RedFame

International Journal of Social Science Studies
Vol. 13, No. 4; December 2025
ISSN 2324-8033 E-ISSN 2324-8041
Published by Redfame Publishing
URL: http://ijsss.redfame.com

Amphorae to Barrels: Disappearance and Appearance

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Received: September 1, 2025 Accepted: October 8, 2025 Available online: November 20, 2025

doi:10.11114/ijsss.v13i4.8206 URL: https://doi.org/10.11114/ijsss.v13i4.8206

Abstract

Amphorae dominated Mediterranean trade for over two millennia, though their role appears to diminish sharply during the medieval period (c. 500–1500 AD). This research examines whether amphorae truly disappeared and identifies the social, religious, and technological factors that contributed to their decline. Drawing on archaeological evidence from the Uluburun and Yassi Ada shipwrecks, alongside historical and cultural analysis, the study shows that amphorae did not vanish abruptly but were gradually replaced. The spread of Christianity reduced their presence in funerary and ritual contexts, while evolving Eucharistic practices diminished their symbolic role. At the same time, wooden barrels—introduced from northern Europe—offered greater durability, portability, and standardized capacity, proving more efficient for large-scale commerce. Monastic viticulture and expanding Anglo-French trade networks reinforced this shift, incorporating barrels into medieval economic life. Rather than a disappearance, the decline of amphorae represents a broader transformation in material practice, reflecting changing religious traditions, technological adaptation, and the logistical demands of long-distance trade.

Keywords: Barrels, Amphorae, Medieval wine trade, Maritime archaeology, Monastic viticulture

1. Introduction

Amphorae were central to trade and transport across the Mediterranean (Will 1977). By the medieval period (c. 500–1500 AD), amphorae appear to decline or disappear from the archaeological record. This time frame is marked by the fall of Rome's Imperial period, which lasted from 31 BC – AD 476. From 500 AD to 1500 AD, the thousand year period of the medieval times encompasses the Roman Empire's fall and the Ottoman Empire's rise. The medieval period, resting between the Roman empire and the rebirth of the Renaissance, directly translates to 'of the Middle Ages'. The use of amphora for transport and storage in the Mediterranean began around 700 BC, used mainly for olive oil, garum, grain, and wine (Will 1977). This paper examines whether amphorae truly vanished during the Middle Ages, and if so, what social, economic, religious, and technological factors contributed to this transition. Additionally, it explores how the emergence of wooden barrels replaced amphorae as the dominant storage and transport vessel.

2. Literature Review

Amphorae have long been central to studies of Mediterranean trade and material culture. Will's (1977) typology established their role in transporting wine, oil, and other staples, while residue analysis and stylistic studies have shown how vessel design reflected both practical use and social influence (Wilson 2011). By the medieval period, amphorae become scarce in the archaeological record. The changing religious climate partially helped scholars identify this decline. With the spread of Christianity, grave goods diminished in Anglo-Saxon contexts (Pearce 2015), reducing amphorae finds. Eucharistic practices also shifted, as wine consumption became restricted to the clergy, diminishing amphorae's symbolic role (Goosen 2008).

Technological innovation further accelerated their replacement. Wooden barrels, introduced from northern Europe, offered greater durability, portability, and standardized volume than ceramics (Twede 2005). While amphorae varied in capacity despite stamped markings (Tzochev 2015), barrels—particularly the tun—became uniform units of commerce and taxation. Archaeological finds from London and Southampton confirm this shift, with amphorae disappearing after the eleventh century and barrel remains predominant in waterfront deposits (Pearce 2015). Economic and political changes reinforced the transition. The Anglo-French wine trade expanded after Eleanor of Aquitaine's marriage to Henry II, with Bordeaux exports reaching tens of thousands of barrels by the fourteenth century (Unwin 1991; Phillips

2016). Additionally, monastic viticulture fueled surplus production, incorporating barrels into commercial and liturgical networks across Burgundy, Champagne, and beyond (Goosen 2008).

