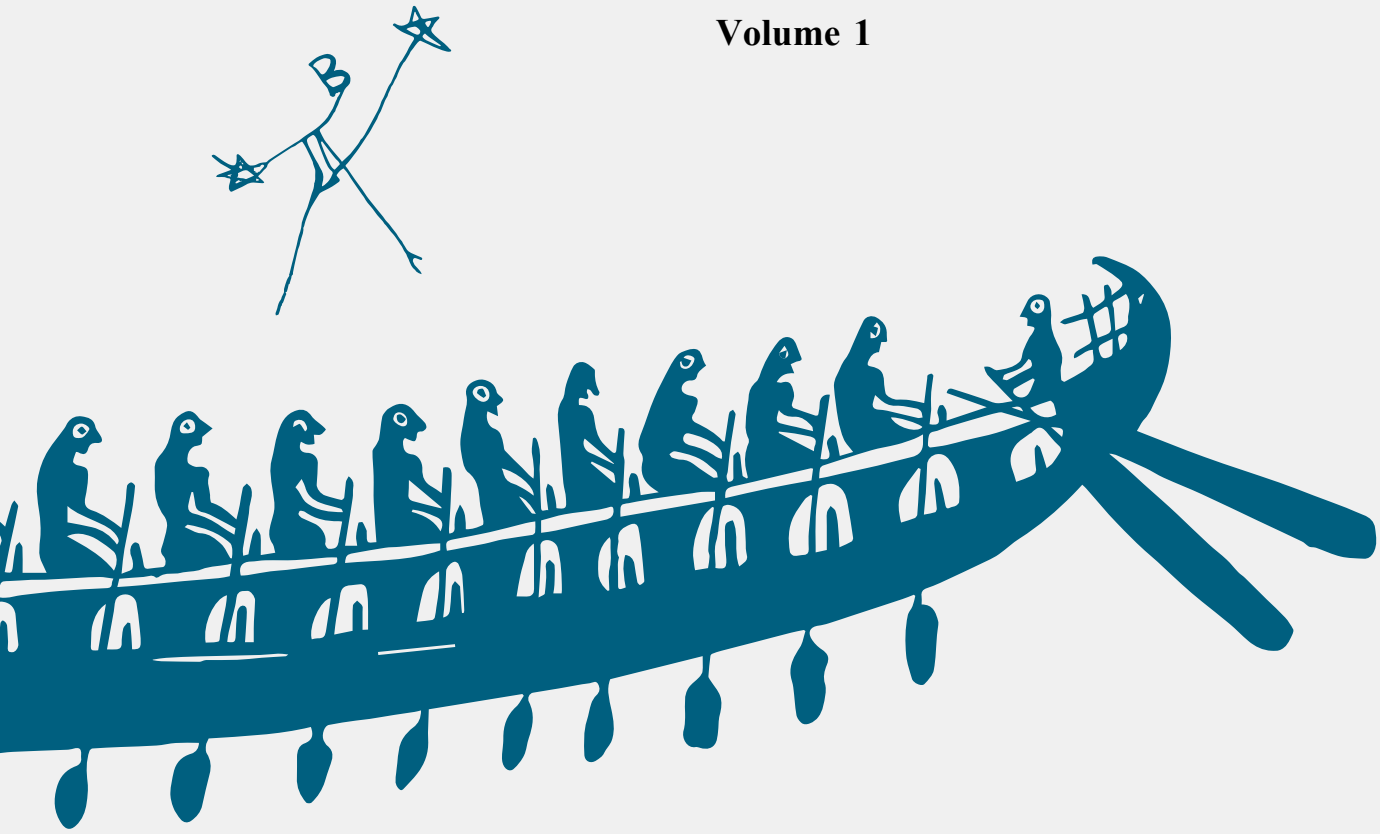
EUBOICA II

Pithekoussai and Euboea between East and West

Proceedings of the Conference
Lacco Ameno (Ischia, Naples), 14-17 May 2018

Teresa E. Cinquantaquattro and Matteo D'Acunto (eds.)

Volume 1



Napoli 2020

UNIVERSITÀ DEGLI STUDI DI NAPOLI « L'ORIENTALE »
DIPARTIMENTO DI ASIA AFRICA E MEDITERRANEO

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ANNALI
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Nuova Serie 27

UNIVERSITÀ DEGLI STUDI DI NAPOLI «L'ORIENTALE»
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Volume 1

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I contributi di questo volume sono stati sottoposti a *peer review* da parte di:

Ida Baldassarre, Luca Cerchiai, Teresa E. Cinquantaquattro, Mariassunta Cuozzo, Bruno d'Agostino, Patrizia Gastaldi, Fausto Longo, Carmine Pellegrino

ABBREVIATIONS

Above sea-level: above s.l.; Anno Domini: AD; and so forth: etc.; Before Christ: BC; bibliography: bibl.; catalogue: cat.; centimeter/s: cm; century/ies: cent.; chap./chaps.: chapter/chapters; circa/approximately: ca.; column/s: col./cols.; compare: cf.; *et alii*/and other people: *et al.*; diameter: diam.; dimensions: dim.; Doctor: Dr; especially: esp.; exterior: ext.; fascicule: fasc.; figure/s: fig./figs.; following/s: f./ff.; fragment/s: fr./frs.; for example: e.g.; gram/s: gm; height: h.; in other words: i.e.; interior: int.; inventory: inv.; kilometer/s: km; length: ln.; line/s: l./ll.; maximum: max.; meter/s: m; millimeter/s: mm; minimum: min.; namely: viz.; new series/nuova serie etc.: n.s.; number/s: no./nos.; original edition: orig. ed.; plate/s: pl./pls.; preserved: pres.; Professor: Prof.; reprint: repr.; series/serie: s.; sub voce: *s.v.*; supplement: suppl.; thick: th.; tomb/s: T./TT.; English/Italian translation: Eng./It. tr.; volume/s: vol./vols.; weight: wt.; which means: scil.; width: wd.

Abbreviations of periodicals and works of reference are those recommended for use in the *American Journal of Archaeology* with supplements in the *Année Philologique*.

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PREFACE

EUBOICA, AGAIN

Teresa E. Cinquantaquattro, Matteo D'Acunto

A little more than twenty years since the international conference *Euboica. L'Eubea e la presenza euboica in Calcidica e in Occidente* (Naples, 13-16 November 1996) – whose proceedings, edited by Bruno d'Agostino and Michel Bats, were published in 1998 – the great amount of new data that had enriched our knowledge of southern Italy, the western Mediterranean and Greece over the last few years called for a return to the theme of Euboean colonization. A direct thread, in motivations and content, ran from the 1996 conference to the one held in Lacco Ameno (Ischia, Naples) from 14 to 17 May 2018, which was entitled *Pithekoussai e l'Eubea tra Oriente e Occidente*. The intent was, again, to discuss the themes of colonization, how colonial realities became rooted in different areas of the Mediterranean, the specific traits of Euboean colonization, and forms of contact and relationship between the Greek element and local communities.

These Proceedings are divided in two volumes, arranged geographically, as per the conference program. They feature a dialogue between historians and archaeologists, with an emphasis on the new important contributions made over the last twenty years by field archaeology in Euboea and in colonial and Mediterranean contexts. This new archaeological evidence contributes to, and modifies our interpretations of, the historical phenomena in which Euboea played a prominent role in the Early Iron Age (tenth-eighth century BC), both in the motherland and in the several geographical districts touched by Euboean trade and colonization. These are the phenomena that led to the colonization of southern Italy and northern Greece, and thus from the eighth century BC onward put an indelible mark on the history of the West.

The individual contributions are introduced by an important essay by Nota Kourou, a reflection on the theme of Mediterranean connectivity seen from the Euboean perspective and analyzed (over a time range spanning from the tenth to the eighth century BC) through the distribution of Euboean pottery in the Aegean, the Levant and the West.

The first volume begins with Irene Lemos' important assessment of Euboea at its transition from the Bronze Age to the Iron Age. The contributions in the first part of the volume provide an up-to-date overview of the new archaeological and interpretive results of investigations at Lefkandi, Chalcis, the sanctuary of Artemis at Amarynthos, Karystos, and Kyme, and in eastern Euboea. The subsequent contributions regard the sector of Boeotia facing Euboea and falling within its orbit of influence, as borne out by mythical traditions and by the crucially important excavations of Oropos led by Alexandros Mazarakis Ainian. We are then led on into the northern Aegean and northern Greece, which were also destinations for Euboean trade and colonial migration. The book is concluded with a look at the western Mediterranean, and specifically at Sardinia and Spain. Here, the Phoenician and Euboean elements interacted with the local communities, forging relations based on mobility and reciprocity.

The second volume gathers contributions on Euboean presence in the Tyrrhenian (Pithekoussai, Cumae, Neapolis), the canal of Sicily (Zankle and Naxos) and areas that the Euboeans had an early interest in (Francavilla Marittima in Calabria).

These contributions, focusing on archaeological and interpretive novelties from each site, are preceded by two important reflections, by Maurizio Giangiulio and Luca Cerchiai, respectively. The former deals with the "social memory" of Greek colonization, the latter with new interpretive models for the dynamics guiding relations between the Greeks and local communities, based on a comparison between different milieus and on new evidence. Alongside the presentation of archaeological novelties from Pithekoussai and Cumae in several contributions in this volume, there are two reflections by Marek Wecowski and Alfonso Mele, respectively on social behavior in connection with the appearance of the symposium, starting from the famous inscription on Nestor's Cup, and on the mythical-historical tradition of Cumae from the story of the Sybil onward.

The conference was accompanied by an exhibition entitled *Pithekoussai… work in progress*, displaying a sample of grave goods from the still unpublished part of the necropolis of Pithekoussai, i.e., from the 1965-1967 excavations. In this exhibition, Giorgio Buchner was honored with a display of his letters and documents bearing witness to his dense correspondence with some of the foremost archaeologists of his time, and to his international standing as a scholar.

The conference provided an opportunity to strengthen the ties between the Soprintendenza and the university, compare different study traditions, and keep open the dialogue on the theme of intercultural connectivity and relations. This theme, far from being outdated, today stands as the true benchmark by which the progress of the peoples of the shores of the Mediterranean is and will be measured.

The conference was promoted by the Università degli Studi di Napoli "L'Orientale" and the Soprintendenza Archeologia, Belle Arti e Paesaggio per l'area metropolitana di Napoli (Ministero della Cultura), with the crucial support of the town administration of Lacco Ameno d'Ischia. Heartfelt thanks go to the mayor, Giacomo Pascale, and the councilor for culture at the time, Cecilia Prota, who enthusiastically agreed to and supported this venture, in the awareness that knowledge and research must provide the foundation for promotion of cultural heritage.

