The Sestius Amphoras: a Reappraisal

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The Sestius amphoras, because of their number and variety and the questions they suggest about Roman trade, are increasingly a matter for discussion. The following article first summarizes the work done on the subject since 1952 and then reviews the evidence, both published and unpublished, concerning the provenience of the Sestius amphoras, the persons responsible for their manufacture and distribution, and their importance as sources of information about Roman economic history.

The Background

The middle of the 20th century marked something of a turning-point in Roman archaeology. Trends emerged that were to accelerate in importance during the third quarter of the century: for example, underwater archaeology came of age with the initial work at the Albenga wreck off the Italian Riviera in 1950 and the more thorough excavation, begun in 1952, at the Grand Congloué site off Marseilles. At the same time, and partly as a result of underwater work, coarse wares of several kinds attracted more scholarly attention than had previously been the case. In particular, Roman commercial amphoras, which up to that time had largely ignored or had been best known by a sub-field of epigraphy (the trademarks on the jars having attracted scattered attention), suddenly became, of general, even popular, interest. Shipping amphoras were found by the hundreds at Albenga and off the Grand Congloué, and the story has been repeated again and again with the exploration of other wrecks. Such trends have helped to stimulate Roman field archaeology, which for its part has helped to raise the initially rather low standards of exactitude of underwater archaeology. The Sestius amphoras, first recognized as a group at the Grand Congloué, will illustrate the archaeological value both of underwater research and of the study of mass-produced coarse wares.

Off the Grand Congloué rock, lying 10 miles east of Marseilles at the far end of a chain of islands, divers led by Jacques-Yves Cousteau found a pile of ancient pottery. Among several types of commercial amphoras, far the largest group consisted of well over a thousand wine jars stamped on the rim with what appeared to be the trademark SES (Fig. 1). Cousteau's invention of the Aqualung and the relative mobility with which the divers were consequently able to pursue the excavation caught the interest of archaeologists and public alike. There were frequent accounts in the press and published comments by both archaeologists and divers on the date of the find (for it was identified as a single wreck) and

Figure 1. Sestius and Sestius-type amphoras (Will Type 4a; Dressel Type 14). a.) Sestius amphora from the Grand Congloué wreck. H. 1.05 m. Stamped on the rim: SES anchor. Photo courtesy: Fernand Benoit. b.) Sestius amphora from the île du Levant (collection P. Mergier, Paris). H. 1.02. Stamped on the rim: SES anchor.

on the meaning of the "SES" stamps. The French
archaeologist in charge of the excavation, Fernand
Benoit, initially assigned a date of about 200 B.C. to
the wreck and suggested that the letters SES should
be interpreted as an abbreviation of the name Sestius.1
Benoit, noting that the Grand Congloué Sestius stamps
in all cases included musical symbols in the shape of an
anchor or a trident, sought to argue that "Sestius" was
a shipper and that a certain Marcus Sestius of
Fregelae, a trader mentioned in an early 2nd century
B.C. inscription found on Delos, might have been the
owner of the ill-fated ship, which, after leaving Delos,
picked up cargo in Sicily and Campania before the dis-
aster off southern France. The Italian archaeologist
who had directed work at Albenga, Nino Lamboglia,
suggested a date of 160-130 B.C. for the Grand
Congloué site, on the basis of the dates of the Campa-
nian ware found in the excavation.2 Meanwhile,
Cousteau was arguing that the wreck and its cargo
should be dated 230 B.C.,3 and an archaeologist on the
diving team, Ferdinand Lallemant, proposed a date of
145 B.C.4
Disagreements about the date of the Grand Congloué
continued. The French epigraphist and historian, Émile
Thevenot, was the first to suggest the reasonable
approach of dating the Sestius amphorae by comparing
them with similar finds on land. Having done this, M.
Thevenot concluded that the Sestius amphorae should
be dated, based on the basis of similar finds in France
and Switzerland, in the 1st century B.C., quite possibly as
late as, or even later than, the middle of the century.
He felt that juxtaposed wrecks and the ingenious but
admittedly unscientific use of the suction pipe in the
excavation might explain the wide variety of dates
assignable to the Grand Congloué finds. Thevenot further
suggested, on the analogy of the frequent occurrence of
Sestius stamps on Arretine ware and on bricks, that the
Grand Congloué Sestius trademarks probably referred
to the potter rather than to the shipper.5
My own research corroborated M. Thevenot's.
Referring to the closely-dated Roman amphorae found
in the excavations of the Athenian Agora, I argued in
1956 that, on the basis of Agora contexts, the Sestius
amphorae, which belong to my Type 4a (an early form
of Dressel Type 1), in the well-known typology in CIL
XV, should probably be dated in the first half of the
1st century B.C., or at any rate not much earlier than the
last years of the 2nd century.6 Regarding the identifica-

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1. Fernand Benoît, who died in 1969, published frequent, somewhat
repetitious reports about the Grand Congloué excavation. In these,
he was increasingly at pains to reply to critics and to justify his
chronology, which tried to reconcile the Sestius amphorae with the
presence in the wreck of over 400 "Groco-Ithac" amphorae dating
from as early as the 3rd century B.C. Rhodian amphorae stamps
closely dated by Virginia Grace to ca. 220-180 B.C. and examples of
Cnidian A (3rd century B.C.) and Campanian B (mid-second
century B.C.). (Over 6,000 pieces of black-glaze pottery were found.)
See his last major publication of the wreck, L’épave du Grand
Congloué à Marseille, Gallia, Suppl. 14 (Paris 1961), where references are given in
earlier articles. The date assigned by Benoît in the Grand Congloué
pile fluctuated between 200 and 130 B.C. as a reflection of the uncertain-
ties inevitably caused by the "single wreck" hypothesis, to which he
held to the end. In the 1961 publication, he urged that "une datation
trop systématique, exclusivement fondée sur la typologie" be guarded
against (p. 23). At the same time, he hoped that one day the discovery
of coins would permit the assigning of a "rugged" date to the exca-
vation (p. 25). Benoît continued to identify "Sestius" as Marcus
Sestius of Fregellae or one of his relatives (p. 70). I have recently
heard an encouraging report that a new publication of the Grand
Congloué excavation, one based on Benoît's notes and on re-study of
the finds, is being projected.

