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Changes in Wine Consumption in Palestine, c. 600–1100 CE: The Ceramic Evidence

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This study provides an updated picture of the seventh- to eleventh-century CE production and distribution of local and imported wine jars and amphorae across Palestine, which—together with selected data on pottery production sites and winepresses—reflect changes in habits of wine consumption by the country's population. Beginning in the seventh century CE, a gradual decline occurred in the manufacturing of Gaza jars, simultaneously with an increasing use of southern coast bag-shaped jars. Wine import to Palestine also declined from the seventh century CE on. From the eighth century CE onward, Palestinian wine, whose production gradually diminished, was designated predominantly for local consumption and marketed in regional bag-shaped jars. Finally, this study shows that the sixth-century CE decline of the settlement system and viticulture apparent in the Negev Highlands did not uniformly affect the southern coastal plain, which reflects a nuanced picture of continuous yet gradually declining activity of wine production and marketing until the end of the Byzantine period and sometimes later.

Keywords: late antique, Early Islamic Palestine, viticulture, wine consumption, continuity and change, local ceramic containers, imported ceramic containers

Introduction

Viticulture constituted one of the major economic branches of historical Palestine since sometime in the Roman period, and more increasingly in late antiquity, roughly between the fourth and seventh centuries CE—specifically in the Mediterranean coastal region, the central hill country and parts of the Negev desert.[2] This is clearly demonstrated by contemporaneous literary sources that mention and even praise wines produced or marketed by the cities of Gaza and Ashqelon/Ascalon and their vicinity, and by the remains of dozens

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[2] I wish to thank the various scholars who allowed me to publish here selected finds from their excavations, and extend my gratitude to Elena Delerzon and Ira Perova (IAA), for preparing the illustrations for this study.

(if not hundreds) of winepresses—many of which are complex and designated for industrial production—documented at and in between numerous settlement sites in the aforementioned regions, as well as in other parts of the country. Another component of the Palestinian wine economy was the mass production of ceramic containers used for transporting and marketing wines to local, regional and overseas markets, as indicated by direct and indirect evidence of many pottery workshops, sometimes near wineries, that specialized in the production of transport/storage containers (see Frankel 1999; Kingsley 2002; Ayalon, Frankel and Kloner 2009; Decker 2009b:122–149; Chocron 2021; Avni 2022b:629–635). Scholars also broadly agree that at a certain stage between late antiquity and the early Middle Ages significant, albeit gradual, changes occurred in the Palestinian wine economy, such as a decrease in wine production, reorientation of the region's commercial contacts with foreign markets and probably also shifts in the extent and nature of local consumption.

These factors inevitably influenced the export and local distribution of Palestinian wines and the import of foreign wines from the late Byzantine period to the end of Early Islamic times, with direct relevance to the subject of contemporaneous wine containers. This study seeks to provide an updated picture of the production of local and imported wine containers and their distribution in Palestine between the seventh and eleventh centuries CE, as one reflecting changes in habits of wine consumption by the country's population. A concise review of the Palestinian wine economy in this period is followed by a detailed discussion of the main vessel types documented in local contexts that are identified (albeit not necessarily exclusively) as wine containers, relying on a plethora of published and unpublished data from archaeological excavations across the country (Fig. 1).

Continuity and Change in the Palestinian Wine Economy from Late Antiquity to the Eve of the Crusades

As noted above, wine production in Palestine doubtless intensified dramatically beginning in the fourth century CE and was a major, if not the main, component of the economic structure of many settlements, specifically rural ones, until the late Byzantine period and sometimes later. Although wine was produced by local Christian (including monastic), Jewish and Samaritan communities alike, scholars agree that there was a strong link between the Church administration in the country's urban centers and the establishment of wineries and other agricultural factories. Also associated industries, such as storage/transport-jar production, which took place on the outskirts of towns and in their rural hinterland, point to a clear interest of the church to strengthen ecclesiastical hegemony over this major economic branch. The growing power of Christianity, coupled with an intensive movement of pilgrims to and from the Holy Land, largely contributed to the high demand for Palestinian wine by local Christians and foreign consumers, notably in predominantly Christian regions. Physical evidence of this phenomenon is the adjacency of winepresses and community churches in towns and villages, as well as winepresses located in monasteries, which—beyond fulfilling self-consumption needs—often produced considerable surpluses

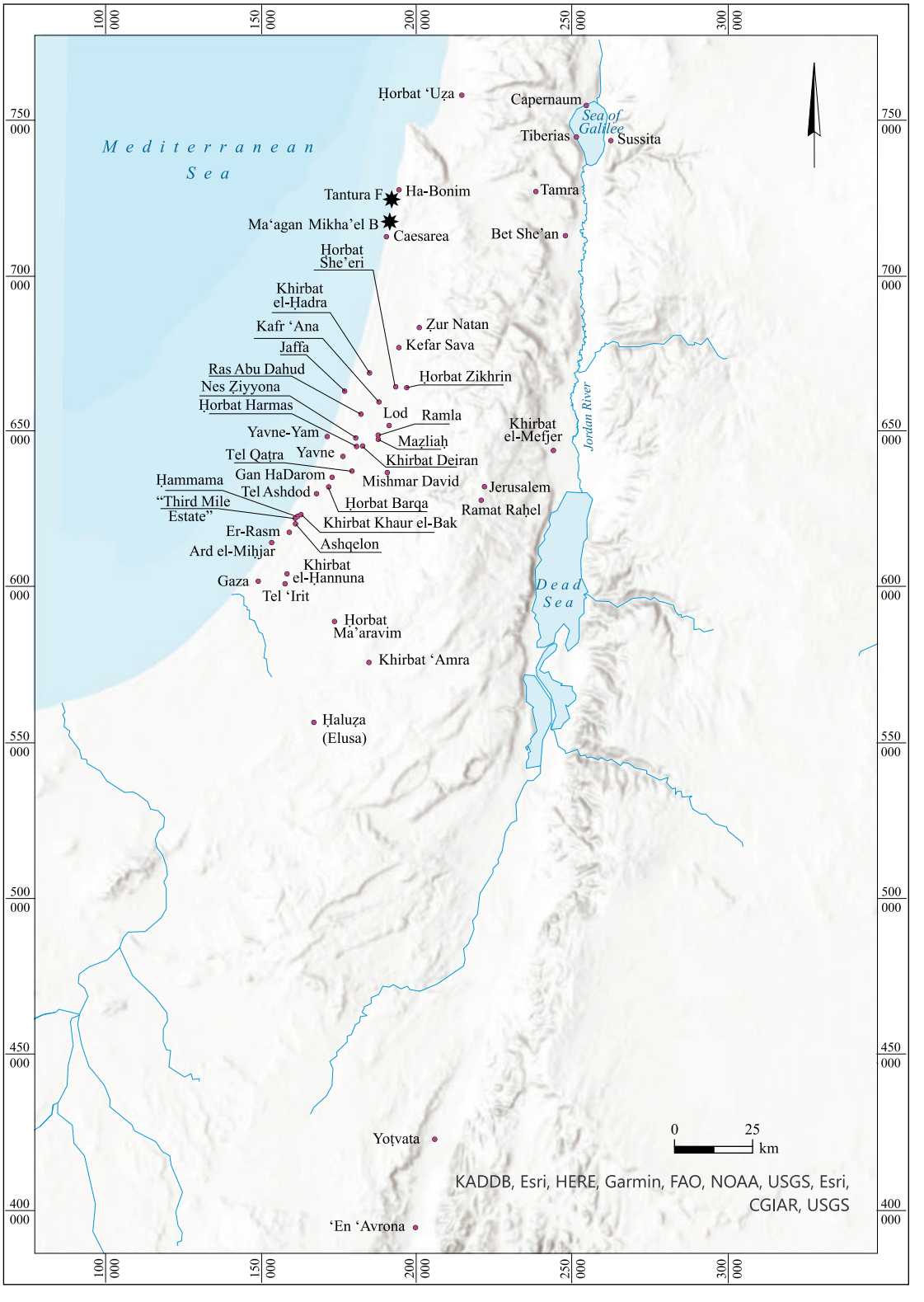

Fig. 1. Location map of sites mentioned in the article.

designated for local and foreign markets. Though Jews and Samaritans—and polytheists until a certain stage—also partook in the Palestinian international wine trade, this profitable and prestigious branch was dominated by Christian communities and private estate owners, who possessed extensive vineyards and wineries and by the Church authorities, specifically in the coastal region (mainly its southern and central parts) that constituted the backbone of the export-oriented wine industry. In late antiquity, Palestinian wine was marketed in designated ceramic containers intra- and inter-regionally. These were distributed widely throughout the Southern Levant and across and beyond the Mediterranean—possibly with the aid of trading diasporas of Southern Levantine communities—and are commonly considered as hallmarks of Palestinian economy and material culture (see Kingsley 2002; Decker 2009a:243–247; 2013:104–111; Opaiţ 2021; for updated summaries on wine production in the southern coast and the Negev, see Haiman 2020; Seligman 2020; Huster 2015:42–46, 53; Seligman, Haddad and Nadav-Ziv 2023; Avni, Bar-Oz and Gambash 2023:1–11).

The causes and chronology of the decline of the Palestinian wine industry are still debated. The scholarly consensus is that while the production of local wine sharply declined from the eighth century CE, if not earlier (see below), by no means did it vanish after the Muslim conquest. The clearest archaeological testimony to this process is the abandonment of winepresses, including the largest and most complex ones, in many settlements and their subsequent conversion into refuse dumps or reuse for other industrial or domestic purposes. Based on the latest finds associated with these activities, winepresses went out of use between the late seventh and ninth centuries CE, mainly in the eighth century CE, namely the late Umayyad and early Abbasid periods. Scholars agree also that the export of Palestinian wine overseas and to neighboring locations diminished already toward the end of the seventh century CE (see Ayalon 1997:150–163; Decker 2013:111; Taxel 2013a:103–104; 2013c:190; Bronstein, Yehuda and Stern 2020:57; Opaiţ 2021:92; Avni 2022a:635); however, there is no agreement concerning the reasons for this decline. Some tend to identify the Muslim conquest of the 630s CE as a partial or even major cause, which resulted in a gradual abatement of the coastal plain settlement and an interruption of international seaborne trade in the eastern Mediterranean (e.g., Ayalon 1997:164; Decker 2013:112–113; Taxel 2013a:104; Opaiţ 2021:92). Ayalon (1997:165) suggested that the religious Muslim ban on wine drinking was a prominent agent, as it decreased the demand for wine in the local and neighboring markets. Yet, we presently know that wine production by non-Muslim communities in Palestine continued well into Early Islamic times, though likely on a small scale, designated predominantly for self-consumption and intra-regional trade—a trend that continued into the Crusader period, during which wine was also produced by Latin Franks, in addition to local/Eastern Christians. Moreover, contemporaneous literary sources document the attraction of Muslims to monasteries throughout Egypt and the Near East, Palestine included, *inter alia* due to their role as prominent wine producers and suppliers (see Decker 2013:111–112; Taxel 2018a:169; Avni 2020:118; 2022a:210–211; 2022b:635–636; Bronstein, Yehuda and Stern 2020:57–68; Cohen et al. 2023; for literary and ceramic

evidence of wine production and consumption in Abbasid-period Iraq, see Rice 1958). A few winepresses excavated at sites whose population in Early Islamic times was predominantly Christian or mixed were either dated to the Umayyad period or identified as Byzantine-period facilities that continued to function at the beginning of the Early Islamic period, such as those at Tamra (Tepper 2013; 2019) and Yavne (Nadav-Ziv et al. 2022:30–39, 41). Most strikingly, recent excavations at the Umayyad palatial site of Khirbat el-Mefjer revealed a large winepress that was an integral part of the complex (Jennings 2015:151–152). This installation demonstrates not only the already-known permissiveness of the Umayyad caliphs toward wine drinking but also that they produced their very own wine (for changes in local agrarian structure and wine production after the Muslim conquest, see Forste 2023:93–97, 109–110).

