GRECO-ITALIC AMPHORAS

(PLATE 85)

THE GREEK and Roman worlds coalesced in the Hellenistic period. The decline of the Greek city-states ended polarization in the ancient Mediterranean. Trade expanded, and that expansion, aided by the development of coinage and the ensuant increase in capital in the West, fostered the growth of mass markets. Objects of trade became standardized. Commercial shipping containers, which were then, as they are today, among the most important of manufactured goods, began to have a "Mediterranean", rather than a local, look, particularly in the expanding West.

The several varieties of commercial amphora which since the 1950's have been loosely called "Greco-Italic" reflect, and not only in name, the pan-Mediterranean, Greco-Roman character of Hellenistic trade. As this article seeks to explain, Greco-Italic amphoras are at once Hellenistic Greek and Republican Roman. They are found throughout the Greek and Roman worlds in contexts of the 4th, 3rd, and 2nd centuries B.C. During their long history, which is partly Greek and partly Roman, they went through several distinct stages of development. The present survey article represents a preliminary effort, long overdue, to describe, date, and chart the distribution of the chief varieties of amphoras that have been called Greco-Italic, as well as to suggest their importance in the history of Hellenistic trade. It is hoped that general directions for more thorough study of the topic will also be clarified.

The development of underwater archaeology first called wide attention to Greco-Italic amphoras. Even though they occurred abundantly, Greco-Italic finds on land had been largely overlooked, belonging as they did, typologically, to a class of amphora "neither Greek nor Roman" that was usually unstamped and as a consequence not likely to attract the attention even of those few scholars who concerned themselves with coarse wares. But extensive underwater finds of coarse wares have helped to adjust the focus of Mediterranean studies and to call attention to the importance of a hitherto neglected branch of archaeology. In the case of Greco-Italic amphoras, their wide distribution and the attention they have received as a result of underwater research have for some time underscored a need to take a closer look at the category and its development. The presumed evolution of the type, or at least the way in which one variety is related to another, is, however, unusually complicated. That very complexity, sensed before it was fully appreciated when the underwater finds flooded in, must also have discouraged study of the type.

The identification and preliminary classification of Greco-Italic amphoras was the work of Virginia Grace, who by 1952 had collected and documented in her files at the Athenian Agora numerous examples of the type from a variety of Mediterranean sites. All this information she generously shared with the writer. She felt that the type was western in origin, and she provisionally called it "Spanish", in view of the occurrence of a piece stamped with Iberian letters at the site of Ensérune in southern France. She realized, however, that similar jars sometimes bore Greek stamps and that the type as a whole was well

represented in the eastern Mediterranean.¹ The term "Greco-Italic" was first used in 1954 by Fernand Benoît, in describing a group of over 400 amphoras found underwater at the Grand Congloué site off Marseilles. That excavation had begun in 1952, and about a year later, in the summer of 1953, two large caches of apparently similar jars were found on land in Sicily, in the excavations of Gela. Greco-Italic amphoras were well represented, also, among the finds that resulted from the flowering of Mediterranean underwater research in the latter 1950's. By 1961, Benoît, in a very full discussion of the type, including many valuable citations of parallels both published and unpublished, concluded from the spectrum of variations by then observable in the jars to which the term "Greco-Italic" was being applied that they came from a variety of centers of manufacture and that their history had been a long one.² No thoroughgoing analysis of the type appeared in print, however, and meanwhile extensive finds, to be identified below, of jars called Greco-Italic continued to be made underwater. The characteristics of the type and the reasons for assigning finds to it were becoming ever more unclear. In 1969, the Italian scholar Paolo Baldacci understated the situation when he remarked, "Il problema delle 'greco-italiche' é molto complesso."

¹ For a statement of her views, see "Notes on the Amphoras from the Koroni Peninsula," Hesperia 32, 1963, esp. pp. 320-321 (cf. E. Vanderpool, J. R. McCredie, and A. Steinberg, "Koroni: A Ptolemaic Camp on the East Coast of Attica," Hesperia 31, 1962, p. 38, no. 44). For her further discussion of chronological matters addressed in the prior article, see "Revisions in Early Hellenistic Chronology," AthMitt 89, 1974, pp. 193-200. Through the years, the help and comments of Virginia Grace have been essential to the progress of my work, on the topic of Greco-Italic amphoras as well as with reference to the other classes of Roman amphoras. I would like to take this opportunity to acknowledge her generous assistance and encouragement. In the case of the present article, she has made many useful comments and suggestions, although she is in no way responsible for the conclusions drawn herein. Since study of Greco-Italic amphoras has occupied so many months, I have been the beneficiary of help and advice from an unusually large number of sources. I wish to thank my amphora colleagues Gerhard Kapitan, Damián Cerdá, and Samuel Wolff, as well as the following scholars: Homer Thompson, Frederick Matson, Miriam Balmuth, Anna Marguerite McCann, Daniel Woods, Antonio Arribas, Gloria Trias Arribas, Eduardo Ripoll Perelló, Luigi Bernabò-Brea, Madeleine Cavalier, Gertrude Howland, Luc Long, Lino Melis, Margarita Orfila Pons. I am grateful also to Marian McAllister, the editor of this journal, for her help and her patience, and to Barbara Elizabeth Will, who has aided me at home and abroad.

Works frequently cited below will be abbreviated as follows:

Laubenheimer

Benoît, Grand Congloué = F. Benoît, Gallia, Suppl. XIV, L'épave du Grand Congloué à Marseille, Paris

Fernández-Belén = M. Fernández-Miranda and M. Belén, Arqueología submarina en Menorca, Madrid 1977

= F. Laubenheimer, "À propos de deux amphores de Ruscino: définition d'un nouveau type d'amphores," Ruscino, I, Revue archéologique de Narbonnaise, Suppl. VII, Paris 1980

Nolla = J. M. Nolla Brufau, "Las ánforas romanas de Ampurias," *Ampurias* 36, 1974
For permission to publish the photographs on Plate 80 I am grateful to Madeleine Cavalier (a),
Francisco Pallarés Salvador (b), Frederick Matson (d), Luc Long (e), Eduardo Ripoll (g).

² Benoît's last major publication of the Grand Congloué excavation (Benoît, *Grand Congloué*) gives references to his earlier articles on the subject. On Greco-Italic amphoras, see esp. pp. 36–41. The Gela jars were initially published by D. Adamesteanu and P. Orlandini, "Gela—scavi e scoperti," *NSc*, 1956, esp. pp. 348–349, 355–357. Cf. P. Orlandini, "Tipologia e cronologia del materiale archeologico di Gela," *ArchCl* 9, 1957, p. 169, and pl. 74:3.

³ P. Baldacci, "Le principali correnti del commercio di anfore romane nella cisalpina," I problemi della ceramica romana di Ravenna, della Valle padana e dell'alto Adriatico. Atti del convegno internazionale,

In addition to the variations in the shape of the jars, it was especially the rarity of stamps that hindered the study of the history and development of the Greco-Italic amphoras. Stamps there occasionally were: Greek, Iberian, and even Latin, as Benoît noted and as the writer's research in southern France and southern Italy in the 1950's and early 1960's had confirmed. Greco-Italic amphoras were, in fact, the first to bear Latin trademarks. But the multilingual nature of the few known stamps simply fueled the confusion. By the 1970's, stamps that appeared to be Oscan also were known.

Ravenna, 10–12 Maggio, 1969, Bologna 1972, p. 109. Baldacci's remarks on Greco-Italic amphoras are on pp. 127–128.

The following discussions of Greco-Italic amphoras (I arrange them chronologically) should also be consulted:

- N. Lamboglia, "Sulla cronologia delle anfore romane di età repubblicana (II–I secolo a.c.)," RSL 21, 1955, esp. pp. 264–265
- O. Uenze, Frührömische Amphoren als Zeitmarken im Spätlatène, Marburg/Lahn 1958, pp. 11-14, pls. 1, 3
- A. M. Bisi, "Scoperta di due tombe puniche a Mellita (Sabratha)," LA 6-7, 1969-1970, pp. 189-228, passim
- M. Beltrán Lloris, Las ánforas romanas en España, Zaragoza 1970, esp. pp. 338-348 W. Bebko, Les épaves antiques du sud de la Corse, Bastia 1971, pp. 6, 46, 47, 52
- J. and L. Jehasse, Gallia, Suppl. XXV, La nécropole préromaine d'Aléria (1960-1968), Paris 1972, pp. 194, 355, 371, pls. 142, 143, 170
- W. Culican and J. E. Curtis, "The Punic Wreck in Sicily, 2: the Pottery from the Ship," *IJNA* 3, 1974, pp. 44–47. I have not seen the final report on this wreck, which has just been published in *NSc* 1976, Suppl., according to information kindly sent by G. Kapitän.

