

LIBRAE AND UNCIAE FROM METROPOLIS

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Abstract

This study covers four librae and three unciae lead and bronze weights including one uncertain lead weight discovered in different periods and sectors of the ancient city of Metropolis. The presence of the names of agoranomoi on some libra weights makes them even more significant. The lead weights are dated to the Roman Imperial period. The bronze one belongs to Byzantine era. A mold stone discovered in Metropolis in the 1980s was used to understand the measurement units and production characteristics of balance weights examined in this study. Based on this comparison, it is estimated that one of the libra weights was produced using this particular mold stone. Although primary focus of the article is identification of the weights through their units, reflections of social and commercial life in the city have also been incorporated into the study, particularly through weights bearing agoranomos inscription. By analyzing their contexts, usage areas, units, and inscriptions, including some previously published examples, we gain insights into their nature. Given their significance for dating, the archaeological contexts of the weights are also presented in detail.

Keywords: Metropolis, Lead Weight, Agoranomos, Libra, Uncia, Metrology.

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Introduction

Metropolis, founded on a hill and its slopes between the neighborhoods of Yeniköy and Özbey in the Torbalı District of İzmir, is located within the boundaries of the Ionian region¹ (fig. 1). For approximately 5000 years, this area has been a crucial intersection of major routes that have remained unchanged over time. The 142-meter-high hill, which dominates the Torbalı Plain, was chosen as the city's acropolis. One of the earliest finds from the acropolis, a stone seal, dates back to the Bronze Age². On the other hand, architectural remains associated with the first settlement in Metropolis date to the Archaic Period. The city's strategically significant location and its long-standing utilization of the fertile lands of the Küçük Menderes River have contributed to the formation of an uninterrupted cultural stratification. The Torbalı Plain, which also encompasses the sphere of influence of Metropolis, extends across the western part of the Küçük Menderes (Kaystros) Basin, situated between the Bozdağlar (Tmolos) Mountains to the north and the Aydın (Messogis) Mountains to the south. This area possesses highly fertile agricultural lands and abundant natural resources.

The establishment and prosperity of Metropolis in this location were largely influenced by these resources and the rich alluvial agricultural lands. Another factor that made the region strategically valuable was Metropolis' position along the main road connecting two major centers of Antiquity, Ephesos and Smyrna. Strabo described Metropolis as a city situated between Ephesos and Smyrna, approximately 120 stadia (around 20–25 km) from Ephesos (Strabo XIV.1.2). This main road branched off in Torbalı, extending toward Sardis via the Karabel Pass. These major roads, which have retained their importance since Antiquity, directly contributed to Metropolis' development into a wealthy city.

The balance weights discovered during archaeological excavations in Metropolis, along with those presumed to have originated from the city's territory but acquired through donation, provide significant insights into the commercial life of the city during the Roman Imperial period. Among these weights, there are four librae and three unciae. One weight lacks any unit marks or inscriptions, allowing only an approximate assessment of its identification. Inscriptions on some of the weights have made it possible to identify the names of certain agoranomoi who served in the city. The names of the agoranomoi serving in Metropolis are not limited to the weights introduced here. We also come across other agoranomos names like Machatas on a measuring stone found at Metropolis³ (fig. 2). Additionally, a stone found near Metropolis in 1980 contains mold cavities used in the production of balance weights⁴ (fig. 3). The ten mold cavities on the stone are particularly significant for understanding both the weight units used in the city and the techniques employed in weight production.

1 Aybek – Arslan 2022, 341-359; see also Aybek – Arslan 2023.

2 Işık 2025, 238-239.

3 Aybek – Dreyer 2012, 208-211.

4 Meriç 1981, 212-213.

Weights

1. One-Libra. Agoranomos Iulios Tyrannos (fig. 4)

Izmir Museum, inv. no. 26518. Terrace Houses (Yamaç Evler) 2010. Lead, 94x86x9 mm, 317 g (uncia of 26.41 g). Discoid, raised and beveled edges. AD 2nd century⁵.

