

PROFESSIONAL TOOLS IN UNPROFESSIONAL HANDS: ASSAYING CRUCIBLES IN EARLY COLONIAL AMERICA

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One of the driving forces that led Europeans to the conquest and colonisation of the New World was the hope to find plentiful metal ores and noble metals. Things, however, did not always turn out as satisfactory as expected.

This paper focuses on the crucibles excavated in two early European colonies in America: La Isabela (Dominican Republic) – the first European town, founded by Christopher Columbus in 1494 –, and Jamestown (Virginia, USA) – the first British colony, founded in 1607. The analytical study of the technical ceramics focused on their manufacture, material properties and provenance, which could then be related to the metallurgical activities documented at the sites. The techniques employed were optical microscopy, SEM-EDS, ED-XRF and XRD.

In La Isabela, a recent study has shown that the colonists, in an act of desperation, used a very inefficient technology trying to extract silver from very poor ores that they had brought from Spain (Thibodeau et al. 2007). Conversely, the crucibles at the site exhibit an exceptional quality: they are made of a refractory clay containing abundant graphite inclusions, which conferred the vessels with superb material properties for the thermal, mechanical and chemical strains involved in assaying reactions. Compositional and petrographic data suggests that these vessels were made in Bavaria, before being shipped to Spain and, from there, to the American town.

In Jamestown, the crucibles were shown to come from the German region of Hesse. The famous Hessian crucibles were made of a very lean kaolinitic clay, tempered with quartz sand and fired to very high temperatures. This led to the development of mullite crystals in the ceramic fabric, which rendered the crucibles extremely tough, as well as thermally and chemically refractory (Martín-Torres et al. 2006). Historical sources mention the involvement of German metallurgists in the British-led colonial enterprise,

and the analysis of metallurgical residues suggests that they attempted to test local zinc and gold ores, but obtained very poor results.

Altogether, these case studies provide the earliest evidence for the transport of specialised, high-quality metallurgy instruments across the Atlantic, contrasting with the meager quality and results the metallurgical activities. They add a new piece to our growing understanding of the production and consumption of crucibles in the post-medieval world.

References

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