Nolla (see footnote 1 above), pp. 148-151, 153-154, 184, 186

- V. Giustolisi, Le navi romane di Terrasini, Palermo 1975, pp. 30-35, pls. 18-21
- J.-P. Joncheray, Essai de classification des amphores découvertes lors de fouilles sous-marines, 1st ed., Gap 1970, pp. 8-12, 2nd ed., Gap 1976, pp. 15-20.
- J.-P. Morel, "Céramiques d'Italie et céramiques hellénistiques (150-30 av. J.C.)," Hellenismus in Mittelitalien, Göttingen 1976, pp. 477-478
- J. A. Riley, "Amphoras from the Early Roman Levels," Excavations at Carthage 1975 Conducted by the University of Michigan I, J. H. Humphrey, ed., Tunis 1976, p. 111
- G. Kapitän, "I relitti di Capo Graziano (Filicudi): scoperte dalla spedizione NACSAC nel 1968," Sicilia Archeologica 10:34, 1977, pp. 44-45, 48

Fernández-Belén (see footnote 1 above), pp. 58-61, 87-91

- E. de Miro and G. Fiorentini, "Leptis Magna. La necropole greco-punica sotto il teatro," QAL 9, 1977, p. 57
- D. Cerdá y Juan, Excavaciones arqueológicas submarinas en la ensenada de la Colonia de Sant Jordi (Ses Salines, Mallorca), Palma 1978, lower right of main chart, and cf., idem, "Una nau cartaginesa a Cabrera," Fonaments 1, 1978, p. 96, figs. 33, 34, pl. 15:33
- H. Blanck, "Der Schiffsfund von der Secca di Capistello bei Lipari," RömMitt 85, 1978, pp. 91–111, esp. pp. 93–97. Cf. D. Frey, F. D. Hentschel, D. H. Keith, "Deepwater Archaeology. The Capistello Wreck Excavation, Lipari, Aeolian Islands," IJNA 7, 1978, pp. 279–300; eadem, "L'archeologia marina a grande profondità: gli scavi di Capistello," Sicilia Archeologica 12:39, 1979, pp. 7–24
- J. C. de Nicolás Mascaró, La nave romana de edad republicana del Puerto de Mahón (Menorca, Baleares), Mahón 1979, pp. 13-14 and figs. 6-12, 14-16

Laubenheimer (see footnote 1 above), passim

I owe several references on this list to G. Kapitän, D. Cerdá, F. Zevi, and E. Ripoll. To be added to the list are the following recent articles, not available to me until after this article was submitted for publication:

- Y. Solier, "Decouverte d'inscriptions sur plomb en écriture ibérique dans un entrepôt de Pech Maho (Sigean)," Revue archéologique de Narbonnaise 12, 1979, pp. 55-123
- D. Manacorda, "Produzione agricola, produzione ceramica e proprietari nell'ager Cosanus nel I a.C.," Società romana e produzione schiavistica, II, Merci, mercati e scambi nel Mediterraneo, A. Giardina and A. Schiavone, edd., Bari 1981

The "Greco-Italic problem" is not, however, insoluble. The finds that have so far been made can be divided tentatively into five distinct categories, which are referred to in the following discussion as Forms a, b, c, d, and e. Forms a and d are the most widespread and important varieties. They represent early 3rd- and early 2nd-century B.C. culminations in the history of the type, and distinguishing between them is essential for an understanding of Greco-Italic amphoras. Forms b and c are transitional, serving as bridges between Forms a and d in the progression toward an enlarged capacity in a balanced shape. Form e constitutes a westernized, probably a Spanish, adaptation of Form d, one whose development was to be important in the West at the same time that Form d was itself producing other descendants in Italy.

Form a (Pl. 85:a, b)

To complicate matters at the outset, two varieties of Form a existed contemporaneously, although one may have been slightly earlier than the other. Both varieties developed during the latter part of the 4th century B.C. and reached their height of popularity in the early 3rd century. They go back to prototypes from the first half of the 4th century, a period much less characterized by mass production and standardization than the ensuing Hellenistic and Roman periods, making these prototypes correspondingly difficult to trace.⁴

One variety (the more widespread and frequently occurring kind) of Form a is shorter and wider (Pl. 85:a); the other is taller and narrower (Pl. 85:b). How the two types are related is not clear. The shorter, earlier(?) jars of Form a Virginia Grace and I long ago christened "Spina-type", because two of them were reported from a tomb of the last half of the 4th century B.C. at Spina; they are here referred to as Form a₁. The taller, later(?) jars

⁴ Possible prototypes might be, for example, an early jar from Ampurias (Nolla, p. 148, no. 3, pl. 1:3; cf. p. 184. The jar is now in the Archaeological Museum of Barcelona, no. 2614) and a similar jar, to which Virginia Grace has kindly called my attention (her photograph no. 419.43) in the Piraeus Museum. Both jars are like the type provisionally called Attic by her. See her article, "Samian Amphoras," in *Hesperia* 40, 1971, pp. 74, 78–79, with accompanying footnotes. A later example of the same type of amphora is pictured in her Amphoras and the Ancient Wine Trade (Excavations of the Athenian Agora, Picture Book No. 6, Princeton 1961), fig. 42, right. Fourth-century Samian jars, as described by Miss Grace in the Hesperia article cited above, pp. 67, 78–79, may also qualify as Greco-Italic prototypes. Similar to the Samian series are three necks from the Sec wreck off Majorca, publication of which is in preparation. For two of the necks, seen by me in 1981 in the museum of Lluc, Majorca, cf. F. Pallarés Salvador, "La primera exploración sistemática del pecio del Sec," RSL 38, 1972, p. 315, nos. 4 and 5. The Sec wreck is now being dated by the excavators to the second quarter of the 4th century B.C., according to my most recent information. The red-figured pottery and other items from this exceptionally rich wreck are said to provide a terminus ante quem, in spite of possible late intrusions (Laubenheimer, p. 311, nos. 13 and 14 appear to be late 2nd to mid-1st century B.c.). Work needs to be done not only on the precursors of Form a but also on its relationship to Corinthian B amphoras, which it resembles in some respects and with which it sometimes shares contexts (for example, at Gela and Mellita; see references above, footnotes 2 and 3). On Corinthian amphoras, see C. G. Koehler, "Evidence around the Mediterranean for Corinthian Export of Wine and Oil," Beneath the Waters of Time: Proceedings of the Ninth Conference on Underwater Archaeology, Texas Antiquities Committee No. 6, Austin, Texas 1978, pp. 231-239.

⁵ S. Aurigemma, *Il regio museo di Spina*, 2nd ed., Bologna 1936, p. 133 and pl. 64. Virginia Grace has recently informed me that some doubt may exist as to the exact provenience of the Spina jars. Benoît, p. 39, gives the inventory numbers of these jars, which are in the museum of Ferrara, as T 369 and T 779. To avoid repetition, references for findspots will be given in ensuing footnotes only if they are not provided in the works, cited in footnotes 1–3 above, by Grace, Benoît, Beltrán, and Blanck. It might be noted here that, in referring to

are designated as Form a₂. These were the jars found at Gela in the two large deposits mentioned above.⁶

Form a₁ jars are small in stature, the shortest Greco-Italic amphoras. The clay is fine in texture and pinkish brown in color (Munsell 2.5YR 5/4) with lighter, yellowish surface. Heights known to me range from 0.59 to 0.69 m., 0.65 m. being an average figure. A disproportionately large and wide belly, almost like a bustle, reaches 0.38 or 0.39 m. in greatest diameter. No capacities for this form have yet been published, to my knowledge. The rim is low and strongly outflaring, with a diameter of about 0.17 m. owing to the flare, and a narrow mouth opening of about 0.11 m. in diameter. The rim is close to the handles but does not touch them. A short, squat neck is flanked by equally short, irregularly ridged handles that are Sshaped to vertical in profile, oval in section, and set rather far from the neck. The joint between shoulder and neck is regularly visible and marks the narrowest part of the neck, which widens toward the top. The shoulder is broad and flattish and performs the function of joining the narrow neck to the wide belly. A visible ridge marks the joint between shoulder and belly. Other concentric lines can sometimes be observed on the shoulder and the belly. The belly is widest a short distance below the shoulder. The toes are cylindrical in shape and hollow or partly hollowed, a surprisingly impractical feature in a shipping jar, as are the thin walls of the type, which the dearth of finds on land suggests made Form a₁ amphoras subject to easy breakage. Stamps, when they occur, are regularly on the handle near the upper attachment, although some are at the lower attachment, where thumb marks are also commonly found. Stamps are generally in Greek but Iberian examples are known. Graffiti and painted inscriptions occur on the neck. The pitch-coated interiors of many finds suggest that Form a₁ was primarily a container for wine.

The taller Form a_2 jars (about 0.70 m. in height on the average) apparently also contained wine, as the amphoras in the two large deposits at Gela were stored upside down, a standard position for wine jars in antiquity as it is today. The clay, a pinkish, tannish buff in color (Munsell 7.5YR 6/6), is lighter than that of Form a_1 and contains many tiny black bits, while still maintaining a texture that, while not so fine as the Form a_1 fabric, is very much finer than those of the later Greco-Italic forms. Stamps in Greek letters occur in various locations on the handle, and thumb marks are often at the lower attachment. Painted inscriptions are found on the neck. Jars of Form a_2 have a longer, narrower belly than those of Form a_1 (again, no capacity figures are known), a longer, more tapering toe, a rim that is so flared as to be almost flat on top in some examples (rim diameter, about 0.17 m.; mouth diameter, about 0.11 m.), longer handles and a longer neck, and a more sloping shoulder. The toe is hollow like the Form a_1 toe. The walls are thin. It is in their generally fine clay, smaller size, and hollow, cylindrical toe, indeed, that the Form a_2 and Form a_1

Greco-Italic finds in this article, I have made every effort to be as comprehensive as my files in 1981 permitted. But some known examples have undoubtedly been omitted.