Obv.: ΛΕΙΤΡΑ

Λείτρα

Rev.: ΙΟΥΑΙΟ / ΥΤΥΡ / ANNO / ΥΑΓ[Ο]Ρ / ANOM / ΟΥ

Ἰουλίου Τυράννου ἀγορανόμου ([in the time] of Agoranomos Iulios Tyrannos)

The weight was discovered in 2010 during excavations in the Terrace Houses area of Metropolis. On the obverse of the discoid weight, the inscription “leitra” is engraved in relief within a framed border. The letters of the inscription are arranged in a circular pattern along the edge of the weight. At the center of the inscription, there is a circular motif with protrusions on its outer edge. A handle is located at the top of the weight. On the reverse, a six-line inscription is present, indicating that the weight was produced during the tenure of agoranomos Iulios Tyrannos. The letter forms of the unit name on the obverse and those in the inscription on the reverse differ, suggesting that the reverse inscription may have been rewritten later under a different magistrate. Alternatively, this variation may have resulted from the common practice in the Imperial period of engraving the reverse inscriptions on larger plaques during production. Due to a break near the handle and along the edge, it can be estimated that the original weight was slightly greater than its current weight, possibly around 325 g. In this case, with an approximate value of 12 unciae, it can be considered to have conformed to the standard weight of a libra.

The weight was discovered in the Peristyle House, located on the southern slopes of the city within the expansion area of the Roman Imperial period. The room where the weight was found is situated in the southeastern corner of the house. During archaeological excavations, the weight was unearthed at a layer of +56.31 m within a context dominated by Roman Imperial period ceramics and roof tiles. Two bronze coins found at the same levels include a Pergamum coin of Late Hellenistic period (inv. no. 9915) and a Roman Imperial coin of 2nd-century CE (inv. no. 9924). As excavations reached deeper levels, the number of Hellenistic period finds increased, and a *situla* was identified at a layer of +55.15 m. Since this layer is also below the floor level of the house, it can be considered the settlement layer of the Hellenistic period. An analysis of small finds, ceramic density, and construction techniques in the Peristyle House indicates that it was in use from the 2nd to the 4th century CE. The contextual analysis of the weight also suggests a similar date range. Based on this evidence, the weight can be dated to the 2nd century CE.

2. One-Libra, Agoranomos Tiberius Claudius Pollio (fig. 5)

Ephesus Museum, inv. no. 169/4/81. From the vicinity of Metropolis,

⁵ Aybek – Dreyer 2012, no. 2, 205 and 208; Aybek et al. 2021, cat. 37.

1981 (donation). Lead, 65x63 mm, 330 g (uncia of 27.5 g). Square in form, raised an beveled edges; herringbone motif on the outer edges. AD 2nd-3rd centuries⁶.

Obv.: ΛΕΙ / ΤΡΑ

Λείτρα

Rev.:

TIBKLPOL[LI] / wNOC IPPI / ΚΟΥΑΡΟCEI / ACFILIOCEB / MONOUA-
GO /

RANOMOU

Τιβ(ερίου) Κλ(αυδίου) Πολ[λί]ωνος ἰππικοῦ ἀπὸ χει<λιαρχεί>ας
φιλοσεβ(άστου) μόνου

ἀγορανόμου

On the obverse, the unit name “leitra” is inscribed in two rows. On the reverse, the name of militiis philosebastos agoranomos Tiberios Claudios Pollio is written in six lines, although the word arrangement is not uniform. The weight was found by a citizen near Metropolis and shown to Prof. Dr. Recep Meriç, who conducted surface surveys in Metropolis in 1981. As with the weight inscribed with Iulios Tyrannos (No. 1), it can be observed that the letter forms on the obverse and reverse differ, and the reverse features a cramped and irregular inscription. This suggests that the weight may have been used by different agoranomoi over time. With an approximate value of 12 unciae, it can be said to conform to the standard weight of a libra.

3. One-Libra, Agoranomos Kallikrates (fig. 6)

Izmir Museum, inv. no. 21464. Terrace Houses (Yamaç Evler), 2001 (Mosaic House). Lead, 68x66x8 mm, 326 g (uncia of 27.16 g). Square in form, raised and beveled edges. AD 1st-2nd centuries.