2. Nino Lamboglia's dating did not show such fluctuations as
Benoît's. Based on his study of the Campanian ware found, the date
was generally given as 160-150 B.C. or was at least in the 170-150 B.C.
crange. Lamboglia's published statements about the wreck were as
frequent as Benoît's. See especially his articles, "Sulla cronologia delle
antiche rovine di eta repubblicana (II-IV secolo a.C.)," Rittica di studi
Epigrafici 21 (1955) 241-270, and "Problemi tecniche e cronologiche
della scavo archeologica al Grand Congloué," Rittica di studi
Epigrafici 27 (1961) 138-154. Lamboglia found three Sestius stamps in his own
evacuations, one at Vada Susalta in a context of about 100 B.C. (see the
1955 article, p. 348, note 1, and fig. 6) and the others at Ventimiglia in
contexts of about 70 B.C. (ibid., fig. 14).

3. Cousteau's article ("First Men Discover a 2,200-Year-Old Greek
Ship," National Geographic Magazine CV [1954] 1-16) should not be
allowed to disappear from the Grand Congloué literature. It is in
some ways the most candid and informative report thus far of the
excavation. His description of the ship's "entire hull and decks" as im-
planted (p. 16) suggested as early as 1949 that wrecks had been super-
imposed at the site, the upper hull having been misinterpreted as a
dock, which would not require lead-plating.

4. Lallemant wrote a fictional "log" of the journey of Marcus Sestius,
hypothetical grandson of the Marcus Sestius mentioned in the Delian
inscription, from Delos to the Grand Congloué: Journal de bord du

5. Thevenot's two chief discussions, models of scholarly care and
brevity, were, "Les importations vinaires en pays bourguignon avant le
développement de la viticulture," RAEC 4 (1953) 234-239, and
"La marque d'amphore "Sesti," ibid. 5 (1954) 234-244. See especially pp. 241-242 of the second article.

The article was written rather hastily and not at all in the polemic
spirit alluded to by Fausto Zeni, "Appunti sulla sfera romana,"
Archaeologia 16 (1966) 213. On the other hand, if Thevenot and I had not
questioned Benoît's theories, it is likely that the Grand Congloué
wreck would still today be dated a century too early (as indeed it is by
some). I had been consulted by the French in December, 1952, about
the date of the wreck and had sought to persuade M. Benoît by letter
and by a visit to Marsilles that, on typological grounds and on the
basis of a context (C 37) at the Agora Excavations in Athens, the
tion of “Sestius,” I described five Sestius stamps from Cosa in Etruria and noted that more such stamps had been found at Cosa than at any other site on land. I pointed out that Publius Sestius, the friend of Cicero, defended by him in 56 B.C., owned a villa at Cosa. I wondered if, since his son, Lucius Sestius Quirinus, was known to have manufactured tegulae, Publius Sestius himself might also have possessed a pottery in which he made amphoras for the storing and shipping of the produce of his estate. I reiterated Thevenot’s suggestion that the Grand Congloué wreck was not a closed context and urged that several wrecks might well have occurred off so dangerous a spot as the Grand Congloué.

Thevenot’s and my suggestions received an understandably mixed reaction. Time is, however, proving that our major assumptions were correct. The date for which we argued—the probability of juxtaposed or superimposed wrecks, the likelihood that Cosa was a center of manufacture for the Sestius jars, and that P. Sestius or his father, or at any rate the Sestius family, owned the pottery: all these suggestions grow in strength through their passage. Let us go on to examine the current state of the evidence about the provenience of the Sestius amphoras and the ownership of the pottery where they were probably manufactured.

The Provenience of the Sestius Amphoras

Finds at Cosa, at the Agora excavations in Athens, and in southern France combine, in the case of the Sestius amphoras, to show the interdependence of un-

Sestius amphoras were being given too early a date. Zevi is quite wrong in saying (p. 213, note 15) that my principal argument about the date was not based on typological considerations. I discussed typology throughout the 1956 article (pp. 222-240), and consider Type 4a to be a later development of the “Grecia-Tuscia” amphora (Type 1 in my classification). Types 4a and 5 (which Lamboglia called Dressel IA and 1C) both date from the late 2nd century to about the middle of the 1st century B.C. Both types are well represented at Delfoi, where Roman occupation had barely ceased by the middle of the 1st century B.C., but are not represented at Cimbrinum (refounded in 44 B.C.). Type 4b, which developed out of Type 4a and can be distinguished from it without much ground that partially by the fact that its rim is more vertical in profile, dates from the second quarter of the 1st century B.C. down to the Augustan age. Lambuglia calls this kind “Dressel 1B.” Late Sestius stamps (see below) occur on Type 4b.

7. In addition to the responses of Benoît and Lamboglia (above, notes 1 and 2), scholars from several different countries came themselves on one side or the other. The German archeologist, Otto Uhrlau, was enterprise enough to visit Cosa, among other sites, and to ascertain at first hand the abundance of “Dressel 1” fragments visible in the area. See his publication, *Frühbronzezeitische Amphoren ab Zeitmarken im Späthelladischen* (Marburg/Lahn: N. G. Elwert Verlag, 1958). One might question Uhrlau’s (and Lamboglia’s) efforts to overemphasize the chronological implications of rim-profiles. At any rate, Uhrlau was one of the first to accept the suggestion both of a later date for the Sestius jars and of the likelihood of superimposed wrecks at the Grand Congloué (pp. 10, 14, 16-17). Other scholars also accepted the later date: Michel Labrousse, in *Georges Fouquet, Poiret* (1958); Marcello Meiggs, in *Cicero and the Politics of Roman Potters* (1980). Others see the later date as more certain: E. W. Scardino, in *Cicero and the Politics of Roman Potters* (1980).
derwater and dry-land archaeology and to prove the "global" (in the sense of the Roman world) scale on which the evidence must be sought.