3. Methods

This study adopts a comparative historical-archaeological methodology, firstly drawing upon a literature review comprised of secondary sources on amphorae, barrel technology, and medieval trade (e.g., Will 1977; Twede 2005; Pearce 2015). This is followed by case studies of shipwrecks– material culture from Yassi Ada (7th c.) and Uluburun (14th c. BC) was examined to contextualize amphora use in maritime trade (Bass 1962; Bass 1986; Van Doorninck 1989). Religious and cultural analysis is then incorporated through interpretations of Christian ritual shifts and their effect on wine consumption and material culture (Goosen 2008; Pearce 2015). Finally, technological transition is integrated through the evaluation of the practical advantages of barrels over amphorae, including capacity, durability, and standardization, supported by written sources from antiquity through the medieval period (Twede 2005). By linking archaeological evidence with cultural and technological analysis, this approach aims to explain the shift from amphorae to barrels as more than a simple disappearance, but rather a transformation in material practice.

4. Grave Goods

A gradual decline of grave goods was largely associated with religious shifts in Anglo-Saxon England with the spread of Christianity during the 7th century (Pearce 2015). These were later phased out completely by the 8th century (Pearce 2015). This contributes to the lack of amphora evidence during the medieval period (Pearce 2015). This is not to say this religious shift was a cause for amphoras disappearance, but a causal connection to the lack of material evidence from the archaeological record (Pearce 2015). This decline could be a cultural evolution.

5. Amphorae's Purpose

Amphorae contents provide insight into daily life and consumption. Residue analysis has been utilized to identify traces of wine, oil, spices, and resin, aiding in the visualization of ancient diets. The export of the Mediterranean staples demonstrates a surplus of product and a thriving economy. High quality product such as Thasian wine was an indication of higher social status, power, and divine favor in classical Athens. It was largely contextualized within *symposia*. The size and shape of amphorae varied based on their contents. The clay and stopper style utilized resin for a better seal, which not only protected the wine from impurities, but also allowed for further fermentation and aging (Wilson 2011). The yeast utilized during this process intertwines the dynamics of the process and the vessel's design. The elongated neck design of the amphora is ideal for pouring– contrasting wider vessels such as those used for beer, where the context shifts more socially, facilitating more shared accessibility. For ritualistic purposes, the vessels were larger to accommodate for shared gatherings. This furthers evidence of its role in society and communal practices. A more thin amphora neck, such as those from Chios, was more fitting for expensive wines, with more limited air exposure to preserve the flavor profile (Wilson 2011). This stylistic and practical identification can be juxtaposed with Dressel 20 type amphorae from the Iberian Peninsula, sculpted in a more sturdy fashion, suggestive of bulk transport. "...the distribution of wrecks with cargoes of particular amphora types likewise suggests directed bulk traffic along certain routes between major ports, rather than coastal tramping" (Wilson 2011, p.54). The concept of adaptation in design based on contents is indicative of progressive development in the realm of craftsmanship, from wheel-throwing and firing methods to an increased value placed on aesthetics.

6. Mythology

Mythological influence and association can be interpreted through the context of wine's consumption. Strongly associated with the wine god Dionysus, or Bacchus, wine was present in feasts, ceremonies, sacrificial rituals, and other public events, lessening the divide between mortal and immortal, man and god. Decoration of vessels provides insight into a population's perception of beauty, belief, and cultural narrative (Whitehouse 2025). The embellishments on amphorae were sometimes so elaborately detailed they were gifted in athletic competitions, such as the Panathenaic amphorae of olive oil.

