

41. Hellenistic Weights and Measures in Western Asia Minor (Propontis, Troas, and Aeolis)

▼ **ABSTRACT** This contribution aims to present my PhD project and is based on the poster presented at INC 2022. I stress the importance of the three regions under study and highlight the different political phenomena that could have had an impact on the metrological systems of the cities concerned. A parallel with numismatics is introduced before focusing on weights as such. This is followed by a brief presentation of the different types of analysis that can be carried out on the weights: typological, metrological, and anthropological. Finally, I briefly introduce the *Pondera Online* database.

▼ **KEYWORDS** weight, historical metrology, Asia Minor, *Pondera Online*, weight standard

This paper is the result of a poster entitled *Hellenistic Weights and Measures in Western Asia Minor (Propontis, Troas, and Aeolis)* presented during the 2022 International Numismatic Congress. The choice of the three regions considered, namely Propontis, Troas, and Aeolis, is significant. Indeed, they form a commercial area of primary importance, which occupies a strategic position between the Black Sea and the Aegean Sea (Baurain 1997, 298–99), at the crossroads of Europe and Asia. This PhD project compares very ancient cities, such as Cyzicus, a Milesian colony founded in the seventh century BC (Prêteux 2008, 353), and others that appeared in the Hellenistic period, such as Lysimachia, founded in 309/8 BC (Sayar 2013, 108). These cities were mostly autonomous but faced many external influences and interferences during the Hellenistic period: Lysimachus, the Lagids, the Seleucids, the Attalids, the Bithynian

kings, and finally the Romans. These regions also seem to be institutionally linked. During the Hellenistic period, the autonomous cities tend to be structured into larger groups. The most powerful cities absorbed their neighbours by synoecism, such as Antigoneia which included Scepsis in its territory before becoming Alexandria Troas (Robert 1951, 11–13). Other cities, in order to increase their regional influence, grouped together within confederations. This is notably the case of the Confederation of Athena Ilias in Troas (fourth century–first century BC), which brings together several cities considered in the research (Lefèvre and Pillot 2015, 4). These institutional phenomena may have had an impact on the metrological systems, as the cities may have homogenized their measurements in order to facilitate trade between them. Moreover, the cities absorbed by synoecism may have been forced to

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adopt the weights and measures of the main city or, on the contrary, they may have used their metrological system to show a certain reluctance to this absorption.

Metrologically, there was a trend towards supra-regional standardization from the fourth century BC onwards. After the conquest of Alexander the Great, the Attic standard spread to Asia Minor (Price 1991; Le Rider 2001), where the autonomous cities minted coins in the name and type of Alexander until the beginning of the second century BC (Meadows 2019; Delrieux 2007). But some cities in Troas and Propontis also show a regional characteristic phenomenon: the minting of Attic weight coins in the name and types of Lysimachus during this period, probably in reaction to Seleucid rule (Mørkholm 1991, 147–48; Delrieux 2007, 139). This use of the Attic standard and the tendency to homogenize coins continued into the Late Hellenistic period, and at first sight the weights produced in the region between the fourth century BC and the first century BC are part of this dynamic. Indeed, each city produced weights with its own name and types (*parasema*), but analogies are emerging between these different civic bodies.

Ancient weights (gr.: σταθμά; lat.: *pondera*) were used in everyday life to weigh various commodities in markets, shops, and workshops. In this sense, they form archaeological material of primary importance for not only understanding ancient metrological systems, but also the mental categories and accounting logics behind these systems. The thesis deals with 587 weights distributed unequally among 15 cities,¹ the origin of 266 of which is unknown. This archaeological material can be studied from different aspects: typological, metrological, and anthropological.

The typological study of these objects focuses on different aspects of the weights: the metal and forms, the symbols, and the legends. Out of 587 weights, only 34 examples are made of copper alloy (c. 7.5%) while the other 543 weights are made of lead (c. 92.5%). This material differentiation reveals a difference in status between the copper alloy standard weights on one hand and the weights used in daily life in lead on the other (Killen 2020). The analysis of the civic symbols (*parasema*) on the weights makes it possible to understand their meaning and to determine which aspects of the city they refer to (Killen 2017), but also to check whether similar symbols are used between the cities under consideration. For example, some symbols clearly evoke trade (caduceus, Hermes), while others,

such as the astragalus, have a more complex meaning (Doyen 2021). Most weights bear a legend which usually refers to the denomination of the weight, the name of the issuing city or both. One can also find the mention of the magistrates in charge of checking the weights used on the markets. The analysis of the legends, together with that of the symbols, could in some cases bring out a codification of the composition of the weights, as is the case at Cyzicus (Leblanc 2021a; 2021b).

