

Strange adventures in a city made of marble

Exploring pottery production in Estremoz, Portugal

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This paper discusses recent research exploring early modern pottery production associated with Estremoz, Portugal. Estremoz has played a prominent role in the historical narrative of Portuguese earthenwares stretching back to the 16th century, influencing research on both domestic and export consumption of Portuguese wares. New information presented here on the physical nature of Estremoz earthenware helps to deconstruct the area's role in the production and distribution of ceramics in the early modern period.

Introduction

Estremoz, a city located in the mountainous Alto Alentejo region of Portugal, played a significant role in the historiography of early modern pottery production in the country (Fig. 1). Although the city produced a wide range of earthenwares, typical for all centres of ceramic production in Portugal, it is most associated in the historical literature with the production of fine earthenwares (*barro fino*), which stretches back to the 16th century (Nunes de Leão 1610 [2002], 48; Vasconcellos 1921, 21).

According to early modern writers such as Duarte Nunes de Leão (1610 [2002]), the finest quality water drinking cups, called *púcaros*, were produced in Estremoz. These vessels were associated with Iberian and Italian courts in the 16th to 18th centuries and were popular due to their distinctive smell and taste (Vasconcellos 1921, 35–36; Sáiz 2003, 190–198) (Fig. 2). Fine earthenware *púcaros* were produced at several centres in the Alto Alentejo (Montemor-o-Novo), greater Portugal (Sardoal, Pombal, Lisbon) and the New World (Mexico and Chile) (Nunes de Leão 1610 [2002], 48; Magalotti 1695; Parvaux 1968; Cabral 2003; Sáiz 2003, 187–198; Hamann 2010, 15–17; Sardinha 2012). The prominence of Estremoz and other Alto Alentejo fine earthenware vessels (such as those from Montemor-o-Novo; Gomes and Casimiro this volume) in the historical literature has led to some bias in modern research on the production and export of early modern Portuguese earthenwares. Several publications have cited Estremoz as a potential production zone for exported Portuguese earthenwares, both coarse and fine, that

have been encountered on early modern sites outside of Portugal (for example, Baart 1992, 274; Gutiérrez 2000, 76; Tuck and Gaulton 2002, 203; Gutiérrez 2007, 64; Newstead 2013, 145). This argument, however, is based upon early modern texts referring to the distribution and consumption of Estremoz fine earthenware rather than on physical evidence. This is understandable given that prior to the research presented here no ceramic samples originating from Estremoz have ever been subjected to analysis. There has been little previous formal archaeological research undertaken in Estremoz and none of this material has been published.

This paper presents the initial findings resulting from survey work undertaken in Estremoz in 2013 and 2016. It describes the basic identification criteria for pottery produced in the area, including the major characteristics of fabric and finish which distinguish this pottery from other production areas that have proven to be more archaeologically prominent in export and domestic contexts, such as Lisbon and Aveiro. It adds to the growing body of literature deconstructing the production of earthenwares in early modern Portugal and provides a base for further study of the production and distribution of Estremoz earthenwares, both domestically and abroad.

Estremoz and Portuguese ceramics research

In order to contextualise the findings from Estremoz within the current literature and research, it is important to understand how archaeological

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Figure 1. Map of Portugal with place names mentioned in text (including Estremoz anticline). Image: authors.

interpretations of early modern Portuguese earthenwares have developed. This paper explicitly focuses on unglazed earthenwares, as scientific research undertaken on lead glazed earthenwares from this period in Portugal is extremely limited (Osório and Silva 1998; Coroado 2009). Unglazed earthenwares were important for domestic consumers and most centres in Portugal produced coarsewares which were purchased and used locally (Gomes and Casimiro 2013, 27; Newstead 2014, 276–291). Some centres which had proximity to appropriate clay sources also produced fine earthenwares, particularly the centres located in the Alto Alentejo region, which were associated with the production of fine water drinking vessels: *púcaros* (Larrazabal *et al.* in press, 3–5). There is little evidence to suggest that domestically-produced coarse earthenwares were traded extensively

within most of Portugal and archaeological excavations around the country reveal large amounts of locally-produced earthenwares, demonstrating that each production zone had a distinct set of form and fabric characteristics (for example Ribeiro 1984; Torres 1990; Castro *et al.* 1999; Barbosa *et al.* 2008; Gomes 2008; Gaspar and Gomes 2012). The relative low value of coarse ceramics and the large scale of production within each centre likely rendered wide scale regional domestic trade in coarsewares economically unviable. The only exception to this trend, observable through archaeological evidence, are the ceramics from Aveiro which were shipped via coastal sea trade to Porto, another significant international trade port, and to north-west Spain (Carvalho and Bettencourt 2012, 743; Escribano Ruiz 2014, 193–233).