Obv.: ΛΕΙ / ΤΡΑ

Λείτρα

Rev.: ΚΑΛΛΙ / ΚΡΑΤΟ / ΥΑΓΟ / ΡΑΝΟ

Καλλικράτου ἀγορανό

On the obverse of the square-shaped weight, the inscription “leitra” appears in two rows. On the reverse, there is a four-line inscription. The inscription indicates that the weight was produced during the time of agoranomos Kallikrates⁷.

When comparing the “leitra” inscription on the obverse of this weight with the mold from the Metropolis find on the molding stone (fig. 7), it is clear that the letter forms and dimensions are consistent with each other. The internal

⁶ Meriç 1981, 213-214, no. 2, Pl. VII, figs. 6-7; IK Ephesus III 707 B and VII, 1, 3493: SEG 31, 975; Devijver 1983, 273 (= Pondera 17879); Tekin 2024, no. 127.

⁷ The name Kallikrates can be found in many cities in western Asia Minor, not only in the Caria region but also in Ionia, including Didyma, Erythrai, Kolophon, Metropolis, Miletos, Priene, and Smyrna. In Metropolis, the name Kallikrates appears in a list of names inscribed on a stele (Metropolis 102 = IEph 3428). However, this inscription is dated to the Hellenistic period. If the two names refer to the same person, it would be possible to date the weight to the late 1st century BCE. However, since Kallikrates is a common name, it is not possible to make a definitive conclusion.

frame dimensions of the weight also align with the molding stone (35x32 mm). The heights of the “AEI” letters in the first row were compared, and it was found that both the letters on the mold and those on the weight have common heights (1.1/1.2 mm). Similarly, the width measurements of the “TPA” letters in the second row yielded the same values (T: 1.1 / P: 1.6 / A: 1.2 mm). Therefore, it can be said—though not with certainty—that this weight was produced from the “leitra” unit mold found in Metropolis.

Looking at the name form of agoranomos Kallikrates on the reverse, as with previous weights, an irregular and asymmetrical style contrasts with the symmetrical letter forms on the obverse. This suggests that, like the other examples, the weight may have been reorganized and reused by different agoranomoi over time. With an approximate value of 12 unciae, it can be said to conform to the standard weight of a *libra*.

The weight was discovered in 2001 in the mosaic-decorated reception hall. This space, almost adjacent to the eastern analemma wall of the theater of the theater cavea, was the most magnificent room of a large residence built in the 2nd century CE. Two panel mosaics and geometric fresco decorations found during the excavation of the structure reveal the aesthetic features of the room. The weight in question was identified during detailed cleaning after the walls of this room were uncovered. What is particularly striking is that, just like the weight (fig. 4), inscribed with agoranomos Iulius Tyrannus found in the Peristyle House, another weight (fig. 6) inscribed with the name agoranomos Kallikrates was found in this residence, which shares several similarities. Both residences are located on the southern slopes of the city, within the Roman Imperial period urbanization area, which was considered the neighborhood of the wealthy.

Upon examining the ceramic fragments found during the detailed wall cleaning where the weight was discovered, it appears that the material repertoire of the Roman Imperial period predominates. However, it is worth noting that only nine ceramic fragments were found during this cleaning process. Therefore, given the scarcity of finds, it is not possible to significantly narrow down the dating scale.

4. One-Libra (fig. 8)

Izmir Museum, inv. no. 26519. Stoa 2010. Lead, 50x50x14 mm, 313 g (uncia of 26.08 g). Square in form, slightly raised edges on the obverse. Although the inscription on the obverse is distinct, it has been damaged. The reverse is flat but has deep cut marks in two places. AD. 1st-3rd. centuries⁸.

Obv.: AEI / TPA

Λεῖτρα

The weight was found in 2010 in the city's stoa. On the obverse of the square-shaped weight, there is an inscription of “leitra” in two rows in Ancient Greek. The reverse of the weight is flat. This type of weight, with slightly raised edges and gently concave sides, is found in significant quantities in collections.

⁸ Aybek – Dreyer 2012, fig. 3.