The metrological study is possible because, as mentioned above, the weights regularly bear a legend indicating their denomination, which makes it possible to reconstruct the structure of the weight system of each city. To weigh commodities, the Greeks used a metrological system based on the drachma, mina, and talent. A drachma of Attic standard weighs c. 4.35 g. A mina is equal to 100 drachmas and therefore weighs c. 435 g. A talent is equal to 60 minas, i.e. 6000 drachmas, and weighs c. 26.1 kg. The monetary units are therefore also weight units. However, towards the end of the fifth century BC in Athens, a reform of this system took place and a distinction between a monetary standard and a weight standard appeared, which increased in mass over time. Thus, from that moment on, we have a metrological system that includes two different standards: a monetary standard whose mass remains stable and a weight standard whose number of drachmas per mina increases over time. The monetary mina, which is always equivalent to 100 drachmas, differs from the commercial mina, whose mass increases to 105 drachmas at the end of the fifth century BC, then to 112, 126, 138, 150 (Doyen 2012, 55), and even to 162 and 176 drachmas per mina (Willox 2022). The word mina came to designate a 'monetary' unit of 100 drachmas, a metrological unit of monetary standard of 435 g (100 dr.) and a metrological unit of weight standard whose mass changed according to the number of drachmas to the mina that it was counted. The study of the weights will make it possible to reconstruct the metrological structures of the various cities to determine whether they used the Attic weight standard. Finally, once the local structures have been reconstructed, a comparison between cities of the same region, and between regions in a second phase, will allow to evaluate the metrological homogeneity of the three regions or, on the contrary, their heterogeneity.

The so-called anthropological analyses aim to study the objects in order to better understand their production process and their daily use. The aim is to reconstruct the process of manufacturing the weights, the methods of weighing them and the role of the competent authorities in the distribution and control of these objects. In perspective, the inscriptions offer very valuable information: for example, at Assus (in Troas), a civic decree mentions an agoranomos that used

¹ Abydus: 17; Aenus: 2; Alexandria Troas: 54; Assus: 2; Bisanthe: 1; Byzantium: 15; Chalcedon: 1; Cyzicus: 261; Ilion: 5; Cyme: 19; Lampsacus: 35; Lysimacheia: 120; Myrina: 40; Scepsis: 1; Tenedus: 8.

bronze weights to check the weights used by merchants (Merkelbach 1976, 3–5). In this section, we also find all the analyses that focus on the modifications undergone by the weights during their existence: countermarks, suspension holes, cut weights, abrogation of weights, etc.

In parallel to these different analyses, I feed the *Pondera Online* database with my corpus

(<https://pondera.uclouvain.be/>). This database, which was initiated in 2016, now includes over 18,000 weights. It aims to collect and gather together information on all known ancient and mediaeval weights, from archaeological excavations, museum collections, antiquities trade, and private collections, and all on a single platform.

