

2016 **Peña, J.T.** "Papyrological Evidence for the Reuse of Amphoras as Packaging Containers in Hellenistic and Byzantine Egypt." Invited for symposium organized by the Department of Classics and Kelsey Museum of Archaeology of the University of Michigan "Archaeology and the Hellenistic Near East: A Symposium in Honor of Sharon Herbert." Ann Arbor, MI, 5/7/16.

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I am delighted and honored to be taking part in this colloquium to honor Sharon Herbert on the occasion of her retirement from the University of Michigan, and in particular to have been assigned the task of batting lead-off. Let's hope that I can get on base. Sharon served as co-chair of my dissertation committee along with Bruce Frier. Skating over the details, suffice it to say that I was such a pain in the tuchas as a student in IPCAA that no individual member of the faculty was willing to take on the task of advising me, though - if they pooled their forces - these two thought that it might be both doable and bearable. Without Sharon and Bruce stepping up and taking me on it is fair to say that I would never have been able to complete a dissertation, and lord knows where I might be today. I thus owe them both an immense debt of gratitude, and as I was not present at the retirement event for Bruce Frier held the year before last, I would like to take advantage of this opportunity to extend to both him and Sharon my heartfelt appreciation and thanks for taking me on as their joint project.

In my talk today I will examine three papyri that relate to the reuse of amphoras as packaging containers in Hellenistic, Roman and Byzantine Egypt. I should note that these papyri are documents that happen to have come to my attention over the years, and I have no clear idea of how many more such texts there may be in the published corpus.

Students of pottery in the Graeco-Roman world have generally assumed that amphoras were employed as packaging containers a single time before then being discarded or repurposed. The repurposing of used amphoras is a subject of considerable interest both to archaeologists and even non-archaeologists –

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witness the considerable attention accorded in the international press just last week to the discovery by construction workers in Tomares, outside Seville, of 19 amphoras that held over 600 kilograms of uncirculated coins. Today, however, I would like to focus on a different, and, I think, more interesting and significant practice, namely that of employing used amphoras for

their original purpose, that is, as packaging containers. Among other things, this practice may have important implications for our approach to the use of amphoras as proxy evidence for the distribution and consumption of the substances commonly packaged in them, and it would thus behoove us to improve our understanding of its incidence and any patterns - chronological, geographical, by content type, or by class – in its exercise.

There is a certain amount of archaeological evidence for the reuse of amphoras as packaging containers in the Graeco-Roman world. Most notably, there is a limited number of shipwrecks that have yielded sets of amphoras among the ship's cargo that for one reason or other we can infer were being reused.

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The most conspicuous example of this is the Grado wreck, a merchantman that sank near the head of the Adriatic ca. AD 150.

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It yielded 566 amphoras belonging to four classes,

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including 204 African 1s - oil containers from Tunisia;

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23 Tripolitanian 1s - oil containers from Tripolitania;

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154 Knossos 19s - wine containers from the Aegean;

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and 185 Grado 1s - fish products containers from the upper Adriatic. Several of the African 1s, and Knossos 19s contained the remains of salted whole sardines, while several of the Tripolitanian 1s held the remains of Atlantic chub mackerel. Many of the Grado 1s, in turn, bore a *titulus pictus* indicating a content of fish sauce. All of these contents likely originated around

the head of the Adriatic, and the Grado 1s were almost certainly the only new amphoras, the examples of the other three classes being reused containers. Various considerations suggest that the three groups of reused containers were not simply a casual assemblage of empties that happened to be on hand at some location, but rather a set of containers that had been carefully accumulated and curated over a period of many years, perhaps by a merchant.

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On the terrestrial side, the site that has produced the most substantial evidence for the reuse of amphoras as packaging containers is Oplontis Villa B, a seaside wine-bottling facility outside Pompeii.

