

# Pottery vessels used for shipping goods in the Western Mediterranean during the late Middle Ages and early Modern periods

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## Summary

*This paper discusses the production and circulation of vessels used for storing and shipping goods in the Western Mediterranean during the late Middle Ages and the Renaissance. As within this area a considerable number of different types of storage vessels has been used for filling vaults, they can be dated with a high degree of precision. For this reason I will discuss the importance of these objects in dating archaeological*

*records, with an eye on their functional aspects and comparing archaeological evidence and documentary sources. The analysis of forms, bodies and marks makes it possible to understand where these objects were made. This data can be used to reconstruct the circulation and trade not only of these vessels, but also of the goods that were shipped inside them.*

## Introduction

In analysing the role and function of vessels used for shipping goods, different points will be taken into account: how to use these objects for reconstructing trade within the area taken into account, their functional aspects and the features of the vessels produced in different areas. The information deriving from archaeological evidence will be discussed and compared with the evidence from written documentary sources. Firstly, it is important to understand the trade and circulation of storage vessels both as finished products and as ‘containers’ for shipping goods. It is known that the production and circulation of *amphorae* on a large scale ended during the early Middle Ages. We are not going to discuss the role of Mediterranean trade during that period, but it is important to bear in mind that ‘centralized’ exchange was replaced by circulation on a small scale (McCormick 2001, 117), even though the exchange between different shores of the Mediterranean did not cease. In some sites, like in Jerba, *amphorae* from the eastern Mediterranean were imported during the 6th–7th centuries. Moreover, a local production is known between the second half of the 6th and the 7th centuries (Cirelli and Holod, in press)<sup>1</sup>. It is only from the 14th–15th centuries onwards, when *tinajas* were produced, that storage and shipping vessels started to circulate again on a large scale.

Concerning the archaeological context taken into account, the technique of filling vaults with vessels dates back to the Roman period. Even though it is not yet clear how this technique was transmitted throughout late antiquity to the late middle Ages

(Caroscio in press), archaeological evidence seems to show that, despite the lack of context dating to certain periods, some examples are known within the Mediterranean area, even though continuity cannot be ascertained. Only a few cases date back to the 7th century and so far there is no evidence dating between the 8th and the 9th centuries (Amigues *et al* 1996, 148), but an invaluable written source like the *Magister Commacinus* (Monneret de Villard 1920, 10) clearly indicates that the technique was known in the mid 7th century (Caroscio in press). Shipping vessels dating to the 10th century have been recovered in the western Mediterranean from sites in the Islamic area, on the coast between Marseille and Nice (Agay, Bataiguiet and Estéou). One century later small jars (but no shipping vessels) were re-used to fill vaults in Constantinople and Thessalonica (Amigues *et al* 1996, 148). Different areas of the Mediterranean have been mentioned so far and the technique was known, as well, in Norman-Islamic Sicily during the 12th century (Purpura 1985).

Filling vaults with vessels, mainly storage vessels, became again quite common in the area controlled by the Reign of Aragon during the 14th–15th centuries (Bassegoda 1983) and the wide circulation of these objects coincided with the development of the trade from the Spanish coast in the Catalan area. While during late antiquity the material employed in buildings consisted mainly of standardized clay pipes made on purpose, the vessels used during the middle Ages could be either kiln or domestic waste, including jars.

## Archaeological evidence and written sources

At a starting point of the research, published written sources, especially contracts, have been analysed to understand the location and nature of production centres and the circulation of vessels. Because of the low number of documents, it is important to use both archaeological and written data systematically. Considering, for example, the Valencian area, López Elum (1984, 21–22) underlined that what was known so far from written sources was published by de Osma (1923), with minor addition by Sanchis Sivera, González Martí and Olivar Daydí. The scholar himself (López Elum 1984; *Idem* 2005) was responsible of the latest revision of these documents, with some revisions of de Osma and Daydí work and with the addition of new documents. Thus, the discussion about the 14th century is based on a few contracts. Further documents about the late 14th and the 15th centuries have been analysed by Amigues (*et al* 1996)<sup>2</sup> and since the 15th century there is an increase, not only in the number of written records, but also in the amount of jars used for trading goods, including for shipping pottery<sup>3</sup>, as archive records and archaeological evidence like shipwrecks show.

Vessels movements have been reconstructed especially thanks to the documents mentioning the goods that were traded inside jars (*tinajas, gerres*), such as oil and wine. Concerning archaeological records, an increasing number of assemblages have been published during the last decade. Most of these vessels were recovered from vaults, where they had been used as fillings, or from shipwrecks (Amouric-Richez-Vallauri 1999). Thus, the nature of the assemblages allows dating the recovered objects with a high degree of precision, possibly with an error range of only a few years. In this case, the major problem of an integrated use of written and archaeological records is to relate the objects listed in documents with the sherds recovered in an archaeological context. Capacity is the only way to match with a high degree of precision an actual object with what is mentioned in written sources, but information about function and use are also vital.

If we take into account written sources, contracts are characterized by the same scheme: a potter promises to produce a certain amount of vessels in exchange for money or goods (usually spices), or both, receiving part of the agreed amount. The full amount was paid once the vessels were ready. Not infrequently, potters should transport at their own risk the vessels to the merchant's house in Valencia, or to the harbour (*grau*; López Elum 1984, 21, 45). Further details might include reference to the features of the vessels and to the conditions of transport (*Ivi*, 45–46), and it clearly shows up that the risk of transport was not regrettable if the vessels bought directly from the workshop were sold at a reduced price<sup>4</sup>.

