Choosing the Best Clays ? The Athenian Mouldmade Glazed Pottery Industry Between Hellenistic Innovation and Roman Imperialism, 2nd c. BC – 2nd c. AD

Florence Liard[1], Ayed Ben Amara[2]

[1] *Université catholique de Louvain – Saint-Louis Bruxelles, Boulevard du Jardin Botanique 43, 10000 Brussels (B), florence.liard@uclouvain.be*

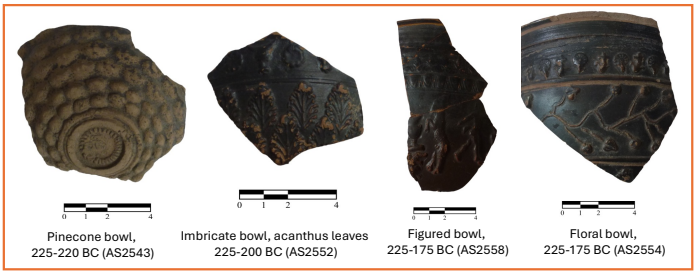
[2] *Archéosciences, Université Bordeaux Montaigne, Maison de l'Archéologie, 33607 Pessac (F), ayed.ben-amara@u-bordeaux-montaigne.fr*

THE MOULDMADE BOWL : AN ATHENIAN INVENTION

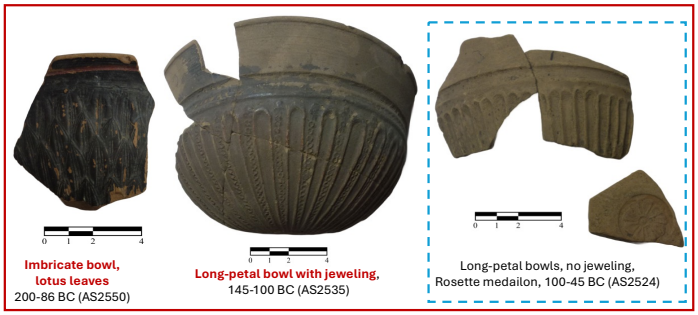
225 BC : invention of the black-glazed mouldmade bowl at Athens (Rotroff 2006).
Late 3rd c.–early 1st c. BC : Athens one the finest producers in the Hellenistic Greek world.
86 BC : dramatic blow to the Athenian pottery industry; the city was never again a significant producer of fine pottery (Rotroff 2021).
Late 1st c. BC–2nd c. AD: Roman Athens as a consumer of lead-glazed mouldmade tableware.

HELLENISTIC BLACK-GLAZED « MEGARIAN » BOWLS

45 petrographic samples of various styles, ranging from 225 BC to 86 BC.
Among these, 13 samples for SEM-EDS analysis of the fabrics and glazes.



Pinecone bowl, 225-220 BC (AS2543) | Imbricate bowl, acanthus leaves 225-200 BC (AS2552) | Figured bowl, 225-175 BC (AS2558) | Floral bowl, 225-175 BC (AS2554)

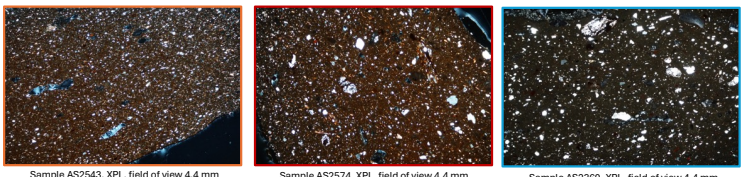


Imbricate bowl, lotus leaves 200-86 BC (AS2550) | **Long-petal bowl with jeweling,** 145-100 BC (AS2535) | Long-petal bowls, no jeweling, Rosette medailon, 100-45 BC (AS2524)

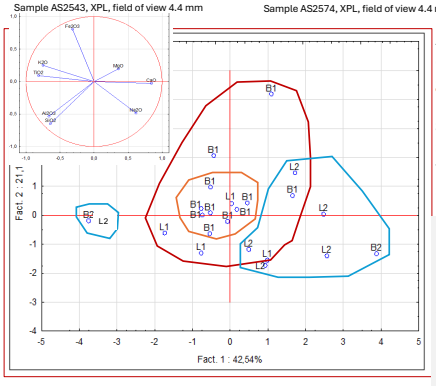
CLAY FABRIC RECIPES: A GRADUAL CHANGE AROUND 86BC?

1. Reddish brown, Ca-rich fabric with quartz, white- and coloured-mica schist
Silty, micaceous; tight network of fine inclusions; rare depleted serpentinite, micrite.
Mineralogically similar to a fine fabric from Classical Athens (Müller et al. 2017).
Early types of black-glazed mouldmade bowls in a refined version (+lesser fired?) of the fabric.
Late types of mouldmade bowls + early types of lead-glazed tableware with imbricated lotus leave pattern, and long-petal pattern with jeweling, both in an unrefined (+higher fired) fabric.

2. Ocher, Ca-rich fabric with quartz, white-mica schist, white-mica shale
Looser network of fine inclusions; quartz, coarse white-mica schist; micrite; high-fired.
Rare among black-glazed mouldmade bowls with long-petal patterns without jeweling (since ca. 100-45 BC); common among Roman lead-glazed tableware and containers.