Fine earthenwares were, however, traded more widely, with *púcaros* from various production zones being recovered archaeologically around the country, particularly in urban zones such as Lisbon, Coimbra, and Porto (Sardinha 1992; Castro and Sebastian 2011; Larrazabal *et al.* in press; 9). Lisbon itself produced fine moulded tablewares and *púcaros* in the 17th century which appear regularly on sites around the Atlantic, although documents recording the trade of the moulded vessels have yet to be discovered (Ferreira 1995; Etchevarne and Sardinha 2007; Newstead 2014, 185–192).

Within the Portuguese research community, only fine ceramics produced in Estremoz, *púcaros*, are thought to have been traded nationally or internationally from the city's kilns in the early modern period. This directly acknowledges the tendency for coarsewares to be consumed locally within Portugal and accords well with historical documentation which solely refers to the wider trade of fine earthenwares from the city, rather than to coarsewares (Vasconcellos 1921). The depth of literature highlighting the importance of Alto Alentejo fineware productions made it particularly worthwhile to gather some basic physical data on what type of ceramics were being produced in Estremoz, thereby augmenting the archaeological information available for other Alto Alentejo production centers such as Montemor-o-Novo (Pereira *et al.* 2005; Gomes and Casimiro this volume) and Évora (Teichner 1998). The following section of this paper will provide a brief overview of the geological landscape and history of ceramic production in Estremoz. Initial visual identification attributes compiled from sherd samples collected from the city's main ceramic production area are then presented. This is the first step in conclusively identifying the historically prominent Estremoz *púcaros* in archaeological contexts within Portugal and internationally.