⁶ For the reference, see footnote 2 above. It is possible that Form a₁ was also found at Gela. Cf. Benoît, Grand Congloué, fig. 36, where a photograph of a jar resembling Form a₁ is given. The other side of the same jar is probably pictured in Orlandini's 1957 article (footnote 2 above). During a visit to Gela in 1981, I was unable to study the amphoras in the museum, which was closed for extensive repairs.

amphoras can be distinguished from the Greco-Italic varieties that succeeded them. Many of the typological characteristics seen in Form a (outflaring rim; lines where shoulder joins neck and belly; handles S-shaped in profile) persist, however, and accordingly suggest its relationship not only to later Greco-Italic amphoras but also to their descendants in subsequent periods.

Evidence for the date and distribution of Form a can be summarized more easily than can the type's physical features. Form a₁ is found in several examples in Greece (Karystos, Koroni, Keos, Athens, Gythion, and probably Knossos, to name sites known to me), and as far east as Syria and the Black Sea, where an example has been reported at Herakleia in southeast Romania. Two unbroken jars, one of Form a₁ and the other of Form a₂, are in the British Museum and probably also come from excavations in the Near East. But it is in the western Mediterranean that Form a seems most at home. It is widely dispersed in Sicily, where, in addition to the deposits at Gela, underwater finds of Form a₁ have occurred at Motya, Marsala, Terrasini, and Cape Ognina. Finds have also been made off three of the Lipari Islands. Forty-four Form a₁ jars and 51 of Form a₂ are, in fact, on display in the Museo Archeologico Eoliano on the island of Lipari, where there are also huge displays of Form e (see below).8 Unpublished finds in Sicily and Italy are said to occur at Trapani and the ancient border fortress Mazara, and at Reggio Calabria, Pyrgi, Vulci, and Orvieto. Other finds on the mainland of Italy, in addition to the examples at Spina, include several Form a₁ fragments at Cosa and at the Portus Cosanus, at Orbetello, underwater off Populonia, and at Viterbo and Sovana. Form a₁ jars have been found at Tharros in Sardinia and in wrecks off Corsica (Cala Rossa, îlots Bruzzi), and both varieties of Form a occur in the pre-Roman necropolis at Aleria. In Africa, Form a₁ is represented at Carthage, Leptis Minor, Leptis Magna, and it occurs with Form a2 at Mellita near Sabratha. It is found in France at

 7 To my knowledge, the jars at Karystos (photograph given me by Virginia Grace), Gythion, and Knossos (photograph given me by J. N. Coldstream) have not been published. The Form a_1 amphora from Syria is in $Tall\ S\overline{u}k\overline{a}s\ VI$, P. J. Riis, ed., p. 56 and figs. 186–188. I owe the $S\overline{u}k\overline{a}s\ reference$ to Virginia Grace and also to Samuel Wolff

⁸ The unpublished piece from Cape Ognina, a neck, is in one of the Greek theater magazines in Syracuse, where it was shown to me in 1981 by G. Kapitän. Group photographs of the Lipari amphoras occur in L. Bernabò-Brea and M. Cavalier, Il castello di Lipari e il museo archeologico eoliano, 2nd ed., Palermo 1979, fig. 217 (Form a,; a picture of one of those jars, the third from the right on the bottom row, is reproduced here on Plate 85 [a]), and in O. Ragusi and M. Cavalier, Il museo eoliano di Lipari, Milan and Muggiò 1980, p. 63 (Form a, jars to left of photograph and Form a, jars to right; one of the Form a, jars, the second from the right on the bottom row, is reproduced here on Plate 85 (b). The Form a₂ jars are from the unpublished Wreck F off Capo Graziano [Filicudi], and the Form a, jars are from the Secca di Capistello wreck published by Blanck and by Frey et al., opp. citt. [footnote 3 above]). Two other groups of Form a, jars are also on display in the Lipari museum: six jars from the Formiche wreck off Panarea; cf. G. Roghi, "Una nave romana a Panarea," Atti del III congresso internazionale di archeologia sottomarina. Barcellona, 1961, Bordighera 1971, pp. 261-262, though one of the jars in question is apparently published by error on p. 259, fig. 7, of the preceding article, also by Roghi. The fourth group of Form a, amphoras on display at Lipari is from Wreck II (or B) off Capo Graziano. Those jars are published by Kapitän, op. cit. (footnote 3 above). Two other whole jars of Form a, one Form a, and one Form a, re-used as cinerary containers in Greek tombs on Lipari, are displayed elsewhere in the museum. It might be added here that Roghi mentions a persistent legend on Panarea that an ancient "amphora factory" lies under the sea there, buried "quando il mare salì." Roghi feels, probably rightly, that the "factory" can only be an ancient wreck.

such sites as Pennes, Agde, Ensérune, Pech-Maho, Montlaurès, and Peyriac de Mer, and in Spain at Ametla de Mar, Artá (Majorca), Cales Coves (Minorca), and the smaller Balearic Island of Cabrera. The foregoing summary is somewhat selective and is without doubt incomplete, but it will suffice to illustrate the wide distribution and the importance of Form a.

The frequent finds of Form a in and near Sicily and the fact that stamps, when they occur, are generally in Greek letters, may suggest a Sicilian origin for many examples of the type, at least for the taller (Form a₂) jars. Many jars of Form a₁ perhaps also originated in Sicily, but their frequency in Greece suggests that they might have developed in the Aegean area and spread from there to Sicily and to the coasts of Italy, France, Spain, and Africa.¹⁰ The two jars in the tomb at Spina, if the tomb is correctly dated in the last half of the 4th century B.C., and if the jars are in fact from that tomb, may be among the earliest examples to have gone west, and the Geloan jars may be their later congeners, Geloan imitations of the more pan-Mediterranean Form a₁. That the two types overlapped in date is indicated by their occurrence together in tombs at Mellita. What seems certain is the fact that our firmest date for Form a is derived from the finds at Gela. Refounded after 338, Gela was destroyed again at some time between 285 and 282. The jars found there were clearly in use at the time of the destruction. The rather infrequent finds of Form a at Cosa (founded 273 B.C.) and the Portus Cosanus may indicate that Form a was waning in popularity after 273, although the pieces there could have arrived before the formal planting of the colony. The piece at Koroni in Attica, dated 265-261 by the excavators, would then, if that date is correct, be the latest known example of the shape. At this point in our knowledge, it seems wisest to date both varieties of Form a in the latter 4th and early 3rd centuries B.C., the floruit of the type being the first quarter of the 3rd century, before the First Punic War.

⁹ The pieces from Cosa, the Portus Cosanus, and Populonia will be discussed by me in forthcoming publications. The Portus Cosanus volume (A. M. McCann et al., Roman Port and Fishery of Cosa) has been completed and is expected to appear in 1983. On the Port of Cosa, see also A. M. McCann, "The Harbor and Fishery Remains at Cosa, Italy," JFA 6, 1979, pp. 391–411. On Populonia, see also my remarks in JFA 1977 (footnote 22 below), and for my remarks in JFA 1979 on Cosa and the Portus Cosanus, see the references in footnotes 14 and 22 below. On Pyrgi, see F. Serra in NSc 1970, figs. 394:6, 395:7, 8. On the Orbetello pieces, see most recently D. Manacorda, op. cit. (footnote 3 above), pp. 20-22. On material at Tharros, see the following reports in Rivista di Studi Fenici: E. Acquaro, "Lo scavo del 1978," 7, 1979, pls. 27, 29; R. Riaza, "Ánforas de la Campaña de 1980," fig. 2:1-6. I owe these references to the kindness of Samuel Wolff. The examples from Carthage, like finds from that site of Forms b, c, and d, were shown me in 1980 by Samuel Wolff, who is preparing for publication the amphoras from the Commercial Harbor at Carthage excavated by the American Schools of Oriental Research, Punic Project. (Some finds from Carthage, apparently of Form d, are referred to by Riley, op. cit. [footnote 3 above], and by S. Lancel et al., Byrsa I, Rome 1979, fig. 21 and p. 76 [I am grateful to S. Wolff for the latter reference].) References for the other sites listed in the text, as well as for possible occurrences not verified by me, are given in the works by Grace, Benoît, Beltrán, and Blanck (cited above, footnotes 1-3), except for Orvieto (Uenze, op. cit. [footnote 3 above], p. 12 and pl. 1:1), Leptis Magna (De Miro and Fiorentini, op. cit. [footnote 3 above]), Pech-Maho, Montlaurès, and Peyriac de Mer (Solier, op. cit. [footnote 3 above], pp. 90–98, 119–120), and the following sites in Spain: Artá (a neck in the museum there), Cales Coves (Fernández-Belén, fig. 26:1-6), Cabrera (Cerdá, Fonaments [footnote 3 above], figs. 33, 34 and pl. 15:33). The several occurrences of Form a at sites both in North Africa and in Etruria should be noted. Form d is also well represented in Etruria, but I know of it in North Africa only at Carthage.

¹⁰ There is some very preliminary evidence that certain examples of Form a may have been manufactured in North Africa, and unpublished kilns for the firing of "pseudo Greco-Italics" have been found on Ibiza (Cerdá, *op. cit.* [footnote 3 above], profiles on lower right side of chart).