Works Cited

- Baurain, Claude. 1997. *Les Grecs et la Méditerranée orientale: Des « siècles obscurs » à la fin de l'époque archaïque* (Paris: Presses universitaires de France) <<https://doi.org/10.3917/puf.baura.1997.01>>
- Delrieux, Fabrice. 2007. 'Frappes monétaires et cités grecques d'Asie Mineure occidentale de la mort d'Alexandre à la paix d'Apamée', *Pallas*, 74: 129–59
- Doyen, Charles. 2012. *Études de métrologie grecque*, II: *Étalons de l'argent et du bronze en Grèce hellénistique*, *Études numismatiques*, 4 (Louvain-la-Neuve: Association Professeur Marcel Hoc)
- . 2021. 'Lastragale comme symbole pondéral et monétaire', in *Play and Games in Classical Antiquity: Definition, Transmission, Reception*, ed. by Véronique Dasen and Marco Vespa, Collection Jeu / Play / Spiel, 2 (Liège: Presses universitaires de Liège), pp. 147–78
- Killen, Simone. 2017. *Parasema: offizielle Symbole griechischer Poleis und Bundesstaaten*, *Archäologische Forschungen*, 36 (Wiesbaden: Reichert)
- . 2020. 'Bronzegewicht = Normgewicht? Bemerkungen zu griechischen Gewichten aus Bronze', in *Pondera antiqua et mediaevalia*, 1, ed. by Charles Doyen and Louise Willocx, *Numismatica Lovaniensia*, 22 (Louvain-la-Neuve: Presses universitaires de Louvain), pp. 1–22
- Le Rider, George. 2001. 'Sur un aspect du comportement monétaire des villes libres d'Asie Mineure occidentale au II^e s.: leurs émissions de tétradrachmes de poids attique frappées entre 188 et c. 140', in *Les cités d'Asie Mineure occidentale au I^{er} siècle a.C.*, ed. by Alain Bresson and Raymond Descat, *Études*, 8 (Pessac: Ausonius), pp. 37–59, pl. 1–3 <<https://doi.org/10.4000/books.ausonius.7182>>
- Leblanc, Thomas. 2021a. 'Le système pondéral de Cyzique', *Revue belge de numismatique et de sigillographie*, 167: 1–18
- . 2021b. 'Poids et mesures en Propontide hellénistique: le cas de Cyzique', *Bulletin de la Société française de numismatique*, 76.4: 137–43
- Lefèvre, François, and William Pillot. 2015. 'La Confédération d'Athéna Ilios: administration et pratiques financières', *Revue des études grecques*, 128.1: 1–27 <<https://doi.org/10.3406/reg.2015.8363>>
- Meadows, Andrew. 2019. 'Invasion and Transformation. The Development of the Civic Alexander Coinage in Western Asia Minor, c. 323 to 223 BC', in *Les Alexandres après Alexandre. Histoire d'une monnaie commune*, ed. by Sophia Kremydi and Marie-Christine Marcellesi (Athens: Fondation nationale de la recherche scientifique), pp. 63–87
- Merkelbach, Reinhold. 1976. *Die Inschriften von Assos*, *Inschriften griechischer Städte aus Kleinasien*, 4 (Bonn: Habelt)
- Mørkholm, Otto. 1991. *Early Hellenistic Coinage: From the Accession of Alexander to Peace of Apamea (336–188 B.C.)*, ed. by Ulla Westermark and Philip Grierson (Cambridge: Cambridge University Press)
- Prêteux, Franck. 2008. 'Le commerce de Cyzique au IV^e siècle', in *Ressources et activités maritimes des peuples de l'Antiquité: Actes du Colloque international de Boulogne-sur-Mer, 12, 13 et 14 mai 2005*, ed. by Joëlle Napoli, *Les cahiers du littoral*, 2.6 (Boulogne-sur-Mer: Centre de recherche en histoire atlantique et littorale), pp. 353–68
- Price, Martin J. 1991. *The Coinage in the Name of Alexander the Great and Philip Arrhidaeus: A British Museum Catalogue* (Zürich: Swiss Numismatic Society)
- Robert, Louis. 1951. *Études de numismatique grecque* (Paris: Collège de France)
- Sayar, Mustafa H. 2013. 'Historical Geography of the Ancient Cities and Harbours in Southeastern Thrace and on Thracian Chersonese', in *L'Anatolie des peuples des cités et des cultures (II^e millénaire av. J.-C. – V^e siècle ap. J.-C.): Colloque international de Besançon, 26–27 novembre 2010*, 1, ed. by Hadrien Bru and Guy Labarre (Besançon: Presses universitaires de Franche-Comté), pp. 107–09
- Willocx, Louise. 2025. 'Une mine supérieure à 150 drachmes? Évolution des mesures pondérales athéniennes à la basse époque hellénistique', in *Un marché commun dans l'Antiquité? Actes du Colloque de Fribourg, 25–26 janvier 2018*, ed. by Nathan Badoud and Charles Doyen (Basel: Schwabe) [in press]