Study of the Roman amphorae found at Cosa commenced in 1974. Over 2,300 Roman amphorae and fragments have been found in the town and in the lagoon and outer harbor at the foot of the hill on which the town was built. Analysis of these finds was completed in the winter of 1979. Almost half the finds at Cosa belong to Types 4a, 4b, and 5; Dressel 1A, 1B, 1C (see note 6). "Greek-Italic" (notes 1 and 6) number 215. These figures do not include Stephen Dyson's finds in his survey of the Ager Cosanus. Whether or not Roman amphorae were regularly stamped (a matter about which we know as yet too little), most of the finds at Cosa are fragmentary; therefore it should come as no surprise that only 312 Roman amphora stamps have been identified (201 on the hill and 111 in the port). A surprise lies, however, in the realization that Sestius stamps account for 43% of the Cosa totals. The figure is twice as dramatic if the port alone is considered, for 86% (95) of the stamps found in the port as of 1978 are Sestius trademarks. While only 20% (41 of 201) of the stamps from the hill bear the Sestius mark, that figure is also a very high concentration for a single site. On land, similar concentrations of a single stamp are found only at great centers of trade (such as Delos or Alexandria) or near areas of manufacture (such as Brindisi). Since Cosa was apparently not an entrepôt, and since the figures for Cosa, and especially for the Portus Cosanus, are so high, we have strong circumstantial evidence that a factory for the manufacture of Sestius amphorae existed near Cosa, quite probably in the area of the port. Ninety-five of the 136 Sestius finds at Cosa come from the port; and whereas it might be argued that finds vis-à-vis finds of other trademarks are higher in the port than on the hill because the hill had a longer life span than the port, which all but ceased to function at some point in the 1st century B.C., the much greater number of Sestius stamps in the port are striking.

The likelihood that Cosa was a manufacturing-center for Sestius amphorae is increased if we realize that, as of 1977, only 58 Sestius stamps had been found at other sites on land (Fig. 2) and that these were scattered among some 30 different sites in Italy, France, Spain, Switzerland, and possibly even Germany, Austria, and Greece (see below). Excluding the Grand Congloué, 194 Sestius stamps have been reported, and Cosa accounts for 136 of them, or 70%. The Gallic isthmus north of the Pyrenees has produced another 12% (see note 7). The possibility that the area was a secondary manufacturing-center suggests itself, but if we remember the hundreds of pieces at the Grand Congloué, the relatively few finds in western Europe seem more likely to be imports than exports. Future finds in the Gallic isthmus will be watched with interest.

The striking concentration of Sestius stamps at Cosa suggests that it may have been a major center, and perhaps the only center, of manufacture of the amphorae. There is also epigraphical evidence that points in the
same direction. The letter-shapes and the devices or symbols on the Sestius trademarks show great variety. The subject is a complicated one and will be addressed in more detail in my final publications; but it is important to note here that most of the chief letter- and symbol-variations occur at Cosa. It might be added that, except in the case of the late Sestius stamps to be treated below, no particular chronological conclusions seem capable of being drawn on epigraphical grounds. All varieties seem to occur on Types 4a or 5 (Dressel 1A and 1C), which were contemporary (see note 6).12

All Sestius stamps include, except when they are broken or otherwise mutilated, a symbol or device or logogram usually placed after one of several possible abbreviations of the name Sestius (fig. 1). The anchor and trident symbols occurred on the Grand Congloué stamps and are found at other sites as well, but more than a dozen other devices are known of, which of the double axe, palm branch, caduceus, and five-pointed star, in that order, are the most important.13 All but one of the devices (the nautical hook, found at Nyons) have been found at Cosa. Some devices occur only at Cosa. Of these, an intriguing and previously unpublished example is shown in Figure 4. I initially interpreted it as a

12. Lists of the known varieties of Sestius stamps are out of date almost as soon as they are issued. For the most complete early listing, see Thévenot, 1954 op. cit. (in note 5) 235-236. That list was brought up to date by Labrousse in 1958, op. cit. (in note 7) 148-151, and by Bennett in 1961, op. cit. (in note 1) 66. Most recently, the task has been attempted by Yves Roman and Guy Rancoule, op. cit. (in note 7) 259-261. That list, however, lacks the new finds reported by Manacorda, op. cit. (in note 7) 127, note 18. It also fails to mention the finds at Ampurias (Will, op. cit. (in note 4) 229, note 4); at a Graufesenque (Benoit, op. cit. (in note 1) p. 86), and the recent two stamps at Ventimiglia (Lamborghini, 1955, op. cit. (in note 2) fig. 14). Roman's attention to rim heights is valid insofar as it facilitates to some degree the process of distinguishing between Types 4a and 5 (Dressel 1A and 1C). The rim of Type 5 is usually, though not always, higher than that of Type 4a. More important, however, is the diameter of the mouth, the opening measured at the top of the rim. Amphorae of Type 5 have a very narrow mouth diameter (0.10-0.12 on the average), whereas those of Type 4a have wider mouths (ca. 0.14-0.16). In general, diameters of estimated diameters of mouths are perhaps the most useful of all criteria in distinguishing among the various types of Roman amphorae.