We thank all who brought their greetings to the conference and took part in it: Prof. Elda Morlicchio, Rector of the Università degli Studi di Napoli "L'Orientale", and Prof. Michele Bernardini, Director of Dipartimento Asia Africa e Mediterraneo; Dr. Caterina Bon Valsassina, Director General of Archeologia, Belle Arti e Paesaggio of the Italian Ministry of Culture; Prof. Emanuele Papi, Director of the Italian Archaeological School of Athens; Prof. Claude Pouzadoux, director of the Centre J. Bérard; Prof. Oswyn Murray; Prof. Emanuele Greco, former director of the Italian Archaeological School of Athens; and Dr. Paolo Giulierini, director of the Naples National Archaeological Museum.

Especially heartfelt thanks go to all the speakers at the conference and authors of the essays in these two volumes. Through their valuable contributions, together they have achieved the collective endeavor of *Euboica II*, between the motherland, the East and the West. We are especially grateful to Bruno d'Agostino, who, from the height of his scholarly authority, accepted the onerous task of introducing the conference and authored a fundamental essay in the first volume. Our thanks also go to Carmine Ampolo and Catherine Morgan for exemplarily drawing the conclusions of the conference and of these two volumes. We are also keen to thank the session chairs who managed the dense days of the conference: Michel Bats, Anna Maria D'Onofrio, Maurizio Giangiulio, Irene Lemos, Oswyn Murray, Fabrizio Pesando, Karl Reber, Claude Pouzadoux, and Fausto Zevi.

We thank Drs. Costanza Gialanella and Marialuisa Tardugno, the Soprintendenza officials who succeeded one another in the task of safeguarding the archaeological heritage of Ischia, for organizing the exhibition, as well as Mss. Teresa Calise and Teresa Iacono (Soprintendenza ABAP per l'area metropolitana di Napoli). We would also like to thank Dr. Federico Poole (Museo Egizio di Torino) for his consultation on the scarabs; Dr. Luigia Melillo and Ms. Marina Vecchi of the Restoration Laboratory of the National Archaeological Museum of Naples for their restoration of the materials; and the

firm Corsale & Amitrano Restauro e Architettura. For the exhibition imagery, we thank the Òrkestra. Media & Web Agency; for the welcome service, the Platypus Tour Agency and especially Emanuele Mattera; and for operative support, Mr. Giulio Lauro of the Marina di Sant'Anna.

Finally, our heartfelt thanks go to a group of PhD and MA graduates in archaeology and archaeology students of the Università degli Studi di Napoli "L'Orientale" for contributing decisively to the organization and management of the conference: Mariangela Barbato, Martina D'Onofrio, Chiara Improta, Cristiana Merluzzo, Sara Napolitano, Francesco Nitti, Francesca Somma, and Marco Tartari.

With some emotion, we leave it to some photographs of the first and second conference of *Euboica* to conclude this brief introduction. A common research thread ran through these two conferences, which were held in a similar climate of dialogue, sharing and friendship among today's "Euboeans", along the sea routes of yesterday's Euboeans from the East to the West.

Participants in the conference *Euboica. L'Eubea e la presenza euboica in Calcidica e in Occidente*, Naples, 13-16 November 1996: from left to right, David Ridgway, Nicholas Coldstream, Michel Bats, Patrizia Gastaldi, Angeliki Andreiomenou, Bruno d'Agostino, Sandrine Huber, Irene Lemos, and Béatrice Blandin

Pithekoussai e l'Eubea tra Oriente e Occidente

Lacco Ameno, Ischia (NA)
14-17 maggio 2018

Convegno Internazionale

Centro Congressi
Auditorium "Leonardo Carriero"
L'Albergo della Regina Isabella
Piazza Santa Restituta, 80076 Lacco Ameno - Ischia (NA)

14 maggio

SALUTI

15.30 **Giacomo Pascale** (Sindaco del Comune di Lacco Ameno)
Caterina Bon Valsassina (Direttore Generale Archeologia, Belle Arti e Paesaggio - Mibact)
Teresa E. Cinquantaquattro (Soprintendente ABAP per l'Area Metropolitana di Napoli)
Elda Morlicchio (Rettrice dell'Università degli Studi di Napoli "L'Orientale")
Michele Bernardini (Direttore del DAAM, Università degli Studi di Napoli "L'Orientale")
Emanuele Papi (Direttore della Scuola Archeologica Italiana di Atene)
Corrado Matera (Assessore con delega al Turismo, Regione Campania)
Rosanna Romano (Direttore Generale per le Politiche culturali e il Turismo, Regione Campania)

Prospettive di valorizzazione del patrimonio archeologico
Interveranno
Cecilia Prota (Assessore alla Cultura del Comune di Lacco Ameno)
Paolo Giulierini (Direttore del Museo Archeologico Nazionale di Napoli)
Nadia Murolo (Dirigente per la valorizzazione e promozione dei Beni Culturali, Regione Campania)

CONFERENZA INAUGURALE

16.30 **Nota Kourou** (University of Athens)
Euboean pottery in a Mediterranean perspective

INTRODUZIONE AL CONVEGNO

17.10 **Bruno d'Agostino** (Università degli Studi di Napoli "L'Orientale")
Le problematiche archeologiche

17.30 **Alfonso Mele** (Università degli Studi di Napoli "Federico II")
Le problematiche storiche

VISITA AL MUSEO

15 maggio

SEZIONE A. L'Eubea tra madrepatria e colonie: aspetti storici e modelli interpretativi

10.00 **Maurizio Giangiulio** (Università degli Studi di Trento)
Memorie coloniali euboiche: appunti sulle tradizioni letterarie della mobilità mediterranea di VIII - VII secolo

10.20 **Luisa Breglia** (Università degli Studi di Napoli "Federico II")
Relazioni tra Eubea e Beozia in età alto arcaica

10.40 **Luca Cerchiai** (Università degli Studi di Salerno)
Modelli interpretativi sulla colonizzazione euboica e impatti sul mondo indigeno

SEZIONE B. Pithekoussai

11.00 **Teresa E. Cinquantaquattro** (Soprintendenza ABAP per l'Area Metropolitana di Napoli)
Pithekoussai: rappresentazione funeraria e dinamiche interculturali nella necropoli di San Montano (scavi 1965-67)

Pausa caffè

11.40 **Melania Gigante** (Università degli Studi di Bologna), **Wolfgang Müller** (Goethe University Frankfurt), **Alessandra Sperduti, Luca Bondioli** (Museo Nazionale Preistorico Etnografico "Luigi Pigorini", Roma)
Euboici, orientali, indigeni: paleodemografia e mobilità dal campione odonto-scheletrico umano delle sepolture dell'antica Pithekoussai (VIII - VI sec.)

12.00 **Costanza Gialanella** (Soprintendenza ABAP per l'Area Metropolitana di Napoli), **Pietro Giovanni Guzzo** (Accademia dei Lincei)
Il quartiere metallurgico di Mazzola a Pithecusa: ritrovamenti e produzioni

12.30 **Mariassunta Cuozzo** (Università degli Studi del Molise)
Produzioni ceramiche dall'area di Mazzola

12.50 **Nadin Burkhardt** (Catholic University of Eichstätt-Ingolstadt), **Stephan Faust** (University College of Cork)
I primi risultati dello scavo nell'area di villa Arbusto/Pithecusa

DISCUSSIONE

Pausa pranzo

15.00 **Valentino Nizzo** (Museo Nazionale Etrusco di Villa Giulia, Roma)
Paesaggi, forme e codici del rito nella necropoli di Pithekoussai

15.20 **Marek Wecowski** (University of Warsaw)
The "Cup of Nestor" in context: the rise of the Greek aristocratic culture

SEZIONE C. Cuma e Parthenope

15.40 **Matteo D'Acunto** (Università degli Studi di Napoli "L'Orientale")
Le prime fasi di Cuma alla luce delle ricerche recenti

16.00 **Giovanna Greco** (Università degli Studi di Napoli "Federico II")
Strutture e materiali dalla Cuma arcaica: le ricerche della "Federico II" nell'area del Foro

Pausa caffè

16.40 **Michel Bats, Priscilla Munzi** (Centre Jean Bérard, Napoli)
Vaisselle et ustensiles de cuisine à Cumes à l'époque archaïque: analyse et confrontations

17.00 **Daniela Giampaola** (Soprintendenza ABAP per il Comune di Napoli)
Napoli antica dall'Età del Bronzo Finale a Parthenope: i dati delle nuove indagini

DISCUSSIONE

16 maggio

SEZIONE D. La Sicilia e il Mediterraneo occidentale

10.00 **Giovanna Maria Bacci** (Soprintendenza BB.CC.AA. di Messina)
Zancle: aggiornamenti sull'insediamento urbano e sui luoghi di culto

10.20 **Maria Costanza Lentini** (Polo Regionale dei Siti Culturali di Catania)
Naxos di Sicilia tra l'VIII e il VII secolo a.C.: rapporti e connessioni esterne

10.40 **Jean-Christophe Sourisseau** (Aix-Marseille Université), **Timmy Gambin** (University of Malta)
Premiers éléments sur la cargaison de l'épave de Xlendi (Gozo, Malte)

11.00 **Massimo Botto** (CNR, Istituto di Studi sul Mediterraneo Antico)
Fenici e Greci nella Penisola Iberica tra IX e VII sec. a.C.