The weight was discovered at the +94.22 m level during the archaeological excavation of a room, which had been converted into a shop during the Roman Imperial period, located at the northern entrance of the Hellenistic period stoa. The fact that the artifact was found in a location associated with shopping in the city center is consistent with its function.

Moreover, when examining the historical distribution of ceramics found in the same context (+94.37 / +92.77 m) as the weight, it is noteworthy that ceramics of Roman Imperial period predominate. Of the 295 ceramic fragments found in the context, 256 belong to the Roman Imperial period. Among these, everyday use vessels and cooking pots are the most common. As can be understood from the ceramics obtained in the excavations, the finds from the context are largely consistent with Roman Imperial period items. However, it is not possible to say that the context contains a completely homogeneous group of finds. With an approximate value of 12 unciae, it can be said to conform to the standard weight of a libra.

5. One-Uncia (fig. 9)

Metropolis, inv. no. 12855. 1381 Parcel (Agora) 2025. Bronze, 25x7 mm, 26.62 g (nomisma of 4.43 g). Discoid in form, raised edges on the top and bottom; double grooved profile. On the obverse, unit mark G A; above, cross; below, wave pattern; all engraved and punched. The reverse is flat but concentric circles and scratches along the edge. AD 6th century.

The balance weight was discovered in the 2025 excavation of a structure identified in the area where the southern slopes of Metropolis meet the plain, which is thought to have been the Commercial Agora. Excavations of this structure have been ongoing since 2021. In addition to the uncia specimen that was identified, numerous finds related to trade and production were uncovered. Among these, bronze, lead, and bone tools stand out for their remarkable abundance. Furthermore, in the area where the uncia weight was found, a group of finds consisting of weighing instrument components was also unearthed (fig. 10). When the assemblage associated with this weight—dated to the 6th century AD—is examined, the predominance of cooking pots and red-slipped wares indicates a ceramic distribution dated between the late 4th and the 6th centuries AD.

6. One-Uncia (fig. 11)

Izmir Museum, inv. no. 2013/424. From the vicinity of Metropolis, 2013. Lead, 26x25x5 mm, 25.3 g (nomisma of 4.21 g). Rectangular in form, raised and beveled edges. On the obverse, unit mark A; the reverse is plain and flat. Roman Imperial period.

7. One-Uncia (fig. 12)

Izmir Museum, inv. no. 21463. From the vicinity of Metropolis, 2001 (donation). Lead, 30x30x5 mm, 27.68 g (nomisma of 4.61 g). Square in form with raised and beveled edges. On the obverse, unit mark A; on the reverse, IOU A (or L) / [G] M in two lines. Roman Imperial Period.

8. Uncertain (fig. 13)

Izmir Museum, inv. no. 8064. Acropolis 2006. Lead, 27x27x8 mm, 62.95 g. Square with beveled edges. Both faces are blank or illegible; pitted surface.

This space was uncovered alongside a column drum and various architectural elements of different characteristics. The masonry work of the space, its connection to its surroundings, and findings from its context suggest parallels with the Byzantine-period modifications of the acropolis. Although the city's acropolis was originally planned during the Hellenistic period, it remained in use until the Late Byzantine and Beylik periods, undergoing numerous modifications that altered its original structure. The 2006-1 space appears to have functioned as either a residence or a shop within this historical framework. Architectural blocks and columns identified during the excavations are believed to have been reused (*spolia*) in the construction of this space. The distribution of ceramic finds within the levels where the lead weight was discovered does not indicate a homogeneous pattern. Byzantine-period artifacts are predominant (21 pieces), but the presence of 16 Hellenistic and 7 Roman Imperial forms among the 44 total finds significantly broadens the chronological range of the context. The assemblage primarily consists of everyday household items and cooking vessels. Additionally, a Byzantine-period terracotta bread stamp was identified within the same context.