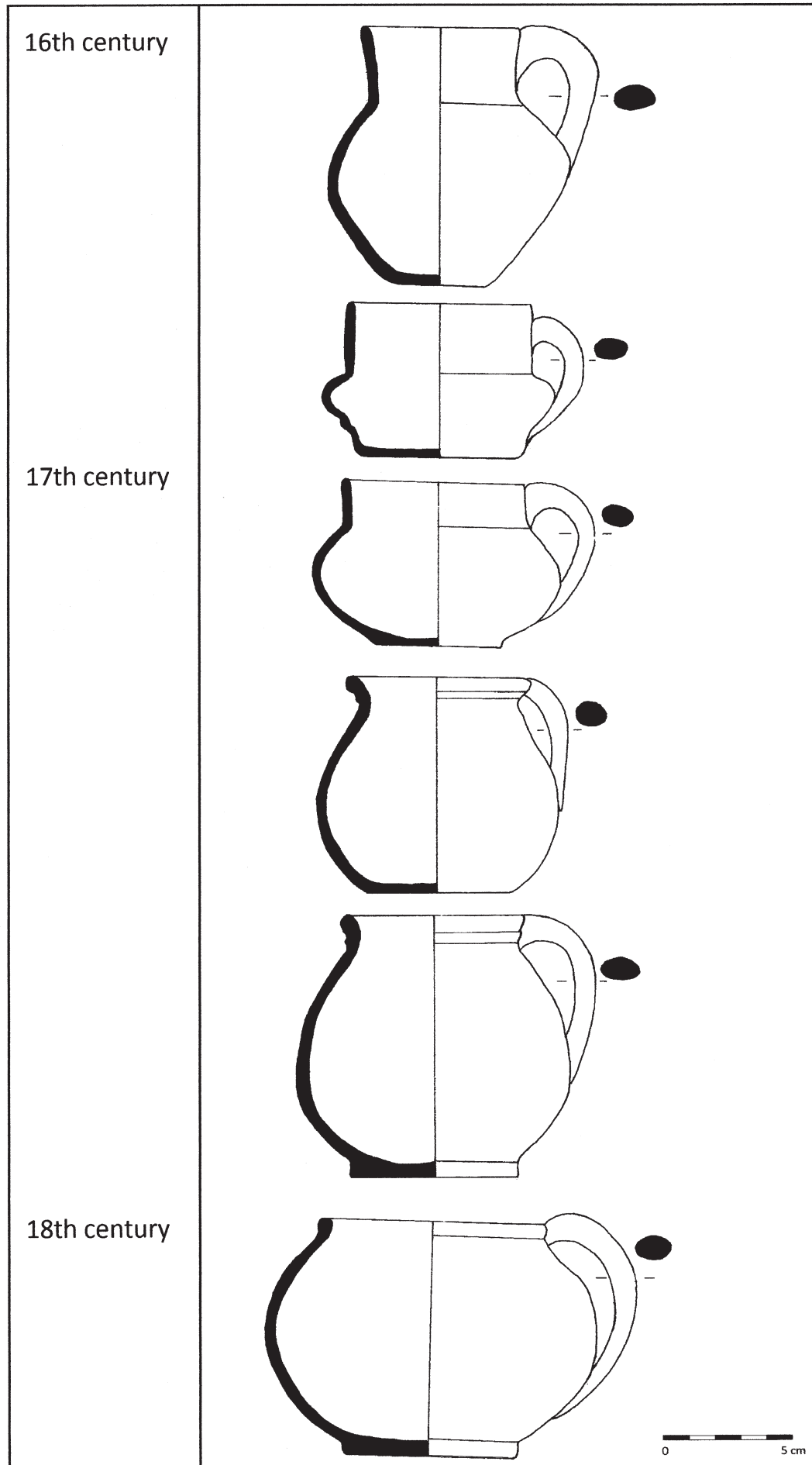


Figure 2. *Púcaro* (water drinking cup) basic form evolution. Note that the finest *púcaros* were sometimes more ornate or elaborate in form. Image: authors.

Estremoz landscape and history

Estremoz is located in an area of unique geology within Portugal called ‘the Marble Triangle’ and is the country’s main source of marble. The city is in the centre of a geological formation called the Estremoz anticline, an elliptical-shaped, marble-rich ridge running from Sousel to Alandroal (Lopes 2007). The Estremoz anticline is particularly associated with the production of fine ornamental marble and has been exploited for this resource since at least the Roman period (Tinoco *et al.* 2014: 37–42). The landscape of the Marble Triangle is characterised by white marble outcrops permeated by huge deposits of bright red clay soils. This landscape is strikingly different from the surrounding fields of the Alto Alentejo region and from the Tejo River basin in the Ribatejo and Estremadura regions to the west. Considering the underlying geology of the city, it is perhaps unsurprising that Estremoz workshops produced distinct pottery from local clays.

Preliminary analysis has been undertaken by geologists at the Universidade de Évora on the ceramic manufacture attributes of local Estremoz soils, but this research has been limited to the applicability for modern industrial production rather than a historical

study (see Cunha *et al.* 2012 for a summary of the results). However, the data from this study should help to augment future chemical and petrographic research into how the unique geology of the immediate region has contributed to the development of a distinctive pottery tradition within the city.

The Alto Alentejo region is hilly and Estremoz is not located near a navigable river appropriate for commercial transport. Therefore, products shipped from the city in the early modern period to ports such as Lisbon needed to be carried overland for at least 100 kilometres westward. The closest significant settlement on the Tejo River which would facilitate easier transport to the coast, Santarém, is over 100 kilometres to the northwest. The overland distances involved for shipping may have precluded the economic viability of trading anything but relatively high value goods to the main port cities, even as partial cargos (Tinoco *et al.* 2014, 39). Top quality marble and ultra-fine earthenwares were goods valuable enough to make the journey. A regional survey of Lisbon published in 1552 lists the value of shipments of *púcaros* from Estremoz and Montemor-o-Novo to be only slightly less costly than the valuable fine decorated white wares arriving from Talavera, Spain (Brandão 1990, 51). These shipment values suggest