Pausa caffè

11.40 **Marco Rendeli, Paolo Bernardini** (Università degli Studi di Sassari)
La Sardegna

SEZIONE E. L'Eubea: la madrepatria

12.00 **Irene Lemos** (University of Oxford)
Why Euboea? From the Late Bronze to the Early Iron Age

12.20 **Xenia Charalambidou** (University of Warsaw)
Rethinking Early Iron Age and Protoarchaic Chalkis: towards an appraisal of the archaeological evidence

12.40 **Sandrine Huber** (Université de Lorraine)
The Athenaion on the acropolis of Eretria

DISCUSSIONE

Pausa pranzo

15.00 **Jan Paul Crielaard** (Vrije Universiteit Amsterdam)
Recent research at Karystos-Plakari: cult, connectivity and networks in the 10th to 7th centuries BC

15.20 **Karl Reber, Thierry Theurillat** (Université de Lausanne - École suisse d'archéologie en Grèce)
Finding Artemis: the Artemision at Amarynthos (Euboea)

15.40 **Athena Chatzidimitriou** (Historical Archive of Antiquities, Ministry of Culture and Sports)
Zarakes: a cult site in south Karystia, on the island of Euboea

16.00 **Alexandros Mazarakis Ainian** (University of Thessaly, Volos)
Thirty years of excavations and research at Homeric Graia (Oropos)

16.20 **Antonis Kotsonas** (University of Cincinnati)
Containers, commodities and Euboean colonization in the Thermaic Gulf

DISCUSSIONE

17 Maggio

SEZIONE F. Le produzioni

10.00 **Samuel Verdan** (Université de Lausanne - École suisse d'archéologie en Grèce)
Men and metals on the move: the case of "Euboean" gold

10.20 **Vicky Vlachou** (Université Libre de Bruxelles)
Patterns of production and consumption of Euboean-type pottery outside Euboea: a view from Oropos and Pithekoussai in the 8th century BC

10.40 **Alexandra Alexandridou** (Open University of Cyprus)
One more node to the Thessalo-Euboean small world: the evidence from Kephala of Skiathos

Pausa caffè

11.20 **Gloria Olcese** ("La Sapienza" Università di Roma)
Il kerameikos sotto la Chiesa di Santa Restituta di Lacco Ameno: nuovi dati e prospettive della ricerca archeologica e archeometrica a Ischia

11.40 **Francesca Mermati** (Parco Archeologico dei Campi Flegrei)
Ceramica euboica e di tipo euboico tra Pithekoussai e Kyme: status quaestionis e nuovi spunti di riflessione

DISCUSSIONE

CONCLUSIONI

12.30 **Carmine Ampolo** (Scuola Normale Superiore di Pisa)
Catherine Morgan (All Souls College, Oxford)

Soprintendenza Archeologia, Belle Arti e Paesaggio area metropolitana di Napoli
Università degli Studi di Napoli "L'Orientale"
Museo archeologico nazionale di Napoli con la collaborazione del MANN
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Matteo D'Acunto (Università degli Studi di Napoli "L'Orientale")
Cecilia Prota (Comune di Lacco Ameno, Ischia)

Program of the conference *Pithekoussai e l'Eubea tra Oriente e Occidente* (*Euboica II*), Lacco Ameno (Ischia, Naples), 14-17 May 2018

The participants in the *Euboica II* conference

The greetings to the *Euboica II* conference: from left to right, Matteo D'Acunto, Paolo Giulierini (Director of the Naples National Archaeological Museum), Michele Bernardini (Director of the Dipartimento Asia Africa e Mediterraneo of the Università degli Studi di Napoli "L'Orientale"), Elda Morlicchio (Rector of the Università degli Studi di Napoli "L'Orientale"), Giacomo Pascale (Mayor of Lacco Ameno d'Ischia), Teresa Cinquantaquattro, Cecilia Prota (Councilor for culture of Lacco Ameno d'Ischia)

The organizers of the *Euboica II* conference, Teresa Cinquantaquattro and M. D'Acunto, with the Mayor of Lacco Ameno d'Ischia, Giacomo Pascale (right), and the Councilor for culture, Cecilia Prota (second, left)

The discussion after a session of the *Euboica II* conference

Discussion on pottery in the Archaeological Museum of Pithecusae (Lacco Ameno d'Ischia) after the *Euboica II* conference: from left to right, Maria Cecilia Parra, Bruno d'Agostino, Irene Lemos, Nota Kourou, Carmine Ampolo, Matteo D'Acunto, Teresa Cinquantaquattro, and Catherine Morgan

Discussion on pottery in the Archaeological Museum of Pithecusae (Lacco Ameno d'Ischia) after the *Euboica II* conference: from left to right, Catherine Morgan, Ida Baldassarre, Michel Bats, Alexandros Mazarakis Ainian, and Bruno d'Agostino

From left to right, Irene Lemos, Teresa Cinquantaquattro, Bruno d'Agostino, Matteo D'Acunto, Nota Kourou, and Samuel Verdan

Trip to Cumae after the *Euboica II* conference: from left to right, Thierry Theurillat, Sandrine Huber, Matteo D'Acunto, Samuel Verdan, Karl Reber, and Francesco Nitti

MEN AND METALS ON THE MOVE: THE CASE OF EUBOEAN GOLD

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For Petros Themelis and Manthos Bessios,
prôtoi heuretai

Euboean colonisation and the quest for metals [1]

The overseas ventures of the Euboeans from the tenth to the early seventh century BC are often thought to have been motivated by the search for metals such as iron, copper, and gold[2]. Those arguing against this view claim that the Euboeans did not have to travel abroad or establish colonies to acquire metal, since metal sources, like iron, were available on Euboea itself[3]. However, the quest for and circulation of metals across the Mediterranean is shaped by various complex factors, of which proximity to natural sources is only one. The quality, quantity, and accessibility of ores, and therefore the investment needed for extraction and processing, are at least as important in the decision-making process. Likewise, beyond the desire to satisfy local demand, involvement in interregional trade networks and the status and profit resulting from this could have formed an objective in itself. Altogether, the trade in metals is a complex phenomenon involving interactions between partners from diverse cultural and geographic backgrounds, and networks where different metals in various forms (ore, raw material, and manufactured goods) can circulate simultaneously in parallel or in different directions. Moreover, it is tightly intertwined with the exchange of other commodities and, for the case under consideration here, with the migratory patterns of the colonisation period.

Euboean involvement in the circulation of metals is attested indirectly by a few literary sources but, above all, by the presence of Euboean pottery in areas rich in natural resources, particularly in Central Italy, Sardinia, Cyprus, and the Northern Aegean[4]. Direct evidence on the other hand is few and far between. This is not restricted to the case at hand. Contrary to the location of natural resources, the

[1] The use of the term "Euboean" in this paper is not to be understood in a strictly ethnic sense, but as people of different origins used to interact in environments that we tend to define as Euboean, starting with the island of Euboea itself.

[2] In the West: Dunbabin 1948, 3, 7-8; Sakellariou 1978, 27; Markoe 1992; Osborne 1996, 106-108; d'Agostino 2006, 203, 215, 222; Ridgway 2007, 144-145; Ridgway 2010, 265-267. In Northern Aegean: Tiverios 1998, 248-250; 2008, 21; Mazarakis Ainian 2012, 54-58; Leone 2012, 231-233.

[3] Graham 1971, 44; Bakhuizen 1976, esp. 66-67; Descoeudres 2008, 305. See also Treister 1996, 164-169, 176-181.

[4] For an overview of "Euboean pottery overseas", see Descoeudres 2006-2007 (some of the author's identifications and dates are debatable). See also, for Central Italy: Bailo Modesti – Gastaldi 1999 (Pontecagnano); Boitani 2005 (Veii); d'Agostino 2006, 208-215 (and the discussion in Ridgway 2004). For Sardinia: Ridgway 2006, 244-247. For Cyprus: Luke 2003, 42-44; Chirpanlieva 2015, 181-182 (with further references). For the Northern Aegean: Gimatzidis 2010, esp. 93-95 and 306, fig. 97 (Sindos); Bessios – Tzifopoulos – Kotsonas 2012, chap. 2 and 167-169 (Methone). It is well known that «pots do not equal people», as it has been stressed many times (see for instance Papadopoulos 1997, 194-195). The discovery of vases of Euboean origin in these regions does not necessarily imply that the Euboeans were physically present there, but it nonetheless attests to some forms of interactions.

traces left by their exploitation, and the production of finished objects, the circulation of metals has received limited attention in archaeological research. Geological studies often help to map the mining of metal ores in ancient times[5]; extraction and processing of native metals leave traces[6]. On the other end of the chain, artisan workshops are excavated; fabrication processes are identified; metal objects are assigned to production centres based on technical and stylistic criteria[7]; and the origin of metals is sometimes revealed by archaeometric/metallurgical analysis[8]. By comparison, metal in a raw form or a shape suitable for transportation and exchange (i.e. ingots) is not commonly found in archaeological contexts[9]. In some specific cases, it can deliberately be deposited, for instance, as offerings in a sanctuary or in a grave[10]. Occasionally, the transport of goods is cut off by accident; shipwrecks with their cargo of ingots provide a good example of this[11]. Likewise, the discovery of hoards offers new avenues for the exploration of metal trade in the Mediterranean[12].

A case in point is the 8th century BC gold hoard from Eretria (see below, and Fig. 5) that has opened up the possibility of investigating the role played by Euboeans in the circulation of gold in the Aegean and the wider Mediterranean during the Geometric and Early Archaic period. Relating our detailed study of this hoard to evidence recently brought forward, we will show how the production, use, and circulation of gold were shaped through a Euboean network of maritime connections. The availability of this evidence is remarkable in the first place, because, apart from manufactured items, gold generally leaves few traces in the archaeological record[13]. While we do not doubt that this gold network was only one aspect of a larger system, we hope that our case will stimulate further studies to help draw a fuller picture of Euboean involvement in metal trade.

Gold in Pithekoussai and the circulation of the precious metal

If the best evidence for the case under review should be archaeological in nature, a passage written by Strabo deserves to be mentioned here[14].

Πιθηκούσσας δ' Ἐρετριεῖς ᾤκισαν καὶ Χαλκιδεῖς, εὐτυχήσαντες δι' εὐκαρπίαν καὶ διὰ τὰ χρυσία [instead of χρυσεῖα] ἐξέλιπον τὴν νῆσον κατὰ στάσιν…

Pithekoussai was once settled by Eretrians and also Chalcidians, who, although they had prospered there on account of the fruitfulness of the soil and on account of the gold [they were trading?], forsook the island as the result of a quarrel….

Among the literary sources pertaining to Euboean colonisation in the West, Strabo's mention of *chruseia/chrusia* at Pithekoussai has prompted many scholars to comment thereon. In his concise report on the early settlement by the Eretrians and the Chalcidians on the island of Pithekoussai, the Greek geographer relates a tradition according to which the success of the first colony was due to the fertility of the place and the presence of gold. The former element is easy to explain. It must refer to wine-growing areas, which are still important for Ischia's economy nowadays and whose cultivation in ancient times is attested by the vestiges of various

[5] Pernicka 1987; Vavelidis – Andreou 2008 (Aegean); Lehrberger 1995 (Europe, gold).

[6] Large overview in Craddock 1995.

[7] See for instance Hoffman 1997; Guzzo 1993; Guzzo 2004; Formigli – Scatozza-Höricht 2010.

[8] For the history of research and a methodological discussion, see Pernicka 2014; for gold provenance studies more specifically, see Guerra – Calligaro 2004.

[9] Obviously, the exchange of finished objects is also part of the circulation.

[10] Kroll 2008b, 25-29 (sanctuaries in Magna Graecia and Sicily); Boardman 1967 and 2005 (Khaniale Tekke tholos tomb in Knossos); Heymans 2019 (grave in Amathus).

[11] Gestoso Singer 2010, 265-272; Gestoso Singer 2015, 102-111 (Uluburun and Cape Gelidonya shipwrecks); Golani – Galili 2015 (Yavneh-Yam anchorage).

