The Roman Port and Fishery of Cosa

A Center of Ancient Trade

by Anna Marguerite McCann and
Joanne Bourgeois, Elaine K. Gazda,
John Peter Oleson,
and Elizabeth Lyding Will.

Princeton University Press, Princeton, New Jersey
Chapter IX. The Roman Amphoras

ELIZABETH LYDING WILL.

INTRODUCTORY TEXT

Shipping amphoras from the Roman period have been found in large numbers in the excavations of the port of Cosa. A total of 789 jars or fragments, representing at least thirteen different types of amphoras, has been identified. The Roman amphoras comprise, in fact, the largest single group of discoveries in the port. More importantly, they constitute an accurate index to the chronology of the port and to the economic activity which accounted for its existence. That circumstance is the happy result of the care with which the excavation was conducted. All the amphora finds were kept for study, and since most of them can be assigned to datable types their chronological value for the port is self-evident. But the significance of the port amphoras goes beyond the conclusions they enable us to draw about the chronology and the commercial life of a specific site. Because that site was a harbor, and because few Roman harbors have been excavated, the finds take on added interest, especially in view of the connection of the Portus Cosanus with the early Roman colony of Cosa. Study of Cosa's port adds a valuable new dimension to our knowledge of Cosa itself, throwing into relief its economic importance and permitting it to be seen as part of a major export center during two centuries of its history, a matter about which our literary sources are silent. The amphoras from the port of Cosa thus add to the growing body of evidence indicating that, in establishing colonies in Italy, Rome heeded her economic interests as well as political and military considerations.

The general outlines of what the shipping amphoras reveal about the port's chronology are clear and easily summarized. Broadly speaking, they suggest that the history of the port parallels that of the town of Cosa, but there are also significant differences between the two sites. As in Cosa itself, economic activity began in the port in the years immediately after the planting of the colony, if not before, and lasted through the third century A.D. The second and first centuries B.C. were the time of greatest activity in the port. The same activity is also reflected to a much smaller degree in the amphora finds from the town. During that period, the amphoras show that the port served as a major export center. An industry owned by the Servius family shipped wine and eventually garum and perhaps other fish products to the western Mediterranean, particularly to Gaul. But a decline in activity began in the last half of the first century B.C. Exportation had apparently ceased by the end of the century, and in the port, at any rate, imports did not take the place of exports. The Portus Cosanus lay virtually dormant during most of the first century A.D. In the town of Cosa, on the other hand, the same decline was followed by intense importation, apparently via some other harbor, of the same kind of commodities that had formerly been exported. In the second and third centuries A.D., however, the port revived to some extent. Amphoras imported from abroad are found, though the same types occur in far greater numbers in the town of Cosa. The port never returned to the remarkable level of commercial activity it had seen in the second and first centuries B.C., when it must have been one of the chief exporting centers of Italy and of the western Mediterranean.

1 The thirteen types of Roman amphoras discussed in the catalogue that accompanies this chapter are numbered according to the system used in my forthcoming volume on Roman amphoras in the Athenian Agora series. I then describe twenty-three types of Roman amphoras from the eastern Mediterranean area. Of these twenty-three types, most of them from closely dated contexts at the Aegina excavations, the following are represented at the Portus Cosanus: Types 4, 5, 10, 11, 13, 14, 16, 18, 20, 21, 23. Type 24, which is also represented in the Portus Cosanus catalogue, is not known to occur in the eastern Mediterranean.
2 The large group of Roman amphoras and fragments, numbering at present close to 1,500 pieces, from the colony of Cosa will be presented in a separate publication.
In addition to the chronological structure that they permit us to delineate, the Roman amphoras also testify to the ways in which the port of Cosa operated. Although the port at its height was primarily a facility for the processing, bottling, and shipping of wine and fish products, there is no evidence that any commercial activity other than shipping took place there before the end of the Second Punic War. The third century B.C. is marked in our finds by only imported amphoras. Those are the early Greek-Italic wine jars discussed below as Type 1a, a widely distributed type of amphora, manufactured in various places throughout the Mediterranean but perhaps to the greatest degree in Sicily. Type 1a was most prevalent in the first quarter of the third century B.C. It occurs frequently at the major Etruscan sites. The presence in the port and in Cosa itself of fragments of these fragile jars and in Orbetello of similar amphoras (Figs. IX-1, 2) suggests that the port was being used for the receipt of goods in the earliest years of the colony, if not before, especially during the preparation of the site for the colonists, and that a certain amount of wine was being imported. While not landlocked, the unimproved port afforded anchorage, and logic suggests that some of the original colonists may have been practical enough to send belongings and supplies, as well as to make the trip themselves, by ship. The spot would, in any case, have been familiar to seafarers for centuries, long before the formal planning of the Latin colony in 273 B.C.

The Type 1a amphoras from the Portus Cosanus thus bear witness to the early years of the colony, but about the remainder of the third century we have from the port no further amphora evidence, though Livy’s statements (cited in chapter one) indicate that the port was functioning during the Second Punic War, perhaps both militarily and commercially. The presence, also, of Type 1b amphora fragments in the town of Cosa may, as is discussed below, point to the existence of an early local amphora factory, one controlled by the Sestius family and dating from the last half of the third century B.C. Since such a factory was apparently located in the port during the first half of the second century (see Fig. VII-9), it seems possible, given the other evidence, that a small export operation, probably involving wine and perhaps fish products as well, had commenced in the Cosa area in the preceding century. If it existed, it was perhaps located, for safety’s sake, on the hill of Cosa, above the port. The JES stamp (part of Sestius trademark?) on a Type 1b amphora from Peb-Maha near Narbo, a site destroyed at the end of the third century B.C., hints that it was the Sestii who owned such a facility, whatever its location. So do scattered finds of Type 1b amphora fragments at sites in the western Mediterranean. Although tests are not complete, those fragments appear to be made of the same distinctive fabric that characterizes the later products of the Sestius factory, in the second and third centuries B.C.

The JES stamp is also the earliest known amphora stamp in Latin letters. If it is a broken Sestius stamp, we have evidence that the first Sestius amphoras were also the earliest truly Roman amphoras and that the Cosa area contributed to the development of Roman trade after the First Punic War. The preeminence of the Sestius amphoras of Types 1d and 4a in Western commerce, beginning in the first half of the second century B.C., would thus be more easily explained. But at the moment, information on these matters is lacking from the Portus Cosanus.

Our data are at present incomplete, but the dearth of amphoras in the port in the last part of the third century B.C. may not be so surprising, after all. If by that time the colony was in a position to export surplus products, the fact that Carthage was still a threat, both on land and on sea, would have made it more sensible to place any permanent processing and manufacturing structures, such as an export operation, where would have required, behind the town of Cosa’s heavy walls rather than in the more exposed port. Loading areas for merchants as well as military facilities could still have existed in the port, however. Type 1b was in any case a short-lived, hurriedly designed, experimental effort to respond to military demands and expanding commerce at the same time. If it was, in fact, a product of the first years of the Sestius firm, its absence so far from the port might be as much the result of “excavational chance” as of any other circumstance.

Type 1d, the “standard” Greek-Italic, represents the climax of the evolution of the Romanized shape, of which Type 1b was the beginning (Fig. IX-3). The abundant finds of Type 1d in the Portus Cosanus indicate that once the threat from Carthage had subsided, at the end of the Second Punic War, an export operation began in earnest close to the harbor wharves, where it could most efficiently be carried out (Fig. VII-9). The scale of the enterprise can be judged from the number of finds. The need to staff such an export facility could explain, at least in part, Cosa’s petitioning the Senate at Rome in 199 B.C. and 197 B.C. for more colonists (Livy 32.2.7; 33.24.8-9). Of the amphoras discovered so far in the port, 9 percent belong to Type 1d, and the same
high percentage of the type occurs in the town of Cosa. It is second only to Types 4a and 4b in frequency at both sites. Even today, in the shore area on the site of the ancient port and in the fields around Cosa, broken pieces of Type 1d lie scattered in profusion, only slightly less evident than the enigmatic fragments of Types 4a and 4b. Most finds of Type 1d have been made in the Cosa area than anywhere else in the Mediterranean; it was a popular shape of amphora, doubtless a shipping container for wine, and among the first international commercial amphorae produced by the Romans. Like Type 1a, its Greek (perhaps Sicilian Greek) equivalent of a century earlier, which it superficially resembles, Type 1d is found throughout the Mediterranean area. The largest concentrations are at Cosa, but examples made of different clay and thought to have been manufactured near Pompeii are probably earlier. After having been taken to Cosa, they could have influenced the evolution of the jars, if it occurred there, from Type 1b to Type 1d. Most finds of Type 1d in the western Mediterranean, however, have “Sestius” clay and must have come from the Sestius factory in the port.

Further evidence pointing to the Sestius as owners of the Type 1d factory is contained in graffiti found on some of the jars and fragments of the type. Particularly helpful is a graffiti, M.SL, on the shoulder of a broken jar from the town of Cosa (no. C 55.207). Stamps are rare on these early amphorae, and we are justified in interpreting these letters, scratched before firing, as naming M. Sestius, the manufacturer of the jar. The name serves as another link in the chain connecting Type 1d to the Sestii, but even if the graffiti did not exist, the clear relationship between Types 1d and 4a in shape and in clay would point to the former as ancestral to the latter, which were once thought to be the only Sestius jars. We can no longer refer to Type 4a, then, as “Sestius-type.” I suggested as early as 19607 that the Sestii owned at Cosa a factory which manufactured Type 4a, and it seemed natural thereafter to refer to the type as “Sestius-type.” But by 1979 it was clear that Types 4b and 5 also occasionally bore Sestius trademarks. Our new knowledge about the earlier history of the factory now necessitates our expanding the term to include Type 1d and perhaps also Type 1b. The Sestius family of amphorae, in fact, affords us our first opportunity to study the development of a Republican Roman amphora factory’s products over a long period. The implications are of great interest, not just for the future study of Roman amphoras but for research into Roman economic history and into the history of ports, particularly the port of Cosa.

It may never be possible to identify the M. Sestius named in the Cosa graffiti. Type 1d seems to date from the first half of the second century B.C., and there is a known M. Sestius of Fregellae who, according to an inscription from Delos (IG XI 4. 757), was granted citizenship on the island in about 100 B.C. Münzer in RE, s.v. “Sestius” (4), suggested he might be identical with the M. Sestius of Fregellae who was spokesman for eighteen loyal Italian colonies in 209 B.C. (Livy 27.10.3). Fernand Benoît, the archaeologist in charge of the excavation of the underwater site off the Grand Congloué near Marsilles, even suggested that M. Sestius of Fregellae or a relative had manufactured the hundreds of Sestius Type 4a amphorae discovered in what we now know was a great double wreck. The dates of the jars contradict such a theory. We can assume, however, that whether or not M. Sestius (or M. Sestilus) of Fregellae and M. Sestius of Cosa were identical, the latter was an early member of the Sestius firm, an ancestor or relative of the politically powerful Sestii of the first century B.C. It was those later Sestii who, building on the family company’s long history, brought the Portus Cusanus to the height of its commercial importance. M. Sestius could have been the founder of the Sestius enterprise, however. Our assessment of his role must await further research on Type 1b and its possible connection with Cosa in the third century B.C.

Type 1d does not seem to have been in use for very long after the middle of the second century B.C. Its evolution into Type 4a is discussed in the introduction to the catalogue of that type. By the late second century, the Sestius firm’s new shape, Type 4a, an elongation and enlargement of the Type 1d form, had been fully developed, arguably in response to market demands (Fig. IX-4; Color Fig. 3). The type is found with great frequency in the West (Text Fig. IX-1). Its popularity is reflected in successive enlargements of the port facilities, modifications that seem to have begun in the latter second century and to have continued, in stages, well into the first century B.C. Wine was not the only commodity processed in the port at this time, for extensive arrangements for the preparation of garum and probably of other fish products are seen not just in the combined fishery and Spring House uncovered by

---

7 Will 1956, pp. 242 243.
8 Benoît 1961, pp. 68 70.
the excavations, but also in the amphorae of Type 5, imitations of a Spanish form used for garum, as we argue below, that were produced by the Sesius factory from the late second century B.C. onward (Color Fig. 4). The diversification into fish was a success, to judge from the use of advanced technology in its operation, evidenced by the water-lifting mechanism discovered in the Spring House, as well as the large size of the preserved concrete fish enclosures. Pointing in the same direction is the evidence that the Sesius site was developing additional, in some cases quite experimental, amphora forms, like Type 2¼ and the other shapes, discussed below, in which fish products were probably shipped. We are in a position to argue, then, that during its heyday in the latter second to mid-first centuries B.C., the Sesius enterprise in the port was at the zenith of its wine and fish businesses. The garum, an expensive commodity, would have been distributed less widely than the wine. What we know about the Sesius wine indicates that it was directed toward a mass market rather than a more discerning clientele. The size of the shipment of amphorae in the upper Grand Congloué wreck implies that the wine carried in the jars was “table grade,” and our literary sources suggest that Tuscan wine in general could perhaps best be described as vin ordinaire. In A.D. 1194, Coustau used harsher words to reflect his reaction after unloading a still hermetically sealed amphora from the Grand Congloué and tasting its contents: “A poor vintage century, that wine.” The Sesius, then, used mass-production techniques in order to capture a mass market. Such techniques are economic realities in our own era, but they were new in the Roman world. They prove the rapidity and efficiency with which Roman commercial capabilities had developed during the second century B.C., and they highlight the pioneering role played by the Portus Consanius factory in that development.

Some statistics will illustrate the unique position occupied by Type 4 at Cosa from the latter second century B.C. onward. As we note elsewhere in this chapter, Type 4a is the most frequently occurring amphora in the Portus Consanius, accounting for over 38% (300) of the finds. Type 4b, a first century B.C. descendant of Type 4a, represents some 26% of the total (208 jars or fragments). If we add indeterminate pieces, mostly body fragments that could belong to either type, we discover that 70% of the port amphora material belongs to Type 4. The figures are convincing. The manufacture of Type 4 occurred in the port at the height of its operations. For the town of Cosa, the percentages are much lower (4a: 13%; 4b: 10%; total of both including indeterminate pieces: 24%), but are still far higher than one would expect to find at a single site, not to mention a small colonial town. Most of the pieces of Type 4 from the Cosa area are of Sesius chy. If we examine the trademarks on the stamped pieces, further, we find that 86% of the stamps found in the port (99 of 115) are Sesius trademarks, all but one of them on Type 4 and most of them on Type 4a. Twenty percent of the Latin amphora stamps from the town (41 of 201) come from the Sesius factory. Both figures represent very high, if not unique, concentrations for a single series of stamps at a single site.6

1 Coustau 1951, p. 13. On Tuscan wine, see, for example, Horace Ser. 2.3.4-3, Martial 11.103-9, 2.3.4. 3.4.9, 7, Persius 5.47.

2 Tons given here for amphora stamps from the port of Cosa compare not only the 39 stamps described in the accompanying catalogue (a number that includes 7 stamps occurring with one or more other stamps on the same fragment; e.g., Car. A64, A66, A79, A95, A199, A204), but also the 26 stamps published in Manacorda 1978, in the aftermath of an apparent excavation near the seaside parking lot of Ancarola, within the area of the ancient port of Cosa. I had announced plans in 1974, at the annual meeting of the Archaeological Institute of America, to excavate at the same site with Frank Brown in 1975, under the permit granted to the American Academy in Rome, but, in the event, funds were not available (WH 1979, notes 7 and 11). It has seemed appropriate and useful, thus, to include Manacorda's published stamps in the totals of stamped pieces cited here, although his finds have not been included, except for reference to them, in the catalogue of Roman amphorae in this volume, in the overall totals given in Table IX-1 or in the alphabetical list of stamps found in the official American Academy excavation (see the end of this chapter). It should be added that, in computing the totals of stamps, all devices have been counted Sesius stamps. Further, in the interests of accuracy, and because it is now being written about the Sesius of Cosa, it should be pointed out that the totals cited by J. H. D’Arms is a keynote address delivered at an international congress on Roman trade at the American Academy in Rome in 1978-1979, and in two recent publications, are out of date and misleading. (See D’Arms 1980, review by McCann and Will 1984, and D’Arms 1981. The text of these two discussions of the commercial activities of some of the Setti are almost identical, with a few changes in its later piece.) It is true that about 10 percent of the Cosa amphoras and fragments from both sites (the town of Cosa and the Portus Consanius) bear Sesius stamps, but two factors call into question the usefulness of that assertion, for which D’Arms is in error to cite me as a source. One factor is that not all (and perhaps rather few) Roman amphorae were stamped. Secondly, unstamped fragments, which D’Arms notes in arriving at his percentage, might or might not once have been stamped. d’Arms thus uses incorrect figures in the wrong way. Sesius trademarks account, in fact, for 36 percent of the amphorae stamps from the port of Cosa and for 29 percent of the stamps from Cosa itself. Those striking percentages are given in my 1979 article. In any case, the new information, referred to hereunder in the text, permitting to push back the beginning of the Sesius factory to the first half of the second century B.C., and possibly to the last half of the third century, makes inapplicable D’Arms’ discussion of whether the Setti. The father of P. Setiius, the inscriptions of the family business. In my 1956 article, and in the unpublished texts of talks before the Archi-
The number of Sestius stamps in the port is so dramatic as to make the existence of a Sestius factory in the port a matter of certainty. The Cosa figures command additional respect in view of the fact that, as of February 1982, only 61 Sestius stamps were known to me to have been found at other sites on land, especially in Gaul. The Cosa area thus accounts for 70% of all Sestius stamps found so far on land, and Cosa is the only place where almost all of the known varieties of Sestius trademarks occur. If we add to the Portus Cosanus totals the reportedly hundreds of Sestius stamps from the upper of the two Grand Congloué wrecks, the figures for the port are vastly multiplied, of course. Benoit estimated the total number of Sestius cargo jars at the Grand Congloué site as 1,500-1,700 and Long as about 1,200 (chapter eight, Appendix I, above), but we do not yet know how many of that number bear stamps. The Sestius ship that foundered off the Grand Congloué should probably be thought of as a "floating Portus Cosanus." Nor, apparently, was it the only ship in the possession of the Sestii. Cicero mentions the navigia Insulentes Sestii, and however we interpret that phrase, whether they were warships or not, it would seem to indicate, as I have suggested elsewhere, that the Sestius family possessed or had the use of ships that were distinguished or splendid or special in some way, perhaps in size as well as in appointments.7 Coumeau felt that the many sections of three-inch lead pipe from the Grand Congloué might have been part of a plumbing or a pumping system, and it may be relevant, as I pointed out as employed by the Sestius factory, is very suggestive in the same regard (see Wall 1979, pp. 348-349 and n. 37, Will 1982-3, Will 1984) and the previously unrecorded commercial importance of the Portus Consanu, and, by extension, of the colony of Cosa also points up the rudimentary state of our knowledge about Roman colonies and the role they played in trade. Many other family amphora firms similar to that of the Sestii will be discussed by me in future publications. The existence of such firms calls into question recent efforts like that of Tcherkias (1983, especially pp. 99-104) to see the Republican wine trade in the west as based on exchanges rather than on the supplying of market demands. Also see above McCann, chapter one, n. 135.

6 Wall 1979, pp. 349-350.
many years ago, that the wealthy and powerful P. Sestius, praetor in 54 B.C., made at least two trips to Marseille, very probably in family ships. The weight of the evidence should incline us to suppose that the upper Grand Congloué wreck is what is left of one of the navius lusoria of the Sestius firm. The masses of Sestius amphorae from the wreck are a logical extension of the dramatic evidence from the Portus Cosaus. Only a factory the size of the one in the port could have produced such a shipment.

The dates of the port's zenith and of the upper Grand Congloué wreck correspond. The wreck is now being dated between 110 and 80 B.C., according to information kindly provided me by Luc Long, who has undertaken the task of reading Benoît's notes and republishing the two wrecks. His date for the upper wreck accords with my own rather wide dates for Type 4a, stated below under the introduction to Type 4 (late second to mid-first century B.C.). That date is necessitated, in my view, by the fact that amphorae of Type 4a occur in a closely dated deposit (C 974) at the Athenian Agora, one belonging to the last years of the second century B.C.; yet the frequency of Sestius amphorae at sites in France datable as late as the middle of the first century B.C. has long been recognized (Text Fig. IX-1). Until the Sestius amphorae have been studied sufficiently to establish a chronology for them, a closer date for Type 4a and for the Sestius wreck off Marseilles cannot be reached.

The late Republic must have been a time of great prosperity, a kind of Golden Age, for the Portus Cosaus, as for the town of Cosa on the hill above the port. With the wharves, the wineyard, the saltworks and fisheries, and the amphora factory, the port must have been the scene of tremendous activity (Text Fig. I-1; Figs. VII-10, 11, and 12). The amphorae suggest that imports were maximal and were confined to luxury grades of olive oil: thus oil must also have been produced in the area for most domestic needs. It is not surprising that our literary sources picture the Sestii, the developers and undeniably the owners of the enterprise in the port, as wealthy and powerful, so powerful that Augustus forgave L. Sestius for being a chief assistant to Brutus and a lifelong guardian of Brutus' memory; so powerful that Horace gave L. Sestius a place of very high honor in his Odes.

If the terminus ante quem for Type 4a proves correct, it will be necessary to recognize that during the last years of Type 4a another type of wine jar, descended from it, began to be manufactured in the Portus Cosaus. Type 4b is second only to Type 4a in frequency in the port. A date as early as the second quarter of the first century B.C. is indicated for Type 4b, as I point out below. Manufacture of the type flourished, as can be judged from the number of jars and fragments found, and since most of the pieces from the port show early stylistic characteristics, it seems likely that the earliest known examples of Type 4b come from the port factory. But by the last half of the first century B.C., the chief sites producing Type 4b are clearly in the southern Latium and Campania. The port is much more active than those areas, though the Sestius factory still existed. Why would such a shift have occurred? My own feeling is the upheaval caused by Caesar's assassination was felt in the Portus Cosaus, and there were other reasons. We know that L. Sestius, the son of P. Sestius, and consul suffectus in 23 B.C., was one of Brutus' most militant adherents, accompanying him to Macedonia as proconsul in 43-42 B.C. He was proscribed, but after the amnesty he returned to Italy. I have pointed out elsewhere that two stamps on rims of Type 4b from the town of Cosa seem to name L. Sestius as manufacturer, but in fact we have from the Cosa area only those two Sestius stamps, as well as a few devices and logos, with which to link the Sestius family epigraphically to Type 4b. It seems arguable, then, that those stamps, which occur on rims of very wide diameters and could thus be from jars later than the

---

8 Will 1956, p. 243. On the possible plumbing system, see Coueix 1954, p. 20.
9 Long's study of the two wrecks is nearing completion. See his remarks above in chapter eight, Appendix I. I thank L. Long for his patience, interest, and help during the preparation of this chapter.
10 As this chapter goes to press, I am informed by Luc Long that the estimated dates of certain French terrestrial sites, in particular the oppida of the region of Toulouse, are being revised and will likely be put back about fifty years. If such a change in dates takes place, it will be possible to fix the date of Type 4a firmly in the late second and early first centuries B.C., the date suggested for the type by the Athenian Agora and Grand Congloué contexts.
11 On this topic, see also Will 1982, 2.
12 For see p. 10. No overlap need have occurred if the terminus ante quem of Type 4a is raised to the early first century B.C.
13 Will 1979, p. 348 and fig. 7a and b. With regard to fig. 7a, Luc Long calls my attention to the stamp S.L.VF (or LE; the last two letters form a retrogade ligature), twelve examples of which were found on amphorae of Type 4b (Dioscuri 1B) on the Plane I wreck off Marseille. That wreck is dated about 50 B.C. Cf. B. Lepéron and R. Donnet, "Céramique italique-romaine et céramique actuelle, A propos d'une nouvelle épopée de Marseille," L'Italie pré-romaine et la zone républicaine. Mises en évidence à Jacques Hébert (Rome: Ecole française de Rome, 1970), p. 388. Those stamps, which the authors interpret as reading S.L.E.V., seem, on the contrary, to be variations of the Cosa trademark of L. Sestius, referred to above (fig. 7a in Will 1979).
material described above, date from a time when L. Sestius had regained his property. That a factory of some sort still existed in the port in 23 B.C.E. is suggested by Horace's intentionally ambiguous language in his poem dedicated to Sestius in that year, Odes 1.4. Horace seems to picture pottery manufacturing and shipping activity as still going on in the port. But some of the port operations, and perhaps the chief operations, could by this time have moved to Rome. Tegulæ naming L. Sestius are found only in Rome, though tiles or bricks stamped with the initials L.S occur in the Ager Cosanus.14 At the present time, the evidence points to a dual pottery operation during the last half of the first century B.C., with the port firm reducing production and declining in importance as the factory in Rome grew. Other branches of the Sestius enterprise could also have been established elsewhere.15 It seems likely that the Sestius firm as a whole diversified during the Augustan Age, and perhaps immediately after the amnesty, into building materials and conceivably into Arretine ware.16 As I indicate below under Type 24a, the Sestius factory in the port could even have been taken over by the Domitii, the other great landowning family at Cosa, at some time in the latter first century B.C.E. What is clear is the decline of activity in the port, beginning perhaps in the 40s B.C.E. But the decline was slow, and although there is evidence that the factory at Rome may have gone on into the first century A.D., we do not know details of the last years of the Portus Cosanus factory. As I point out under Type 16 below, a small garum operation, either a revival or a continuation of the garum industry of the port's chief period, could have existed near Cosa in the late first century B.C.E. That operation apparently was not located in the port, where, from the testimony of the amphoras, exportation had ceased by the end of the century. The geological evidence suggests that exportation ended at least partly because of natural causes.

With the end of exportation from the port, one might expect the area to have continued as a center of importation, but such was not the case. And the same geological causes that helped to end exportation were apparently at work. Evidence shows few finds of imported amphoras until the last quarter of the first century A.D., shortly after the building of the maritime villa (see Fig. VII-13). At the same time, however, the town of Cosa was importing wine, garum, and olive oil in quantity. We must thus assume that another port, presumably Portus Ercole across the bay, was receiving the food shipped to the Cosa area. With the destruction of Pompeii in A.D. 79, however, the manufacture of wine jars of Type 12 and a renewed exportation of wine apparently began near Cosa, but not in the port. It is not until the second and third centuries A.D. that a mild resurgence of activity (commercial or residential) is reflected in the port by the occurrence there of Spanish and North African shipping jars, for olive oil in particular. Types 16, 18, 20, and 21 testify to such a small revival of trade. But the Portus Cosanus never again achieved the prominence it had attained in the second and first centuries B.C.E., when it played an international role as an export center of first importance.

ABBREVIATIONS CITED FREQUENTLY IN CATALOGUE, CHAPTER NINE

| G.D. | Greatest Diameter |
| G.W. | Greatest Width |
| H.T. | Handle Thickness |
| H.W. | Handle Width |
| M.D. | Mouth Diameter |
| P.H. | Preserved Height |
| R.D. | Rim Diameter |
| R.H. | Rim Height |

A combination of numbers and letters, as 5YR 6/6, refers to the Munsell system for identification of soil colors, as described in Munsell Soil Color Charts (Baltimore, Md.: Munsell Color, 1975 edition).

CATALOGUE OF AMPHORAS

Type 1

Amphoras of Type 1 (Greco-Italic) are, as has been explained above and in Will 1982-1 passim, second only to those of Type 4 in frequency of occur-

---

14 On the tribe of L. Sestius, see Will 1956, p. 242; Will 1979, pp. 347-349. The stamped tiles or bricks (for the late Republic, the distinction between the two is difficult to draw, an observation for which I am grateful to Frank Brown) from the Ager Cosanus are noted by me, op. cit., p. 348 of the 1979 article. See now Mammeros 1981, p. 124; and n. 7, in the published version of the paper to which I there refer. And cf. Mammeros 1981, pp. 33-34; and Corradi and Settia, section 35.

15 In Will 1979, p. 342, I note that 12 percent of the known Sestian amphora stamps have been found in the Gallic isthmus, north of the Pyrenees, and I suggest the possibility that that area was a secondary manufacturing center. In a recent letter, Luc Long, informs me that the amphora finds in the area of Toulouse are increasingly impressive. In addition to serving as a depot for imported Italian wine, Toulouse could also have been a production center. Future finds should clarify this point.

16 On this matter, see Will 1979, p. 349, n. 37, and Will 1984. Cf. under Type 24a below.
ince both in the Portus Cosanus and in the town of Cosa; indeed, the concentrations of Types 1 and 4 in and around Cosa are among the largest of single amphora types at any Roman site. The evidence that the area of Cosa, and the port in particular, was a major manufacturing center for both types of containers is persuasive, and it continues to accumulate.

The long history of Type 1 covers about two centuries, from the latter fourth to the last half of the second century B.C. During that span of time, five categories of Greco-Italic types evolved: Form a, in the latter fourth and first quarter of the third century B.C.; Form h, in the last half of the third century; Form c, datable to about 200 B.C.; Form d, which belongs to the first half of the second century; and Form e (Will Type 2), datable from the first to the third quarters of the second century. Of these five categories, the first four are found at Cosa, but Form b in the Portus Cosanus, and though Form c itself is not known to have appeared at Cosa, its descendant, Type 5 (to be described below), is found frequently in the port and in the town. Form d occurs in the port more than in any of the other categories of Type 1. Seventy-one of the seventy-six Greco-Italic fragments found in the port belong to Form d. The greatest known concentrations anywhere of Form d, in fact, are to be found at Cosa, as is the case with the Sestius amphoras of Type 4a, which seemingly evolved out of Form d in the last half of the second century B.C. The manufacture of both types of jars almost certainly took place in the port area. (On the clay of these pieces, see also de Boer, chapter sixteen, and Will 1982-1, nn. 11, 15, and 27.)

