

Introduction

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This volume aims to develop lines of research that were first addressed in *Periploi 9*: «Non-Scribal Communication Media in the Bronze Age Aegean and Surrounding Areas» (editors: Anna Margherita Jasink, Judith Weingarten, Silvia Ferrara, 2017). In *Periploi 12*, we are also casting a wider net both by expanding our geographical range and by bringing into the discussion additional forms of a-literate and proto-literate communication systems. Whereas, in *Periploi 9*, papers were divided by geographical regions (Aegean, Anatolia and Cyprus, Near East and Egypt), in *Periploi 12*, the perspective shifts by grouping them chronologically in order to facilitate diachronic and comparative studies: Early, Middle, and Late Bronze Age, with a final section that already takes a diachronic and/or cross-cultural viewpoint.

Periploi 9 was a response to the growing interest in connections between writing systems and «alternative» modes of interaction and communication, including those which do not obviously connect scribal with non-scribal practices. Scholarly interest seems to have increased in the intervening years, as witnessed by substantially more involvement among epigraphers and archaeologists as well as further semiological and anthropological analyses, providing evidence for new points of view. The fundamental purpose of this volume is to advance the current scientific debate, promoting more interaction among specialists. The key words recurring in the papers are: tokens, mason's marks, potmarks, seals and sealings, weights, textile tools and so on, but the discussion is much wider, with implications concerning cultural, economic and political networks. The chronological span goes from the 4th millennium to the entire 2nd millennium BC, through the presentation of several case studies and methodological considerations.

The volume begins with three papers on the Early Bronze Age that offer a significant overview for the pre- and proto-historical phases in the Near East. The first paper concerns signs and symbols that possibly transmitted ideological and practical messages across the Mesopotamian and Syro-Anatolian world (7th to 3rd millennium BC) before the spread of writing. Marcella Frangipane examines three marking systems: first, decorated pottery motifs as expressions of group identity and/or social roles; second, *cretulae* (sealings) as residual evidence for completed economic transactions in which seal impressions indicate the responsible individuals; and third, ways that potmarks could have been a practical tool for potters/workshops in tandem with the development of ceramic mass production. She explores such systems as parts of the «momentous transformation from egalitarian to hierarchical and politically centralised societies...».

The authors of the second paper, Barbara Horejs and Christoph Schwal, bring us to western Anatolia, focusing on Çukuriçi Höyük, a coastal site in the vicinity of Ephesus occupied from Neolithic to Early Bronze Age I (ca. 7000-2750 BC). Çukuriçi Höyük represents a significant case study in Early Bronze I for use of a standardized weight system, metal and textile production, pottery technologies, and strategies for raw material procurement. The site's location at the central Aegean coast of western Anatolia is an ideal environment for terrestrial and maritime communication routes and offers an additional perspective into the highly dynamic Early Bronze Age period.

Candida Felli with the third paper focuses on tokens, simple geometric shapes usually made of clay (cone, sphere, disk, ovoid and so on) which played an important role in counting and recording commodities in the pre- and proto-scribal economy. The tokens discussed come from the Lower and Middle Khabur (Northern Syria) and date to the 3rd millennium BC. This makes it an unusually interesting follow-up to the paper in *Periploï* 9, «Making tokens talk» (Schmandt-Besserat and Moghimi), on Neolithic and Chalcolithic tokens excavated at Tepe Zagheh, Iran (ca. 5300-4300 BC). At this relatively late date, tokens are associated with sealings, ritual vessels, clay figurines and numeric tablets which suggests that they convey specific information in contexts of resource management within the communities and very likely function within a formative administrative system.

In the Middle Bronze Age section, Sarah Finlayson leads off with a discussion that draws together potmarks, masons' marks, incised signs or stamped seals on loom-weights and other production-related objects, including tools, as evidence of relatively widespread use of writing, marking and measuring practices, within the world of the craftspeople as part of their cognitive and practical toolkit for managing craft production. Using theoretical models and comparative evidence, she explores marking practices in a period, as she describes it, of «productive experimentation: what a sign can look like, how it can be used and by whom», and relates them, in part, to parallel signs in Cretan Hieroglyphics and Linear A (and Linear B). She draws an interesting parallel with the non-scribal marking systems in Egypt, especially the identity marks used by the workmen at Deir el-Medina ca. 1450-1350 BCE (described by Ben Haring (*Periploï* 9, 203-246), a hybrid system using forms of Egyptian Hieroglyphic signs as well as non-textual marks derived from older marking system(s), and pictorial and abstract signs. Perhaps, as at Deir el-Medina, there seems to have been potential for craftsmen to create their own signs, derived from a system of their choosing but linked by their communicative nature through the use of signs.