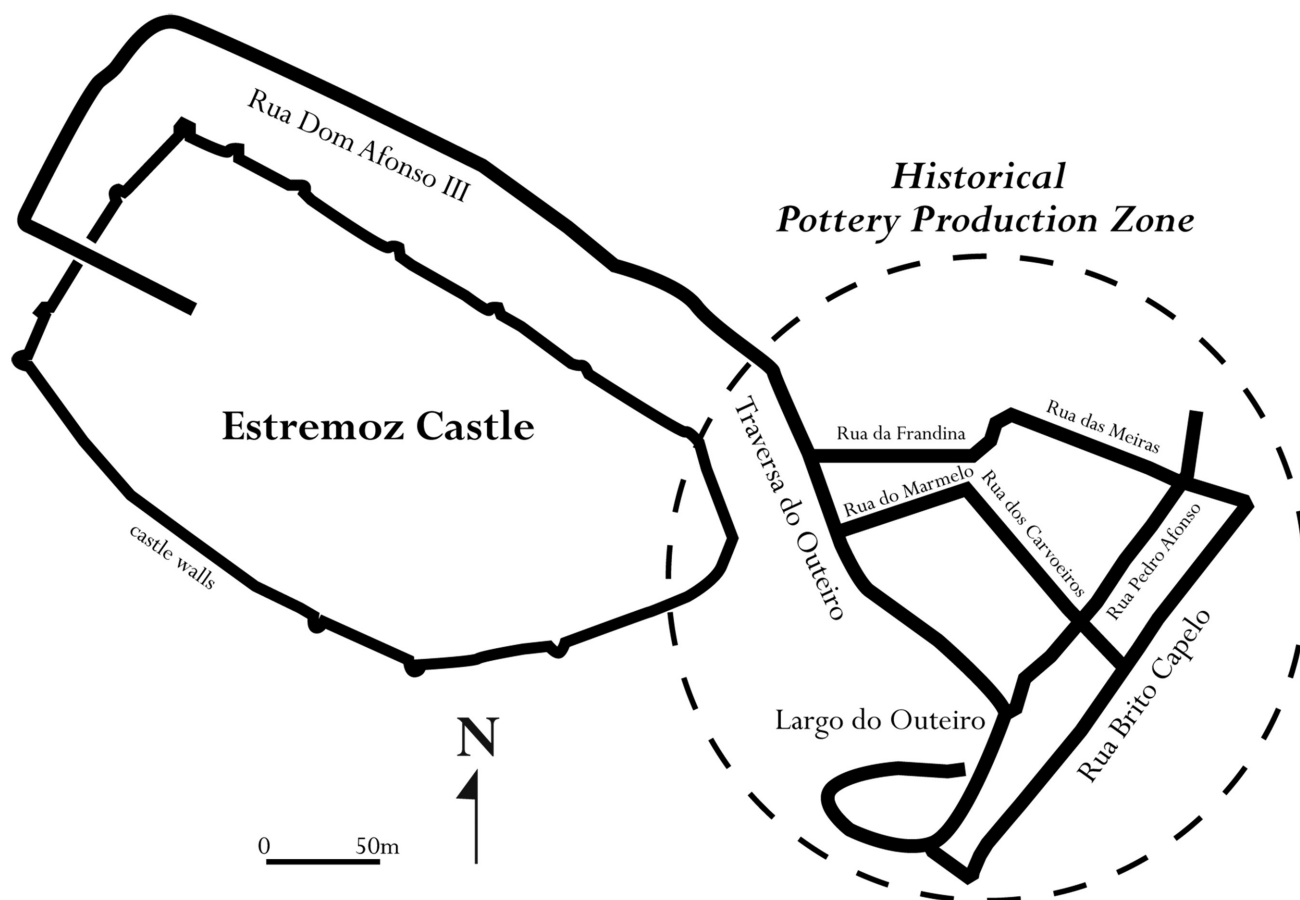


Figure 3. Historical Estremoz pottery production zone based on information by Guerreiro (2004). Image: authors.