Form a, the earliest variety of Type 1, reached its height of popularity in the first quarter of the third century B.C. Very few examples are found at Cosa, only two occurring in the port. The founding of the colony of Cosa in 273 B.C. would suggest that the pieces of Form a discovered there are among the latest known examples of the category, which at its height was heavily produced throughout the Greek-speaking regions of the Mediterranean, but perhaps especially in Sicily. There is no evidence to suggest manufacture of Form a at Cosa. Form a can be further subdivided into two subcategories, of which only one, Form a', the more important of the two, is represented at the Portus Cosanus. The small-sized a' jars, which have disproportionately wide bellies, broad shoulders, short necks, short handles oval in section and S-shaped in profile, narrow mouth-openings, and low, very outflaring rims, are distinguished also by their short, hollow, cylindrical toes, fragile walls, and fine-textured clay (Figs. IX-1, 2). The two pieces found in the Portus Cosanus are both fine-clayed hollow toes coming from amphoras of Type 1a. Such jars must have brought wine to Cosa in the earliest years of the colony. Their presence in the port indicates that produce was arriving by ship, and that the port was functioning from the beginning of the colony's history.

Form b has not yet been found in the port area, though it occurs in the town of Cosa in a few examples. Evidence that the Sestius factory may have existed at Cosa as early as the last half of the third century B.C., and that Form b may have been a product of that factory, is discussed more fully in the introduction to this chapter and below, in the introduction to the catalogue of Type 4. It was apparently a transitional, experimental, short-lived variant, like Form c, for the manufacture of which at Cosa there is also tentative evidence (Will 1982-1, n. 15). Form c is also sparsely represented at Cosa. In the port, three toes of Form c have been discovered. The toes are quite unlike those of Form b, of which the toes are undefined, hardly more than bulges, and are also unlike the small, hollow toes of Form a. Toes of Form c are solid, not hollow, and the examples from the port show the "capped" bottom that frequently occurs with this variety of Greco-Italic amphora, hundreds of examples of which are known from the lower Grand Congoué wreck off Marseille and from the Lazaretto (Puerto de Mahou) wreck off Minorca. Form c also has, like Form b, greater height than Form a, a longer neck, and longer handles, which regularly touch, and almost form a continuation of, the rim, which is higher than that of Form a and outflaring. The thicker-walled, more resistant fabric is of coarse clay that contains many inclusions. There is not yet any firm evidence to suggest where Form c was manufactured, beyond the preliminary evidence so far from Cosa. We do know, however, that in spite of the chance preservation of hundreds of amphoras of Form c on the two wrecks, the type occurs infrequently on land and was apparently much less widespread than Forms a and d, the two chief Greco-Italic categories.

Form d is probably a little later than Form c, and it flourished a century or more after Form a. It can be dated with some confidence from at least the 180s to the 150s B.C. The form occurs very widely throughout the Mediterranean. Cosa has produced the largest number of finds, but strong evidence that Form d was also manufactured in Campania, in the area of Pompeii, and in the eastern Mediterranean.
complicates the picture. At Cosa, it is the chief type of Greco-Italic, and in the Portus Cosanus, as was noted above, seventy-one of the seventy-six examples of Type 1 can be assigned to Form d. A factory for Form d was, as we have mentioned, almost certainly located in the port and almost certainly owned by the Sestii. Form d superficially resembles Form a but is larger, with longer neck and handles (Fig. IX-3). Unlike Form a but like Form c, the toe is solid, the fabric is thick-walled, and the clay is coarse, though the eastern examples have somewhat finer clay than the Cosan and Campanian varieties, the clays of which are distinctively different from each other. Whether and how the eastern varieties of Form d evolved is still a matter for conjecture; but at Cosa and at a much later date in Campania, Form d developed into the larger and more commercially practicable amphorae of Type 4 (Fig. IX-4). That developmental process took place in the two areas along independent lines during the latter second and the first centuries B.C.

The 49 pieces catalogued here represent something more than half of the examples of Type 1 found in the Portus Cosanus. The group includes fragments of 25 toes, 18 rims, 4 handles, and 2 necks. In addition to the catalogued objects, 27 uncatalogued finds, not described individually here, have been made in the port. They include fragments of 10 handles, 9 toes, 7 necks, and a single rim, all of them belonging to Form d. The 76 examples of Type 1 from the port comprise almost 10% of the 789 Roman amphora finds. In the town of Cosa, similarly, almost 10% of the amphorae found belong to Type 1d.

**FORM d**

A4. (PC 69-186). (Fig. IX-8). Unstamped. Harbor, underwater, Trench C1, 23-24, VII.69. Toe fragment. P.H., 0.082 m; diam. at base, 0.045 m. Pinkish buff clay (5YR 6/6), more orange toward surface; black and white bits; beige surface.

A5. (PC 69-187). (Fig. IX-9). Unstamped. Harbor, underwater, Trench C1, 23-24, VII.69. Toe fragment. P.H., 0.07 m; diam. at base, 0.038 m. Orange-buff clay (2.5 YR 6/8); black, white, and red bits; beige surface.

**FORM c**

A6. (PC 68-60). (Fig. IX-10). Unstamped. Lagoon, Trench III, east of Wall P, under cobblestone road. 5.VII.68. Handle fragment. L.W., 0.042 m; L.T., 0.024 m. Sandy pinkish yellow-buff clay (5YR 6/8); small black and white, and larger red, bits; grayish deposit on surface.

A7. (PC 68-61). (Fig. IX-11). Unstamped. Lagoon, Spring House, surface. 5.VII.68. Rim fragment and tiny piece of neck. P.L., 0.04 m; R.L., 0.027 m. Mouth and rim diameters not determinable. Sandy pinkish yellow-buff clay (5YR 6/8); black, white, and some large red bits; beige surface. Deep line incised around rim.

A8. (PC 68-63). (Fig. IX-12). Unstamped. Harbor, below preserved surface of Wall M. 24.VI.68. Neck fragment and piece of shoulder. P.H., ca. 0.09 m; est. neck diam., ca. 0.09 m. Deep pinkish buff clay (2.5 YR 6/6); black, white, and red bits; whitish deposit on surface.

A9. (PC 68-64). (Fig. IX-13). Unstamped. Harbor, Trench N, surface. 27.VI.68. Top. P.L., 0.108 m; diam. at base, 0.05 m. Very sandy pinkish yellow-buff clay (5YR 6/8); tan surface. Gray and greenish spots on surface.

A10. (PC 68-65). (Fig. IX-14). Unstamped. Harbor, below preserved surface of Wall A. 24.VI.68. Rim fragment and small piece of neck. P.H., 0.07 m; R.H., 0.028 m. Mouth and rim diameters not determinable. Pale pinkish yellow-buff clay (5YR 7/6); large black and red, and tiny white, bits; beige surface. Raised line around top of neck under rim.

A11. (PC 68-66). (Fig. IX-15). Unstamped. Harbor, packed fill above level of Wall M and west of Wall M. 26.VI.68. Rim fragment and small piece of neck. P.H., 0.049 m; R.H., 0.024 m. Mouth and rim diameters not determinable. Very micaceous, sandy mauve clay (10R 6/3), pinkish yellow-buff (5YR 6/8) toward surface; beige surface.

A12. (PC 69-74). (Fig. IX-16). Unstamped. Lagoon, Spring House, earth fill above basin plat-
form. 22. VII.69. Toe, entire except for chips, and small piece of lower belly. P.H., 0.145 m; diam. at base, 0.047 m. Bright pinkish rose clay (10R 6/6); black, white, and many red bits; buff surface. Graffito on one side of toe. 

A13. (PC 69.156). (Fig. IX-17). Unstamped. Lagoon, Spring House, earth fill above basin platform. 7.7.VII.69. Neck fragment, preserving about half of neck and piece of shoulder. P.H., ca. 0.125 m. Yellowish buff clay (5YR 7/6); black and red bits; grayish buff surface.

A14. (PC 69-157). (Fig. IX-18). Unstamped. Lagoon, Spring House, rubble fill above basin platform. 4-5, 7.8. VII.69. Toe fragment. P.H., 0.361 m; diam. at base, 0.05 m. Pale pinkish yellow-buff clay (5YR 7/6); black and red bits.

A15. (PC 69-158). (Fig. IX-19). Unstamped. Lagoon, Spring House, rubble fill above basin platform. 4-5, 7.9. VII.69. Rim fragment and tiny piece of neck. P.H., 0.038 m; R.H., 0.028 m; est. M.D., 0.12 m; est. R.D., ca. 0.14 m. Fine beige clay (7.5YR 8/4); scattered black and red bits; cream surface. Slight depression around top of rim.

A16. (PC 69-159). (Fig. IX-20). Unstamped. Lagoon, Spring House, rubble fill above basin platform. 4-5, 7.8. VII.69. Rim fragment and tiny piece of neck. P.H., 0.04 m; R.H., 0.028 m; est. M.D., 0.12 m; est. R.D., ca. 0.14 m. Coarse pinkish yellow-buff clay (5YR 6/8); black, white, and red bits.

A17. (PC 69-160). (Fig. IX-21). Unstamped. Lagoon, Trench ID, surface. 11. VII.69. Toe fragment. P.H., 0.085 m; diam. at base, 0.038 m. Deep pinkish buff clay (2.5YR 6/6); black and red bits; beige surface.

A18. (PC 69-161). (Fig. IX-22). Unstamped. Lagoon, Spring House, surface. 14-16. VII.69. Toe and bit of belly. P.H., 0.12 m; diam. at base, 0.05 m. Pale pinkish buff clay (5YR 7/4); black and red bits; beige surface.

A19. (PC 69-162). (Fig. IX-23). Unstamped. Lagoon, Spring House, surface. 15-16.19. VII.69. Toe fragment. P.H., 0.082 m; diam. at base, 0.04 m. Pinkish yellow-buff clay (5YR 6/8); black, white, and red bits; beige surface.

A20. (PC 69-163). (Fig. IX-24). Unstamped. Lagoon, Trench ID, ca. 1.80 m below top of Wall P. 12. VII.69. Toe fragment. P.H., 0.073 m; diam. at base, 0.047 m. Pinkish yellow-buff clay (5YR 6/8); black, white, and red bits.

A21. (PC 69-164). (Fig. IX-25). Unstamped. Lagoon, Spring House, earth fill above basin platform. 21-26. VII.69. Rim fragment and small piece of neck. Mended. P.H., 0.046 m; R.H., 0.023 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Rust clay (5YR 5/6); white and black bits; thick yellowish buff surface. Slight depression around top of rim.

A22. (PC 69-165). (Fig. IX-26). Unstamped. Lagoon, Spring House, earth fill above basin platform. 22, 24-25. VII.69. Toe. P.H., 0.122 m; diam. at base, 0.05 m. Pale pinkish buff clay (5YR 7/4); black and red bits; beige surface.

A23. (PC 69-166). (Fig. IX-27). Unstamped. Lagoon, Spring House, earth fill above basin platform. 30. VII; 1, 5. VIII.69. Rim fragment and piece of neck. P.H., 0.051 m; R.H., 0.033 m; est. M.D., 0.14 m; est. R.D., 0.15 m. Pinkish tanish buff clay (5YR 6/6); black, white, and noticeable red bits; beige surface.

A24. (PC 69-167). (Fig. IX-28). Unstamped. Lagoon, Spring House, earth fill above basin platform. 6. VIII.69. Rim fragment and piece of neck. P.H., 0.059 m; R.H., 0.036 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Pinkish buff clay (5YR 6/6); darker toward core; black, red, and white bits; beige surface.

A25. (PC 69-168). (Fig. IX-29). Unstamped. Lagoon, Spring House, earth fill above basin platform. 6. VIII.69. Rim fragment, piece of neck, and start of one handle. P.H., 0.091 m; R.H., 0.036 m; est. M.D., 0.13 m; est. R.D., 0.15 m. Pinkish buff clay (5YR 6/6); black, red, and white bits; beige surface. Concave band near top of rim.

A26. (PC 69-169). Unstamped. Lagoon, Spring House, surface. 14-16. VII.69. Handle fragment. H.W., 0.047 m; H.T., 0.028 m. Bright pinkish yellow-buff clay (5YR 6/8); black and red bits; beige surface.

A27. (PC 69-190). Unstamped. Lagoon, Trench IF, Level IV. 18. VII.69. Handle fragment. H.W., 0.047 m; H.T., 0.027 m. Tanish buff clay (7.5YR 7/4); black and red bits; burned surface.

A28. (PC 72-19). (Fig. IX-30). Unstamped. Lagoon, Spring House, surface. 6. VII.72. Rim fragment and small piece of neck. P.H., 0.039 m; R.H., 0.031 m; est. M.D., 0.16 m; est. R.D., 0.17 m. Coarse pinkish buff clay (5YR 6/6); yellow-cream surface.

A29. (PC 72-61). (Fig. IX-31). Unstamped. Lagoon, Spring House, rubble level north of Wall b. 12. VII.72. Rim fragment and small piece of neck. P.H., 0.079 m; R.H., 0.037 m; est. M.D., 0.13 m; est. R.D., 0.15 m. Coarse pinkish buff clay (5YR 6/6); yellow-cream surface.

A30. (PC 72-118). (Fig. IX-32). Unstamped. Lagoon, Spring House, earth fill above basin platform. 21-26. VII.69. Rim fragment and small piece of neck. Mended. P.H., 0.066 m; R.H., 0.023 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Rust clay (5YR 5/6); white and black bits; thick yellowish buff surface. Slight depression around top of rim.
lagoon, Spring House, rubble level north of Wall b. 20 VII.72. Small rim fragment and bit of neck. P.H., 0.056 m; R.H., 0.056 m; est. M.D., 0.13 m; est. R.D., 0.15 m. Tanish buff clay (7.5YR 7/4); tiny black, white, and red bits; buff surface. Slight depression around rim near top.

A32. (PC 72-121). (Fig. IX-34). Unstamped. Lagoon, Spring House, rubble level north of Wall b. 20 VII.72. Rim fragment and small piece of neck. P.H., 0.073 m; R.H., 0.04 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Bright peach-buff clay (5YR 7/8); black, white, and red bits; yellowish buff surface. Wide depression around rim.

A33. (PC 72-126). (Fig. IX-35). Unstamped. Lagoon, Spring House, rubble level north of Wall b. 20 VII.72. Small rim fragment and piece of neck. P.H., 0.07 m; R.H., 0.032 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Peach-buff clay (5YR 7/8); black, white, and especially red bits; beige surface. Line incised around rim. Raised line around top of neck under rim.

A34. (PC 72-250). (Figs. IX-36, 37). Unstamped. Lagoon, Spring House, surface. 28 VII.72. Rim fragment and small piece of neck. P.H., 0.064 m; R.H., 0.039 m; est. M.D., 0.12 m; est. R.D., 0.13 m. Pale pinkish buff clay (5YR 7/4); tiny black, white, and red bits; beige surface. Line incised around rim.

A35. (PC 72-263). (Fig. IX-38). Unstamped. Lagoon, Spring House, surface. 26 VII.72. Rim fragment and small piece of neck. P.H., 0.076 m; R.H., 0.035 m; est. M.D., 0.13 m; est. R.D., 0.15 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; buff surface.

A36. (PC 72-788 bis). (Fig IX-39). Unstamped. Lagoon, Spring House, fill in Room 1. 10 VII.72. Rim fragment and bit of neck. P.H., 0.043 m; R.H., 0.027 m; est. M.D., 0.12 m; est. R.D., 0.17 m. Deep pinkish tanish buff clay (7.5YR 5/6); black, white, and red bits. Deep line incised around rim.

A37. (PC 72-789). (Fig. IX-40). Unstamped. Lagoon, Spring House, surface. 1 VII.72. Toe, chipped, and piece of belly. P.H., 0.135 m; diam. at base, 0.044 m. Coarse mauve clay (10R 6/5); black and red bits; dirty whitish surface. White deposit on surface.

A38. (PC 72-790). (Fig. IX-41). Unstamped. Lagoon, Spring House, surface. 2 VII.72. Toe. P.H., 0.097 m; diam. at base, 0.051 m. Clay hidden by coat of mortar.

A39. (PC 72-791). (Fig. IX-42). Unstamped. Lagoon, Spring House, fill below rubble level north of Wall b. 21 VII.72. Toe and pieces of lower belly. P.H., 0.125 m; diam. at base, 0.055 m. Sandy pinkish buff clay (5YR 6/6), tanish buff (7.5YR 7/4) toward surface; cream surface. Mortar adheres to bottom of toe.

A40. (PC 72-792). (Fig. IX-43). Unstamped. Lagoon, Spring House, rubble level south of Wall a. 3 VII.72. Toe and piece of lower belly. P.H., 0.11 m; diam. at base, 0.04 m. Coarse tan clay (7.5YR 7/4). Surface obscured by whitish deposit. Three concentric lines incised around lower belly.

A41. (PC 72-793). (Fig. IX-44). Unstamped. Lagoon, Spring House, fill in Room 2. 4 VII.72. Toe and pieces of lower belly. P.H., 0.125 m; diam. at base, 0.05 m. Sandy, bright pinkish buff clay (5YR 6/6); large red bits and tiny black and white sand-grains; pinkish yellow-buff surface.

A42. (PC 72-794). (Fig. IX-45). Unstamped. Lagoon, Trench 30, silt level, about 0.80 m to 1.40 m below surface. 13 VII.72. Toe and piece of lower belly. P.H., 0.117 m; diam. at base, 0.045 m. Coarse pinkish buff clay (5YR 6/6). Surface obscured by blackish deposit and rust.

A43. (PC 72-795). (Fig. IX-46). Unstamped. Lagoon, Spring House, sporadic find. 13 VII.72. Toe and pieces of lower belly. P.H., 0.155 m; diam. at base, ca. 0.045 m. Bright, hard pinkish yellow-buff clay (5YR 6/8); black and white bits; buff surface.

A44. (PC 72-796). (Fig. IX-47). Unstamped. Lagoon, Spring House, rubble level south of Wall a. 7 VII.72. Toe fragment. P.H., 0.11 m; diam. at base, 0.058 m. Sandy peach-buff clay (5YR 7/8), pinkish yellow-buff (5YR 6/8) toward surface. Surface obscured by mortarlke deposit.

A45. (PC 72-797). (Fig. IX-48). Unstamped. Lagoon, Trench 23, gray clay 1.00 m below surface. 13 VII.72. Small toe fragment. P.H., 0.062 m; diam. at base, ca. 0.046 m. Rose clay (10R 6/4); black and red bits.

A46. (PC 72-798). (Fig. IX-49). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., east of Wall U. 2 VIII.72. Toe and pieces of lower belly. P.H., 0.155 m; diam. at base, 0.048 m. Pinkish buff clay (5YR 6/6); black and red bits; beige surface.

A47. (PC 72-799). (Fig. IX-50). Unstamped. Lagoon, Trench E1, surface and below. 7 VIII.72.
Fragment of lower belly and upper toe. P.H., 0.083 m. Bright peach (SYR 7/8) to pale pinkish buff clay (SYR 7/4); black and red bits; yellow-cream surface.

Δ48. (PC 72-2800). (Fig. IX-51). Unstamped. Lagoon, Trench E1, surface and below. 7.VIII.72. Toe and small piece of belly. P.H., 0.148 m; diam. at base, 0.043 m. Bright pinkish buff clay (SYR 6/6), pinkish at core; red and black bits; beige surface. Deep scratch on toe. Mortar adheres to fragment.

Δ49. (PC 72-814). Unstamped. Lagoon, Spring House, find in Room 1. 10.VII.72. Handle fragment. H.W., 0.049 m; L., 0.023 m. Pale pinkish buff clay (SYR 7/4); black, white, and red bits; yellow-cream surface.

**Type 4**

In the Portus Cusianus, as in Cosa itself, Type 4 is found more frequently than any other kind of Roman amphora. In the port, finds of Type 4 number 559, or 70 percent of the entire group of amphorae and amphora fragments. Discoveries of Type 4 in the town of Cosa have also been very frequent, comprising about 25 percent of the total, an unusually high percentage, but the figure is dwarfed by the preponderance of Type 4 in the port. It is very likely that a factory for Type 4 existed in the Cosa area, and probably in the port, as seems to have been the case also with Type 1d, the ancestor of Type 4 (see Text Fig. 1; Figs. VII-10, 11, 12).

Amphorae of Type 4 belong to the general category of jars described by Dressel under his Form 1. In addition to Form 1, Dressel referred to, but did not illustrate, jars "similar to Form 1." We now know, on the basis of the painted inscriptions they bore, that the "similar" jars were earlier as a group than the ones Dressel assigned to Form 1 (Loschecke 1942, p. 86; Zevi 1966, p. 214). I have described the earlier form in various publications since the 1950s as Type 4a (referring to the typology for Roman amphorae which is to appear in the Athenian Agora series). The later category, Dressel's Form 1, I refer to as Type 4b. Others, following Nino Lamboglia (1955, pp. 246-261), have also distinguished between the two subdivisions of the type, referring to them as Dressel 1A and 1B, respectively. Lamboglia also added a third subdivision, which he called Dressel 1C. That category I describe below as Type 5.

Contextual information at the Athenian Agora permits us to date Type 4a as early as the late second century B.C. and the tindi pici reported by Dressel go back at least to 102 B.C. (Ch. XV.4554-4555). Type 4a was in use down to about the middle of the first century B.C. (Vill. 1979, no. 6, 7, and 25; but see n.10 above). It may also be somewhat earlier than the late second century. The Romans began to mark the dates of wines on amphorae in 121 B.C. (Pliny NH 14.94), the year of the consulship of L. Opimius and Q. Fabius Maximus Allobrogicus.

It happens that a rather archaic-looking neck fragment of Type 4a, found near the theater of Fiesole and now in the museum there (no. 1163), bears a painted inscription naming the consuls of 121 B.C. (CH. P.659b; cf. XI.697.1). With tituli pittii, there is always the possibility of forgery, but the Fiesole neck also bears a stamp on the stamp of one handle. It reads LICINVS (retrograde, a misreading [CINA] of the same stamp is given in CH. P.659a and XI.6595.25; cf. Callender 341b, but I have personally examined the stamp on two different occasions, and there can be no doubt about the correct reading). The same stamp also occurs, in different dies, on two pieces belonging to my Type 8, a hitherto unpublished amphora type datable with great probability to the last half of the second century B.C. Type 8 is frequent at Delos. A stamp reading LICINVS occurs on a handle of Type 8 at Delos (TD 4264) and on another handle of Type 8 in the Benaki Collection, Alexandria (no. 586; NB 79). If the same firm manufactured all the Licinus amphorae at about the same time, the validity of the painted inscription at Fiesole is strengthened, and the likelihood that Type 4a, or an early form of it intermediate between Types 1d and 4a, was in use during the last quarter of the second century B.C. is increased. Lattfeld 1912, p. 144, linked the Licinus stamp on Delos with the Orbii, many of whom, including an L. Orbii L. Licinii, were on Delos, probably for business reasons, about 100 B.C. If that date is correct, and if the Orbii were in fact involved with the manufacture of Type 8, their firm apparently had a long history going back into the second century. Type 4a, in any case, is as early as the late second century B.C. The Fiesole neck may be a precious missing link between Types 1d and 4a, and it may correspond in type to a whole jar of Type 4a, also in the Fiesole Museum, a piece that has the S curve handles of Type 1d even though its height and diameter place it with Type 4a. The damaged handles of the stamped neck fragment at Fiesole may originally have had a similar Greek-Illite curve, which I assume to be an archaic feature in Type 4a.

The clay of the pieces at Fiesole (coarse, dark pinkish buff with grayish buff surface) resembles
that of most amphoras of Type 4a, for which the Portus Cosanus seems to have been the chief point of origin. (Peacock 1977, pp. 266-268, reports a possible kiln for amphoras similar to Type 4 at Albina, to the north of Cosa. Other fragments from the same site were very much later in date, however, and possibly this was not a kiln for amphoras, if it was a kiln at all. See my further comments under Types 12, 16, and 21 below, and in Will 1979, n. 35.) As has already been noted in the discussion of Type 1d, it, too, was probably also manufactured in the Cosa area, and there are strong circumstantial indications that it was produced both in the eastern Mediterranean and in the region of Pompeii as well.

Exploration of Sallennian levels at Pompeii will, I believe, one day produce evidence to support my contention that Type 1d was manufactured in or near Pompeii. With the full development of Type 4a, however, the Portus Cosanus factory that produced it so dominated the market that factories elsewhere were overshadowed. At Pompeii they may have been put temporarily out of business. It is now generally accepted that the Cosa factory and probably the accompanying vineyards were owned by the Sestii, the family of which Cicerio's friend, P. Sestius, and his son, L. Sestius, the lavish auctus of 23 B.C., were the most prominent members (Will 1956 and Will 1979, passim). Sestius, trademarks (stamps with letters or devices or both) account for the great majority of manufacturing marks on Type 4a. Of the approximately 200 Sestius stamps reported by 1981 at sites other than the upper Grand Congloué wreck (where over a thousand amphoras with Sestius stamps are said to have been found), 140, or 70 percent have been found at Cosa. Furthermore, 99, or 86 percent, of the total number of amphora stamps found as of 1981 in the Portus Cosanus are from the Sestius factory (the figure is 44 percent at present for Cosa as a whole, town and port). Evidence suggests that the Sestii, earlier generations of them, also owned the Type 1d factory in the port, and the reported IRS stamp on one handle of an amphora of Type 1b from Fich-Maho (Sigea) near Narbonne may indicate that a Sestius factory existed at Cosa as early as the last half of the third century B.C. (Will 1982-1, pp. 345-346, and Plate 85c. For the jar and stamp in question, see also Lappland 1955, p. 265, and Benoît 1961, p. 41. As was pointed out in the introduction of the catalogue to Type 1, however, no examples of Type 1b have yet been found in the port). Manufacture of Type 1d apparently ceased toward the middle of the second century B.C. The market presumably demanded a more capacious container after Delos became a free port in 166 B.C. At Pompeii, perhaps partly as a result of the competition from Cosa, the wine-amphora industry did not fully revive until the middle of the first century B.C. (see the introduction to Type 12). In the Portus Cosanus, however, there had been a revival by the late second century B.C., and perhaps earlier. To judge from the wide distribution of Sestius stamps at sites in the western Mediterranean area, especially in France, the Sestius factory dominated the market until sometime toward the middle of the first century B.C. (Will 1979, nos. 6 and 7 and Text Fig. IX-1, when factories in Carthage and southern Lutium gained the ascendancy with the manufacture of Types 4b and 12).

Amphoras of Type 4a reflect mass-production techniques in that they are remarkably uniform in dimensions. They are very tall, generally over a meter in height (fig. IX-1). They are slender (average greatest diameter of belly, 0.28 m-0.30 m) with very long narrow necks, which seem to balance the longer bellies and also may have solved mechanical problems of pouring or shipping about which we can only guess. Both the neck and the pozzolana stopper in Type 4a were regularly set down well into the neck, the length of which therefore added little to the capacity of the jar. The necks narrow toward the bottom. The long neck is flanked by equally long, close-set handles in some cases set so close that a finger can hardly be inserted into the opening between neck and handle. The handles are wide and are thin in section (0.06 m x 0.03 m on the average). Rims of Type 4a slope or flare out, constituting one of the type's most characteristic features. Mouth diameters average 0.14 m-0.16 m. When stamps occur (and it is difficult to estimate what percentage of Roman amphoras were stamped; perhaps about 10 percent of most types), they are usually found on the rim. Sestius stamps are the stamps most often found on Type 4a, all impressed on the rim. The slender helix of the type descend from sloping shoulders, which are usually not sharply defined by the right-angled joint at the outer edge that characterizes the shoulder-belly joint of Type 4b. The toes of Type 4a are rather squat and short, but solid, with an average diameter of 0.05 m-0.06 m. The clay is chiefly the "Sestius" clay (Will 1979, p. 345), coarse pinkish buff (Munsell 5YR 6/6, the exact color a matter of firing time and other factors), with many black, white, and red bits, and a thinner surface wash. (On this clay, see also de Boer, chapter sixteen, and Will 1982-1, nos. 11, 15, and 27.)

Type 4b was also manufactured at Cosa, along
with Type 4a, as early as the second quarter of the first century B.C. It is second only to Type 4a in frequency of occurrence in the port, as in the town, of Cosa. But the Sestius factory seems to have declined in importance by the middle of the century. Sestius trademarks are still found on Type 4b (Will 1979, p. 348 and n. 29; and cf. the devices listed in the catalogue herewith), but infrequently. The examples of Type 4b at Cosa have, also, stylistic features (such as slightly outlining rims) that point to their being early. The center for production of Type 4 had probably shifted from Latium to southern Latium and Campania by the time Type 4b reached its floruit in the last half of the first century B.C., and the Sestius factory of Cosa at about the same time may well have diversified into bricks, tiles, and, perhaps, Arretine and moved its headquarters to Rome. Amphora-manufacture in the Portus Cosanus may, however, have continued at a reduced rate through the third quarter of the century, at least until L. Sestius' consulship in 23 B.C. (see introductory text above and the introduction to Type 24a below, and cf. Will 1979, nn. 35 and 37). Extensive evidence of kilns for Type 4b near Tarquinia was reported in the nineteenth century (CIL. X.8030; cf. Heinrich 1977, passim; Peacock 1977, pp. 262-265; Panella 1980, pp. 254-255). Type 4b may also have been manufactured near Brindisi (Will 1979, n. 41). But the earliest examples of the type were apparently produced in the port of Cosa. They correspond in date to the jars of Type 4b that were found by the hundreds in the Albenga wreck, now generally dated in the second quarter of the first century B.C., and in the Spargi wreck, datable about 75 B.C., a cargo (possibly from the port of Cosa?) composed of amphorae of Type 4a as well as Type 4b (Will 1983-2). A similar date can be given the 4b amphorae from Athens, Delos, and Alexandria, which will be discussed in my volume on the Athenian Asia series. Delos, it should be noted, had all but ceased to function as a trading center by the middle of the first century B.C. But how long did Type 4b last? It does not occur at Corinth, where various Augustan amphorae, such as Type 11 (Dressel 5), mark the beginning of the life of the Roman colony. Dressel, however, reports painted inscriptions of as late as 13 B.C. on his Form 1 (CIL XV.4539, 4575). Finds of Type 4b also occur in Augustan contexts in France, Germany, and England (cf. the summary in Callender 1965, pp. 8-9, and the detailed bibliography in Panella 1970, pp. 116-117, and Panella 1973, pp. 492-494). Furthermore, the discovery of forty-six pieces of Type 4b in Camulodunum (founded A.D. 10; on the finds, see C.F.C. Hawkes and M. R. Full, Camulodunum [Oxford, 1947] p. 251 and pl. 99; Form 181) indicates that the type lasted in use into the late Augustan period. On these fragments, Professor Hawkes has been kind enough to send me the following comment: "The use may by then have been only secondary use, and the start of the occupation of Camulodunum, formerly put c. A.D. 10, may anyhow be seen now as earlier by 10 years, or even 15. For the fort in Lower Germany at Holzheim, sharing types of many kinds with the British site, and of leading value to the authors for dating its start, has now a date of evacuation not at A.D. 16 (Germanicus), but firmly fixed at 9 (disaster of Varus)." On that basis, I hesitate to advance the terminus ante quem for Type 4b beyond the last quarter of the first century B.C. We are, in any case, left to conclude that export of Type 4 to the east ceased during the last half of the first century B.C., while at the same time western demand for the Falaniun, Casuanus, and other wines that Dressel's painted inscriptions prove were shipped in Type 4b remained strong throughout the century.