Scholars have suggested recently, based on a comprehensive multidisciplinary research of the major Negev Highlands Byzantine- and Early Islamic-period sites, that the decline of this region's settlements, as well as those of the southern coastal plain, including their viticulture, began already in the second half of the sixth century CE (Avni, Bar-Oz and Gambash 2023, with additional references; see also Avni 2023:251–265). They further claim that until that time, the Negev Highlands' viticulture played a major role in the wine economy of southern Palestine, namely as a supplier of high-quality, export-oriented wine to Gaza and Ashqelon (Avni, Bar-Oz and Gambash 2023:3; for an opposite opinion, see Seligman 2020). Among the potential direct and indirect causes that were suggested for the settlement/demographic and economic abatement are certain worldwide climatic shifts (presumably drier weather); local events of aeolian sand encroachment; long-term effects of the Justinianic (bubonic) Plague, which broke out in 541–542 CE; and long-term economic changes in the greater Mediterranean region (such as a slowdown in international maritime trade and a decrease in the demand for imported wines), which lasted until after the Muslim conquest. Seemingly, this decline is physically demonstrated in the sharp drop in grape pip finds and frequency of Gaza (wine) jars in Negev Highlands settlements after c. 550 CE (Avni, Bar-Oz and Gambash 2023:3, 6–13; for the ceramic perspective, see also Heinzelmann et al. 2022:274–275).[3] Indeed, the suggestion that the over-reliance of the Negev Highlands settlements on viticulture made them much more vulnerable to the changing conditions and the first to decline as their consequence (Avni, Bar-Oz and Gambash 2023:3, 13) is rather convincing. However, as I will demonstrate below, the picture from the southern coast region was probably more complex, and the situation attested in the Negev cannot be applied equally to the former.[4]

[3] For a recent critique of the very beginning of the Negev settlement and economic decline and its causes, with an emphasis on Elusa, see Olshanetsky and Cosijns 2023, who attribute this decline to the seventh-century CE Persian invasion and Muslim conquest.

[4] Haiman (2020:241–242, 255–256) too agrees that what he identifies as a southern Palestinian Church-organized settlement-economic system based on runoff agriculture, with specific emphasis on wine production, virtually disappeared around 600 CE. But contrary to the aforementioned theory, he dates the heyday of the system to the mid-sixth century CE, following reforms initiated by Emperor Justinian I (527–565 CE).

Local Commercial and Storage Containers

In late antiquity, two dominant forms of ceramic containers were used for transporting and marketing Palestinian wines (and other foodstuffs) to local, regional and overseas markets: the elongated Gaza jar (= Late Roman Amphora [LRA] 4, following the terminology of Riley 1979) and the bag-shaped jar (= LRA 5/6). The following section reviews the production, evolution and distribution of these jars, and of a third, esoteric type of local globular amphora from the seventh century CE onward, against the changes in Palestinian wine economy.

Gaza Jars

The so-called Gaza/LRA 4 jar was the standard commercial container, notably of wine, produced along the southern Palestinian coast starting in the late first century CE and until sometime at the beginning of the Early Islamic period. Its production and distribution peaked during the fifth and sixth centuries CE, and direct and indirect evidence of its manufacturing—in the form of pottery workshops or production waste (slag and/or deformed vessels)—has been documented between the Gaza region (including the northwestern fringes of the Negev) in the south (see Israel 1995; Huster 2015:45–46) and the Lod Valley in the north (Gophna, Taxel and Feldstein 2007:13; Sion and Rapuano 2010; Kogan-Zehavi 2011). While in the northern section of the southern coast, approximately from the Yavne area northward, Gaza jars seem to have been used on a similar scale to that of locally produced bag-shaped/LRA 5/6 jars throughout the fifth to seventh century CE, farther south on the southern coast (e.g., in the Ashqelon area), in the northwestern Negev and in the (western?) Negev Highlands, Gaza jars were probably more dominant, specifically in contexts dated not later than the mid-sixth century CE. This can be deduced from the relative quantities of Gaza versus bag-shaped jars in these areas (see Heinzelmann et al. 2022:274) and by the fact that thus far no clear evidence for the production of bag-shaped jars was found in the coastal region south of Yavne; however, this situation changed from the mid-sixth century CE onward (see below).

The chrono-typology of Gaza jars accepted by most scholars today is based on Majcherek's (1995) and Pieri's (2005:101–114) studies, and to a lesser extent on Sazanov's (2017), whose chronological conclusions largely reiterate the earlier works. To these, one should add Oked's (2001) study, which includes additional aspects related to Gaza jar production and distribution. These main studies and others agree that the latest type of Gaza jar (Fig. 2:1, 2) was an elongated container with a slim body that is either plain or has a narrow band of ribbing or deep combing below the handles, a plain rim that continues the line of the shoulder and a narrow, conical, ribbed base with a flattened or rounded bottom; clay accretions usually appear on the shoulder and rim. Majcherek (1995:169) dated this type (Form 4) from the late sixth century until at least the late seventh century CE, noting that more evidence is needed to conclude whether it continued into the first half of the eighth century CE as well. Oked (2001:238) similarly dated this type (Type 7) from the late

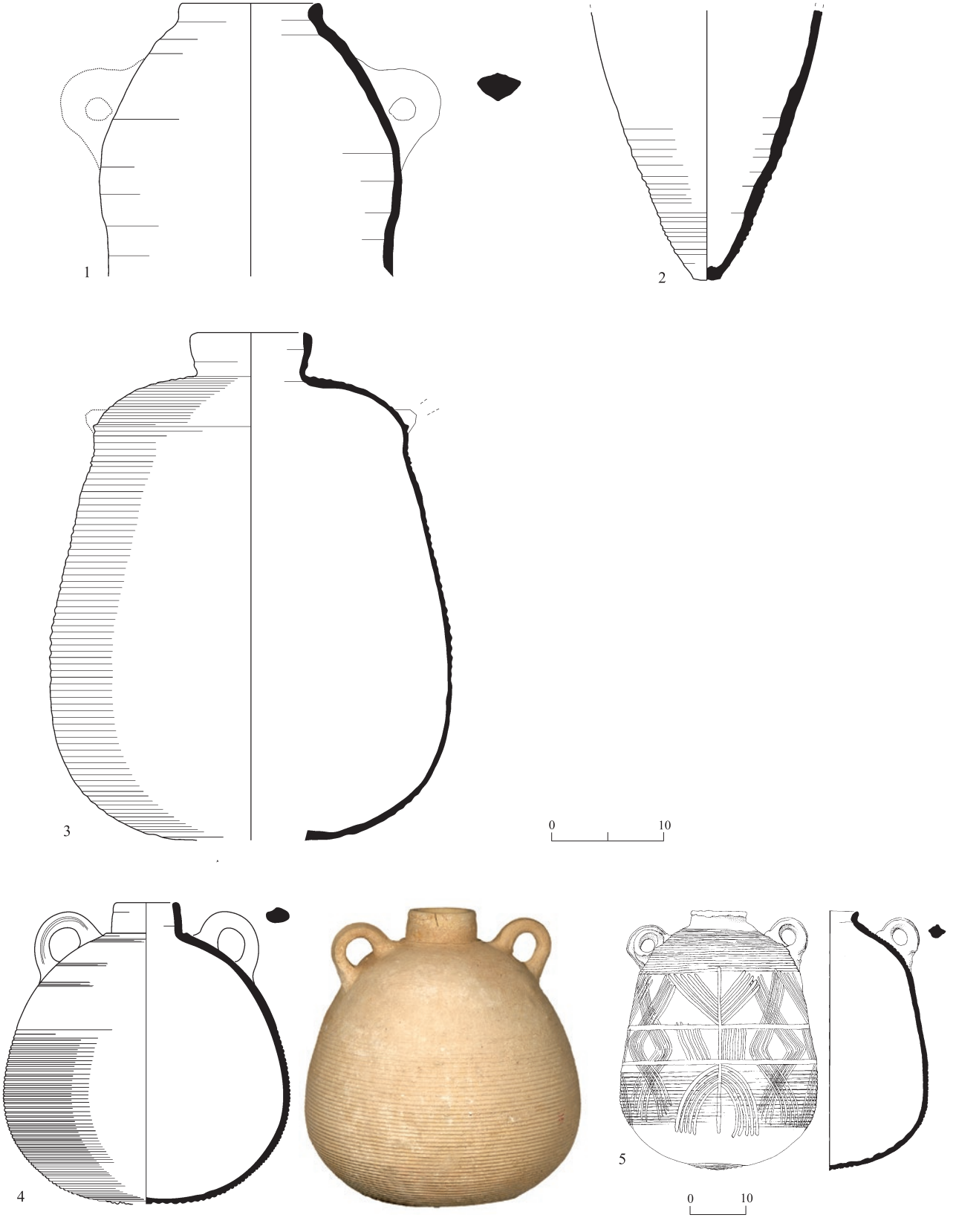

Fig. 2. Palestinian containers.

Fig. 2. (cont.)

◂ **Fig. 2**

No.	Type	Site	Date (CE)	Drawing/Photography/3D Scanning
1	Gaza jar	Tel Qaṭra	7th c.	A. Karasik (IAA)
2	Gaza jar	Tel Qaṭra	7th c.	A. Karasik (IAA)
3	Northern bag-shaped jar	Yavne	Mid-6th–7th c.	A. Karasik (IAA)
4	Central hill country bag-shaped jar	Mishmar David	8th c.	I. Lidsky-Reznikov, C. Amit (IAA)
5	Central coast bag-shaped jar	Ha-Bonim	Early 8th c	A. Pikovsky (IAA)
6	Southern coast bag-shaped jar	Yavne	Mid-7th c.	A. Karasik, C. Amit (IAA)
7	Southern coast bag-shaped jar	Yavne	9th c.	A. Karasik, C. Amit (IAA)
8	Southern coast bag-shaped jar	Nes Ẓiyyona	8th c.	M. Shuiskaya (IAA)

sixth to the late seventh century CE. Pieri (2005:106–107), on the other hand, identified two variants of this type (Forms B2 and B3), the earlier dating to the second half of the sixth through the seventh century CE and the later, to the seventh century CE, maybe even to not before its second half, perhaps until the first half of the eighth century CE.

Two main questions arise regarding Gaza jars in connection with the subject of this study: How late can we date the production of Gaza jars, and what was the extent of their production and distribution during the last phase of their manufacture in comparison with the preceding period (roughly the fifth–early seventh century CE)? I will address these questions below, specifically the first one, in light of the Gaza-jar production sites and Gaza-jar finds from selected non-production contexts.

Jar Production Sites

Some of the pottery workshop sites excavated in the southern coast (Ashdod and Ashqelon area) and northwestern Negev, which were identified as production sites of Gaza jars and yielded publications with sufficient data (notably illustrations and/or detailed description of finds), were dated as late as the seventh century CE, usually its first half, or the end of the Byzantine period in general. This dating conforms with the latest Gaza jars found within kilns or in kiln dumps at these sites (e.g., Baumgarten 2000:70*, 73*, Fig. 4:2–16 [Tel Ashdod]; 2001:47*, Fig. 3 [Giv‘ati Junction]; Peretz 2008: Fig. 3:6–8 [Khirbat el-Ḥannuna]; Israel and Erickson-Gini 2013:200–201, 211–212, 218–219, Fig. 37:2 [the ‘Third Mile Estate’]; Eisenberg-Degen 2018: Fig. 7:16, 17 [Tel ‘Irit][5]). Further evidence of wine production until at least the very late sixth century CE has recently been revealed at the ‘Third Mile Estate,’ which may also indirectly indicate the continuous manufacturing of

[5] Eisenberg-Degen (2018) linked the pottery workshop dump she excavated at Tel ‘Irit with the warehouse that contained about 70 Gaza jars ready for shipment unearthed at Ard el-Miḥjar, near the Naḥal Shiqma estuary (Fabian and Goren 2001), west of Tel ‘Irit. The Ard el-Miḥjar warehouse was apparently active until the early seventh century CE, as indicated by contemporaneous coins found in the surface layer covering the structure.

wine containers (i.e., Gaza jars) at this site: a Greek inscription engraved on a paving slab of one of the local winepresses' collecting vats mentions two high-ranking officials who were involved in the renovation of the winepress in 589 CE.[6] Although the exact circumstances of the inscription engraving and the renovation works it mentions are yet unknown, this find may refute claims that the severe decline of the 'Third Mile Estate' site in the mid-sixth century CE was due, *inter alia*, to the 541–542 CE Justinianic Plague (Ariel 2013:230; Avni, Bar-Oz and Gambash 2023:9; see further below).