[12] Heymans 2021 (silver and gold, Levant); see also articles in Baitinger 2016a (bronze, Mediterranean and Central Europe).

[13] Even the extraction, the refinement and the production of gold objects leave very few traces (no slag). In workshops, craftsmen generally handle small quantities at a time, and thus large-scale infrastructure is not required. Furthermore, the value of the metal gives reason to the fact that even the smallest remains (such as casting prills, offcuts and filings) are carefully retrieved so that they can be melted again.

[14] Strabo V, 4, 9: text and translation according to H.L. Jones (Loeb Classical Library, Cambridge MA: Harvard University Press, 1923), except for the reading and translation of χρυσία (our emendation).

facilities and by the production of local amphorae[15]. The mention of the precious metal is more enigmatic as the term used by Strabo is unclear. Despite the fact that all manuscripts, except one, give the term *chrusia*, the modern editors of the text retain the word *chruseia* instead, which they understand as referring to gold mines[16]. However, it has been shown that the island does not possess any substantial source of gold[17]. Scholars have thus proposed several emendations and explanations of the passage. Ettore Pais first suggested replacing *chruseia* with *chalkeia* in line with *Aenaria*, the name given to the island by the Romans[18]. He later proposed *chutreia* as another plausible reading, a term that would have alluded to Pithekoussai's pottery industry[19]. The perspective changed with the discovery of the artisanal quarter of Mazzola, dating back to the time of the first Euboean settlement[20]: with metallurgical activities now attested on the island, Strabo's *chruseia/chrusia* was reinterpreted as referring to the local production of gold items by Oriental and Greek craftsmen, mainly for the Etruscan market[21]. However, appealing as it may seem, no evidence for gold manufacturing was recovered from the artisanal quarter, or anywhere else on the island. Consequently, it was suggested that, rather than a centre of production, Pithekoussai had been a centre for the redistribution of gold jewellery produced elsewhere[22].

Could Strabo's use of the term *chrusia* be an echo of Pithekoussai's role as a node in a trade network for the circulation of gold in this part of the Mediterranean[23]? This does not contradict previous interpretations of the term, but may be seen as complementary. While research has traditionally focused on locating production centres and identifying the distribution channels of new manufacturing techniques and styles, we want to stress the importance of supply channels and modes of exchange of the precious metal within this network. As far as gold circulation is concerned, Pithekoussai maintained connections with Italic and Etruscan sites, indicated by the diffusion of objects and techniques[24]. But what could have fed this network of Euboean gold, in which Pithekoussai could have been a node? To trace the journey of the gold back to its source(s), we ought to look further east at the two sites of Methone and Eretria.

Methone: a source for Euboean gold

Several sources have been suggested for the precious metal found at Euboean sites (Lefkandi, Eretria) or mentioned in historical sources (Pithekoussai's *chrusia*): Egypt, Anatolia, the Black Sea, and the Northern Aegean[25]. So far, only the Northern Aegean can be considered as a source for Euboean gold with any degree of certainty. Euboean interest in Northern Aegean gold has long been advocated, notably by Michalis Tiverios[26], and recent discoveries at Methone now provide strong support for his theory.

Methone is a Euboean colony located on the west coast of the Thermaic Gulf (see Fig. 1). According to Plutarch[27], it was the earliest one in the area, established by Eretrians who had been expelled from Corcyra (around 733/2 BC). This places the beginning of Methone's (Greek) history in the context of the Euboean presence in the region, as confirmed by

[15] Wine production: Olcese 2017 (esp. 25-29). Local amphorae: Sourisseau 2009, 149-173. *Contra*, Boardman 1995, 202 (according to whom the Euboeans did not settle there to produce wine).

[16] See editions and translations by H. L. Jones (see note 14), F. Lasserre (Les Belles Lettres, Paris 1967), F. Sbordone (Rome 1970); more recently Radt 2007.

[17] Epithermal gold is found in such a small quantity on Ischia (Pipino 2009, 18-22) that it cannot possibly have contributed to the Euboeans' prosperity on the island (see the contribution by C. Gialanella and P.G. Guzzo in the second volume of these proceedings).

[18] Pais 1894, 158 (a possible etymology for *Aenaria* is related to *aeneus/aenus*, "of copper/bronze").

[19] Pais 1908, 235 (a suggestion adopted in Bérard 1957, 43, note 1).

[20] Klein 1972.

[21] Mureddu 1972; Buchner 1975, 81-86; Ridgway 1992, 34. For a critique of this new reading from a philological point of view, see Radt 2007.

[22] Guzzo 2004, 97-100; Formigli – Scatozza-Höricht 2010, 15-17; Guzzo 2016, 23 (see also the contribution by C. Gialanella and P. G. Guzzo in the second volume of these proceedings).

[23] In fact, *chrusia* is the most generic term that Strabo could use to mention the importance of gold in the economy of the island, and it is not certain that the geographer had a precise knowledge of the reality behind the information transmitted by a long tradition.

[24] See note 22.

[25] Le Rider – Verdan 2002, 147-150; Descoeudres 2008, 306-307. For the gold used by jewellers in Pithekoussai, or Cumae, the Iberian Peninsula and Gaul are also mentioned (Formigli – Scatozza-Höricht 2010, 18).

[26] Tiverios 1998, 248-250; Tiverios 2008, 21, 44; Tiverios 2013, 101. See also Gimatzidis 2010, 15.

[27] *Greek Aetia* 293a-b.

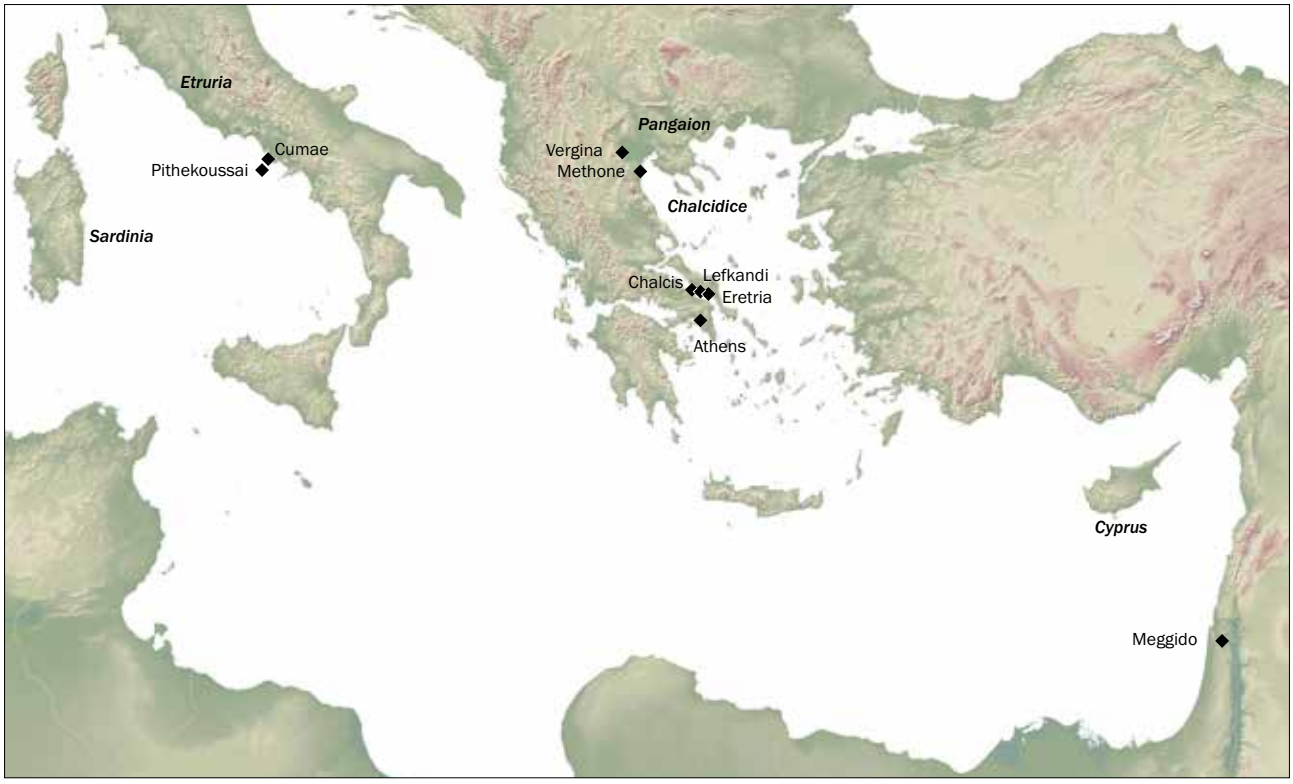

Fig. 1. Map of Eastern and Central Mediterranean with sites and regions mentioned in the text (drawing T. Theurillat)

Fig. 2. Methone: gold melting plates (photo S. Verdan)

archaeological discoveries[28]. By that point in time, Euboean presence in the Northern Aegean was well established, and the foundation of Methone must therefore be seen as the result of long-term contacts between Euboeans and local communities[29]. This historical depth must be kept in mind when considering the case of gold production.

The choice of Methone can be explained in terms of its strategic location, since it had the safest harbour in the Thermaic Gulf[30]. The site was also located near the mouth of the Haliakmon River, a navigable waterway connecting Methone with the hinterland, including the important Macedonian Iron Age settlement at Vergina[31]. Moreover, metal sources and natural resources such as the forested areas of Mount Olympus and Pieria were located close by.

[28] Discussion of the evidence in Tiverios 2008, 17-32.

[29] Tiverios 2008, 1-17; Kourou 2017; Tzifopoulos – Bessios – Kotsonas 2017, 366. Critical views in Papadopoulos 1996; Papadopoulos 2005, 577-592; Papadopoulos 2011, 122-124.

[30] Bessios – Tzifopoulos – Kotsonas 2012, 43; Tzifopoulos – Bessios – Kotsonas 2017, 364-365.

[31] On Iron Age Vergina, see Andronikos 1969; Bräuning – Kilian-Dirlmeier 2013.

Recent excavations at the site suggest that it was continuously occupied from the Late Neolithic down to the arrival of the Euboean colonists, in the second half of the 8th century BC[32].