7. Christianity's Influence

During the Middle Ages, Christianity kept wine in consistent supply, viewed as god-given, the blood of Christ, and significant to the Eucharist, though over-indulgence was viewed as sinful behavior (Goosen 2008). Monasteries were significantly responsible for the consistent development of wine-making and vineyard-tending practices (Goosen 2008). Several prominent wine-making regions are well-known as a result of religious practices and orders, such as Burgundy and Champagne (Goosen 2008). Religious communities received plots of land as gifts from nobility which were turned into vineyards, developing reputations and surplus; the economic asset encouraged trade (Goosen 2008). Biblically symbolic, the blood of Christ was no longer consumed by the religious community, but only the clergy (Goosen 2008). The influence of Christianity on viticulture during the Middle Ages was profound, shaping both wine production and

consumption across Europe. Following the collapse of the Western Roman Empire, monastic orders—particularly the Benedictines and Cistercians—emerged as the principal custodians of agricultural knowledge, including viticulture (Goosen 2008). These religious communities, often granted land by the nobility, established vineyards to provide wine for liturgical use, hospitality, and eventually for commercial purposes (Pearce 2015). In less favorable climates such as Northern Europe, wine's scarcity was met with importation or cultivation in monastic estates. In doing so, it shaped economic landscapes, advancing wine production into a structured agricultural sector. As wine symbolized the blood of Christ in the Eucharist, the central rite of the Mass, its demand remained strong despite political and economic instability (Goosen 2008). While laypeople originally received both bread and wine during the Mass, by the High Middle Ages the chalice came to be reserved primarily for clergy, distinguishing sacred ritual from common consumption (Goosen 2008). Even so, monasteries produced more wine than was needed for religious ceremonies, fueling regional trade networks and laying the economic groundwork for renowned wine-producing areas (Pearce 2015). In reference to Pontus, modern-day Turkey, ancient Greek historian Polybius states that the surrounding areas "take our superfluous stock of olive oil and every kind of wine" (Tzochev 2015, p.233) .

> In Justin's account, the communicants received the Eucharist in both kinds (that is, as part of the ritual, they both ate bread and drank wine). However, by the time of Thomas Aquinas (1225-1274) the wine had disappeared from the Ritual… (Goosen 2008, page 1)

This was the result of a gradual separation between the clergy and all others (Goosen 2008). Its growth in the secular sphere shifted the way in which wine was viewed, with taverns aiding distribution and shifting the ideology with which it was perceived (Goosen 2008). Wine was no longer just for the elite: even if diluted and of poor quality, it was readily available to the masses. The lack of the chalice in the Middle Ages supports the theory of a decreased presence of wine in ritualistic context (Goosen 2008).

8. Introducing the Barrel

Illustration of winemaking from a 14th century Flemish illuminated manuscript, Medieval and Renaissance Manuscripts. Bodleian Library. Oxford University. *The Romance of Alexander. Scenes of medieval life.* Flemish. 1338-1344. Medieval and Renaissance Manuscripts. Bodleian Library. Oxford University

After the conquest in 1066, Norman influence led to larger quantities of wine shipments into England (Twede 2005).

Moved in *tuns*, they acted as a uniform unit of measurement rather than varying ceramic shapes and capacity, not to mention the increase in hardness, with the wooden barrels more durable, reusable, and less prone to breakage (Twede 2005). On Thasos for example, measurements have demonstrated a lack of differentiation between amphorae stamps, "meaning that two handles bearing the same stamp may, for example, come from a 7-litre jar and a 15-litre one". Despite attempts at ceramic standardization, volume-fractions continued to vary (Tzochev 2015, p.236). Introduced from Celtic and Germanic traditions, these tuns held over 200 gallons, and as a consistent unit of measurement, trade, payment, and taxation was simplified (Twede 2005). The Portuguese barco rabelo, a vessel specially designed for transporting barrels more easily, supports the visualization of the impact of this amphora to barrel transition (Twede 2005). Ships of Venetian and English origin were identified in terms of their wine barrel capacity, demonstrating the barrel's dominance in maritime logistics. The ability to roll barrels made increased quantities possible and more efficient for loading and unloading. For ease of large-scale transactions, a consistent unit of measurement assisted greatly (Twede 2005). Shelf-life was extended and the barrels had a stronger closure than earlier amphora (Twede 2005). Additionally, the barrels were more lightweight, relevant for the Roman armies moving through continental Europe (Twede 2005). Some of the earliest evidence of barrels as a transport medium come from Herodotus in 500 BC who documented Armenians moving wine to Babylon on the Euphrates river in barrels of palm (Twede 2005). In the northern Roman empire, clay was scarce and wood more abundant (Twede 2005). Pliny the Elder wrote that barrels were used closer to the Alps and dolia were used in more temperate climates (Twede 2005). This demonstrated the causal connection between materials used and resources accessible (Twede 2005). Wine was in consistent demand, for consumption, medicinal, and ritual purposes (Twede 2005).