A pottery workshop excavated at Ḥorbat Barqa, between Ashdod and Yavne, apparently produced Gaza jars, though such vessels—including examples of the latest Gaza jar type—were only retrieved from refuse pits dug into the kiln complex following its abandonment. In addition, a petrographic analysis of some of the jars indicated that they were not produced locally. The later jars were dated to the sixth–seventh century CE (until as late as the beginning of the Early Islamic period), to which the excavators attributed also the end use of the pottery workshop, based also on two contemporaneous wheel-made lamps found in contexts identified as kiln debris deposits (Gadot and Tepper 2003:139–141, 143–145, 148, Figs. 17:1–5, 18:1, 2). The excavators further noted that they "cannot say when the workshop ceased to operate" but hinted that it may have functioned until the eighth century CE (Gadot and Tepper 2003:151, n. 3). However, without further evidence, this hypothesized date cannot be confirmed, and for the time being, the abandonment of the Ḥorbat Barqa workshop should be dated to not later than sometime in the seventh century CE.[7]

Farther northeast, at the eastern foot of Tel Qaṭra, an enormous amount of Gaza jars, including the latest type, was retrieved in the excavated remains of pottery kilns with associated dumps. At least one of these contexts was dated to the seventh century CE, based on radiocarbon dates and supporting evidence from additional ceramic types (Weiner et al. 2020:3–4, 10, 13, Figs. 5:1–5, 17, Table 2). Another nearby pottery production deposit contained Gaza jar fragments and an Arab-Byzantine coin dated to c. 641–670 CE, which

[6] The yet unpublished inscription was discovered in December 2021 by Sa'ar Ganor (IAA), and preliminarily discussed by Avner Ecker (Bar-Ilan University) in the 18th Annual Southern Conference (2022). See Ecker A. "Renovations in the Imperial Estate: Building Address from the Third Mile Estate in Ashqelon, Avner Ecker, Southern Conference 2022". YouTube video posted by Israel Antiquities Authority Official Channel, March 13, 2022. https://www.youtube.com/watch?v=OSAo55Q7xCo

[7] Another, albeit indirect support for a seventh-century CE end date of the Ḥorbat Barqa pottery workshop is provided by the excavation at the site of a church, whose abandonment was dated to the seventh century CE based on the ceramic evidence (Rapuano 2016; Sion 2016). Since it is likely that a certain, perhaps even strong economic linkage existed between the local ecclesiastical administration and viticulture (see above), including the discussed pottery workshop, it is possible that the destruction and abandonment of the church were part of a change process in the settlement that included a decline in the production of wine and wine containers.

may support the assumption that pottery production, including that of Gaza jars, continued at Tel Qaṭra for some time after the Muslim conquest.[8]

Excavations carried out in recent decades around Tel Yavne (northwest of Tel Qaṭra) have revealed much evidence of an extensive pottery production industry during the Byzantine and beginning of the Early Islamic periods (at least until the eighth century CE). The storage and transport containers produced at Yavne were dominated by various Gaza and bag-shaped jar types (see below). Evidence of the production of Gaza jars, including the latest type, was found in a few small-scale excavations in the early 2000s (see Fischer and Taxel 2007:238, with further references therein; Segal 2011), in a later, large-scale excavation (Yannai 2014; Langgut et al. 2016)[9] and in more recent (2019 onward) and extensive excavations (e.g., Seligman, Hadad and Nadav-Ziv 2023; Tsuf 2022). Only following the recent excavation projects, it was found that some of the workshop production dumps contained late Gaza jars, which may be dated until the early eighth century CE, based on stratigraphic considerations and other ceramic types accompanying the jars (Tsuf 2022:231, 236; Orit Tsuf, pers. comm.). Still, as the study of these finds is ongoing, this conclusion should be treated with caution, also considering the apparent blow the local pottery (and wine?) industry had dealt following the 659/660 CE earthquake (as suggested by Langgut et al. 2016).

The northernmost site yielding evidence for Gaza-jar production was detected at Kafr ʻAna in the Lod Valley, where one of the excavated kiln dumps (which contained mainly Gaza jars) was dated to the seventh–eighth centuries CE (Kogan-Zehavi 2011). However, the published ceramic repertoire from this context does not necessarily support a date later than early to mid-seventh century CE.

Non-Production Contexts

This broad category of settlement or non-settlement sites naturally provides a vast amount of data of varying quality. Accordingly, regarding the issue under discussion, the reliability of the dating of a given Gaza jar based on its context should be questioned, as the jar may be contemporaneous with the context in which it was found, residual (i.e., originating in an earlier deposit) or reused (in a complete or near-complete state), in some cases over several decades (for the latter aspect, see Taxel 2018b:71–106). For the sake of the present study, I will concentrate on specific cases in which Gaza jars are integral components of a given artifact assemblage to pinpoint the latest time of their appearance.

As emphasized above, although there is presently little if any secure direct evidence of the production of Gaza jars after the early to mid-seventh century CE, there is apparently a

[8] The excavations at Tel Qaṭra were directed by Alla Nagorsky on behalf of the IAA in 2017–2018 (Permit Nos. A-7901, A-8135, A-8184). The Roman- to Islamic-period pottery from the excavations was studied by the author, and the coins were studied by Gabriela Bijovsky.

[9] The Roman- to Islamic-period pottery from the excavations directed by Eli Yannai on behalf of the IAA at Tel Yavne in 2010–2011 (Permit Nos. A-6025, A-6488) was studied by the author.

consensus among scholars that the latest type of Gaza jar was still produced, and apparently also marketed to neighboring and overseas regions, carrying wine and possibly other commodities, also after the Muslim conquest of the 630s and into the second half of the seventh century CE. Examples for contemporaneous contexts with Gaza jars, including complete or near-complete vessels, have been cited from sites in the Southern Levant and the greater Mediterranean (see, e.g., Majcherek 1995:169; Oked 2001:238; Kingsley 2002:77; Pieri 2005:106–107), and there is no reason to doubt this conclusion. Still, the data from regions outside the Southern Levant point to a drop in the quantity of Gaza jars after the mid-seventh century CE (see Decker 2013:111, with further references therein; Creisher et al. 2019:109).

The picture of the eighth century CE is not as clear; evidence of the presence of Gaza jars in contexts dated to the first half of this century come from Egypt (see, e.g., Majcherek 1995:169; Kingsley 2002:77; Pieri 2005:107).[10] However, as Kingsley has noted (2002:77), "assessing whether some of these [mid-seventh-century CE and later] deposits are primary or residual is complicated. Amphorae may have remained in circulation longer than had been customary in Late Antiquity if their manufacture had ceased, or if routes of communication had been severely disrupted." In other words, one should not dismiss the possibility that at least some of the reportedly eighth-century CE Gaza jar finds from Egypt, and perhaps other foreign lands, represent somewhat earlier—that is, seventh-century CE—jars, which were reused after being emptied of their primary (wine?) content as packaging or transport containers for local necessities (see Taxel 2018b:71–84); according to Opaiţ (2021:93), this may also be true for mid- to late-seventh-century CE contexts in which Levantine jars were found.[11] Similarly, rim and shoulder sections of Gaza jars found on the mid-seventh- to mid-eighth-century CE Ma'agan Mikhael B shipwreck, which likely arrived from Egypt with a cargo of otherwise complete jars and amphorae, were interpreted as jar fragments reused as stands for other containers rather than part of the ship's commercial load (Creisher et al. 2019:108–109, Fig. 2:3).

In theory, it would be better to tackle the question of the presence of Gaza jars after the seventh century CE in light of local stratified ceramic assemblages. There are plenty

[10] Noteworthy is a quote of the tenth-century CE Iraqi scholar Mas'ūdī of an earlier Umayyad-period poem, mentioning wine import from Ashqelon (Mas'ūdī 1871:7; see also Gil 1992:228, n. 3). Although neither the destination of this Ashqelonian wine (Egypt?) nor its receptacle are known, if this verse was based on reality, it can be assumed that this wine was transported in late Gaza jars or, alternatively, in southern coast bag-shaped jars (see below).

[11] The shipment of Gaza jars that were either empty or contained goods other than wine (usually liquid or dry foodstuffs) is documented in papyri and ostraca from late antique Egypt (Mayerson 2008:472). In addition, four of about seventy complete Gaza jars unearthed in the abovementioned warehouse excavated at Ard el-Miḥjar (Fabian and Goren 2001; see n. 5 herein) bear Greek inscriptions that mention a dry volume measure. This may indicate that contrary to the other jars from the warehouse, which apparently contained wine, the four inscribed jars contained different commodities (*CIIP* III: No. 2431), either as their primary or secondary contents.

of published and unpublished examples of Gaza jars—found usually, if not exclusively, in a fragmentary state (i.e., not complete or restorable)—in contexts that contained pottery and other finds dated to the eighth century CE or later. We must keep in mind, however, that in multi-period sites with a clear Byzantine- or late antique-period phase, there is a high probability that a given Gaza jar sherd would be residual. At Ramla, for example, the major Early Islamic metropolis founded around 715 CE, Gaza jars—apparently only of the latest type—have been documented in small quantities in several Early Islamic-period strata (e.g., Arnon 2007:63, Fig. 12:5; Cytryn-Silverman 2010:102–103, Pl. 9.14:2, Photo 9.25:7; Kohn-Tavor 2017:36, Fig. 2.28:7, 8; for additional references, see Torgë 2017:77). In these publications, Gaza jars were attributed to Ramla's earliest phase of existence, in the eighth century CE, and sometimes more specifically to its first half. Based on these finds, a question arises as to whether the Ramla Gaza jars represent the tail end of their production, presumably in the early eighth century CE, and consequently the latest marketing of southern coast wines in these jars, or earlier (even the late seventh century CE) reused vessels that continued in circulation, perhaps as packaging containers for goods other than their original (wine?) contents?

The situation at the multi-period sites seems to be more ambiguous. Arnon considered that the Gaza jars retrieved from Caesarea Stratum VIIIa (late seventh–mid-eighth centuries CE) were indeed contemporary to that stratum (Arnon 2008:32, 80, Type 813). While this conclusion seems reasonable given the abovementioned data from Ramla, we must keep in mind that at a multi-period site with intensive Byzantine-period occupation such as Caesarea, the presence of residual (be it even seventh-century CE) material in eighth-century CE and later contexts is almost inevitable. At Ashqelon too, Hoffman dates the "large numbers of Gaza jars" found "in association with Early Islamic unglazed and glazed ceramics" to as late as the eighth century CE, also based on Arnon's abovementioned conclusion concerning the finds from Caesarea (Hoffman 2019:337, Figs. 206–209). Yet, at least one of the published jars (Hoffman 2019: Fig. 207) is of a type commonly dated to the fifth and sixth centuries CE (Majcherek 1995: Form 3),[12] and Hoffman also notes that "while the evidence indicates that the use of the Gaza jar continued into the Early Islamic period, the contexts [in Ashqelon] are not secure and it is not possible to refine the chronology or changes in rim shape more precisely" (Hoffman 2019:337). In this regard, the ubiquity of Gaza jars in Ashqelon's Byzantine-period strata (see, e.g., Boehm, Master and Le Blanc 2016:315, n. 180) is doubtless the result of a mix between contemporaneous artifacts and later ones. Similarly, in his report on the Early Islamic pottery from the Giv'ati Parking Lot in Jerusalem, Reuven tends to attribute the few Gaza jars from Stratum IV (early seventh–

[12] Olshanetsky and Cosijns (2023:96–98) recently suggested that Majcherek's Form 3 continued in use, even if in the form of reused vessels, until about the time of the Muslim conquest; however, in my view, this is exaggerated. Dating the end of production of this type (or a hybrid variant between Majcherek's Forms 3 and 4, which surely existed) to around 600 CE seems more probable.

mid-eighth century CE) to this period (Reuven 2020:428–429, 485, Fig. 13.50). However, this dating seems somewhat forced given the existence of an intensive Byzantine-period occupation at the same site and the fact that some of the presumably Umayyad-period Gaza jars belong to Majcherek's (earlier) Form 3 (for the Byzantine-period pottery from the excavations, which includes additional examples of the aforementioned Gaza jar type, see Vincenz 2020).

