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# GRENADERS OR LITTLE VESSELS? ARCHAEOLOGICAL AND ARCHAEOMETRIC DATA ABOUT THE ODD ARTEFACTS FROM THE ANCIENT BORN MARKET (BARCELONA, SPAIN)

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## ABSTRACT

In this communication, we present the archaeological and archaeometric results on a collection of 188 ceramic receptacles from the archaeological excavations carried out in the old Born market of Barcelona (Spain). The market was converted in a cultural centre and officially opened in September 2013. The centre's key attraction is its archaeology which has been re-imagined to communicate the horrors following the fall of Barcelona to Bourbon siege during the Spanish War of Succession in 1714. These artefacts had been published in a former study as small vessels to sell products in little quantities. However, due to the scarce information on materials of similar shape and dimensions, their interpretation is not clear and need more investigation. The archaeological comparative study demonstrates that these small ceramic receptacles can be better interpreted as grenades. They had probably been prepared with the aim of using them in an extreme attempt of defence against the Bourbon attack. The complementary archaeometric investigation suggests that the assemblage is formed by a homogeneous production made with a calcareous clay from local marine sediments.

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**KEYWORDS:** Grenades, Barcelona, Born market, Spanish War of Succession, 1714

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## 1. INTRODUCTION

One of the most visited buildings in Barcelona (Spain) is certainly the old public Born market. It was built between 1874 and 1876 in the lower, eastern side of the Ribera neighbourhood and it was in use as central market until 1971. In 2001, the groundwork started to convert the site into a library, uncovered the well-preserved remains of this area's post-mediaeval streetscape covering a space of 8000 m<sup>2</sup>. The archaeological evidence was part of the Ribera district that was demolished after the defeat of Catalonia in the Spanish War of Succession in 1714 (Kamen, 1969, 2014). Between 1716 and 1718 a thousand of houses were destroyed, forty-two streets disappeared, fourteen ecclesiastical and public buildings were demolished to make way for the construction of the Ciutadella military fortress as ordered by the new Spanish king, Philip V (Artigues Conesa and Fernández Espinosa, 2014). The archaeological discovery led to a widespread public campaign calling for the preservation of the ancient remains *in situ*. In 2006, work began on developing a cultural centre at the site. The Born Cultural Centre (Figure 1) was officially opened to the public on 11 September 2013 on Catalonia's National Day (la Diada) which commemorates the fall of Barcelona to Bourbon siege in 1714 and it also marked the tercentenary of 1714 (Calcada, 2014). As has been noted by Torra (2013), the centre would serve a number of objectives, the first of which is to facilitate a dialogue between heritage and Modernity. It would promote the recovery of the memory of the Catalans which

rose up to defend their freedom and rights. The archaeological exposition provides its visitors a site frozen in the time at the close of the 1714 siege. The buildings, the shops, the roads have not been subjected to distortions, which could modified the archaeological records (Artigues Conesa and Fernández Espinosa, 2014). The state of conservation and the abundance of the objects that belong to the people who lived there was extraordinary. The study of the material culture from the Born started on 2005 by the Museu d'Història de Barcelona with the recovery of about 4000 pieces among artefacts of ceramic, glass, metal, bone and wood (Beltrán de Heredia, 2010, 2014; Beltrán de Heredia and Miró i Alaix, 2007a, 2007b, 2008a, 2008b; Garcia Espuche, 2009; Garcia Espuche et al., 2010). After, a large number of pottery was subjected to archaeometric analyses thank to the Tecnolonial Project - Impacto tecnológico en el Nuevo Mundo colonial. Cambio cultural en arqueología y arqueometría cerámica (HAR2008-02834 and HAR2012-33784) and the PhD thesis of the first author related to this project (Buxeda i Garrigòs, 2009, 2010, 2011; Buxeda i Garrigòs and Madrid Fernández, 2012, 2013, 2014; Di Febo, 2016). The purpose of this project was an archaeological and archaeometric study of the medieval and post-medieval ceramic production of three major peninsular centres (Barcelona, Seville and the Basque Country) as well as the technological impact of the arrival of its ceramic products to different areas of America.



Figure 1. Photograph of the interior of the Born Cultural Centre, Barcelona. Source: Authors

In this contribution, we present the archaeological and archaeometric characterization of a collection of 188 small ceramic receptacles found during the archaeological excavations carried out in a grocery store in the old Born market. They are small ceramic vessels (Figure 2), which have a height of about 5-6 cm, a globular shape with a flat base and a short neck. They are dated to the 1716, which corresponds to the year of the demolition of the Ribera district for

the construction of the military fortress. These artefacts had been published in the *Drogues, dolços i tabac. Barcelona 1700* book (Garcia Espuche et al., 2010) and interpreted as small receptacles to sell products in little quantities because their capacity is about 25/30 ml. However, Beltrán de Heredia (2010) raises the possibility that they are incendiary hand grenades based on artefacts of similar shape and dimensions that have been considered as such.