Among a significant number of discoveries made at Methone, the Greek archaeological service excavated a huge underground storage facility (the so-called *hypogeion*). It was filled with different materials including mud brick, timber, stone, pottery, and debris from metallurgical activities. The fill, which was completed in three different phases, occurred over a very short period. According to the excavators, pottery and ceramics retrieved from the *hypogeion* date from 730 to 690, a time span directly following the date of Methone's foundation by the Eretrians, as relayed by Plutarch[33]. Only a relatively small proportion of these finds has been published so far, with a focus on vases bearing alphabetic inscriptions and various non alphabetic marks[34]. An overview of the pottery excavated shows a bountiful mix of local products and imports. The imported pottery at Methone consists of fine wares brought from Euboea, Corinth, Athens, East Greece, and the Cyclades. Pottery produced locally includes fine painted wares following Euboean and Corinthian styles. Among others, transport amphorae from Corinth, Attica, Euboea, Lesbos, Samos, and even Phoenicia have been identified, alongside numerous pieces produced in centres situated around the Thermaic Gulf[35]. This rich assemblage of fine wares and transport amphorae provides clear evidence that Methone occupied a significant position as trading centre and commercial hub, connecting a dense maritime network to the Macedonian hinterland[36]. This is highly relevant to the issue of gold circulation.

Remains of metallurgical activities have also been discovered at Methone. Metal waste products,

Fig. 3. Methone: detailed view of pellet imprint and gold globules in the vitrified layer of a melting plate (photo S. Verdan)

such as slags, and fragments of refractory ceramics were retrieved from the *hypogeion*[37]. This material is of great interest and provides information about different types of industries, which likely relied upon the trading activity that took place at the site. In particular, gold working is attested by the find of so-called "melting plates". These implements were made of recycled sherds of coarse ware of relatively small dimensions (Fig. 2). Their inner surface (i.e. the concave side of the sherd) is covered with a vitrified layer in which gold globules are trapped. The melting operation consisted of the following steps: a small quantity of gold dust was put on a plate and covered with charcoal. It was then heated and fanned with a blowpipe until the gold particles would melt and coalesce into a single drop in the middle of the plate. It was technically impossible to pour the gold into a mould, because these melting plates were irregular in shape and had no fitting in the form of a channel or pouring spout that would allow for this sort of operation to be carried out without important spills and loss of gold. The metal was therefore left to cool on the melting plate. Once cooled down, a globule-like pellet was retrieved. In several cases, these pellets left an imprint in the vitrified layer of the melting plate (Fig. 3). To date, no

[32] Bessios – Tzifopoulos – Kotsonas 2012, 43. See also Kotsonas 2012; A. Kotsonas, in this volume; Morris – Papadopoulos forthcoming.

[33] Bessios – Tzifopoulos – Kotsonas 2012, 43-64.

[34] Bessios – Tzifopoulos – Kotsonas 2012; Tzifopoulos – Bessios – Kotsonas 2017 (see also Strauss Clay – Malkin – Tzifopoulos 2017).

[35] Kasseri 2012; Bessios – Tzifopoulos – Kotsonas 2012, 150-162 and 184-219; Kotsonas *et al*. 2017; see also Kasseri 2015.

[36] Bessios – Tzifopoulos – Kotsonas 2012, 227-240; Kotsonas 2012; Kasseri 2015.

[37] Verdan forthcoming.

clear evidence has been found for the production of manufactured gold artefacts (e.g. jewellery) at Methone, such as crucibles or moulds for gold casting. The main metallurgical activity thus appears to have been the production of ingots, intended for further use or transport. These ingots were presumably produced from placer gold (i.e. alluvial gold) collected from the nearby rivers, the Haliakmon, Axios, and Gallikos. Among them, the Gallikos river was known by the ancient Greeks under the moniker of "Gift Giver" (*Echedoros*), a likely reference to its rich content in gold[38]. It is worth noting here that two pieces of precious metal found on the site (though not in the *hypogeion*) illustrate the end of the *chaîne opératoire*: two halves of a pellet, hammered after the melting process[39].

Methone – Eretria: melting plates and gold hoard

There is abundant evidence for the connection between Methone and its metropolis, Eretria: a foundation story, Euboean-style pottery produced in Methone (alongside with imports from Euboea, if not from Eretria itself), and early inscriptions on vases, using the epichoric Euboean alphabet[40]. To this list, gold can now be added. In Eretria, two categories of finds indicate a strong connection to the gold-working activity identified at Methone: melting plates, and a gold hoard.

Four fragmentary melting plates were found in 8th century BC levels in the area of the sanctuary of Apollo Daphnephoros (Fig. 4). In spite of their condition, the plates were confidently identified on the grounds of their distinctive vitrified layer and trapped gold globules[41]. Two plates out of four came from a clear archaeological context (Fig. 4a-b)[42]. They were found northwest of the sanctuary in what appears to have been a residential area[43]. They were dug from a pit that contained a large quantity of richly decorated pottery, including craters, jugs, and cups[44]. The pit was located in front of a building and its contents likely concerned a deposit of waste from the building. This material led to the identification of the building as an elite residence, where banquets would have taken place. In addition, a small horseshoe-shaped hearth was discovered on the ground surface in front of its entrance[45]. Despite the absence of metal traces, it is possible that this hearth was used to carry out melting work by taking advantage of an outdoor space, sheltered from the wind. In brief, according to the context of discovery of the melting plates, gold working was not necessarily linked with the sanctuary, but definitely with the presence of elites in the area[46].

Incidentally, some differences between the two aforementioned melting plates may be noted. The first plate (Fig. 4a) is a reused fragment of a coarse ware cooking stand, a usual item among the cooking implements found at Eretria[47]. The second plate (Fig. 4b) was made out of the body of a handmade closed vessel, which does not appear local: the micaceous fabric is not typical of the coarse ware groups found in Eretria and locally produced, and the exterior of the vase shows traces of careful burnishing, which is not a usual trait for the local handmade pottery either[48]. The exact provenance of this piece has not been identified yet[49], leaving the possibility open that it was brought from the Northern Aegean.

These observations lead us to the following considerations. First, the same technique of gold melting was employed at both Eretria and Methone[50].

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38 Vavelidis – Andreou 2008; Tiverios 2013, 101 (with further references).

39 Verdan forthcoming, fig. 9.

40 Bessios – Tzifopoulos – Kotsonas 2012; Strauss Clay – Malkin – Tzifopoulos 2017.

41 Verdan 2007, 348-349 and figs. 5-6; *Eretria XXII*, 148-149, 271-273 (study by N.D. Meeks and P. T. Craddock), pls. 114 and 127-129.

42 *Eretria XXII*, 148-149 and pl. 114, nos. 528-529. The fragments of the remaining two melting plates were found in layers of sand brought by torrential rains. It is thus believed that they were displaced from their initial place of deposition, which can no longer be determined.

43 *Eretria XXII*, 182 and 205-206.

44 *Eretria XXII*, pl. 16a: pit Fo253, in front of building Ed5 (for the pottery found in the pit, see pls. 79-84).

45 Fy257: Verdan 2007, 359, fig. 7; *Eretria XXII*, 49-60.

46 For elite control over the work of goldsmiths, see Nijboer 2004; see also Le Rider – Verdan 2002, 148-149; Kotsonas 2006, 154.

47 *Eretria XX*, 31-32 and pl. 16, no. 55.

48 For a short description of the Eretrian local coarse ware, see *Eretria XX*, 25. See also the preliminary results of an ongoing research on pottery production in Eretria in Charalambidou *et al*. 2018.

49 This would require petrographic and chemical analyses.

50 The purpose of this operation carried out in Eretria is not yet clear, since it cannot be associated with the transformation of

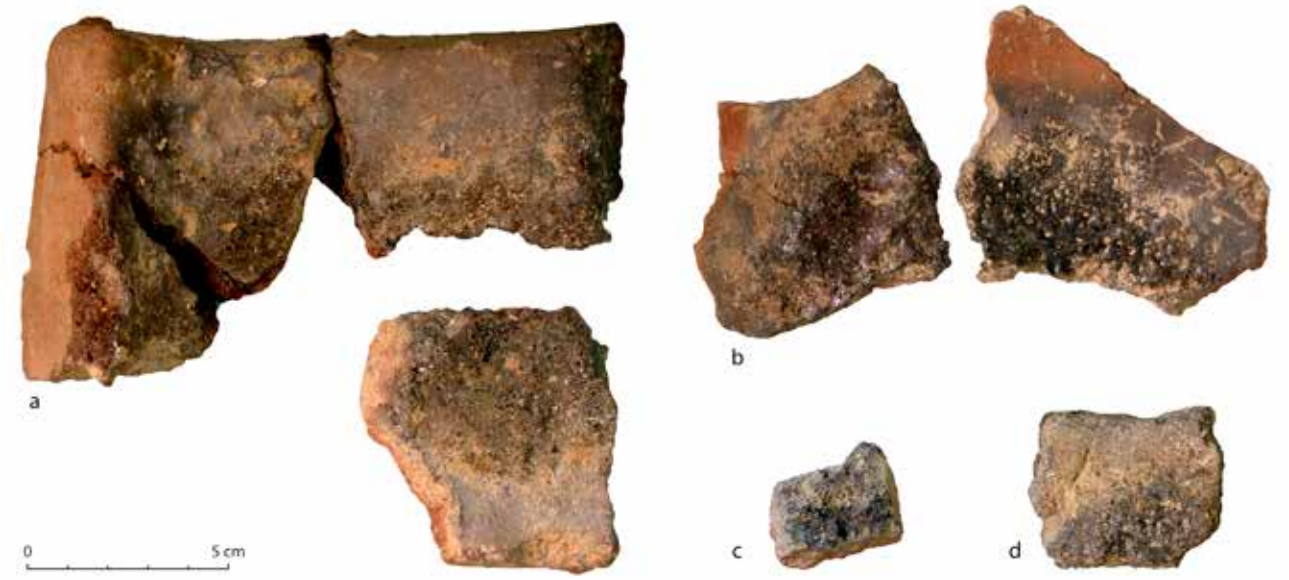

Fig. 4. Eretria: gold melting plate fragments found in the area of the Sanctuary of Apollo Daphnephoros (photo S. Verdan)

Second, craftsmen working in the Northern Aegean might have brought their tools with them to Eretria. In any case, the very presence of this specific material in Eretria strengthens the connection between the metropolis and its colony on the Thermaic Gulf, at least as far as the production and circulation of the precious metal is concerned.

The best link for this, however, is provided by the gold hoard discovered in 1980 by Petros Themelis during excavations in building plot 740 in the northeastern part of Eretria (Fig. 5)[51]. Consisting of 398 objects with a total weight of 513 gram, it was placed inside a complete skyphos, located against or under the foundation wall of an apsidal house, and is dated to the end of the Geometric period. It was published shortly following its discovery, and the issue of its interpretation has attracted considerable interest over the years (see below). With scholarly interest focusing increasingly on the potential economic function of the hoard, the material characteristics of the hoard and the production mode of the different types of objects in it have been somewhat overlooked. Themelis suggested that the ingots had been cast in moulds. This might have been the case for some of them, as reflected by the solidification shrinkage, a typical casting defect, visible on two objects (Fig. 6)[52]. However, detailed inspection suggests that a substantial number of gold objects (notably the largest one) was likely manufactured with melting plates, as evidenced by their flat and irregular lower surfaces, which cooled down in contact with the surface of the plates, while their upper surfaces, in contrast, are often more convex and smooth (Fig. 7). Of the 194 diagnostic ingots in the hoard, 106 (27% of the total number of objects in the hoard) were globule-like ingots (complete or fragments thereof), the ingot type produced on the melting plates in Methone. Hammered globules, or tokens, numbered 26 (7%), and another 53 rough shaped ingots displayed characteristics that are also consistent with the melting plate technique[53].