Turning to archaeological records, it is vital to investigate primary deposits in the production centres as well as in closed contexts. Storage vessels have been recovered from shipwrecks; others were re-used as fillings in buildings both if they were kiln or domestic waste<sup>5</sup>. Thus, as materials recovered in closed context, they are extremely useful in dating assemblages. Even though kiln waste refers to the possible moment of pottery manufacture and domestic waste to the time when the vessel loses its primary function, a vault filling can be dated with a high degree of precision thanks to written sources. Moreover, seals are a *terminus post/ante quem* to ascertain when a vessel was made, as the potter used to stamp these marks to guarantee the quality of his artefacts. In fact, there is a difference between 'marks' (incised or painted) and 'seals' (stamped). As pointed out by González Gonzalo (1987), in the beginning of the 14th century, town regulations obliged potters to stamp vessels with their own marks so to guarantee that they were properly made. In the city of Barcelona, different collections of law from 1314 onwards and up to 1495 (1314, 1320, 1327, etc.), obliged potters to seal their works under the neck to guarantee capacity for *gerres* (jars) that were going to be used to sell oil and honey (Beltrán de Heredia 1998)<sup>6</sup>. While seals have usually been linked to potters, marks have been linked to merchants. It has been suggested that the function of painted marks can somehow be related to seals (González Gonzalo 1987, 477) but as underlined by Beltrán de Heredia (1998) the overview is far more complex. Painted and incised marks have been, in fact, interpreted in different ways. When associated with a stamped seal they are usually a schematic version of it, but this being the case, their meaning is not yet clear. They could be employed by the potter as a kind of 'reminder' to regulate production or as a sign that the capacity had been controlled (González 1987). Most likely, these marks were made by merchants so to associate the goods transported with what was written on the accompanying documents (*letters de canvi*). Merchants needed to identify easily what they traded and merchants's signs on contracts are the same ones as on the vessels (Amigues *et al* 1996); in fact, they were used not only on pottery, but also on containers, regardless to the material they were made of (wooden boxes, sacs, etc.).

## Vessels and trade

Vessels were not the only containers used for shipping goods: wooden coffins and barrels, sacks (bales) and leather were also employed. On the one hand, the same container could be used for shipping or for storing goods (mainly food); on the other hand, different containers could have the same function<sup>7</sup>. Wine, for example, could be stored and transported both in barrels and in big jars (*vegetibre, botes, idriis, gerres*); nevertheless, there is a link between the goods

in question and the container chosen (Amigues 1996, 348–349). For example, jars were used for trading oil, wine, pots, and sometime honey, wheat or candles, but they could break rather easily. As in the Roman world oil, wine and *garum* were the main goods traded inside *amphorae*, in the Middle Ages oil and wine were shipped in jars too. According to written sources the volume of oil and wine trade was quite low during the first half of the 14th century. Balducci Pegolotti, who took care of the Bardi's trade network at that time does not mention these goods either, underlying that they still circulated on a rather local base (Romestan 1969, 115–192; *Idem* 1973, 243–253)<sup>8</sup>. The market, in fact privileged the production and trade of 'industrial plants', while both oil and wine production was still quite low in the beginning of the 15th century (Iradiel 1989, 277–278)<sup>9</sup>. The volume of oil and wine trade within the western Mediterranean increased considerably from then onwards, implying the spread of these vessels, that actually coincided with the development of the trade in the Catalan area, especially on the Spanish coast. Even if the circulation of these goods on a large scale started at a later stage, contracts referring to pottery making from the late 13th and the first decades of the 14th centuries, clearly show that great amount of vessels might be requested at one time (López Elum 1984, 71).

As has been underlined, big jars for oil and wine were in themselves part of this trading system, (Amigues *et al* 1996, 353–354). The written documents analysed in the mentioned work show that, at the end of the 14th century, hundreds of empty vessels were sold abroad, mainly in northern Africa and used for storing wine and oil. This data possibly underlies the lack of a local production. To give some figures, 700 *tinajas* were sold by a merchant from Majorca to another one in Morocco in 1380, and in the same year 70 were transported to Sicily to be sold. According to the same documents, the wine trade expanded from 1430 onwards, when wine was mainly produced in Sagunto and Alicante and traded to northern Africa and Majorca<sup>10</sup>, while empty vessels were still exported from Spain to southern France, Majorca and Ibiza, Northern Africa and Sicily (*Ivi*). Concerning production centres, by the last decades of the 14th century, hundreds of *tinajas* were sold in Paterna. Amigues (*et al* 1996, 353) underlined how documents clearly indicate function (*tinajas vinadera*, *tinajas oliaris*, *geris magnis vinaderiis*)<sup>11</sup>, but it is worth noting that references like *como fabricates en Barchinone* or *como en Valencia*<sup>12</sup> clearly show that both Valencia and Barcelona were production centres and, as the mentioned contracts refer to the production of the craftsmen Bernat March in Paterna<sup>13</sup> objects produced in Barcelona were imitated in the Valencian area. Archaeological evidence shows as well that the artefacts made in Barcelona imitated those from Valencia, but they can easily be identified because of the deep green accidental glaze drops on the outside surface. Generally talking, there is continuity

in the production of the 14th–15th centuries as well as during the 16th century. The changes occurred in the following centuries involved technical devices in the manufacturing process rather than changes in forms and decorations that continued to be the same ones as in the Gothic period (Beltrán de Heredia 1998). The functional aspect of jars, including their use as containers for shipping pottery will be analysed below.