Figure 2. The small ceramic receptacles from the old Born market (Barcelona). Source: MUHBA, Pep Parer

## 2. THE ARCHAEOLOGICAL AND ARCHAEOMETRIC STUDY

Grenades were ceramics with a globular shape and size similar to those presented in this study, which were filled with gunpowder and sealed with wax. These types of artefacts are not unusual among the findings of excavation, although the bibliography on materials of similar shape and dimension is limited. The difficulty in defining their function is due to several factors: few vessels have been found in their original archaeological contexts and only in a small number of archaeological excavations. Due to the washing of pottery during excavations, substances and chemicals are often washed away, making it difficult to obtain evidence of possible contents in the vessels. Bowls of this type have been presented by Bagatti, (1953) and later by Bosi (1966) who exclude a destination as receptacles for mercury, perfumes and wine for these artefacts. They considered these objects as bullets or explosives for catapults used in different areas of the Middle East during the 7th-13th century. Regarding the European context, we know that this type of fire pot was used in the 8th century, as confirmed by findings from Perpignan (France, Amouric et al., 2009). During the 16th

century, these artefacts became very common, especially on warships, as documented by the Ligurian Lomellina shipwreck sunk next to Villefranche-sur-Mer (France, Amouric et al., 2009). The artefacts from the Born, although they are typologically close to those from the Lomellina, are dated later in the eighteenth century. It is important to remark that during the 16-17th century, other materials have replaced ceramics (Beltrán de Heredia, 2010; Chown, 1984; Colin, 1994; McBride, 1976). We found no information about the use of ceramic hand grenades in the 17th century. In the 18th century, it seems that ceramic had been replaced completely by iron (Beltrán de Heredia, 2010; Colin, 1994). Along this line, the work presented in the *Atti di Albisola* by Valardo (1989) is very useful to understand the real function of artefacts from the Born. In this work, the grenades from the Priamar sixteenth-century fortress (Savona, Italy) used during the war of Austrian Succession (1740-1748) were discussed. In the course of the restoration of the fortress to build the historical and archaeological Museum, 177 ceramic fragments were recuperated and identified as grenades (Figure 3). Three forms were clearly documented. The first one has a large globular shape (18 cm in height), the

second has a smaller circular morphology (11 cm in height) and the third one has a central indentation, which probably was needed to put a cord and throw it at long distance. These were filled with compressed black powder while the explosion was through a wick sticking out of the top hole. In some cases, to make the explosion more devastating they put in iron fragments, nails, glass and stones. The written sources of Priamar fortress confirm the use of these ceramic artefacts as grenades. Their use was limited at the end of the conflict as an extreme attempt of defence against the assailant. In our case, a key argument is that the grenades from Priamar are consistent with those of Barcelona, not only at the typological level but also from a chronological standpoint. In fact, they are dating back to the 18th century, when it seems that ceramic had been replaced completely by iron (Beltrán de Heredia, 2010; Colin, 1994) and no written or archaeological evidence about its use is available for this century. We must not forget that the Born pieces came from the layers of devastation of this sector of the city, as a consequence of the Spanish War of Succession and the construction of the military fortress (Beltrán de Heredia, 2010). It is therefore reasonable to believe that they are the testimony of the convulsive events of those years and prepared with the aim of using them in an extreme attempt of defence against the Bourbon attack.

Regarding the archaeometric study, the chemical (XRF) and petrographic (OM) analyses have showed that the Born grenades form a homogeneous production made using a calcareous (24.82% CaO) clay (Di Febo, 2016, Madrid Fernández et al., 2015). The optical observation by thin section showed a calcareous matrix, moderately oxidized and vitrified. The fine grained fraction (< 100 µm) is very abundant and formed by frequent calcareous microfossils partially dissociated due to relatively high temperature firing and micas which predominant on quartz, feldspar and micro-crystalline iron oxides. Very scarce coarser inclusions (about 400 µm, in few cases more than 1mm) are formed by fragments of mica schist and undetermined bioclasts due to firing process (Figure 4). Secondary carbonates filling vacuoles are also observed. The fine fabric, the carbonate-rich composition and the presence of calcareous micro- and macrofossils point to the use of poorly modified marine sediments (Di Febo, 2016) well compatible with the Pliocene marls diffused in the Barcelona area (Riba and Colombo, 2009, Ventayol et al., 2002). Considering the type of clay normally used for making fire pots, one might expect non-calcareous clays in the production of these grenades. In this case, the use of calcareous clays might suggest that grenades had been manufactured with raw materials not deliberately selected and available during the Bourbon military siege.



*Figure 3. The ceramic grenades from the Priamar fortress (Savona)*

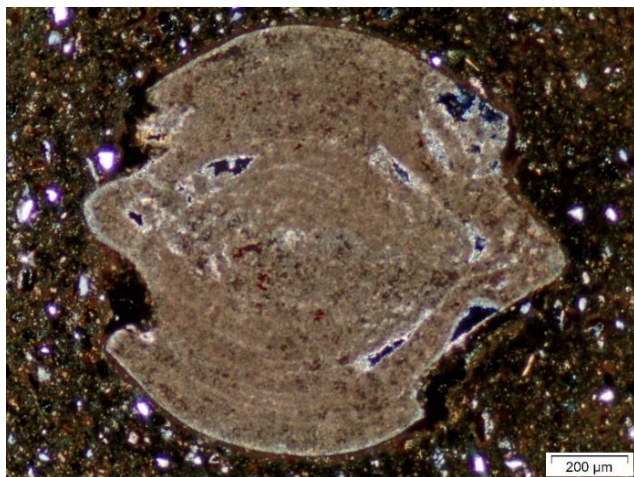


Figure 4. OM (optical microscopy) in plane polarized light (PPL). An undetermined calcareous bioclast is visible

### 3. CONCLUSIONS

The study of the artefacts from the old Born market is crucial to the understanding of the European

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cultural material related to the modern times. The typological and chronological matches as well as the archaeological context have proved particularly useful in allowing the recognition of the small receptacles from the old Born market as grenades. As no previous in-depth study on this particular kind of ceramics is present in literature, the case study of the Born grenades could represent an important reference for the archaeologists involved in the correct identification of the ceramic fragments. Finally, the archaeometric study also adds some elements that contribute to the discussion on the suggested function of the studied artefacts. A poorly modified calcareous clay compatible with the Pliocene marls diffused in the Barcelona area has been used. The use of calcareous clays might suggest that grenades had been manufactured with raw materials not deliberately selected and available during the Bourbon military siege.

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