Along with ingots, the hoard contained other types of objects worth mentioning, because they point to the provenance and biography of the metal. Some 44 small nuggets[54] testify directly to the placer source of the gold and show that unprocessed

natural gold collected nearby. Alternatively, it could be the transformation of placer gold brought from elsewhere (notably Northern Aegean), or the re-melting of "recycled" pieces of metal to produce larger ingots (see below).

[51] Themelis 1980, 86-97; Themelis 1981; Themelis 1983; Themelis 1992.

[52] Heymans 2021, 75.

[53] Of the 277 objects identified as ingots, 96 objects could not be assigned to a particular type, often because of their small size. It is possible though that these are scraps from ingots that were produced on melting plates.

[54] Representing 10.5% of the total number of pieces in the hoard, but only 3.3% of its weight.

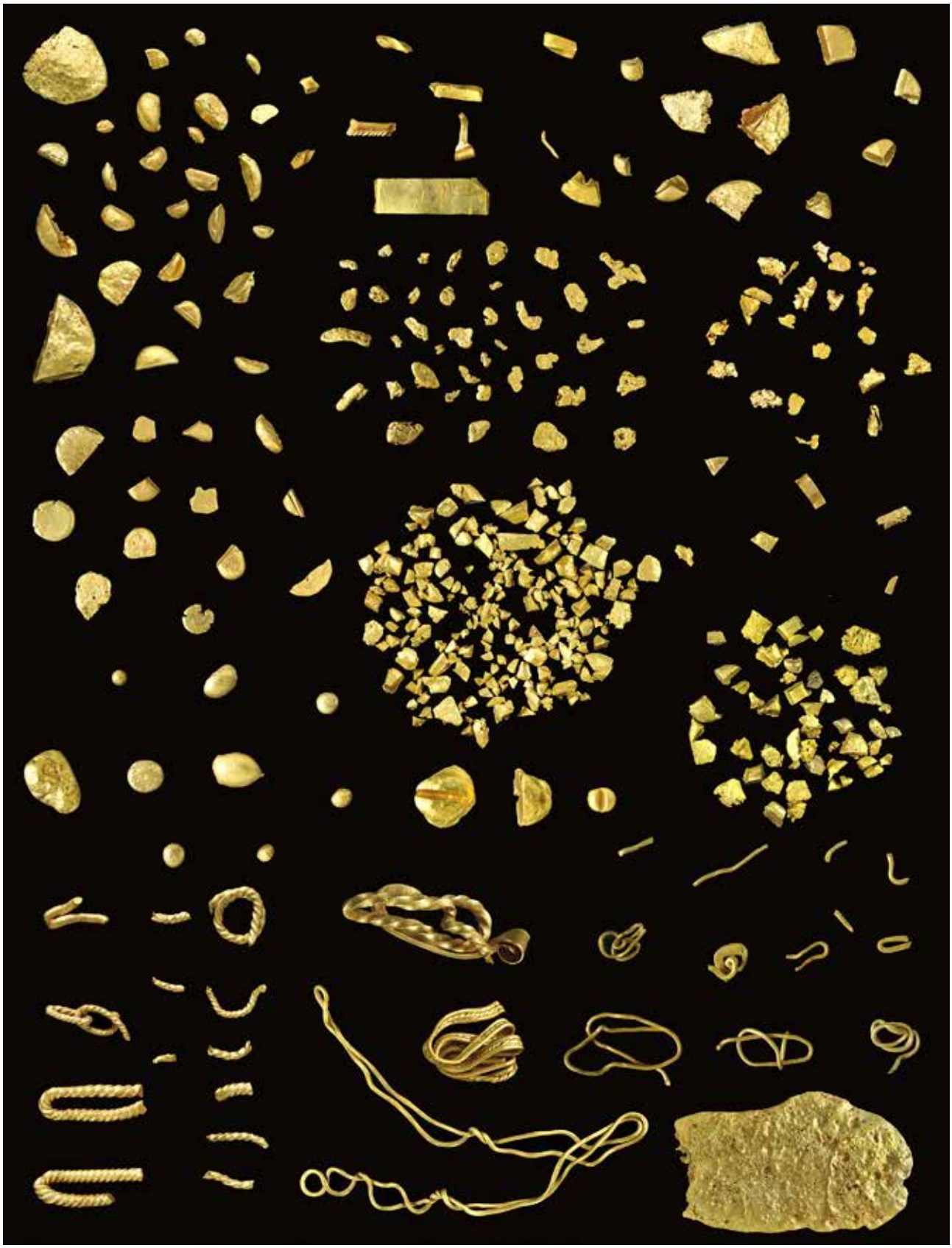

Fig. 5. Eretria gold hoard: general view (photo Andreas Skiadaressis)

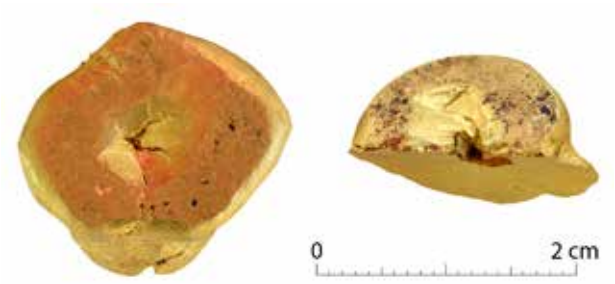

Fig. 6. Eretria hoard: trace of shrinkage on two cast ingots (photo P. Simon)

Fig. 7. Eretria hoard: upper and lower surface of the largest ingot, produced on a melting plate (photo P. Simon)

nuggets were used, transported and hoarded, provided that the pieces could be practically handled (which is not the case with gold dust). Moreover, 44 pieces were in some way connected to the manufacture of ornamental objects and perhaps vessels too[55]. Most of these are wires of square or circular cross-section (36 objects), with the first type being usually twisted (see Fig. 5, bottom left). These concern fragments of intermediate or semi-finished products used for the manufacture of jewellery or other ornamental objects (see comment below).

A Northern Aegean provenance of the hoard material (or at least part of it) awaits ultimate confirmation on the basis of metallurgical analyses[56]. Yet the suggested manufacturing technique of most of the ingots as well as the presence of nuggets offers strong evidence of the connection between Eretria and the region of the Thermaic gulf with its natural placer deposits. While Methone's discoveries enable us to trace the Eretrian gold back to its source, we have yet to establish what the gold was used for and how. Once we understand the use and significance of this hoard, we can try to explain the existence and nature of a Euboean gold network.

Eretria hoard: bullion gold as currency

Initially, the hoard found at Eretria was interpreted as the personal gold supply of a goldsmith[57]. This hypothesis seems rather unlikely on account of the large quantity of metal, more than half a kilo of gold, available to the artisan at any one time. Also, the aforementioned semi-finished pieces (wires) represent only a small portion of the hoard and moreover belong to a preliminary stage of the crafting process. They had passed through the hands of a jeweller at some point, but were then recycled as waste products. Besides, there are no finished or discarded objects in the hoard, except for a single folded foiled diadem (missing in the Fig. 5 overview), of the *Zungendiadem* type similar to examples found in Eretrian graves[58]. Rather, the gold hoard appears to have belonged to a wealthy merchant. Ultimately, regardless of the owner's identity, the most important aspect of the Eretria hoard is the evidence it offers for the monetary use of bullion gold.

[55] 12.6% of the total number of objects in the hoard, 10.8% of the weight.

[56] An analysis project is currently planned.

[57] Themelis 1983. This interpretation was generally accepted: see for instance Treister 1996, *passim*; Coldstream 2003, 388. Themelis (1983, 161) mentioned the hypothesis of a monetary use of the hoard, only to dismiss it, arguing that the weight of the ingots are not standardised enough for this purpose (on this issue, see below).

[58] The pieces described as fragments of fibulae by Themelis (1983, 164, fig. 18) are rather extremities of wire that were folded around a tool that enabled one to twist the wire, while keeping it above a heat source. For the production technique of block twisted wire, see Oddy 1977; Nicolini 1995.

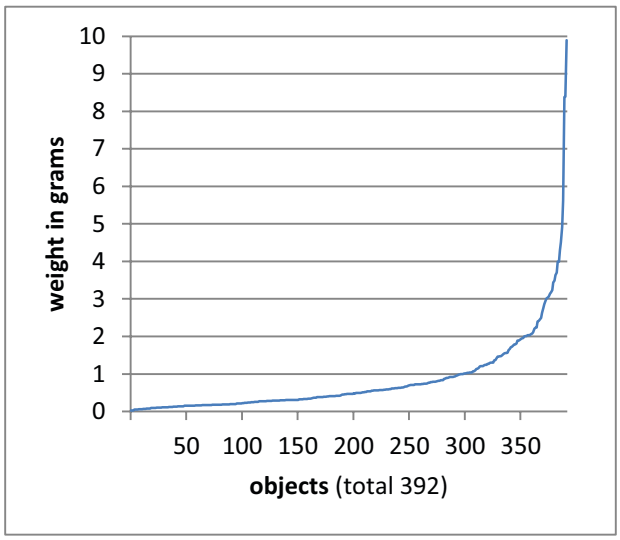

Fig. 8. Weight distribution of the Eretria hoard. The six objects weighing >10 gm have been excluded from the graph for the purpose of clarity (10.31 gm; 11.15 gm; 13.81 gm; 14.46 gm; 25.58 gm; 112.41 gm)

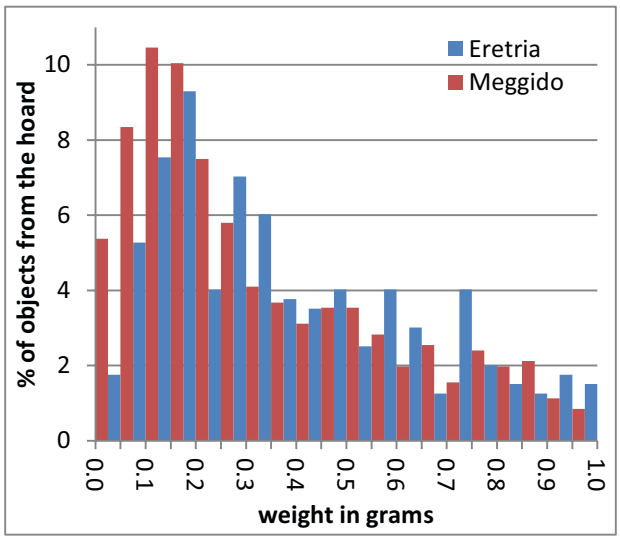

Fig. 9. Histogram of the Eretria hoard and a 10th century BC hoard from Megiddo (<1 gm) with a binning of 1/20th gm

First suggested by Furtwängler, Kopcke, and Bjorkman in the 1980s and early 1990s[59], this interpretation was adopted by other researchers and built upon a decade later[60]. It was based on a comparison between the Eretria hoard and similar finds from the Near East. In Mesopotamia and the Levant, the monetary use of precious metal, especially silver, is well attested through archaeological discoveries and written sources. A large corpus of hoards is known, in particular from the Iron Age southern Levant, suggesting that the monetary use of silver intensified or consolidated during this period. It comes therefore as no surprise that Greeks of the Geometric period, participating in trade networks connecting the Aegean with the Levant, adopted it too[61].

