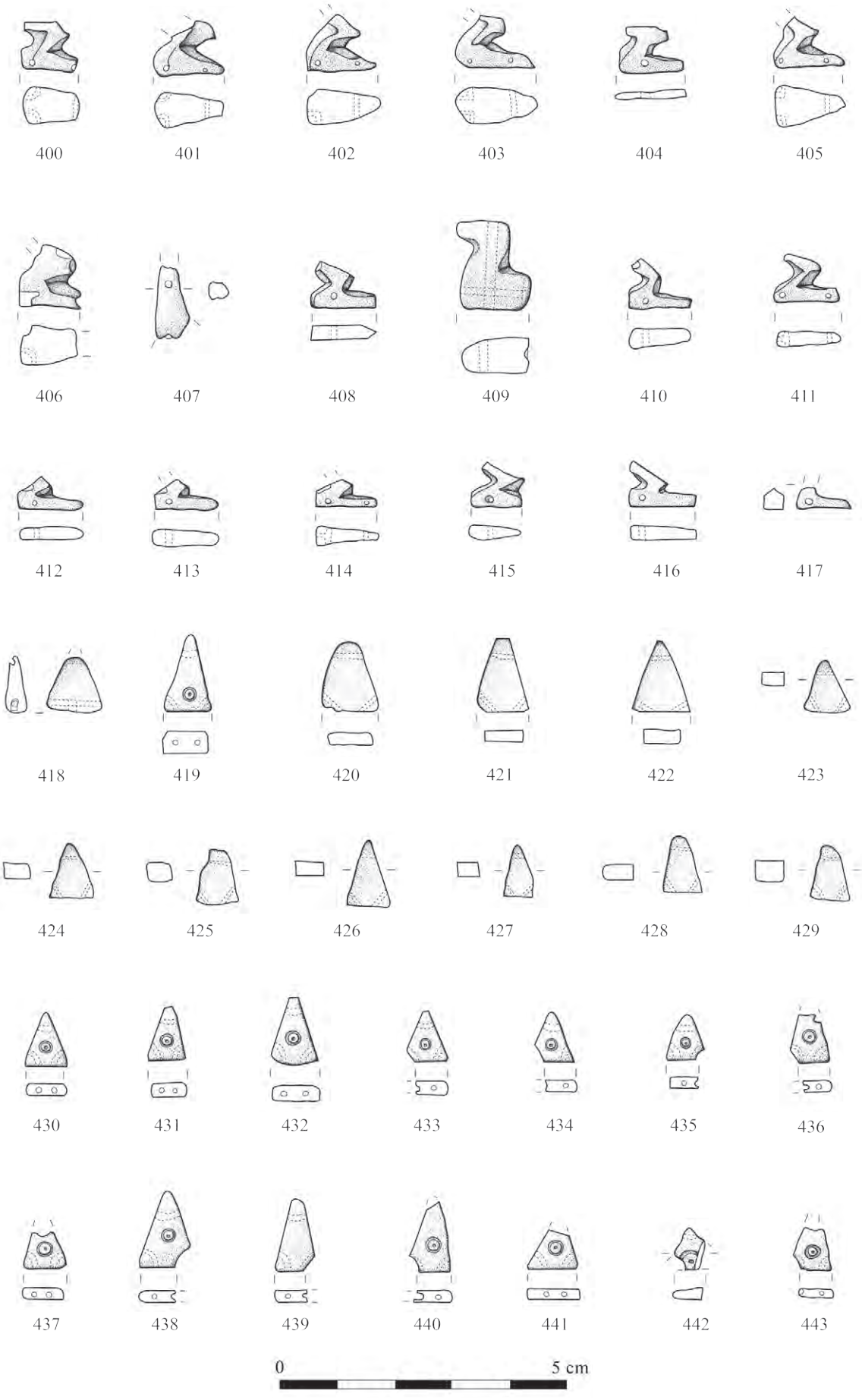
Figured finds cat. 1–3. 5



Pendants cat. 340–349; spacers cat. 350–356

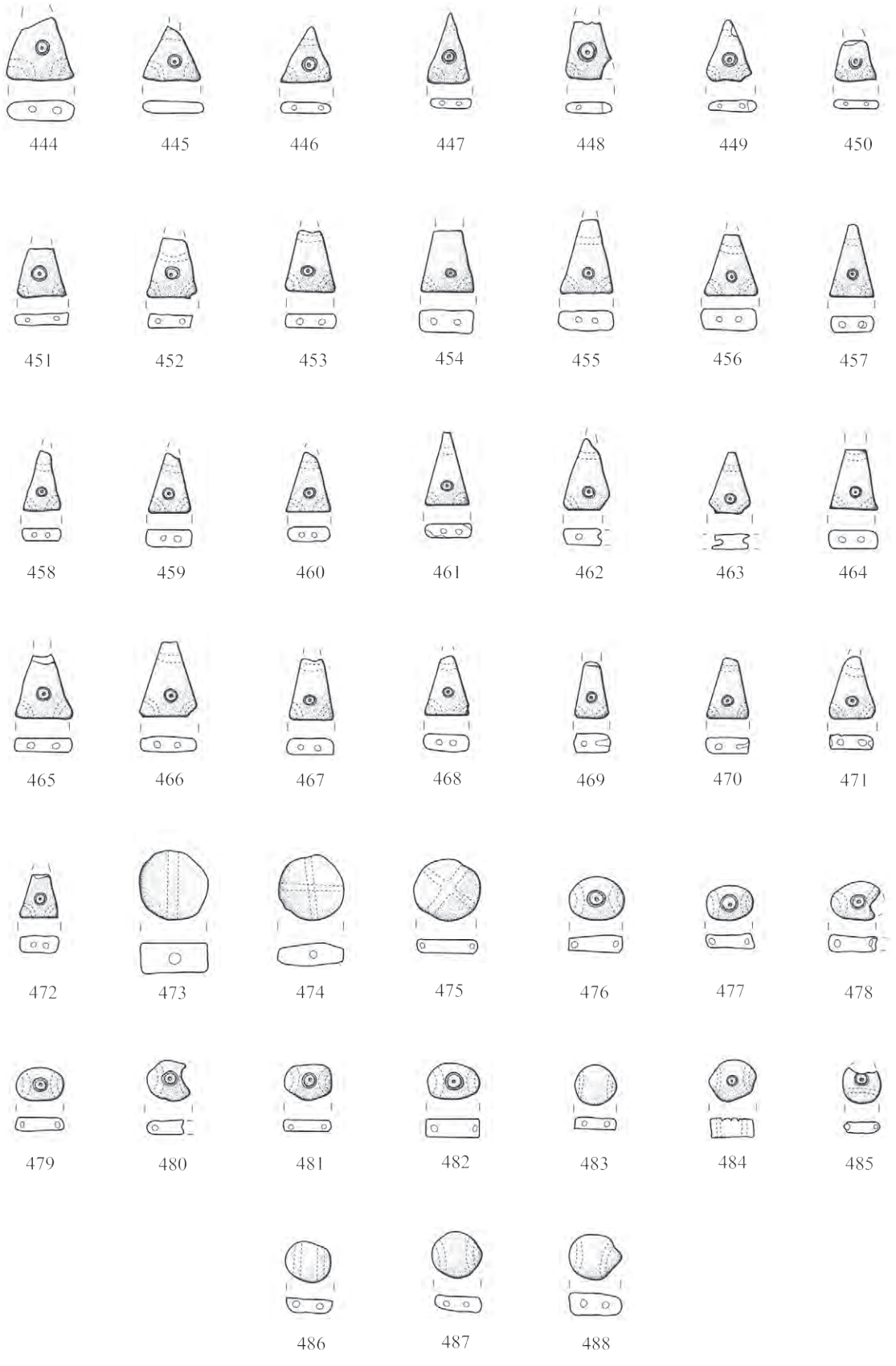
Plate 50

Spacers cat. 357–399