## Function and production centres

As was pointed out by López Elum (1984), objects' names are related to functions and could change throughout time<sup>14</sup>. For example *alcolla*, being an Arab word, is not used anymore from the beginning of the 14th century onwards. This object is usually related to the transport of wine and some time honey. In the mid 14th century *gerra* (*tinaja*) referred to vessels used both for storing oil (*gerra oliera*) and wine (*gerra vinadera*). When used for transporting wine, the inner surface of the jars was protected with a pitch film (*bene empeguntada*), so to reduce porosity: a use that is known since antiquity (Charlin 1978, 21; Díes-González 1986, 617) and that is documented throughout the 14th and 15th centuries<sup>15</sup>. Thus, the same form could be used both for oil and wine, pitch traces are usually present on wine jars. Generally talking, jars could be used for storing goods (*gerres de mercader*) and there are clear references to jars used for transporting tableware (*gerre tercer destibar escutellas*). Obviously, the latter should have a broader rim than those used for wine and oil (Díes-González 1986, 617). These jars travelled all around the western Mediterranean and some wine jars were found in Tuscany as well (Francovich-Gelichi 1984, 30–33). Concerning secondary use of storage vessels in the Catalan area, it seems like that as in Majorca they were used to trade grain or liquids and re-used once empty as filling for the vaults in the Cathedral, while kiln wastes were used for the same purpose in Barcelona and Valencia (González 1987).

The production centre of storing vessels can be identified thanks to fabrics and forms. Concerning the latter, the main differences between production centres in Spain involves the rim and the base. If we take into account the *tinajas* used as vault filling in the 'Iglesia de Santo Domingo' in Valencia, where local production coexisted with imported vessels, the jars locally produced have a flat base, a cylindrical neck and a rim that is broader than the neck (Figure 1). The flat base is typical of the Catalan area and jars produced in the Valencia and its environs usually have a slightly rounded base or a flat one in imitation of those produced in Barcelona. The vessels imported from Seville have a rounded base and thicker rim (Figure 2). Nevertheless, as pointed out by Beltrán de Heredia (1998, 177) the body of vessels produced in the Catalan area mainly underwent an oxidation rather than a reduction firing.



**Figure 1**  
Iglesia de Santo Domingo (Valencia). Jar from the Valencian area used as vault filling.  
Museo Municipal de Cerámica de Manises

Thus, the bodies are reddish, quite hard and mixed carefully with quartz crushed into small pieces. The small holes that are some times present indicate that the body was not purified enough. In the Valencian area the body is usually ochre-reddish, while in Seville and Cadiz is whitish and in Malaga red.

## Conclusions

As a large amount of storage vessels have been recovered from closed contexts, they can be dated with a high degree of precision, making it possible to date diverse assemblages that include these types of sherds. Even though we are talking about a standardized production, a reference typology similar to that for Roman amphorae does not exist yet. Attempts of systematization have been done for local areas



**Figure 2**  
Iglesia de Santo Domingo (Valencia). Jar imported from Seville and used as vault filling.  
Museo Municipal de Cerámica de Manises

by several scholars, and the works by Beltrán de Heredia (1998) for Barcelona and by Amigues (*et al*, 1996) for Valencia are important starting points for reconstructing a complete typology of storage and shipping vessels used in the western Mediterranean during the late middle Ages. The tables below are an attempt of comparing different proposed typologies so to reconstruct a broader picture of the regional area in its whole. Three major forms have been taken into account as referred to in the documents and identified in archaeological studies: *tinajas*, *gerres* and *alfábias*. Table 1 compares different typologies of *alfábias* or *tinajas*<sup>16</sup> as catalogued in several studies referring to assemblages recovered in different regional areas, so to reconstruct the area of circulation as well as the area of production<sup>17</sup>. We are talking about shipping vessels used mainly for transporting wine, grain and olive oil, but could be used for storing other goods as well. They are characterized by a narrow neck, do not have handles or have very small ones compared to their dimensions. Their circulation is related to trade development in the Catalan area and they were produce-d in Barcelona and Valencia (Beltrán de Heredia 1998, 182)<sup>18</sup>. Turning to *gerres* (Table 2) the main difference is between bigger ones (Type I–III), used for transporting and selling goods, and smaller ones used for several purpose, mainly as storing vessels (Type IV–V).