Another example is the pottery assemblage from Khirbat Deiran Stratum 2, which includes one(?) late Gaza jar that Avissar dated to as late as the ninth century CE, based on other ceramics from the same stratum (Avissar 2007:97*, 99*, Fig. 4:7). However, at this site too, there are earlier occupation phases dated to the Byzantine and beginning of Early Islamic periods (see Kogan-Zehavi 2007:77*, with further references therein), and it seems more reasonable to date the jar until the (early?) eighth century CE at the latest, or to consider it an earlier reused vessel.[13] This case can be compared with a refuse deposit from Khirbat el-Ḥadra dated to about 800 CE, which contained some late Gaza jar fragments, which may represent somewhat earlier material (Tal, Taxel and Jackson-Tal 2013:124, Fig. 9:5, 6). Another example that may recall the situation at Ramla is the Early Islamic fortress (*ribāṭ*) of Ha-Bonim/Kafr Lam, probably founded in the early eighth century CE, where a pottery repertoire recovered under the earliest floors included at least one (fragmentary) late Gaza jar (Barbé and Taxel 2021:155, Fig. 18.3:1). However, since the excavations here yielded evidence also for activity in the late Byzantine–early Umayyad periods (Barbé, Lehrer and Avissar 2002), it is possible that the Gaza jar represents a remnant of this pre-fortress phase.

Discussion

Several conclusions may be reached considering the production of Gaza jars in the seventh and eighth centuries CE:

1) The production of Gaza jars and the marketing of wine stored in them to local and remote destinations continued throughout the seventh century CE, although both the production and distribution of Gaza jars had gradually but significantly dwindled between the middle and last quarter of that century. It is also possible that during the second half of the seventh century CE, and maybe slightly earlier, the production of Gaza jars became less stable and/or geographically uneven, with workshops located in the northern part of the southern coast (notably in the greater Yavne area), continuing to operate for several decades after those farther south along the coast, such as in the Ashqelon area.

2) Until at least the early seventh century CE, Gaza jars were produced throughout the southern coast, presumably also in the northwestern Negev, including in the area around and south of Ashqelon (updated data from the Gaza Strip area to the south are currently

[13] In another excavation at Khirbat Deiran, fragmentary and near-complete Gaza jars of Majcherek's Forms 3 and 4 were ascribed to the Byzantine period, although they were found in contexts that contained pottery dated to as late as the tenth century CE (Bouchenino 2007:139, Fig. 19:4–8).

unavailable). This is also indicated by the abovementioned late sixth-century CE inscription from the 'Third Mile Estate' and the warehouse at Ard el-Miḥjar, which functioned until the early seventh century CE. These data somewhat undermine the recent suggestion of an overall decline of the southern coast and western Negev wine economy in the late sixth to early seventh century CE, a process that presumably occurred in the Negev Highlands settlements already by the mid-sixth century CE (Avni, Bar-Oz and Gambash 2023:9–10) and that is associated with a significant decrease in the amount of Gaza jars in that region (Heinzelmann et al. 2022:274). The decline of the Negev Highlands settlements, regardless of its causes, was perhaps more localized than presented by Avni, Bar-Oz and Gambash (2023), at least during the mid- to late sixth century CE, and did not uniformly characterize the entire region in which the so-called Gaza and Ashqelon wines and their associated containers were produced.

3) By the early eighth century CE, the availability of Gaza jars had dropped dramatically, also compared to the second half of the seventh century CE. Even if Gaza jars continued to be produced after 700 CE—while so far there is no clear-cut evidence for this—this industry almost certainly ceased to exist before the mid-eighth century CE. Such late containers would presumably hold wines produced in a few active southern coast winepresses, but the distribution of this wine was very limited and did not include actual export to neighboring territories, all the more so to those overseas.[14] Alternatively, a few decades-old but complete Gaza jars may have remained in circulation in the early eighth century CE, but apparently not much afterward, and used as containers for various foodstuffs and other goods.

Bag-Shaped Jars

The other dominant form of local ceramic container is the Palestinian bag-shaped jar, or LRA 5/6 (see also Gendelman 2022:81–82). This vessel lived considerably longer and was more regionally varied in terms of fabric, morphology and surface treatment than the Gaza jar. By the fourth century CE, this was a nearly one-thousand-year-old form, with predecessors dating back to the late Iron Age/early Persian period (sixth century BCE). As indicated by workshop sites, petrographic analyses and distribution patterns of different variants, late antique bag-shaped jars were produced in various regions throughout the country until at least the sixth century CE, including Galilee and the northern valleys (see Avshalom-Gorni 2009 [Ḥorbat 'Uẓa]; Bar-Nathan 2011 [Bet She'an]; Mlynarczyk 2013 [Sussita]), the central hill country (Judea and southern Samaria; see, in general, Magness 1993), the central (Sharon) coast and western fringes of the Samaria Hills (see Ayalon 1998:116 [Kefar Sava]; Torgë,

[14] Cf. Reynolds (2018:94), who, with respect to the absence of Gaza jars in a major deposit of the first half of the eighth century CE in Beirut, wondered how long Gaza jars and the vineyards associated with them survived. He concluded that "the jars, as well as other late Roman forms, disappeared shortly after the Islamic conquest," based on their absence from mid-eighth century CE contexts in Fustat (Egypt).

Agmon and Elisha 2021; Hagit Torgë, pers. comm. [Ẕur Natan]), the southern coast (mainly its northern part; see Tal and Taxel 2008:63 [Maẓliaḥ/Ramla (South)]; Tsuf 2022:223, 226, 234 [Yavne]) and the northwestern Negev (see Holmqvist 2019:118–119; Heinzelmann et al. 2022:273 [Elusa]; Lect Ben Ami, Abadi-Reiss and Zohar 2023; Neer Lect Ben Ami, pers. comm. [Ḥorbat Ma'aravim]).[15] Evidence of their production from the seventh century CE onward, sometimes until the end of the Early Islamic period, can be securely identified via workshop remains and petrographic analyses only regarding the north of country, notably the Bet She'an Valley (see Bar-Nathan 2011; Mlynarczyk 2013), the central hill country (see Magness 1993; Amitai-Preiss, Cohen-Weinberger and Har-Even 2017) and the northern part of the southern coast (e.g., Elisha 2007 [Ḥorbat Harmas]; Langgut et al. 2016 [Yavne]; Weiner et al. 2020 [Tel Qaṭra]; Tsuf 2022:227, 230–236 [Yavne]; Shulamit Terem, pers. comm. [Ḥorbat She'eri]).[16] Still, production of bag-shaped jars in other regions during the seventh century CE and later is also likely; for example, complete jars typical of the central coast, as well as the Carmel and western Samaria regions, were found in late Umayyad-period contexts at Ha-Bonim fortress (Barbé and Taxel 2021:155, Figs. 18.3:2–5, 18.4).

The technological and morphological characteristics of most bag-shaped jars from the seventh-century CE and later can be summarized as follows: the northern jars (Fig. 2:3) are made of a dark-colored, gray or reddish-brown fabric that was fired at high temperatures; they include several variants, most of which are characterized by a carinated or grooved shoulder; high, vertical or in-turned neck; large ridged handles; and decoration in whitish or yellowish paint on the body. The central hill country jars (Fig. 2:4) are made of a light-colored fabric ranging from a yellowish to pale brown, fired at high temperatures, usually to a buff hue, and have a relatively globular, partially ribbed body; a (usually) high and vertical, low or in-turned neck with a ridge at its base; large handles that may bear stamp impressions; and sometimes a combed decoration on their body and/or neck. These jars too have several variants, some appearing only in the eighth century CE, which differ mainly in their neck and rim profile. The largest versions were no doubt stationary storage jars rather than transport (commercial) jars. The late, seventh–eighth-century CE central coast jars (Fig. 2:5) are made of a coarse fabric that varies from yellowish orange to reddish brown and have a partially ribbed body, low and straight or ridged neck, rounded or slightly carinated shoulder and sometimes whitish or yellowish paint decoration on the body. The commonest southern coast jar (Fig. 2:6) of the seventh century and at least first half of the eighth century CE was made of a coarse orange- or reddish-brown fabric, which was sometimes fired to a greenish-yellow hue. It is characterized by a short vertical neck that is either straight or (usually) slightly bulging/swollen, dense combing or very narrow ribbing on the shoulder

[15] The IAA excavations at Ḥorbat Ma'aravim were carried out in 2022–2023 (Permit Nos. A-9273, A-9514) under the direction of Neer Lect Ben Ami.

[16] The pottery from the IAA excavations in 2018–2019 at Ḥorbat She'eri (directed by Ron Toueg; Permit Nos. A-8377, A-8427) was studied by Shulamit Terem.

and wider ribbing on the lower part of the body. Seldom, the shoulder's dense combing is barely noticeable or absent altogether. Most of the examples have clay accretions on the upper shoulder, close to the neck. During the eighth century CE, this type was replaced by a jar (Fig. 2:7, 8) with a plain or partially-ribbed body; a high (usually) or low neck that is either straight, swollen or carinated, with or without a ridge at its base (apparently an influence of the central hill country jars); and often combed decoration on the body. Very rarely, these jars were decorated with white paint, apparently an influence of northern or even central coast jars. These later jars continued until the end of the Early Islamic period. As for the eighth-century CE and later bag-shaped jars of the coastal regions, we currently lack sufficient knowledge about their specific places of manufacturing, with the exception of the evidence from kilns at Yavne that produced such jars (Tsuf 2022:233) and perhaps another such kiln at nearby Nes Ẓiyyona/el-Khirba.[17] For instance, it is highly likely that such jars were also produced in important urban centers such as Caesarea and Ashqelon, and/or in smaller coastal towns such as Yafo (Jaffa) and Apollonia, but no comprehensive study has been conducted yet, including comparative petrographic analyses of jars from different locations along the coast.

Palestinian bag-shaped jars not later than the seventh or eighth century CE—predominantly of central and southern coast types and, to a lesser extent, of northern and central hill country types—were found at many sites across the Mediterranean and beyond, and in several Mediterranean shipwrecks, albeit in lesser quantities compared to Gaza jars (Kingsley 2002:78–82; Pieri 2005:116–122; Reynolds 2005:573–574; see also Opaiṭ 2021). Wine comprised one of the major contents of the late antique bag-shaped jars, specifically the coastal types, which were found in regions outside Palestine. This wine was produced in the many wineries throughout the central and southern coast and the western foothills. At least some of the fewer northern Palestinian and central hill country jars found in contemporaneous contexts abroad may have also contained wine, but they are more likely to have contained olive oil. Palestinian bag-shaped jar types of the eighth century CE and later are documented in much smaller numbers in neighboring regions—notably in Beirut (Reynolds 2003; 2018) and Egypt—and very little, if at all, in overseas locations or shipwrecks. The jars documented in Egypt represent the central hill country variants almost exclusively and are believed to have contained olive oil (see, e.g., Taxel 2018b:78, 105 n. 8; Avni 2022a:211; for olive oil export from Early Islamic Palestine, see Taxel 2013b:385–387).

Although Palestinian bag-shaped jars could function as commercial containers, and had played a non-negligible role in the country's foreign trade (mainly until sometime in the seventh century CE), they should be primarily considered as a "staple" component of Palestinian material culture used in local short-distance trade and for daily needs. This

[17] The Islamic-period pottery from the IAA excavations at Nes Ẓiyyona, directed by Uzi 'Ad in 2007, 2012 and 2013 (Permit Nos. A-5133, A-6373, A-6823; see 'Ad 2017), was studied by the author.

is clearly indicated by the jars' ubiquity, the variety of functional and spatial contexts in which they are found, their various primary and secondary contents, and the fact that their production and local or regional circulation continued for a considerably long time after they ceased to be distributed in large quantities as commercial containers in international trade. Furthermore, in the Negev Highlands the apparent decline in the use of Gaza jars that had begun in the mid-sixth century CE occurred in tandem with the increasing predominance of bag-shaped jars—probably mostly products of the Negev workshops—a persisting trend throughout the seventh century CE (Heinzelmann et al. 2022:274–275). From the seventh, and mainly from the eighth century CE on, following the disappearance of Gaza jars, the southern coast bag-shaped jar—including the eighth-century CE variants and later ones—became the dominant container for marketing this region's wines, at least as long as wine was produced by non-Muslim communities. However, this trade was limited geographically and likely also in scale, in accordance with the transition from industrial, outbound-oriented to small-scale/private, inbound-oriented production. Wine production from around 700 CE, and most probably at least several decades earlier, was primarily directed toward local, even intra-regional consumption (see above and below). This wine—whether in the northern regions, the central hill country or the coast—was marketed in bag-shaped jars whose distribution normally did not exceed the boundaries of a limited territory surrounding the wine and jar production areas.[18] This trend continued also in the Crusader period (Bronstein, Yehuda and Stern 2020:68–69).