Estremoz finewares may have competed well with fineware produced at sites closer to the ports, unlike coarser earthenwares which were being produced in near-industrial quantities throughout the Lisbon area during the early modern period. The marble produced in the Estremoz anticline is unique internationally (Lopes 2007).

The first documentary reference to pottery production in Estremoz dates to 1258: a charter that describes the presence of a range of kilns in the city (Guerreiro 2004, 8) (Fig. 3). Fineware production was developed throughout the following centuries, reaching a zenith in the 16th through 18th centuries (Sardinha 2012, 792). In this period, although continuously producing coarsewares for local consumption, the city became highly regarded for its fineware production, in particular the production of *púcaros*, though it continued to produce coarsewares for local consumption. References to the excellent quality of Estremoz *púcaros* first appear during the second half of the 16th century. For example, in the 1570s, an Italian guest at D. Sebastião's (King Sebastian of Portugal) table noted:

'Sobre a mesa estava sempre um grande vaso de prata, cheio d'agua, do qual se deitava em um jarro, chamado na lingua portugueza pucaro, do feitio de urna antiga, d'altura d'um palmo e feito de certo barro vermelho, subtilissimo e luzidio, que chamam barro d'Estremoz, pelo qual bebeu seis vezes'. (Vasconcellos 1921, 13).

'There was always a large silver vase on the table, filled with water, in which lay a jar, called in the Portuguese language *pucaro*, shaped like an ancient urn, the height of a [hand] palm and made of a certain red clay, the subtlest and sleekest, that is named 'clay of Estremoz', whereby he drank from six times'.

17th-century chroniclers, such as Duarte Nunes de Leão (1610 [2002], 48) and Lorenzo Magalotti (1695) describe *púcaros* from Estremoz as the finest products; burnished and often inlaid with small white stones (perhaps marble?) (Sardinha 2012). The other major attribute they describe is the strong, pleasing scent of the vessels. Estremoz *púcaros* were known to have the best quality smell of all of the *púcaros*.

Coarse and fine pottery production in Estremoz continued throughout the 17th and 18th centuries. In 1676, Estremoz' *Livro das Taxas dos Ofícios*, documents which set the official rates for crafts produced within a civic area, listed the vessels produced by fineware kilns and coarseware kilns. *Púcaros* were the main form produced by the fineware potters, carrying various forms of fine decoration. The coarseware kilns produced a variety of domestic forms common to all Portuguese coarseware kilns in the country including pans (*alguidares*), cooking

pots (*tachos*), general storage jars (*talhas*), and water storage jars (*cântaros*). The potteries neighbourhood was located along the Rua do Bairro do Outeiro and the Rua Brito Capelo, directly east of the castle walls (Guerreiro 2004, 8).

In the 19th century, fineware from Estremoz became less popular and production decreased, although fineware kilns continued to exceed coarseware ones in number. The production of finewares continued to decline until 1868, when the Conceição family reinvigorated several kiln sites to begin producing the pottery still associated with Estremoz today (Guerreiro 2004, 9). These vessels are much coarser than the famous early modern Estremoz *púcaros*, but retain some of the notable characteristics, discussed further below.

Estremoz pottery

Ceramic samples for analysis were obtained from a secondary fill context containing materials dating to the 16th to 17th centuries, located within the main pottery production zone of Estremoz. The deposit was likely the result of foundations excavated for the buildings directly adjacent: therefore, the primary depositional context of the recovered materials was likely to have been very close to the current deposit location. More recent construction work exposed the deposit in section, revealing it to be homogeneous in nature and of significant size: at least 3 metres in diameter and at least 1.5 metres in depth. Further comparative sherds were collected via surface survey within and around the castle walls located beside the production zone. Although not directly kiln waste, it should be noted that this part of Estremoz was a ceramic production zone for hundreds of years. This is clearly reflected in the presence of large amounts of surface and subsurface earthenware ceramic finds exhibiting generally homogenous fabrics, suggesting that the majority of this material was produced from similar clay sources in local kilns.