How such signs were put to use is still to be discovered but two case studies are laying the foundations for a deeper study of potter's marks. Metaxia Tsipopoulou takes the first steps towards creating an Aegean-wide database of potter's marks, first, by giving a thorough report on all Middle Minoan and Late Minoan IA potter's marks from the unlooted tombs HT4 and 10 in the cemetery and Sector I in the settlement at Petras, cataloguing all simple and composite marks, pot shapes, positions of the marks on the vases, and context dates; and second, adding (Tab. 3) all published marks from Malia-Quartier Mu, Syme, Vrysinas, and Kea. She signals and discusses appropriately those signs present at more than one site and/or appearing in more than one chronological period. We may now add to this initial database the recently excavated MM IIB potter's marks from Mochlos discussed in detail in the second paper on the subject by Giorgios Doudalis.

Doudalis analyses what appears to be a complex system with pottery workshops actively competing to control resources and their local markets. He argues that, while potters' marks were likely used by the potters to distinguish their vessels in the kiln, there was a perhaps more significant purpose in that they could identify ceramic workshops and distinguish the one's production from another. In support of this proposal, Doudalis pinpoints three MM IIA-MM IIB ceramic workshops using local clay but tempered with different minerals. Vases with potter's marks are then differentiated by workshops, contexts, vessel shapes, and marks: in MM IIA, when the first potter's marks appear (Tab. 3) and MM IIB, when vessel shapes are standardized following regional variations (Tab. 4). As the author justly concludes, «territoriality and workshop practices are open fields, ripe for study, and this research provides just a glimpse into how workshops were operating at the local and regional levels».

The Middle Bronze Age section also includes two papers (Anastasiadou, Jasink) which focus on Minoan Protopalatial seals. Maria Anastasiadou describes three clearly-differentiated groups of seals. Firstly, the Malia/Eastern Crete Steatite Group: with more than 700 examples it is the largest group of Minoan Protopalatial seals; as its name suggests, all are made of soft-stones of which 80% are three-sided prisms with uncomplicated and summarily rendered motifs, and likely produced in a Malia workshop. Quite different is the Hieroglyphic Deposit Group, named after the major location of sealings in the palace of Knossos. The group comprises ca 120 hard-stone seals (or impressions of hard-stone seals), overwhelmingly (91%) 3- or 4-sided prisms, of which \pm 65% are engraved with signs in the Cretan Hieroglyphic script. As their primary location in a palatial sealing deposit implies, these seals were often used in administrative contexts. The small (\leq 30 seals) Malia Workshop Subgroup falls between: ca. 65% are three-sided prisms of medium-hard or hard-stone but with imagery resembling that of the soft-stone Group. Anastasiadou describes each group's seal shapes, materials and imagery which leads to insights into their different functions, users and, in particular, their links (or not) with palatial administration.

Anna Margherita Jasink concentrates on two unique Hieroglyphic seals: one an 8-sided veined-agate prism, the other an exceptionally long 4-sided steatite prism, both dated on stylistic grounds to MM II. The author proposes that neither the seals themselves nor their engraved «written» symbols reflect any function within the administrative organization of the time but rather that, despite their different materials, shapes, and symbols, both objects were meant to be worn as ornaments, perhaps indicating authority but more certainly social distinction, that is, not necessarily to be read but to be admired.

Moving on the Late Bronze Age, Ilse Schoep follows up her in-depth study of the Ayia Triada sealings (*Periploi* 9, 81-97), now to consider two complex and long-debated questions: was the main purpose of seals in Late Minoan I sphragistic or «magical/amuletic», and did they identify primarily individuals or rather group such as families or other collective entities? This new paper offers a well-structured discussion on links between the iconography of seals and the pervasive Minoan visual communication system (including wall-paintings, reliefs, figurines, pictorial textiles, and jewellery) as well as likely indications of collective group(s) when based on the phenomenon of «look-alikes» (Weingarten 1983, 1986, 1992), to which Schoep adds a more common category, simply of «alikes», i.e., seal-types displaying the same iconographic theme or motif; although easily distinguished and not necessarily used in the same way, «alike-ness» could refer

to aspects of the seal-owner's identity (gender, age, occupation, social role). As with the high number of seal-types used at MM IIB Phaistos (Relaki, 2012), Schoep argues that even the top 57 seal-users would not have been resident in the villa but likely to external suppliers or providers of commodities or participating in rituals and feasting at the Villa.