Amphorae of Type 4b have heights and greatest diameters that are similar to those of Type 4a, and the clay of 4b amphorae at Cosa is Sestius clay, but 4b differs from 4a in important respects. The necks of 4b are wider, and the handles are not set close to the necks nor are they so wide and flat as those of 4a. Their average width and thickness is 0.05 m x 0.04 m. They are stouter, more rounded in section, thicker, and the "curve" of the handle, where it drops vertically to the shoulder, is sometimes almost right-angled. Such handles are not difficult to distinguish from those of Type 4a, but it is in the rim that the clearest distinction between the two varieties lies. The rims of 4b tend to be vertical in profile, or slightly concave, though at the port of Cosa there is a slight flare in many examples, which we take to be an early characteristic. Rim and mouth diameters, however, are similar to those of 4a. The shoulders of 4b are flatter than those of 4a, with a sharp angle, as was mentioned above, separating shoulder from belly. Bellies have straighter, less sloping sides. Toes are longer, sometimes very long, thick, and massive, the diameters averaging 0.07 m-0.08 m. Very few stamps occur on the pieces of 4b in the port, and they are mostly on the rim; but from occurrences elsewhere we can state that 4b stamps are found in a variety of locations on the jar, on rim, neck, handle, belly, and toe, but shoulder stamps, especially short, businesslike ones consisting of two letters, are favored. With 4b, the muted, rather graceful lines of
4a, and its evocative Sestius stamps, have been exchanged for crisper, sharper, thicker lines and for stamps that as a rule seem more like anonymous factory codes than marks made by actual potters.

The finds of Types 4a and 4b from the port number 208, respectively, and there is also a group of 51 indeterminate body fragments that could belong to either group. The 138 pieces of 4a and 59 pieces of 4b described herewith represent about a third (35 percent) of the total number of examples of Type 4 found in the port. All but one of these catalogued 4a pieces are fragments of rim or upper neck. Uncatalogued pieces of 4a number 162 and include 58 rims, 53 handles, 43 toes, 6 necks, and 2 body fragments. The 59 catalogued pieces of 4b include larger pieces: 3 jars that are almost complete, 12 bellies, 2 lower bellies, 36 rims, 3 toes, and 3 shoulders. Uncatalogued examples of 4b number 149 and include 19 rims, 85 handles, 40 toes, 4 necks, and 1 jar fragment. The 51 indeterminate body fragments are all uncatalogued.

**FORM 4**

A50. (PC 69-27). (Figs. IX-52, 53, 54). Stamped: A[PO]L. Lagoon, Spring House, fill around basin platform. 8.VII.59. Rim fragment, stamped, and piece of neck. Mended. P.H., ca. 0.103 m (excluding attached piece of mortar); R.H., 0.045 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; beige surface. Traces of possible graffiti on neck and rim. Rim profile rather rounded. Three examples of the same stamp (impressed with the same matrix) have been found at Cosa (CB 1431, CC 935, C 67.218, the last with possible second stamp resembling PC 68-59, Cat. A201 below), all of them on fragments belonging to Type 4a. The same abbreviation also occurs on other types of amphoras and on Arretine, but the examples at Cosa and the Portus Cosanus are the only known occurrences on Type 4.

A51. (PC 69-20). (Figs. IX-55, 56, 57). Stamped: [HERMO]. Lagoon, Spring House, surface. 8.VII.69. Rim fragment, stamped, and small piece of neck. P.H., 0.053 m; R.H., 0.036 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Buff clay (5YR 7/3); small black bits and at least one large red bit; cream surface. Piece of mortar attached. For the stamp, cf. C.II.X.805.11, 12 (five examples, three of them with the ligature, from near Terracina. The type of amphora in question is not clear, but it was perhaps Type 4a or Type 4b).

A52. (PC 68-7). (Figs. IX-58, 59, 60). Stamped MN / MN (N's retr.). Lagoon, Trench III, east of Wall E, surface fill. 1.VII.69. Rim fragment, stamped (the stamp probably struck twice), and piece of neck. P.H., 0.084 m; R.H., 0.05 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (5YR 6/8); black and red bits; yellow-buff surface. Possible graffiti on rim.

A53. (PC 68-39). (Figs. IX-60, 62, 63). Stamped: SETS device (anchor). Harbor, area of Villa, surface. 18.VII.69. Rim fragment, stamped, and small piece of neck. P.H., 0.077 m; R.H., 0.045 m; est. M.D., 0.14 m; est. R.D., 0.19 m. Tan-buff clay (7.5YR 7/4); large black, and some red, bits; yellow-cream surface. For a general discussion of the Sestius stamps from the Portus Cosanus and elsewhere, see the introduction to this chapter.

Five Sestius anchor stamps from the port are published herewith (Cats. A53-A57), and five others are reported by Manacorda (nos. 1-5). None is known from the town of Cosa, though the anchor device alone, without letters, occurs there also (cf. under Cat. A97 below). A Sestius anchor stamp is also reported from Saturnia by Ucenze (1958, pp. 8, 27, and pl. 48; said to be in the Florence Archaeological Museum, but not found there by me in 1976. For unspecified reasons, Bénôit 1961, p. 64, n. 1, followed by Roman and Rancoile 1977, p. 259, and Manacorda, pp. 127-128, questions Saturnia as the source of this stamp and of a Sestius trident stamp also reported by Ucenze). Far the largest known concentration of Sestius anchor stamps has been found in the upper Grand Congloué wreck, where a large number of examples, amounting apparently to several hundreds, was found (Bénôit 1961, fig. 59:2, and passim in his several other published accounts of the wrecks). The stamp has been found also at the Île du Levant (Will 1956, figs. 78:3; Bénôit 1961, fig. 59:13) and at Besançon (C.I.IIII.10002.470b; Thévenot 1954, fig. 105:3; Will 1956, figs. 78:1, 79:1; Bénôit 1961, fig. 59:3). The related stamp, SPSST anchor, in which the T is attached to the second S rather than to the F, is not found at the port but occurs at Besançon (C.I.III.10002.470b; Thévenot 1954, fig. 105:4; Bénôit 1961, fig. 59:10; Mont Buvray (Thévenot 1954, fig. 105:5; Bénôit 1961, fig. 59:3), and La Lagasse (Roman and Rancoile 1977, p. 258, no. 5; p. 260; and fig. 1:5, a device which may, however, be a palm branch). A badly worn stamp at the Athenian Agora (SS 7173) may also belong to the group of Sestius anchor stamps. In addition,
the anchor device alone, without letters, when it is stamped on amphorae of Type 4a, probably comes from the Sestius factory. See under Cats. A95-A99 below.

A54. (PC 68-42). (Figs. IX-64, 65, 66). Stamped: SÉTS device (anchor). Harbor area of Villa, surface. 18.VII.68. Rim fragment, stamped, and piece of neck. P.H., 0.075 m; R.H., 0.051 m; est. M.D., 0.15 m; est. R.D., ca. 0.21 m. Pinkish tanish buff clay (5YR 6/6); black and red bits; whitish surface. See under Cat. A52 above.


A56. (PC 72-899). (Figs. IX-67, 68, 69). Stamped: SÉTS device (anchor). Lagina, "Sestius triangle"; found by John Oleson, VII.72. Rim fragment, stamped, and piece of neck. P.H., 0.09 m; R.H., 0.053 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (5YR 6/8); many tiny black, and scattered larger red, bits; buff surface. See under Cat. A53 above. I am very grateful to Oleson for informing me of his Sestius surface finds in the port, for lending me descriptions and drawings of them, and for later lending me the pieces for study. On Cat. A56, see also Will 1979, fig. 3a.

A57. (PC 75-2). (Figs. IX-70, 71, 72). Stamped: SÉTS device (anchor). Lagina, "Sestius triangle"; found by John Oleson, VI.76. Rim fragment, stamped, and very small piece of neck. P.H., 0.055 m; R.H., 0.055 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Pale pinkish buff clay (5YR 7/4); many small black and red bits; buff surface. See remarks under Cats. A53 and A56 above.

A58. (PC 68-2). (Figs. IX-73, 74, 75). Stamped: SÉTS device (trident). Harbor, beach coast of Pier 1, surface. 24.VI.68. Small rim fragment, stamped, and bit of upper neck. P.H., 0.054 m; R.H., 0.041 m; est. M.D., 0.14 m; est. R.D., 0.19 m. Rose-buff clay (10R 6/4); black and red bits; beige surface. Nine Sestius trident stamps are published herewith (Cats. A58-A66), and two others are reported by Manacorda 1978 (nos. 16-17). One example has been found in the town of Cosa (C 67.287). Another stamp was found in the Ager Cornutus in 1975 by the Weslyan University Archaeological Survey (site 82). An example is also reported from Saturnia by Uenle (1955, pp. 8, 27, pl. 49; cf. Benoît 1961, fig. 56b, where the number of the stamp in the Florence Archaeological Museum is given as 91941. See my remarks under Cat. A53 above). As is true of the Sestius anchor stamps, the largest number of examples of Sestius trident stamps comes from the upper Grand Congloué wreck, where many examples were found (Benoît 1961, fig. 59:1-3), though apparently the trident was found less frequently than the anchor; in fact, the Sestius trident stamps are found only on the upper Grand Congloué and in the region that includes Cosa and Saturnia. Trident stamps alone, without letters, are also probably from the Sestius factory. They occur in the town of Cosa (C 65.94, C 65.192, C 65.390) and at Mont Beuvray (CIL XIII.10002.539), but no examples are known as yet from the Portus Cosanus.

A59. (PC 68-3). (Figs. IX-76, 77, 78). Stamped: SÉTS device (trident). Harbor, beach coast of Pier 1, surface. 24.VI.68. Rim fragment, stamped, and bit of upper neck. P.H., 0.051 m; R.H., 0.041 m; est. M.D., 0.13 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black and red bits; beige surface. See under Cat. A58 above.

A60. (PC 68-34). (Figs. IX-79, 80, 81; Color Fig. 3). Stamped: SÉTS device (trident). Harbor area of Villa, surface. 18.VII.68. Rim fragment, stamped, and bit of upper neck. P.I., 0.057 m; R.H., 0.055 m; est. M.D., 0.15 m; est. R.D., ca. 0.21 m. Pinkish buff clay (5YR 6/6); black, red, and white bits; beige surface. See under Cat. A58 above.


A63. (PC 69-184). (Figs. IX-82, 83, 84). Stamped: SÉTS device (trident). Harbor area, 1969. Private collection. Rim fragment, stamped, and bit of neck. P.I., 0.059 m; R.H., 0.054 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (5YR 6/8); many small black, and a few larger red, bits; tanish surface. Marine deposit on surface. See under Cat. A58 above.

A64. (PC 72-808). (Figs. IX-85, 86, 87). Stamped: SÉTS device (trident). Lagina, "Sestius triangle"; found by John Oleson, VII.72. Rim fragment, stamped (faint traces of a second impression at a slant over the first stamp), and small piece of neck. P.I., 0.083 m; R.I., 0.041 m; est. M.D., 0.13 m; est. R.D., 0.18 m. Rose-buff clay (10R 6/4); frequent small black, and larger red, bits; tan surface. See under Cats. A56 and A58 above.

A65. (PC 76-3). (Figs. IX-88, 89, 90). Stamped:
IX: THE ROMAN AMPHORAS

SETJS device (trident). Lagoon, "Sestius triangle"; found by J. D. Lewis, 18.V.76. Rim fragment, stamped, and small piece of neck. P.H., 0.081 m; R.H., 0.048 m; est. M.D., 0.15 m; est. R.D., 0.19 m. Deep tannish buff clay (7.5YR 6/4); many very tiny black bits, and scattered large and small red inclusions; beige surface. See under Cat. A58 above.

A66. (PC 76-6). (Figs. IX-91, 92, 93). Stamped: SETJS device (trident). Lagoon, "Sestius triangle"; found by J. D. Lewis, 18.V.76. Rim fragment, stamped, and small piece of neck. P.H., 0.071 m; R.H., 0.043 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Deep tannish buff clay (7.5YR 6/4); frequent small black, and some larger red, bits; cream surface. On Cat. A66, see also Will 1979, fig. 3:h. And see under Cat. A58 above.

A67. (PC 68-37). (Figs. IX-94, 95, 96). Stamped: SETJS device (caduceus). Harbor area of Ville, surface. 18.VII.68. Rim fragment, stamped, and piece of neck. P.H., 0.09 m; R.H., 0.049 m; est. M.D., 0.14 m; est. R.D., 0.19 m. Pinkish buff clay (5YR 6/6); black, red, and white bits; yellow-crimson surface. Seven Sestius caduceus stamps from the port are published herewith (Cats. A67-A73), and four others are reported by Manacorda (nos. 5-9). Three examples have been found in the town of Cosa (CB 1582, C 65.368, C 67.45; CB 1582 was originally published in Will 1956, Fig. 80 bottom). Though the stamp does not occur on the upper Grand Conglout wreck, four examples have been found in France, at Nimes (Benoit 1961, fig. 59:4), Roanne, Le Carla à Bouriège, and La Lagasse (the last three discussed recently by Roman and Rancoule 1977, pp. 257, 259). The caduceus device alone, without letters, seems to occur only at the Portus Cosanus. See below, Cat. A102.

A68. (PC 69-179). (Figs. IX-97, 98, 99). Stamped: SETJS device (caduceus). Harbor area, 1969. Private collection. Rim fragment, stamped (the stamp inverted and struck twice), and piece of neck. P.H., 0.097 m; R.H., 0.048 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Deep tannish buff clay (7.5YR 6/4); frequent tiny dark bits; beige surface. See under Cat. A67 above; and on Cat. A68, cf. also Will 1979, fig. 3:f.


A70. (PC 69-185). (Figs IX-100, 101, 102). Stamped: SETJS device (caduceus). Harbor area, 1969. Private collection. Rim fragment, stamped, and very small piece of neck. P.H., 0.06 m; R.H., 0.051 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish buff clay (5YR 6/6); many tiny black, and scattered larger red, bits; cream surface. See under Cat. A67 above. Deep line incised around rim, which is "flounced" below the line.

A71. (PC 72-807). (Figs. IX-103, 104, 105). Stamped: SETJS device (caduceus). Lagoon, "Sestius triangle"; found by John Oleson, VII.72. Rim fragment, stamped, and small piece of neck. P.H., 0.07 m; R.H. as preserved, 0.048 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish rose clay (10R 6/6); lighter toward surface; many tiny black bits and conspicuous larger red ones; beige surface. See under Cats. A56 and A67 above.

A72. (PC 76-4). (Figs. IX-106, 107, 108). Stamped: SETJS device (caduceus). Lagoon, "Sestius triangle"; found by J. D. Lewis, 18.V.76. Rim fragment, stamped, and very tiny piece of neck. P.H., 0.051 m; R.H., 0.049 m; est. M.D., 0.18 m; est. R.D., 0.21 m. Deep tannish buff clay (7.5YR 6/4); frequent tiny black, and scattered larger red, bits; cream surface. See under Cat. A67 above.

A73. (PC 76-5). (Figs. IX-109, 110, 111). Stamped: SETJS device (caduceus). Lagoon, "Sestius triangle"; found by J. D. Lewis, 18.V.76. Rim fragment, stamped, and very tiny piece of neck. P.H., 0.059 m; R.H., 0.053 m; est. M.D., 0.15 m; est. R.D., 0.19 m. Pinkish buff clay (5YR 6/6); a tannish layer visible toward the surface; many tiny black, and scattered larger red bits; beige surface. See under Cat. A67 above.

A74. (PC 68-39). (Figs. IX-112, 113, 114). Stamped: SETJS device (tree or vine-prop). Harbor, area of Ville, surface. 18.VII.68. Rim fragment, stamped, and piece of neck. P.H., 0.14 m; R.H., 0.046 m; est. M.D., 0.13 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black, red, and white bits; yellow-crimson surface. Rim profile rather rounded. Two Sestius tree or vine-prop stamps from the port are published herewith (Cats. A74 and A75). They are the only known examples of the stamp, the device on which does not seem to occur alone, without letters. (But see Luc Long, in chapter eight, Appendix 1 above, who describes the finding of a similar stamp on the upper Grand Conglout wreck.)


stamped, and small piece of neck. P. H., 0.089 m; R. H., 0.048 m; est. M. D., 0.16 m; est. R.D., 0.18 m. Deep tannish buff clay (7.5YR 6/4), frequent small black, and some red, bits tannish surface. Three Secondius stamps showing the small eight-pointed star are published here (Cats. A76-A78), and three others are reported by Matatorda (nos. 10-12). All are from the port. The stamp is also known from Aisles-Sainte-Reine (Thévenot 1954, fig. 105-6; however, the profile given is unlike that in Ucen 1958, pl. 7:7; Benoit 1961, fig. 59:13) and Vicelle Toulouse (Roman and Rancoule 1977, p. 261), who note that the Aisles-Sainte-Reine and Vicelle Toulouse stamps have different dimensions. It is important to observe that in the Secondius stamps showing the small eight-pointed star device, the "T" extends to the left the top cross-bar of the "E" in the ligature and also seems to extend vertically the downward stroke of the "E," whereas in all other SEFIS stamps (the anchor, trident, caduceus, and tree or vine-prop examples described above) the "T" extends to the left the bottom cross-bar of the "E." No examples of the small eight-pointed star device alone, without the letters, are known, but a large eight-pointed star is reported from the port by Matatorda (no. 25) and is known from the town of Cosa (C 65.280, C 65.381, C 65.474, C 65.310). The letters SFS with five-pointed star occur on three stamps from the town of Cosa (Will 1956, fig. 80; Will 1979, fig. 33) and are frequent at other sites but do not occur at the port. See, however, under Cat. A89 below.

A77. (PC 76-1). (Figs. IX-118, 119, 120). Stamped: SEFIS device (small eight-pointed star). Lagoon, "Secondius triangle," found by Lawrence Davis, 22. VI. 75. Rim fragment, stamp, and small piece of neck. P. H., 0.06 m; R. H., 0.054 m; est. M. D., 0.17 m; est. R.D., 0.20 m. Pinkish buff clay (5YR 6/6), lighter toward surface; many small black and white, and larger red, bits; cream surface. See under Cat. A76 above. On Cat. A77, see also Will 1979, fig. 3:3.

A78. (PC 78-1). (Figs. IX-21). Stamped: SEFIS device (small eight-pointed star). Sporadic find, 1978. Rim fragment, stamp, and piece of neck. P. H., 0.105 m; R. H., 0.044 m; est. M. D., 0.14 m; est. R.D., 0.19 m. Pinkish yellow-buff clay (5YR 6/8); many dark bits and scattered red and white bits; beige surface. See under Cat. A76 above.

A79. (PC 69-6). (Figs. IX-122, 123, 124). Stamped: SES device and device lighthouse or lighted altar [？]. Harbor, underwater, near Wall D, surface. 3. V. 69. Rim fragment, stamped twice, and piece of neck. The stamps are contiguous, one above the other, the device being the lower stamp. P. H., 0.118 m; R. H., 0.041 m; est. M. D., 0.16 m; est. R.D., 0.20 m. Deep pinkish buff clay (2.5YR 6/6); black and red bits; yellow-buff surface. Trace of possible graffiti on rim. The lighthouse (?), occurs only here with letters but is stamped twice, without the letters, on a fragment from the town of Cosa (C 67.236). On Cat. A79, see also Will 1979, pp. 343-344, figs. 4 and 14 and McCann, chapter seven above, where relationship of this stamp to Cosa lighthouse is suggested.

A80. (PC 68-35). (Figs. IX-125, 126, 127). Stamped: SEFIS device (palm branch). Harbor, area of Villa, surface. 18. VII. 68. Rim fragment, stamp, and small piece of neck. P. H., 0.058 m; R. H., ca. 0.049 m; est. M. D., ca. 0.15 m; est. R.D., ca. 0.20 m. Tannish buff clay (7.5YR 7/4); black and red bits; yellow-buff surface. Three Secondius stamps with palm-branch device are published here (Cats. A80-A82), and a fourth example from the port is listed below under Type 5 (Cat. A248). It is the only Secondius stamp from the Cosa area that does not occur on a jar of Type 4a or 4b, though a parallel example on Type 5 has been found at Vada Sabatia in Liguria. Four other examples from the port on Type 4a are reported by Matatorda (nos. 13-15). Four Secondius stamps with palm-branch device have also been discovered in the town of Cosa (CB 779, CB 1374, C 65.316, C 65.347; CB 1374 was originally published in Will 1956, fig. 80). The stamp is also known in many examples elsewhere: at Ventimiglia (Lamboglia 1955, fig. 14; Benoit 1961, fig. 59:11), and in France at Vivene, Vicelle Toulouse, Toulouse, La Lagaste, Peyrepertuse, Parliers, Russino, and Narbonne (a recent discussion of many of those occurrences is in Roman and Rancoule 1977, pp. 258, 260-261; however, the exact number of finds at La Lagaste is unclear, since the illustration in fig. 1 suggests that three Secondius palm-branch stamps were found there. On the other hand, the catalogue lists only one [no. 4] as a palm branch. The Toulouse stamp is illustrated in M. Vidal, "Nécropole Toulousaine de Saint-Roch: le puits funéraire no. 24," Revue archéologique de Narbonnoise 6 [1973] fig. 4:24. The Narbonne stamp is listed in C. Lamour and L. Mayet, "Classe amphoriques I. Région de Béziers et Narbonne," Études sur Pêcheurs et l'Héraclé [1980] no. 10. What is perhaps a large palm-branch device, without letters, has also been found in the Portus Cusanus (see below, Cat. A 103).

A81. (PC 69-176). Stamped: SEFIS device (palm

A82. (PC 76-1). (Figs. IX-128, 129, 130). Stamped: SFSF device (plain branch). Lagoon, "Septius triangle"; found by John Oleson, VI. 176. Rim fragment, stamped, and very small piece of neck. P.H., 0.055 m; R.H., 0.048 m; est. M.D., 0.17 m; est. R.D., ca. 0.20 m. Pinkish buff clay (5YR 6/6), tannish toward core; many small black bits, and some small white and large red inclusions; cream surface. See above, Cat. A80. For Cat. A82, cf. Will 1979, fig. 3c.

A83. (PC 68-33). (Figs. IX-131,132,133). Stamped: SFSF device (double axe). Harbor, area of Villa, surface. 18. VII. 68. Rim fragment, stamped, and piece of upper neck. P.H., 0.08 m; R.H., 0.05 m; est. M.D., 0.14 m; est. R.D., 0.19 m. Brownish clay (7.5YR 5/4); black, red, and a few white bits; tannish buff surface. Six Septius double-axe stamps from the port are published elsewhere (Cats. A83-A86), and two others are reported by Manacorda (nos. 18-19). Five additional examples have been found in the town of Cosa (CF 1968, C. 67.78, C. 67.104, C. 67.189, C. 59.214; the double axes on two of these stamps, C. 67.104 and C. 67.189, appear larger than those on the other examples, perhaps as a result of smearing). The stamp has been found also at Volterra (Manacorda reports an unpublished example there, p. 127, n. 18), Lecceus (CII. XIII. 10002. 476a; Manacorda questions the existence of this stamp but does not specify his grounds for doing so), Vieux Toulouse (four examples, a recent summary of which is given by Roman and Rancoule 1977, p. 251), La Lagasta (three occurrences, described in Roman and Rancoule 1977, fig. 1 and pp. 257, 260), Narbonne (Lamour and Mayet, "Clases amphoriques" [cited in Cat. A80], no. 9 and pl. 19), and Basel (this stamp often illustrated and commented upon). As I recall, M. 'Hesnerot and I agreed some years ago that the "double axe" in this and in the other examples we knew at the time was a ligature of "II" and not a device at all. Cf. Callender under no. 1599. My feeling now is that the double axe is used as a device but with the ligature in mind. The same may well be true of the anchor device, which resembles a ligature of "TV," and of the sigma device illustrated in Will 1979, fig. 3c.

A84. (PC 68-41). (Figs. IX-134, 135, 136). Stamped: SFSF device (double axe). Harbor, area of Villa, surface. 18. VII. 68. Rim fragment, stamped, and small piece of neck. P.H., 0.07 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.21 m. Pinkish buff clay (5YR 6/6); black, red, and a few white bits; yellow-cream surface. "Double chin" between rim and neck. See under Cat. A83 above.


A86. (PC 69-183). (Figs. IX-137, 138, 139). Stamped: SFSF device (double axe). Harbor area, 1969. Private collection. Rim fragment, stamped, and small piece of neck. P.H., 0.09 m; R.H., 0.05 m; est. M.D., 0.16 m; est. R.D., 0.20 m. Pinkish buff clay (5YR 6/6); many tiny dark bits and frequent red inclusions; cream surface. See under Cat. A83 above.

A87. (PC 72-805). (Figs. IX-140, 141, 142). Stamped: SFSF device (double axe). Lagoon, "Septius triangle"; found by John Oleson, VII. 72. Rim fragment, stamped, piece of neck, and part of upper attachment of one handle. P.H., 0.168 m; R.H., 0.045 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Tannish buff clay (7.5YR 7/4), lighter toward core; many tiny black and white, and frequent red, bits; beard surface. See under Cats. A56 and A83 above.

A88. (PC 73-1). (Figs. IX-143, 144, 145). Stamped: SFSF device (double axe). Lagoon, "Septius triangle"; found summer 1973. Rim fragment, stamped. P.H., 0.052 m; R.H., 0.05 m; est. M.D., 0.12 m; est. R.D., 0.16 m. Unusually sandy pinkish buff clay (5YR 6/6); a few rather large red bits visible; whitish deposit on surface. Both clay and dimensions are unusual for the Septius series. See under Cat. A83 above.

A89. (PC 68-38). (Figs. IX-146, 147, 148). Stamped: SF£ uncertain device. Harbor, area of Villa, surface. 18. VII. 68. Rim fragment, stamped, and piece of neck. P.H., 0.101 m; R.H., 0.048 m; est. M.D., ca. 0.15 m; est. R.D., ca. 0.20 m. Pinkish yellow-buff clay (5YR 6/8); black and red bits. Cat. A89 is one of six Port Septius stamps (Cats. A89-94) the devices of which cannot be ascertained owing to breakage or other damage. In the case of Cat. A89, the size and shape of the letters suggest that the stamp should be restored to read "SF£ device (five-pointed star)." That particular stamp is not otherwise represented at the port. See under Cat. A76 above. Five additional Septius stamps with uncertain devices are listed as from the Portus Cosanus by Manacorda (nos. 20-24).

A90. (PC 68-43). (Figs. IX-149, 150, 151). Stamped: SF£ uncertain device. Harbor, area of Villa, surface. 18. VII. 68. Rim fragment, stamped, and small piece of neck. P.H., 0.085 m; R.H., 0.05 m; est. M.D., 0.13 m; est. R.D., ca. 0.17 m. Pinkish
buff clay (5YR 6/6); black and red bits; yellow-cream surface.


A92. (PC 69-172). (Figs. IX-182, 153, 154). Stamped: $[ES uncertain device. Harbor area, 1969. Private collection. Rim fragment, stamps, and piece of neck. P.H.: 0.116 m; R.H.: 0.042 m; est. M.D.: 0.115 m; est. R.D.: 0.18 m. Sand color pinkish buff clay (5YR 6/6); many tiny black and white, and larger red bits; worn buff surface.


A95. (PC 72-245). (Figs. IX-155, 156, 157). Stamped: device (small anchor). Lagoon, Spring House; fill in Room 2.7. VII.72. Rim fragment, stamped (the stamp struck three times), and piece of neck. P.H.: 0.131 m; R.H.: 0.039 m; est. M.D.: 0.15 m; est. R.D.: 0.18 m. Pale pinkish buff clay (2.5YR 6/6); black, white, and red bits; yellow-buff surface. Deep vertical line incised on rim. For related stamps, cf. Cats. A53-A57 above and Cats. A96-A99 below. The same stamp was found in the Ager Cosanus in 1975 by the Wesleyan University Archaeological Survey (site 98). The small anchor on Type 4a also seems to be known from Ventimiglia (Lamboglia 1955, fig. 16, where the scale of the drawing indicates that the small, not the large, anchor is illustrated).

A96. (PC 69-191). (Figs. IX-158, 159, 160). Stamped: device (large anchor). Harbor area, 1969. Private collection. Rim fragment, stamped, and piece of neck. P.H.: 0.082 m; R.H.: 0.046 m; est. M.D.: 0.135 m; est. R.D.: 0.165 m. Pinkish buff clay (5YR 6/6); many tiny black and white bits; beige surface. Three large anchor stamps are published here with Cats. A96-A99, and one example has been found in the town of Cosa (C 70.420). For related stamps, cf. Cats. A53-A57 and A95 above, and perhaps Cats. A100-A101 below.

A97. (PC 72-129). (Figs. IX-161, 162, 163). Stamped: device (large anchor). Lagoon, Spring House, rubble level north of Wall b. 21. VII.72. Rim fragment, stamped, and bit of neck. P.H.: 0.065 m; R.H.: 0.044 m; est. M.D.: 0.17 m; est. R.D.: 0.19 m. Pinkish buff clay (5YR 6/6); black and white bits; yellow-buff surface.