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Here several hundred amphoras – overwhelmingly examples of the Dressel 2-4, the regional wine container - were found stacked in inverted position in the interior courtyard, apparently awaiting filling at the time of Vesuvius' eruption. Also in the courtyard were two hearths that likely served for liquefying pitch that would have been used to line the amphoras, and a bronze pot that contained pitch residue. According to Lagi, one of the excavators, the presence on most of these amphoras of tituli picti indicates that they were used containers that she speculates had been collected in the environs of Pompeii for refiling with wine destined for local distribution. I should note, in passing, that not only is Oplontis Villa B featured in the *Leisure and Luxury* exhibit currently being hosted by the very museum in which we today find ourselves, but that next month the Pompeii Artifact Life History Project – a research initiative that I direct – will begin a collaboration with the University of Texas team that has been working at Villa B with the objective of elucidating the life history of these very amphoras.

Now to the papyri.

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The first papyrus that I will consider, P.Cair.Zen. 4.59471, henceforth Papyrus 1, belongs to the Zenon Archive, a set of ca. 2000 documents dating to the middle quarters of the third century BC that were recovered at Philadelphia, in the Fayum.

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Papyri from this archive have found their way into several collections, including that of the University of Michigan. The individual behind the archive, Zenon served as secretary of Apollonios, an administrator in the court of Ptolemy II. During the period 256-248 BC he supervised Apollonios' agricultural holdings in the area of Philadelphia, and Papyrus 1 presumably relates to this activity.

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The papyrus bears a document on both the recto and the verso.

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The first of these is missing a substantial portion at its beginning.

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In the first part of the preserved portion are six numbered entries that represent what we can infer from information presented lower in the document was the tail end of much longer series of entries. These record sets of amphoras delivered by draft animals - referred to varyingly as hypozygia and zygia. Each entry indicates the number of animals, the type of container, the number of containers apportioned to each animal, the total number of containers, and an amount of money, presumably the cost of hiring the animals.

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This is followed by a substantially different entry – unnumbered - that records a set of two different kinds of containers made by draft animals owned by a certain Labois pulling four hamaxai – heavy wagons – in a single day.

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A synopsis of the information contained in these entries is presented on the screen. The container designations attested include the Paphion, keramion, Chion, and hemichion. The standard practice was to allot 8 keramia or 10 Chia to each animal. The consignment delivered by four wagons consisted of 297 keramia and 200 hemichia, for an average of 74 keramia and 50

hemichia per wagon, though one can conjecture that three of the wagons each carried 99 keramia and the fourth all 200 hemichia.

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The remainder of the document consists of two different tallies of the numbers of containers recorded in these entries, with the indication that these were delivered by Labois, the hamaxai of a certain Herakleides, and hamaxai of the estate.

The first tally lists the containers by container type,

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while the second breaks these figures down into the individual consignments in which they were delivered.

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The information contained in the various entries is summarized on the screen. The two tallies document 14 groups of containers in addition to the 7 documented in the entries described above that include two additional designations – the Kouriakon and the lagynos. The total number of containers comes to 2851.

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PSI 7.859, another document from the Zenon Archive, is highly similar to this document.

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Though heavily damaged, it clarifies two important points.

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First, in some of its entries the animals are referred to as an ónos – or donkey.

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Second, the keramion container type is referred to as keramion hexachoon, indicating that the container for which this designation was employed had a capacity of six choes - roughly 9 liters.

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Turning now to the Papyrus 1 verso document,

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this begins by noting that the containers were delivered from two places – Syron Kome and Kerke.

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After a sizable blank space, it indicates that a certain Apollonides affirms that he has lined – presumably with pitch – various sets of containers indicated in a list of 6 or 7 entries, each of which notes the type and number of container or containers.

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This information is summarized in the table now on the screen. The various container designations represented include the meizo – or larger container, the Paphion, the hemichion and the Parion, all grouped together in a single entry, the stamnos staphule – perhaps meaning something like “level jar” ; the achoneute lekythos Chia – perhaps meaning something like neckless Chian jug, the hemikadion, and loipon meidzo – remaining larger container.

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Despite various differences in the container designations employed and some numerical discrepancies, it is possible to associate the groups of containers listed in the recto document with those in the verso document, as shown in the table now on the screen, and it is clear that both documents refer to essentially the same containers.