13. If the Grand Congloué finds are included in the totals, the anchor and trident symbols outnumber all others at this writing. Excluding the Grand Congloué, 11 examples of the anchor have been found at Cosa and 6 (if the readings are correct) elsewhere. Fourteen examples of the trident have been found at Cosa; otherwise that device occurs only at the Grand Congloué. If the Grand Congloué finds are not included, the double axe, in various dies, is the commonest Sestius device; 13 examples have been found at Cosa, 10 elsewhere. Some other figures are: palm branch, Cosa 11, elsewhere 12; caduceus, Cosa 14, elsewhere 4; five-pointed star, Cosa 3, elsewhere 9; eight-pointed star, Cosa 6, elsewhere 2. These figures do not include instances where the same symbols are found without the letters of the name Sestius.
lighted altar or a rudder, but I wonder now if it might be the blade of a sarcophagus, a vineyard hoe. The Sestius symbols seem to be important. They perhaps have more meaning than the letters themselves; indeed at Cosa they frequently occur without the letters. They stand alone, apparently readily recognized, like the Mercedes-Benz three-pointed star, the Mobil Oil Company Pegasus, or London Transport’s divided circle. Whether the Sestius devices refer to a particular potter or pottery or estate or inspector or year, among other possible interpretations, their variety is best exemplified at Cosa.

The abundance of different kinds of devices, which do not seem, at least at present, to be obviously explicable, is matched by variations in the shapes and sizes and ligatures of letters used to abbreviate the name Sestius. Here, again, the chief variations occur at Cosa. Almost all Sestius stamps employ ligatures. Only those with quite small letters, and perhaps not all of those, show the letters SES unjoined in some way. The added letter is always a “T” (Fig. 1 where, however, the “sigma” in example “e” may be a ligature of “TVS”). Sometimes we find the “T” added to the second “S” of SES. This always occurs when the device is a double axe or palm branch. Sometimes the “T” is joined to the “E,” extending to the left either its top cross-bar, as when the device is, for example, the eight-pointed star, or its bottom cross-bar, as in the important anchor, trident, and caduceus stamps. Two known anchor-examples also show a ligature of “T” with the second “S,” though it is possible that the symbol here is a hipputum (long-handled foot-rest spade), not an anchor (see note 14). The chief classes of ligatures, here outlined, all occur with different shapes and sizes of letters, an observation which the number of examples at Cosa makes possible. Such variations doubtless represent the number of different stamping-matrices one would expect to find in a pottery capable of worldwide distribution and capable of producing a shipment of amphoras the size of that found off the Grand Congloué. The variety of shapes, sizes, and ligatures of the letters are also, as in the case of the motifs or symbols, apparently without chronological or geographical significance, as far as our present knowledge is concerned. Proper attention to these matters would require close study of rubbings of the stamps of all known Sestius pieces, as well as analysis of clay-samples. The subject is now so complicated that the attention of a specialist in Sestius matters seems indicated. Roman amphoras, one hopes, will one day be as rigorously studied as Arretine or terra sigillata. There is little doubt, however, that specialized study of the Sestius amphoras would have to be centered at

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14. For the lighted star on coins, cf. M. H. Crawford, Roman Republican Coins (London: Cambridge: University Press, 1974) pl. 70, no. 33. For the sarcophagus, see K. D. White, Roman Farming (London: Thames and Hudson, 1970) pl. 43. The symbolism of trademarks is often ambiguous, especially to another era, but it is interesting to note that several Sestius symbols could (and may) be interpreted as agricultural rather than for (as well as) mechanical motifs. The trident might be a pitchfork or vine-plant; White, Agricultural Implements of the Roman World [Cambridge: Cambridge University Press, 1967] ch. 4. The caduceus might be a mattock hoe: ibid. 66-68 and White, 1970 op. cit. pl. 42. The book might be a wine dresser’s knife; White, 1967 op. cit., ch. 3. The palm branch might be a form of pala or vine-plant; White, Farm Equipment of the Roman World [Cambridge: Cambridge University Press, 1970] op. cit., pp. 232-237. The double axe could be the dolabrum or dolabellum, both of which were important in the vineyard (White, 1967 op. cit., 59-64). One form of the anchor resembles the hipputum (see text next paragraph, and ibid. 20-23). On the whole, it seems most likely that the Sestius devices trace their ancestry back to coin-types and to the symbols on Greek amphora stamps. The same symbols occur on more modern trademarks. Anchor, caduceus, trident, and star are very common on European porcelain and pottery. Cf. C. Jordan Thorn, Handbook of Old Pottery and Porcelain Marks (New York: Tudor, 1947), who makes the point that the symbols are workman’s marks, though occasionally they identify a pattern. Crown Derby Porcelain, p. 59 or the year of production in Minton porcelain, the star signifies 1842, the diamond 1857, the arrow 1874, etc. pp. 69-70.


16. The smallest, most delicate letters occur with the five- and eight-pointed star and with the sigma. Roman and Ravenna, op. cit. (in note 7) 261, report a five-pointed star with the ligature of “E” and

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*T* at Vieux-Toulouse. It might be noted here that the anchor and the trident also regularly occur with delicate, but taller, letters.

17. Many published drawings do not show this ligature, but see the drawings of the Grand Congloué stamps. Benoît, op. cit. (in note 1) 57; cf. Will, op. cit. (in note 6) 129, note 3.

18. There no longer seems to be any reason to question the identification of the Sestius stamps as pottery marks. Cf. Thesener, 1953 op. cit. (in note 5) 238; idem, 1954 op. cit. (in note 5) 238-239; Will, op. cit. (in note 6) 241, etc. The analogies with Roman bricks, dishes, lamps, glass, mortars, and other objects of trade are only too clear. Whether or not the manufacturer of the Grand Congloué jars was also the owner of the lost ship is less certain; the question is addressed in the latter section of this article. Whether or not the potter or the potter-grower was also the winemaker is important for the future of this ship’s cargo. The fact that some of the necks of the Grand Congloué jars contained thick stops was stamped L.T.H. C.F (Benoît, op. cit. [in note 1] 52-53. L. Titus is a common signature on Arretine, but the name was not an unusual one.

19. Exact measurements and close comparison of rubbings of the Sestius stamps should make it possible to determine how many varieties were used and thus to estimate, some day, how large the Sestius factory was.
Cosa, and the epigraphical evidence would only be one aspect of such study.