Yavne-Type Globular Amphorae

Yet another, albeit much more esoteric form of Palestinian transport container is the globular amphora (Fig. 3:1) produced at Yavne, and perhaps elsewhere in the vicinity, during the seventh century CE. This type was made of a coarse orange- or yellowish-brown fabric, sometimes fired to yellowish buff, and has a short, vertical neck with a slight ridge at its upper third, an everted, hooked rim, two flat/concave-sectioned handles from the neck's base to the ribbed shoulder. Although no complete vessel was found, the shoulder profile and body sherds of the documented examples indicate that these amphorae had a globular, apparently completely ribbed, round-bottomed body. The largest amount of this amphora type was documented at Yavne, including kiln wasters, and a few other examples were found at neighboring sites and at Christian sites in North Sinai and Egypt (see Taxel and Cohen-Weinberger 2019, and further references therein). Petrographic analyses of some of the local finds support the assumption that these amphorae were made at or near Yavne. The morphology of the Yavne-type amphora is alien to local ceramic traditions, while exhibiting

[18] Seventh- or eighth-century CE and later northern bag-shaped jars are often found in southern coastal and inland sites, and southern coast or central hill country jars are found in central coast and northern sites. But these containers may testify to trade not only in regional wines but also in other foodstuffs, notably olive oil.

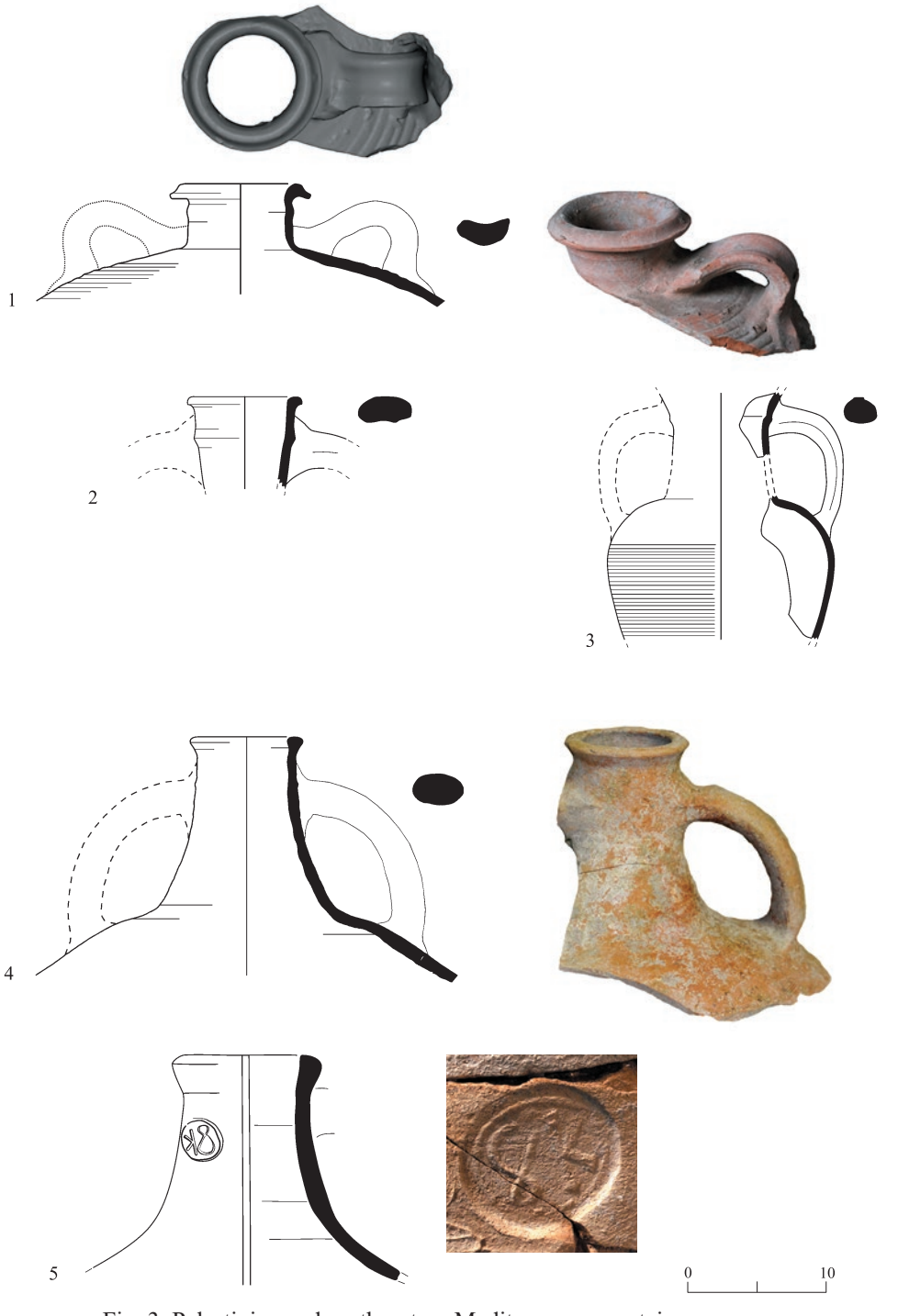

Fig. 3. Palestinian and northeastern Mediterranean containers.

No.	Type	Site	Date (CE)	Drawing/Photography/3D Scanning
1	Yavne-type amphora	Yavne	Mid-7th c.	A. Karasik, C. Amit (IAA)
2	LRA 1	Kafr ‘Ana	7th c.(?)	A. Speshilov (Tel Aviv University)
3	LRA 1	Kafr ‘Ana	7th c.(?)	A. Speshilov (Tel Aviv University)
4	LRA 2/13	Yavne	7th–8th c.	A. Karasik, I. Taxel (IAA)
5	LRA 2/13	Yavne	7th–8th c.	Y. Gottlieb, P. Shrago (Tel Aviv University)

affiliations with contemporaneous Mediterranean and Black Sea globular amphorae, but no close parallels were found among the many types of late antique and early medieval globular amphorae known from regions outside Palestine. It is possible that the production of the Yavne-type amphorae was short lived, geographically restricted and marginal in terms of its role in the local economy, and may have carried Palestinian wine marketed to ecclesiastical communities in Egypt (Taxel and Cohen-Weinberger 2019).

Northeastern Mediterranean Amphorae: A Dribble from Byzantine Lands

The variety of imported amphorae in Palestine sharply decreased after the fourth century CE, the local repertoire dominated by a few types originating in the northeastern Mediterranean, the Black Sea and North Africa, until the seventh century CE. Below, only two major amphora types are discussed, both of which show evidence of continuation and development after the seventh century CE.[19] The first and most common of these is LRA 1, which was produced in various locations in Cyprus, along the northern Syrian and southern Anatolian (Cilician) coasts, and on some of the Aegean islands. It has a conical or cylindrical ribbed body, a high vertical neck and two handles extending from slightly below the rim to the shoulder (Fig. 3:2, 3). It was the main wine (and olive oil?) commercial container used in the eastern Mediterranean between the fifth and seventh centuries CE (Pieri 2005:69–85; Reynolds 2005:565–567; Van Limbergen 2015; Vroom 2022a:230). The LRA 1 had eighth- and ninth-century CE derivatives that continued to be produced in Cyprus and the Aegean, and are categorized under the broad umbrella of the Mediterranean globular amphora (see Armstrong 2009:163–164, 170, 176; Poulou 2017:199–200; Vroom 2017:292–295) and seventh- and eighth-century CE imitations produced in Egypt (see below).

In Palestine, LRA 1 is documented mainly along the coast, and in offshore shipwrecks, though in relatively small numbers.[20] The latest securely dated examples, i.e., from more or less homogeneous contexts, including in the form of complete vessels, do not postdate the middle or second half of the seventh century CE (e.g., Adan-Bayewitz 1986:102, Fig. 2:4, 5, Ill. 103), and their representation in contemporaneous and later contexts is even lower compared with earlier deposits.[21] Fragmentary LRA 1 examples found in the Umayyad-period theater pottery workshop at Bet She'an (Bar-Nathan 2011:239, Fig. 11.8:4, 5) were

[19] For instance, an amphora type excluded from the present discussion is the Black Sea Sinopean amphora, which may have contained wine (although olive oil and fish products are similarly likely) but whose production ceased in the early seventh century CE (for an updated review of Sinopean amphorae in the eastern Mediterranean, see Bes 2021).

[20] This can be explained, perhaps, by the assumed lower quality of the wines that originated in the northeastern Mediterranean and marketed in LRA 1, compared with the more esteemed Palestinian wines (see McCormick 2012:64–65).

[21] Examples of LRA 1 from contexts that yielded pottery and other finds and span the sixth and late seventh or early eighth century CE are not mentioned here, as it is uncertain whether a given amphora represents the earlier or the later ceramic repertoire of a given context.

dated to as late as the mid-eighth century CE; however, their rim and neck morphology appears to be closer to that of the "classical" fifth–seventh-century CE LRA 1 than to that of their later derivatives, and their fabrics preclude their identification as Egyptian imitations of LRA 1. Although Bar-Nathan (2011:239) notes that these amphorae "come from clearly Umayyad strata," the area of the workshop also yielded residual Byzantine- and early Umayyad-period ceramics, suggesting that these vessels too do not postdate the seventh century CE. True examples of LRA 1 derivatives are rare in our region, and to the best of my knowledge, only one, near-complete amphora of this type has been published, from the Ma'agan Mikha'el B shipwreck. Interestingly, the well-preserved contents of this amphora comprised grapes or raisins (Creisher et al. 2019:106–108, Fig. 2:1), although it may have originally held another commodity (wine?).

The other amphora type is LRA 2, produced between the fifth and seventh centuries CE in Cyprus and the Aegean islands, which is characterized by its globular body, often decorated on the shoulder with deep horizontal and/or wavy combing and equipped with two handles from about mid-neck to shoulder. Until the late sixth century CE, the LRA 2 variants (Pieri 2005:86–88, Types 2A and 2B) exhibit a biconical neck with a thickened rim, while the later variant (late sixth–seventh century CE) (Pieri 2005:88–89, Type 2C) has a conical or tapering neck with a short, everted rim. From the mid-seventh to the early ninth century CE, the later variant had developed into several derivative types, often collectively termed LRA 13 (or LRA 2/13), constituting the largest group within the heterogeneous family of the Mediterranean globular amphorae. Some of these types exhibit a combination of morphological characteristics of LRA 1 and LRA 2—namely, a globular or ovoid body and a relatively long and narrow neck. They were produced in various regions, from Cyprus in the east to Italy and Tunisia in the west, and—as in the case of LRA 1—had Egyptian imitations (see below). It is assumed that the primary contents of LRA 2 and its later derivatives were wine and olive oil. Some of the Aegean-originated amphorae bear on their neck round impressions of state control stamps depicting busts of emperors, monograms or Greek abbreviations (see Pieri 2005:89; Reynolds 2016:144–147; Poulou 2017:200–207; Taxel and Cohen-Weinberger 2019:19; Vroom 2022a:224–245; for the stamped amphorae, see also Diamanti 2015:126–128).