Conclusion

Of the eight balance weights evaluated, four are *librae* (which are understood from their weights to have been Italic *litrae*), three are *unciae*, and one is unidentified. Three of the four *libra* weights bear the name of an *agoranomos*, and two of these were found in separate private residences on the southern slopes of the city. These residences are the most magnificent civil houses identified in Metropolis to date. The other weight inscribed with the name of an *agoranomos* was added to the inventory through donation in the 1980s. The construction and use phases of the residences are consistent with the contextual information provided by the lead weights together with the other finds. On the other hand, lead weights are not the only written sources in the city in which the title *agoranomos* appears. A measuring block bearing the name of *Agoranomos Machatas* also stands out as one of the finds from Metropolis that mention this office (fig. 2). In addition, an inscription has been discovered indicating that *Attalos*, who served as an *agoranomos* in the city, was honored by the *demos* for having a granary constructed⁹. Based on this inscription and the weights, representation of the *agoranomos* office in Metropolis, as well as the position and significance of the officials who held this role within the community, can be better understood.

A noteworthy point in Metropolis is that the officials who carried out market inspections or weight control more often bore the title *agoranomos*. Yet we also know that in other cities of western Anatolia there were other officials holding titles such as *eirenarches*, *hipparchos*, and *paraphylax*¹⁰. For example, the

⁹ Aybek – Dreyer 2012, 205-214.

¹⁰ Weiss 2005, 409.

fact that among the officials attested on the Ephesian weights there are “many” paraphylakes¹¹, whereas in Metropolis—at least for the moment—only the office of agoronomos is attested, is noteworthy. For a large city like Ephesos, such diversity of offices can be considered normal. Compared with Ephesos, it is understood that in a relatively smaller city such as Metropolis market control was carried out predominantly by agoronomoi. However, as the data increase, it will of course also become possible to make a new assessment.

Another significant finding of this study is the identification of a libra made from a mold stone, discovered in 1980 by a local villager near Metropolis and delivered to the Ephesus Museum. This libra is the weight found in the aforementioned Mosaic House and bears the name of agoronomos Kallikrates. It was discovered in 2001, 21 years after the mold stone from which it was produced. The similarity between the Kallikrates libra and the mold cavity in the mold stone suggests that it may have been produced using this mold. At this point, the findspot of the mold stone could have been a crucial piece of data; however, unfortunately, this information was not provided to museum officials.

The weights constitute highly significant archaeological evidence for understanding the influence of officials responsible for regulating commercial life and maintaining order in Metropolis. However, their quantity and findspots are of particular importance. Interpreting the city’s social and commercial life solely on the basis of the existing balance weights is quite difficult. Although Metropolis was founded in the Hellenistic period, it was especially active in regional trade from the 2nd century BC to the 5th century AD¹². The products manufactured in the city were also exported to overseas centers. For this reason, it is necessary to examine commercial life in Metropolis within a broader framework and to investigate its social, economic, and commercial connections with neighboring cities, especially Ephesos.

11 Tekin 2024, 138.

12 Arslan 2023, 350-352.

Öz

Metropolis'ten Libra ve Uncia Ağırlıkları

Bu çalışma Metropolis Antik Kenti'nde farklı zamanlarda ve sektörlerde tespit edilen dört libra, üç uncia ve bir birimi belirsiz ağırlığı konu almaktadır. Ağırlıklardan biri bronz, diğerleri kurşundur. Libra ağırlıklarından birkaçının üzerinde görülen agoranomos isimleri bu eserleri daha önemli kılmaktadır. Kurşun ağırlıkların tamamı Roma İmparatorluk Dönemi'ne tarihlendirilmektedir. Bronz uncia ise Bizans Dönemi'ne aittir. 1980'li yıllarda Metropolis'te bulunan bir taş ağırlık kalıbı, çalışma kapsamında ele alınan terazi ağırlıklarının ölçü birimlerinin ve üretim özelliklerinin anlaşılmasına yönelik kullanılmıştır. Bu karşılaştırma neticesinde libra ağırlıklardan birinin söz konusu taş ağırlık kalıbından üretildiği tahmin edilmektedir. Makalenin odaklandığı temel alan ağırlık birimleri üzerinden eserlerin tanımlanması olsa da özellikle agoranomos yazıtlı ağırlıklar üzerinden kentteki sosyal ve ticaret hayatının yansımaları da araştırmaya dahil edilmiştir. Daha önce yayınlanmış bazı örnekler de dahil olmak üzere, bağlamalarını, kullanım alanlarını, birimlerini ve yazıtlarını analiz ederek, bu ağırlıkların niteliği hakkında fikir edinmek mümkündür. Tarihlendirme açısından önemleri göz önüne alındığında, ağırlıkların arkeolojik bağlamları da ayrıntılı olarak ele alınmıştır.