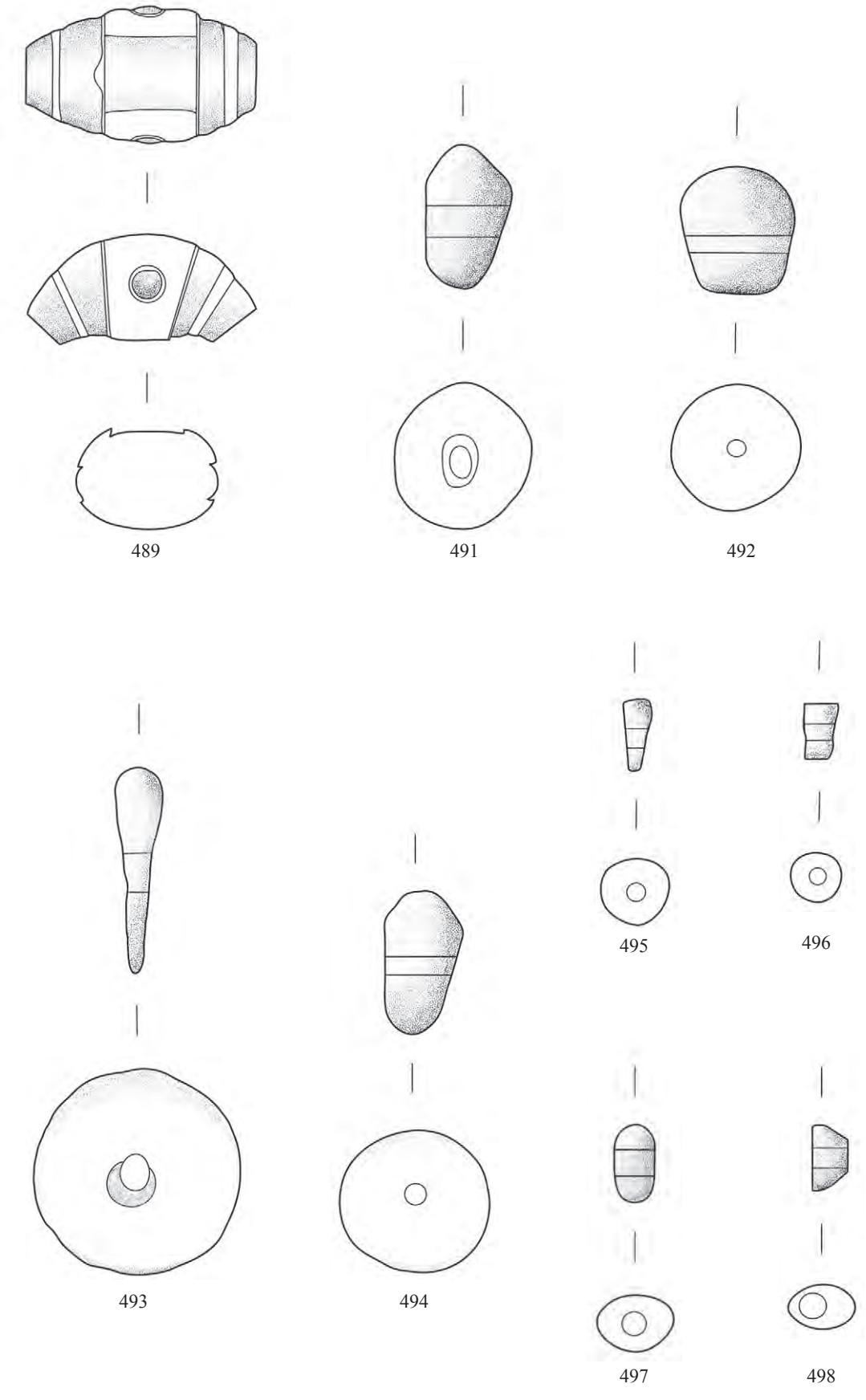


Spacers cat. 400–443

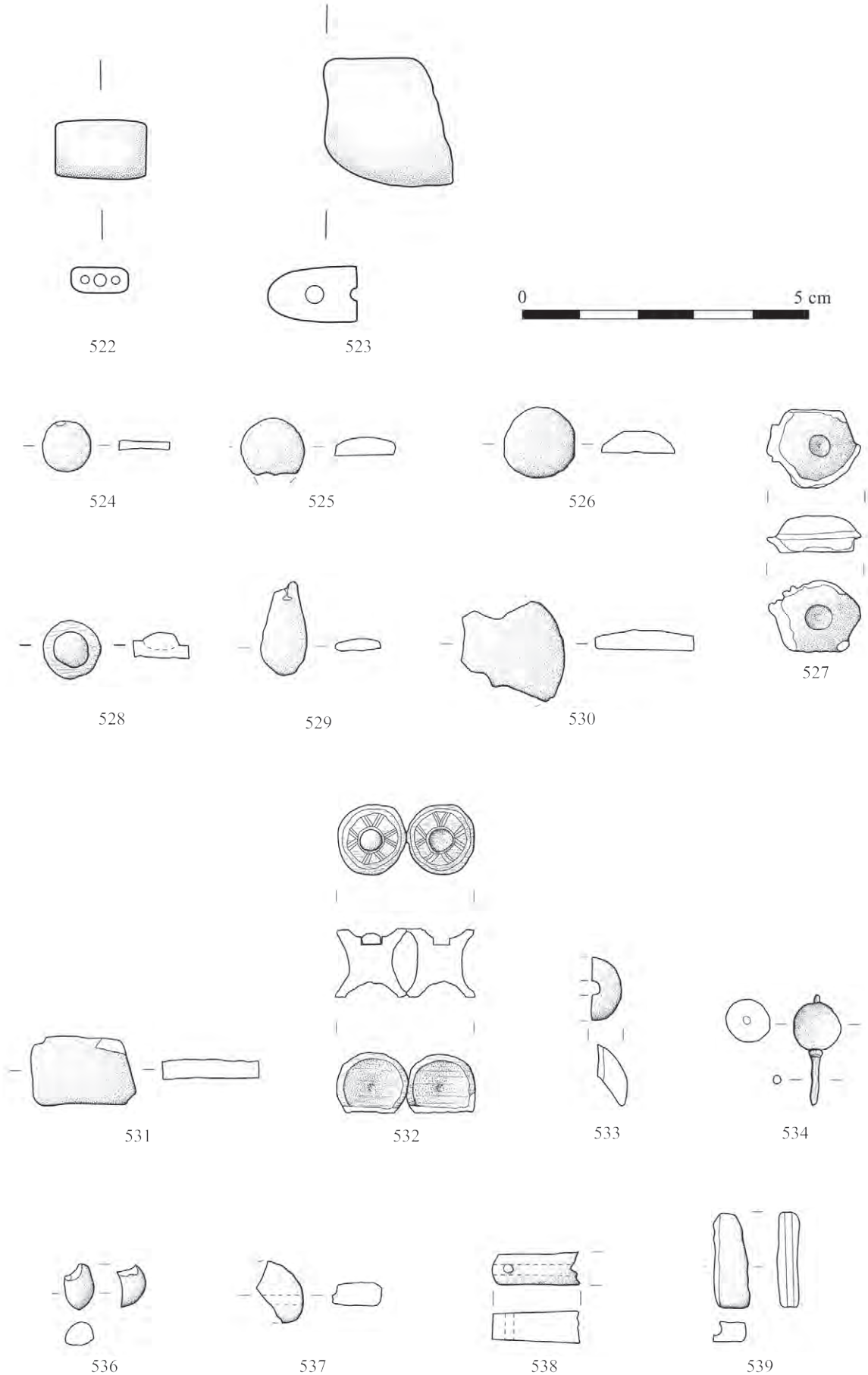
Plate 52



Spacers cat. 444–488

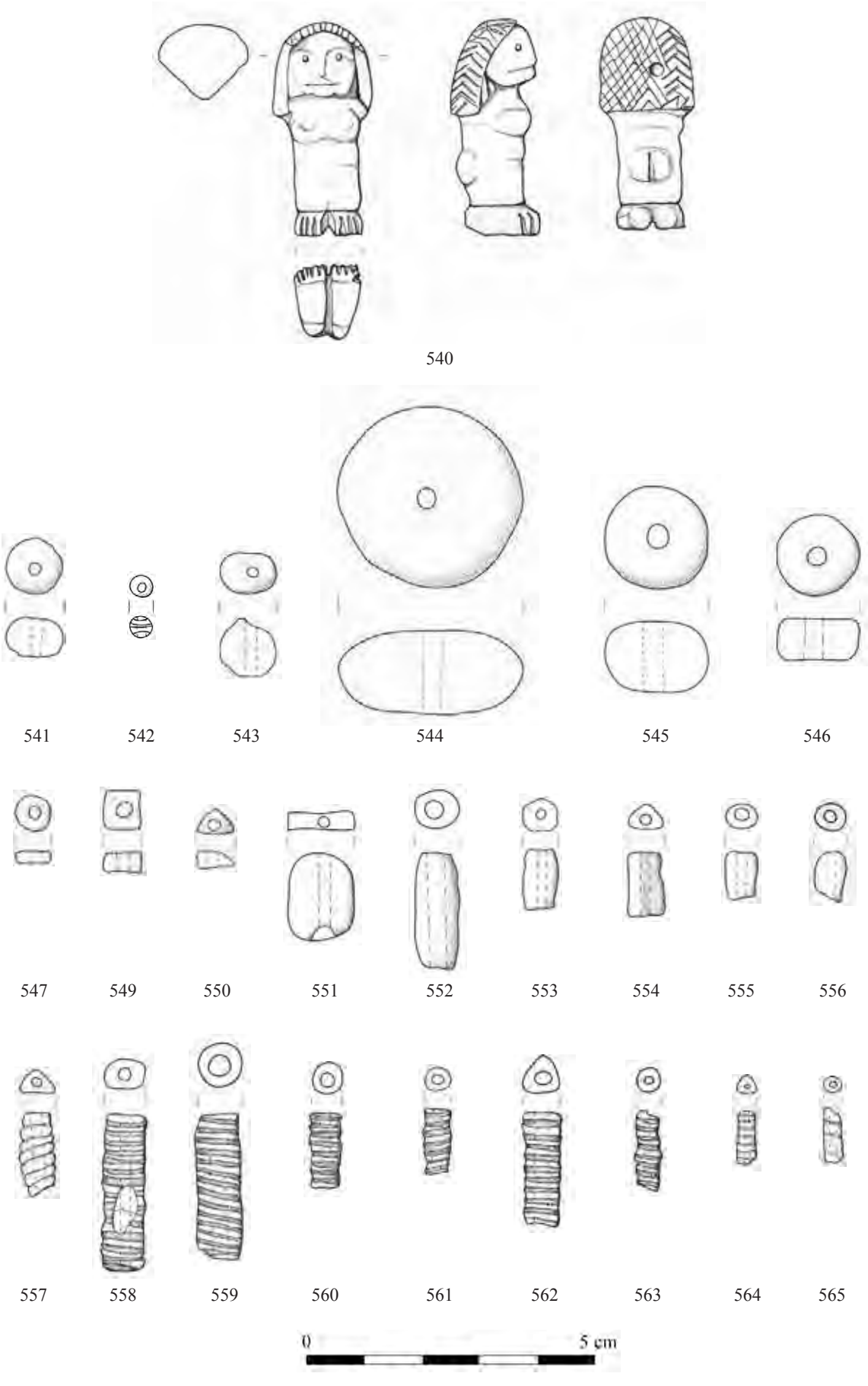


Fibulae cat. 489–498