A98. (PC 72-810). (Figs. IX-164, 165, 166). Stamped: device (large anchor). Lagoon, "Sestius triangle"; found by John Olson, VII.72. Rim fragment, stamped, and very small piece of neck. P.H.: 0.052 m; R.H.: 0.041 m; est. M.D.: 0.165 m; est. R.D.: 0.195 m. Deep pinkish buff clay (2.5YR 6/6); many tiny black and white, and scattered red, bits; beige surface. See under Cat. A56 and A96 above. Although the stamp is smeared, a comparison of rubbings makes identification of the device as the large anchor very likely.

A99. (PC 72-uncatalogued). (Fig. IX-167). Stamped: device (large anchor). Immured in surface of Wall I and inaccessible for study. Lagoon, Trench IA. 8. VIII.72. Studied from photographs. See under Cat. A96 above.

A100. (PC 72-811). (Figs. IX-168, 169, 170). Stamped: device (double anchor or thunderbolt). Lagoon, "Sestius triangle"; found by John Olson, VII.72. Rim fragment, stamped, and very small piece of neck. P.H.: 0.056 m; R.H.: 0.045 m; est. M.D.: 0.16 m; est. R.D.: 0.19 m. Deep pinkish buff clay (5YR 6/6); many tiny black and scattered red, bits; beige surface. Two double-anchor or thunderbolt stamps are published here with (Cats. A100-A101). They are the only known examples of the device on jars of Type 4a. See under Cat. A56 above.

A101. (PC 72-uncatalogued) (Fig. IX-171). Stamped: device (double anchor or thunderbolt). Immured in surface of Wall I and inaccessible for study. Lagoon, Trench IA. 8. VIII.72. Studied from photographs. See under Cat. A100 above.

A102. (PC 72-812). (Figs. IX-172, 173, 174). Stamped: device (caduceus?). Lagoon, "Sestius triangle"; found by John Olson, VII.72. Rim fragment, stamped, and piece of upper neck, including part of one handle attachment. P.H.: 0.095 m; R.H.: 0.046 m; est. M.D.: 0.15 m; est. R.D.: 0.18 m. Pale pinkish brown clay; tiny black, white, and red bits; gray-buff surface. For related stamps, cf. Cats. A67-A73 above. See also under Cat. A56 above.

A103. (PC 68-52). (Figs. IX-175, 176, 177). Stamped: device (large palm branch or fish bone). Lagoon, Trench IH. east of Wall P. under cobblestone road. 3. VII.69. Rim fragment, stamped, and piece of neck. P.H.: 0.10 m; R.H.: 0.49 m; est. M.D.: 0.17 m; est. R.D.: 0.19 m. Coarse tanish clay (7.5YR 7/4), pile russet core; black and red bits; beige surface. For possibly related stamps, see Cats. A80-A82 above.

A104. (PC 68-6). (Figs. IX-178, 179, 180). Stamped:
device (pine bough or fish spine). Lagoon, Spring House, earth fill above basin platform. 5.VII.68. Rim fragment, stamped, and piece of upper neck. P.H., 0.074 m; R.H., 0.039 m; est. M.D., 0.18 m; est. R.D., 0.22 m. Pinkish yellow-buff clay (5YR 6/8); black, white, and red bits. This may be simply a conventional, decorative wheel design, resembling one that occurs on Attic Geometric pottery and also on Arretine (Oxeé and Comfort, nos. 2558-2561). On the other hand, the specificity and unambiguity of most of the Sestius devices perhaps justify an effort to interpret those few, such as this one, that seem less clear. The same device is reported by Beltrán as occurring on the lower belly, near the toe, of a jar from Badalona, Spain, an amphora belonging to the class sometimes called "Laconian" (Beltrán 1976, fig. 100:3). A two-ended terracotta stamping matrix from Sardis also bears on one end the reverse impression of Cat. A109, apparently in the same size (diameter of impression ca. 0.027 m). The other end of the same matrix bears a similar design, but with three dots instead of one in each quadrant. For description and photos of the Sardis matrix, which is numbered S.602 (2660), I thank Ruth S. Thomas, who was also kind enough to send a drawing of another, similar piece from Sardis with a design of dots in a rectilinear grid. Both pieces will be published in her forthcoming Terracottas and Small Finds from Sardis (1958-1915). It is difficult to imagine that the matrix resembling Cat. A109 belonged to the Sestii, but it is perhaps worth noting that Publius Sestius was a promagistrate in Asia Minor in 48-47 B.C. (Broughton 1951-1952, II, p. 278) and is last heard of in Aphrodisias in 35 B.C. [Kenney in RE, s.v. "Sestius" (6)]. No Sestus stamps or devices, however, have as yet been reported from Asia Minor. On the basis of our present evidence, it seems likely that the mark on Cat. A109 is a Sestius design of uncertain significance and is unrelated to the Sardis matrix. Its relationship to the Badalona stamp remains unclear. For the possible connection between the Sestius amphora industry and the Arretine ware with Sestius stamps, see Will 1979, p. 349, n. 37. There is however, no reason to connect the Arretine design like Cat. A109 with the Sestius Arretine industry, the stamps of which are listed in Oxeé and Comfort, nos. 1792-1818. I connect the design here with the Sestius amphora industry, since most devices on Type 4a at Cosa probably have that connection.

A110. (PC 72-215). (Figs. IX-195, 196). Stamped: illegible. Lagoon, Spring House, fill in Room 2. 26.VII.72. Rim fragment, stamped, and tiny piece of neck. P.H., 0.04 m; R.H., 0.056 m; est. M.D.,
0.14 m; est. R.D., 0.16 m. Tanish buff clay (7.5YR 7/4); black, white, and red bits; beige surface.

A111. (PC 72-309). (Figs. IX-197, 198, 199). Stamped: illegible. Lagoon, Spring House, surface. III. VIII.72. Rim fragment, stamped, and small piece of neck. P.H., 0.056 m; R.I.I., 0.037 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Pinkish tanish buff clay (7.5YR 6/8); black, white, and red bits; beige surface.

A112. (PC 68-51). (Fig. IX-200). Unstamped. Harbor, under rocks between Wall M and Pier 1, 22.VI.68. Rim fragment, piece of neck, and part of upper attachment of one handle. P.H., 0.116 m; R.H., 0.036 m; est. M.D., ca. 0.13 m; est. R.D., 0.15 m. Coarse, sandy tanish buff clay (7.5YR 7/4), pinkish buff (5YR 6/8) toward surface; black, white, and red bits; pinkish yellow-buff surface. Mortar adheres to inside of fragment.

A113. (PC 69-32). (Fig. IX-211). Unstamped. Harbor, underwater, Trench D2, Level II. 16.VII.69. Rim fragment and piece of neck. P.H., 0.081 m; R.H., 0.035 m (as preserved); est. M.D., 0.14 m; est. R.D., 0.17 m. Grayish rose clay (10R 6/2); black, white, and red bits. Fragment badly damaged by water action.

A114. (PC 69-56). (Fig. IX-202). Unstamped. Harbor, underwater, Trench C1, Level III. 18. VII.69. Fragment of upper neck, preserving piece of rim and stump of one handle. P.H., 0.146 m; R.I.I., 0.042 m; est. M.D., 0.16 m; est. R.D., 0.20 m; H.W., 0.059 m; H.T., 0.031 m. Pinkish tanish buff clay (7.5YR 6/8); black and white bits.

A115. (PC 69-57). (Fig. IX-203). Unstamped. Harbor, underwater, Trench C1, Level III. 23.VII.69. Rim fragment and piece of neck. P.H., 0.069 m; R.H., 0.044 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black, white, and large red bits; surface varies in color from cream to beige to grayish. Small mark on rim is probably not part of a stamp.

A116. (PC 69-59). (Fig. IX-204). Unstamped. Harbor, underwater, Trench C1, Level III. 22.VII.69. Rim fragment and tiny piece of neck. P.H., 0.068 m; R.I.I., 0.048 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Pale pinkish buff clay (5YR 7/4); black and especially red bits; beige surface.

A117. (PC 69-73). (Fig. IX-205). Unstamped. Harbor, underwater, Trench C1, Level III. 24.VII.69. Fragment of lower belly lacking most of toe. P.I.I., 0.41 m; G.D., 0.288 m. Coarse pinkish buff clay (5YR 6/6); yellow-buff surface.

A118. (PC 69-92). (Fig. IX-206). Unstamped. Lagoon, Spring House, basin fill. 30.VII.69. Rim fragment, piece of neck, and stump of one handle. P.I.I., 0.102 m; R.H., 0.057 m; est. M.D., 0.14 m; est. R.D., 0.17 m. H.W., not determinable; H.T., 0.024 m. Rust clay (5YR 5/6); black and white bits.

A119. (PC 69-98). (Fig. IX-207). Unstamped. Lagoon, Spring House, fill around basin platform. I.VII.69. Rim fragment and small piece of neck. P.H., 0.077 m; R.H., 0.051 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (5YR 6/8); black, white, and red bits.

A120. (PC 72-10). (Fig. IX-208). Unstamped. Lagoon, Trench IA, top of Wall P. I.VII.72. Rim fragment and piece of neck. P.H., 0.074 m; R.I.I., 0.039 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Coarse pale tanish buff clay (7.5YR 8/2); frequent tiny dark bits.

A121. (PC 72-18). (Fig. IX-209). Unstamped. Lagoon, Spring House, surface. 5.VII.72. Rim fragment and small piece of neck. P.I.I., 0.067 m; R.H., 0.057 m; est. M.D., 0.17 m; est. R.D., 0.19 m. Coarse pale tanish buff clay (7.5YR 8/2); frequent tiny dark bits; cream surface. Piece of mortar attached.

A122. (PC 72-26). (Fig. IX-210). Unstamped. Lagoon, Trench IA, 1.50 m below Wall L, between piers 7 and 8. 10.VII.72. Neck fragment, preserving very small piece of rim. P.I.I., 0.13 m; est. M.D., ca. 0.17 m; est. R.D., ca. 0.20 m. Very coarse, pale pinkish buff clay (5YR 7/4); frequent dark, light, and red bits; cream surface.

A123. (PC 72-28). (Fig. IX-211). Unstamped. Lagoon, Spring House, fill around Wall e. 7.VII.72. Rim fragment and piece of neck. P.H., 0.078 m; R.H., 0.047 m; est. M.D., 0.13 m; est. R.D., 0.18 m. Coarse rust clay (5YR 6/4); many black and white bits.

A124. (PC 72-33). (Fig. IX-212). Unstamped. Lagoon, Spring House, surface. 4.VII.72. Rim fragment and small piece of neck. P.H., 0.09 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Coarse tanish buff clay (7.5YR 7/4); many tiny dark bits; yellowish-c creamy surface.

A125. (PC 72-65). (Fig. IX-213). Unstamped. Lagoon, Spring House, level south of Wall a. 14.VII.72. Rim fragment and small piece of neck. P.I.I., 0.086 m; R.I.I., 0.041 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Coarse rust clay (5YR 5/6); many tiny dark and light bits; grayish surface.

A126. (PC 72-120). (Fig. IX-214). Unstamped. Lagoon, Spring House, rubble level north of Wall b. 20.VII.72. Rim fragment and tiny piece of neck.
P.II., 0.077 m; R.H., 0.044 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Rust clay (5YR 5/6); black, white, and red bits; yellow-buff surface.

A127. (PC 72-122). (Fig. IX-215). Unstamped. Lagoon, Spring House, rabble level north of Wall b. 20 VII.72. Rim fragment, piece of upper neck, and stump of one handle. P.II., 0.10 m; R.H., 0.039 m; est. M.D., 0.14 m; est. R.D., 0.16 m; H.W., 0.054 m; H.T., 0.023 m. Rust clay (5YR 5/6); black, red, and especially white bits; yellow-buff surface. Rim rather rounded in profile.

A128. (PC 72-125). (Fig. IX-216). Unstamped. Lagoon, Spring House, rabble level north of Wall b. 20 VII.72. Rim fragment, piece of neck, and upper attachment of one handle. P.H., 0.104 m; R.H., 0.04 m; est. M.D., 0.15 m; est. R.D., 0.17 m. Deep pinkish buff clay (2.5YR 6/6); black and especially red and white bits; beige surface. Mortar adheres to inside of fragment.

A129. (PC 72-140). (Fig. IX-217). Unstamped. Lagoon, Spring House, surface. 21 VII.72. Rim fragment and tiny piece of neck. P.H., 0.061 m; R.H., 0.042 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Yellow-buff clay (7.5YR 7/6); black, white, and many red bits.

A130. (PC 72-141). (Fig. IX-218). Unstamped. Lagoon, Spring House, surface. 21 VII.72. Very small rim fragment and bit of neck. P.II., 0.064 m; R.H., 0.036 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; tannish buff surface.

A131. (PC 72-164). (Fig. IX-219). Unstamped. Lagoon, Spring House, basin at east end of south wall of cistern. 21 VII.72. Rim fragment and small piece of neck. P.H., 0.066 m; R.H., 0.036 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish yellow-buff clay (5YR 6/8); black, white, and red bits. Slanting line incised on rim.

A132. (PC 72-167). (Fig. IX-220). Unstamped. Lagoon, Spring House, east end of south wall of cistern. 21 VII.72. Rim fragment, piece of upper neck, and stump of one handle. P.H., 0.093 m; R.II., 0.037 m; est. M.D., 0.14 m; est. R.D., 0.17 m; H.W., 0.066 m; H.T., 0.023 m. Coarse pale pinkish buff clay (5YR 7/6); black, white, and large reddish bits; yellow-buff surface. Line incised around rim near top.

A133. (PC 72-174). (Figs. IX-222, 222). Unstamped. Lagoon, Spring House, tile against south wall of cistern. 20 VII.72. Rim fragment and piece of neck. P.II., 0.089 m; R.H., 0.038 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; beige surface. Raised line around top of neck under rim.

A134. (PC 72-183). (Fig. IX-223). Unstamped. Lagoon, Trench YZ, south extension below preserved surface of Wall W in layer of dark mud, 0.55 m b.s.l. and below. 21 VII.72. Rim fragment and small piece of neck. P.H., 0.074 m; R.II., 0.049 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Tannish buff clay (7.5YR 7/4); black and white bits.

A135. (PC 72-184). (Fig. IX-224). Unstamped. Lagoon, Trench YZ, south extension below preserved surface of Wall W in layer of dark mud, 0.55 m b.s.l. and below. 21 VII.72. Rim fragment and small piece of neck. P.H., 0.074 m; R.H., 0.044 m; est. M.D., ca. 0.14 m; est. R.D., ca. 0.18 m. Pinkish yellow-buff clay (5YR 5/8); black and white bits. Wide depression around rim near top.

A136. (PC 72-185). (Fig. IX-225). Unstamped. Lagoon, Spring House, surface. 18 VII.72. Rim fragment and very small piece of neck. P.H., 0.057 m; R.II., 0.049 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Pale rust clay (5YR 6/4); tannish buff (7.5YR 7/4) near surface; black, white, and red bits; beige surface.

A137. (PC 72-187). (Fig. IX-226). Unstamped. Lagoon, Spring House, surface. 18 VII.72. Rim fragment and bit of neck. P.II., 0.064 m; R.H., 0.04 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; beige surface. Faint depression around rim near top.

A138. (PC 72-188). (Fig. IX-227). Unstamped. Lagoon, Spring House, surface. 18 VII.72. Rim fragment and small piece of neck. P.II., 0.066 m; R.H., not determinable; est. M.D., 0.14 m; est. R.D., 0.18 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; beige surface.

A139. (PC 72-189). (Fig. IX-228). Unstamped. Lagoon, Spring House, surface. 18 VII.72. Rim fragment and small piece of neck. P.H., 0.063 m; R.II., 0.039 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Tannish buff clay (7.5YR 7/4); black, white, and red bits; beige surface. Mark on rim might be obliterated stamp.

A140. (PC 72-194). (Fig. IX-229). Unstamped. Lagoon, Spring House, surface. 17 VII.72. Rim fragment and small piece of neck. P.H., 0.072 m; R.H., 0.048 m; est. M.D., ca. 0.12 m; est. R.D., ca. 0.18 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; beige surface. Mortar adheres to part of rim. Raised line around top of neck under rim.

A141. (PC 72-195). (Fig. IX-230). Unstamped. Lago-
goon, Spring House, surface. 17.VII.72. Rim fragment and tiny piece of neck. P.II., 0.042 m; R.H., 0.033 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Pinkish buff clay (SYR 6/6); black, white, and large red bits; tan surface.

A142. (PC 72-196). (Fig. IX-231). Unstamped. Lagoon, Spring House, fill below rubble level north of Wall b. 14.VII.72. Rim fragment and small bit of neck. P.II., 0.066 m; R.II., 0.048 m; est. M.D., 0.18 m; est. R.D., 0.20 m. Sandy buff clay (SYR 7/3); tiny bits, mostly black.

A143. (PC 72-211). (Fig. IX-232). Unstamped. Lagoon, Spring House, fill in Room 2. 25.VII.72. Small rim fragment and bit of neck. P.III., 0.079 m; R.II., 0.035 m; est. M.D., 0.12 m; est. R.D., 0.16 m. Pinkish buff clay (SYR 6/6); black, white, and red bits; buff surface.

A144. (PC 72-212). (Fig. IX-233). Unstamped. Lagoon, Spring House, fill in Room 2. 25.VII.72. Rim fragment; piece of neck, and stump of one handle. P.H., 0.135 m; R.H., 0.05 m; est. M.D., 0.15 m; est. R.D., 0.17 m; H.W., 0.05 m; I.I., 0.047 m. Coarse deep pinkish buff clay (2.5YR 6/8); black, white, and red bits; yellow-buff surface. Large piece of mortar adheres to rim and handle.

A145. (PC 72-214). (Fig. IX-234). Unstamped. Lagoon, Spring House, fill in Room 2. 26.VII.72. Rim fragment and tiny piece of neck. P.II., 0.052 m; R.H., 0.048 m; est. M.D., 0.16 m; est. R.D., 0.21 m. Pale pinkish buff clay (SYR 7/4); small black, white, and red bits; buff surface.

A146. (PC 72-217). (Fig. IX-235). Unstamped. Lagoon, Trench YZ, south extension, about 1.00 m below preserved surface of Wall W. 21.VII.72. Rim fragment, piece of upper neck, and attachment of one handle. P.II., 0.134 m; R.H., 0.044 m; est. M.D., 0.15 m; est. R.D., 0.17 m. Pinkish yellow-buff clay (SYR 6/8); black, white, and red bits. Mortar adheres to surface. This fragment and Cat. A147 are probably from the same amphora.

A147. (PC 72-218). (Fig. IX-236). Unstamped. Lagoon, Trench YZ, south extension, about 1.00 m below preserved surface of Wall W. 21.VII.72. Rim fragment and piece of neck. P.H., 0.14 m; R.H., 0.043 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (SYR 6/8); black bits.

A148. (PC 72-242). (Fig. IX-237). Unstamped. Lagoon, Spring House, fill in Room 1. 24.VII.72. Rim fragment and bit of neck. P.H., 0.055 m; R.H., 0.042 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Pale pinkish buff clay (SYR 7/4); tiny black, white, and red bits; yellow buff surface. faint depression around top of rim.

A149. (PC 72-244). (Fig. IX-238). Unstamped. Lagoon, Spring House, fill in Room 2. 27.VII.72. Rim fragment and small piece of neck. P.III., 0.052 m; R.II., not determinable (rim damaged at top); est. M.D., 0.15 m; est. R.D., 0.20 m. Pale pinkish buff clay (SYR 7/4), lighter toward surface; black, white, and red bits.

A150. (PC 72-245). (Fig. IX-239). Unstamped. Lagoon, Spring House, fill in Room 2. 27.VII.72. Rim fragment and small piece of neck. P.H., 0.075 m; R.H., 0.039 m; est. M.D., 0.12 m; est. R.D., 0.16 m. Rust clay (SYR 5/6); black, white, and red bits; yellow-buff surface.

A151. (PC 72-247). (Fig. IX-240, 241). Unstamped. Lagoon, Spring House, fill in Room 2. 27.VII.72. Rim fragment and very small piece of neck. P.II., 0.061 m; R.H., 0.038 m; est. M.D., 0.14 m; est. R.D., ca. 0.18 m. Pinkish yellow-buff clay (SYR 6/8); tiny black and large red bits. Graffito on neck under rim: XA.

A152. (PC 72-250). (Fig. IX-242). Unstamped. Lagoon, Spring House, gray layer below pozzolana south of Wall a. 27.VII.72. Rim fragment and small piece of neck. P.H., 0.058 m; R.H., 0.039 m; est. M.D., ca. 0.19 m; est. R.D., ca. 0.22 m. Pinkish tanish buff clay (7.5YR 6/0); black and red bits; yellow-cream surface.

A153. (PC 72-252). (Fig. IX-243). Unstamped. Lagoon, Trench IK-IL, level of tufa foundations of Wall P. 25.VII.72. Rim fragment and small piece of neck. P.II., 0.077 m; R.H., 0.038 m; est. M.D., ca. 0.18 m; est. R.D., ca. 0.21 m. Rather fine, sandpaper tanish buff clay (7.5YR 7/4); black, white, and red bits; lighter surface.

A154. (PC 72-257). (Fig. IX-244). Unstamped. Lagoon, Spring House, fill south of Wall a, below rubble. 1.VIII.72. Rim fragment and piece of neck. P.H., 0.103 m; R.II., 0.061 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Rust clay (SYR 5/5); tiny black, white, and red bits; tanish buff surface.

A155. (PC 72-258). (Fig. IX-245). Unstamped. Lagoon, Spring House, fill in Room 2. 31.VII.72. Rim fragment and piece of neck. P.II., 0.114 m; R.H., 0.04 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish buff clay (SYR 6/6); black, white, and red bits; yellow-buff surface. Mark on rim is probably not stamp.

A156. (PC 72-259). (Fig. IX-246). Unstamped. Lagoon, Spring House, surface. 28.VII.72. Rim fragment and small piece of neck. P.H., 0.066 m; R.H., 0.046 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Pinkish buff clay (SYR 6/6); black, white, and red bits; yellow-buff surface.

A157. (PC 72-261). (Fig. IX-247). Unstamped. Lagoon, Spring House, fill in Room 2. 27.VII.72. Rim fragment and small piece of neck. P.III., 0.052 m; R.II., not determinable (rim damaged at top); est. M.D., 0.15 m; est. R.D., 0.20 m. Pale pinkish buff clay (SYR 7/4), lighter toward surface; black, white, and red bits.
goon, Spring House, surface. 26.VII.72. Rim fragment and small piece of neck. P.H., 0.072 m; R.H., 0.042 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Coarse rust clay (5YR 5/6), pinkish yellow-buff (5YR 6/8) near surface; black, white, and probably red bits.

A158. (PC 72-262). (Fig. IX-248). Unstamped. La- goon, Spring House, surface. 26.VII.72. Rim fragment and small piece of neck. P.H., 0.068 m; R.H., 0.046 m; est. M.D., 0.14 m; est. R.D., 0.15 m. Fine, hard pinkish tannish buff clay (7.5YR 6/8); black and white bits.

A159. (PC 72-264). (Fig. IX-249). Unstamped. La- goon, Spring House, surface. 26.VII.72. Very small rim fragment and bit of neck. P.H., 0.045 m; R.H., 0.035 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Sandy tannish buff clay (7.5YR 7/4); black and white bits and one large red piece.

A160. (PC 72-290). (Fig. IX-250). Unstamped. La- goon, Spring House, fill below rubble south of Wall a. 2.VIII.72. Rim fragment and small piece of neck. P.H., 0.071 m; R.H., 0.038 m; est. M.D., 0.14 m; est. R.D., 0.13 m. Tannish buff clay (7.5YR 7/4); black and white bits.

A161. (PC 72-302). (Fig. IX-251). Unstamped. La- goon, Spring House; Wall e (immured). 21.VII.72. Rim fragment and piece of upper neck. P.H., 0.088 m; R.H., 0.049 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Deep pinkish buff clay (2.5YR 6/8); black, white, and red bits; beige surface. Piece of mortar adheres to rim.

A162. (PC 72-303). (Fig. IX-252). Unstamped. La- goon, Spring House, Wall e (immured). 31.VII.72. Rim fragment and small piece of neck. P.H., 0.097 m; R.H., 0.042 m; est. M.D., 0.14 m; est. R.D., 0.17. Deep pinkish buff clay (2.5YR 6/8), lighter toward core; black, white, and red bits; yellow-buff surface. Mortar adheres to inside of fragment.

A163. (PC 72-304). (Fig. IX-253). Unstamped. La- goon, Spring House, Wall e (immured). 31.VII.72. Rim fragment and very small piece of neck. P.H., 0.052 m; R.H., 0.048 m; est. M.D., 0.18 m; est. R.D., 0.20 m. Deep pinkish buff clay (2.5YR 6/8); black, white, and red bits; pinkish buff surface.

A164. (PC 72-306). (Fig. IX-254). Unstamped. La- goon, Spring House, southeast butteries of eastern (immured). 2.VIII.72. Rim fragment and piece of neck. P.H., 0.104 m; R.H., 0.046 m; est. M.D., ca. 0.14 m; est. R.D., ca. 0.16 m. Pale pinkish buff clay (7.5YR 7/4); black, white, and especially red bits. Large piece of mortar still adheres to entire inside of fragment.

A165. (PC 72-307). (Fig. IX-255). Unstamped. La- goon, Trench IRE, east end of Wall W. 31.VII.72. Very small rim fragment and piece of neck. P.H., 0.05 m; R.H., 0.032 m; est. M.D., ca. 0.17 m; est. R.D., ca. 0.20 m. Peach buff clay (5YR 7/8); black, white, and large red bits; pale pinkish buff surface.

A166. (PC 72-308). (Fig. IX-256). Unstamped. La- goon, Spring House, surface. 5.VIII.72. Rim fragment and small piece of neck. P.H., 0.056 m; R.H., 0.037 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Deep pinkish buff clay (2.5YR 6/8), tannish buff (7.5YR 7/4) toward surface; black, white, and red bits.

A167. (PC 72-315). (Fig. IX-257). Unstamped. La- goon, Spring House, fill below rubble south of Wall a. 2.VIII.72. Rim fragment and piece of neck. P.H., 0.09 m; R.H., 0.043 m; est. M.D., ca. 0.14 m; est. R.D., ca. 0.17 m. Rust clay (5YR 5/6); black and white bits. Depression around top of rim.

A168. (PC 72-317). (Fig. IX-258). Unstamped. La- goon, Spring House, fill below rubble south of Wall a. 2.VIII.72. Rim fragment, piece of neck, and upper attachment of one handle. P.H., 0.12 m; R.H., 0.047 m; est. M.D., 0.16 m; est. R.D., 0.21 m. Pale pinkish buff clay (7.5YR 7/4); black, red, and white bits. Depression 0.012 in height around center of rim.

A169. (PC 72-319). (Fig. IX-259). Unstamped. La- goon, Spring House, fill below rubble south of Wall a. 3.VIII.72. Rim fragment and piece of neck. P.H., 0.095 m; R.H., 0.05 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Tannish buff clay (7.5YR 7/4); black, white, and red bits.

A170. (PC 72-320). (Fig. IX-260). Unstamped. La- goon, Spring House, fill below rubble south of Wall a. 3.VIII.72. Rim fragment and piece of neck. P.H., 0.075 m; R.H., 0.044 m; est. M.D., 0.16 m; est. R.D., 0.18 m. Very bright rust clay (5YR 5/8); black and white bits.

A171. (PC 72-324). (Fig. IX-261). Unstamped. La- goon, Spring House, fill in Room 2. 4.VIII.72. Rim fragment and small piece of neck. P.H., 0.071 m; R.H., 0.04 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Deep pinkish buff clay (2.5YR 6/8); black, white, and red bits; yellow-buff surface.

A172. (PC 72-325). (Fig. IX-262). Unstamped. La- goon, Spring House, fill in Room 2. 4.VIII.72. Rim fragment and small piece of neck. P.H., 0.069 m; R.H., 0.047 m; est. M.D., 0.14 m; est. R.D., 0.19 m. Pale pinkish buff clay (7.5YR 7/4); black, white, and red bits; grayish buff surface. Slanting line incised on rim.
A173. (PC 72-326). (Fig. IX-263). Unstamped. Lagoon, Spring House, fill in Room 2. 4.VIII.72. Rim fragment and very small piece of neck. P.H., 0.055 m; R.H., 0.042 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Pale pinkish buff clay (5YR 7/4); black, white, and red bits; beige surface. Mortar on rim obscures probable concavity around rim.

A174. (PC 72-327). (Fig. IX-264). Unstamped. Lagoon, Spring House, fill in Room 2. 4.VIII.72. Rim fragment and piece of neck. P.H., 0.105 m; R.H., 0.036 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Pale pinkish buff clay (5YR 7/4); black, white, and red bits; beige surface. Mortar on rim obscures probable concavity around rim.

A175. (PC 72-332). (Fig. IX-265). Unstamped. Lagoon, Spring House, white clay above wood level in Room 2. 7.VIII.72. Rim fragment and small piece of neck. P.H., 0.366 m; R.H., 0.049 m; est. M.D., 0.13 m; est. R.D., 0.15 m. Rather fine tanish buff clay (7.5YR 7/4); black, white, and red bits; yellow-buff surface.

A176. (PC 72-333). (Fig. IX-266). Unstamped. Lagoon, Spring House, surface. 8.VIII.72. Rim fragment and small piece of neck. P.H., 0.074 m; R.H., 0.037 m; est. M.D., 0.14 m; est. R.D., 0.155 m. Pinkish buff clay (5YR 6/6); black, white, and especially red bits; yellow-buff surface.

A177. (PC 72-334). (Fig. IX-267). Unstamped. Lagoon, Spring House, surface. 7.VIII.72. Rim fragment, piece of neck, and part of upper attachment of one handle. P.H., 0.10 m; R.H., 0.048 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; yellow-buff surface.

A178. (PC 72-335). (Fig. IX-268). Unstamped. Lagoon, Spring House, surface. 7.VIII.72. Rim fragment and piece of neck. P.H., 0.097 m; R.H., 0.044 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Deep tanish buff clay (7.5YR 6/4); black, white, and red bits. Rim slightly rounded in profile.

A179. (PC 72-338). (Fig. IX-269). Unstamped. Lagoon, Spring House, surface. 7.VIII.72. Rim fragment and piece of neck. P.H., 0.124 m; R.H., 0.061 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Pale pinkish buff clay (5YR 7/4); black, white, and red bits; beige surface. Depression around rim at center.