During the Middle Ages, the wine trade between England and continental Europe underwent major transformations, driven by political ties, monastic viticulture, and the adoption of wooden barrels over amphorae. The marriage of Eleanor of Aquitaine to Henry II in 1152 brought Bordeaux and much of southwestern France under English rule, giving the crown unprecedented access to French wines (Unwin 1991). By the 13th century, Bordeaux emerged as England's main wine supplier, with exports reaching tens of thousands of tuns annually by the 14th century (Phillips 2016). Archaeological finds from London and Southampton reflect this shift from amphorae to barrels– waterfront deposits contain numerous staves and hoops, while ceramic amphorae become scarce after the 11th century (Pearce 2015). Evidence from London and Southampton corroborates this amphorae to barrel transition, revealing an abundance of barrel staves and hoops from medieval waterfront deposits, whereas ceramic amphorae appear only rarely after the 11th century (Pearce 2015).

The adoption of wooden barrels further advanced viticulture and trade. More durable than amphorae and lacking the reliance on specialized pottery workshops, they proved especially practical for rough sea voyages, and were less prone to breakage and leakage. Their cylindrical form made rolling, loading, and unloading far easier, while their standardized capacity simplified taxation and commercial accounting—developments well documented after the Norman Conquest expanded England's wine imports in the 11th century (Twede 2005). Monastic estates, as hubs of production and distribution, were quick to embrace barrels, which preserved wine longer and reduced losses during transport (Goosen 2008). These estates were central to wine production in regions like Bordeaux, Burgundy, Champagne, and the Loire Valley (Goosen 2008). In this way, Christianity not only safeguarded viticulture through centuries of political upheaval but also accelerated the transition from amphorae to barrels, promoting large-scale production, long-distance trade, and technological adaptation to serve both sacred and secular demand (Pearce 2015; Twede 2005).

This integration of monastic viticulture, maritime technology, and royal administration laid the foundation of the so-called English wine empire, linking French vineyards, English merchants, and northern European markets in a system made possible by the barrel's logistical advantages over amphorae. By the end of the Middle Ages, the barrel-based wine trade had become a defining feature of Anglo-European commerce, shaping economic, social, and cultural landscapes on both sides of the Channel (Phillips 2016; Twede 2005).

9. Case Studies

The Yassi Ada shipwreck provides an important case study in the study of ancient maritime trade, primarily due to its large cargo of amphoras. Excavations revealed between 850–900 amphoras, 100 of which were raised for closer examination (Van Doorninck 1989). Based on the vessel's estimated displacement, it has been concluded that these amphoras were full at the time of sinking (Van Doorninck 1989). Unfortunately, the absence of organic residue inside the recovered amphoras prevents a definitive identification of their contents. However, the discovery of grape seeds in association with the wreck strongly suggests that at least part of the cargo consisted of wine (Van Doorninck 1989). This possibility situates the Yassi Ada wreck within the broader network of exchange in which wine, along with oil and other agricultural products, played a central role in both economic and social life.