I do not intend to consider the several container designations that occur in the two documents or attempt to identify these with specific amphora classes, in part due to time constraints, in part due to the assumption that Mark Lawall, the next speaker, who will also discuss this papyrus, will likely address this issue. For present purposes, it will suffice to say that the keramion hexakoon must represent a common Middle Egyptian wine container for the period in question, and that the various container types with names that suggest an extra-Egyptian origin – - the

Chion, Paphion, Kouriakon, Parion – all employed somewhat inconsistently - probably did originate somewhere beyond the borders of Egypt, if not necessarily in the locations that their names indicate. It also seems clear that these container types had capacities significantly smaller than that of the keramion hexachoon.

The fact that the containers were given a pitch lining upon arrival is a point of considerable importance, in that it indicates that these were empties, that they were likely intended for filling with wine, and that they were used amphoras rather than new containers. On this last point, we may surmise that the containers with an extra-Egyptian origin reached Egypt as packaging containers for some content or other – most likely wine - and that after having been emptied of their original content were collected for reuse. Papyrological evidence for the Roman period indicates that it was standard practice in Egypt to pitch wine amphoras at the workshop, and it thus seems likely that the keramia hexachoa of our document were also used containers. The pitching or, likely in many cases, the re-pitching of these containers was presumably necessary before they could be reused for the bottling of wine.

The number of amphoras alluded to in this papyrus is quite substantial, again 2,851 in the recto document. In terms of capacity, if we assume a figure of 6 choes or 9 liters for each of the 1,896 keramia hexachoa, one of 4 choes or 6 liters for each of the 570 Chia and 340 Kouriaka, and one of 2 choes or 3 liters for each of the 45 lagynoi, this comes to a total of 22,659 liters. Employing Tchernia's low and high estimates of 146 and 182 liters for annual per capita wine consumption in imperial Rome, this amount would equal the annual consumption of 124 to 155 persons, more or less the population of a small village. The fact that PSI 7.859 documents a second, apparently analogous set of deliveries, suggests that the activities documented in Papyrus 1 were not isolated, but may represent what might have been a regular practice for the Apollonios estate.

It should also be noted that the pitching of nearly 2,800 containers could not have been a fast, easy, or particularly inexpensive undertaking.

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The transport of the containers to Philadelphia would have involved a quite considerable effort. It seems clear that all of the deliveries were made by wagon, with these presumably drawn by donkeys, in some cases by four animals, sometimes by three. We can estimate that the 6

consignments documented in the entries in the recto document involved 26 wagon trips. In at least one instance this involved Labois providing the animals, with the estate perhaps furnishing the wagons, whereas in other cases – perhaps, all of the others – Heracleides appears to have provided both animals and wagons.

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Of the two locations indicated as the points of origin for the consignments, Kerke lay 10 kilometers to the east-southeast of Philadelphia, Syron Kome 30 kilometers to the south-southwest, in the vicinity of Ptolemeis Hormou.

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Wagons drawn by donkeys can move at a speed of ca. 4 kilometers per hour, meaning that the 20 kilometer round trip from Kerke to Philadelphia could have been accomplished in a single day.

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The 60 kilometer round trip from Syron Kome, in contrast, would have required a minimum of three days for a wagon, or quite possibly four, with one night spent along the road on the outbound trip, a second at Philadelphia, and then a third along the road on the return trip.

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This observation suggests that the consignment documented in the final entry – in which Labois provided the animals and the estate perhaps the wagons, and was accomplished in a single day – involved a round trip from Philadelphia to Kerke. Heracleides might have been based at Syron Kome, with all of the other consignments originating there.