In addition to the number and the variety of Sestius finds at Cosa, mineralogical tests of the Sestius clay suggest, albeit in a preliminary way, a connection with the region around Cosa. Further testing is projected for the summer of 1979. Such tests would have to be able to connect the Sestius clay or clays with a clay-deposit near Cosa, in order to prove a connection with Cosa. Clays were, and still are today, imported, for faience and other purposes, but one can hardly imagine that that would be the case with mass-produced coarse ware. Even clay-testing, however, has some pitfalls, since variations in firing atmosphere and temperature can result in considerable variation in color even on the same clay. It is also apparently true that one clay bed can consist of different varieties of clay, depending on the amount of rainfall when each layer of clay was formed. It is, therefore, all the more striking to note that, even to the eye, testing aside, the clay of the Sestius amphorae is of remarkable uniformity. That statement is based on the collection at Cosa (70% of the whole), on some possibly related pieces at the Athenian Agora (see below), and on my memory and notes about the Sestius jars I saw in 1955 at the Musée Bordy in Marseilles, where the finds from the Grand Congloué are stored. I have not seen any other Sestius pieces. Sestius clay, on that basis, can be described as coarse, micaceous, very sandy pinkish-buff clay containing conspicuous red pottery bits (Munsell 5YR 6/6). In the sand, black grains are especially obvious. A sandy, lighter colored surface wash covers the outside of the amphora. That surface is sometimes missing, in which case the amphora has a reddish color, as did the jars in Marseilles. The clay is identical in appearance with that of the abundant Greco-Punic finds that occur at Cosa (see paragraph 2 of this section and notes 1 and 6) and also with that of a third type of jar, a variant of my Type 16, which is the equivalent of Dressel's Types 7-14 (see Zevi's article cited in note 6). Dressel's jars apparently brought garum (a fish sauce) to Rome from Spain ca. the 1st century B.C., a date with which Athenian Agora contexts agree.

The uniformity of the Sestius clay and its similarity to the clay of other types of jars commonly found at Cosa lends credence to the hypothesis that Cosa may have been in a major amphora-producing region, one in which mass-production was highly organized, as the Sestius stamps also suggest, and had reached the stage of standardization. Mineralogical tests, while not yet conclusive, also suggest methods of manufacture that one would expect to be characteristic of large-scale production and indicate that Cosa could have been a source of the clay used.

Mineralogical tests were performed in late 1975 on a Sestius fragment found that summer; on the surface of the Portus Cumanus deposit mentioned in note 11. Under the reflected light polarizing microscope and the binocular microscope or stereoscope, the minerals in the Sestius fragment proved to be predominantly volcanic in origin. In addition to augite, chrome, volcanic glass shards, and olivine, the Sestius minerals included an uncommonly large concentration of iron titanium oxides much larger in grain size than the average matrix material. About 1% of the total compositional weight of the fabric consisted of iron titanium oxides, an artificial situation not paralleled in natural environments on earth but closely paralleled in moon rocks. The Sestius iron titanium oxide particles, furthermore, have distinctive characteristics that point to their having been artificially and purposely added to the fabric. First, they are free-standing, not attached to other minerals, whereas in a natural environment other minerals such as olivine would normally be attached to them. Second, they have been uniformly oxidized, whereas normally volcanic material would show a range of oxidation variations. (The uniform oxidation must have been

20. On the effects of heat on clay, see Anne O. Shepard, Ceramic for the Archaeologist (Washington, D.C.: Carnegie Institute of Washington, 1957) 19-24. See also Frederick R. Matson, "Ceramic Studies," in William A. McDonald and George R. Rapp, Jr., eds., The Minnesota Aegean Expedition: Reconstructing a Bronze Age Regional Environment (Minneapolis: University of Minnesota Press, 1972) especially 201-202, 219, and 223. (I would like to thank Professor Matson for his help and advice over the years.) Heat may even cause the crystallization of new minerals. For a discussion of changes in iron chemistry, and as a result in the color of ceramics, when clays are fired under controlled conditions, see J. Hess and J. Federman, "Mössbauer Spectra of Iron in Ceramics and their Relation to Pottery Colors," Archäometrie 16 (1974) 137-152. On different kinds of clay in the same deposit, see O. E. Radekiewski, Die Rokosofe der Keramik. Mineraale und Vorkommen (Berlin, Heidelberg, New York: Springer Verlag, 1968) 103-111.

21. Will, 1975 op. cit. (in note 7). The tests were conducted by Professor Stephen Haggerty of the Department of Geology and Geography of the University of Massachusetts, Amherst. I am indebted to Professor Haggerty for his kindness in performing the tests.

For other analyses of Sestius clay, see Thureau, 1954 op. cit. (in note 5) 218, note 2, where the iron oxide (hematite) percentage is put at 6.60, in the case of a fragment from Alise-Sainte-Reine. From then on, Bennett wanted the volcanic minerals in the Sestius clay to prove that the Sestius jars came from Campania, near Vesuvius. cf. "L'archéologie sous-marine en Provence," Rivista di Studi Liguri 18 (1952) 234. His position was less clear by 1964; cf. op. cit. (in note 1) 46. But the work of G. Petitet, "Typologie et structure cristalline des amphières de l'époque du Grand Congloué (Marseilles)," Actes du 32e Congrès national des Sociétés savantes (Aix-en-Provence 1958) 65-67, sought to confirm the Campanian origin of the cargo.
brought about by the firing of the amphora, at a temperature estimated to have been at least 500-600 centigrade.) Third, the Sestius iron titanium oxide particles are aligned in a way that would only result if they were added purposely to the fabric. Their alignment conforms to the overall curvature of the pot, an indication that after being added to the clay they were spun at high speed, presumably on the wheel. These free-standing, uniformly oxidized, artificially aligned iron titanium oxide particles, not paralleled in naturally-occurring terrestrial clays, must represent original magnetite grains purposely added to the fabric. (The magnetite grains would have been changed to iron titanium oxides during firing.)