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## Endnotes

- 1 Generally talking, ceramics storing vessels were replaced by wooden barrels and other perishable materials after the 7th century (Díes-González 1986, 613).
- 2 As underlined in the mentioned work, from the first half of the 15th century onwards, the number of written documents increased considerably, and from the mid of the same century it is easier to reconstruct trade and productions because notaries were usually specialised in a particular kind of deal, like for example trade or commercial agreements (Díes-González 1986).
- 3 The case of merchants buying both tableware and jars for shipping it from potters in Valencia and Manises is not uncommon.
- 4 Some contracts specify that it was compulsory to protect the vessels with a vegetable cover *llata d’espart amb tres bones manilles de sagola bona* (Bajet i Royo 1994, 579); *Gerras olieres sinceras bonas mercantibiles et receptibiles ac enxarpellatas* (protected on the exterior) *de bona lata portatas et possitas in loco gradus maris Valencie [...] mule pili nigri* (de Osma 1923, doc. 24, 1418, Archivo Regional, *Protocolo de Vicente çaera*).
- 5 More generally, and not only in the case of storing vessels, kiln waste could be reused as vault fillings and could as well be shipped for this purpose (Berti-Bianchi 2007).
- 6 *possar son signe o sagell en lloch visible o vora del coll de les gerres fabricados, i que fossin de bona terra i ben cuites* [to put a sign or seal in a place where it could be seen, on the outside of the neck of the jars that are made of good clay and are properly fired] (Olivar Daidy 1952, 94). Those who did not respect the law could incur into fines (Padilla-Vila 1995). Guilds actually obliged potters to seal their products up to the 17th century (Amigues *et al* 1996).
- 7 Archive documents in Pisa and record of customs paid in Majorca (Antoni 1977) clearly show that wooden barrels were the ‘containers’ more widely used (Amigues *et al* 1995, 138), but ceramics jars as well as sacks and wooden boxes are mentioned as well (Berti G. 1999, 250–251). In archaeological assemblages practically jars only are preserved (Berti G.-Tongiorgi 1972; Francovich-Gelichi 1982). These vessels are especially spread in southern Italy (Platamone-Fiorilla 1999, 344). Archive documents from Valencia clearly indicates that *tinajas* were used as containers at least since the late 13th century (López Elum 1984, 35); in fact, these vessels were commonly sold close to the doc (Amigues *et al* 1995). It is worth noting that from the 14th century onwards, potters started to specialise and those who made tableware usually did not make big storing jars (Vila *et al* 1997, 559). For a detailed discussion on this point see Caroscio 2009, 126–128.
- 8 Nevertheless, small amounts of oil were traded to southern France using both small and big *tinajas* (*Ivi*).
- 9 Agriculture and manufacturing are commonly related to the circulation of these goods like in the Roman world (Carandini 1970).
- 10 It should be remembered that Majorca was at that time the most important shipping place of the Mediterranean.
- 11 Jars for storing wine, jars for storing oil big vessels/ jars for wine.
- 12 As made in Barcelona or as made in Valencia.
- 13 Just a few miles north-west from Valencia.
- 14 Arabs name, for example, are not used anymore after 1317 (at least according to documents known so far).
- 15 ‘*jarras [...] bonas, albas et bene coctas et empeguntatas bone picis*’ is found in a contract dating 1317 (López Elum 1984, 45), a few years later (1319) a similar document mentioned ‘[*jarras*] *maresas, bonas, sinceras, bene coctas et bene imepuncuntadas bone picis Castelle*’ (*Ivi*, 46). One century later (in 1415) pitch was still used against porosity: *Gerra gerras bonas de bona talla et bene gerras de decem quarteriis qualibet bene enpeguntatas et nitidas ab omni lapide quas de proximo coquere habeo in dicto loco Paterna [...] quas promitto portare ad locum gradus maris Valencie* (Osma 1923, doc. 18, 1415, Archivo Regional, *Protocolo de Vicente çaera*).
- 16 As pointed out by González (1987, 471), *alfabia* is an Arabic word, found for the first time in a document published by de Osma (1923, 12) and commonly used by Rosselló (1978, 78). As underlined by López Elum (1984), Arabs word are not found in documents after 1317. Thus, after the Christian conquest the words *gerres* and *tinajas* are commonly used instead.
- 17 The main reference for this scheme is Beltrán de Heredia 1998.
- 18 The trade and the commercial relationships between Barcelona and Valencia were very strong and these vessels were shipped between the two centres (Díes-González 1986, 651) as well as between Barcelona and Palma (Ainaud 1942, 83). We know about a group of vessels sold to make a vault in Valencia in 1514–1519 *per a la volta de Valencia*, (*Ibid*).

**Table I**  
*Alfabiats/tinajas*. Chronology, distribution and function.  
 After Beltrán 1998 and further bibliography as quoted in the table