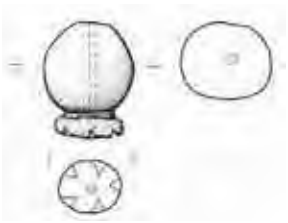
Fibulae cat. 522–523; inlays cat. 524–539

Plate 58

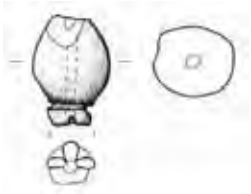


Figured find cat. 540; beads cat. 541–565

Plate 62



625



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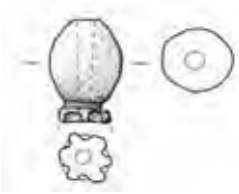

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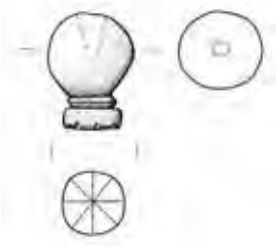

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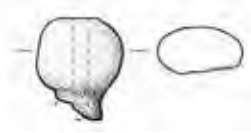
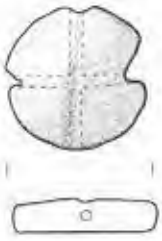


629

630

631



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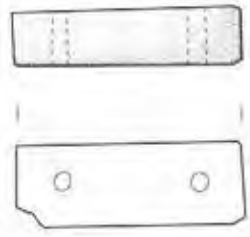