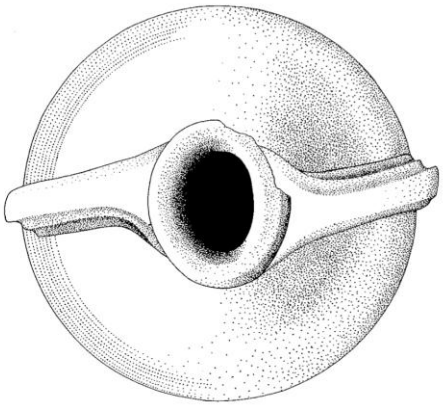

FIG. 8-2. Top view of cargo amphora CA 1, showing asymmetry of the handles. *SWK*

(Bass 1962 p155)

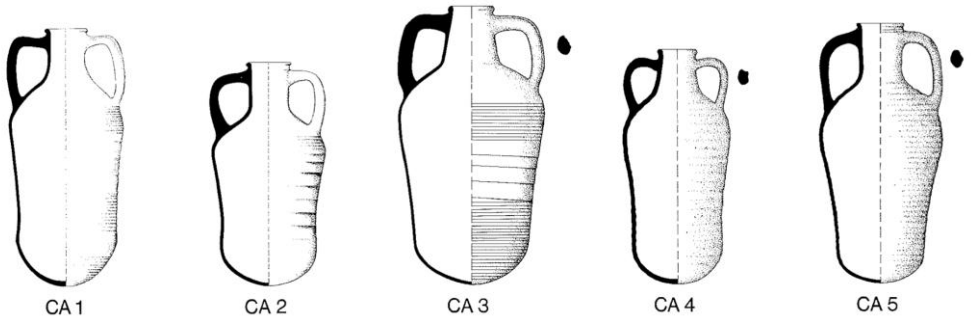

FIG. 8-3. Cargo amphoras of type 1. 1:10. *SWK*

(Bass 1962 P157)

The Uluburun shipwreck, discovered off the coast of Turkey, represents one of the most remarkable archaeological finds of the Late Bronze Age. Its cargo includes some of the oldest amphoras ever excavated, dating to between the late 15th and the first half of the 14th century BCE (Bass 1986). Excavations uncovered these amphoras alongside a diverse variety of artifacts, including a pilgrim flask and a terra-cotta wall bracket, aiding in the dating of the wreck (Bass 1986). The Uluburun carried not only storage jars but also a substantial quantity of raw materials, most notably rows of copper ingots, which were fundamental to Bronze Age economies.

The material evidence suggests that the crew likely originated from Canaan, with Cyprus considered as an alternative possibility (Bass 1986). The cargo vividly demonstrates the interconnectedness of Cyprus and the Levantine coast, both of which functioned as central interchanges in Late Bronze Age trade. Merchants from Egypt, the Aegean, the Balkans, and Afghanistan appear to have converged upon these regions, exchanging goods such as Cypriot copper, Syro-Palestinian amphoras, Canaanite gold jewelry, and incense (Bass 1986). Remarkably, of the 150 Canaanite jars recovered, several contained preserved residues of spices and other foodstuffs, providing rare insight into the perishable goods that were so often lost in antiquity (Bass 1986). The dietary remains– consistent with a Mediterranean culinary tradition– further support the idea that the crew was of Canaanite origin.

Comparatively, the Yassi Ada and Uluburun shipwrecks illustrate two contrasting but complementary aspects of ancient maritime commerce: one emphasizing the large-scale transport of staple goods such as wine, and the other representing a diverse exchange network in which luxury items, raw materials, and exotic imports circulated long-distance maritime travel. These wrecks underscore not only the pivotal role of seafaring in sustaining cultural and material connectivity, but also the economic significance of amphorae as transport vessels.