Sample AS2543, XPL, field of view 4.4 mm | Sample AS2574, XPL, field of view 4.4 mm | Sample AS2360, XPL, field of view 4.4 mm



ACP of the sampled fabrics shows the compositional homogeneity of black-glazed mouldmade bowls in the refined Fabric 1, and greater disparity among (black-glazed, lead-glazed) samples in the unrefined Fabric 1. The variability is even greater among samples in the unrefined Fabric 2.

References
Hayes J. (2008). *Roman Pottery: Fine-Ware Imports. The Athenian Agora 32.*
Liard F, Versluys M.J., Ben Amara A. (2024). « The Emergence of Lead-Glazed Pottery in the Late Hellenistic and Roman Mediterranean », *Hesperia* 93, p. 439-503.
Müller N. et al. (2017). « Ceramic recipes and cooking ware in Classical Athens: An integrated analytical study of pottery from the Athenian Agora », poster presented at EMAC2017, Bordeaux.
Rotroff S. (2021). « The Ceramic Industry », in Neils J., Rogers D. (eds.), *The Cambridge Companion to Ancient Athens*, p. 269-281.
Walton M., Tite M.S. (2010). « Production Technology of Roman Lead-Glazed Pottery and its Continuance into Late Antiquity », *Archaeometry* 52.5, p. 733-759.

SULLA'S SACK OF ATHENS AND THE FINE WARE INDUSTRY

In pottery studies, the sack of 86 BC is used as a milestone in the late history of the Athenian black-glazed mouldmade bowl. ***To which extent was, more generally, it a turning point for the local mouldmade tableware industry?***

- Lead-glazed pottery found at Athens has been identified archaeologically and stylistically as being imported from the eastern and/or western Roman provinces (Hayes 2008).
- Petrography demonstrates the existence of an Athenian lead-glazed pottery industry starting off in the 1st c. BC/AD, in an effort to adapt to Roman tastes (Liard et al. 2024).
- This pottery is either mouldmade (tableware) or wheelmade (containers).
- Some lead-glazed tableware replicates styles of the local black-glazed mouldmade bowls.
- Chronology unsecure for many fragmentary finds from secondary deposition contexts.

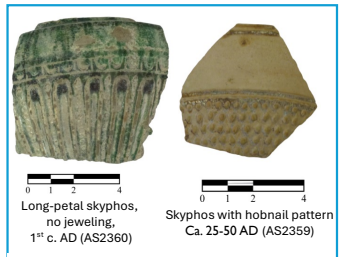
Research goal : to determine changes and continuities in clay selection strategies and glazing techniques of the mouldmade tableware between Hellenistic and Roman times.
Method : 61 samples from the Athenian Agora excavations (ASCSA), identified archaeometrically as originating from Attica, were studied by petrography and SEM-EDS.

ROMAN LEAD-GLAZED POTTERY : *SKYPHOI* AND CONTAINERS

16 petrographic samples of tableware and containers dated to the (early) Roman period.
Among these, 9 samples for SEM-EDS analysis of the fabrics and glazes.



Long-petal skyphos, jeweling, « Early Roman » (AS2379) | **Imbricate skyphos, lotus leaves** 1st c. AD context (AS2364)

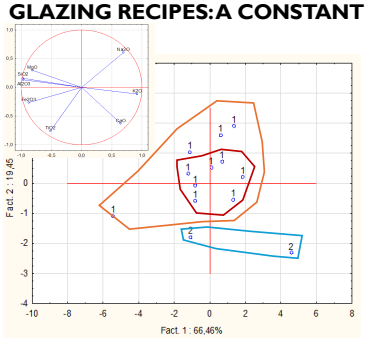


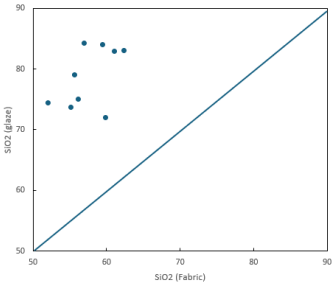
Long-petal skyphos, no jeweling, 1st c. AD (AS2360) | Skyphos with hobnail pattern Ca. 25-50 AD (AS2359)



Kantharos with lanceolate leaf, pinecones, Roman (AS2575) | Imbricate skyphos, pinecone ovolo, early Roman (AS2570) | Situla with ovolo and rosette Early Roman (AS2574) | Footed cup with egg and dart, Roman (AS2572)

GLAZING RECIPES: A CONSTANT SEARCH FOR REFINEMENT





Most **Hellenistic black glazes** display a tight composition pattern, indicative of a high level of technological standardization, especially for late types of mouldmade bowls in the unrefined Fabric 1. Lesser standardized glaze compositions concern earlier types in the fine Fabric 1, and the bowls in Fabric 2.

All **Roman lead glazes** display a higher silica content than the underlying fabric. This indicates the use of a lead-oxide-and-silica mixture on Ca-rich (either red or ocher) clays. Comparisons can be drawn with lead glazes from Imperial Rome and the Roman provinces (Walton & Tite 2010).

CONCLUSION

Around the time of Sulla's attack of Athens in 86 BC, the black-glazed mouldmade bowl industry encounters technological changes in fabric recipes, with a quickly-spreading use of unrefined calcareous clays that turn reddish brown or (more rarely) ocher green after firing. The first lead-glazed tableware replicates this fabric technology and stylistic repertoire, indicating a community of practice within the mouldmade ware industry of Athens, beyond the obvious adaptation of the glaze to Roman tastes. Furthermore, black-glazing recipes improve at a time when red clay refinement shows a lesser level of investment.