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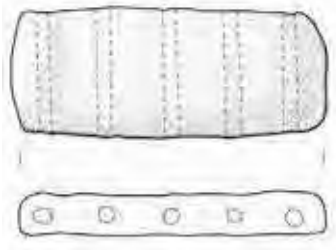
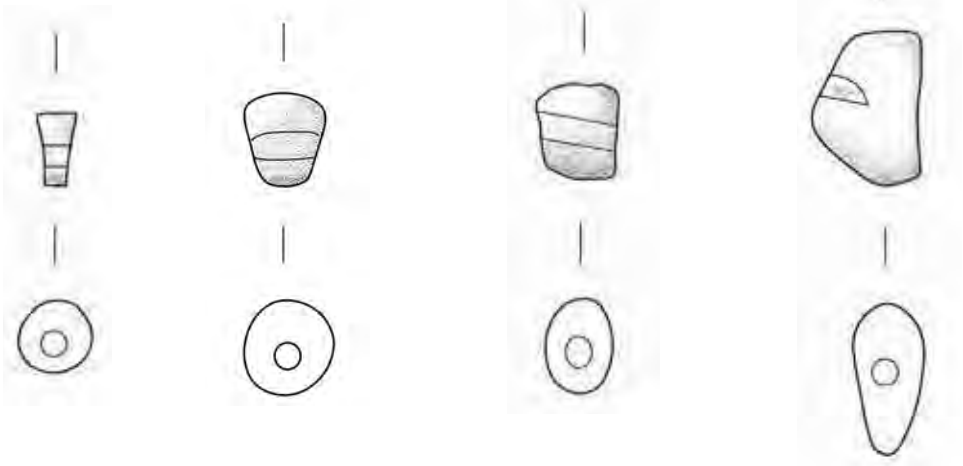
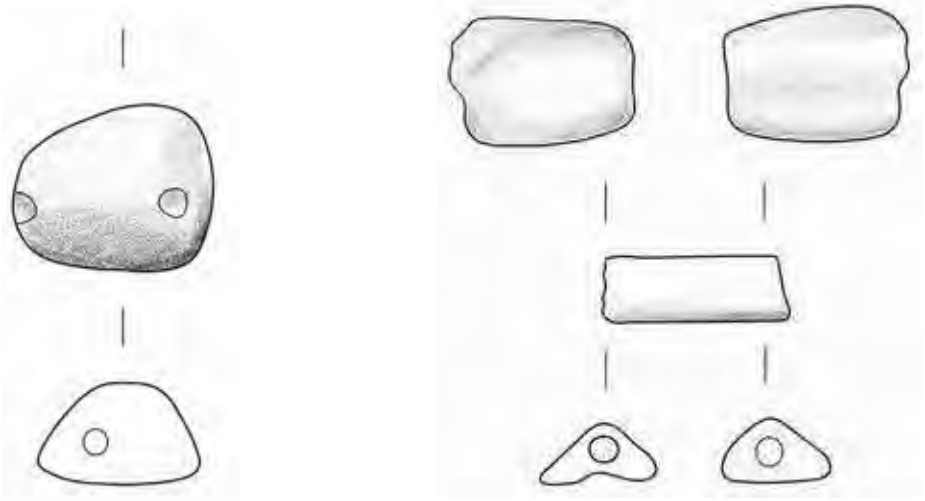


634

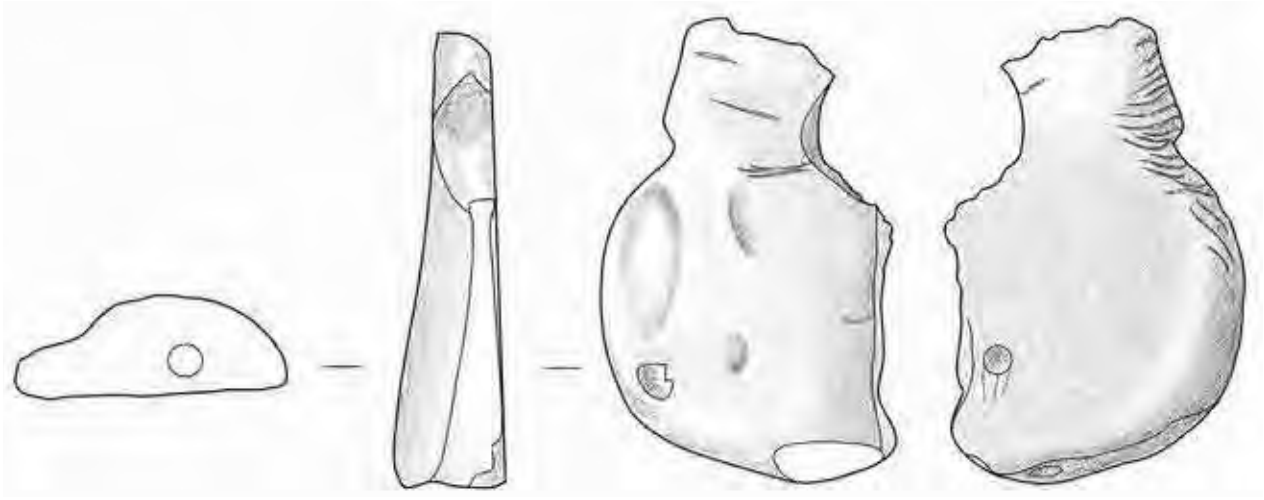
Pendants cat. 625–630; spacers cat. 631–634



635 641 642 648



649 650



651

0 5 cm

Fibulae cat. 625–651