Barcelona	Paterna/Manises	Palma	Alicante	Tuscany	chronology	notes
Beltrán 1998, 183 Type I	Amigues 1996, 352 Type III	Mallorca coast Coll 1994, 1072	Saranova-Borrego 1994, 1060 Type 5	Francovich-Gelichi 1986, 306 Type II	Barcelona 15th c Cathedral of Palma 1426–1433 (Gonzalez 1987, 474) Santa Maria in Alicante End 14th to 15th c	Found in several vaults in the Catalan area, all dating 14th to 15th centuries. In one case the vessels have been re-used for rebuilding a vault in the 16th to 17th c
<p>Type I, after Beltrán 1998, 183. Found in vaults in the Catalan area            Santa Maria del Pi (Llubia 1973, 114; Batllori-Llubia 1974, n° 54; Riu de Martín 1992 n° 1. All context dating to the 14th–15th c            Bullidors (Amigó 1986, 35). 15th c            Pia Almoina de Barcelona (Beltrán de Heredia 1994). 1438 terminus post quem            San Augustin (Beltrán de Heredia, 1994)            San Martin de Cerdanyola (Argelagués 1995, 89). Secondary deposition 16th–17th c</p>						
Beltrán 1998 Type II	Amigues 1996, 351 Type IVa	Occasional find	Saranova-Borrego 1994, 1061 Type III, variant		Barcelona 15th c Cathedral in Palma 1426–1433 (Gonzalez 1987, 474) Santa Maria in Alicante Beginning 14th–15th c	Considered as manufactured in the Catalan area. Also found in Palma and Alicante
<p>Type II, after Beltrán 1998. Manufactured in the Catalan area and used as vaults filling in the same area            Santa Maria del Pi-Hospital (Bolòs et al 1986, 688, n° 15)            Pia Almoina de Barcelona (Beltrán de Heredia, 1994, 107, n° 44; Beltrán de Heredia, 1994). 1438 post quem            Cathedral of Palma de Mallorca (Gonzalez 1987, 474). 1426–1433            Santa Maria di Alicante (Saranova-Borrego 1994, 1061). Variant of Type III. Beginning 14th to 15th c</p>						
Beltrán 1998 Type III	Amigues 1996, 351 Type IV	Coll 1994, 1073 Type 7	Saranova-Borrego 1994, 1061 Type III		In Barcelona older examples (1370–1400) Contests dating as well to the first half of the 14th century Cathedral of Pala 1426–1433 Santa Maria in Alicante beginning 14th–15th c	Smaller vessels. Regular external surface. Found in a large number of vaults in Barcelona

Type III, after Beltrán 1998. Smaller than Type II. Widely spread in Barcelona			
Santa Maria del Mar (Riu 1984, n°31. 1370–1400)			
Pla Almoina de Barcelona (Beltrán de Heredia, 1994, 106, n° 43; Beltrán de Heredia, 1994). 1438 <i>terminus post quem</i> )			
Santa Maria del Pi-Hospital (Bolíós et alii 1986, 688, n° 14)			
Hospital de Santa Creu (unpublished, in Beltrán 1998. 1406–1417)			
Convent del Carme (Santanach-Rosal 1996a, 29. End 13th c to beginning 14th c)			
Monestir de Pedralbes (unpublished, in Beltrán 1998. 14th century)			
Monestir de sant Pere de les Puelles (Santanach-Rosal 1996b, 19–20) 1322)			
Boqueria (Beltrán de Heredia-Puig-Miró 1995, unpublished in Beltrán 1998. Not in primary deposition)			
Beltrán 1998 Type IV	Amigues 1996, 351 Type V		First half of 15th c (Amigues 196, 351)  Not published elsewhere (1998), but in other unpublished contexts in Barcelona
Type IV, after Beltrán 1998. Different from Type III because of the handles in the upper part. The neck is broader and vertical. Known only from Amigues 1996 before, and from unpublished contexts in Barcelona			
Cathedral of Barcelona			
Oristà Museum			
Iglesia del Carme (found in vaults in 1874)			
Beltrán 1998, Type V	Amigues 1996, 352 Type VIIIa		Barcelona, mid 14th c (Amigues 1996,352)  Avignon 1330–1420 (Carru 1995, 50)  Originally from Barcelona. Used to transport fish (Salicrú 1995, 50)
Type V. Defined from the assemblage at Les Sorres X (Raurich-Pujol-Izquierdo, 1994, 1085). Globular shape, thicker in the upper part. Glazed in the interior. The neck has a rim inside to make easier to put the lid in. The analyses on organic residues have shown that it could contain fish. Dried and salted fish was usually transported in wood barrels or in baskets, but it could be transported as well in vessels (Salicrú 1995, 92). It seems to be originally from Barcelona. Dating to mid 14th century, but there are other examples from Avignon dating 1330–1420 (Carru 1995, 50).			

**Table 2**  
Gerres. chronology, distribution and function After Beltrán 1998

type	used for	goods	chronology	notes
Beltrán 1998, Type I	transporting and selling goods	different kinds of goods		
Type Ia			1322	
Type Ib			1370–1400, 1322	
Type Ic		honey and oil		Dimensions regulated by laws in 1391 and 1404 (Bajet 1994, 579; Padilla-Vila 1995, 254)
Beltrán 1998, Type II	transporting and selling goods	shipping goods	beginning 14th c to 15th century	<i>resina colofonia</i> (pitch), used as a film for making pottery waterproof was found in some of these vessels. Produced in the area of Falset and exported from Barcelona to Northern Africa, Alexandria and Rodi since the beginning of the 14th century (Ainaud 1961, 33; Salicrú 1995, 190). Commercial links and obligations between Barcelona and Falset are known in 1514–19 (cfr. Ainaud 1942, 83)
Beltrán 1998, Type III	transporting and selling goods	keeping and serving liquids, mainly oil and water		Glazed on both surfaces
Beltrán 1998, Type IV	several purposes			Glazed on both surfaces: interior light-brown, exterior green
Beltrán 1998, Type V	several purposes		Barcelona 1438, <i>terminus post quem</i>	