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Whatever the case, both Kerke and Syron Kome were ideally situated to function as supply points for agricultural estates in the Fayum. Kerke lies on the west bank of the Nile at the point where the overland trip from the Nile Valley to the Fayum Depression is the shortest, and would have enjoyed particularly convenient access to locales in the northeast portion of the region, such as Philadelphia and, I might add, Karanis. While the exact location of Syron Kome is unknown,

we do know that it lay close to Ptolemeis Hormou and that it possessed a harbor. This suggests that it was situated on the Bahr Yusuf, the canalized waterway that connects the Fayum Depression with the Nile Valley, at the eastern end of the Lahun Gap, the draw through which the Bahr Yusuf enters the Fayum. This position would have represented, in effect, the gateway to the Fayum, and an amphora supply establishment located here would have enjoyed unrivalled access to both the Nile Valley and the whole of the Fayum.

These observations suggest that it may have been a regular practice to employ large numbers of used amphoras – both Egyptian and imported – for the bottling of wine during the period in question, with an organized system in place for the collection of used containers in areas outside the Fayum and their transfer to advantageously positioned transshipment points, including Kerke and Syron Kome, for supply to estates in the Fayum.

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The second papyrus, P.Iand. 6.99, henceforth referred to as Papyrus 2, is of uncertain provenance. It is a partially preserved letter from a certain Philoromaïos to a certain Calpurnius, and is best interpreted as a report from an estate manager to its owner. It can be dated to the early 3rd century AD on paleographic grounds, and though likely found somewhere in the Fayum, the reference in the text to the village of Sinto suggests that the estate in question was located in the Oxyrhynchite nome.

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Of interest to us are the lines immediately following the greeting – lines 3-11.

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The reading of these is somewhat problematic, and I here follow Rathbone's revision of the text and his translation, now shown on the screen.

The Nikolais to which the author refers was likely an administrative subdivision of the estate. Wine from this district held in storage on the estate had been placed in xenikokeramia – that is, foreign amphoras - and was found to have soured, perhaps due to under-filling. This would thus

appear to represent an instance of the reuse of amphoras as storage rather than packaging containers. The fact that the author goes on to remark on the need to replenish the store of two types of foreign wine held in amphoras termed Hadrianai and Aminnaiai – though not of a third kind held in amphoras termed Tmolitikai – suggests that the soured wine had been bottled in empty examples of one or more of these three kinds of containers that had been generated by the internal consumption of imported wine on the estate.

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The third and final papyrus, P.Oxy.55.3804, henceforth Papyrus 3, from Oxyrhynchus, is the annual account of Theodorus, the estate steward of the Apion family, which had extensive holdings in the Oxyrhynchite nome.

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This document, which can be dated to AD 566 on internal evidence, is a roll consisting of 22 sheets of papyrus that bear 288 lines of text.

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The portion of interest to us today, now shown on the screen, is a single entry that occupies lines 218-219.

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This records the purchase of 1100 palaia koupha for the vine dressers in two districts for the bottling of new wine. According to Hickey, kouphon refers specifically to an empty jar, and this entry would thus appear to indicate the acquisition of used amphoras for this purpose. The situation is thus broadly similar to that attested in Papyrus 1, in that it involved the acquisition by a large estate of a large number of used containers from one or more external sources.

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Our effort to evaluate the import of the evidence for the reuse of amphoras provided by our three papyri is rendered difficult by the fact that we do not know how the refilled containers were utilized, that is, whether they were employed for storage on the estate where their content

originated, as may well have been the case with Papyrus 2; were used for the local distribution of their content, as Lagi has suggested would have been the case with the amphoras at Oplontis Villa B; or were employed for the wider distribution of their content, as seems likely to have been the case with the amphoras from the Grado wreck.

We do, however, possess some limited, if highly suggestive archaeological evidence from Roman Egypt that speaks to this question, and I would like to conclude by considering this.

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The excavations carried out by Southampton University at Myos Hormos – one of the two major Red Sea ports in Hellenistic and Roman Egypt – recovered an exceptionally large and varied corpus of plaster amphora stoppers, which have been studied by Ross Thomas.