With Near Eastern parallels providing the basis for reinterpreting the Eretria hoard, additional insight into the monetary use of the Eretria gold has been gained through a detailed and systematic investigation of the objects in the hoard. Most objects were fragmented, that is cut and/or broken, often on multiple occasions, testified by the various cuts or breaks visible. Only 57 objects (14% of the hoard) were complete and 41 of these were very small nuggets that presumably did not require further fragmentation being so small already. The high degree of fragmentation can be further illustrated by looking at the weight distribution of the objects in the hoard. This is visualised by plotting all object weights, arranged on an ascending scale (Fig. 8). Most objects are then displayed at the bottom of the graph, with 74% of the objects weighing below one gram. Above one gram the weights gradually increase, with the graph line sloping steeply towards the end, as only ten objects weigh above 5 gm (six of these weigh over 10 gm and were excluded from the graph for the purpose of clarity). It is thus clear that the hoard predominantly consists of very small objects: those weighing ca. 0.2 gm are most common, and above this weight the number of objects gradually decreases (Fig. 9).

With transactions being carried out by adding pieces of metal to the scale-pan and, if required, by cutting or breaking an object in order to reach the required weight, the predominance of small objects in the hoard suggests that these were used most frequently, enabling small-scale transactions with a high level of precision. The gradual weight distribution implies that the assemblage was well adapt-

[59] Furtwängler 1986; Kopcke 1992, 112; Bjorkman 1993, 22.

[60] Kroll 2001; Le Rider – Verdan 2002; Vargyas 2000. See also Thompson 2003, 91-92, 2007, 199.

[61] Most recently, see Heymans 2018a; Heymans 2018b; Heymans 2021.

ed to such transactions and that the objects circulated actively, rather than being severed upon entering the hoard in anticipation of being re-melted. Prolonged circulation of the objects is moreover indicated by the ample traces of wear visible on the surface (Fig. 10)[62].

Significantly, many characteristics of the Eretria hoard are indeed also displayed by contemporary hoards from the Southern Levant. While typological differences can be observed, such as the relatively small number of globule-type ingots and the absence of nuggets in Levantine silver hoards, these mostly result from the different nature and production processes of gold vs. silver ingots[63]. Otherwise, the dominance of cut and/or broken objects is comparable to Levantine hoards. Most strikingly, the metrology of the Eretria hoard is notably consistent with the metrological patterns observed for hoards dating from the late 11th to the late 8th century (Iron I–IIB), as exemplified by a histogram showing the Eretria hoard alongside a 10th century hoard from Megiddo (Fig. 9). This indicates that the Eretria hoard is not one of its kind, but that it reflects a wider phenomenon in the use and circulation of precious metal[64].

In short, the gold in the Eretria hoard served as a form of money, used for exchange and payment. As such, this method likely involved the use of an accepted and accurate weight standard. We are therefore compelled to ask what weight standard the Euboeans could have used at this time.

Euboean weight standard

The early prominence of the Euboean weight standard is implied by the fact that it was later adopted by the Athenians (subsequently labelled "Euboeic-Attic"), Samians, and Corinthians for their respective coinages[65]. Herodotus (III, 89) specifies that the Euboeic talent was the standard for measuring the tributes paid in gold to the Persian king Darius. This particular feature is usually understood as

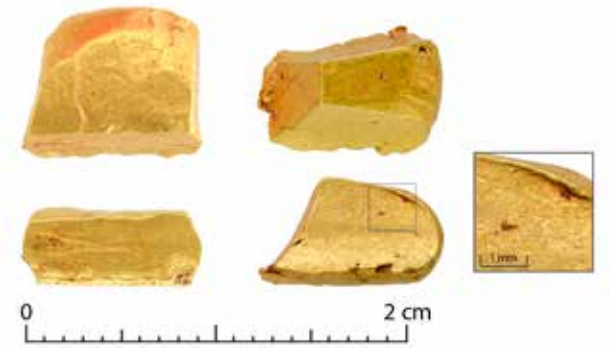

Fig. 10. Eretria hoard: traces of wear on a selection of gold pieces (photo P. Simon)

a result of the assimilation of the Daric (the Persian gold currency) with the Euboeic-Attic didrachm, a dominant trading currency at the time[66]. But why does Herodotus use the term "Euboeic" to qualify this standard, and why was the latter used specifically to weigh tributes paid in gold? Could this be a hint to the early Euboean involvement in Mediterranean gold trading?

Currently, very little is known of early Greek weights. Archaeological evidence is notably scarce. To date, only a handful of balance weights have been identified in Early Iron Age contexts (and down to the 6th century BC), and all of them come from the Euboean "world". A group of 16 weights were found in a 9th century-tomb in Lefkandi[67]. In spite of their eastern provenance, they attest to an interest and knowledge in weighing practices among people living in a Euboean coastal settlement well connected to Mediterranean trade networks. Likewise, a bronze and lead weight was found in the artisanal quarter of Mazzola in Pithekoussai; it is believed to be contemporaneous with the metallurgical activities attested onsite (end of the 8th – beginning of the 7th century BC)[68]. While these two examples belong to different periods and

[62] Heymans 2021, 88-101.

[63] Heymans 2021, 101-104, 205-207.

[64] Heymans 2021, 88-106. For the hoard from Megiddo (locus 2012), see Heymans 2018a, 289-294; Heymans 2018b, 89-92; Heymans 2021, 259-262.

[65] Kroll 2008a, 44-46.

[66] The Daric had a weight of 8.4 gm, and the Euboeic-Attic didrachm was 8.64 gm. When Herodotus recorded the Persian tribute in gold, he might have assimilated this out of convenience with the Attic standard. Descat 1985, 104; Descat 1989, 16; Alram 1994.

[67] Kroll 2008a.

[68] Buchner 1970-1971, 66; Buchner – Gialanella 1994, 59. Its unsecure context of discovery stands in the way of assigning a precise date (P.G. Guzzo, oral communication during the *Euboica II* Conference in Ischia).

represent different types of weights, they likely point to the adoption of a weight standard by Euboeans, inspired by their involvement in the Cypro-Levantine trade[69]. This underscores the familiarity of the Euboeans with weighing practices and places them in the context of Mediterranean trade networks.

Euboeans and others?

In view of the above, archaeological evidence for the circulation of gold in the 8th century BC appears to be concentrated in Euboean cities and colonies. There is, of course, no reason to think that the monetary use of gold should have been restricted to a single group of traders. On the contrary, the many benefits of this system of exchange likely prompted a wider diffusion within trade networks that linked various groups across the Mediterranean, including Greeks and Levantines. By comparison, one can think of the alphabetic writing system, another eastern technology that spread within a short time span to most regions of the Greek world roughly at the same time. Moreover, there is reason to believe that the use of precious metal money and alphabetic writing took off under mutual influence[70]. In this sense, it is probably not a coincidence that some of the earliest corpuses of Greek alphabetic inscriptions were found in Eretria, Methone, and Pithekoussai (even if few of these inscriptions have a direct link to trade)[71].

Relying on the Eretria hoard and its broader context, i.e. the Euboean involvement in maritime networks in the Aegean and beyond, we can postulate that the monetary use of precious metals, particularly gold, was more common in Greek exchange networks, at least from the Late Geometric period onwards, than the archaeological record currently attests. If it is still invisible to our eyes for the most part, it is for the reason mentioned in the introduction: metal "on the move" rarely appears in the archaeological record, and when it does, it may even be overlooked[72]. Nonetheless, Euboean traders could have been specialised in precious metal money exchange. Weighing operations required knowledge and experience, as well as an accurate set of weights. Only a well-trained eye could assess the quality of the metal. Or perhaps a specific technique like the use of a touchstone could have been used (although the latter is not attested so far for the period under consideration)[73]. Beyond technical know-how, involvement in the networks that afforded access to the sources and supply of metal was also critical to sustaining a system of money exchange. This involved being in touch with trustworthy partners along the trade routes and even developing a reputation among "customers". These kinds of activities were likely the domain of specialists[74].

It is reasonable to think that such expertise was transmitted among limited groups of people. Similar examples that come to mind are money-changers, a category well attested in Antiquity, and modern diamond merchants[75]. Drawing from these examples, one could imagine that an interregional specialist-merchant class was central to the operation of Euboean and Aegean trade networks.

Anchoring Greek money

The evidence reviewed in this article opens only a narrow window on a much broader phenomenon spanning the Geometric and Early Archaic period. What followed, until Greek cities started minting

[69] Kroll 2008a.

[70] Cf. Heymans 2021, 211, 234-235.

[71] Bartoněk – Buchner 1995 (Pithekoussai); Kenzelmann-Pfyffer – Theurillat – Verdan 2005 (Eretria); Bessios – Tzifopoulos – Kotsonas 2012; Strauss Clay – Malkin – Tzifopoulos 2017 (Methone). Writing down numbers might also have been part of the same general process (see Verdan 2017).

[72] Hoards found in illegal excavations may be melted down to be sold by weight (an argument brought forward in Kroll 2008b, 34), and isolated ingots are not necessarily given the attention they deserve.

[73] It is not certain that the quality of the metal really mattered at this early date (especially if refining techniques were not available or frequently used). The varying quality of the gold in the Eretria hoard would suggest the opposite. This does not mean, however, that the traders were totally indifferent to the degree of purity of the metal they were dealing with. They may have made a broad distinction between a few categories. It is worth mentioning here two ingots from the Eretria hoard that were deeply incised (see Fig. 5, centre; Themelis 1983, 63, fig. 9), most probably to test if they were not fake (either filled or "salted" with another metal, for instance lead: Heymans 2021, 74). This is not directly related to the control of the alloy, but attests to the importance of testing the precious metal used in exchange.