A180. (PC 72-340). (Fig. IX-270). Unstamped. Lagoon, Spring House, below rubble level north of Wall b. 8.VIII.72. Rim fragment and very small piece of neck. P.H., 0.048 m; R.H., 0.039 m; est. M.D., 0.13 m; est. R.D., 0.16 m. Rather hard brownish clay (7.5YR 5/4); tiny black and white bits; buff surface.

A181. (PC 72-342). (Fig. IX-271). Unstamped. Lagoon, Spring House, fill in Room 2. 5.VIII.72. Neck fragment, preserving part of rim and upper neck and stump of one handle. P.H., 0.137 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Tanish buff clay (7.5YR 7/4); black, white, and red bits; buff surface.

A182. (PC 72-344). (Fig. IX-272). Unstamped. Lagoon, Spring House, upper level of Wall near intersection with Wall c (immured). 3.VIII.72. Rim fragment and small piece of neck. P.H., 0.079 m; R.H., 0.051 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Tanish buff clay (7.5YR 7/4); black, white, and red bits; beige surface.

A183. (PC 72-346). (Fig. IX-273). Unstamped. Lagoon, Spring House, surface. 5.VIII.72. Rim fragment and small piece of neck. P.H., 0.057 m; R.H., 0.041 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pale pinkish buff clay (5YR 7/4); black, white, and red bits; beige surface. Faint depression around rim near top.

A184. (PC 72-347). (Fig. IX-274). Unstamped. Lagoon, Spring House, surface. 7.VIII.72. Rim fragment and very small piece of neck. P.H., 0.053 m; R.H., 0.039 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; grayish buff surface.

A185. (PC 72-360). (Fig. IX-275). Unstamped. Lagoon, Spring House, fill in Room 2. 24.VII.72. Rim fragment and small piece of neck. P.H., 0.072 m; R.H., 0.044 m; est. M.D., 0.14 m; est. R.D., 0.16 m. Pinkish tanish buff clay (7.5YR 6/6); black, white, and red bits. Slanting line incised on rim.

A186. (PC 72-362). (Fig. IX-276). Unstamped. Lagoon, Trench j1, surface. 7.VIII.72. Rim fragment and small piece of neck. P.H., 0.068 m; R.H., 0.046 m; est. M.D., 0.13 m; est. R.D., 0.17 m. Brownish clay (7.5YR 5/4); black and white bits; yellow-buff surface.

A187. (PC 72-366). (Fig. IX-277). Unstamped. Lagoon, Trench j1, surface. 7.VIII.72. Rim fragment and piece of neck. P.H., 0.099 m; R.H., 0.051 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Pinkish buff clay (5YR 6/6); black, white, and red bits.

FORM b

A188. (PC 72-343). (Figs. IX-278, 279, 280). Stamped: D1011. Lagoon, Spring House, surface. 5.VIII.72. Rim (entire except for chips), stamped, and pieces of upper neck. P.H., 0.103 m; R.H.,
IX: THE ROMAN AMPHORAS

0.048 m; M.D., 0.143 m; R.D., 0.175 m. Coarse
pale rust clay (5YR 6/4); red, black, and white
bits; yellow-buff surface. The stamp, which is
inverted on the rim, appears identical to a stamp
from the town of Cosa (C 70.412), also fragmen-
tary and also inverted on the rim, reading DIOCI].
It, too, is on an amphora of Type 4b. Three other
stamps at Cosa (C 65.251, C 67.89, and C 68.529), on amphoras of Type 4a, read DIOCII
and are perhaps forerunners of Cat. A188 and C
70.412. There are other, similar stamps at Cosa,
and it should be noted that Manacorda publishes
(no. 26) a stamp that he reads DION.D). The
letters of that stamp resemble those of the stamps
under discussion, and one wonders whether the
final letter in Manacorda's stamp, unclear in the
drawing, might be an inversion of "CII" rather than a "D." It is apparently on a rim of Type 4a,
for which no dimensions are given.

A189. (PC 68-36). (Figs. IX-281, 282, 283).
Stamped: [I]. Harbor area of Villa. Surface:
18. VII. 68. Rim fragment, stamped, piece of neck,
and start of one handle attachment. P.H., 0.055
m; R.H., 0.047 m; est. M.D., ca. 0.15 m; est. R.D.,
ca. 0.20 m. Pale rust clay (5YR 6/4); black,
and some white, bits; beige surface. Rim flares out
slightly (early 4b [8]).

Stamped: [IN]. Lagoon, Spring House, curth fill above basin
platform. 21-26. VII. 69. Rim fragment, stamped,
and piece of neck. P.H., 0.09 m; R.H., 0.041 m;
est. M.D., ca. 0.18 m; est. R.D., ca. 0.21 m.
Pinkish yellow-buff clay (5YR 6/8); black, white,
and red bits. Rim flares out slightly (early 4b [8]).

Stamped: J.G.G. Lagoon, Spring House, fill around basin
platform, below platform level. 4. VIII. 69.
Shoulder fragment, the stamp on one side of lower
handle attachment. Piece of neck also preserved.
P.H., ca. 0.10 m; W.W., ca. 0.18 m. Deep tanish
buff clay (7.5YR 6/4); black and red bits; yellow-
buff to grayish white surface.

A192. (PC 72-150). (Figs. IX-289, 290, 291).
Stamped: X or A (incuse). Lagoon, Trench Y7,
south extension, below preserved surface of Wall
W. 21. VII. 72. Rim fragment, a stamp (or possibly a graffito) set imperfectly at the top, and piece of
upper neck. P.H., 0.113 m; R.H., 0.047 m; est.
M.D., 0.15 m; est. R.D., 0.18 m. Pinkish yellow-
buff clay (5YR 5/8); tiny black, white, and red
bits. Impression runs around rim near top. Rim
flares out slightly (early 4b [8]).

A193. (PC 72-1). (Fig. IX-292 to 295). Stamped:
§ (or A (§ retr.). Lagoon, Trench IA, between piers
3 and 4, at depth of 1.50 m b.s.l. above sand.
3. VII. 72. Neck fragment, stamped between the
handle attachments. Fragment preserves rim ex-
cept for chips, stamps of both handles, and almost
all of neck. P.H., 0.30 m; R.H., 0.047 m; M.D.,
0.152 m; R.D., 0.185 m. Coarse pinkish buff clay
(5YR 6/6); reddish and dark bits; buff surface.
No parallels are known for this difficult stamp, which
seems to combine Latin and Greek letters. The
first letter looks like a retrograde "S"; the second,
lke a small omega or a sigma on its back; the third
is certainly a capital delta, a letter which also oc-
curs on three rims of amphoras of Type 4a in the
town of Cosa (CB 969, C 66.461, C 67.443). The
rim of Cat. A193 bears a slight depression around
the center, and there is a horizontal line 1 cm wide
drawn between the lower handle attachments on
the other side of the neck from the stamp.

A194. (PC 68-9). (Figs. IX-295, 297, 298).
Stamped: device (medallion or rosette [7]). Harbor,
underwater, between southeast end of main Break-
water and Breakwater Extension A, at depth in
sand of 1.0 m. 9. VII. 68. Rim fragment, stamped,
and piece of neck. P.H., 0.079 m; R.H., 0.054 m;
est. M.D., 0.15 m; est. R.D., 0.18 m. Pale rust
clay (5YR 6/4); grayish tan (5YR 7/2); toward
surface; black bits and a few red ones. Five probable
examples of the same stamp are published here-
with (Cats. A194-A198). Rim flares out slightly
(early 4b [8]).

A195. (PC 68-uncataloged). (Fig. IX-299).
Stamped: device (medallion or rosette [7]). Immured
and inaccessible for study. Harbor, pier 1; 1968.
Studied from photographs. See under Cat. A194
above. Rim seems to flare out slightly (early 4b
[8]).

A196. (PC 72-364). (Figs. IX-300, 301, 302).
Stamped: device (medallion or rosette [7]). La-
gano, Trench E1. 7. VII. 72. Rim fragment,
stamped, piece of upper neck, and stamp of one
handle. P.H., 0.153 m; R.H., 0.047 m; est. M.D.,
0.14 m; est. R.D., 0.17 m; H.W., 0.052 m; H.T.,
0.039 m. Coarse rust clay (5YR 5/6); black, red,
and white bits; tanish buff surface. See under
Cat. A194 above. Rim is alternately outflattening,
vertical, inslipping, and convex in profile (early 4b
[8]).

A197. (PC 72-367). (Figs. IX-303, 304, 305).
Stamped: device (medallion or rosette [7]). La-
gano, Trench F1, surface. 7. VII. 72. Rim
fragment, stamped, piece of upper neck, and stamp of
one handle. P.H., 0.227 m; R.H., 0.044 m; est.
M.D. 0.15 m; est. R.D. 0.18 m; H.W. 0.051 m; H.T. 0.049 m. Coarse rust clay (SRY 5/6); whitish surface. See under Cat. A194 above. Rim flares out slightly (early 4b [?]).

A198. (PC 72-383). (Figs. IX-306, 307, 308). Stamped: device (medallion or rosette [?]). Lagoon, Trench E1, surface: VII. VIII. 72. Rim fragment, stamped, piece of upper neck, and stump of one handle. P.H. 0.12 m; R.H. 0.051 m; est. M.D. 0.15 m; est. R.D. 0.18 m; H.W. 0.052 m; H.T. 0.046 m. Pale rust clay (SRY 6/4); black, white, and red bits; yellow-cream surface. See under Cat. A194 above. Rim flares out slightly (early 4b [?]).

A199. (PC 72-339). (Figs. IX-309, 310, 311). Stamped: device (star [?] winch [?] ship's wheel [?]). Lagoon, Spring House, surface: VII. VIII. 72. Rim fragment, stamped (the same stamp struck twice), piece of upper neck, and stump of one handle. P.H. 0.134 m; R.H. 0.041 m; M.D. 0.14 m; R.D. 0.175 m. Handle dimensions not determinable. Pinkish buff clay (SRY 6/6); tiny block and white bits; buff surface. Mended. Rim flares out slightly on one side (early 4b [?]).

A200. (PC 72-345). (Figs. IX-312, 313, 314). Stamped: device (ship's wheel or star). Lagoon, Spring House, surface: VII. VIII. 72. Rim fragment, stamped, and piece of neck. P.H. 0.092 m; R.H. 0.047 m; est. M.D. 0.15 m; est. R.D. 0.18 m. Coarse pale rust clay (SRY 6/4); tannish buff (7.5YR 7/4) toward surface; black, red, and white bits; yellow-buff surface. The device resembles the "wheel-and-ray" design on Attic Geometric pottery.

A201. (PC 69-59). (Figs. IX-315, 316). Stamped: device (palm branch [?]). Harbor, underwater, sporadic find, VII. 69. Rim fragment, stamped, and piece of neck. P.H. 0.095 m; R.H. 0.048 m; est. M.D. 0.16 m; est. R.D. 0.19 m. Pinkish buff clay (SRY 6/6); black, white, and red bits; buff surface. Stamp is unlike other known palm branch devices. Rim flares out slightly (early 4b [?]).

A202. (PC 72-361). (Figs. IX-317, 318, 319). Stamped: device (animal [?] fish [?]). Lagoon, Trench E1, below offset of pier 9. VII. VIII. 72. Rim fragment, stamped, and piece of neck. P.H. 0.16 m; R.H. 0.048 m; est. M.D. 0.17 m; est. R.D. 0.20 m. Coarse deep tannish buff clay (7.5YR 6/4); black, white, and red bits; yellow-buff surface.

A203. (PC 72-7). (Figs. IX-320 to 323). Stamped: illegible. Lagoon, Spring House, fill around Wall c. VII. VII. 72. Neck fragment, a two-line stamp on the rim. Fragment preserves rim, stumps of both handles, and most of neck. P.H. 0.348 m; R.H. 0.045 m; M.D. 0.143 m; R.D. 0.177 m; H.W. 0.049 m; H.T. not determinable. Coarse pinkish buff clay (SRY 6/6); many tiny dark and light bits; buff surface.

A204. (PC 72-363). (Figs. IX-324, 325, 326). Stamped: illegible. Lagoon, Trench E1, surface: VII. VIII. 72. Rim, the same stamp struck twice, piece of neck, part of one handle, and stump of other handle. P.H. 0.208 m; R.H. 0.042 m; M.D. 0.15 m; R.D. 0.185 m; H.W. 0.054 m; H.T. 0.05 m. Coarse deep pinkish buff clay (7.5YR 6/6); reddish, dark, and white bits; beige surface.

A205. (PC 68-16). (Fig. IX-327). Unstamped. Lagoon, Trench III, west of Wall P, 10. VII. 68. Neck fragment, preserving part of rim and upper neck and upper attachment of one handle. P.H. 0.143 m; R.H. 0.043 m; est. M.D. 0.16 m; est. R.D. 0.18 m. Mended. Pale pinkish buff clay (SRY 7/4); black and white bits; yellow-cream surface. Rim flares out slightly (early 4b [?]).

A206. (PC 68-26). (Fig. IX-328). Unstamped. Lagoon, Spring House, fill around basin platform. 12. VII. 68. Neck fragment, preserving one handle and piece of rim. P.H. 0.385 m; R.H. 0.043 m; est. M.D. 0.13 m; est. R.D. 0.16 m; H.W. 0.049 m; H.T. 0.043 m. Mended. Sandy pinkish buff clay (SRY 6/6); black, white, and red bits; yellow-buff surface.

A207. (PC 69-13). (Fig. IX-329). Unstamped. Harbor, underwater, Trench D1, Level III. 7. VII. 69. Rim fragment and piece of neck. P.H. 0.087 m; R.H. 0.049 m; est. M.D. 0.17 m; est. R.D. 0.20 m. Powdery tannish buff clay (7.5YR 7/4); black and white bits. Rim flares out slightly (early 4b [?]).

A208. (PC 69-34). (Fig. IX-330). Unstamped. Harbor, underwater, Trench D2, Level II. 16. VII. 69. Rim fragment and piece of neck. P.H. 0.083 m; R.H. 0.041 m; est. M.D. 0.15 m; est. R.D. 0.17 m. Pinkish buff clay (SRY 6/6); black and white bits; yellowish tan surface.

A209. (PC 69-43). (Fig. IX-331). Unstamped. Lagoon, Spring House, earth fill above surface of basin platform. 11. VII. 69. Toe and fragment of lower belly. P.H. 0.34 m; diam. at base, 0.078 m. Coarse pinkish buff clay (SRY 6/6); gray deposit on surface.

A210. (PC 69-44). (Fig. IX-332). Unstamped. Harbor, underwater, Trench D2, Level II. 16. VII. 69. Neck fragment, preserving rim (chipped), most of
neck, stumps of both handles, and bit of shoulder. P.H., 0.35 m; R.H., 0.04 m (as preserved); M.D., 0.142 m; R.D., 0.175 m. Coarse rust clay (SYR 5/6); marine deposit obscures surface. Pit above neck.

A211. (PC 69-71). (Fig. IX-333). Unstamped. Harbor, underwater. Trench C 1, Level III. 25 VII. 69. Belly, preserving toec, bit of lower neck, and lower attachments of both handles. P.H., 0.84 m; G.D., 0.32 m; toe diam. at base, 0.065 m. Coarse rust clay (SYR 5/6); cream surface. Inside lined with pitch.

A212. (PC 72-9). (Figs. IX-334, 335). Unstamped. Lagoon, Trench IA, just above setback of pier 7, at about 0.30 m a.s.l. 10 VII. 72. Neck fragment, preserving rim, most of neck, and stumps of both handles. P.H., 0.383 m; R.H., 0.045 m; M.D., 0.153 m; R.D., 0.18 m; H.W., 0.046 m; H.T., 0.043 m. Coarse terrish buff clay (7 SYR 7/4); grayish deposit obscures surface.

A213. (PC 72-12). (Fig. IX-336). Unstamped. Lagoon, Trench IA, between piers 7 and 8, above sand levels. 3 VII. 72. Toe fragment of lower belly. P.H., 0.35 m; G.D., 0.215 m; toe diam. at base, not determinable. Coarse pinkish buff clay (SYR 6/6), lighter toward core; many red bits; cream surface. A very unusual-looking piece.

A214. (PC 72-95). (Fig. IX-337). Unstamped. Lagoon, Trench YZ, north, level of gray clay 1.50 m below surface and above pavement of small stones. 14 VII. 72. Shoulder fragment, preserving pieces of neck and belly, and lower attachment of one handle. P.H., 0.16 m. Coarse pinkish buff clay (SYR 6/6); black, white, and red bits; dirty white surface.

A215. (PC 72-117). (Fig. IX-338). Unstamped. Lagoon, Spring House, surface. 20 VII. 72. Rim fragment and piece of neck. P.H., 0.11 m; R.H., 0.051 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Pinkish yellow-buff clay (SYR 6/8); black, white, and red bits; beige surface. Shallow depression around upper part of rim. Rim flares out slightly (early 4b ?).

A216. (PC 72-136). (Fig. IX-339). Unstamped. Lagoon, Spring House, rubble level north of Wall b. 21 VII. 72. Rim fragment and small piece of neck. P.H., 0.08 m; R.H., 0.013 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Pinkish yellow-buff clay (SYR 6/8); black, white, and red bits; yellow-buff surface. Rim flares out slightly (early 4b ?).

A217. (PC 72-165). (Fig. IX-340). Unstamped. Lagoon, Spring House, basin at east end of south wall of cistern. 21 VII. 72. Rim fragment and piece of upper neck. P.H., 0.12 m; R.H., 0.043 m; est. M.D., 0.14 m; est. R.D., 0.17 m. Pale rust clay (SYR 6/4); black, white, and red bits; yellow-buff surface. Rim flares out slightly (early 4b ?).

A218. (PC 72-168). (Fig. IX-341). Unstamped. Lagoon, Spring House. Parts of jar found in these areas: (1) fill below rubble level north of Wall b; (2) fill in Room 4; (3) clearing basin at east end of south wall of cistern. 21, 24 VII. 72. Jar lacking half of rim, both handles (except for one upper attachment), part of shoulder, pieces of belly, and toe. P.H., 1.00 m; G.D., 0.303 m; R.I.1, 0.041 m; M.D., 0.14 m; R.D., 0.175 m. Mended from twenty-two fragments. Coarse rust clay (SYR 5/6); yellow-buff surface.

A219. (PC 72-175). (Fig. IX-342). Unstamped. Lagoon, Spring House, fill against south wall of cistern. 20 VII. 72. Rim fragment, piece of neck, and upper attachment of one handle. P.H., 0.118 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Very coarse rust clay (SYR 5/6); yellow-buff (7 SYR 7/6) toward core; black, white, and red bits. Slanting line incised on rim.

A220. (PC 72-197). (Fig. IX-343). Unstamped. Lagoon, Spring House, fill below rubble level north of Wall b. 21 VII. 72. Rim fragment and small piece of neck. P.H., 0.07 m; R.H., 0.047 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Pinkish buff clay (SYR 6/6); many black, white, and red bits. Rim flares out slightly (early 4b ?).

A221. (PC 72-221). (Figs. IX-344, 345). Unstamped. Lagoon, between piers on Walls Y and Z, on bedrock. 17 VII. 72. Neck fragment, preserving most of rim, upper neck, and stumps of both handles. P.H., 0.145 m; R.H., 0.042 m; M.D., 0.16 m; R.D., 0.195 m; H.W., 0.061 m; H.T., 0.031 m. Sandy pale pinkish buff clay (SYR 7/4); red, dark, and white bits. Mended. Possible punch-mark on rim, and two holes. Rim flares out slightly (early 4b ?).

A222. (PC 72-240). (Figs. IX-346, 347). Unstamped. Lagoon, Spring House, fill below rubble level north of Wall b. 24 VII. 72. Neck fragment, preserving pieces of rim and upper neck, and stump of one handle. P.H., 0.16 m; R.H., 0.044 m; M.D., 0.145 m; R.D., 0.18 m; H.W., 0.059 m; H.T., 0.044 m. Coarse rust clay (SYR 5/6); black and white bits; yellow-buff surface. Mended. Rim flares out slightly (early 4b ?).

A223. (PC 72-241). (Fig. IX-348). Unstamped. Lagoon, Spring House, fill below rubble level north of Wall b. 24 VII. 72. Rim fragment and small piece of neck. P.H., 0.066 m; R.H., 0.046 m;
M.D., 0.15 m; R.D., 0.18 m. Pinkish buff clay (SYR 6/5); black, white, and red bits; beige surface. Mended. Wide depression around top of rim. Mark on rim is probably not remnant of stamp. Rim faces out slightly (early 4th? [2])

A224. (PC 72-255). (Fig. IX-349). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, toe, shoulder, piece of neck, lower stump of one handle and lower attachment of the other. P.H., 0.77 m; G.D., 0.29 m. Coarse pinkish buff clay (SYR 6/5); buff surface. Mended.

A225. (PC 72-272). (Fig. IX-350). Unstamped. Lagoon, Trench U2, 1.53 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, upper toe, lower neck, shoulder, and lower stumps of both handles. P.H., 0.85 m; G.D., 0.32 m. Coarse rust clay (SYR 5/6); cream surface.

A226. (PC 72-273). (Fig. IX-351). Unstamped. Lagoon, Trench U2, 1.53 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, toe, shoulder, lower half of neck, and lower stumps of both handles. P.H., 0.90 m; G.D., 0.29 m; toe diam. at base, 0.075 m. Coarse rust clay (SYR 5/6); cream surface. Possible trace of stamp at base of one handle. Neck appears to have been sawed off in antiquity (cf. Cat. A242 below)

A227. (PC 72-274). (Fig. IX-352). Unstamped. Lagoon, Trench U2, 1.53 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, toe, shoulder, piece of lower neck, one lower handle attachment, and traces of other attachment. P.H., 0.85 m; G.D., 0.306 m; toe diam. at base, 0.07 m. Coarse rust clay (SYR 5/6); buff surface.

A228. (PC 72-275). (Fig. IX-353). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, toe (chipped), shoulder, lowest part of neck, and traces of lower handle attachments. P.H., 0.80 m; G.D., 0.29 m; toe diam. at base, not determinable. Coarse rust clay (SYR 5/6); cream surface.

A229. (PC 72-276). (Fig. IX-354). Unstamped. Lagoon, Trench U2, 1.53 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar lacking rim, toe, one handle (except for lower attachment), and bit of upper neck. P.H., 1.02 m; G.D., 0.303 m; H.W., 0.054 m; I.I.T., 0.041 m. Coarse pinkish buff clay (SYR 6/6); reddish, dark, and light bits; buff surface. Two holes in lower belly (0.025 m and 0.027 m in diam.).

A230. (PC 72-277). (Fig. IX-355). Unstamped. Lagoon, Trench U2, 1.53 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Belly, preserving upper toc, shoulder, bit of neck, stump of one handle, and lower attachment of other handle. P.H., 0.68 m; G.D., 0.295 m. Worn, coarse rust clay (SYR 5/6).

A231. (PC 72-278). (Fig. IX-356). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Belly fragment, lacking much of upper belly, but preserving toe (chipped) and small piece of shoulder with lower attachment of one handle. P.H., 0.81 m; est. G.D., 0.28 m. Coarse rust clay (SYR 5/6); grayish at core.

A232. (PC 72-279). (Fig. IX-357). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, toe, shoulder, and lower stumps of both handles. P.H., 0.78 m; G.D., 0.29 m; toe diam. at base, 0.07 m. Rust clay (SYR 5/6); red bits; cream surface. Mended.

A233. (PC 72-280). (Fig. IX-358). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Jar fragment, preserving belly, much of neck, stump of one handle, attachment of other handle, and upper part of toe. P.H., 0.92 m; G.D., 0.295 m. Coarse pinkish buff clay (SYR 6/5); black, white, and red bits; buff surface.

A234. (PC 72-281). (Fig. IX-359). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Belly, preserving piece of lower neck, stumps of both handles, and upper part of toe. P.H., 0.70 m; G.D., 0.29 m. Coarse rust clay (SYR 5/6); details of fabric obscured by surface deposit.

A235. (PC 72-282). (Fig. IX-360). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Belly, preserving toe, shoulder, and stumps of both handles. P.H., 0.82 m; G.D., 0.30 m; H.W. near lower attachment, 0.048 m; I.I.T. near lower attachment, 0.041 m. Coarse rust clay (SYR 5/6); grayish toward core (SYR 6/1) and lighter toward surface (four distinct layers); scattered reddish bits; surface obscured by deposit. Mended. Several holes in belly.

A236. (PC 72-283). (Fig. IX-361). Unstamped. Lagoon, Trench U1, 1.67 m b.s.l., in fill behind and east of Wall U. 2. VIII. 72. Belly fragment, preserving upper part of belly, shoulder, lower handle attachments, and piece of lower neck. P.H., 0.47 m; G.D., 0.325 m. Coarse rust clay (SYR 5/6); yellow-buff surface. Two holes bored in belly (0.05 m and 0.27 m in width).

A237. (PC 72-311). (Fig. IX-362). Unstamped. Lagoon, Spring House, gray level below pozzolana,
south of Wall 2. VIII.72. Rim fragment and small piece of neck. P.H., 0.075 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.19 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; yellow-buff surface. Rim flares out slightly (early 4b [3]).

A238. (PC 72-316). (Fig. IX-363). Unstamped. Lagoon, Spring House, fill below rubble south of Wall 2. VIII.72. Rim fragment and small piece of neck. P.H., 0.081 m; R.H., 0.046 m; est. M.D., 0.15 m; est. R.D., 0.18 m. Rust clay (5YR 5/6); black and white bits. Rim flares out slightly (early 4b [3]).

A239. (PC 72-321). (Fig. IX-364). Unstamped. Lagoon, Trench U1, 1.67 m b.s., in fill behind and east of Wall U. I. VII.72. Fragment of lower belly, preserving top except for chips. P.H., 0.515 m; G.D., 0.305 m. Coarse rust clay (5YR 5/6); yellow-cream surface.

A240. (PC 72-328). (Fig. IX-365). Unstamped. Lagoon, Trench U1, 1.67 m b.s., in fill behind and east of Wall U. II. VII.72. Fragment of lower belly, preserving most of toe. P.H., 0.62 m; est. G.D., 0.28 m; toe diam. at base, 0.022 m. Coarse tannish buff clay (7.5YR 5/4), gray at core (5YR 6/1); cream surface. Mendable.

A241. (PC 72-329). (Fig. IX-366). Unstamped. Lagoon, Trench U1, 1.67 m b.s., in fill behind and east of Wall U. II. VII.72. Fragment of lower belly, lacking much of toe. P.H., 0.43 m; G.D., 0.277 m. Coarse rust clay (5YR 5/6) with lighter surface. Mendable.

A242. (PC 72-330). (Fig. IX-367). Unstamped. Lagoon, Trench U1, 1.67 m b.s., in fill behind and east of Wall U. II. VII.72. Fragment of lower neck and upper belly, preserving shoulder and both lower handle attachments. P.H., 0.49 m; G.D., 0.30 m. Coarse orange-buff clay (2.5YR 6/3); deposit obscures surface details. Mendable. Possible trace of stamp-outline on shoulder. Neck sawed off (cf. Cat. A226 above).

A243. (PC 72-336). (Fig. IX-368). Unstamped. Lagoon, Spring House, white clay above wood level in Room 2. VIII.72. Rim fragment and very small piece of neck. P.H., 0.049 m; R.H., 0.045 m; est. M.D., 0.16 m; est. R.D., 0.20 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; yellow-buff surface. Rim flares out slightly (early 4b [3]).

A244. (PC 72-337). (Fig. IX-359). Unstamped. Lagoon, Spring House, surface. VII. VII.72. Rim fragment and piece of neck. P.H., 0.083 m; R.H., 0.05 m; est. M.D., 0.17 m; est. R.D., 0.20 m. Deep pinkish buff clay (2.5YR 6/6); black, white, and red bits; beige surface. Fair depression around rim below center. Rim flares out slightly (early 4b [3]).

A245. (PC 72-365). (Figs. IX-370, 371). Unstamped. Lagoon, Trench L1, surface. VII. VII.72. Rim fragment and piece of neck. P.H., 0.082 m; R.H., 0.044 m; est. M.D., ca. 0.19 m; est. R.D., ca. 0.22 m. Pinkish buff clay (5YR 6/6); black, white, and red bits; yellow-buff surface. Slighting line incised on rim. Rim flares out slightly (early 4b [3]).

A246. (PC 72-427). Unstamped. Sporadic; 1972. Neck fragment, preserving rim, part of neck, and attachments of both handles. P.H., 0.253 m; R.H., 0.063 m; M.D., 0.147 m; R.D., 0.178 m. Coarse rust clay (5YR 5/6); many black and white bits; buff surface. Rim flares out slightly (early 4b [3]).

Type 5

Lamboglia decided to identify Type 5 as "Dressed 1C" (Lamboglia 1955, pp. 248-250), though the type has little base height and long neck and handles to connect it with the jars of Dressel's Form 1, which we refer to here as Type 4. Several distinctive differences can be pointed out between the two types. Type 5 has a very high rim that is often over 0.06 m, and sometimes even over 0.07 m, in height. The rim is vertical or concave in profile but flares out slightly in earlier versions. The mouth is very narrow in diameter (0.10 m-0.12 m on the average). Long, ribbed handles, narrow in section and S-shaped in profile, flank a long neck that is regularly somewhat wider at bottom than at top. The shoulder is unusually narrow, the neck joining the belly nearer the middle than the edge of the shoulder. The belly is correspondingly narrow (0.26 m-0.28 m on the average) and carrot-shaped, the toe continuing the line of the belly and often not given a separate exterior shape, though it is in fact solid, not hollow, on the interior. Stamps are infrequent but may occur on the rim, on the handle near the curve, or on the shoulder at the base of the handle.

The stylistic features of Type 5 show it to be closely related to, and probably a descendant of Form e Greco-Italic amphoras (Will Type 2). That category of Greco-Italic amphoras is not found in the port or in the town of Coia, in contrast to Type 5, which is well represented at both sites (sixty examples found so far in the town and twenty-two in the port). In a recent study of Greco-Italic amphoras
(Will 1982-1, pp. 353-355) I argue that Type 2 originated in Spain. Contexts at the Athenian Agora permit us to date the type in the first half of the second century B.C. and as late as the third quarter of the century. It was a widespread shape, occurring as far cast as Athens, Delos, and Mykonos, but it is found with particular frequency in Spain, and the clay seems close to that of the amphorae called “Tarracoonese” (Tchemina and Zevi 1972).