**Table 3**  
*Tingias/gerres*. Chronology, distribution and function.  
After Amigues et al 1996 and further bibliography as quoted in the table

type	used for	goods	documents	chronology	notes
Type I	shipping pottery	Gerres terceres <i>d'estibar escutellas</i>	<i>Marchs operis terre boni mercantiblis et receptiblis</i>	second half 14th c	Might have two stamped marks. Association of ?potters. Found full of pottery on the coast of Sollers (Majorca)
			<i>Promitto tradere in gradu maris Valencie portatum positum et engerratum et enxarpellatum</i> (de Osma 1923, doc. 12, 1412, Archivo Regional, Protocolo de terre pinzell de Vicente Çaera)	document in 1387: several <i>tingias</i> are sold to Bernat March	<i>viginti gerras operis terre plena[s] operis</i> (Osma 1923, doc. 13, 1412, Archivo Regional, Protocolo de Vicente Çaera)
			<i>Promittimus dictas viginti gerras simul cum dictis marquos tradere vobis in gradu maris Valencie engerratas enxerpellatas portatas et positas.</i>		
			<i>[...] dedit et tradidit eisdem quemdam mulum pili nigri.</i>		



Variant Ia			<p><i>Jerras terceres d'estibar scutellas quod in qualibet earum possint stibari sex grosse scutellarum vel abinde quantas suferit ad precium sue quantitatem viginti quinque librarum regalium Valencie computando ad forum et rationem quinque solidorum et sex denariorum dicte monete pro qualibet gerra</i></p> <p><i>Gerras quintarenous enverniotatas</i> (Osma 1923, doc. 46, 1435, Archivo Regional, Protocolo de Vicente Çaera)</p>		Found full of pottery on the coast of Barcelona, now at the Museo Municipal de Arenys de Mar, Jerras terceres d'estibar scutellas
Type II	?shipping	wine	<p><i>gerras terre vinaderes</i></p> <p><i>Gerra gerras bonas de bona talla et bene gerras de decem quarteriis qualibet bene enpeguntatas et nitidas ab omni lapide quas de proximo coquere habeo in dicto loco Paterna [...] quas promitto portare ad locum gradus maris Valencie</i> (Osma 1923, doc. 18, 1415, Archivo Regional, Protocolo de Vicente Çaera)</p>	first half 14th–15th c	With pitch ( <i>pez</i> ) in the interior bene enpeguntata (Osma 1923, doc. 18, year 1415)
Type III		oil	<p><i>Gerras olieres sinceras bonas mercantibiles et receptibiles ac enxarpellatas (= protect on the exterior) de bona lata portatas et possitas in loco gradus maris Valencie [...] mule pili nigri</i> (Osma 1923, doc. 24, 1418, Archivo Regional, Protocolo de Vicente Çaera)</p>	end 14th to first half 15th c	
Variant IIIa		oil	<i>gerres olieres</i>	first half 14th c (Lopez Elum 1984, 83–4)	
Type IV	shipping (Riu 1984, 173)	oil		first half 15th c	
Variant IVa		wine	<i>gerreta vinadera</i>	first half 15th c	Chamotte. Bricks fabric
Type V		oil	<i>gerra</i>		Light-brown glazed inside
Type VI		oil			Painted marks
Type VII					Painted marks. Widely spread
Type VIII		wine	<i>gerres vinaderes pequenas</i> (Lopez Elum 1984, 83–4)	first half 14th c	VALENCIANO
Type VIIIa		wine		14th c	Painted marks No VALENCIANO. Not glazed