[74] See e.g. Rahmstorf – Stratford 2019.

[75] See the Athenian *dokimastes*, a public slave appointed to test the quality of coins (*SEG* 26.72; see Stroud 1974).

coins in the course of the 6th century, deserves some consideration. As John Kroll remarks, «coinage did not emerge out of a vacuum»[76], and it is likely that the monetary use of precious metals was maintained in the Early Archaic period. Despite the relative gap in evidence for this period, there is some form of continuity from the Eretria hoard to the first Greek coins, at least from a practical point of view. Even if the gold in the hoard was not of a standard weight and stamped with a sign, like coinage, its value was measured and expressed in weight units, and thus functioned in much the same way as money. The way money was handled, used in transactions, and hoarded was not an innovation of coinage *per se* but already took hold in the Greek world prior to the introduction of coinage. Rather, coinage spread so swiftly because it was anchored in the widespread use of precious metal money.

The use of silver bullion as currency has been strongly advocated by Kroll on the basis of references to silver money in the Solonian laws[77]. Incidentally, Eretria may provide an additional indication of the practice. A legal document inscribed toward the end of the 6th century BC records the payment of a fine, to be made in χρέματα δόκιμα κα[ὶ h]υγιᾶ (usually translated as «tested and sound money»)[78]. If the inscription predates the introduction of coinage in Eretria, which is commonly assumed, it must refer to either bullion or coinage from other cities, the quality of which had to be tested and approved before payment. Even if the inscription were contemporary with a coinage acceptable in Eretria (be it Eretrian or from Chalcidice, as suggested by van Alfen[79]), the formula itself likely predates this, considering that it refers to a form of money (presumably uncoined silver) that had to be of acceptable quality[80].

The end of Euboean trade?

Despite the fact that the Euboeans appear to have occupied a leading position in the circulation of gold in the 8th – early 7th century BC, their role in the subsequent period is elusive. To date, little Euboean pottery has been identified from Mediterranean sites dating to the 7th century BC[81]. According to the traditional narrative, Eretria and Chalcis were left destitute as a result of a conflict known as the Lelantine war[82]. They subsequently lost their previous primacy in maritime trade as well as in the colonial enterprise. As for the precious metal trade in the Aegean and the wider Mediterranean, other cities seem to have taken the lead. Andros and Paros, for instance, established colonies with close access to the natural metal sources of the Northern Aegean (e.g. the Pangaion and Chalcidice), while cities such as Aegina and later Athens could have acted as middle men in bringing silver to eastern Mediterranean markets, such as Egypt[83]. Altogether, the Euboeans certainly suffered the consequences of a shift towards silver as the dominant commodity of value and currency, and the changing geography of Aegean (precious metal) trade. The circulation of the metal in the Aegean and Eastern Mediterranean took a new turn, with other natural sources, markets, and networks.

A nuanced picture must however be drawn here. If conflicts between Eretria and Chalcis in the Early Archaic period are more than plausible (be they referred by the term "Lelantine war" or not), their impact on the two belligerent cities is far from certain[84]. The absence of Euboean pottery from sites where it was previously attested could have various causes and does not necessarily indicate a political and economic downturn. First of all, Euboean pottery from the Early Archaic period is barely known and might have escaped our notice in many instances. Moreover, pottery was never the main commodity in Euboean trade[85]. In fact, it should be consid-

[76] Kroll 2012, 33.

[77] Kroll 1998; Kroll 2001, 78-81; Kroll 2008b; Kroll 2011; Kroll 2012; *pace* Davis 2012.

[78] *IG* XII 9, 1273-4, 1. See Cairns 1984; Cairns 1991; Leone 2017.

[79] van Alfen 2015.

[80] Recently, Laurent Dubois (2013-2014, 55) made an interesting suggestion, reading [ζ]ύγια instead of [h]υγιᾶ. This would correspond more closely to the steps completed during any transaction with bullion metal: quality control first, then weighing.

[81] See note 4.

[82] Parker 1997, 91-92; Coldstream 2003, 182; Walker 2004, 89-92, 161-163; cf. Hall 2007, 1-8.

[83] Kroll 2011; Heymans 2021, 212-225.

[84] See Fachard – Verdan forthcoming.

[85] The case cannot be compared with the diffusion of the Corinthian or Attic pottery in the Archaic and Classical periods.

ered as little more than an indirect indicator of commercial contacts, and its absence does not necessarily reflect an absence of contacts[86]. Euboean ships could have shifted to carrying pottery from other Greek centres (better in quality than their own), while the trade in commodities, mostly invisible in the archaeological record, continued into the 7th century.

It is not our intention here to maintain the reputation of Euboean traders but rather to advice caution when reconstructing the history of a trade system. The case of the Euboean gold illustrates how, if not for the chance discovery of the Eretria hoard, a significant part of the Early Iron Age economy could have remained unsuspected. In spite of the changing and perhaps adverse political and economic circumstances, it is worth considering what role Euboean traders, with their expertise and position in exchange networks, continued to play in Mediterranean trade. Further research is needed to clarify this issue.

Concluding remarks

The Eretria hoard remains a unique find (though a bit less isolated after the discoveries in Methone), but it was indubitably not unique in 8th century BC Greece. Guided by the biography of the gold it contained, the hoard has led us to the reconstruction of a sophisticated exchange system relying on the circulation of gold. In this reconstruction, we have argued that Euboeans adopted the monetary use of precious metal, specifically gold, supported by the advantage of a supply of gold that they secured through colonies around the Thermaic gulf, such as Methone. This innovation and its spread within a Euboean trade network covering much of the Greek world would serve as an anchor for the introduction of coinage not much later. Even after the adoption of coinage, traces of the pioneering role of Euboean traders in the circulation of gold would remain preserved in the historical record.

Present research raises a series of crucial questions concerning the scale of the exchange practice, its chronology, its precise mechanisms, its economic and social implications, and its historical context. Yet, more work remains to be done, and we would like to conclude by offering two remarks.

First, the circulation of gold in the Euboean sphere can serve as a case study for the roles assumed by other metals, their use as both commodity and currency, and the complex interplay between processes of extraction, trade, manufacture, and recycling. It is yet another reason to broaden the field of investigation by, for instance, taking into account the circulation of bronze (in Italy, Sicily, Sardinia: see P. Bernardini and M. Rendeli, in this volume), as attested by deposits[87].

Second, coming back to the question raised in the introduction, the quest of metals might not have always been the main incentive for the Euboeans to venture overseas (we shall restrain ourselves from applying too strict a model), but once established, the circulation of metals certainly was a powerful factor that stimulated their involvement in exchange networks, thereby linking different communities across the Mediterranean.

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[86] In the same way, if «pots do not equal people» (see note 4), the absence of pots does not equal an absence of people. This argument must be used with utmost caution but is worth recalling here.

[87] The circulation of bronze in the form of broken/cut objects is attested in the Greek colonial context in the West (Selinus: Baitinger 2016b; Gela/Bitalemi: Verger 2011; Tarditi 2016), but also in Greek sanctuaries (Olympia, Kalapodi; see Heymans 2021, 181-188). In sanctuaries, deliberately broken weapons, in particular, do not seem to be war trophies, but rather precious metal taken out of circulation to be offered to the gods. For a recent reassessment of this phenomenon, see Baitinger 2018. A fragmentary bronze blade found in an 8th century BC context in the sanctuary of Apollo Daphnephoros in Eretria is very similar to examples found in Selinus, Bitalemi, Olympia etc. (*Eretria XXII*, 131 and pl. 103, no. 407).

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On the basis of the archaeological evidence on hand so far, this paper will focus on the complexity of regional interactions in the central Aegean during the Early Iron Age. Kephala is here set as a starting point for re-discussing the issue of the Euboean *koine* and more importantly of the role of the Euboeans in the trading enterprises at the time.

SAMUEL VERDAN, ELON D. HEYMANS, *Men and Metals on the Move: The Case of Euboean Gold*

This paper investigates the Euboean involvement in the circulation of metals, specifically gold, in the 8th and 7th c. BC. Rather than focusing on the distribution and consumption of luxury items, their style, and the craftsmen who produced them, we explore the production and circulation of gold as a raw metal, reconstructing its use as a form of money in the context of Euboean trade networks.

At the centre of this reconstruction stands the Late Geometric gold hoard from Eretria. This hoard consists of cut pieces of precious metal – *hackgold* – and has been regarded as possible evidence for the use of money in the Greek world prior to the introduction of coinage. Presenting new archaeological evidence alongside a detailed study of the hoard, we trace the Eretria gold back to its placer sources around the Thermaic gulf. Through their colonial presence in the region – at the Eretrian colony of Methone for instance – the Euboeans maintained a supply of gold, enabling them to benefit from its use in trade networks. In this context, Euboean specialist traders adopted gold for carrying out transactions with a high level of precision, thus pioneering the use of precious metal money in the Greek world. This innovation would serve as an anchor for the later introduction and spread of coinage, leaving a lasting impact on the ancient world. The memory of the Euboeans' role in this process was likely preserved in later times.

ANTONIS KOTSONAS, *Euboeans & Co. in the North Aegean: Ancient Tradition and Modern Historiography of Greek Colonization*

The role of the Euboeans in Aegean and Mediterranean interaction during the Early Iron Age is emphasized increasingly in the historiography of the post-War period. It remains little known, however, that before the rise of Euboea, the role which is widely ascribed to the island was basically given to Crete. My review of early 20th century scholarship on pan-Cretism and its downfall is intended as a cautionary tale for current assessments of the role of the Euboeans, and informs my critical analysis of the ancient textual tradition for Euboean and other foundations in the North Aegean. This analysis reveals that the tradition in question is characterized by a) a notable patterning in the spatial distribution of metropoleis and colonies, and b) a lack of any references to Euboean – as opposed to other – *oikists*. By approaching the significance of these two findings in the light of broader discussions of Greek colonization in the Mediterranean and the Black Sea, I offer a more nuanced understanding of the ancient tradition for the Euboean and other colonization of the North Aegean, and I address different problems pertinent to the modern historiography of the subject.

Sardinia and Spain

PAOLO BERNARDINI, MARCO RENDELI, *Sant'Imbenia/Pontecagnano Sulci/Pithekoussai: Four Tales of an Interconnected Mediterranean*

New excavations and research have brought to light more sherds of Euboean and Pithecusan pottery from Sardinia, mainly from Sant'Imbenia (Alghero) and from Sant'Antioco and its territory. Previously such sherds were used to date the contexts

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