Form b (Pl. 85:c)

With Form b, we encounter the beginning of the Romanization of Greco-Italic amphoras: they become larger, are manufactured with less care, and are often stamped or marked with Latin letters. Form b, like its younger contemporary Form c, appears to represent an effort to enlarge small jars of Form a. More capacious containers would naturally accompany the expansion of economic activity that followed in the wake of the First and Second Punic Wars. But Form b bears traces of hurried design (a disproportionately long belly and an undefined toe), which military demands and expanding markets perhaps help to explain. The type, which developed during the last half of the 3rd century B.C., is apparently a transitional, experimental link between the much more widespread Forms a and d.

Form b is taller and larger than the two varieties of Form a. The height is about 0.88 m. The belly has lengthened in proportion to the rest of the jar but has kept the Form a_1 "look" and has the same diameter. As all the known examples of the form are fragmentary, capacity figures are not available. The neck remains short. The handles, as in Form a_1 , are correspondingly short, S-shaped, and set far from the neck. The rim, again as in Form a_1 , flares sharply outward above the handles but does not touch them. There is a ridge between shoulder and belly. So long is the belly that it has almost absorbed the toe, which has lost its peg-like, cylindrical appearance and is quite undefined though still hollow, or at least very low. In several cases, the toe bends off axis, giving it an asymmetrical profile. The fabric is thick walled to support the greater weight of the contents of the enlarged belly. The clay is coarse and pinkish buff (Munsell 5YR 6/6), quite sandy, with scattered small black, white and reddish bits, and a lighter colored surface. The clay closely resembles that of the "Cosan" examples of Form d, described below.¹¹

The best preserved example of Form b is from Pech-Maho (Sigean), west of Narbonne. The jar is reported to bear a fragmentary Latin stamp,]ES, on one handle.¹² Another, apparently smaller, jar in a private collection on the island of Chios looks from photographs to

¹¹ Recent mineralogical tests by J. Z. de Boer of the Department of Earth and Environmental Sciences at Wesleyan University indicate that mineral assemblages in clay taken from a Form b toe found in the excavations of Ortu Còmidu, Sardinia, are similar to the unusual assemblages in the clay of pieces of Form d and Type 4a from the Port of Cosa. Cf. footnote 28 below. Type numbers refer to classifications of amphoras to be discussed in my forthcoming volume in the *Athenian Agora* series.

12 The drawing of the Pech-Maho jar (reproduced on Plate 85 [c]) was first published in Lamboglia, op. cit. (footnote 3 above), p. 265. The stamp is mentioned by Benoît, Grand Congloué, p. 41. As this article goes to press, I have been in touch with Yves Solier, Conservateur-adjoint of the Narbonne Museum, who informs me that the Pech-Maho amphora, now in pieces in the storage rooms of the Sigean excavation, was in his view poorly reconstructed. He feels, further, that the reading of the stamp on the handle may be uncertain. I have also just received the text of his recent article (footnote 3 above). He refers on p. 119, footnote 144, to the jar in question, suggesting that before it was broken it was smaller and less "pot-bellied" than the drawing indicates. In fig. 23:2 and 3 of the article, however, he shows amphoras from recent excavations at Pech-Maho that have the elongated, full belly and indistinct toe of Form b, although they are not so tall (on p. 93, the tallest are said to be 0.80 m. in height). They are found among a group of 51 Greco-Italic amphoras, mostly of Form a, found in recent years at Pech-Maho. I very much regret that it proved impossible for me to visit Sigean before this article was published. I should like, however, to express warm thanks to M. Solier and to Luc Long, Director of the Arles Museum, for their kindness in assisting me in my unsuccessful efforts to arrange a visit to Sigean, as well as to Bernard Liou, Director of Underwater Archaeological Research for France, for his interest and help.

be similar to the Pech-Maho amphora, although the toe is more formed. Other than those pieces, Form b is known to be represented only by fragments of lower bellies (that incorporate the distinctive blunt, thick-walled toe) from Cosa, Populonia (an underwater find), Carthage, and Ortu Còmidu, Sardinia.¹³

Our information about Form b is sparse but suggestive. The possibly Latin stamp on the Pech-Maho amphora may point to an Italian origin for the type. The similarity of the clay to the "Cosan" jars of Form d may indicate that Form b is ancestral to them. We know that Pech-Maho was destroyed at the end of the 3rd century B.C.; therefore Form b must be at least as early as that date. The finds at Cosa also come from contexts that could be associated with the early decades of that colony. The JES stamp from Pech-Maho, in fact, is very suggestive of the SES and SEST ("Sestius") amphora stamps which are now thought with some certainty to have originated in the area around Cosa. 14 The Pech-Maho stamp may have the honor, then, of being not only the earliest known Latin amphora stamp and the earliest Latin stamp on a Greco-Italic amphora, but also the earliest Sestius stamp. Although no Cosa amphora of Form d has been found with a Sestius stamp, it is clear that the Sestius jars are descended from Form d. If JES proves to be an archaic Sestius stamp, the history of the Sestius factory at Cosa will be dramatically lengthened. Form b was not destined, however, for the popularity of its descendants. Such a bottom-heavy amphora without a sturdy toe would be not only subject to breakage in transport but awkward to carry, roll, and store on land. The infrequent finds suggest that these jars mark a transitional, and perhaps rather brief, epoch in the history of Greco-Italic amphoras.

Form c (Pl. 85:d, e)

Form c is another effort to enlarge the capacity and thus increase the profitability of the Hellenistic shape represented by Form a. The clay of Form c is coarse. Examples studied by me are deep tannish buff in color (Munsell 7.5YR 6/4) with large red bits. ¹⁵ Like Form b, Form c plays a subsidiary, intermediate role between the standard and widespread Hellenistic Form a and the fully Romanized Form d, the stamps or marks on which are regularly in Latin. It may well have been another experimental effort to develop an appropriate shipping container for Italian wine. An attempt is made to correct the deficiencies of Form b. The belly of the latter had lengthened to absorb the toe. With Form c, the neck lengthens to touch the rim. The disproportionate relationship between neck and belly in Form b is

¹³ The jar on Chios, in the Choremi Collection, was photographed by Virginia Grace (her photos nos. 366.2 and 505.41). The Ortu Còmidu toe is from the excavation conducted by M. Balmuth, whose publication of the site is in preparation ("Nuraghe Ortu Còmidu [Sardara-CA]. Preliminary Report of Excavations [1975–1978]," NSc [forthcoming]). I would like to thank N. Balmuth and A. Will for their help in bringing the Ortu Còmidu toe to Amherst, on temporary loan from the Archaeological Museum of Cagliari.

¹⁴ Cf. E. L. Will, "The Sestius Amphoras: a Reappraisal," *JFA* 6, 1979, passim; eadem, "Ambiguity in Horace, Odes 1.4," CP 77, 1982, for a discussion of this topic.

¹⁵ As is discussed below under Form d, recent mineralogical tests by De Boer (see footnote 11 above) of clay samples from two Form c toes excavated by the American Schools of Oriental Research in the Commercial Harbor at Carthage indicate that the fabric of one of them contains mineral assemblages similar to those in Form d pieces from the Port of Cosa, whereas the other toe is of different material. A connection between some examples of Form c and the Cosa area is thus an unexpected possibility.

replaced by harmonious balance. The longer neck, more proportionate to the length of the belly, is stronger. So is the higher, outflaring rim (diameter, about 0.18 m.), which, because it regularly touches the handles, both gains strength from them and buttresses their strength. It becomes almost a continuation of the handles, which in their turn have grown longer with the neck. No longer oval in section, they have developed a marked dorsal ridge, perhaps to facilitate a better grip. They are almost triangular in section. The shorter belly is stronger, and a change has also occurred in the toe, which is now fully formed, solid, and quite pronounced. It is sometimes further strengthened by a kind of "cap" on the end, is sometimes twisted, and is in all respects a distinct improvement over the weak toes of Forms a and b. At the top of the belly, the joint with the shoulder is more marked.

Form c was a stronger jar than Form b, easier to carry, and it achieved much greater popularity. Like Form a, it was produced in quantity, but seemingly on a grander scale. Over 400 examples of Form c are said to have been found in the lower of the two Grand Congloué wrecks off Marseilles, as noted above, and several hundred more have been found in another wreck at El Lazareto, Minorca. In both wrecks, the jars of Form c occur in different sizes. With Form c we are thus aware for the first time of standardized variations in size and capacity within a single category of Italian amphora. At the Grand Congloué site, Benoît identified two distinct varieties of Form c: jars with a height of 0.88–0.90 m. and a capacity of 25 to 26 liters, and half-size jars 0.63 m. in height with a capacity of 12 liters. A similar gradation in size and capacity is reported from El Lazareto, where there occur in addition even smaller amphoras, 0.535–0.565 m. in height, with a capacity of about 9 liters. Fractional containers, in antiquity as today, reflect a decision on the part of the bottler to cater to the demands of a wider market; smaller quantities of a liquid are cheaper and are easier to store and to use.