Enrico De Benedictis begins with a sharp critique of how incisions, grooves, marks, and other features have been used in the context of metrological identification of weights in the eastern Mediterranean. In the majority of cases, these features have been straightforwardly interpreted as representing units of account of a given standard. Rather, one should start by performing a metrological analysis of the weight and, if found together with other weights, of the entire set. In the absence of convincing parallels, the metrological interpretation of the mark is only one possible conclusion. De Benedictis then applies these strictures to two case-studies. The first examines the seven iron-stone weights found in Tomb 21 at Ayira Irini, Cyprus. He tests this set against both Mesopotamian and Syrian standards and judges that two marked weights appear to represent values in the Mesopotamian system. Following the same methodology, the second example studies four iron-stone weights from a hoard in Enkomi Area III, a group that remains problematic because these weights may represent two different systems. Thus, the metrological analysis can lead to different results in each case. However, De Benedictis notes that the X mark on the weights at both sites could represent one shekel of the Mesopotamia standard at least in the Cypriot environment.

Laetitia Phialon contributes a thorough study of Late Bronze Age pictorial kraters, focusing on the case of the Rude Style bell kraters found in Cyprus. She poses the question: Were the height and width (and thus the capacity) of a krater measured by the potter? Did they follow standard measurements even in different workshops, and could these measures have been part of a communication system between potters? The subject is complicated by there being a large number of imports from the Argolid as well as those produced on the island itself. After an exhaustive discussion and analysis of previous efforts to integrate quantitative data such as dimensions and proportions into the study of LBA pictorial kraters and, more specifically, Rude Style kraters, the author stresses how it is actually impossible to confirm that potters referred to any standard measurements in the manufacturing process of these kraters. As regards RS bell kraters, she concludes that there is little reason to believe that such a control happened during the manufacturing process since dimensions and capacities vary too much within each group. Rather, skilled potters may have worked with a model or shape template to visually and tactilely ensure that proportions were respected. Such caution seems fully justified by data in three Appendices, providing height, diameters, dimension and capacities of Rude-Style bell kraters, compared to those of other LBA pictorial kraters.

The last section of *Periploi 12* is dedicated to papers that discuss particular subjects both synchronically and diachronically. Agata Ulanowska presents a wide-ranging review of marks on textile tools. She points out the long history of marks especially on loom-weights, in many parts of Europe from the middle Neolithic to the recent past – a history offering potential comparanda for the possible communication practices conveyed through marked textile tools. Some notations might be explained as a personalization of tools including expressions of emotional user-tool attachments or instructions to weavers. In the Bronze Age Aegean, five types of marks appear: individual impressions (e.g. a cord, fingernail or leaf), seal-impressions, incisions, writing, and combined markings.

Seal-impressed tools are the most common (or most commonly recorded) yet only occur at a limited number of sites where they are either unique examples or a minority in tool assemblages, albeit small clusters stamped with the same seal are known from Palaikastro and Malia. Incised marks are simple and repetitive: one possible batch from Ayia Irini, Kea, comprises 13 of 15 discoid weights of uniform weight/thickness, all with incised diagonal lines, which were found together, making them a possible functional weaving set or a firing lot.

Judith Weingarten concludes a four-part study that began as an attempt to understand the glyptic role of the Minoan CAT sign (restored to its place in the Cretan Hieroglyphic script in Jasink 2009). Starting with its prominent appearance on a Hieroglyphic prism from Myrtos-Pyrgos (Ferrara, Weingarten, Cadogan, 2016), the subject was considered within a new methodology that examined Cretan Hieroglyphic seals from both epigraphic and glyptic standpoints. They suggested that the CAT could already have the value /ma/ (reading back from Linear B), and that the sign was already connected with the WOOL industry, thence evolving into the Linear A monogram «ma-ru», the ideogram (and likely Minoan word) for WOOL. The study next reconsidered (Ferrara and Weingarten, 2017) the structure of the so-called «formulas» and isolated signs on Hieroglyphic seals to raise the question if not only CATS but, in some cases, the ship, goat, and bovine signs were not only syllabic signs but visually, semantically and phonologically meaningful. The third study (Weingarten, 2017 [*Periploi 9*]) brought some later Linear A marked roundels and incised nodules into the discussion which, she argued, also had a place within the WOOL industry – ideas that are further developed and pulled together in *Periploi 12*, this fourth and final part.