In the Southern Levant, all variants of LRA 2 were much less frequent than LRA 1, and like the latter, local finds of LRA 2 have been documented mostly at coastal sites. The presence of late LRA 2 and LRA 2/13, and related types, is rather sporadic and confined mainly to contexts dated between the mid-seventh and mid-eighth centuries CE. Judging by their fabric and morphology, most of these amphorae seem to be of a northeastern Mediterranean (i.e., Cypriot or Aegean) origin, although a minor presence of North African (Tunisian) LRA 2/13 derivatives is also possible (for Egyptian LRA 2/13 imitations, see below). They were found, for example, at Caesarea (e.g., Adan-Bayewitz 1986:105–106, Fig. 3:4, 5, 9, Ills. 111, 112; Arnon 2008:33, 82, Type 816; Oren-Paskal 2008:57, Fig. 6:26,

27; Gendelman and ‘Ad 2023:39*, 58*, Fig. 4:e), Tiberias (Stacey 2004:127, Fig. 3.35;[22] Vincenz 2008:160, Fig. 4.7, Pl. 4.39:6),[23] Ramla (Cytryn-Silverman 2010: Pl. 9.22:2), Capernaum (Loffreda 2008:141, Type ANF 46, identified as a North African amphora),[24] the Ṭanṭura F shipwreck (Barkai, Kahanov and Avissar 2010:93, Fig. 4:5–8), the Ma‘agan Mikh’ael B shipwreck (Creisher et al. 2019:108, Figs. 2:2; 3, one was full of olives), Ras Abu Dahud (Gendelman 2010: Fig. 4:16, 17, one of which bears two official impressions on the neck), Yoṭvata (Taxel 2022, with an ink-written Greek inscription) and Yavne (Fig. 3:4, 5, one bears an official impression on the neck).[25]

When summarizing the above data, it becomes clear that the rather steady, albeit somewhat modest export of LRA 1 to Palestine until the first half of the seventh century CE turned into a mere dribble around the mid-seventh century CE, while the later derivatives of this type are even scarcer. As for LRA 2, this type was rather uncommon in the region already before the seventh century CE, and the same holds true for late LRA 2 and its derivatives, from the seventh century CE onward. Nonetheless, it can be cautiously concluded that the presence in the Southern Levant of these seventh- and eighth-century CE globular amphorae was stronger than that of LRA 1 and its derivatives, most likely in accordance with the increasing popularity of the former across the Mediterranean and the central role it fulfilled in inter- and intra-regional trade (Vroom 2022a:241–244). Notably, while the voyage of many merchant ships in that period crossed political and geographical boundaries between the Muslim Caliphate and Byzantium (see, e.g., Haldon 2012:108, 115–116), as evidenced, for example, by the Ṭanṭura F and Ma‘agan Mikhael B shipwrecks, the quantity of imported commodities, including wine, transported in amphorae from Christian-controlled regions to Early Islamic Palestine was quite insignificant, especially considering the thriving contemporaneous commercial contacts between Palestine and Egypt.

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[22] Perhaps from Muslim-controlled North Africa or Egypt, given the fact that this amphora bears an Arabic inscription incised before firing.

[23] This body sherd with incised Greek and Arabic inscriptions made after firing was erroneously identified as a bag-shaped jar, despite its micaceous fabric and the combed strips typical of LRA 2 and its derivatives.

[24] Regardless of the question if the Capernaum amphora is indeed of North African origin, the fact that it has an omphalos base, a feature that characterizes some of the eighth-century CE and later LRA 2/13 and other Mediterranean globular amphorae (Taxel and Cohen-Weinberger 2019:19), supports the vessel’s mid-eighth century CE date.

[25] The stamped amphora was found at the eastern foot of Tel Yavne during the regional survey of the Map of Yavne (Archaeological Survey of Israel, No. 75), directed since 2001 by the late Moshe Fischer and the author on behalf of Tel Aviv University. The stamp, identical parallels for which were found on LRA 2/13 amphorae from northern Italy (Gelichi and Negrelli 2009:51, Fig. 4:1) and Ras Abu Dahud in Israel (Gendelman 2010), probably represents the Greek letters *beta* and *kappa*. According to Gendelman, the letters “may have marked the capacity volume of the amphora (*kappa* = 20 and *beta* = 2, i.e., 22); they could also be the abbreviation of the fabricant’s name or the name of the place where the amphora was produced.”

Egyptian Jars and Amphorae: Wine and Beyond

Commercial contacts and people's movement between Egypt and Palestine during the Byzantine period are archaeologically testified, *inter alia* by the presence of a rather large variety of Egyptian ceramics in local contemporaneous contexts, notably tableware but also amphorae and to a lesser extent, utilitarian and cooking ware. However, only after the Muslim conquest was there a real burst in the quantity and variety of Egyptian pottery in the region, which continued throughout the late eleventh century CE. This can be directly attributed to the fact that Egypt remained a major, if not the main player in the commercial networks of Palestine after the region was detached from the Byzantine Empire. Furthermore, Egypt and Palestine's geographical proximity, and the fact that in certain times Palestine was ruled directly by Egypt-based regimes (notably in Fatimid times; late tenth to late eleventh/early twelfth centuries CE), resulted not only in commercial exchange of goods but also in the temporary or permanent presence of Egyptian individuals and groups in Palestine: garrisoned soldiers, merchants, pilgrims and migrants. Among the personal belongings they brought along from their homeland were pottery vessels for daily use—not necessarily typical tradable items, such as fine tableware and amphorae (see Taxel and Fantalkin 2011; Bessard 2013:386–388, 394–395, 413; Taxel 2019:226–233; Avni 2022a:205–215, 229–230; Vroom 2022b).

The data on Egyptian commercial containers in the period under discussion have been comprehensively summarized by Dixneuf (2011; see also Konstantinidou 2012:186–226), while selected evidence of the distribution of the main forms of Egyptian amphorae in other parts of the Mediterranean is discussed elsewhere (e.g., Taxel and Fantalkin 2011:79–90; Reynolds 2016:145, 147; 2018:93–94; Vroom 2022a:239; 2022b:276–292). The Egyptian commercial containers of the seventh century CE onward documented in Palestine comprise several types of bag-shaped jars and amphorae.

Egyptian Bag-Shaped Jars

Two major types of bag-shaped jars were produced in Egypt during this period, reflecting morphological influence of late antique Palestinian ceramic traditions: (1) rather globular jars made of calcareous fabric, which were produced at Abu Mina and in the Lake Mareotis region in northwestern Egypt (sometimes termed "Abu Mina amphorae") from the second half of the sixth to the eighth century CE, whose size and morphology closely resemble those of the Palestinian southern coast bag-shaped jars, i.e., with a short neck and combed or plain shoulder (see above); and (2) ovoid jars made of reddish-brown, micaceous Nile silt fabric (termed "Red-Brown Ovoid Amphorae/RBOA"), produced in the Delta region between the seventh and tenth/eleventh centuries CE, which are usually smaller than the Abu Mina (and Palestinian) jars and present a larger variety of rim and neck profiles (Dixneuf 2011:142–153; Konstantinidou 2012:197–203). It has been suggested that the Abu Mina amphorae contained wine, while the content of the RBOA was probably more

diverse—perhaps primarily wine but also other commodities, such as fish sauce, date purée and natron (see Taxel and Fantalkin 2011:79–82; Vroom 2022b:283–287; for an important assemblage of Egyptian jars and amphorae from Beirut, see Reynolds 2003; 2018).

It has been argued that Abu Mina amphorae, which presumably contained wine, were rather widely exported from Egypt to the Southern Levant and the eastern Mediterranean (see Watson 1995:315, 317; Vroom 2022b:287, with further references therein), although the published illustrations of some of these amphorae suggest that they are actually Palestinian southern coast bag-shaped jars (see also Taxel and Fantalkin 2011:79). In Palestine proper, very few potential examples of Abu Mina amphorae have been identified to date, based on their distinctive morphological features—notably a swollen and sometimes carinated neck, and a sharp angle at the neck/shoulder joining—and fabric characteristics, including the presence of voids of organic tempers, typical of Egyptian wares but basically absent from Palestinian ones, and sometimes mica, for example, from the Ma‘agan Mikha’el B shipwreck (Creisher et al. 2019:6, Fig. 2:5), Jerusalem, Lod and Yavne-Yam (Fig. 4:1–4).[26]

Contrary to the scant distribution of Abu Mina amphorae in the Levant, and possibly also elsewhere outside Egypt, the RBOA was extremely more widespread, both geographically and quantitively, throughout the Southern Levant. These jars are easily recognizable due to their typical Nile silt fabric and morphological characteristics, notably the small body and handles, the specific neck profiles and the sharp angle at the neck/shoulder joining. The distribution of RBOA in Palestine was last updated by Taxel and Fantalkin (2011:82–89, Fig. 1, Table 1); however, since then many other jars have come to light, including at sites in which they were previously undocumented. RBOA appear especially in local assemblages of the mid/late-seventh to mid-eighth century CE, though they also sparsely appear in contexts dated to later stages within the Early Islamic period. Yet, it should be emphasized that even in the heyday of its distribution in the region, in the first century or so of Muslim rule, RBOA are usually represented in excavations by only a few specimens, and sometimes even by only one vessel (e.g., Ḥorbat Zikhrin; Fig. 4:5, 6). The largest numbers of RBOA reported thus far from Southern Levantine contexts are from the Ṭanṭura F and Ma‘agan Mikha’el B shipwrecks. In the former, the jars had a resinous lining and they contained remains of fish bones, which likely indicate a fish sauce content (Barkai, Kahanov and Avissar 2010:89–91, Figs. 2, 3), while in the latter, an RBOA was found full of whole walnuts, another contained olives (Creisher et al. 2019:109–111, 114–115, Figs. 2:4, 6; 9) and three other jars contained fish sauce, at least part of which originated in the Sea of Galilee (Harding et al. 2022).

[26] The Roman- to Early Islamic-period pottery from the IAA 2016–2017 excavations at the Jerusalem Archaeological Park (Davidson Center; Permit Nos. A-7630, A-7899), directed by Moran Hagbi and Joe Uziel, was studied by the author. The Roman- to Early Islamic-period pottery from the IAA 2016–2017 excavations at Tumashin School, Lod (Permit Nos. A-7811, A-8006), directed by Shahar Krispin, was studied by the author. The Tel Aviv University excavations at Yavne-Yam (1992–2011) were directed by the late Moshe Fischer, codirected with the author from 2005.

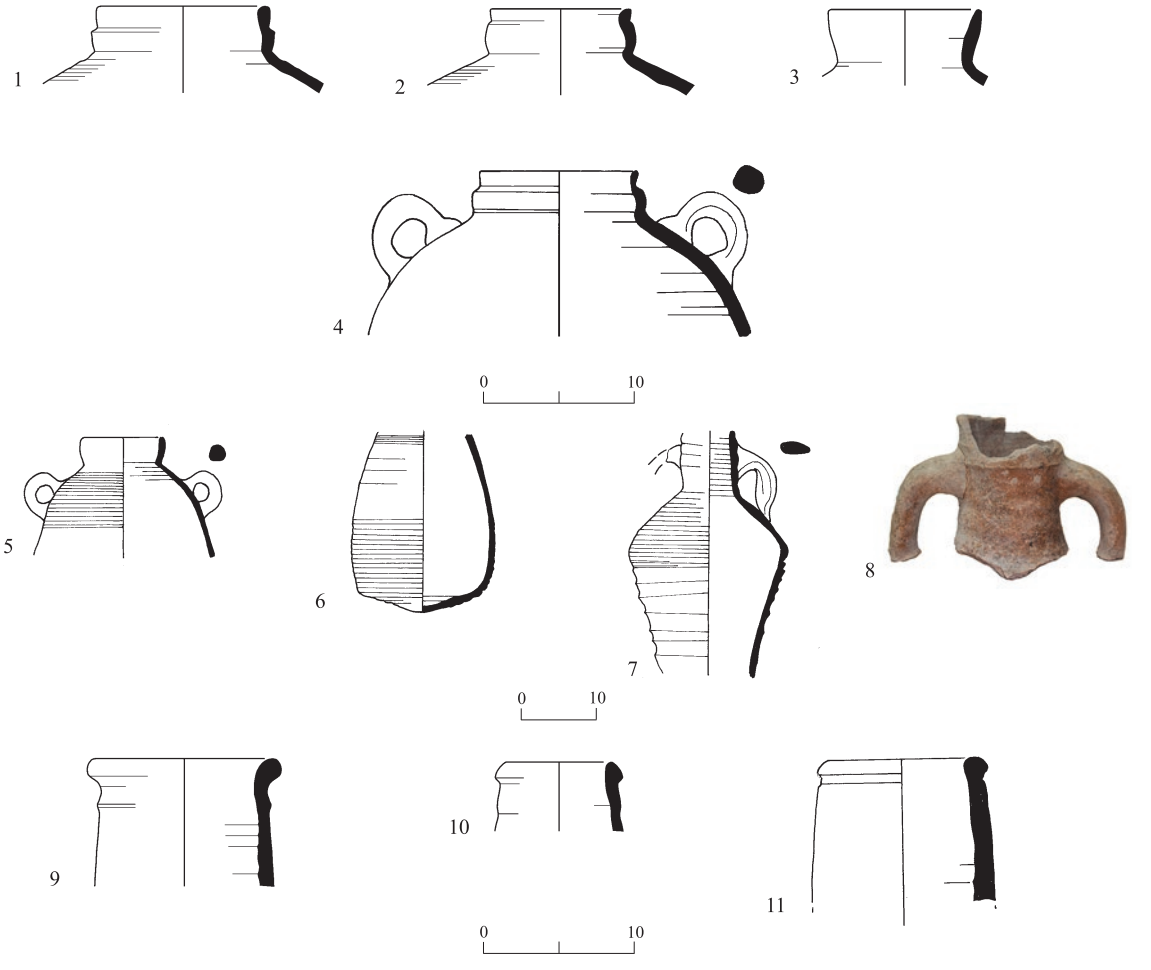

Fig. 4. Egyptian containers.