Since most of the finds of Form c have come from shipwrecks, we have an opportunity to assess its role as international shipping container, with all that phrase implies. We have more actual examples of Form c, in fact, than we have of any other variety of Greco-Italic amphora. Because of the fame of the Grand Congloué excavation, and because, owing apparently to storage problems at the Borély Museum in Marseilles, amphoras from the wreck have been distributed to museums in other countries, Form c has received posthumous international attention that may perhaps obscure its subsidiary position to Forms a and d in the history of Greco-Italic amphoras.¹⁷ Although chance has preserved to us a great many examples of Form c on two separate wrecks, the distribution pattern as a whole is not nearly as comprehensive as that of Forms a and d. The only findspots of Form c known to me, in addition to those mentioned above, are Ampurias and Cales Coves (Minorca) in

¹⁶ On the wreck from El Lazareto (also called Puerto de Mahón), see most recently the publication by Nicolás (*op. cit.* [footnote 3 above]). Some jars at El Lazareto show a slight separation between rim and handles. Neither Benoît nor Nicolás describes how the capacities cited by them were measured, but the fact that their figures were cited in liters suggests that the measurement involved liquids rather than solids.

¹⁷ The Greco-Italic amphora from the site of the Grand Congloué, illustrated on Plate 85 (d) has been since 1953 in the collection of the College of Earth and Mineral Sciences of the Pennsylvania State University, where I studied it some years ago after it was called to my attention by Frederick Matson. Another Grand Congloué Greco-Italic amphora is at the National Maritime Museum, Haifa, no. 3372. I am indebted to Samuel Wolff for sending me a picture of the jar.

Spain, Grau-neuf in France (all apparently undersea discoveries), Ventimiglia(?), Cosa, and the Portus Cosanus in Italy, and Carthage. A jar of shape resembling Form c has also been found on Rhodes. Except for the two large wrecks, then, occurrences of Form c are rather surprisingly few.¹⁸

Only one stamp is known for Form c, a Latin trademark: TI.Q.IVENTI. Three pieces from the Grand Congloué site bear the stamp, on both handles in one case.¹⁹ The same stamp may occur at Trapani (*CIL* X.8051.19). While efforts to interpret the stamp have so far proved inconclusive, the Latin letters, like the stamp on Form b, point to an Italian origin for Form c. Together, these two earliest Roman amphora stamps, like the fractional containers of Form c, reflect early efforts on the part of the seller to guarantee quality and to respond to buyers' demands for such guarantees. Our modern stamped cans and bottles bear the same assurances.

A date for Form c is suggested by the abundant Campana A ware found in association with the jars in the lower wreck off the Grand Congloué, as were Rhodian amphoras, which Virginia Grace has consistently dated late 3rd century, toward 200 B.C. The Campana ware is now being dated 190 B.C. or a little before by the Campana specialist, Jean-Paul Morel. Form c thus postdates Form b and provides another missing link between Forms a and d.

Form d (Pl. 85:f)

Form d, the "standard" Greco-Italic type, the most widespread and important kind of Greco-Italic amphora, dates from a period of peace, after the Second Punic War, and at last achieves the solution sought by the designers of Forms b and c: an enlarged capacity and a balanced appearance. As we have noted in the case of Form c (p. 346 above), the Romans were now taking the opportunity to press forward with economic activity, and they were as aware as we are of the commercial importance of a container's appearance. The bottom-heavy look of Form b and the hunched posture of Form c have been avoided in Form d. Its shape had already been foreshadowed by another piece from the lower Grand Congloué wreck, described by Benoît as a "Rhodian prototype", similar to a group of Greco-Italic

18 The Ampurias jar, no. 2627 in the Archaeological Museum of Barcelona, is described by Nolla (p. 148, no. 6 and fig. 1:5). By error, Nolla identifies as Greco-Italic a similar jar of the type now known as Corinthian A. On Corinthian amphoras, see Koehler, *op. cit.* (footnote 4 above). The Cales Coves neck is pictured in Fernández–Belén, fig. 26:13. For Grau-neuf, see J. Granier, "Trouvailles fortuites sur le littoral gardois," *RSL* 31, 1965, pp. 257–259; for Ventimiglia, see Lamboglia, *op. cit.* (footnote 3 above), fig. 8, lower half, where the profiles suggest Form c. The Rhodes jar referred to is illustrated in Benoît, *Grand Congloué*, photograph by Virginia Grace.

¹⁹ For one of the stamps, see Benoît, *Grand Congloué*, p. 38 and fig. 34. I have recently received from Luc Long, who is undertaking a restudy of the journals of the Grand Congloué excavation, a photograph (Pl. 85:e) of the jar (no. LI.1.380) that bears the stamp on both handles, found not long ago. Mr. Long was kind enough, also, to inform me of the third piece, a neck found during the excavations in the 1950's.

²⁰ I am grateful both to V. Grace and to J.-P. Morel for advising me about their dates by letter. The statement about Miss Grace's dates in footnote 1 of my *JFA* article (see footnote 14 above) should be revised accordingly. For a recently published statement of Morel's views, see his "À propos des céramiques campaniennes de France et d'Espagne," *Archéologie en Languedoc* 1, 1978, p. 157. I wish to thank John Hayes, who has been helpful so often through the years, for his kindness in sending me a copy of this article. I have not yet seen a copy of Morel's recent work, *Céramique campanienne: les formes*, Rome 1981.

amphoras found on Rhodes, and paralleled in my view by a fractional jar of the first half of the 2nd century B.C. from the Athenian Agora.²¹ It is with this example of Form d that our discussion of the type must begin, for it provides us with a date in the first half of the 2nd century (before 166 B.C.) for the type. Form d was to last as an identifiable shape until at least the Third Punic War and perhaps into the last half of the 2nd century B.C.

Form d, which is on the average 0.75–0.80 m. in height, is visibly smaller than Form b and the larger examples of Form c but larger than Form a.22 It stands, in fact, midway between its predecessors in size. It preserves their short, outflaring rim, which with Form d is set well above the handles. A higher rim is occasionally found, but whatever the rim height, mouth and rim diameters average with great regularity 0.12 and 0.14 m., respectively. The rim flares out less strongly than that of Form a. It rests on a neck that is conspicuously longer than the short Form a₁ neck. Like Form a₁, however, Form d regularly has a line incised around the middle of the neck as well as a visible ridge between shoulder and belly. It is almost as if Form d seeks to revive the successful and widespread Form a. Though such a possibility is unlikely, the similarities may have led to the confusion between the two types with which the literature is full. The longer neck of Form d is flanked by long, thin handles, oval in section (though double handles have been reported), and regularly S-shaped in profile. Finger-tip impressions are regularly at the base of each handle. A rather wide shoulder slopes down into a belly that approximates 0.35 m. in diameter. Belly interiors are regularly coated with pitch, a good indication that Form d was, like the other Greco-Italic amphoras, a container for wine. The toe is solid; some toes have a twisted look.

Thus Form d, while superficially similar to Form a, can be distinguished from it by its larger size and by its solid toe. But Forms a and d are also at variance with respect to other features. The fabrics of Form d are utterly unlike the fine clays of Form a (both Form a_1 and Form a_2). The clay of Form d is very coarse and can be divided into two classes: a pinkish buff variety (Munsell 5YR 6/6), full of varicolored inclusions and with lighter surface; and a dark, reddish brown clay (Munsell 2.5YR 5/6), often grayish at core, and containing white and black bits. The dark clay is regularly covered by a worn beige surface. The fabric is thin walled and rather brittle. The two varieties of western clay seem to be associated with two separate areas of Italy, as the concentration of finds and the epigraphical evidence permit us to suggest.

²¹ Benoît, *Grand Congloué*, p. 35 and pl. I:8, for the "Rhodian prototype". The Greco-Italic amphoras found on Rhodes were first described by A. Maiuri, "Una fabbrica di anfore rodie," *ASAtene* 4–5, 1921–1922, pp. 261–262. The six Greco-Italic jars found were part of a large group of amphoras from Villanova on the northwest coast of Rhodes. For a discussion of this deposit, see V. Grace's comments in *Exploration archéologique de Délos* XXVII, Paris 1970, pp. 294–295. I am grateful to Miss Grace for providing me with photographs of one of the jars. The Agora jar, which will be published under Type 1 in my forthcoming volume in the *Athenian Agora* series, is inv. no. P 17046 (Deposit B 20:2, dated before 166 B.C.).

²² The amphora on Plate 85 (f) illustrates the shape of Form d. This jar, said to be from Porto Ercole near Cosa and now in a private collection in Ansedonia, is also illustrated on p. 42 of V. J. Bruno, E. L. Will, and J. Schwarzer, "Exploring the Gulf of Talamone," *Archaeology* 33:4, 1980. Other brief published descriptions by me of Form d have appeared in *JFA* 4, 1977, pp. 293–294 (where a neck from Populonia is pictured in fig. 28) and *JFA* 6, 1979, pp. 340–342, 345 (where the totals cited for Cosa include also the relatively few examples of Forms a and b at that site).