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Among these were three stoppers still in place in the mouth of Dressel 2-4 amphora, all from contexts dated to the second half of the first or the early second century AD. All three were examples of Thomas's Type 2 stopper, that is, one manufactured by jamming sherds into the mouth of the container and then pouring plaster over these to form a hermetic seal. The upper surface of the stopper was then stamped with the name of the merchant who owned the content – apparently in every case wine, often accompanied by a symbol, and then painted red. According to Tomber the fabric of all three amphoras indicates a non-Egyptian origin, most likely somewhere in the Eastern Mediterranean. In each instance, however, the sherds employed to make the stopper were of Egyptian origin, and it would thus appear that these containers were filled – presumably with wine - and stoppered in Egypt, after having been imported into the country and emptied of their original content. One of the stoppers bore a well preserved stamp, consisting of the image of a female figure holding a cornucopia and the name Tiberius Claudius Agath[. Like many of the other individuals attested on the Type 2 stoppers, TCA appears to have been a merchant engaged in the supply of Egyptian wine to the quarry and military installations in the Eastern Desert and to the Red Sea ports, and for export through these ports in the Indian Ocean trade.

Thomas indicates that he has seen similar cases of imported Dressel 2-4 amphoras stoppered with Egyptian sherds from Berenike - the other major Red Sea port - as well as the quarries at Mons Claudianus and Mons Porphyrites, and is of the view that a substantial portion of the Type 2 stoppers recovered at Myos Hormos would have been employed to seal reused wine amphoras that had been imported into Egypt from abroad. This suggests that this practice was widespread in connection with the medium- and long-distance distribution of Egyptian wine during the first and the second centuries AD.

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The wine supplied to Myos Hormos and these other sites would have been brought overland from Coptos.

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O.Ber. 1.87, an ostrakon from Berenike dating to the mid-first century AD, provides insight into how this would have been accomplished.

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This document, a customs pass for a camel driver, lists a variety of items that he was presumably bringing to Berenike from the Nile Valley by camel, including several containers of wine, sweet wine, vinegar, olive oil, and beets.

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In order to gain some idea of the distance, time and costs involved in this kind of undertaking we can turn to Orbis. Running a calculation for a journey from Krokodilopolis in the Fayum to Coptos by river boat, and then for a second journey on from Coptos to Myos Hormos by donkey during the travel-friendly month of May reveals the following:

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For the Fayum to Coptos trip - a distance of 574 kilometers, a travel time of 18 days, and a cost equivalent of 3.75 denarii per kilogram of wheat.

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For the Coptos to Myos Hormos trip - a distance of 170 kilometers, a travel time of 6 days, and a cost equivalent of 4.77 denarii.

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For the combined trip - a distance of 744 kilometers and a travel time of 24 days. Whatever the accuracy of these results, they do, I think, demonstrate for us that the distribution of the amphoras in question and their content to consumers involved quite substantial distances, times, and costs

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Ross suggests that the practice of painting Type 2 stoppers red might have served to permit the ready identification of the content of the amphora as wine, while noting that the symbols included on these stoppers were often linked with specific areas within Egypt, and may perhaps have served to provide a means for identifying the locale in which the wine that they held originated. One of the points that scholars frequently raise when considering the possibility that amphoras were reused on a regular basis as packaging containers is that this practice would have caused considerable confusion regarding the content of amphoras. It may be, however, that the information carried by stoppers, which could be renewed each time that a container was filled, in some cases effectively eliminated this problem.

So, thirty minutes, four data points, eight hundred years. While this is admittedly spreading things a bit thin, I hope that by assembling and discussing this evidence I have done something to communicate the nature of the issues and to open some windows – if only small and scattered - onto practices of amphora reuse in Hellenistic, Roman, and Byzantine Egypt. We might succeed in opening some additional windows in various ways. A systematic survey of the papyrological corpus for instances of this practice would, of course, be helpful. More attention to tituli picti and amphora stoppers might also expand our vision in significant, if only for the most part qualitative ways.

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To inspire, I leave you with this image of the neck of a spatheion amphora from Antinopoulis/Antinoe that preserves both a titulus pictus and a stopper that, based on this evidence, we can infer was probably filled at least three different times.

Thank you.