Both Lucretius and Pliny the Elder make it clear that the Romans knew the elementary principles of magnetism, and the Sestius clay tested indicates that they also knew how to extract minerals magnetically in a selective way and indeed did so commercially on a large scale. Why they would have done so in the case of the Sestius amphoras will require further study. The purpose might be to give the baked clay a redder color, which would result when the original magnetite grains changed to iron titanium oxides during firing. If a redder color was desired, why does a lighter colored surface cover so many Sestius jars? The mineralogical tests, in any case, confirm the other evidence in favor of large-scale, highly organized manufacture of the Sestius amphoras. Coso or the surrounding area could have been the source of the clay used in the manufacturing process, since the magnetite and the other volcanic minerals put into the Sestius clay might well be available near the great extinct volcanoes east of Coso. Further testing may help to clarify the picture.

Adding to the other evidence in favor of Coso as a major source of the Sestius amphoras is an unstamped neck fragment of Type 5 (Dressel 1C) from the Agora Excavations in Athens (Fig. 5). Type 5 is contemporary with Type 4a (see note 6) and indeed two known Sestius stamps occur on Type 5. One of them (see note 2) was found by Nino Lamboglia at Vada Sabatia in a context of about 100 B.C. The scale of Lamboglia’s drawing may be incorrect, but the Vada Sabatia fragment clearly has, like the Agora piece, the typically high rim and narrow mouth diameter of Type 5. The symbol on the Sestius stamp at Vada Sabatia is a palm branch; and the same symbol appears on a Type 5 neck fragment of regular Sestius clay found in 1969 in the Portus Cosanus (Fig. 5).

22. Lucretius vi. 906-1064; Pliny N.H. xxxvi, 16, 126-128.
23. See above, note 12.

6). The Vada Sabatia and Portus Cosanus fragments prove that the Sestius factory made more than one kind of amphora. The Agora piece, P 6867, the clay of which is also normal Sestius clay, points in the same direction. More importantly, it seems to link Coso specifically with the Sestius firm. A red dipinto on the neck under the rim clearly reads CO/SES, the last letter being faint but legible. The Latin letters may well name Coso and

24. The fragment, PC 69-177, was found underwater by Richard and Douglas Preston. The rim height of this piece (0.05 m) is somewhat lower than the average for Type 5, which is often over 0.06 m. and sometimes, as the type develops, surpasses 0.07 m. The estimated mouth diameter of P 69-177 is 0.115 m. (note 12). The ribbed handles, curved in profile, are also typical of Type 5 (width of the handle on P 69-177, 0.067 m. at curve; thickness, 0.038 m.). The preserved height of the fragment as a whole is 0.32.
25. The preserved height of this piece is 0.155 m. The rim height is 0.084 m., and the estimated mouth diameter is 0.11 m. On this piece, see M. L. Lang, The Athenian Agora XXI. Graffitis and Dipinti (Princeton: The American School of Classical Studies at Athens, 1976). The context of the fragment at the Agora Excavations is the same closely-dated one (C 9:7) that yielded four unstamped jars of the
Sestius. If that is the case, this dipintos provides the best indication yet that Cosa was a major source of the Sestius amphorae. Time will tell whether or not this interpretation of the dipinto from the Agora is correct. At present, the inscription seems to buttress nicely the other evidence, outlined in this section, connecting Cosa with the Sestius amphorae and suggesting the world-wide scope of the Sestius operations, which extended even to Athens, although their chief thrust was clearly toward the West.

Sestius type (fig. 1c and note 6 above Will, op. cit. [in note 6] 237-238, esp. p. 237, note 3, where I pointed out that the amphorae were used as packing around the shaft of a well dug through a cistern in the last years of the 2nd century B.C. According to Krallian amphora stamps dated by Virginia Grace, the terminus post quem for Types 4a and 5, therefore, seems to be the late 2nd century B.C. See also Zevi, op. cit. [in note 7]). It should be noted here that a badly worn rim fragment at the Agora, found in an undated context, bears a stamp that is almost illegible but may read SES (followed by an anchor [SS 717]).

26. Time may also explain why the Agora dipintos and two Sestius stamps occur on amphorae of Type 5. While Types 4a and 4b are known to have been wine jars, there is not much evidence to link Type 5 with wine. A dipinto on a jar of Type 5 from Azaila in Spain reads "D.E.LIII/C," a possible reference to four-year-old wine from Cuccubum? Cales? Comum? (See Juan Cabré Aguilo, Corpus Vasorum Hispanicorum [Madrid: Consejo Superior de Investigaciones Científicas, 1944] 98, no. 5). It should be noted that some examples of Type 5 at Delos have the distinctly powdery, plasticity pale buff clay that is characteristic, at least at Cosa, of Spanish ganum jars of Dressel's Types 7-16 (Murrill 2, 5Y 8/2). Other examples of Type 5 are made of a very coarse, rust-colored clay (Murrill 5YR 5/6) that is covered with a whitish surface, seemingly like the "Toerian" clay of Cabré's jars of Type 5 in Azaila (ibid. 98, no. 4). The Sestius clay of PC 69-177 has been noted. Type 5, then, may have been manufactured, as seems to have been the case with many Roman amphorae, in several areas, but if the "ganum" clay of some examples points to the use of the type for ganum, in the association of the unusual spindle-shape of the type with ganum, we have evidence here (as in the case of the Type 16 jar of Sestius clay referred to in the text) of a ganum industry at Cosa, which once existed side by side with the wine industry which utilized most of the Sestius jars. 81 examples of Type 5 have been identified at Cosa. A ganum industry might help explain the pottery and fishery which the research of A. M. McCann, F. K. Grzadz, G. Ugelzi, and J. P. Olsen has located in the lagoon of the Portus Cosanus. The forthcoming publication of A. M. McCann's excavations in the Portus will discuss these matters in detail. Type 5 may or may not have been used for ganum, but the mystery of its shape remains.