Like Form a, Form d bears stamps, but they seem on the whole to be relatively rare. Graffiti and painted inscriptions also occur. 23 Greek stamps are occasionally found on Form d jars in the eastern Mediterranean. As for western stamps, there is evidence that the earliest examples originated in Campania, specifically in the area of Pompeii. The stamp TR.LOISIO, repeatedly described in the literature as the earliest Latin amphora stamp, occurs on Greco-Italic handles of the second class mentioned above, coarse, micaceous, reddish brown fabric with beige surface. This widespread and much discussed trademark, the careful lettering of which corresponds somewhat in appearance to that of the TI.Q.IVENTI stamps of Form c, occurs in 18 examples at a variety of sites ranging from Alexandria (two examples) and Rhodes (one example) in the East, to Sicily (seven examples), Taranto (five examples), Vibo Valentia (one example), Ischia (one example), and Carthage (one example), in the West.²⁴ The TR.LOISIO named in the stamp has long been connected with a Trebios Loisios or Loidios (in Greek letters) named on a Delian inscription of 162/1 B.C. as owing money to the Temple of Apollo. If this identification is correct, the amphoras can be given a date at least in the 160's B.C. and probably earlier. Trebios Loisios, it has been suggested, was one of the Oscan-speaking Sabellians who took advantage of trading opportunities in the provinces after the Second Punic War.²⁵ Their names were mentioned frequently at Delos after the island became a free port in 166 B.C. Though Greco-Italic amphoras are hardly represented at Delos, it may in fact have been at Delos that Trebios Loisios first encountered them and decided to imitate these amphoras in Italy. The Trebii were indigenous to Sabellian Pompeii, and, further, the name occurs in Oscan on Pompeian brickstamps of the Sabellian period. The possibility that the amphoras bearing the name of Trebios Loisios might have been made in the same potteries near Pompeii as the bricks suggests itself, particularly since the clay closely resembles the clay of amphoras of my Type 12 (Dressel 3) that are known to have been manufactured at Pompeii. It is also like the clay of some Oscan-stamped handles of Form d that were apparently the products of the pottery of the Ovii, another firm active at Pompeii during the pre-Roman Sabellian period. The Ovii also produced amphoras of Type 12 in the 1st century B.C.²⁶ and exported them, as they did Form d, to the East.

Strong circumstantial evidence thus connects one group of Form d amphoras with Campania, but no examples of Form d Greco-Italic amphoras are yet known by me to have been discovered in that part of Italy. Since little archaeological exploration of Sabellian levels at Pompeii has so far been possible, it seems very likely that as such exploration

²³ A Greco-Italic graffito from a neck of Form d at Cosa is pictured in E. L. Will, "The Ancient Commercial Amphora," *Archaeology* 30, 1977, p. 268. The Cosa piece is numbered CA 546.

²⁴ See CIL I², 425 and A. Degrassi, Inscriptiones latinae liberae rei publicae. Imagines, Berlin 1965, no. 363. The Ischia stamp is published in G. Buchner and A. Rittmann, Origine e passato dell'isola d'Ischia, Naples 1948, pp. 58–59 and fig. 14. Buchner and Rittmann suggest Ischian manufacture for the stamp. The examples from Alexandria and Rhodes will be published under Type 1 in my forthcoming volume in the Athenian Agora series, where a full discussion of Latin stamps on Form d will be found.

²⁵ E. T. Salmon, Samnium and the Samnites, Cambridge 1967, p. 321.

²⁶ On the Pompeian Trebii and Ovii and their pottery interests, see P. Castrén, *Acta Instituti Romani Finlandiae*, VIII, *Ordo populusque pompeianus*. *Polity and Society in Roman Pompeii*, Rome 1975, pp. 45–46, 201, 230–231, 269–270.

proceeds our knowledge of the important Sabellian period will be substantially increased. Study of the western Greco-Italic amphoras of Form d suggests that Pompeii was in fact a manufacturing and trading center in the 2nd century B.C.

Campania may well have produced the first western amphoras of Form d, but by far the largest known concentrations of the type occur not in Campania but farther north, in the area around Cosa. Some 218 Greco-Italic amphoras, mostly of Form d, have been identified at Cosa, 142 on the hill site itself and 76 in the Portus Cosanus at the foot of the hill. Greco-Italic amphoras are second in importance at Cosa only to the "Sestius" series, with which they share identical clay (the first of the two classes of western clay described above, p. 346).²⁷ The Sestius jars, in fact, which now seem to have originated at Cosa, must have developed out of the Greco-Italic category. Broken pieces of the two classes of jars are frequent sights in the fields and on the beaches around Cosa. Only half a dozen or so stamps, however, occur on the Greco-Italic pieces at Cosa, and two of those stamps appear to be products of the pottery of the Ovii at Pompeii. We may have in those two pieces, actually, a suggestion that the Form d Greco-Italic amphora industry, although it remained at Pompeii and developed later into Type 12 (see above, p. 350), stimulated the expansion of a similar industry at Cosa, one which may already have begun with Form b. Two graffiti on Form d amphoras at Cosa may be additional evidence that it was the Sestii who owned the company, which may ultimately have outdistanced its Campanian cousin. Though our knowledge about Form d is still incomplete, the bulk of western finds known to me has "Cosan" clay. The group includes frequent underwater finds from near Cosa (Populonia, Porto Ercole, Giannutri, the Gulf of Talamone) and land and undersea finds from a variety of other locations in the western Mediterranean.²⁸

The spread of Form d is as extensive as that of Form a. In Italy, in addition to the sites mentioned, Form d occurs at many others, as published descriptions make clear, though a dearth of information about dimensions and fabric complicates the compiling of a list. Luni (founded 177 B.C.), Gabii, Volterra(?), Orvieto, Viterbo, Fiesole, Ostia, Brindisi, Lecce, Lipari, and the Gallinaria area off Albenga all have produced Greco-Italic amphoras of

²⁷ As this article goes to press, word has been received of the results of recent mineralogical tests performed by J. Z. de Boer (see above, footnote 11) on the fabrics of fragments of Form d and of the Sestius series from the Port of Cosa. The results suggest that both types of amphoras originated in or near the Port of Cosa. The hornblende in the fabric of both types is indistinguishable from the hornblende fenocysts in sand samples taken from the Portus Cosanus. Further, the olivine crystals in the sand and in the amphora fragments are indistinguishable. (As noted above [footnotes 11 and 15], samples of the clay of a toe of Form c from Carthage and of a toe of Form b from Ortu Còmidu, Sardinia were also tested and proved to be of similar material.) In addition, mineralogical, petrographic, and geochemical studies in 1980 by D. Cozzupoli and R. Trigila of the Istituto di Mineralogia e Petrografia of the City University of Rome indicate that, of four amphora fragments tested from the Portus Cosanus (two belonging to Form d and two to the Sestius series), trace-element concentrations in one Form d rim in particular paralleled the concentrations in clay taken from the Lagoon area of the Port. Full reports of these tests will be presented in the forthcoming publication of the excavations of the Portus Cosanus (footnote 9 above).

²⁸ On publication plans for the material from Cosa, the Portus Cosanus, Populonia, and Carthage, see footnote 9 above. The unpublished finds from Porto Ercole and Giannutri are stored in the magazines of the museum at Cosa. The Giannutri finds are to be distinguished from those reported by Lamboglia (see below, footnote 34). For finds from the Gulf of Talamone, see footnote 22 above, where reference is also made to the Form d amphora (Pl. 85:f) probably found at Porto Ercole.

Form d. In Sicily, there have been finds at Syracuse, Marsala, and Terrasini; in Spain, at Cartagena, Alicante, Ampurias, Majorca, and Ibiza, to name a few. Finds in France along the south coast, at such sites as Narbonne, Ensérune, Agde, Lattes, Saint-Gence (amphoras with double handles), and the Anthéor C, Bay of Briande, Riou, La Chrétienne C, Cap Gros, and Tour d'Agnello (Cap Eorse) wrecks, are matched in the north by a discovery at the Titelberg in Luxembourg, as well as by a possible find near Arentsburg in Holland. Form d is also, like Forms a, b, and c, well represented at Carthage.²⁹ In Greece, in addition

²⁹ Luni: *Scavi di Luni* I, Antonio Frova, ed., Rome 1973, pl. 214:2–8, many of which seem to be described on pp. 720–721 of this confusing publication. Cf. *idem*, II, 1977, pp. 234–235, pls. 141–142.

Gabii: M. Vegas, "Römische Keramik von Gabii (Latium)," Bonn Jbb 168, 1968, p. 45, no. 177.

Volterra: NSc, 1973, Suppl., p. 271 and p. 262, fig. 174.

Orvieto and Viterbo: Uenze, op. cit., (footnote 3 above), pp. 11, 13 and pls. 1:5, 6, 3:2-4.

Fiesole: stamped toes in the museum, nos. 97, 98, 103.

Ostia: I found in 1977 a neck fragment at the site of excavations conducted in the Republican harbor area in 1976. Depending upon its dimensions, a rim fragment from Ostia (drawing in C. Panella, Ostia, II, Studi Miscellanei 16, Rome 1970, pl. 33:546 and p. 109), could also belong to Form d.

Brindisi: jar no. 10 in the Museo Civico is Form d; another jar, from Apani (Lapani), no. 6711, is apparently a Greco-Italic variant. I owe a photograph of the jar to C. G. Koehler. It resembles another jar, in the Lecce museum, no. 4168. A standard Form d Greco-Italic amphora was seen by me in a private collection in Brindisi in 1961.

Lipari: Two underwater finds from La Secca di Bagno are Form d jars with Cosan clay. See Bernabò-Brea and Cavalier, op. cit. (footnote 9 above), p. 164.