Sample sherds from Estremoz were examined microscopically (10-20x) and compared to samples from Aveiro, Lisbon (including Almada and Sétubal), Montemor-o-Novo, Évora and Redondo. The Lisbon samples included fineware kiln wasters from an unpublished kiln site located at Largo das Olarias (Fig. 4). The sample comparison, in particular the Lisbon fineware kiln materials, highlighted the visually distinctive nature of the Estremoz productions. These distinguishing characteristics are presented below.

It is beyond the scope of this paper to describe the different fabric types and finishes present in early modern Portuguese ceramics in order to contextualise the Estremoz samples. The most current overview of the major earthenware production centers, related fabrics and forms is available in the typology produced by Newstead (2014, 248-91). A major project analysing the complete petrographic and elemental



Figure 4. Estremoz fabrics in comparison to Lisbon fine fabric. Selected *púcaro* finishes. Lisbon sample from Largo das Olarias site (courtesy ERA Arqueologia). Image: authors.

composition of earthenwares from all of these production centers, including Estremoz, is currently underway and will add depth to the visual attributes presented here (Newstead and Casimiro 2015).

Fabrics

Although colour is not a particularly useful defining attribute for earthenware ceramic fabrics, due to firing variability, all of the early modern Estremoz sherds collected exhibited a deep brick red colour (approximately 2.5YR 4/8) in section. The surface colours of the sherds were brick red, but more variable in colour range. The fabric section colour mimics the colour of the local soils in Estremoz.

At least two broad fabric types were collected (Fig. 4). There is a coarse and a fine fabric type, both seemingly associated with different forms (discussed below). Both fabric types exhibit a similar range of inclusions, but the size and arrangement of the inclusions differ between types. Both fabrics are well fired, but the fineware sherds are not as hard as the high-fired fineware sherds from the Lisbon samples.

All of the sherds exhibited a range of inclusions distinct from pottery produced in other areas of Portugal. These inclusions are visually apparent under low-powered microscopy and should form an excellent base for future identifications of production in this area. As stated above, further in-depth petrographic and elemental testing will augment the findings presented here in future publications.

Unlike more well-known Portuguese earthenwares, such as those from Lisbon and Aveiro (Newstead 2014, 248–91), the sample sherds from Estremoz do not exhibit significant amounts of muscovite mica on their surfaces. There is mica present, likely biotite, but it is very fine and well dispersed. The macroscopic effect on these sherds is a ‘gold’ tone, rather than the brightly silver muscovite mica inclusions so common to Portuguese productions along the Tejo (Lisbon) and Vouga (Aveiro) river basins. Sherds from Montemor-o-Novo, Redondo and Évora all exhibit fine-grained ‘gold’ tone (likely biotite) mica surface inclusions suggesting this might be an attribute common to earthenwares produced from Alto Alentejo clay sources.

The other main inclusions in the Estremoz samples are quartz and hematite. The opacity and colour range of the quartz inclusions crucially differs from Lisbon and Aveiro productions, with a higher percentage of rose quartz and a higher overall variability of quartz colours and opacity, ranging from white/opaque through smokey/rosey/translucent to clear. The quartz grains are angular and sub angular and range in size from very small to small. Some of the coarser samples had the occasional medium sized quartz grain. Both the coarse and fine fabrics were sandy in texture under 10-20x microscopy, with a higher percentage of quartz embedded in the clay matrix than is seen with Lisbon or Aveiro fabrics, particularly with fineware fabrics. The quartz inclusions in the Estremoz finer fabric type are more well sorted and consistent in size (very small)

than the coarser fabric type (very small to small/medium), potentially signifying clay cleaning processes common to fine earthenware production, although the specific processes for early modern Estremoz fineware kilns have not yet been established.

The hematite inclusions in both the coarse and fine types range in colour from blood red to black and range in size from very small to small. In sherds without surface treatment, small hematite grains are apparent on the surfaces from 10x microscopy.

It is important to note that both the coarse and fine sherds from Estremoz have generally smaller and more well sorted inclusions than sample sherds from Redondo, Montemor-o-novo and Évora, although the overall inclusion types are similar. This could be reflective of differences in production processes between the Estremoz kilns rather than reflecting the exploitation of different clay sources. More petrographic and elemental research will be needed to definitively distinguish differing clays used.