27. A possible result of P. Sestius' connections with the Aegean area in 62, he went to Macedonia at Proconnesus under C. Antoninus (Cic. Fam. 5, 6; pro Sestio S. 13). He was a Praefectus in Cicilia in 49-48 (see I. R. S. Broughton, The Magistrates of the Roman Republic [New York: The American Philological Association, 1952] II, p. 284) and served under Domitian Calvisius in Asia Minor in 48-47 (Ibid. 278). The younger L. Sestius also served as Proconnesus in Macedonia in 43-42, under M. Brutus (Appian B.C. iv, 651, where the name is incorrectly given as Publius; cf. Dio 101.32.4). The coins he issued for Brutus at that time, in fact, bear devices similar to the symbols on the Sestius amphora stamps: see Crawford, op. cit. (in note 14) 515, 741, and pl. 61.

Figure 6. Type 5 (Dressel 1C) neck fragment from the Portus Cosanus (PC 69-177). Stamped SESJ palm branch. P.H. 0.32 m.

The Ownership of the Sestius Factory

At the same time that the evidence in favor of Cosa as a source of most, if not all, of the Sestius jars becomes less circumstantial, the evidence grows that the Sestius family of Cosa was connected with the manufacture. The task of identifying a particular "Sestius" as the manufacturer, however, becomes both more difficult and perhaps less necessary. More than one member of the Sestius family may have held control of the enterprise. It seems certain, in any case, that Types 4a and 5 were long-lived, spanning two or more generations. We know also that Lucius Sestius Quirinus, the son of Publius Sestius, and consul suffectus in 23 B.C., was engaged in the manufacture of tegulae in the last half of the 1st century B.C. Brickstamps bearing his name have been found at Rome and recently in the
been more suited to business than to a Late Republican political career. Perhaps an organization large enough to produce a shipment of the size of the Grand Conglomor cargo and to distribute from one end of the Roman world to the other required direction from someone less preoccupied in Rome and abroad than Publius Sestius.

The elder Lucius Sestius married his son Publius to the daughter of C. Albinius, who had become a senator before 60 B.C. Publius was so devoted to Albinius, Cicero tells us, that even after Albinius' death and Publius' remarriage to Cornelia (by 62; Fam. 5.6.1), daughter of the exiled Marian and consul of 83 B.C., L. Cornelius Scipio Asiaticus, the two remained close. In 56 B.C. Albinius was in constant attendance at Sestius' trial. In 45 B.C., Sestius asked Cicero (Fam. 13.8) to intervene on Albinius' behalf in a dispute over landownership. Cicero implies that Albinius was a person of wealth. One wonders, in the light of his curiously close relationship to Publius Sestius and in view of the Sestius pottery interests, whether or not Albinius might have been involved with the Albinius pottery mentioned on a variety of amphora stamps of the 1st century B.C. (Fig. 8). The fact that L. Sestius Quirinus (Quininalis) preserved an abbreviation of his mother Albinius' name as a cognomen on his brickstamps might be an indica-

28. CIL XV.1,1444-1445; cf. Will, op. cit. (in note 6) 242. The recent finds in the Ager Cosanus were, according to information kindly transmitted to me by F. E. Brown, reported by Daniele Menegard during a symposium, "The Seabone Trade of Ancient Rome in the Late Republic and Early Empire," sponsored by the American Academy in Rome in late 1978 and early 1979.

29. Four examples of the stamp pictured in Fig. 7a have been found (CD 837, CE 785, and two impressions on C 68.491), one of them in "SUNY House" (which might have been, in its Augustan stage, a town house of Lucius Sestius?). Fig. 7a reads S.E.L.E.VC (Euclides the Freedman of Sestius?). Fig. 7b reads L.VCLUDVSE (Luscinus [or possibly Euclides? see note 39 below] freedman of Lucius Sestius). Its number in CIL 1863. The "L.S.E.L." and "L.S.E.V." amphora stamps reported in CIL XIII and elsewhere may be related.


32. In addition to the evidence cited above from the agora excavations in Athens, there are unverified reports of Sestius stamps at Corinium in Austria (information kindly given me by Elizabeth Solomon) and at Altenburg in southern Germany (see Franz Fischer, "Das Oppidum von Altenburg-Rheinlaub," Germania 44 (1966) note 72 on pp. 308 and 306).


34. The stamp pictured is no. 489 in the Besseki Collection, now stored in the Greco-Roman Museum in Alexandria. The fragment was found either in the Fayum or in Upper Egypt. It belongs to my Type 11 ("Brindisi-type"), which was manufactured in the neighborhood of Brindisi, and perhaps elsewhere, in the first quarter of the 1st century B.C. (see Will, op. cit. (in note 13) 293). Other Albinius stamps occur both on Type 11 and on Type 12 (Dressel Types 2-3). All of these pieces will be published in my forthcoming volume on Roman amphoras in the Athenian Agora series. "Vascula Gallica" bearing similar stamps are listed in CIL XIII. 10010. 76-86.

35. The name occurs in three different forms on the brickstamps in CIL XV.1,1445: L.SESTIA.P.P.F.LAB QVIRINALIS; L.SESTIALB QVIRINALIS; L.SEXTIALB QVIRINALIS. All the brickstamps of
tion that the pottery (near Rome?) where those bricks were made had originally belonged to his grandfather Albinius. The marriage of Publius Sextius and Albina could have been either a cause, or a result, of the Sextius pottery interests. The merging, if it took place, of two great pottery firms could have created an “empire” strong enough to maintain the apparent monopoly enjoyed by the Sextius amphorae in the West. No Republican amphora stamp, in any case, is found with such frequency in the western Mediterranean area, even if one excludes the Grand Congloué shipment.