Gallinaria area: for one report of this survey, see J. du Plat Taylor, *Marine Archaeology*, New York 1966, pp. 142–159, the Form d jars in fig. 58:7, 8 and on p. 149.

Ampurias: Monographic Museum, no. 1301; Nolla, pp. 153–154. This jar does not seem to be in Beltrán.

Majorca: two amphoras are in the museum at Lluc (cf. Guia del museo de Lluc, Palma 1974, near bottom of p. 6), and one is in the museum at Artá.

Ibiza: T. Falcon-Barker, Roman Galley Beneath the Sea, Philadelphia 1964, p. 57:F, where it is called "Fourth century AD Roman".

Narbonne and Ensérune: two stamped pieces, only one identified with certainty, but without a statement of dimensions or clay, are published in C. Lamour and F. Mayet, "Glanes amphoriques: I. Région de Béziers et Narbonne," Études sur Pézenas et l'Hérault 11, 1980, pp. 4, 8, 10, and 16 (I wish to thank Howard Comfort for his kindness in sending me a copy of this article).

Lattes: a jar-fragment was found in excavations here in 1967, according to photographs which C. Ebel was kind enough to send.

Bay of Briande: A. Tchernia, "Direction des recherches archéologique sous-marines," *Gallia* 27, 1969, pp. 472–473; cf. Joncheray, *op. cit.*, 1st ed. (footnote 3 above), pl. III:3a, 4a. On the same plate (2a and 2b), Joncheray illustrates Form d jars from the wrecks of La Chrétienne and Riou.

Cap Gros: P. Fiori, "Le mouillage antique du Cap Gros," Cahiers d'archéologie subaquatique 3, 1974, pl. 3:4, 5

Tour d'Agnello (Cap Eorse): publication forthcoming in *Archaeonautica* 5, according to information kindly sent me by Luc Long.

Titelberg: I am grateful for information from R. M. Rowlett. A publication on the site by Rowlett, H. L. Thomas, and E. S.-J. Rowlett is forthcoming in the *JFA*. This piece was found in a level between Middle and Late La Téne.

The find at Arentsburg is based on my reading of a stamp in CIL XIII, 10002.624.

In addition to the occurrences noted in the text and those given in the works by Grace, Benoît, Beltrán, and Blanck (cited above, footnotes 1–3), jars of Form d are in the Florence Archaeological Museum (nos. 4971, 4978, 4983, 4989) and the museum of the Eberhard Karls University in Tübingen, Germany. I also saw a fractional container, probably of Form d, in the magazines of the museum at Sassari, Sardinia, in 1981, and G. Tore kindly informs me that Greco-Italic amphoras from 2nd-century B.C. contexts (and presumably of Form d) have been found in his excavation at San Giovanni, near Padria (Gurulis Vetus), Sardinia. That excavation is still in progress. Further finds, in Sicily, of Greco-Italic amphoras (apparently mostly of Form d, but more

to Rhodes, the fractional container referred to above (p. 349; P 17046 from Deposit B 20:2) was found at the Athenian Agora, where stamped fragments of Form d have also been found. Other stamped pieces are from Pella, Hermione Magoula, and Alexandria. Unstamped finds have been made at the Peiraeus, Corinth, Delos, Isthmia, Volo, Gythion, and Corfu. Form d has also appeared in the sea off Gaza.³⁰

Form d belongs securely to the first half of the 2nd century B.C. How long after the Third Punic War the type persisted is less clear. No examples are said to occur at Entremont (probably destroyed 125–123) or at Pollentia (founded 123–122).³¹ The lack of finds at Delos may be significant. When the island became a free port, large containers with greater capacities would logically have been used in place of the relatively small-sized Greco-Italic amphoras, and that is apparently what happened. The Roman amphoras at Delos, mostly datable to the last half of the 2nd and the early 1st centuries B.C., are large, heavy jars that would naturally have been more profitable for the traders than the smaller Form d. Have we here an explanation for the indebtedness of Trebios Loisios to the Temple of Apollo? Were his plans for expansion to eastern markets, plans which his stamps at Rhodes and at Alexandria would seem to suggest, complicated by the opening up of Delos to large-scale trade? Was the loan negotiated in the hope of making up for losses and furthering the expansion, a hope which in the event proved vain?

Form e (Pl. 85:g)

Eastern examples of Form d may have found their way to Ampurias and to other way stations on the Spanish and French coasts. Local manufacture of similar jars may have been

complete publication will clarify their chief features) are reported by G. Purpura in two articles in *Sicilia Archeologica*: fragments from the area of Selinunte and from S. Nicola l'Arena are discussed in "Alcuni rinvenimenti sottomarini lungo le coste della Sicilia Nord-Occidentale," 8:28–29, 1975, photographs 5 (right), 10:a, b, and 26; and a jar from the sea near Trapani is pictured in "Nuove anfore nell'Antiquarium di Terrasini," 10:35, 1977, fig. 12:D. A long-bellied Form d jar from the Cala Gadir wreck, Pantelleria, is also shown on p. 73 (upper left) of the 1975 article. G. Kapitän has recently reported seeing Greco-Italic jars (of Form a or d) in the Museo Nazionale, Reggio Calabria. They are from Pizzo, Cetraro, the Straits of Messina, and Capo Spartivento, and presumably one of them is the jar from Reggio mentioned above in the text (p. 343).

As this article goes to press, I have received from D. Manacorda a copy of his recent article, *op. cit.* (footnote 3 above), pp. 3–54, 263–274. A perceptive discussion of Greco-Italic amphoras is on pp. 22–24, and the footnotes contain references which supplement the ones presented here. I would question only Manacorda's assigning two pieces from D. P. S. Peacock's Albinia site to the Greco-Italic category (pl. 5:14, 15). The rim heights cited by Manacorda for those pieces could also indicate Dressel 1A (my Type 4a). A final identification of type would involve information on the estimated mouth and rim diameters of the fragments in question. On the Albinia site, see D. P. S. Peacock, "Recent Discoveries of Roman Amphora Kilns in Italy," *AntJ* 57, 1977, pp. 266–268.

³⁰ Athenian Agora jar: footnote 21 above. The jars at the Peiraeus and at Volo are known to me from photographs by V. and J. Grace. To my knowledge, the pieces at Corinth, Delos (an unnumbered neck found in the sea), Isthmia, Gythion, and Corfu have not been published. The Gaza jar, now in the National Maritime Museum, Haifa, no. 5536, is published in A. Zemer, *Storage Jars in Ancient Sea Trade*, Haifa 1977, p. 43, no. 34 and pl. 12:XII. I am grateful to S. Wolff for another photograph of this jar.

³¹ On the Entremont amphoras, cf. F. Benoît, "Typologie et épigraphie amphoriques. Les marques de Sestius," *RSL* 23, 1957, pp. 247–285. On Pollentia, see M. Vegas, "Vorläufiger Bericht über römische Gebrauchskeramik aus Pollentia (Mallorca)," *BonnJbb* 163, 1963, pp. 275–304. I reviewed the Pollentia finds in 1981 and did not see any Greco-Italic pieces in the collection. Excavation at Pollentia is still in progress. The amphoras will be published by D. Cerdá.

generated by such imports, for the fifth identifiable Greco-Italic type seems to be a product of northeastern Spain in the 2nd century B.C. At Ampurias have been found, for example, many tall, slim, long-necked jars that average about 0.90 m. in height³² and about 0.30 m. in greatest diameter. These jars of Form e are distinctive in several ways: their long, S-shaped handles, narrow in section, that adhere to the neck at the lower attachment; their sloping shoulders, carrot-shaped bellies, and undefined toes; and their unusually coarse, rust colored fabric (Munsell 2.5YR 5/6) that includes conspicuous black and white bits, the latter often quite large, and a peeling surface that is often dirty grayish beige in color where it is not worn off. Some examples are thickly lined with pitch, and thus jars of Form e, like the other Greco-Italic amphoras, were probably used as shipping containers for wine. Mouth and rim diameters are narrower than those of Form d. Stamps do not seem to occur, except on amphoras from Wreck A of La Ciotat in France, where several three-letter stamps are reported at lower handle attachments, and a stamp from the îles Lavezzi, Corsica.³³

Distribution of Form e ranges from the coasts of Spain and France to central Italy, the Lipari islands, Algeria, Carthage, and the Aegean area. Three pieces have been found at the Athenian Agora, two of them in contexts of the first quarter of the 2nd century B.C. and one of them (P 25797, from Deposit A 16:4) to be dated no later than 146 B.C. Eastern examples also occur at Mykonos and Delos. Far the largest group of known finds exists at Lipari, where 89 jars from Wreck A off Capo Graziano (Filicudi) are on display. These jars, which we can assume are all of the same date, vary widely in individual characteristics, but all still share the chief features of Form e.³⁴ This last Greco-Italic shape, though it developed in the

³² Heights as great as 1.08 m. have been reported at other sites.