## References

- Ainaud de Lasarte, J., 1942, *Pisa daurada i terrisseria barcelonesa. Segles XV–XVI*, 'Dedalus', Barcelona, 1942, 73–83.
- Ainaud de Lasarte, J., 1961, 'Quatre documents sobre el comerç català amb Síria i Alexandria (1401–1410)', in *Homenatge a J. Vincens Vives*, Barcelona, 327–333.
- Amigó, J., 1986, *El Bullidor, jaciment medieval. Estudi de materials y documentació*, Sant Just Desvern.
- Amigues, F., Cruselles, E., Gonzalez Villazscusa, R., Lerma J. V., *Les 'emballages céramique de Paternal Manises dans le commerce du bas Moyen Age*, 'Bulletin de la Commission Archaeologique et Littéraire de Narbonne', 46, pp. 135–151.
- Amigues, F., Cruselles, E., Gonzalez Villazscusa, R., Lerma J. V., 1996, 'Los envases de Paterna/Manises y el comercio bajo medieval', in *La Céramique en Méditerranée Occidentale*, Institut National de Sciences de l'Archéologie et du Patrimoine (1991): Rabat, 346–361.
- Amouric, H., Richez, F., Vallauri, L., 1999, *Vingt Mille Pots sous les mers*, Musée d'Istres, 27th May – 28th November 1999, ÉDISUD: Aix-en-Provence.
- Antoni, T., 1977, *I 'partitari' maiorchini del lou dels Pisans relatius al commercio dei Pisani nelle Baleari (1304–1322 e 1353–55)*, Pisa.
- Argelagués Llauradó, M., 1995, 'Un conjunt de ceràmica trobat a la volta del cor de l'església Vella de sant Martí de Cerdanyola', *Limes* 4–5, 78–91.
- Bajet i Royo, M., 1994, *El mostassa de Barcelona i les seves funcions en el segle XV. Edició del 'Llibre de les Ordinations'*, Barcelona.
- Bassegoda Nonell, J., 1983, *La ceràmica popular de la arquitectura gòtica*, Ediciones de Nuevo Arte – THOR: Barcelona.
- Batlloori, A., Llubíà, LL. M., 1974, *Ceràmica catalana decorada*, Barcelona.
- Beltrán de Heredia, J., 1994, 'La ceràmica localitzada a l'extradós de les voltes de la Pia Almoina de Barcelona', in *Ceràmica Medieval Catalana*, Barcelona 15–16 November 1994, Barcelona.
- Beltrán de Heredia, J., 1998, 'Tipologia de la producció barcelonina de ceràmica comuna baix medieval: una proposta de sistematització', in Padilla Lapuente, J. I., Vila Carabasa, J. M., (eds.), *Ceràmica Medieval i Postmedieval. Circuits productius i seqüències culturals*, Barcelona, 177–204.
- Berti, G., 1998, *I rapporti Pisa-Spagna (Al-Andalus, Maiorca) tra l'VIII e il XIII secolo testimoniati dalle ceramiche*, in *Atti del XXXI Convegno Internazionale della Ceramica*, All'Insegna del Giglio, Firenze (1999), pp. 241–254.
- Berti, G., Bianchi, G., 2007, (eds.), *Piombino. La chiesa di Sant'Antimo sopra I canali. Ceramiche e architetture per la lattura archeologica di un abitato medievale e del suo porto*, All'Insegna del Giglio: Firenze.
- Berti, G., Tongiorgi L., 1972, *Frammenti di giare con decorazioni impresse a stampo trovati a Pisa*, 'Faenza', LVIII, pp. 3–10.
- Bolòs, J., et al 1986, 'Ceràmiques medievals del Museu d'Arts, Industrie i Tradicions Populars de Barcelona', in *I Congreso de Arqueología Medieval Española*, Volume V, Huesca 1985, Zaragoza, 638–702.
- Caroscio, M., in press, 'Secondary use of storing vessels and household pottery during the late middle Ages: the placing of pottery in vaults as a case study', in Gheorghiu, D. and Mason Ph., (eds.) *Working with the Past: Strategies for Crisis or Intentional Incorporation? Towards an Archaeology of Recycling*, BAR.
- Caroscio, M., 2009, *La maiolica in Toscana fra Medioevo e Rinascimento. Il rapporto fra centri di produzione e di consumo nel periodo di transizione*, All'Insegna del Giglio: Firenze.
- Carru, D. et al, 1995, *De l'Orient à la table du Pape. L'importation de céramiques dans la région d'Avignon aux XIVe–XVIe siècles*, Avignon.
- Cirelli, E., Holod, R., in press, 'Islamic pottery from Jerba (7th–10th centuries): Aspects of continuity?' in P. Cressier, E. Fentress (eds.) *La céramique du haut Moyen Âge au Maghreb: état des recherches, problèmes et perspectives* Rome, 3 – 4 novembre 2006.
- Coll Conesa, J., 1994, 'Contenedores cerámicos medievales en las costas de Mallorca', in *Actas del IV Congreso de Arqueología Medieval Española*, Volume III, (Alicante 1993), Asociación Española de Arqueología Medieval, Deputación Provincial de Alicante: Alicante, 1069–1079.
- Días Cusi, E., González Villaescusa, R. J., 1986, 'Las tinajas de transporte bajomedievales y sus marcas de alfarero', in *I Congreso de Arqueología Medieval Española (Huesca 1985)*, Volume V, Zaragoza, 613–631.
- Francovich, R., Gelichi, S., 1982, *La ceramica medievale a Siena e nella Toscana meridionale (secc. XIV–XV). Materiali per una tipologia*, All'Insegna del Giglio, Firenze.
- Francovich, R., Gelichi, S., 1984, *La ceramica spagnola in Toscana nel Bassomedioevo*, All'Insegna del Giglio: Firenze.
- Francovich R., Gelichi S., 1986, *La ceramica spagnola in Toscana nel bassomedioevo*, en *II Coloquio Internacional de Cerámica Medieval en el Mediterraneo Occidental*, Toledo 1981 (1986), 297–313.
- González Gozalo, E., 1987, 'La ceràmica bajomedieval de la Catedral de Mallorca', in *Arqueología Medieval Española*, II Congress, Madrid 19–24 January 1987, Volume III, 470–482.
- González Gozalo, E., 1998, 'Ceràmica Medieval (ss. XIV–XV) y postmedieval (ss. XVI–XVII) de importación en Mallorca, en su contexto arqueológico urbano', in *Mallorca i el comerç de la ceràmica a la Mediterrània*, Fundació 'la Caixa', 46–63.