Anahtar Kelimeler: Metropolis, Kurşun Ağırlık, Agoranomos, Libra, Uncia, Metroloji.

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Fig. 1. Metropolis, aerial photo



Fig. 2. Measuring stone of Machatas



Fig. 3. Stone with molds



Fig. 4. Lead libra inscribed with Tyrannos



Fig. 5. Lead libra inscribed with Tiberius Claudius Pollio



Fig. 6. Lead libra inscribed with Kallikrates

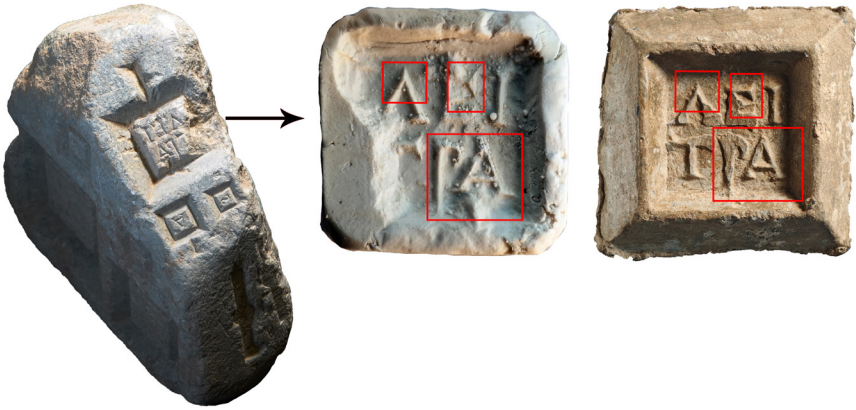


Fig. 7. Narrow side of the stone with molds with mold impression and obverse of the libra of Kallikrates



Fig. 8. Lead libra



Fig. 9. Bronze uncia

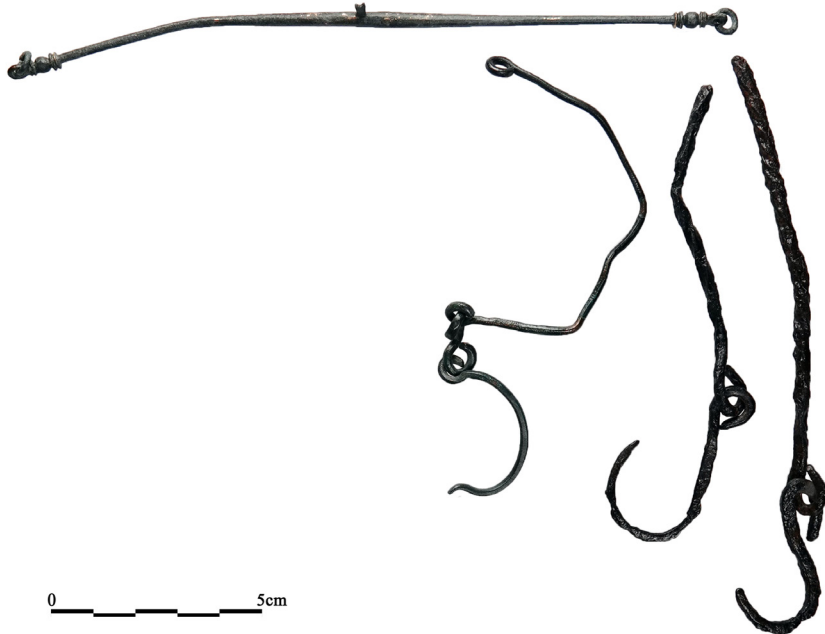


Fig 10. Weighing instrument components from the Agora



Fig. 11. Lead uncia



Fig. 12. Lead uncia



Fig. 13. Lead uncertain weight