Anna Sacconi deals with some methodological questions about potter's marks which may be described as isolated signs, incised or painted on any type of vase and in any era. Essentially, none of the signs are integral parts of any writing system, having no phonetic value nor representing neither syllables nor letters. The marks only had significance for those who drew them, and therefore their meaning totally eludes us. The elementary nature of many potter's marks explains why they sometimes overlap with the simplest signs (e.g., cross, trident, rectangle, branch, double-axe) of the Aegean scripts, whether Cretan Hieroglyphic, Linear A, Linear B or Cypro-Minoan. Sacconi presents a case-study from Malia (MM I and MM IIB) to demonstrate that, if one can undertake systematic research into the typology and chronology of potter's marks at the same site in specific periods, it then becomes possible to relate the marks, especially complex marks, to known script signs (in this case, in Cretan Hieroglyphic). This study suggests that, among other points of continuity, there is evidence for literacy among potters at Malia in MM I even in the absence of extant scribal documents.

Continuing her work on the relationships between measures and craftwork in Minoan Crete (*Periploi 9*, 3-40), Maria Emanuela Alberti addresses here a much-debated topic, the relationships between weighing measures and Mediterranean trade. In the framework of recent research on the development of Bronze Age European weights, her paper explores the role played in this process by the Aegean measures, i.e. by the Aegean agency. This involves the analysis of some important weight clusters of the LM I (from Akrotiri and Mochlos), and of LM IIIA-B (from Crete and Helladic mainland), as well the investigation of the possible parallels with the counting system used in Linear A and Linear B, resulting in new insights on Aegean precision weighing of the various phases.

The comparison with the published evidence from the Aeolian Islands (LBA Early) and Thapsos (Syracuse, LBA advanced), suggests that the contact with the Aegean could have been important for the formation of the local weighing systems.

The final paper, by Giulia Dionisio, illustrates a very different case of communication without writing: the *kipu* of the Andes, a recording device fashioned from strings used by several pre-Columbian cultures, specifically, in this paper, in Peru. From a totally separate part of the world, this case study raises some methodological issues concerning meaningful non-scribal communication practices, the topic of the present volume. First, with the *kipu* we face a completely alternative system of communication in semeiotic terms: the message and its support are not separated, as happens with marks on clay, for example, but constitute a whole: the object is the message and viceversa. In this perspective, the *kipu* is more like a token, though much more developed and complex. A *kipu* could register not only numerical data but also narratives, laws, ceremonies, and possibly also indicate sacred places, offerings, and other kinds of complex and articulate information through a series of colors and knots in combinations. It is also totally organic (made from colored wool and/or cotton) and this brings to our attention all the other possible systems of non-written and practical communication we probably have lost in our Mediterranean Bronze Age (and beyond).

The variety of case-studies surveyed in this volume raises questions about the broad nature of non-scribal communications, the many possible problems designed to be addressed, and the different socio-economic levels of the action and their actors. Non-scribal communication first becomes apparent among pre-state societies, such as in Neolithic and Chalcolithic Mesopotamia; however, some systems survive into the period of the Early States, when proper writing starts to be used (e.g. 4th mill. Arslantepe), but also into the subsequent, more complex phases of state consolidation and organization. It is probably not surprising that many of the papers deal with Protopalatial Crete, a time and place known for its diverse political and cultural characteristics and peculiarities that arise from its often local, almost experimental approach to parallel communication codes. In a sense, Minoan-Crete becomes a kind of a touchstone for non-scribal communication practices.

It is increasingly apparent that, in the Bronze Age, formal writing systems could neither absorb nor entirely substitute for other forms of communication. While, in state societies, writing dominates official and administrative documentation, it nevertheless coexists with a wide range of other, parallel communication codes. The papers gathered in this volume explore and explicate the semantic and social space occupied by these «other» codes, stressing their important role even within an otherwise scribal framework. Such a-literate or semi-literate records have rarely been analysed in their own right, nor studied comparatively or diachronically: such an approach is precisely the strength of the volume.