- Iradriel Marugarren, P., 1989, *L'evolució econòmica*, en *Història del País Valencià*, vol. II, (De la conquesta a la Federació Hispànica), Barcelona.
- Llubia Munné, LL. M., 1973, *Ceràmica medieval espanyola*, Editorial Labor: Barcelona.
- López Elum, P., 1984, *Los orígenes de la cerámica de Manises y Paterna (1285–1335)*, Valencia.
- López Elum, P., 2005, *La producción cerámica de lujo en la Baja Edad Media: Manises y Paterna*, Materiales y Documentos, Colección 01, Museo Nacional de Cerámica: Valencia.
- McCormick, M., 2001, *Origins of the European Economy. Communication and Commerce, AD 300–900*, Cambridge University Press: Cambridge.
- Olivar Daydí, M., 1952, *La cerámica trecentista en los países de la Corona de Aragón*, Editorail Seix Barral: Barcelona.
- Osma de G., 1923, *Los maestros alfereros de Manises, Paterna y Valencia*, en *Apuntes sobre cerámica morisca. Textos y documentos valencianos*, vol. 2, Instituto Valencia de Don Juan: Madrid.
- Padilla, J. I., Vila, J. M., 1995, 'El artesanado medieval de la cerámica en el nordeste peninsular: una aproximación a las fuentes escritas', in *1as Jornades Ceràmica Medieval e Pós-medieval. Mètodes e resultats para o seu estudi*, Tondela 28–31 October 1992. Tondela 1995, 249–261.
- Platamone, E.C., Fiorilla, S., 1998 *Importazioni di ceramiche spagnole in Sicilia*, in *Atti del XXXI Convegno Internazionale della Ceramica*, All'Insegna del Giglio: Firenze (1999), pp. 343–354.
- Purpura, G., 1985, 'Un relitto di età normanna a Marsala'. *Bollettino d'Arte*, supplement to n° 29 of *Archeologia Subacquea* 2: Isole Eolie, 129–136.
- Raurich, X., Pujol, M., Izquierdo, P., 1994, 'Les Sorres X: una embarcació medieval al Delta del Llobregat (Catalunya)', in *IV Congreso de Arqueología Medieval Española*, Alacant 4–9 October 1993, Alicante, 1081–1089.
- Regert, M., Devière, T., Le Hô, A.-S., Rougeulle, A., 2007, 'Reconstructing ancient Yemeni commercial routes during the middle ages using structural characterization of terpenoid resins', *Archaeometry* 50, 4 (2008), 668–695.
- Riu M., 1984, 'La cerámica popular Barcelona del segle XIV. Aportació a l'estudi de les seves formes i marques', *Acta Medievalia*, Annex 2, 1983–1984, 145–181.
- Riu de Martín, M. del C., 1989, 'Algunes peces de ceràmica medieval del segle XIV trobades a la Catedral de Barcelona', *Acta Medievalia* 10, Barcelona: 437–466.
- Romestan, G., 1969, 'Les marchands languadociens dans le royaume de Valence pendant la première moitié du XVI siècle', *Bulletin Philologique et Historique*, I, 115–192.
- Romestan G., 1973, 'Les relations commerciales entre Montpellier et Valence dans la première moitié du XIV siècles', in *VIII Congreso de Historia de la Corona de Aragón*, II, vol. III, Valencia, 243–253.
- Rossello Bordoy, G., 1978, *Ensayo de sistematización de la cerámica árabe en Mallorca*, Diputación Provincial de Baleares e Institut d'Estudis Balearics: Palma de Mallorca.
- Salicrú i Lluch, R., 1995, *El tràfic de mercaderies a Barcelona segons els comptes de la lleuda de Mediona (febrer de 1434)*, Barcelona.
- Santanach i Soler, J., Rosal i Sagales, J., 1996a, 'Terrissa procedent de les voltes del Convent del Carme de Barcelona', *Bulletí Informatiu de Ceràmica* 60, Barcelona, 12–24.
- Santanach i Soler, J., Rosal i Sagales, J., 1996b, 'Terrissa procedent de les voltes del Monestir de sant Pere de les Puelles de Barcelona', *Bulletí Informatiu de Ceràmica* 59, Barcelona, 22–30.
- Saranova Zozaya, R., Borrego Colomer, M., 1994, 'El puerto de Alicante en los circuitos comerciales mediterráneos en la Baja Edad Media: cintenedores cerámicos de transporte y anclaje', in *Actas del IV Congreso de Arqueología Medieval Española*, Volume III, (Alicante 1993), Asociación Española de Arqueología Medieval, Deputación Provincial de Alicante: Alicante, 1059–1068.

## Résumé

Cet article analyse la production et la circulation des récipients utilisés pour le stockage et le transport des marchandises dans l'ouest de la Méditerranée à la fin du Moyen Âge et pendant la Renaissance. Un nombre considérable de récipients variés ayant été utilisé dans les caves de cette région, il est possible de les dater avec un degré de précision élevé. C'est pour cela que je vais parler de l'importance de ces objets pour la datation des documents archéologiques. Je vais également m'intéresser à leurs aspects fonctionnels et comparer les preuves archéologiques et les sources documentaires. L'analyse des formes, des corps et des marques permet de comprendre où ces objets ont été fabriqués. Ces données peuvent être utilisées pour reconstituer la circulation et le commerce non seulement de ces récipients, mais également des produits qu'ils contenaient.

## Zusammenfassung

Im Artikel wird die Herstellung und Verteilung von Gefäßen behandelt, die im westlichen Mittelmeer während des Spätmittelalters und der Renaissance zur Lagerung und Verschiffung von Waren benutzt wurden. Da innerhalb dieses Gebietes eine beträchtliche Anzahl von verschiedenartigen Vorratsgefäßen für die Füllung von Gewölben benutzt wurden, lassen sie sich mit hoher Genauigkeit datieren. Deshalb wird hier die Bedeutung dieser Gefäße für die Datierung archäologischer Aufzeichnungen besprochen, mit besonderem Augenmerk auf funktionale Aspekte und auf den Vergleich von archäologischen Funden und Dokumentarquellen. Durch die Analyse der Formen, Körper und Marken ist es möglich, zu verstehen, wo diese Gegenstände hergestellt wurden. Mit Hilfe dieser Daten kann man dann auf die Verteilung und den Handel schließen, und zwar nicht nur für diese Gefäße, sondern auch für die in ihnen verschifften Waren.