No.	Type	Site	Date (CE)	Drawing/Photography/ 3D Scanning
1	Abu Mina amphorae/bag-shaped jar	Jerusalem	Mid-7th–mid-8th c.	A. Karasik (IAA)
2	Abu Mina amphorae/bag-shaped jar	Jerusalem	Mid-7th–mid-8th c.	A. Karasik (IAA)
3	Abu Mina amphora/bag-shaped jar	Lod	Mid-/late 7th c.	A. Karasik (IAA)
4	Abu Mina amphora/bag-shaped jar	Yavne-Yam	Late 7th–early 8th c.	A. Perry (Tel Aviv University)
5	RBOA	Ḥorbat Zikhrin	8th–9th c.	A. Perry (Tel Aviv University)
6	RBOA	Ḥorbat Zikhrin	8th–9th c.	A. Perry (Tel Aviv University)
7	LRA 7	Ḥorbat Zikhrin	7th c.	A. Perry (Tel Aviv University)
8	LRA 1 imitation	Lod	Early 8th c.	I. Taxel (IAA)
9	LRA 1 or LRA 2/13 imitation	Tel Qaṭra	7th–early 8th c.	A. Karasik (IAA)
10	LRA 1 or LRA 2/13 imitation	Tel Qaṭra	7th–early 8th c.	A. Karasik (IAA)
11	LRA 2/13 imitation	Yafo	7th–early 8th c.	A. Perry (Tel Aviv University)

Here, an important point should be emphasized with respect to the role of the Egyptian bag-shaped jars, mainly RBOA, in the international trade of Egyptian wine, specifically as reflected by the picture that emerges from Palestine. Some scholars agree that the main content of the Egyptian bag-shaped jars was wine (see Pieri 2005:127; Reynolds 2016:145; Vroom 2022b:310), with Kingsley (2002:94) further claiming that these containers imitate Palestinian bag-shaped jars and were used to market Egyptian wine as Palestinian, reflecting a market manipulation. Some Abu Mina amphorae, and mainly RBOA, which were found outside Egypt, have a small post-firing hole drilled through their shoulder, as in examples from Ramat Raḥel (RBOA; Gadot and Taxel 2016:54, Fig. 5.13:5) and the Ma‘agan Mikha’el B shipwreck (Abu Mina amphorae and RBOA; Creisher et al. 2019:110–111), which were commonly interpreted as means to ease carbon dioxide release during wine fermentation (Taxel 2018b:71–74), supporting the assumption that Egyptian bag-shaped jars were (also) used as wine containers; however, the pierced jars from Ma‘agan Mikha’el B contained other foodstuffs, indicating a secondary use when loaded onto the ship (Creisher et al. 2019:115, 117).[27] Indeed, it is not known whether these jars were exported from Egypt with their primary wine contents, and if so, what was the destination of this wine; however, the containers did not arrive at the Southern Levantine coast as wine containers. This is not to say that no wine-containing Egyptian bag-shaped jars were transported to Palestine, but that this wine did not substitute the Palestinian wine, which was still produced by local communities and likely constituted the lion’s share of local wine consumption. This may have also been the situation elsewhere in the eastern Mediterranean. Thus, Kingsley’s assumption that Egyptian wine jars masqueraded as Palestinian ones seems unlikely, mainly due to the morphological and color differences between the Palestinian and Egyptian jars, especially the RBOA, and the likely different quality and taste of the Egyptian and Palestinian wines.[28]

Egyptian Amphorae

Alongside bag-shaped jars, a handful of Egyptian amphora types are also attested in local archaeological contexts. The most long-lived and better known of these is LRA 7, a carrot-shaped amphora made of a brown, micaceous Nile silt fabric. Its basic characteristics are a solid base, partial or fully ribbed body, cylindrical neck and handles between about the mid-neck and shoulder. This was the major wine amphora of late antique and Early

[27] See Vroom (2022b:286), who suggests that the Ṭanṭura F shipwreck RBOA that contained fish sauce were also reused wine jars, contra the data published by Barkai, Kahanov and Avissar (2010), which suggest that these jars lack fermentation holes. Regarding this, it seems legitimate to suggest that fish sauce rather than wine was the main product marketed in the RBOA to Palestine and other regions outside Egypt.

[28] See López (2023:470–472), who notes the relatively low quality of Egyptian wine compared with the Palestinian, at least in late antiquity, and emphasizes the limited distribution of Egyptian wines in Roman and late antique times and the preference of local consumers for Palestinian wines. For the predominance of Palestinian wines in Egypt, see also Dzierzbicka 2018:381–392.

Islamic Egypt, namely between the fourth/fifth and the tenth/eleventh centuries CE (see Pieri 2005:129–132; Dixneuf 2011:157–163; Vroom 2022b:278–280). Although it was ubiquitous throughout Egypt, the distribution of LRA 7 outside Egypt, in various locations across the Mediterranean and beyond, seems to have been rather sparse and apparently no examples postdate the seventh century CE (Vroom 2022b:280–283). A few LRA 7 examples have been reported from Palestine, mostly from sixth- and seventh-century CE contexts, including at Caesarea (e.g., Adan-Bayewitz 1986:103–104, Fig. 2:10–12, Ills. 105, 106; Oren-Paskal 2008:55, Fig. 5), Yafo (Jaffa; Ecker 2018:613, Fig. 16.34:4) and Ḥorbat Zikhrin (Taxel 2005:74–75, Fig. 43:3; Fig. 4:7). Apparently, even fewer LRA 7 examples were found in contexts that can be dated as late as the mid-eighth century CE, for example, from Yavne-Yam and Mishmar David.[29]

As noted above, Egyptian potters also imitated the latest variants of northeastern Mediterranean LRA 1 and LRA 2 (or LRA 2/13), both imitated forms usually produced from a brown or reddish-brown micaceous Nile fabric with organic tempers and dated to the mid-/late seventh to eighth centuries CE. The imitations, as their prototypes, are interpreted as wine amphorae (see Dixneuf 2011:174–179; Konstantinidou 2012:217–223, included within a group termed "Egyptian Early Arab Amphorae"; Pieri 2012:47–48; Reynolds 2016:145; 2018:93–94; Vroom 2022a:239). The Egyptian amphorae are seldom represented in Levantine contexts, with most examples imitating LRA 2/13, e.g., from Caesarea (LRA 1 imitation; Adan-Bayewitz 1986:106, Fig. 3:7), the Ṭanṭura F shipwreck (LRA 2/13 imitation; Barkai, Kahanov and Avissar 2010:91, 93, Fig. 4:1) and ʻEn ʻAvrona (LRA 2/13 imitation; Porath 2016:32*, Fig. 29:16),[30] and others were documented at the Jerusalem Archaeological Park/Davidson Center (either LRA 1 or LRA 2/13 imitations), Lod (LRA 1 imitation), Tel Qaṭra (either LRA 1 or LRA 2/13 imitations) and Yafo (LRA 2/13 imitation) (Fig. 4:8–11).[31]

Other, lesser-known types of Egyptian amphorae are also scarcely documented in local Early Islamic-period contexts. One example comprises two amphorae from Khirbat ʻAmra in the northern Negev, which are made of a Nile silt fabric and have an elongated ovoid body; a broad, vertical neck with a sharp ridge at the neck/shoulder transition; and two handles from mid-neck to shoulder (Fig. 5:1, 2).[32] This uncommon form, labeled by Konstantinidou as "Egyptian Early Arab Amphora 3A," is dated to the first half of the

[29] The Roman- to Late Islamic-period pottery from the IAA 2006 excavation at Mishmar David (Permit No. A-4883), directed by Eli Yannai, was studied by the author. For the Yavne-Yam excavation, see n. 26.

[30] This amphora was identified by Porath as North African, but its fabric characteristics (including the presence of organic tempers) and the overall geographical and cultural context rather suggest that it is an Egyptian amphora.

[31] The pottery from the IAA 2019 excavation at Remez neighborhood, Lod (Permit No. A-8426), directed by Shahar Krispin, was sorted in the field by the author. The Roman- to Late Islamic-period pottery from the Tel Aviv University 2000–2001 excavations at Yafo, directed by Alexander Fantalkin, was studied by the author.

[32] The final publication of the IAA 1993–1994 excavations at Khirbat ʻAmra, directed by Gil Tahal, will be published by Noé David Michael and the author.

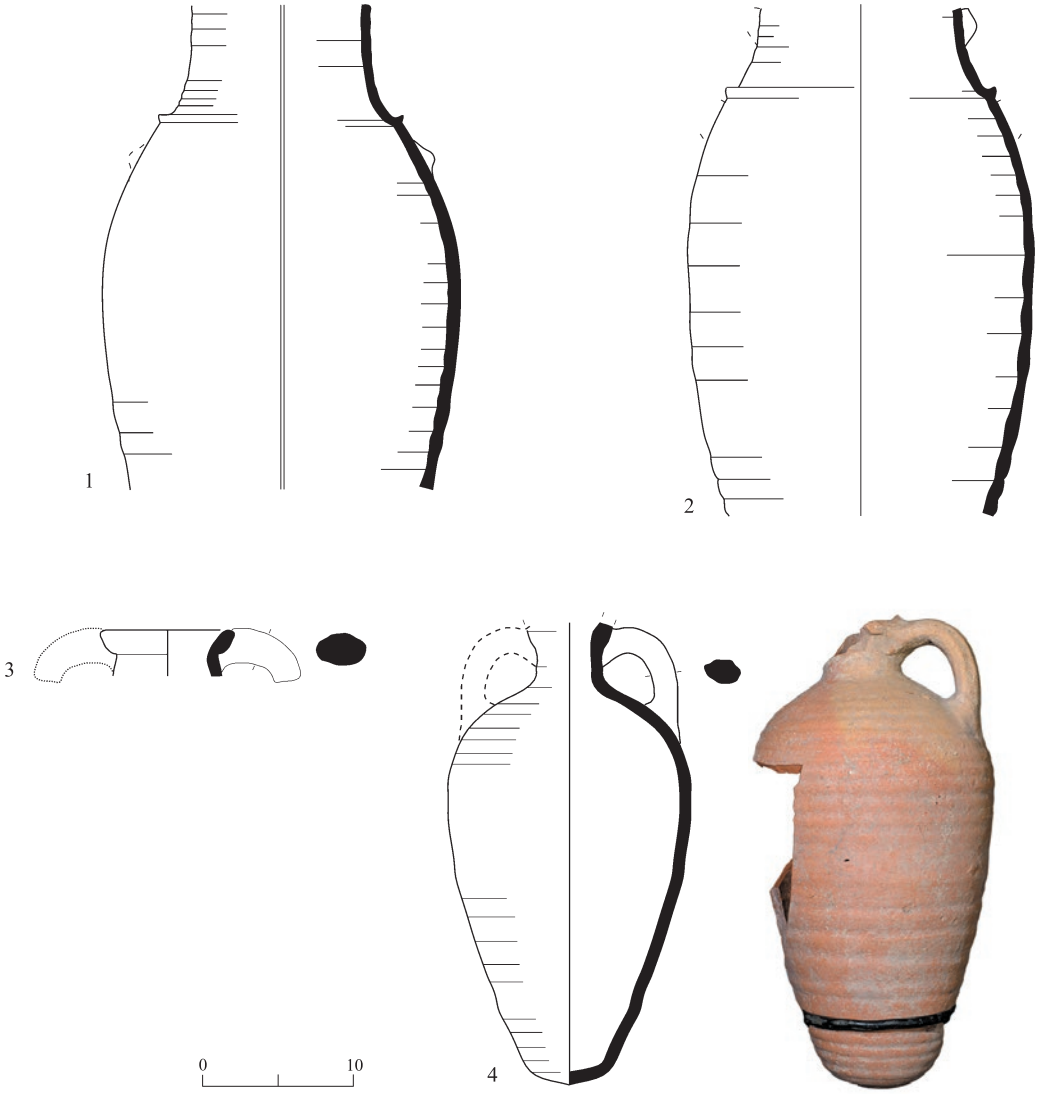

Fig. 5. Egyptian and Dardanelles containers.