Type 5 was apparently developing from Type 2 in Spain at the same time that Type 4a was developing from Type 1d in Italy. Contextual information at the Athenian Agora allows us to date both Type 4a and Type 5 as early as the late second century B.C., and, like Type 4a, Type 5 seems to have been in use into the second quarter of the first century B.C. (Will 1979, nn. 6 and 25, and see here Color Fig. 4). Not only do the two types occur together in the same closely dated context at the Agora, but a belly of Type 5 was found along with the hundreds of Sestius jars on the upper Grand Congloué wreck (Bénét 1961, pp. 45-46). Type 5 also occurs at Vada Sabatia in a context of about 100 B.C. (Lamboglia 1955, p. 249), and the frequency of the type at Delos supports a floruit for it in the first quarter of the first century B.C. Two Sestius stamps, in addition, are found on fragments of Type 5, one at Vada Sabatia and the other at the Portus Cosanus (below, Cat. A248), and a painted inscription possibly naming both Sestius and Cosa has been found on the dated piece, referred to above, from the Agora (P 6867; cf. Will 1979, pp. 346-347 and fig. 5, and here, Color Fig. 4). A possible connection with Cosa and the port is also suggested by the fact that the total number of Type 5 pieces found there, while small in comparison with the totals for Types 1 and 4, is probably greater than for any other known site where Type 5 occurs. But in spite of its Cosa connections, Type 5 probably originated in Spain. In addition to the Sestius fabric, two other types of clay were used for Type 5: a fragile, powdery pale greenish buff clay (Munsell: 2.5Y 8/2) that also characterizes the Spanish garum jars of Dressel’s Forms 7-12 (my Type 16, the Spanish connections of which are discussed below); and an unusually coarse rust-colored clay (Munsell 5YR 5/6), full of white and black bits, and covered with a peeling, dirty grayish white surface, a fabric identical to that of Type 2. It is logical to suppose that these two fabrics belong to examples of Type 5 made in two different areas of Spain, the darker-clayed jars being probably Tarracoonese and the lighter-clayed ones coming from the kilns that have been discovered near Cádiz and Algeciras in southern Spain, an area known to have been the center of one of the major fish industries of antiquity (see Peacock 1974 for an excellent discussion of these kilns). A neck fragment of Type 5 was, in fact, discovered at the kiln of Algeciras (Tchemina 1971, fig. 13), though most of the abundant pieces found in connection with that pottery establishment belonged to Dressel’s Forms 7-12. Since Dressel 12 could easily qualify on typological grounds as a descendant of Type 5, the evidence of its manufacture at Algeciras adds to the argument in favor of that area as one of the sources of Type 5. But the Sestius stamps on Type 5 at the Portus Cosanus and at Vada Sabatia, the painted inscription at the Agora, and the Sestius clay both of that fragment and of many of the large group of pieces at Cosa argue for the Portus Cosanus as another area in which Type 5 was manufactured.

It seems likely, also, that these amphorae were meant to serve both in Spain and at Cosa, as containers for garum (Will 1979, n. 26), as was unquestioningly true of Dressel’s Forms 7-12. An industry for the production of garum was apparently growing up in the Portus Cosanus by the end of the second century B.C. (McCann 1979), and the presence of the Type 5 Sestius jars in the Cosa area and elsewhere suggests that, at the same time that it was producing wine jars of Type 4a, the Sestius pottery was also producing garum containers of Type 5. Faced with the need for a new kind of container in which to ship the port’s new commodity, the Sestius organization (which may also have owned the fishery in the port, not to mention the vineyards in the Ager Cosanus) turned to a contemporary Spanish model and chose to adapt it to its own needs. That form was in turn apparently based on the second-century-B.C. amphora, Type 2, the Form e Greco-Italic variety. Whether jars of Type 2, the interiors of which are thickly pithched, were also used as containers for garum is not yet known. It is traditional to associate such pitched amphorae with wine (Will 1982-1, p. 354), but there is increasing evidence to show that garum amphorae were also pitched (Purpura 1975, pp. 61-63, note 15). Type 2, in any case, as we noted, is not represented at Cosa, perhaps because the Cosa fisheries at that time produced sufficient garum for local needs. But when exporting began, Spanish containers were the logical ones to copy, for Spain had been a major producer from early Greek times. Some Type 5 pieces at Cosa have, indeed, Spanish, or at least non-Sestius, clay. One such piece found in the town of Cosa (CB 1664) bears the internationally distributed trademark.
S.C.G. which has been found at Rome (CIL XV.3417) and at Delos (two unpublished examples, TD 1351 and TD 4881), and in Spain at Terraco (CIL II.4967.42), at Algeciras (Beltrán 1970, no. 435), and at Bologna near Cividale (Beltrán 1970, no. 436). Perhaps the amphora that came to Cosa bearing that stamp was one of the patterns used by the Septius factory.

The eleven pieces described in the section that follows represent half of the total number of fragments of Type 5 found in the port. The group includes three necks, five rims, one handle, one shoulder, and one belly. Eleven other finds in the port, not described individually here, include eight handles, two rims, and one toe.

A247. (PC 68-8). (Figs. IX-372, 373, 374). Stamped: ALEXANDR. Lagoon, Trench IH, west of Wall P, surface fill. 6.VII.68. Handle fragment, stamped lengthwise near curve. H.W., 0.06 m; H.T., 0.22 m. Rust clay (5YR 5/6); black and red bits; beige surface. Slightly ridged handle. The same name occurs, as might be expected, on amphorae of various types and dates, though not on Type 5. Several spellings are found in stamps on Type 4a, the connections of which with Type 5 are mentioned in the introductions to Types 4 and 5, above, and under Cat. A248 below. The stamps on Type 4 include "ALEX" on a handle of Type 4a at the National Museum, Athens (EM-L 81); "[ALEXANDR]" on both handles of one (? amphora of "Dressel Type 1" (CIL XV.3398); one of these jars was seen by me in storage in the Market of Trajan, Rome, in 1974); "ALEX" on the shoulder of a jar probably belonging to Type 4b at Caia de Mailhe, Aude (on this piece, cf. Odette and Jean Caffarel, Gallia 5 [1947] fig. 4-2); and ALEXANDR on the lower belly of one (?) amphora from the wreck of La Madrague de Gien (Lesnard 1978, p. 37, and cf. pl. 15.7 and table between pp. 41 and 42). The inventory number of the amphora in question is given there as 799; however, another and better preserved stamp with the same letters was apparently found on the same wreck and was given the number 6954, according to Lesnard 1977, p. 160 and fig. 5. That stamp is not referred to in the later publication. Lesnard also reports two examples of the same stamp on amphorae in storage in the Terme Museum, Rome. I did not, perhaps by error, see any stamps on the jars of Dressel's Type 1 that I studied in the Terme Museum some years ago, but in any case these are probably not the jars, referred to above, studied by Dressel and published by him in CIL XV.3398, since the amphorae used by Dressel are all thought to be in storage in the Market of Trajan. The examples from the Terme Museum and La Madrague de Gien are all said to add an "S" to the letters of the stamp, though that letter is hardly visible in the 1978 publication of the wreck. One hopes these uncertainties will be dispelled in a future publication. Hesnard associates the stamp with potteries found in the nineteenth century near Terracina (cf. CIL X.8050).

A248. (PC 69-177). (Figs. IX-375 to 378). Stamped: SEŞT device (palm branch). Harbor area, 1969. Private collection. Neck fragment, preserving piece of rim, stamped, one handle, and part of upper neck. P.H., 0.32 m; R.H., 0.053 m; est. M.D., 0.115 m; est. R.D., 0.14 m; H.W., 0.067 m; H.T., 0.038 m. Coarse pale pinkish buff clay (5YR 7/4); frequent black and reddish bits; yellow-buff surface. Marine deposits adhere to surface. On this piece, see Will 1979, p. 346 and fig. 6. The same stamp is frequent on Type 4a. See the discussion under Cat. A80 above. As noted there, another example on Type 5 occurs at Vada Sabatia, Liguria (Lamborgia 1955, fig. 6; lower left). To date, these are the only Septius stamps known to occur on a type other than 4a or 4b.

A249. (PC 68-27). (Fig. IX-379). Unstamped. Lagoon, Trench IH, west of Wall P. 9.VII.68. Shoulder fragment and piece of neck. P.H., ca. 0.073 m; G.W., 0.12 m. Beige clay (5YR 8/4); black and red bits.

A250. (PC 69-97). (Figs. IX-380, 381). Unstamped. Lagoon, Spring House, fill around basin platform. 1.VIII.69. Rim fragment and very small piece of neck. P.H., 0.089 m; R.H., 0.079 m; est. M.D., 0.14 m; est. R.D., 0.18 m. Pale rust clay (5YR 6/4); black and white bits; beige surface. Depression around rim below center.

A251. (PC 72-2). (Figs. IX-382, 383). Unstamped. Lagoon Trench II, east of Wall N, 1.50 m below surface. 4.VII.72. Neck fragment, preserving much of rim, piece of upper neck, and stamp of one handle. P.H., 0.159 m; R.H., 0.062 m; M.D., 0.11 m; R.D., 0.145 m. Coarse tan clay (7.5YR 7/4); many black and white bits; whitish surface. Two parallel scratches on rim.

A252. (PC 72-13). (Figs. IX-384 to 387). Unstamped. Lagoon, Trench II, below first series of tile foundations of Wall P. 6.VII.72. Belly fragments and upper toe, rejoining. List. G.D., 0.30 m. Rust clay (5YR 5/6); many black and white bits.
A253. (PC 72-34). (Fig. IX-388). Unstamped. Lagoon, Spring House, surface. 10.VII.72. Rim fragment and small piece of neck. P.H., 0.098 m; R.H., 0.034 m; est. M.D., 0.12 m; est. R.D., 0.14 m. Coarse tanish buff clay (7.5YR 7/4); black and white bits; creame surface.

A254. (PC 72-66). (Fig. IX-389). Unstamped. Lagoon, Spring House, rabble level south of Wall a. 14.VII.72. Rim fragment and tiny piece of neck. P.H., 0.054 m; R.H., 0.051 m; est. M.D., 0.12 m; est. R.D., 0.14 m. Pinkish tanish buff clay (7.5YR 6/6); many red, and some dark and white, bits; yellow-cream surface.

A255. (PC 72-137). (Fig. IX-390). Unstamped. Lagoon, Spring House, rabble level north of Wall b. 21.VII.72. Neck fragment, preserving pieces of rim and upper neck and stump of one handle. P.H., ca. 0.215 m; R.H., not determinable; est. M.D., ca. 0.15 m; est. R.D., ca. 0.18 m; H.W., 0.071 m; H.T., 0.029 m. Rather sandy pale pinkish buff clay (5YR 7/4).

A256. (PC 72-166). (Fig. IX-391, 392). Unstamped. Lagoon, Spring House, basin at east end of south wall of cistern. 21.VII.72. Rim fragment and bit of neck. P.H., 0.081 m; R.H., 0.067 m; est. M.D., 0.12 m; est. R.D., 0.14 m. Rust clay (5YR 5/6); black, white, and especially red bits; yellow-buff surface. Slanting line incised on rim. Depression around rim at center.

A257. (PC 72-318). (Fig. IX-332). Unstamped. Lagoon, Trench W, surface of Wall X. 2.VIII.72. Rim fragment, piece of upper neck, and stump of one handle. P.H., 0.136 m; R.H., 0.056 m; est. M.D., 0.14 m; est. R.D., 0.17 m; H.W. as preserved, 0.063 m; H.T. as preserved, 0.049 m. Very sandy pale pinkish buff clay (5YR 7/4).

Type 10

Amphoras of this type belong to the general category described by Lamboglia under Form 2 (1955, p. 262 and fig. 17) and by Baldacci under Form II b (1967-1968 [1969] pp. 18-23; 1969 [1972] pp. 128-129; 1972, p. 27), though the comments of these scholars and of Beltrán (1970, pp. 349-358) have raised more questions than they have answered about this very complicated type and its relationship to similar shapes (Types 3, 6, 7, 8, 9, 13, and 14 in my forthcoming Athenian Agora publication, where these matters are addressed in detail). Type 10 occurs with particular frequency in the eastern Mediterranean and Adriatic areas. Finds in the west have been sparse and have been largely underwater, at such sites as Alberga (see the reference above to Lamboglia's discussion), La Madraque de Giens (Hesnard 1978, p. 46 and pl. 17: 1, 2, 5), and Sant Jordi, Majorca (Cerde 1968, pp. 73-77, 79, where an interesting summary of some of the western finds of Type 10 and related types is given). Type 10, which was almost certainly a container for olive oil, can be securely dated in the first quarter of the first century n.c., on the basis of its occurrence in dated deposits at the Athenian Agora, especially Deposit M 18:1, which dates from somewhat before the destruction of the Agora by Sulla in 86 B.C. (cf. Will 1973, pp. 383-386, on that context and on certain amphoras of Type 10 from Delos. Research subsequent to 1970 leads me to believe that Type 10 also was in use in the late second century n.c. as well). The single find of Type 10 in the pot of Cosia, a tomb fragment of the fine clay that characterizes the type, is described herewith. Several other pieces, mostly stamped, from the town of Cosia will be considered in my discussion of the amphoras from that site. The paucity of finds in the Cosia area suggests that enough olive oil for domestic needs was being produced locally in the late second and early first centuries n.c.

As to the origin of Type 10, Zevi 1967 and Baldacci suggest Apulia, but Iliria and the northern Adriatic region are, I believe, stronger possibilities both for Type 10 and for the related shapes listed above. I shall discuss elsewhere the epigraphical evidence that bears on this matter. It is certain, at any rate, that of the related shapes referred to, Type 14 was manufactured in Iliria and perhaps in Cilician Gaul as well (see below under Types 13 and 14). It is the possible connection of Type 10 with the famous olive oil of Iliria, seen in the light of other evidence, such as the presence of the graffiti OLLA on a neck of Type 10 at Delos (no. 110187; on this piece, cf. Hatzfeld 1912, p. 143), which leads me to suggest that Type 10 was a shipping container for olive oil. But Tchernia 1980, p. 305, argues that amphoras of "Lamboglia 2" were containers for wine. I believe part of the difficulty may lie in the fact that amphoras not belonging to Type 10 are sometimes assigned to the type (cf. McCann and Will 1984, p. 94). Perhaps the utilization of a technique such as gas chromatography could throw light on this matter (cf. J. Condamin et al., "The Application of Gas Chromatography to the Tracing of Oil in Ancient Amphorae," Archaemia 18 [1976] pp. 195-201).

A258. (PC 72-125). (Fig. IX-394). Unstamped. Lagoon, Spring House, white clay above wood level
in Roun 2. 2. VIII. 72. Fragment of upper part of toe, preserving piece of lower belly. P.H., ca. 0.18 m. Fine, hard tannish buff clay (7.5/YR 7/4); many red bits; buff surface.

**Type 11c**

This late form of Type 11a ("Brindisi-type") can be dated with confidence in the first half of the first century A.D., on the basis of contexts at the Athenian Agora (especially Deposit D 11:1, which dates to the middle of the first century A.D.) and on the basis of its frequent occurrence in the large group of amphoras found in the 1970s in the Castro Pretorio in Rome. That cache of jars was apparently datable to about the middle of the first century (Dressel 1879, pp. 194-195; Zevi 1966, p. 211). Many of those same jars are now in storage in the Market of Trajan in Rome, and one of them is doubtless the jar used by Dressel to make his drawing of Form 25, to which Type 11c corresponds. On grounds of shape, dimensions, and clay, it is very probable that Type 11c and Dressel 25 are a late equivalent of Type 11a, which I believe to have been a container for the famous olive oil of Venafum. By extension, Type 11c would have served the same purpose in another era. Type 11a dates from the first quarter of the first century B.C. (McCann, Bourgeois, and Will, p. 293), and it belongs to the category of amphoras called "Amphorae Calabres" by Mommsen in CIL IX.6079, where he refers to the discovery of kilns for the type near Brindisi. Those kilns, on the remnants of them, were rediscovered by me in 1961 (Will 1962, pp. 649-650). By a regrettable confusion, Zevi (1967, n. 17), followed by Baldacci (1967-1968 [1969] p. 13, and also in later publications) and others writing in the 1970s, incorrectly identified the "Amphorae Calabres" with the unrelated jars of my Type 10, which are not known to have had any connection with Calabria, though they may be Apulian. They could equally well, however, be Istrian or North Italian, as I point out above in my discussion of Type 10. The true Calabrian amphoras, the Brindisi-type jars of Type 11a, may have been succeeded by a shape which I call Type 11b (see again McCann, Bourgeois, and Will, pp. 294-296) and then ultimately, after the Augustan Age, by Type 11c. On the other hand, there may have been no direct connection between Types 11a and 11b, which differ from each other in fabric and in certain important stylistic details. Here, again, as I point out in the 1977 discussion, there has been confusion on the part of Tchemia (1968-1970) and other scholars who, not aware of the distinctions between Types 11a and 11b, call 11b "Brindisi-type." These matters, including the question of the relationship between 11b and Type 20 (my number for Dressel's Form 20), will be examined in my Athenian Agora publication. Whatever their relationship to Type 11b, however, there seem to be close connections in style and fabric between Types 11a and 11c. The jar fragment of Type 11c from the Portas Cosanus, the example described herewith, was initially published by McCann and Lewis (1970, p. 210). It is the only example of Type 11c from the Cosa area, though three pieces of Type 11a have been found in the town of Cosa.

A259. (PC 68-4). (Figs. IX-395, 396). Unstamped. Lagoon, Spring House, mud fill above basin platform. 12. VII. 68. Jar fragment, preserving rim, neck, handles, much of shoulder, and part of belly. P.H., 0.76 m; G.D., 0.43 m; R.H., 0.075 m; M.D., 0.122 m; L.D., 0.140 m; H.W., 0.036 m; H.T., 0.36 m. Pale pinkish buff clay (5/YR 7/4); scattered reddish and dark bits; surface obscured by grayish deposit. Mended. On this piece, see McCann and Lewis 1970, p. 210.

**Type 12**

Beginning in the second quarter of the first century B.C., the Pompeian wine production, of which there is no evidence after the demise of Type 1d in the middle of the preceding century, revives to become a dominating force in world trade. There is circumstantial evidence to show that shock waves attendant on such a revival were felt even in Roman political circles. It is in my case clear that the Scipios' family's wine and garum industries at Cosa declined in about the middle of the first century B.C., at the same time that, at Pompeii, an equivalent industry was being resurrected, probably in connection with the development of the newly founded Roman colony of Pompeii. Not only did the production center of Type 4b move, as we have seen, from the Cosa area to Campania/Latium, but also another type of amphora, Type 12a (Dressel's Form 3; Panella and Fano 1977, Groups 1-3), based on the shape of the double-handled wine jars of the island of Cos (Grace 1961, fig. 56), made its appearance at Pompeii. We are sure it was manufactured at Pompeii because of the many trademarks naming known citizens of Pompeii that are found on amphoras of the type all over the Mediterranean (these stamps will be published in my Athenian Agora volume). The form of Type 12a is also reminiscent not only of the Coan...
shape but also of the Pompeian jars of Type 1d, and the coarse clay (Panella and Iano 1977, p. 146) is very similar to that of the Type 1d amphoras from Pompeii. Dated contexts at the Athenian Agora give us supporting chronological evidence that the floruit of the earliest examples of Type 12a was the last half of the first century B.C., but examples of earlier date are known. I will argue elsewhere that the jar pattern represented by Type 12a reached Pompeii via an earlier manufacturing center in the area of Brindisi; in any case, Coan-shaped amphoras of fine, “Brindisi” clay are known to have been stamped identical to those on Type 11a, which dates from the first quarter of the first century B.C. It seems logical to assume that these jars were the first to imitate the Coan shape in Italy and then became the immediate model for the Pompeian manufacturers. Doubtless both at Brindisi and at Pompeii the container was intended for the factitious Coan wine, that seems to have been popular among the Romans (Cato the Elder gives the recipe, de agri cultura 112).

The Pompeian wine industry lasted until the destruction of the city in A.D. 79. Panella and Iano (1977, passim) present a most useful review of the evolution of Type 12 at Pompeii, while making it clear that not all the varieties were manufactured there. It may well be that it was the pseudo-Coan jars of Italy that stimulated still another industry for Coan-like jars, in Spain, where amphoras like Dressel’s Form 2 (copies of Panella’s “Italian” Group 8?) were manufactured, doubtless as shipping containers for the cheap Spanish wine deployed by Roman writers. Tchernia and Zevi (1972, passim) have argued convincingly that such Spanish jars have a characteristic and easily recognizable clay, which they describe as Tarraconese; and it is well known that kilns for these same jars have been found in the area between Tarragona and Amfipirion in northeastern Spain (Pascal Grassé 1962; Tchernia 1971). These jars of Dressel 2, both the “Italian” and the Spanish varieties, are referred to here as Type 12b, which can be dated because it was in current use at the time of the destruction of Pompeii, and it occurs in contemporary contexts at the Athenian Agora (cf. Robinson 1959, p. 85 and pl. 19: [M 13]). But also included under Type 12b are amphoras, to be described below, that may have been manufactured near Cosa, as may certain examples of Type 12c, still another variety of Type 12. Type 12c jars were fractional, flat-bottomed containers resembling amphoras that occur very frequently at Pompeii and were contemporary with Type 12b.

In the port of Cosa, Type 12a is represented by only a single piece, a jar fragment of typically "Pompeian" clay. About 30 pieces of similar shape but showing widely varying fabrics have been found in the town of Cosa. With Type 12b, similarly, various fabrics can be distinguished in the fragments both from Cosa and from the port. The port pieces (2 necks, 1 handle, and 3 body fragments, catalogued herewith, to which should be added 4 uncatalogued handles) are all apparently Spanish imports, as their fabric shows the distinctive white bits of Tarraconese clay. But the much larger group of fragments (117 as of 1979) from the town of Cosa are of clay that looks typically Sestian. The same is true of the 12c pieces from the port (2 neck fragments described below). Have we in these “Cosan” pieces of Types 12b and 12c evidence that the manufacture not only of garum jars of Type 16 (see below) but also of wine jars (perhaps after A.D. 79?) occurred near Cosa? If so, these would be efforts to restore the wine and garum industries of a century earlier. Clearly such efforts, if they occurred, did not take place in the Forum Cosanus. Most of the 12b finds in the port were made underwater in the harbor. In this connection, the discovery reported by Peacock (1977, pp. 265-268) of a possible kiln site at Albinea to the north of Cosa and of pieces belonging to Type 12 and other types in the area in question (see above under Type 4) perhaps points to local manufacture of Type 12. Whether, as I point out above, the pieces found were actually made at the site or were just amphoras being used as a brick kiln is a question requiring further study. But this could have been one of the sites at which the “Cosan” pieces of Type 12 were made. At any rate, the finds of Spanish varieties of Types 12b and 16 and of pieces of the imported jars of Types 18, 20, and 21 in the port (about Types 16, 18, 20, and 21, see below) seem to point to a small-scale revival of the area as early as the late first century A.D., and certainly during the second and third centuries, a revival that brought at least a measure of activity back to a commercial center that had been largely dormant since the demise of the Sestian factory at some time after the middle of the first century B.C.

**FORM 3**

A260. (PC 69-118). (Figs. IX-397, 398). Unstamped. Lagon, Spring House, mud fills around basin platform. 4 VIII. 69, jar fragment, preserving much of neck and upper belly, shoulder, one handle, and lower attachment of other handle. P.W., 0.47 m; G.D., 0.235 m; H.W., 0.044 m; H.T., 0.025 m. Peach-biu clay (SYR 7/8); many
small black bits; buff surface. Superficial "X" scratched on upper neck. Line separates upper neck from lower.

**FORM b**

A261. (PC 69-9). (Figs. IX-399, 400). Unstamped. Harbor, underwater, Trench D1, Level III. 4.VII.69. Neck, preserving rim (chipped), both handles, and much of shoulder. P.H., 0.22 m; R.H., 0.013 m; M.D., 0.087 m; R.D., 0.114 m; H.W., 0.048 m; H.T., 0.027 m. Pale, sandy rust clay (5YR 5/6); black and white bits; beige surface. Line separates neck from shoulder, which is slightly convex in profile.

A262. (PC 69-15). (Fig. IX-401). Unstamped. Harbor, underwater, Trench D1, Level III. 7.VII.69. Fragment of rim and upper neck and stump of one handle. P.H., 0.08 m; R.H., 0.015 m; est. M.D., 0.10 m; est. R.D., 0.13 m; H.W., 0.051 m; H.T., 0.024 m. Rust clay (5YR 5/6), pinch of buff (5YR 6/6) toward surface; black and white bits. Marine deposits on surface.

A263. (PC 69-107). (Fig. IX-402). Unstamped. Lagoon, Spring House, mud fill around basin platform. 30.VIII.69. Fragment of shoulder and upper belly, preserving lower attachment of one handle. P.H., ca. 0.13 m. Deep pinkish buff clay (2.5YR 6/6), black and white bits; beige surface. Mended.

A264. (PC 69-150). (Fig. IX-403). Unstamped. Harbor, underwater, Trench D1, Level III. 3.VII.69. Belly fragment. G.W., 0.175 m. Fine-grained deep pinkish buff clay (2.5YR 6/6), lighter toward surface; black and white bits; buff surface. Very heavily pitched on inside of fragment. Yellowish deposit over pitch.

A265. (PC 69-151). (Fig. IX-404). Unstamped. Harbor, underwater, Trench D1, Level III. 16.VII.69. Belly fragment. G.W., 0.205 m. Pale rust clay (5YR 6/4); many white bits and some black and red inclusions. Very heavy reddish to black shiny pitch adheres to inside of fragment. Yellowish deposit over pitch.

A266. (PC 69-192). Unstamped. Harbor, underwater, Trench D1, Level III. 16.VII.69. Worn handle fragment. H.W., 0.04 m as preserved; H.T., 0.027 m as preserved. Very coarse rust clay (5YR 5/6); black and white bits.

**FORM c**

A267. (PC 72-54). (Figs. IX-405, 406). Unstamped. Lagoon, Trench 23, level of gray clay, 1.10 m below surface. 14.VII.72. Neck fragment, preserving rim, part of neck, stump of one handle, and attachment of other handle. P.H., 0.184 m; R.H., 0.027 m; M.D., 0.075 m; R.D., 0.117 m; H.W., 0.05 m; H.T., 0.025 m. Coarse, sandy pinkish buff clay (5YR 6/6); black, white, and red bits. Mended.

A268. (PC 72-132). (Fig. IX-407). Unstamped. Lagoon, Trench YZ, south extension, below preserved surface of Wall W. 21.VII.72. Preserved fragments include most of rim and neck, stumps of both handles, and tiny piece of base. P.H. of neck fragment, 0.155 m; R.H., 0.018 m; M.D., 0.067 m; R.D., 0.083 m; H.W., 0.043 m; H.T., 0.028 m; diam. at base, not determinable. Coarse pale beige clay (10YR 8/3); sandy gray surface. Mended. Flat base was apparently hollowed out on the bottom.

**Type 13**

Only one piece of Type 13 has been discovered in the Portus Cosanus, a handle fragment described here, and a single rim fragment also occurs in the town of Cos. The rarity of Type 13 in the Casa area accords with the type's general infrequency in the western Mediterranean. Among very few citations might be mentioned some fragments, one of them stamped, at Ostia (Zevi 1967, figs. 2, 3; cf. Panella 1970, p. 142:11), a stamped rim from Ventimiglia (Lamboglia 1955, fig. 11: bottom row), and a stamped piece in the wall of amphoras at Canathus that is datable between 43 and 15 B.C. (CIL VIII.22637.19). Type 13 is, however, very frequent in the Adriatic and eastern Mediterranean areas, particularly at Athens, Delos, and Alexandria. The finds at Delos, in fact, appear to provide a terminus post quem for the type, and the half-dozen stamped examples that occur there must be among the last Roman imports to that island, which had all but ceased to function as a trading center by the middle of the first century B.C. (Will 1970, pp. 384, 385).

We must date Type 13, then, in the last half of the first century B.C., a date confirmed by contexts at the Athenian Agora. As to its place of manufacture, Zevi (1967) suggested that the examples at Ostia might be Istrian, since they resemble to some extent the amphoras of Dressel's Form 6 (Type 14 below), which are thought to have been made in Istria and perhaps elsewhere. The clay of Type 13, however, a distinctively hard fabric, usually bright peach-buff in color, with a shiny cream-colored surface, is quite unlike the typically powdery, pale buff clay of Type 14. And there are other significant differences between the two types. At present we lack information
about the place or places of origin of Type 13, though, like Type 16, it may have been an Apulian shipping jar for olive oil, or an Istrian or northern Adriatic product from an area different from the center or centers that manufactured Type 14.

A269. (PC 68-67). (Fig. IX-408). Unstamped. Harbor, Wall B, west face. 28.VI.68. Handle fragment. L., 0.065 m. Other dimensions are not determinable owing to damage. Peach-buff clay (SYR 7/8), buff (SYR 7/3) toward surface; scattered black, white, and reddish bits.