We should probably, then, think in terms of the Sextii rather than of an individual member of the family, in considering the ownership of the Sextius factory. Both

Sextius in CIL XV seem to come from Rome and vicinity. Since bricks were usually locally made, one would presume these finds were manufactured in Rome. They may be among the earliest brick stamps known, since baking replaced sun-drying of bricks at some time in the later century B.C., according to information kindly communicated to me by Herbert Bloch. The locally well-known brick kilns, modern and ancient on the Albino River, to the north of Cosa, had, to my knowledge, no connection with the Sextius family in antiquity. Perhaps a connection will some day be discovered. Nor is there any known connection between the Albino River and the family name of Lucius Sextus’ mother. For a recent, brief discussion of a possible ancient kiln near the Albino, see D. P. S. Peacock, “Recent Discoveries of Roman Amphora Kilns in Italy,” Antiquaries Journal 57 (1977) 266-268. Detailed publication of the finds from this site will be awaited with interest. On amphorae in the area of the Albino River and the Gulf of Talamone, see also my forthcoming article (with Vincent Bruno) in Archaeology, “Underwater in the Gulf of Talamone.”

36. P. Sextius also had a close relationship to his second father-in-law, L. Cornelius Scipio Axillius. Immediately after the wedding, Sextius went to Marseilles to visit his new wife’s father, in exile there. This marriage, too, may have involved business interests. The amphora stamp of CORNELI L.F Q on jars of my Type II (above, note 34) at Alexandria, Delos, and Brindisi. The examples at Alexandria and Delos will be published in my Athenia Agonis volume. For the stamp at Brindisi, see CIL IX, 6079. 18. Study of Roman amphorae makes it very apparent that Roman nobles were heavily involved in business and in trade, however little they might publicize the fact. The involvements of the Sextius family and its connections are just one example among many. I plan to explore the subject more thoroughly in a future article.

37. The connection, if there was one, between the manufacture of amphorae and bricks by the Sextius family and the frequent occurrence of Sextius stamps on Arretine needs to be explored. A. O’ke’s Corpus Vasorum Arretinarum, edited by Howard Comfort (Bonn: Rudolf Habert Verlag, 1968), lists (Numbers 1792-1819) many Sextius stamps, the shapes of the letters of some of which closely resemble the letters on the amphora stamps of, e.g., 1794d-3, P, and especially g. Stains and palm branches occur on Arretine Sextius stamps. The amphora “empire” could have included, or been succeeded by it (as was apparently the case with bricks), the manufacture of Arretine. 38. Only in the eastern Mediterranean do we find a contemporary parallel. The stamps of Vetricius, Vicius, Veterinius, and others occur by the dozens on jars of my Type I ("Brindisi-type") at Athens, Delos, Alexandria, and Brindisi. See above, note 34.

Publius and his son Lucius exhibited the wealth that accrued from pottery-making throughout Greek and Roman antiquity. Catullus referred to the sumptuosis cenar ("costly dinners") of Publius Sextius (poem 44). Cicero mentions in 44 B.C. Publius’ villa at Cosa (Att. 15.27.1) and on another occasion, in 45 (Att. 13.2.2), jokingly called him parvus publicus ("official welcomer"). In 62 B.C. (Fan. 5.62.2), Cicero sent him a plea for financial assistance as clear as it was indirect, noting that he was ready to join a conspiracy because of his indebtedness for the new house on the Palatine. Cicero may have owed a financial, as well as a moral, debt to Sextius (Fan. 11.8.2: ego illi uni priusnum debem--“to him alone I owe most.”). There is also the possibility that Augustus’ appointment of Lucius Sextius as consul suffectus (surrogate consul) in 23 may have been less a startling gesture of good will and admiration toward a militant adherent of Brutus than a desire to add the younger Sextius’ financial resources to his own side. Finally, another chance reference in Cicero (Att. 16.4.4; 44 B.C.), one in which he mentions the navibus luculentus . . . Sesti ("splendid ships of Sextius"), may apply either to Publius or the younger Lucius. Scholars disagree, but it is clear that the phrase indicates that the Sextius family had shipping interests, or at least "naval capabilities," of which the top level of the Grand Congloué pile may be another suggestion. Even if Publius Sextius or his son did not per-

39. See Dio 62.24.2 (cf. above, note 27). It is tempting to read Homer Ilias 1.4, dedicated to L. Sextius, in this light and in the light of the archaeological evidence. The choice of words in the poem (carinas, 1.2; officinar, 1.8; regna viti, 1.18; Lucidan, 1.19, etc.) may be understood to L. Sextius.

40. For a summary of the evidence, see Broughton, op. cit. (in note 27) II, p. 326. I am indebted to Professor Broughton for his kindness in discussing this matter with me by letter.
sonally own ships, one of them had the ability to raise the fleet praised by Cicero. Further excavation in the Portus Cosanus might throw more light on this matter.

Literary references thus seem to confirm the wealth and the power of the Sestius family. Whether or not the family was in the shipping business, the archaeological evidence clarifies the literary evidence by pointing to the existence of a large, far-flung and long-lived pottery firm located in the area of Cosa, one which was probably dominant in the manufacture and export of amphorae of Type 4a. Other stamps are found on the same type of jar, but none comes close to the Sestius stamps in frequency of occurrence.

As our knowledge of Roman amphorae and of other coarse wares expands, we are able to probe more deeply into Roman economic history. We achieve a better understanding of Roman antiquity and at the same time a realization of how little we actually know about it. Study of the Grand Conglomé excavation and of the Sestius amphorae takes on more meaning in that light. Further study should help to clarify the areas of uncertainty that remain. The Sestius amphorae, however, important as they seem to have been, are just one element in the entire picture. Close study of all classes of Roman commercial amphorae, and of coarse wares in general, will enable us to achieve a level of understanding of Roman economic history that can be only dimly foreseen at present. At the same time, the interdependence of dry-land archaeology, underwater archaeology, and literary scholarship will be underscored.

41. Type 4a may well have been manufactured in several places, although the Sestius firm seems to have been dominant. We know, for example, that Type 4b was manufactured both in Latium, where kilns have been discovered near Terracina (cf. A. Hesnard, "Note sur un atelier d’amphores 12r 1 et 12r 2 4 près de Terracina," Mélanges de l’école française de Rome. Antiquité 89 [1977]: 157-168) and near Babilonia, where the kilns discovered by me in 1961 contained fragments of Type 4b and 11, as well as other types (above, note 10).

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