No.	Type	Site	Date (CE)	Drawing/Photography/3D Scanning
1	Early Arab Amphora 3A	Khirbat ‘Amra	8th–9th c.	I. Lidsky-Reznikov (IAA)
2	Early Arab Amphora 3A	Khirbat ‘Amra	8th–9th c.	I. Lidsky-Reznikov (IAA)
3	Günsenin I or XI	Caesarea	10th–11th c.	A. Karasik (IAA)
4	Günsenin XVI	Ashqelon	Late 11th–early 12th c.	A. Karasik, D. Gazit (IAA)

eighth century CE and seems to be a derivative of LRA 7 (Konstantinidou 2012:223–224, 226). Konstantinidou notes that the contents of these amphorae are unknown, hence they cannot be securely associated with wine trade. Given the type’s rarity in Egypt, the presence of at least two such amphorae at Khirbat ‘Amra is rather telling. It is reasonable to assume that these vessels were brought to the site together, perhaps even by an individual or a group of people (merchants, pilgrims or migrants) who arrived from Egypt.

The modest distribution of Egyptian amphorae in Palestine, and elsewhere outside Egypt, as was reported also for the Abu Mina amphorae/bag-shaped jars, and the ambiguity concerning the RBOA contents, may support Avni's (2022a:210–211) suggestion that "the production of wine continued in the Early Islamic period on a local level, both in Palestine and in Egypt." Therefore, although monastic and other Christian communities continued to produce Egyptian wine after the Muslim conquest, with a portion of it marketed overseas (Reynolds 2016:145; Vroom 2022a:239) and probably also arriving at foreign lands, including Palestine, as personal belongings (see Taxel 2019), this wine was mainly locally consumed within Egypt, and surely did not deeply penetrate the Palestinian market, which was self-supplied by local, higher-quality wine.

Dardanelles Region Amphorae: Wine Import to Fatimid Palestine?

The last episode of foreign amphorae arriving at the Southern Levant in Early Islamic times occurred during the tenth and eleventh centuries CE, primarily under Fatimid rule. Excavations of contemporaneous contexts, mainly at coastal sites, and some documented in underwater surveys, have revealed a limited quantity of small-sized amphorae that originated in the area of the Sea of Marmara. Many came from the monastic center of Ganos, a famous wine producer, but some may have originated in other locations in the Aegean. The discussed wine was probably sweet and desirable. The containers, known as Günsenin amphorae, include several types that span the tenth and thirteenth centuries CE. Their coarse fabric is orange or reddish brown, and their basic characteristics are a conical or globular, partially ribbed body, very short neck (some types are nearly neck-less), a thickened rim and handles that emerge from the base or middle of the neck. These amphorae were widely distributed across the Mediterranean and Black Sea regions, and beyond (see Günsenin 1989; 2009; 2018).

Günsenin amphora types from Palestine date from the tenth to early twelfth century CE were found, for instance, at Caesarea (e.g., Arnon 2008:47, 308–309, Type 853; Taxel and Roskin 2023:725, Fig. 5:12; Fig. 5:3), Ramla (e.g., Arnon 2007:65, Fig. 12:15, 16; Tal and Taxel 2008:147, 151, Fig. 6.95; Torgë 2022:353, Fig. 7:16, 17), Dor (anchorage; Kingsley and Raveh 1996:54, No. P 43, Fig. 36, Pl. 45), Yavne-Yam (anchorage and site; Galili and Sharvit 2005:309, Fig. 12:d), Yafo (Ecker 2018:620, Fig. 16.38:56) and Ashqelon (Fig. 5:4).[33] Can these modest finds indicate direct or indirect trade in Ganos wine between Byzantium and Fatimid Palestine? Günsenin (2009:152; 2018:96) considered the rather wide distribution of the commonest amphora type (Günsenin I), which included Egypt and the Levant, an indication of wine trade with these regions. Reynolds (2018:108), who referred to the eleventh-century CE Serçe Limani shipwreck, believed that:

[33] The pottery from the IAA 2016, 2018 and 2021 excavations at the Ashqelon basilica (Permit Nos. A-7684, A-8349, A-9110), directed by Sa'ar Ganor and Rachel Bar-Nathan, was studied by the author. For the Yavne-Yam and Yafo excavations, see nn. 26 and 31.

> This vessel may have stopped at Beirut and Tripoli en route for a Byzantine glass making centre in the Aegean or perhaps Constantinople, given the cargo of reused Günsenin I amphorae from Ganos in the Sea of Marmara… This shipment is testimony to the lack of political boundaries when it came to trade between Byzantium and the Fatimids.

The latter point reflects a common opinion among scholars of the existence of links between the Fatimid Caliphate and Byzantium, also supported by the arrival of Byzantine pilgrims in the Holy Land (see Jacoby 2017:638–642, with additional references therein; for ceramic evidence, see Vroom 2022b:304–305, 311). Still, one should also consider the possibility that some of the Günsenin amphorae found at Levantine sites arrived as reused containers with contents other than wine, perhaps similarly to the abovementioned reused Egyptian wine jars and the reused Serçe Limani shipwreck amphorae, for neither of which is there proof that they carried wine as their last contents (Doorninck 1989:253, 256). In addition, Günsenin argues (2018:111, n. 122) that the smallest amphora types of this group "did not represent… a real cargo in ships and instead served as utensils on board." Consequently, we may suggest that at least some of the local finds of Günsenin amphorae arrived in the Southern Levantine coast not as commercial containers but as the personal belongings of individuals, such as Muslim or Western merchants, Christian pilgrims or even Muslim military men, and which may or may not have contained wine. If some Byzantine wine had reached Palestine in Günsenin amphorae as commercial goods, its potential recipients would have been non-Muslim residents of the coastal towns and, perhaps less reasonable but not impossible, Muslim (elite?) individuals such as military or civilian functionaries, e.g., the amphorae found at Yavne-Yam, which functioned solely as a military-religious stronghold/*ribāṭ* in the Fatimid period.

Conclusions

Based on the overview of local and imported storage jar and amphora types of seventh- to eleventh-century CE Palestine that may have related to wine trade and consumption, and the data concerning pottery production sites and winepresses, several conclusions may be reached:

1) The seventh century CE saw a gradual decline in the manufacturing and use of Gaza jars along the southern coast, alongside an increasing use of locally produced bag-shaped jars. It seems that by the late seventh century CE, the bag-shaped jar replaced the Gaza jar as the main container for marketing southern-coast wine within and beyond Palestine, while the overseas export of Gaza jars ceased only a few decades later. In other regions with an intensive wine industry, notably the central Sharon coast and the central hill country, wine marketing continued as before using the local bag-shaped jars. It can be safely concluded that from the eighth century CE and well into the Crusader period, Palestinian wine—whose production volume gradually diminished—was designated predominantly for local consumption and was marketed in local bag-shaped jars. It seems that as in the preceding fifth–seventh centuries CE, local wine yields were sufficient for local needs.

2) From the seventh century CE and throughout the Early Islamic period, wine imports to Palestine from neighboring and overseas regions—Egypt, the northeastern Mediterranean and the Sea of Marmara—was rather limited, if not marginal. Most of this wine arrived as part of an organized trade with Christian/Byzantine-held territories, with private wine containers brought by individuals, such as migrants and pilgrims, and/or sent as (diplomatic?) gifts. Some of the contemporaneous, foreign wine jars and amphorae found in Palestine, and off its Mediterranean shore, were reused as containers for other foodstuffs (e.g., Egyptian fish sauce), some of which may have been more locally desirable than those regions' wines. The small quantities of imported wine were consumed mainly by coastal communities: urban, rural and perhaps even (Muslim) military.
3) Considering Avni and others' (Avni 2023:251–265; Avni, Bar-Oz and Gambash 2023) theory of a mid- to late sixth-century CE settlement and economic decline in southern Palestine—including the local wine industry—it should not be applied to the vast territory stretching from the Negev Highlands to the Yavne area. As noted above, even if the Negev Highlands settlements experienced such a decline, or at least an abatement of their viticulture (but see the critique of Olshanetsky and Cosijns 2023),[34] the evidence from the Mediterranean southern coast is more nuanced. A comprehensive discussion of the subject lies beyond the scope of this study, but a few examples may suffice at this stage. In the Ashqelon area, some winepresses, such as that at Ḥammama (Taxel et al. 2019), appear to have been abandoned around the mid-/late sixth century CE, while other winepresses, Gaza jar factories and Gaza jar storage/shipment sites functioned at least until the late sixth or early seventh century CE, for example, at the 'Third Mile Estate' and Ard el-Miḥjar (see above) and at er-Rasm (Erickson-Gini 2022) and Khirbat Khaur el-Bak (Talis 2011; Varga 2022:183–184). This also seems valid for the extensive wine factory excavated at Yavne, which likely operated until the mid-seventh century CE (the 659/660 CE earthquake?), with a certain continuity afterward, and probably also for the Gaza jar workshops at Ḥorbat Barqa and Tel Qaṭra (see above). Notably, some winepresses in the southern coast, for example at Wadi Ḥammama (Fabian, Nahshoni and Ein Gedy 1995:110) and Gan Ha-Darom (Dayan, Barkan and Radashkovsky 2020:297, 315–316), ceased to function already in the fifth century CE (based on yet-unpublished ceramic finds that sealed these winepresses), i.e., before the various sixth-century CE events and processes understood as having a negative effect on viticulture in southern Palestine.

It is possible that the evidence of late sixth- to seventh-century CE wine (and wine jar) production may reflect an economic boom following the mid-sixth-century CE plague or other calamities, as rendered by Hamarneh (2022:88):

> The leaders of the ecclesiastical hierarchy were also favourable to maximizing the productivity of the countryside, which during the sixth century CE was reorganized to reach its greatest

[34] Some places, such as Niẓẓana (Nessana), continued to thrive well into Early Islamic times, while being economically based on other agricultural crops (Avni 2023:256; Avni, Bar-Oz and Gambash 2023:3, 7, 9).

potential, thus raising the fortunes of the Byzantine East. This change of focus may have resulted from a post-pandemic distribution of wealth.

It may be possible to conclude that the intensified viticulture in many of the southern coast settlements—mainly in the greater Yavne area—continued until the end of Byzantine rule, and sometimes later, *inter alia*, at the expense of the assumed decline of the Negev Highlands, and perhaps some of the settlements in the Ashqelon area. That said, the picture that emerges from the data presented in this study is that the main shift in Palestinian wine culture—including the distribution of ceramic containers of local and foreign wines—occurred between the first half or middle of the seventh and the early decades of the eighth centuries CE.[35]

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[35] Interestingly, Tsivikis et al. (2023:169) noted that the increase in wine production in Amorium (Asia Minor) in the seventh and eighth centuries CE coincided with a contemporaneous decline in Levantine wine production.

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