**Type 14**

While the shortage of examples of Type 13 in the Cosa area may parallel the general infrequency of that type in the west, the almost total absence from Cosa of Type 14 does not reflect a similar situation. The single piece of Type 14 from the Portus Corsanus, a neck fragment described hereafter, is the only one so far discovered in the entire vicinity; a reflection perhaps of sufficient local production of olive oil, which was almost certainly the chief product shipped in Type 14, or perhaps of some kind of economic malaise in the area in the latter part of the first century B.C. and the first half of the first century A.D. Type 14 is, in any case, well represented in Italy, especially in Rome and in Cisalpine Gaul, as it is in the east. There can be no doubt about the identification of the neck fragment from the port. The thickness of the fabric of the rim, the narrow diameter of the mouth, the sloping attachment of rim to neck, the fine clay; all are characteristic features of the tall, long-necked, baggy-bellied, long-toed amphorae that Dressel made his Form 5. These jars, which had a long period of use, can be dated as early as the late first century B.C. through most of the first century A.D. At the Athenian Agora, they occur in several deposits datable in the late first century B.C. or early first century A.D. (cf., for example, Robinson 1959, p. 36 and pl. 19: [M 14]), and they are very frequent at Corinth and at Carthage. The type continued to be manufactured at least as late as the third quarter of the first century A.D. The stamps frequently name prominent individuals of known date, even members of the imperial family. These matters will be fully discussed in my forthcoming Athenian Agora publication. Not only have we information about who manufactured Type 14, but we know also where the jars, or many of them, were made. In 1910, Anton Gnirs published a large deposit of amphorae of Type 14 that were found in association with a kiln at Pasana near Pola, Yugoslavia (Istrian peninsula; see especially Gnirs's first reports in *Jahrbuch für Altertumskunde* 4 [1910] pp. 79-88 and 184-186). Other similar finds were made in the same area. It is logical to assume that these were jars made as shipping containers for the Istrian olive oil that Pliny tells us was the chief brand on the world market in his day, although Dressel cites some painted inscriptions on these jars that may refer to wine or *mulsum*. On Istrian jars, see also Zevi 1967, passim; and on the possibility that amphorae of Type 14 were manufactured elsewhere in Italy, notably in Cisalpine Gaul, see the arguments of Baldacci 1967-1968 [1969], especially the addenda on p. 49.

A270. (PC 72-29). (Fig. IX-409). Unstamped. Lagoon, Spring House, fill around Wall e. 7.VII.72. Neck fragment, preserving rim (chipped) and upper part of neck. P.H., 0.145 m; R.H., 0.041 m; M.D., 0.12 m; R.D., 0.17 m. Very fine pinkish buff clay (SYR 5/6); few, scattered red, dark, and white bits; lighter surface.

**Type 16**

This type comprises several of the most important varieties of export amphorae used for shipping garum and other fish products from the Iberian peninsula, especially from Spain, to other parts of the Roman world. Included under Type 16 are several varieties of wide-mouthed, hollow-toed amphorae: Dressel's Forms 7-12, 14, 38, and 39 (the latter two first discussed as whole jars by Pelletier 1946, Form 46), and Beltrán's Form II B. Only eight small and rather nondescript fragments assignable with any probability to Type 16 have so far been discovered in the Portus Corsanus, but the finds of several varieties of Type 16 from the town of Cosa are much more frequent, accounting for 14 percent of the amphora total there. It is likely that the discrepancy between the finds in the two adjacent areas reflects the port's decline in the late half of the first century B.C. The several known subforms of Type 16 occur abundantly at Roman sites and can be dated variously from the late first century B.C. into the last half of the second century A.D. (On the date, see Panella 1973, pp. 506-521, and Mannaccossiara 1977 [Pompeii] pp. 122-129). The early date is confirmed by dated contexts at the Athenian Agora, G 8:1 and Q 13:1, of Augustan and early first century A.D. dates, respectively, which contained amphorae of Dressel's Forms 7 and 8, shapes that are among the
earliest of the subdivisions of Type 16.) The Portus Cosaetus was apparently largely dormant during the period covered by Type 16, except during its earliest and latest phases, and most of the Spanish garum and other fish products that reached the town of Cosa must, therefore, have entered via some other harbor, perhaps Port’Erna (Portus Herculis) on the Argentario peninsula opposite Cesa. (See McCann, chapter three, for discussion of date of use of Portus Herculis.)

Type 16 and its subcategories will be addressed in more detail in my forthcoming *Attican Agora* and *Cosa* publications. To comment here on the fragments from the Portus Cosaetus, three uncatalogued pieces (two handles with depressions down the center, and the bottom of a hollow toe) seem to belong to Beltrán’s Form II b, a variety of Type 16 characterized, like Dressel’s Forms 7-12, by a distinctively fragile, powdery to plastery clay that varies from a pale greenish buff (Munsell 2.5Y 8/2) on the exterior surface to a peach buff core (5YR 7/8) in some examples. This same clay is a feature also of the South Spanish jars, described above, of Type 5, though not of the Tarraconenses and Cosans examples of that type; indeed, as I have explained, the South Spanish examples of Type 5 apparently came from the same kilns as many of the pieces of Type 16. The three Spanish fragments of Type 16 from the port, if they are Beltrán II E, could date from the latter first or second centuries a.d., and perhaps butts other evidence of a small-scale revival of activity in the port in the second and third centuries a.d. (see under Type 12 above and Types 16, 20, and 21 below). But in addition to the Spanish fragments of Type 16, five other Type 16 pieces of typically “Sestius” clay have been found in the port, the fragment described herewith (Cat. A271, a piece of a small jar with short neck, rim vertical in profile, and small, ridged [? handles], as well as four other uncatalogued fragments (a neck, a shoulder, and two ridged handles). A few Type 16 pieces from the town of Cosa show the same clay, and have Augustan (?) vertical rims similar to that of Cat. A271, though most of the Type 16 examples from the town clearly come from Spanish jars. It is arguable that the “Sestius” finds of Type 16 from the port and from the town are local imitations of Spanish garum jars, as we have suggested was the case with the earliest local amphoras of Type 5.

Reference was made above under Types 4 and 12 to Peacock’s 1977 article (pp. 266-268), in which he describes the possible finding of a kiln site at Albion, a few miles north of Cosa. Among his finds was a ridged and grooved handle (fig. 3:14) resembling the handles of the local (?) pieces of Type 16 here described. If those pieces are in fact local, and if Peacock’s find is a kiln, we may have evidence of a small-scale pottery operation, a revival of the Republican factory at a date as early as the Augustan Age. The Type 16 finds of Sestius clay might then represent an effort to recreate the Type 5 and Type 24 garum industries that seem to have failed by about the middle of the first century b.c., just as we saw may have occurred, but on a larger scale, with the manufacture of Type 12b and the revival, probably in the latter first century a.d., of the manufacture of wine jars. The Type 16 pieces antedate those of Type 12b, but the two groups together, while there is no evidence of manufacture in the port, seem to point to a revival in the Cosa area of the export industries that existed in the port in the later Republic. But neither revival was to be of long duration or on anything like the scale of the Sestius firm, which had probably moved to Rome in the last half of the first century b.c.

A271. (PC 72-266). (Fig. IX-<10). Unstamped. Lagoon, Spring House, Room 2. White clay fill above wood level. 1.VIII.72. Rim fragment, piece of upper neck, and stump of one handle. P.H., 0.111 m; R.H., 0.036 m; es. M.D., 0.14 m; est. R.D., 0.16 m; H.W., 0.025 m; H.T., 0.038 m (handle measurements taken near upper attachment). Coarse pale pinkish buff clay (5YR 7/4); black, white, and red dots; grayish buff surface.

**Type 18**

This shape of amphora, which is similar to Dressel’s Form 30, comprises a very widespread group of small, flat-bottomed jars with broad, short, channelled handles that are thin in section and semicircular in profile, short neck, and narrow rim. Frequent stamps on the type identify at least one place of manufacture as Tubuuctu in the province of Mauretania Caesariensis (Algeria; see most recently the detailed discussion in Laporte 1980, passim). But another area that produced Type 18 is southern France, where, as of 1976, about ten factories had been identified (Pithénius and Villa 1977; Laubenheimer 1977; Widemann et al. 1978, where the type is referred to as “Gauloise 4”). The two varieties of Type 18 show different fabrics, as might be expected, that of the French jars being generally fine-textured and beige, and that of the African jars being generally coarser and darker. Before the publication of the French
kilns, Peanella (1973, pp. 538-551, 600-605, a very thorough and useful study) has called attention to the two fabrics and to certain typological variations. In actual practice, seeing the difference between the two fabrics, and even details of shape, is difficult (cf. Laporte 1980, p. 134), as there is such a wide range of possible variations; however, scientific tests will doubtless refine the distinctions and permit exact identification of pieces found at sites other than production centers.

Whether the African amphorae of Type 18, referred to here as Type 18b, are copies of the French (Type 18a) or vice versa is not yet clear, since the chronologies of the two varieties are still unsettled. Mauretania Caesariensis became a province in A.D. 40, a fact that provides a terminus post quem for Type 18b. Dated deposits at the Athenian Agora point to a lifespan extending from the latter part of the former century A.D. for Type 18a and to a date in the second century A.D. for Type 18b (as well as to a date in the third century for jars that seem to be developments of Type 18b). Those later amphorae, Type 18c, will be described in my Athenian Agora publication. In France, Type 18a is as early as the Flavian period (Widemann et al. 1978, p. 329), as it is closely associated in one kiln at Sallèles with South Gaulish terra sigillata of Flavian date. Peanella 1973, pp. 541-542, notes dates at Ostia for Type 18a ranging from the Flavian period to the fourth century A.D. and summarizes finds at other sites that show a similar wide spectrum of dates; for Type 18b, the dates at Ostia seem to be largely in the third century A.D. (Peanella 1973, p. 603). Finds of Type 18 (a and b?) in or near tombs at Meröe in the Sudan have been given dates that are perhaps too diverse to be helpful (see Laporte 1980, pp. 153-155), but we know at least that Tubusucta became part of Mauretania Sardinia in connection with Dioecletian's reforms at the end of the third century. The late third century thus becomes a terminus ante quem for Type 18b. If the third century occurrences turn out to be later developments of Type 18b, as seems to me at present likely, the floruit for the type as a whole may well be the second century, with early examples dating from the latter first century. In that case, Type 18a would antedate Type 18b, and the jar type would have originated in France, not in Africa.

As to the contents of Type 18, the evidence from France, as discussed in Widemann et al. 1978, p. 329, points to wine and garum as possible products shipped in jars originating there. Tchernia 1980, p. 306, discusses new evidence in favor of their being containers for wine. For the Algerian jars, however, olive oil might seem a likely product, owing to its extensive production in the area around Tubusucta in ancient and modern times and in view of the inland position of the town, which would seem to argue against garum (Laporte 1980, pp. 140-143). Lapoint 1980, p. 190, however, presents strong arguments in favor of wine: as the product shipped in Type 18b. It may have been the imitation Falernian described by Galen (on which, see Tchernia 1980, pp. 308-310). Perhaps the question of the contents of Type 18 can be settled by the use of gas chromatography (see discussion above under Type 10).

In the Portus Cosanus, I have identified seventeen examples of Type 18a, and they are discussed below as Form a. The catalogued group includes eight bases and two rims. In addition, four bases, two handles, and a rim are uncatalogued. Seventeen examples of Type 18b include the four pieces described below (a neck fragment and three bases), as well as thirteen uncatalogued pieces (eight handles, four bases, and a rim). As I have suggested above, the imports of Type 18, like those of Types 20 and 21, and the Spanish pieces of Types 12 and 16, imply that the port saw at least a mild resurgence of activity in the second and third centuries A.D.

**FORM a**

A272. (PC 72-52). [Figs. IX-411, 412, 413]. Stamped: M-? (incus). Lagoon, Trench 23, level of gray clay, ca. 1.00 m below surface. 13.VII.72. Base and small piece of lower belly, the stamp brokens and incuse and set vertically on the belly near base. P.H., 0.07 m; diam. at base, 0.98 m. Fine tannish buff clay (7.5YR 7/4); gray deposit on surface. Scratches on bottom of fragment.

A273. (PC 68-58). (Fig. IX-414). Unstamped. Harbor, underwater, under rocks in Breckwater Extension D. 21.VII.68. Fragment of base, preserving piece of lower belly. P.H., 0.17 m; est. diam. at base, 0.12 m. Mauve (10R 6/3) to pink buff clay (5YR 6/6), lighter toward surface; few dark and reddish bits. Mendable. Heavy, dark incrustation on inside of fragment. Marine deposit on exterior. An unusually wide base for Type 18a.

A274. (PC 72-64). (Fig. IX-415). Unstamped. Lagoon, Spring House, rubble level south of Wall a. 14.VII.72. Nonjoining rim fragments and small piece of neck. P.H., 0.064 m; R.I., 0.023 m; est. M.D., 0.055 m; est. R.D., 0.117 m. Rather fine, pale rust clay (5YR 6/4); scattered black, white, and red bits; yellow-cream surface. Mendable.

A275. (PC 72-93). (Figs. IX-416, 417). Unstamped. Lagoon, Trench 23, level of gray clay 0.75 m below surface. 13.VII.72. Base, preserving pieces of
lower belly. P.H., 0.152 m; diam. at base, 0.075 m. Fine peach-buff clay (5YR 7/8); few bits. Three holes punched through the wall of the fragment near the bottom (for use as jar as fountain, probably).

A276. (PC 72-133). (Fig. IX-418). Unstamped. Lagoon, Trench YZ, south extension, below preserved surface of Wall W. 21 VII.72. Base, preserving piece of lower belly. P.H., 0.128 m; diam. at base, 0.055 m. Fine, powdery pale beige clay (10YR 8/3); few tiny dark bits; dark grey deposit on surface and breaks, but not on inside of fragment. Depression in base on bottom, outside, becomes convexity inside. Traces of pitch inside fragment. An unusually narrow base for Type 18a.

A277. (PC 72-151). (Fig. IX-419). Unstamped. Lagoon, Trench 23, level of gray clay, 1.00 m below surface. 14 VII.72. Base, preserving piece of lower belly. P.H., 0.19 m; diam. at base, 0.092 m. Fine beige clay (7.5YR 8/4); few bits; grayish black deposit on surface.

A278. (PC 72-177). (Fig. IX-420). Unstamped. Lagoon, Trench YZ, south extension below preserved surface of Wall W. in layer of dark mud, 0.55 m b.s.f. and below. 21 VII.72. Base, preserving pieces of lower belly. P.H., 0.142 m; diam. at base, 0.087 m. Fine pinkish buff clay (5YR 6/6); few bits. Blackish deposit, apparently pitch, in bottom. Mended.

A279. (PC 72-232). (Fig. IX-421). Unstamped. Lagoon, Trench YZ, south extension, level of rubble fill from break in Wall W. 21 VII.72. Rim fragment and small piece of neck. P.H., 0.056 m; R.H., 0.022 m; est. M.D., 0.10 m; est. R.D., 0.13 m. Fine pale tanish buff clay (5 YR 7/4); heavy grayish deposit on surface, including breaks.

A280. (PC 72-265). (Fig. IX-422). Unstamped. Lagoon, Trench YZ3, Structure YZ, silt level. 27 VII.72. Base, preserving piece of lower belly. P.H., 0.118 m; diam. at base, 0.08 m. Powdery peach-buff clay (5YR 7/8); lighter toward surface; beige surface. Base hollowed out to form shallow "false bottom."

A281. (PC 72-349). (Fig. IX-423). Unstamped. Harbor, beach probe 5, level of Villa walls. 4 VIII.72. Base, preserving part of lower belly. P.H., 0.20 m; diam. at base, 0.10 m. Fine beige clay (7.5YR 8/4); few bits.

form b

A282. (PC 69-1). (Fig. IX-424). Unstamped. Harbor, underwater, Breakwater Extension D, surface. 1 VII.69. Neck fragment, preserving parts of rim, neck, and shoulder, and one handle. P.H., 0.137 m; R.H., 0.022 m; est. M.D., 0.10 m; est. R.D., 0.12 m; H.W., ca. 0.139 m; H.T., ca. 0.022 m. Fine dark gray chy (5YR 5/1), tannish buff (5 YR 7/4) toward surface; few bits, if any, visible. Surface badly encrusted with marine deposits.

A283. (PC 69-16). (Fig. IX-425). Unstamped. Harbor, underwater, Trench D 1, Level III. 7 VII.69. Base, preserving piece of lower belly. P.H., 0.14 m; diam. at base, 0.08 m. Striped grayish (5YR 6/1) and rust (5YR 5/6) clay; black, and some white, bits; gray surface. Shallow depression in center of base on outside.

A284. (PC 69-133). (Fig. IX-426). Unstamped. Lagoon, Spring House, fill around basin platform, below platform level. 31 VII.69. Base, preserving lower belly. P.H., 0.22 m; G.D., 0.28 m; diam. at base, 0.115 m. Sandy pinkish yellow-buff clay (5YR 6/8). Mended.

A285. (PC 72-147). (Fig. IX-427). Unstamped. Lagoon, Trench: YZ, south extension, below preserved surface of Wall W. 21 VII.72. Base, preserving piece of lower belly. P.H., 0.127 m; diam. at base, 0.105 m. Coarse rust clay (5YR 5/6); gray surface. Remnants of burned material inside fragment.

Type 20

This shape of amphora, the large globular jar of Dressel's Form 20, has been more thoroughly studied than any other category of shipping jar from the Roman period. It was a transport container for olive oil, and discoveries of workshops where Type 20 was manufactured along the Guadalquivir River in southern Spain were announced as early as the late nineteenth century. Those pottery centers were stimulated by the worldwide demand for Spanish olive oil, especially in the second and third centuries A.D., which was the florescence of Type 20, though finds of the type are datable as early as the second quarter of the first century A.D., and as late as the fourth century A.D. The city of Rome needed Spanish oil for the dole, as Monte Testaccio and finds of Type 20 all over the city attest. What more logical place to provide such oil than Baetica, of which both Trajan and Hadrian were natives? But demand for Spanish oil in the Empire extended even to the eastern Mediterranean, where dozens of stamped fragments of Type 20 have been found (these are discussed by me in 1983-1 and in the Athenian Agora volume).
The Cosa area also imported Spanish oil in amphoras of Type 20. Three fragments from the port are described herewith (two necks and a rim), and seven uncatalogued pieces include five bases (with attached body pieces), a neck, and body fragments of another piece. The type is equally well represented at Cosa itself, and its presence there and in the port should be thought of as reflecting not only a need for oil during the Empire but also, in the case of the port, the small-scale revival that occurred there after the period of suspended animation that apparently ended in the late first century A.D.

The masses of information about Type 20 that are provided by Monte Testaccio and by extensive finds elsewhere are only beginning to be absorbed, in spite of the attention that this category of amphora has already received. A flowering of recent publications on Type 20 reflects that fact and also suggests the diverse areas of economic history and of archaeology on which the study of amphorae can throw light. Among useful commentaries on Type 20 and related matters during the recent past might be mentioned Beltrán 1970, pp. 461-492; Panella 1973, pp. 522-535, 627; Rodríguez-Almeida 1972, 1974-1975 [1977], 1978-1979 [1981], 1980-1, 1980-2, all passim; Broughton 1972, 1974, and 1980, all passim; Cambi 1976, passim; Manacorda 1977 (Ostia), especially pp. 134-137, 277, 365; Manacorda 1977 (Pompeii), p. 131; Colls et al. 1977 and Colls and Lequément 1980, passim; Ponsich 1974, 1979, passim; Remedal Rodríguez 1977-1978, 1980, passim; and Blázquez Martínez 1980, a rich compendium of recent research, concerned chiefly with Type 20, with contributions by scholars taking part in the First International Congress on Olive Oil in Antiquity (Bleich, Blázquez Martínez, Ponsich, Rodríguez-Almeida, Remedal Rodríguez, Telleria, Llou, Colls, Lequément, Beltrán, Levi, Pascual Guasch, Mariner, Melena, Ramírez Sáhaba, Garcia Moreno). Publication of the results of the Second International Congress, which took place in 1982, occurred in late 1983.

In addition to continued study of Type 20 itself, future scholarly research will need to address the question of the ancestors and the descendants of Type 20 (on this matter, see Will 1977, pp. 295-296; Beltrán 1980, pp. 191-192; Panella 1973, p. 533). The ancestry of Type 20 will, however, not be clarified until the confusion between Types 11a and 11b (see above) has been dispelled, a clarification that I will undertake in future publications.

A286. (PC 69-31). (Fig. IX-428). Unstamped. Harbor, underwater, Breakwater Extension A, surface. 21.VII.69. Neck fragment, preserving over half of rim, stump of one handle, and bit of shoulder. P.L. 0.143 m; R.H. 0.03 m; M.D. 0.097 m; R.D. 0.168 m. Firm, hard brownish clay (7.5YR 5/4), with a grayish layer toward surface; few black and white bits; shiny brown interior. Heavily barnacled inside and out.

A287. (PC 72-249). (Figs. IX-429, 430). Unstamped. Lagoon, Trench Y23, Structure Y2, silt level. 21.VII.72. Rim, entire except for chips, and small pieces of neck. P.H. 0.07 m; R.H. ca. 0.062 m; M.D. 0.095 m; R.D. 0.185 m. Sandy beige clay (7.5YR 8/4). Surface obscured by deposit of mortar.

A288. (PC 72-285). (Fig. IX-431). Unstamped. Lagoon, Spring House, fill below rubble south of Wall a. 2.VIII.72. Neck, entire, preserving part of rim, much of shoulder, and both handles. P.H. 0.21 m; R.H. 0.042 m; M.D. 0.085 m; R.D. 0.15 m; H.W. 0.09 m; H.T. 0.041 m. Coarse tanish buff clay (7.5YR 7/4); yellow-buff surface. Mended. Graffito on one side of neck, slightly to left of center: "E. Two lines incised to the left of that graffito, near the upper attachment of one handle.

Type 21

Zevi and Tcherkia (1969, passim) made the first useful distinction between the two chief classes of long, cylindrical jars that are here referred to as Type 21. These amphorae can be assigned a floruit of the middle of the third century A.D. on the basis of their frequent occurrence in several Herulian destruction contexts at the Athenian Agora (for one example, cf. Robinson 1959, p. 69 and pl. 36; K 116), though the type seemingly goes back to the second century. Examples found in Algeria were reused as baby coffins and found in association with a coin of Marcus Aurelius (see Serge Lancel, Bulletin d’archéologie algérienne 4 [1970] p. 251; cf. fig. 98).

Type 21 divides into three probable categories, as well as into various subsidiary groups. All the categories are represented in the Portus Cosanus, a further sign of the small but genuine revival of that area in the second and third centuries A.D. The two chief classes of Type 21 are a small variety (frequently called "African I," and referred to here as Type 21a) and a large variety ("African II," or Type 21b). The two shapes are contemporary and seem to have been manufactured at the same centers in modern Tunisia, especially along the coast of Byzacium, though evidence of South Spanish manufacture also exists (Péman 1959). Zevi argues (Zevi and Tcherkia 1969, pp. 185-187) that Type 21b was a container for olive oil, whereas Type 21a was used for garum; cf. Pa-
nella 1973, pp. 579, 585-586. Manacorda 1977 (Ostia), pp. 159, 170, however, seems unsure both about garum and about oil as contents of these jars, and Lequemén 1986, p. 191, citing the presence of pitch on the inner walls of numerous fragments of Type 21, suggests that some examples of the type might have transported garum or wine. In the same discussion, Manacorda (p. 168) also cites evidence in support of a fourth century A.D. floruit for Type 21b. But, as I shall argue elsewhere, the bulk of the securely dated evidence points to the third century as the chief period of use of Types 21a and b, the most popular forms of the category. That these types continued in use into the fourth century seems entirely possible.

In the Portus Cosanus, Type 21a is represented by ten fragments, of which two (a rim and a toe) are described hereafter. In addition, six handles, a toe, and a belly fragment are uncatologued. Three pieces belonging to Type 21b are also described below, a neck fragment and two toes. Three toes and a belly fragment are uncatologued.

The spathion, the sword-shaped amphora which occurs so often in contexts of the fifth century A.D., is represented in the port by a single underwater find, from the Harbor. A few examples have also been found in the town of Cosa. On this shape, see Grace 1961, figs. 67-68; Panella 1972, pp. 105-106; Manacorda 1977 (Ostia), pp. 211-225, 281-282. It does not seem possible to deduce any chronological conclusions about activity in the port in the late Empire from this single piece. Type 21c, to which I assign the spathion category, is considered North African by Beltrán 1970, a. 1374 on p. 571 (his Form 65, B), and the clay does resemble that of Type 21a and b, of which Type 21c may perhaps be a descendant, but the single piece here described does not permit us to conclude that the port was receiving goods from Africa at this late date. The other occurrences of Type 21, however, buttress the evidence of some activity in the Portus Cosanus as late as the third century A.D.

**Form a**

A289. (PC 72-243). (Figs. IX-434, 435). Unstamped. Lagoon, Spring House, fill in Room 1. 24.VII.72. Rim fragment and small piece of neck. P.H., 0.075 m; R.H., 0.039 m; est. M.D., 0.10 m; est. R.D., 0.13 m. Rust clay (5YR 5/6); many white bits; buff surface.

**Form b**

A291. (PC 68-57). (Figs. IX-436, 437). Unstamped. Harbor, underwater, Trench Extension C. 4.VII.68. Neck fragment, preserving rim, part of neck, and one handle. P.H., 0.193 m; R.H., 0.037 m; M.D., 0.08 m; R.D., 0.103 m; H.W., 0.034 m; H.T., 0.018 m. Purplish gray clay (10R 4/2), tanish (7.5YR 7/4) toward surface. Exterior covered with marine deposit. Mended.

A292. (PC 72-94). (Fig. IX-438). Unstamped. Lagoon, Trench YZ, north, 1.50 m below surface, above pavement of small stones. 14.VII.72. Toe. P.H., 0.16 m; G.D., 0.061 m. Rust clay (5YR 5/6); black and white bits; gray surface, which becomes orange at tip of toe.

A293. (PC 72-257). (Fig. IX-439). Unstamped. Lagoon, Trench YZ, south extension, level of wooden basin and nubile fill from break in Wall W. 20.VII.72. Toe and small pieces of lower belly. P.H., 0.138 m; G.D., 0.056 m. Coarse rust clay (5YR 5/6). Mortar on surface. "Combed" effect on toe.

**Form c**

A294. (PC 69-37). (Fig. IX-440). Unstamped. Harbor, underwater, Trench D2, Level II. 16.VII.69. Neck fragment, preserving rim (chipped), much of upper neck, and stump of both handles. P.H., 0.145 m; R.H., 0.047 m (height of upper lip, 0.021 m); M.D., 0.10 m; R.D., 0.135 m; H.W., 0.04 m; H.T., 0.026 m. Peach-buff clay (5YR 7/8); black and white bits; yellowish-buff surface. Incision marks separation between lower part of rim and neck. Marine deposit on surface.

**Type 24a**

This type of amphora, apparently related to Dressel's Form 28, is well represented at Cosa, especially in the town itself, where nineteen pieces had been found by 1978. In the port, there are three rim fragments, described hereafter, from the Spring House, and perhaps also a base, Cat. A301 under Miscellaneous and Unclassified Fragments. Amphorae of Type 24 are small (about 60 cm in height). The examples from the Cosa area, all fragmentary, are probably earlier than Dressel 28 proper and other
similar pieces. The Cosa fragments have high, molded rims, flat on top, that are concave in profile and thickened at top and bottom. The handles, semicircular in profile, deeply channeled, and thin in section, are attached to the neck immediately under, and touching, the rim. The neck is short and rather narrow. An incised line marks the separation between neck and shoulder. So much of the Cosa pieces tell us. It seems likely that the jars from which they came resembled Dressel 28 in having a wide shoulder and ovoid belly. Unlike Dressel’s shape, which is flat-bottomed, they may have rested on a flaring ring foot. The walls of Type 24a are thin, and the coarse clay is closely similar to that of the Sestia jars.

Type 24 occurs at a variety of sites throughout the western sphere of Roman influence. It is frequent in early Augustan sites, such as Oberaden, Haltern, and the wall of amphoras at Carthage, datable between 43 and 15 B.C. (Laesche 1942, pp. 76-80; CIL VIII.22637), but the life span of the type was not limited to the last half of the first century B.C. The oldest examples of the type, which we here designate Type 24a, were found on the Albenga wreck (Lamboglia 1952, p. 166 [a neck fragment and three fragments of bases], 1955, pp. 265-266), now generally dated in the second quarter of the first century B.C. Later examples are in contexts of the last half of the first century A.D. at Ostia and Pompeii (Panella 1970, pp. 118-119; 1973, pp. 535-537), at Herculanenum (on display in 1978 in the House of the Bicentenary), and seemingly in the Colosseum (Incitti 1977, third page of chapter on amphoras), though the Colosseum material may, like certain pieces reported from Ostia, date as late as the second century A.D. A type that extends in date from the second quarter of the first century B.C. into the second century A.D. clearly underwent major changes in shape, and these are evident in the pieces preserved to us. The Portus Cosaus and Cosa fragments correspond to the earliest known examples, those from the Albanegra wreck. Their delicate lines, high, molded rims, and thin walls indicate that they should be dated, like the pieces on the wreck, in the second quarter of the first century B.C.

Zevi (1966, pp. 225-226) suggested a Spanish origin for this type of amphora on the basis of painted inscriptions reported by Dressel on his Form 28. Most subsequent commentaries on Dressel 28 follow Zevi (Baldacci 1969 | 1972), pp. 43-44; Beltrán 1970, pp. 497-502; Tchernia 1971, pp. 64-65; Panella 1970, pp. 118-119, and 1973, pp. 535-537, to name representative ones). A Spanish origin is also suggested by the occurrence of this type of amphora on the Port-Vendres II wreck (Colls et al. 1977), though the finding of similar jars in kilns in southern France leads one to envision the possibility of a wider area of production (on the French jars, Landenheimer 1972, passim, and Widemann et al. 1978, pp. 318-325). The western end of the Mediterranean was very likely a major source for Type 24, but the frequency of Type 24a in the Cosa area, the similarity of the clay to that of the Sestia jars, and other factors such as the finding in the town of Cosa of two misshapen, misfired rims of Type 24a (nos. U.XXII.3 and U.XXII.4) suggest that Cosa might have been another, and perhaps the first, place in which this type was manufactured. If a garum industry developed in the Portus Cosaus during the late Republic (McCann 1979, especially pp. 431ff; Will 1979, n. 26; and cf. under Type 5 above), Type 24a may have been one of the varieties of containers manufactured for its export, or for the export of some other fish product. (For other possibly experimental amphora shapes, see under Catt. A302-A304 below.) The evidence in favor of Spanish or French manufacture of later examples of the type does not conflict with that suggestion, as the testimony presented above under Type 12 demonstrates. As in the case of Type 12, provincial manufacturers may simply have copied an earlier Italian form.