10. Results

Evidence suggests that amphorae did not abruptly disappear from use but instead underwent a gradual decline brought about by several interrelated factors: religious change, technological innovation, and shifting economic and environmental conditions. Maritime archaeology provides some of the clearest indications of their earlier prominence. Shipwrecks such as the Uluburun and Yassi Ada have yielded material evidence of amphorae in trade, with cargoes numbering in the hundreds (Bass 1986; Van Doorninck 1989). By the Middle Ages, the archaeological record shows a marked reduction in amphorae, suggesting that their role in commerce, ritual, and daily life had diminished significantly. One factor in this decline was the transformation of religious practices. The reduction of grave goods following the spread of Christianity (Pearce 2015) meant that amphorae, once common in funerary contexts, became less visible in the archaeological record. Similarly, evolving Eucharistic traditions altered the ritual role of wine, lessening the symbolic and practical significance of amphorae in liturgical settings (Goosen 2008). Alongside religious change, technological transitions reshaped storage and transport practices. Wooden barrels began to replace amphorae in many regions, offering distinct advantages: they were more durable, portable, and standardized (Twede 2005). Their larger capacity facilitated long-distance trade, as uniform measurements simplified transactions and storage logistics. Barrels also reduced labor costs compared to the handling of fragile ceramic containers.

Environmental and economic circumstances further encouraged this shift. In northern Europe, where timber resources were abundant, barrels could be produced more readily and cheaply than clay amphorae. By contrast, regions with limited access to high-quality clay faced constraints in large-scale amphora production, giving barrels an additional economic edge (Twede 2005). The political and cultural influence of the Normans additionally contributed to this trend, as they expanded barrel use in the wine trade across England, further embedding this technological and cultural transition within broader trade networks.

11. Discussion

The disappearance of amphorae in the medieval period is more accurately interpreted as a shift in material culture shaped by religious, economic, and technological change. Christianity reshaped attitudes toward wine consumption, reducing amphorae's symbolic role while promoting large-scale vineyard cultivation and trade through monasteries (Goosen 2008). Simultaneously, the barrel's durability, ease of handling, and standardized capacity made it the superior vessel for expanding long-distance trade networks (Twede 2005).

Archaeological absences do not necessarily indicate discontinuation. Instead, they may reflect changes in cultural practices and preservation. The decline of amphorae in graves, combined with the predominance of barrels in economic trade, explains the diminished archaeological footprint. Ultimately, amphorae remained central for over two thousand years, but the Middle Ages marked a pragmatic shift toward barrels, which better suited the evolving demands of commerce and culture. Amphora were used for over two millennia, a tradition interrupted by economic, political, and religious shifts. Larger scale trade was supported by greater carrying capacity and standardization. Environmental factors of limited clay and increased access to wood determined the most conventional form of storage and transportation. Lack of amphora evidence in the archaeological record was contributed to with a decline in grave goods and divisions in Christianity's perspective on the proper use of wine. Consistent transport benefitted from durable materials, and wooden barrels with metal bands dominated over clay amphora.

11. Conclusion

The decline of amphorae during the medieval period should not be viewed as an abrupt disappearance but as part of a broader transformation in material and cultural practice. For centuries, amphorae had served as indispensable vessels of trade, ritual, and daily life, shaping the circulation of goods and ideas across the Mediterranean. Their gradual replacement by wooden barrels reflects more than a technological substitution; it embodies the convergence of shifting religious traditions, evolving economic systems, and environmental adaptation. Christianity reshaped the symbolic role of wine, reducing amphorae's presence in funerary and ritual contexts while monastic viticulture expanded production and trade. Meanwhile, barrels—cheaper, more durable, and easier to transport—better met the logistical demands of long-distance commerce and taxation. Archaeological evidence, from the Uluburun to Yassi Ada shipwrecks, illustrates the prominence of amphorae in earlier maritime networks. This is followed by their scarcity in later contexts, further signaling the predominance of barrels. Amphorae's decline underscores the dynamic interconnection between culture and technology, demonstrating that material shifts are rarely simple replacements but rather reflections of deeper transformations in society.

Acknowledgments

Not applicable

Authors' contributions

Sole author provided all contributions.

Funding

Not applicable

Competing interests

The author declares that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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