³³ Benoît (Grand Congloué, p. 41) says that all the jars from Wreck A of La Ciotat were stamped at the lower handle attachment. About half a dozen stamps are known. Laubenheimer, in her very interesting discussion of "Ruscino-type", which seems to be close to Form e, does not include the Ciotat jars, nor have I myself seen them for study. But to judge from the lettering and the placement of the stamps, which are analogous to those on my Type 5 (Dressel 1C, according to Lamboglia's rather arbitrary revision of H. Dressel's typology in CIL XV), and to judge also from the profiles given in Benoît (op. cit. [footnote 31 above], fig. 7), Beltrán (op. cit. [footnote 3 above], fig. 117), and Joncheray (op. cit., 1st ed. [footnote 3 above], pl. III:1b); the Ciotat jars belong to Form e. Laubenheimer's efforts to analyze an amphora type by means of measurements are useful and should be pursued; however the 89 jars described in the text from Wreck A (or 1) off Capo Graziano (Filicudi) and on display in the Lipari Museum show enormous typological variations as far as details go, and yet all are clearly Form e. Cf. the group photograph in Bernabò-Brea and Cavalier, op. cit. (footnote 8 above), fig. 216 and p. 163, and see G. Roghi, "La nave romana di Capo Graziano," Atti del III congresso internazionale di archeologia sottomarina. Barcellona, 1961, Bordighera 1971, fig. 6, where three of the same jars are apparently pictured. It may be that the Spanish amphora industry, if I am right in proposing its existence, did not, in its early products, achieve the degree of standardization that is visible in the other Greco-Italic forms. Those forms also, of course, show variations.

³⁴ Form e in Spain: three jars from Ampurias are on display in the Archaeological Museum of Barcelona (nos. 2624, 2628, and 3010). They are published in Nolla, p. 148, no. 5 and fig. 1:6 for no. 2624, illustrated here on Plate 85 (g); p. 151, nos. 7 and 10 and fig. 2:1, 2 for nos. 2628 and 3010. All these jars have the distinctive, dark clay and worn, light-colored surface of Form e. Nolla says (p. 186), apparently referring to the context in which these jars were found (Level V of Camp Laia, datable to 175–125 B.c.), that 50% of the amphora fragments belonged to this type of jar and that 60% of those fragments had the same brownish rose clay with small black bits and a light yellow surface. I saw several large fragments of jars of Form e in the magazines of the Monographic Museum at Ampurias in 1981. Other examples occur in Spain at Alicante, Les Foies, Zaragoza, Madrid (Beltrán, op. cit. [footnote 3 above], figs. 96:9, 88:2, 94:1, 87:20) and Cales Coves, Minorca

first half of the 2nd century B.C., probably existed down into the last half of the century. At that point, it develops into the much more widespread type which Lamboglia christened Dressel 1C (my Type 5). Form e is clearly transitional between Form d and Type 5, just as Form d developed into Lamboglia's Dressel 1A and 1B (my Types 4a and 4b) as well as into Dressel 3 (my Type 12) in central and southern Italy respectively. But Form e, while it occurred widely, did not achieve the importance and success of its immediate ancestor or cousin, Form d, or of its remote ancestor, Form a. I suggest a Spanish origin for the type on the basis of its clay and its frequency in Spain. An eastern origin is possible as well, though the Aegean finds have, to the eye, precisely the clay of the western examples.

During their history of over two hundred years, the so-called Greco-Italic amphoras thus served as one of the bridges by which the Greek and the Roman worlds merged in the Hellenistic period. They were shipping containers that served the later Greeks when they went to the West and then served the Romans when, for military and economic reasons, they turned to international trade. Two forms of Greco-Italic amphoras emerge as pivotal

⁽Fernández-Belén, fig. 26:7-11), to name some representative sites. Several other profiles presented by Beltrán may show other jars of Form e. Simon Keay of the University of London informs me that other Greco-Italic amphoras (of Form e?) are in the Maritime Museum at Barcelona. Another jar of Form e, from the Rio Tinto Mines in Spain, is in the British Museum (BM 1928 5-18 1). Form e, like its descendant, my Type 5 (Lamboglia's Dressel 1C) occurs with great frequency in Spain. In France, as Laubenheimer points out, Form e is also common, occurring at Ruscino, Agde, Marseilles, Cap Camarat, Bandol, La Redonne, and Nîmes, and in Corsica at Ajaccio and Monte Bughju. Other Corsican examples are from the îles Lavezzi (Benoît, Grand Congloué, pl. 2:6) and from the wrecks called Cavallo 3 and La Balise du Prêtre (Bebko, op. cit. [footnote 3 above], pls. 47:317, 1:1). Laubenheimer does not accept all the French examples cited as belonging to her Ruscino type, nor do I accept her assignment of jars at Laissac, St. Nazaire, and Ensérune (or at Azaila, Spain) to Form e. Those jars all belong to Type 5, in my view. In Italy, in addition to the major collection of Form e jars at Lipari, two finds have been made at Punta Scaletta off Giannutri (N. Lamboglia, "La campagna 1963 sul relitto de Punta Scaletta all'isola di Giannutri," RSL 30, 1964, pp. 229-257), another at Mondello near Palermo (V. Tusa, "I rinvenimenti archeologici sottomarini nella Sicilia nord-occidentale tra il II e III Congresso Internazionale," Atti del III congresso internazionale di archeologia sottomarina. Barcellona, 1961, Bordighera 1971, fig. 6), a fourth is in the museum at Fiesole, and three more jars are in the Florence Archaeological Museum (nos. 4982, 4992, 4998); an unpublished neck has been found at Populonia. A jar of Form e is in the group of amphoras from the Cala Gadir wreck, Pantelleria (cf. G. Purpura, op. cit. [1975; footnote 29 above], p. 73 [middle amphora in upper row]). G. Kapitän has also recently seen in the Museo Nazionale, Reggio Calabria, some jars from Capo Spartivento that are like the amphoras from Wreck A off Capo Graziano (footnote 33 above). In North Africa, Form e occurs at Djidjelli (J. and P. Alquier, "Tombes phéniciennes à Djidjelli [Algérie]," RA 31, 1930, fig. 5) and probably at Souma near Constantine (Bonnell, "Monument gréco-punique de la Souma [près Constantine]," Recueil des notices et mémoires de la société archéologique du département de Constantine 49, 1915, p. 176). On the piece at Carthage, see Lancel et al., op. cit. (footnote 9 above), fig. 45 and p. 139. The examples of Form e at the Athenian Agora are P 20196, P 23077, and P 25797. These pieces will be published under Type 2 (see footnote 11 above).

³⁵ I note here only the descendants of Form d that have been discussed in the text. Form d was almost certainly ancestral also to many of the other chief types of Roman amphoras, with a few notable exceptions. Note that J.-P. Morel, *op. cit.* (footnote 3 above), p. 478, suggests that Type 5 (Dressel 1C) or an analogous type (he refers to an example at Ampurias) could have been intermediate between the general Greco-Italic shape and Dressel 1.

³⁶ For a discussion of the "Tarraconese" clay which Form e seems to share with later amphoras, see A. Tchernia and F. Zevi, "Amphores vinaires de Campanie et de Tarraconaise à Ostie," *Recherches sur les amphores romaines*. *Collection de l'École française de Rome* 10, Rome 1972, pp. 35–67.

in the history of the type as a whole. Form a, which was of most importance in the latter 4th and early 3rd centuries B.C., has clear connections both with Greece and with the Greek cities of Sicily. It may have been manufactured in both areas and in Iberian-speaking regions of the West as well. It is found throughout the Mediterranean area from Spain to the Black Sea. It was surely one of the dominant amphora types before the First Punic War. The second important Greco-Italic type, Form d, of the first half of the 2nd century B.C., was, to judge from its wide distribution, dominant between the Second and Third Punic Wars in roughly the same areas as Form a. Form d seems to have originated in central and southern Italy. Of the three other, less widespread types of Greco-Italic amphoras, Forms b and c date respectively from the last part of the 3rd and the very early 2nd centuries B.C. They were Italian amphoras and seem to represent an effort to Romanize Form a. Form e, the latest identifiable Greco-Italic series, probably existed until after the Third Punic War. It may have resulted from an effort of Spanish exporters to revive the Greco-Italic shape in the West. It was the distinction of Forms d and e that they served as immediate models for the chief types of Roman wine amphoras of the 1st century B.C.

Much work remains to be done on Greco-Italic amphoras. The distinctions among the various forms and their sub-categories will be sharpened as new evidence accumulates. Detailed clay analysis and study of dimensions and of capacities will be particularly fruitful areas for future research. The purpose of the present article is to point directions in a preliminary way and to begin the process, too long postponed, of defining what is meant by "Greco-Italic". But the essential conclusion drawn here is likely to stand: the first Roman commercial amphoras developed as early as the 3rd century B.C. and were patterned on Hellenistic Greek models.

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a. Form a

b. Form a

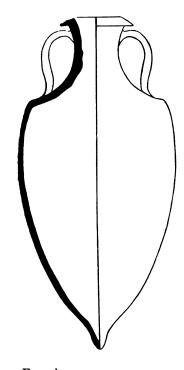


d. Form c. H. 0.865. College e. Form c. No. LI.1.380 of Earth and Mineral Sciences, The Pennsylvania State University



from the lower Grand Congloué wreck

- f. Form d (western). P.H. 0.698. Private collection, Ansedonia
- g. Form e. H. 0.83. Museo Arqueológico, Barcelona, no. 2624



c. Form b





ELIZABETH L. WILL: GRECO-ITALIC AMPHORAS