Forms and Finishes

The samples collected from Estremoz do not constitute a full range of potential forms produced. Systematic excavation is needed in the city to comprehensively establish a corpus of ceramic forms. However, the forms collected include *púcaros* (fine fabric), *cântaros* (water storage jars; coarse fabric), *taças* (bowls; fine and coarse fabric), *alguidares* (pans; coarse fabric), *talhas* (storage jars; coarse fabric) and *bilhas* (standing costrels; coarse fabric). See Newstead (2014: 248–91) for a visual overview of these form types. The *púcaros* all exhibit fine fabrics and are slightly variable in form, with differing rims/necks, typical of very fine *púcaros* (Sardinha 2012). Most of the *púcaros* are burnished on the exterior. One *púcaro* has lattice burnishing on the body, one has a stamped design into the burnished surface and one has an incised design. Some of the other vessels, such as the bowls and standing costrels, exhibit some burnishing, but most of the coarser vessels are undecorated with plain surfaces. Interestingly, no stone inlaid sherds were recovered, although a small selection of lead glazed vessels were identified, comprising of a clear interior glaze on bowl and pan forms.

The final observation needed to complete a basic analysis of any earthenware production from Estremoz relates to smell. The *hidrocéramos* (water ceramics) collected (*púcaros* and *cântaros*) exhibit distinctive smells, suggesting that these vessels may have been produced, or at least slipped, with specific ‘smelly’ clays unique to the Estremoz area. The post-1860s Estremoz ceramics are highly scented and the early modern *hidrocéramos* have similar scents (albeit muted, probably due to age and taphonomic processes), as do the 17th-century Montemor-o-novo *hidrocéramos* vessels. The cause of these types of smells in these well fired ceramics is currently

unknown. The geology of the area is unique within Europe and more work is needed to unravel some of the ways in which this might connect with the smell attributes of the clays in the region. However, it is certain from early modern documentation that the smell of these *hidrocéramos*, and their related ability to flavour water, played a major role in the popularity of Estremoz fineware in southern Europe.

Conclusion

This article has provided a basic introduction to the physical characteristics of early modern earthenwares produced in Estremoz. This was an important pottery production area throughout the 16th and through to the 18th century and is particularly associated in the historical literature with fineware vessels: the *púcaros*. The prominence of these vessels in the documentary record meant that it was important to establish an initial set of visual identification criteria to assist archaeologists in identifying these wares in Portuguese and export contexts. More archaeological research is needed in Estremoz to establish the full range of production (both coarse and fine) in the early modern period, although it is clear that further samples will likely exhibit similar qualities to the sherds described here.

Acknowledgements

Thanks to João Sequeira and Sr. António for survey assistance. Thanks to Luis Barros (Museu de Arqueologia e História, Almada, Portugal), Rui Mataloto (Redondo) and ERA Arqueologia (Lisbon) for providing comparative sherds. Funding for this research was provided by the University of Leicester, Santander Bank, Gulbenkian Foundation, American Ceramics Circle, Society for Post-Medieval Archaeology, and American Institute of Archaeology.

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Résumé

Cet article analyse des recherches récentes qui explorent la production de poterie du début de la période moderne associée à Estremoz, Portugal. Estremoz a joué un rôle important dans le récit historique de la faïence portugaise qui s'étend du 16ème siècle et qui influe la recherche sur la consommation domestique et l'exportation d'articles portugaises. Des nouvelles informations présentées ici sur la nature physique de la faïence d'Estremoz aident à déconstruire le rôle de la région dans la production et la distribution de la céramique au début de la période moderne.

Zusammenfassung

Dieser Beitrag erörtert jüngste Forschungen zur frühmodernen Keramikproduktion in Estremoz, Portugal. Estremoz spielt eine bedeutende Rollen in der Geschichte portugiesischer Töpferwaren. Sie reicht bis ins 16. Jahrhundert zurück und hat die Erforschung des Binnen- und Exportkonsums portugiesischer Waren beeinflusst. Die hier präsentierten neuen Informationen über die physischen Merkmale der Töpferwaren aus Estremoz helfen dabei, die Rolle der Region bei der Produktion und Verbreitung von Keramik in der frühmodernen Periode zu analysieren.