A further indication that Type 24a may have originated in Cosa is contained in an amphora stamp that occurs repeatedly on Augustan examples of the type. The stamp is SEX DOMITI (to which are doubtless related such variants as SEX DOM., SEX. D., SD, and others; the chief occurrences are summarized by Callender [no. 1602, where, however, the stamp at Oberaden is incorrectly stated to be on 'Type 4', 'Dressel Form I'] and by Beltrán 1970 and Tchernia 1971 on the pages cited above). Such stamps are generally interpreted as referring to a manufacturer or potter, Sextus Domitius, but one wonders whether they might not also refer to the Sestia factory, and perhaps to a late period in the history of the factory, when it might have been either controlled or jointly controlled by the Domitii Ahenobarbi, who also, like the Sestii, owned estates at Cosa and whose political star was in the ascendant as that of the Sestii declined (on the Domitii Ahenobarbi at Cosa, see, most recently, Brown 1940, p. 73 and n. 11 to chapter five, and Manacorda 1980, especially pp. 178ff. On the shipping interests of the Domitii Ahenobarbi, see P. A. Gianciottta, “Ancore ‘romane.’ Nuovi materiali per lo studio dei traffici marittimi,” MAAR 36 [1980] p. 111). Some of the regular man-
ufuced by L. Sestius Quirinatus (Quirinalis), the son of P. Sestius, spelled his name "Sestius" (CIL XV.1445a, 1446a, b, cf. Will 1979, p. 348, n. 29) on the "L.SFX" amphora stamps. Those are also discussed by Manacorda 1980, p. 175, who notes too on p. 177 a new brick stamp from Luni naming a sun (?) of L. Sestius as P. Sestius Quirinatus [or Quirinalis]. An interesting additional observation concerns certain Arretine pieces, where the stamps of a Sestius and of P. Domitius of Asino occur in fragments of similar shape (Oxf. and Comfort, 607b; 1705b; 1796a, m. p.), though the similarity might be just coincidence. Possibility that the Sestius amphora-holdings diversified into bricks, tiles, and Arretine has already been suggested above, in my introductory text. That the Sestius holdings at Casa and elsewhere might have been gradually taken over by the Domitii and perhaps formed the germ of the mammoth brick empire developed by their poor relation (?) Gn. Domitius Afer (Tac. Ann. 4.66, "diaugenus") and his descendants, especially his granddaughter Domitia Lucilla the Younger, the mother of Marcus Aurelius, is a fascinating possibility suggested by this stamp. The SFX DOMITI series of amphora stamps does not, however, occur at Casa; in fact, no stamps of any kind have so far been found on Type 24a. But at some time in the last half of the first century B.C., part of the Sestius (or Sestius-Domitius) pottery corporation would have moved from the Portus Cosanus. The tegula factory of L. Sestius was almost certainly in Rome (CIL XV.539, cf. Margareta Steinly, "I bulli laterizi degli Antiquari del Foro e del Palatino," Atti della Accademia Nazionale dei Lincei. Classe di Scienze morali. Memorie 7, ser. 8, fasc. 3 [1974] p. 107, Will 1979, p. 349 and n. 35). But in 23 B.C., Horace (Odys 1.1.4) seems to imply that pottery production is still being carried on at Casa (Will 1962). As was suggested above in the introduction to the catalogue and in the discussion of amphorae of Type 4b, a reduced pottery operation may have been carried on in the Portus Cosanus through the first quarter of the first century B.C. After the end of the term of office of L. Sestius as consul suffectus in 23 B.C., his increased prestige and power may have kept him in Rome and may have contributed, along with geological causes, to the final demise of the Sestius (or Sestius-Domitius) factory in the Portus Cosanus. For further discussion of this decline, see above, Bourgeois, chapter two, and McCann, chapter eighteen.

A295. (PC 68-45). (Figs. IX-441, 442). Unstamped. Lagoon, Spring House, fill around basin platform. 11.VII.68. Neck fragment, preserving pieces of rim, neck, and one handle. P.H., 0.087 m; R.H., 0.036 m; est. M.D., 0.14 m; est. R.D., 0.16 m; H.W., 0.051 m; H.T., 0.017 m. Grayish rose clay (10R 6/2); black and white bits; gray surface. Mended. Incised line at base of neck.

A296. (PC 69-154). Unstamped. Lagoon, Spring House, earth fill above basin platform. 30.VII.-VIII.69. Rim fragment and small piece of neck. P.H., 0.085 m; R.H., 0.038 m; est. M.D., 0.12 m; est. R.D., 0.14 m. Pale beige clay (10YR 8/3); black and red bits; gray deposit on surface.

A297. (PC 69-155). Unstamped. Lagoon, Spring House, earth fill above basin platform. 9-10.VII.69. Rim fragment and piece of neck. P.H., 0.08 m; R.H., 0.045 m; est. M.D., ca. 0.14 m; est. R.D., ca. 0.17 m. Deep pinkish yellow-buff clay (5YR 5/8); black, red, and white bits; beige surface.

Miscellaneous and Unclassified Fragments

A298. (PC 68-55). (Fig. IX-443). Unstamped. Lagoon, Spring House, fill just above basin platform. 10.VII.68. Toe fragment. P.H., 0.055 m; G.D. of upper part, 0.066 m; G.13. of lower part, 0.042 m. Hard peach-buff clay (5YR 7/8); mauve (10R 6/3) at core; conspicuous white and also dark and red bits; worn yellow-cream surface. Some "combing" visible on upper part of toe. Perhaps from an amphora similar to Beltrán 1970, Forms 59-60.

A299. (PC 68-5). (Fig. IX-444). Unstamped. Lagoon, Spring House, earth fill above basin platform. 15.VII.68. Belly fragment, preserving much of shoulder and part of belly. P.H., ca. 0.40 m; G.D., 0.34 m; est. diam. at base, 0.20 m. Sandy pale pinkish buff (5YR 7/4) to beige (7.5YR 8/4) clay; some large red bits; grayish deposit on surface. Mended. Interior pitched. Converging lines incised around shoulder and base of neck. The ovoid, dropped-shoulder shape of this belly, the wide estimated diameter of the base, and the incision around the base of the neck suggest a series of containers that is perhaps to be associated with Dressel's Form 25. See discussion under Cat. A 300 below.

A300. (PC 69-10). (Figs. IX-445, 446). Unstamped. Harbor, underwater, Trench D1, Level III. 4.VII.69. Neck, preserving rim, both handles, and piece of shoulder. P.H., 0.277 m; R.H., 0.018 m; M.D., 0.068 m; R.D., 0.083 m; H.W., 0.029 m; H.T., 0.017 m. Sandpapery yellow-buff clay.
(7.5 YR 7/6); scattered tiny dark bits. This piece, which is perhaps, like Cat. A299 above and Cat. A301 below, from a jar related to Dressel’s Form 29, belongs in that case to a long-lived series of small, flat-bottomed shipping containers, which are perhaps Greek in origin. Early examples of the general type go back to the first century B.C. (Robinson 1959, fig. 72) and other pieces date as late as the middle of the third century A.D. (Robinson 1959, K 114). The type is well represented at Ostia. Cf. Palma and Panciera 1968, pp. 99–100 and figs. 451–452; 1970, p. 105 and fig. 521; 1973, pp. 472–474 and figs. 369–370; Manacorda 1977 (Ostia) pp. 370–372 and figs. 440, 442, 632–634, suggests a date in the second half of the second century A.D. for the Ostia examples, and possible Adriatic origin for the type, on the basis of evidence that includes a wreck found off the coast of Yugoslavia. Pancella proposes a date in the first decades of the second century (1973, p. 474); Baldacci 1972, p. 28 and fig. 9, dates the type in the early Empire and implies Istrian origin. On the basis of the evidence at Ostia and at the Athenian agora, the neck from the Portus Cosanus should be dated in the second century or the first half of the third century A.D.

A301. (PC 69–14). (Fig. IX-447). Unstamped. Harbor, underwater, Trench D1, Level III, 7.VII.69. Fragment of base and lower belly. P.H. 0.396 m; est. diam. at base, 0.15 m. Fine tannish buff clay (7.5 YR 7/4); scattered small dark and light bits; grayish deposit on surface. Mended. Concentric striations on lower belly. Heavy deposit, apparently of pitch, on interior of fragment. The wide estimated diameter of the base may suggest a connection with Dressel’s Form 29 (see above under Cat. A300), but the thin walls of Cat. A301 may point instead to Dressel’s Form 28 (see under Type 24a above).

A302. (PC 69–110). (Fig. IX-448). Unstamped. Lagoon, Spring House, fill around basin platform, 1.VII.69. Rim fragment and piece of neck. P.H. 0.115 m; R.H. 0.014 m; est. M.D. 0.09 m; est. R.D. 0.11 m. Pinkish buff clay (5 YR 6/6); white, black, and red bits; beige surface. Pitch-lined interior. The very low, narrow rim, molded into three layers, rests on a neck that apparently narrows toward the bottom. The dimensions of the fragment suggest that the amphora from which it came was small, and that it was also rather wide- and flat-bottomed, like later forms of Type 24a. Like Type 24a, this piece could have been a container for garum; or some other fish product. Cat. A302 has, in fact, the typically “Sestius” day of Type 24a. Only one other piece of the same type is known, a rim fragment (no. U.XIV.1) found in the town of Cosa. The two fragments may represent an experimental shape that was not ultimately produced in quantity.

A303. (PC 72-284). (Figs. IX-449, 450, 451). Unstamped. Lagoon, Spring House, fill below rubble south of Wall a. 2.VIII.72. Neck, preserving most of rim, one handle, upper attachment of handle, part of shoulder, and pieces of belly. P.H., 0.205 m; R.H., 0.016 m; M.D., 0.067 m; R.D., 0.098 m; H.W., 0.051 m; H.T., 0.032 m. Pinkish buff clay (5 YR 6/6); black, white, and red bits; yellow-cream surface. Mended. Graffito at a slant on shoulder: ΣΣ. This unique piece may, like Cat. A302 above, represent another “trial balloon” that was produced in the Portus Cosanus pottery only experimentally. Though the clay is typically “Sestius,” the unusually narrow, low rim, bulging, “Chian” neck, and deeply channelled handles suggest a conscious effort to produce a wholly new shape, an effort perhaps undertaken contemporaneously with the development of Type 24a. The mystery of this piece is compounded by the Tuscan (?) “M” or “N” scratched on the shoulder.

A304. (PC 72-205). (Figs. IX-452, 453). Unstamped. Lagoon, Spring House, immured in east face of north half of Wall c. 2.VIII.72. Pottery-waster, consisting of bases, stuck together, of three amphorae. H., 0.079 m; G.W., 0.115. Purplish brown clay (10R 3/3), black toward surface; many white bits; greenish surface. Although this set of fused bases cannot at present be associated with a known amphora shape, it may have a connection with one of the types like Cats. A302 or A303 above, the shapes of whose bases are not known. Only one other base comparable to Cat. A304 has been identified, an uncatologued piece preserving sections of the lower belly and found in Trench IA of the lagoon. The fabric of that piece (coarse brownish clay with black and white bits and a yellow-cream surface) is also unlike that of any other known find from the port site or from Cosa itself.
### Table IX-1. Portus Cosanus Roman Amphora Totals

<table>
<thead>
<tr>
<th>Type</th>
<th>Date</th>
<th>Catalogued</th>
<th>Uncatalogued</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Late 4th-1st qtr. 3rd B.C.</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>1c</td>
<td>ca. 200 B.C.</td>
<td>3</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>1d</td>
<td>180s-150s B.C.</td>
<td>44</td>
<td>27</td>
<td>71</td>
</tr>
<tr>
<td>4a</td>
<td>Late 2nd–early or mid 1st B.C.</td>
<td>136</td>
<td>162</td>
<td>298</td>
</tr>
<tr>
<td>4b</td>
<td>2nd-4th qtr’s; 1st B.C.</td>
<td>19</td>
<td>149</td>
<td>168</td>
</tr>
<tr>
<td>4a/b</td>
<td></td>
<td>0</td>
<td>51</td>
<td>51</td>
</tr>
<tr>
<td>5</td>
<td>Late 2nd-mid 1st B.C.</td>
<td>11</td>
<td>11</td>
<td>22</td>
</tr>
<tr>
<td>10</td>
<td>Late 2nd-mid 1st B.C.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>11c</td>
<td>1st half 1st A.D.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12a</td>
<td>1st B.C.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>12b</td>
<td>1st, 2nd A.D.</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>12c</td>
<td>2nd, 3rd A.D.</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>13</td>
<td>Last half 1st B.C.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>14</td>
<td>Late 1st B.C.–3rd qtr. 1st A.D.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>16</td>
<td>Late 1st B.C.–2nd A.D.</td>
<td>1</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>18a</td>
<td>Late 1st-2nd A.D.</td>
<td>10</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>18b</td>
<td>2nd-3rd A.D.</td>
<td>4</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>20</td>
<td>2nd qtr. 1st-3rd A.D.</td>
<td>3</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>21a</td>
<td>3rd A.D.</td>
<td>2</td>
<td>8</td>
<td>10</td>
</tr>
<tr>
<td>21b</td>
<td>3rd A.D.</td>
<td>3</td>
<td>4</td>
<td>7</td>
</tr>
<tr>
<td>21c</td>
<td>5th A.D.</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>24a</td>
<td>2nd qtr. 1st B.C.</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Misc.</td>
<td></td>
<td>7</td>
<td>35</td>
<td>42</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>304</td>
<td>485</td>
<td>789</td>
</tr>
</tbody>
</table>

*Note: figures do not include the twenty-six pieces of Type 4a published in Mansoressa 1978.*

### Concordance of Inventory and Roman Amphoras: Catalogue Numbers

<table>
<thead>
<tr>
<th>INV. NO. (PC)</th>
<th>CAT. NO. (A)</th>
<th>INV. NO. (PC)</th>
<th>CAT. NO. (A)</th>
<th>INV. NO. (PC)</th>
<th>CAT. NO. (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>68-1</td>
<td>108</td>
<td>68-40</td>
<td>53</td>
<td>69-1</td>
<td>282</td>
</tr>
<tr>
<td>68-2</td>
<td>68</td>
<td>68-41</td>
<td>84</td>
<td>69-6</td>
<td>79</td>
</tr>
<tr>
<td>68-3</td>
<td>59</td>
<td>68-42</td>
<td>54</td>
<td>69-9</td>
<td>261</td>
</tr>
<tr>
<td>68-4</td>
<td>259</td>
<td>68-43</td>
<td>90</td>
<td>69-10</td>
<td>300</td>
</tr>
<tr>
<td>68-5</td>
<td>259</td>
<td>68-45</td>
<td>295</td>
<td>69-12</td>
<td>3</td>
</tr>
<tr>
<td>68-6</td>
<td>104</td>
<td>68-51</td>
<td>112</td>
<td>69-13</td>
<td>207</td>
</tr>
<tr>
<td>68-7</td>
<td>52</td>
<td>68-52</td>
<td>102</td>
<td>69-14</td>
<td>301</td>
</tr>
<tr>
<td>68-8</td>
<td>247</td>
<td>68-55</td>
<td>295</td>
<td>69-15</td>
<td>262</td>
</tr>
<tr>
<td>68-9</td>
<td>154</td>
<td>68-57</td>
<td>291</td>
<td>69-16</td>
<td>285</td>
</tr>
<tr>
<td>68-16</td>
<td>203</td>
<td>68-58</td>
<td>273</td>
<td>69-20</td>
<td>51</td>
</tr>
<tr>
<td>68-25</td>
<td>205</td>
<td>68-59</td>
<td>201</td>
<td>69-27</td>
<td>50</td>
</tr>
<tr>
<td>68-27</td>
<td>249</td>
<td>68-60</td>
<td>6</td>
<td>69-31</td>
<td>286</td>
</tr>
<tr>
<td>68-33</td>
<td>83</td>
<td>68-61</td>
<td>7</td>
<td>69-32</td>
<td>113</td>
</tr>
<tr>
<td>68-34</td>
<td>60</td>
<td>68-63</td>
<td>8</td>
<td>69-34</td>
<td>208</td>
</tr>
<tr>
<td>68-35</td>
<td>80</td>
<td>68-64</td>
<td>9</td>
<td>69-37</td>
<td>294</td>
</tr>
<tr>
<td>68-36</td>
<td>189</td>
<td>68-65</td>
<td>10</td>
<td>69-43</td>
<td>209</td>
</tr>
<tr>
<td>68-37</td>
<td>67</td>
<td>68-66</td>
<td>11</td>
<td>69-44</td>
<td>210</td>
</tr>
<tr>
<td>68-38</td>
<td>89</td>
<td>68-67</td>
<td>269</td>
<td>69-56</td>
<td>114</td>
</tr>
<tr>
<td>68-39</td>
<td>74</td>
<td>68-Unct.</td>
<td>195</td>
<td>69-57</td>
<td>115</td>
</tr>
<tr>
<td>INV. NO. (FC)</td>
<td>CAT. NO. (A)</td>
<td>INV. NO. (FC)</td>
<td>CAT. NO. (A)</td>
<td>INV. NO. (FC)</td>
<td>CAT. NO. (A)</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
<td>--------------</td>
</tr>
<tr>
<td>69-59</td>
<td>116</td>
<td>72-1</td>
<td>193</td>
<td>72-194</td>
<td>140</td>
</tr>
<tr>
<td>69-71</td>
<td>211</td>
<td>72-2</td>
<td>251</td>
<td>72-195</td>
<td>141</td>
</tr>
<tr>
<td>69-73</td>
<td>117</td>
<td>72-7</td>
<td>203</td>
<td>72-196</td>
<td>142</td>
</tr>
<tr>
<td>69-74</td>
<td>12</td>
<td>72-9</td>
<td>212</td>
<td>72-197</td>
<td>220</td>
</tr>
<tr>
<td>69-92</td>
<td>118</td>
<td>72-10</td>
<td>120</td>
<td>72-211</td>
<td>143</td>
</tr>
<tr>
<td>69-95</td>
<td>105</td>
<td>72-12</td>
<td>213</td>
<td>72-212</td>
<td>144</td>
</tr>
<tr>
<td>69-97</td>
<td>250</td>
<td>72-13</td>
<td>252</td>
<td>72-214</td>
<td>145</td>
</tr>
<tr>
<td>69-98</td>
<td>119</td>
<td>72-18</td>
<td>121</td>
<td>72-215</td>
<td>110</td>
</tr>
<tr>
<td>69-107</td>
<td>263</td>
<td>72-19</td>
<td>38</td>
<td>72-217</td>
<td>146</td>
</tr>
<tr>
<td>69-110</td>
<td>302</td>
<td>72-26</td>
<td>122</td>
<td>72-218</td>
<td>147</td>
</tr>
<tr>
<td>69-118</td>
<td>260</td>
<td>72-28</td>
<td>123</td>
<td>72-227</td>
<td>221</td>
</tr>
<tr>
<td>69-127</td>
<td>191</td>
<td>72-29</td>
<td>270</td>
<td>72-232</td>
<td>270</td>
</tr>
<tr>
<td>69-135</td>
<td>284</td>
<td>72-23</td>
<td>289</td>
<td>72-240</td>
<td>222</td>
</tr>
<tr>
<td>69-152</td>
<td>264</td>
<td>72-34</td>
<td>253</td>
<td>72-241</td>
<td>223</td>
</tr>
<tr>
<td>69-154</td>
<td>265</td>
<td>72-43</td>
<td>134</td>
<td>72-242</td>
<td>148</td>
</tr>
<tr>
<td>69-153</td>
<td>109</td>
<td>72-52</td>
<td>272</td>
<td>72-243</td>
<td>280</td>
</tr>
<tr>
<td>69-154</td>
<td>190</td>
<td>72-54</td>
<td>267</td>
<td>72-244</td>
<td>149</td>
</tr>
<tr>
<td>69-155</td>
<td>295</td>
<td>72-61</td>
<td>29</td>
<td>72-245</td>
<td>95</td>
</tr>
<tr>
<td>69-157</td>
<td>297</td>
<td>72-64</td>
<td>274</td>
<td>72-246</td>
<td>150</td>
</tr>
<tr>
<td>69-158</td>
<td>13</td>
<td>72-65</td>
<td>125</td>
<td>72-247</td>
<td>151</td>
</tr>
<tr>
<td>69-159</td>
<td>14</td>
<td>72-66</td>
<td>254</td>
<td>72-249</td>
<td>287</td>
</tr>
<tr>
<td>69-156</td>
<td>15</td>
<td>72-63</td>
<td>275</td>
<td>72-250</td>
<td>153</td>
</tr>
<tr>
<td>69-166</td>
<td>16</td>
<td>72-64</td>
<td>292</td>
<td>72-252</td>
<td>153</td>
</tr>
<tr>
<td>69-161</td>
<td>17</td>
<td>72-65</td>
<td>214</td>
<td>72-255</td>
<td>224</td>
</tr>
<tr>
<td>69-162</td>
<td>18</td>
<td>72-117</td>
<td>215</td>
<td>72-257</td>
<td>154</td>
</tr>
<tr>
<td>69-163</td>
<td>19</td>
<td>72-118</td>
<td>30</td>
<td>72-258</td>
<td>155</td>
</tr>
<tr>
<td>69-164</td>
<td>20</td>
<td>72-119</td>
<td>31</td>
<td>72-259</td>
<td>34</td>
</tr>
<tr>
<td>69-165</td>
<td>21</td>
<td>72-120</td>
<td>126</td>
<td>72-260</td>
<td>156</td>
</tr>
<tr>
<td>69-166</td>
<td>22</td>
<td>72-121</td>
<td>32</td>
<td>72-261</td>
<td>157</td>
</tr>
<tr>
<td>69-167</td>
<td>23</td>
<td>72-122</td>
<td>127</td>
<td>72-262</td>
<td>158</td>
</tr>
<tr>
<td>69-168</td>
<td>24</td>
<td>72-125</td>
<td>128</td>
<td>72-263</td>
<td>38</td>
</tr>
<tr>
<td>69-169</td>
<td>25</td>
<td>72-126</td>
<td>33</td>
<td>72-264</td>
<td>150</td>
</tr>
<tr>
<td>69-170</td>
<td>85</td>
<td>72-125</td>
<td>97</td>
<td>72-265</td>
<td>280</td>
</tr>
<tr>
<td>69-171</td>
<td>91</td>
<td>72-132</td>
<td>268</td>
<td>72-266</td>
<td>271</td>
</tr>
<tr>
<td>69-172</td>
<td>61</td>
<td>72-133</td>
<td>276</td>
<td>72-267</td>
<td>293</td>
</tr>
<tr>
<td>69-173</td>
<td>92</td>
<td>72-136</td>
<td>216</td>
<td>72-272</td>
<td>225</td>
</tr>
<tr>
<td>69-174</td>
<td>75</td>
<td>72-137</td>
<td>255</td>
<td>72-273</td>
<td>226</td>
</tr>
<tr>
<td>69-175</td>
<td>93</td>
<td>72-140</td>
<td>129</td>
<td>72-274</td>
<td>227</td>
</tr>
<tr>
<td>69-176</td>
<td>94</td>
<td>72-141</td>
<td>130</td>
<td>72-275</td>
<td>228</td>
</tr>
<tr>
<td>69-177</td>
<td>81</td>
<td>72-147</td>
<td>285</td>
<td>72-276</td>
<td>229</td>
</tr>
<tr>
<td>69-178</td>
<td>248</td>
<td>72-150</td>
<td>192</td>
<td>72-277</td>
<td>230</td>
</tr>
<tr>
<td>69-179</td>
<td>55</td>
<td>72-151</td>
<td>277</td>
<td>72-278</td>
<td>231</td>
</tr>
<tr>
<td>69-180</td>
<td>68</td>
<td>72-164</td>
<td>131</td>
<td>72-279</td>
<td>232</td>
</tr>
<tr>
<td>69-181</td>
<td>69</td>
<td>72-165</td>
<td>217</td>
<td>72-280</td>
<td>233</td>
</tr>
<tr>
<td>69-182</td>
<td>62</td>
<td>72-166</td>
<td>256</td>
<td>72-281</td>
<td>234</td>
</tr>
<tr>
<td>69-183</td>
<td>76</td>
<td>72-167</td>
<td>132</td>
<td>72-282</td>
<td>235</td>
</tr>
<tr>
<td>69-184</td>
<td>86</td>
<td>72-168</td>
<td>218</td>
<td>72-283</td>
<td>236</td>
</tr>
<tr>
<td>69-185</td>
<td>63</td>
<td>72-174</td>
<td>133</td>
<td>72-284</td>
<td>303</td>
</tr>
<tr>
<td>69-186</td>
<td>70</td>
<td>72-175</td>
<td>219</td>
<td>72-285</td>
<td>288</td>
</tr>
<tr>
<td>69-187</td>
<td>4</td>
<td>72-177</td>
<td>278</td>
<td>72-290</td>
<td>160</td>
</tr>
<tr>
<td>69-188</td>
<td>5</td>
<td>72-183</td>
<td>134</td>
<td>72-302</td>
<td>161</td>
</tr>
<tr>
<td>69-189</td>
<td>1</td>
<td>72-184</td>
<td>135</td>
<td>72-303</td>
<td>162</td>
</tr>
<tr>
<td>69-190</td>
<td>25</td>
<td>72-186</td>
<td>136</td>
<td>72-304</td>
<td>163</td>
</tr>
<tr>
<td>69-191</td>
<td>27</td>
<td>72-187</td>
<td>137</td>
<td>72-305</td>
<td>304</td>
</tr>
<tr>
<td>69-192</td>
<td>96</td>
<td>72-188</td>
<td>138</td>
<td>72-306</td>
<td>164</td>
</tr>
<tr>
<td>69-193</td>
<td>266</td>
<td>72-189</td>
<td>139</td>
<td>72-307</td>
<td>165</td>
</tr>
<tr>
<td>INV. NO. (PC)</td>
<td>CAT. NO. (A)</td>
<td>INV. NO. (PC)</td>
<td>CAT. NO. (A)</td>
<td>INV. NO. (PC)</td>
<td>CAT. NO. (A)</td>
</tr>
<tr>
<td>--------------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------------</td>
<td>--------------</td>
<td>-------------</td>
</tr>
<tr>
<td>72-338</td>
<td>165</td>
<td>72-342</td>
<td>181</td>
<td>72-798</td>
<td>46</td>
</tr>
<tr>
<td>72-339</td>
<td>111</td>
<td>72-343</td>
<td>188</td>
<td>72-799</td>
<td>47</td>
</tr>
<tr>
<td>72-311</td>
<td>237</td>
<td>72-344</td>
<td>182</td>
<td>72-800</td>
<td>48</td>
</tr>
<tr>
<td>72-314</td>
<td>106</td>
<td>72-345</td>
<td>200</td>
<td>72-806</td>
<td>87</td>
</tr>
<tr>
<td>72-315</td>
<td>167</td>
<td>72-346</td>
<td>183</td>
<td>72-807</td>
<td>71</td>
</tr>
<tr>
<td>72-316</td>
<td>238</td>
<td>72-347</td>
<td>184</td>
<td>72-808</td>
<td>64</td>
</tr>
<tr>
<td>72-317</td>
<td>168</td>
<td>72-349</td>
<td>281</td>
<td>72-809</td>
<td>56</td>
</tr>
<tr>
<td>72-318</td>
<td>257</td>
<td>72-360</td>
<td>185</td>
<td>72-810</td>
<td>98</td>
</tr>
<tr>
<td>72-319</td>
<td>169</td>
<td>72-361</td>
<td>202</td>
<td>72-811</td>
<td>100</td>
</tr>
<tr>
<td>72-320</td>
<td>170</td>
<td>72-362</td>
<td>186</td>
<td>72-812</td>
<td>102</td>
</tr>
<tr>
<td>72-321</td>
<td>239</td>
<td>72-363</td>
<td>284</td>
<td>72-813</td>
<td>2</td>
</tr>
<tr>
<td>72-322</td>
<td>107</td>
<td>72-364</td>
<td>156</td>
<td>72-814</td>
<td>49</td>
</tr>
<tr>
<td>72-324</td>
<td>171</td>
<td>72-365</td>
<td>245</td>
<td>73-1</td>
<td>88</td>
</tr>
<tr>
<td>72-325</td>
<td>172</td>
<td>72-366</td>
<td>187</td>
<td>72-Uncat.</td>
<td>101</td>
</tr>
<tr>
<td>72-326</td>
<td>173</td>
<td>72-367</td>
<td>197</td>
<td>72-Uncat.</td>
<td>101</td>
</tr>
<tr>
<td>72-327</td>
<td>174</td>
<td>72-383</td>
<td>198</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72-328</td>
<td>240</td>
<td>72-325</td>
<td>258</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72-329</td>
<td>241</td>
<td>72-327</td>
<td>246</td>
<td></td>
<td></td>
</tr>
<tr>
<td>72-330</td>
<td>242</td>
<td>72-388 bis</td>
<td>36</td>
<td>73-1</td>
<td>88</td>
</tr>
<tr>
<td>72-332</td>
<td>175</td>
<td>72-389</td>
<td>37</td>
<td>75-1</td>
<td>77</td>
</tr>
<tr>
<td>72-333</td>
<td>176</td>
<td>72-390</td>
<td>38</td>
<td>75-1</td>
<td>82</td>
</tr>
<tr>
<td>72-334</td>
<td>177</td>
<td>72-391</td>
<td>39</td>
<td>76-2</td>
<td>57</td>
</tr>
<tr>
<td>72-335</td>
<td>178</td>
<td>72-392</td>
<td>40</td>
<td>76-3</td>
<td>65</td>
</tr>
<tr>
<td>72-336</td>
<td>243</td>
<td>72-393</td>
<td>41</td>
<td>76-4</td>
<td>72</td>
</tr>
<tr>
<td>72-337</td>
<td>244</td>
<td>72-394</td>
<td>42</td>
<td>76-5</td>
<td>73</td>
</tr>
<tr>
<td>72-338</td>
<td>179</td>
<td>72-395</td>
<td>43</td>
<td>76-6</td>
<td>66</td>
</tr>
<tr>
<td>72-339</td>
<td>199</td>
<td>72-396</td>
<td>44</td>
<td>78-1</td>
<td>78</td>
</tr>
<tr>
<td>72-340</td>
<td>180</td>
<td>72-397</td>
<td>45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>