The Urban Economy during the Early Dominate

Pottery evidence from the Palatine Hill

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BAR International Series 784
1999

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Amphora were employed for the packaging of oil, while the Keay 4-7 Amphoras were used for the packaging of fish products, then the contribution of Zeugitana would come to ca. one-quarter (24.9 percent) of the total combined figure for oil and fish products, and that of Byzacena would come to roughly one-seventh (13.9 percent) of this figure. The Lusitanian amphoras (Almagro 51 Amphora, Almagro 50 Amphora), account for roughly one-seventh (14.1 percent) of the total combined figure for oil and fish products. The amphora evidence thus suggests that Lusitania and Byzacena contributed roughly the same amount of fish products to the urban supply, while Zeugitana provided somewhat more than one and one-half times this amount. A large portion of the fish products from Zeugitana and Byzacena presumably reached Ostia/Portus as piggyback goods on ships operated by *navicularii*, with the principal cargos consisting of state grain and oil. The shipwreck evidence indicates that Lusitanian fish products were sometimes shipped together with Baetican oil, and there may have been a similar dynamic at work here. If so, the presence of these containers may be taken as evidence in support of the assumption that empty Dressel 23 amphoras were subject to systematic removal from the trash stream at Rome during this period.

3.2.3 Pottery

Since the tableware/utilitarian ware and cookware portions of the deposit both represent pottery produced and exchanged as a craft good in its own right, these two functional groups are here considered together. As was the case with amphora component of the deposit, the analysis that follows is based primarily upon the economic value measure data, which for these two functional groups are reported in Table 15. Since, as noted above, we know little to nothing regarding the use life of pottery in the Roman world, proportional data of the sort generated here can inform us about patterns in the consumption of different kinds of pottery over time. They cannot - it should be emphasized - shed light on issues such as the composition of life assemblages, that is, suites of pottery in use among residential groups or larger units of population at any one time.

Roughly 97 percent of the combined tableware/utilitarian/ cook-ware component of the deposit consists of pottery belonging to just 10 different classes (Fineware 1, Color-Coat Fineware 1, Volcanic Utilitarian Ware, Central Tiber Red-Slip Ware, African Sigillata C, African Sigillata D, West-Central Italian Cookware 1, West Central Italian Cookware 2, North Tunisian Cookware, and Central Tunisian Cookware), each of which accounts for at least 2.5 percent of the total. The remaining ca. three percent is comprised of 11 different classes, each of which represents less than ca. one percent of the total. Among these are four classes that may be entirely residual (Color-Coat Fineware 2, Color-Coat Volcanic Ware, Quartz Ware, and African Sigillata A). Only one of these less abundant classes, African Sigillata A, appears ever to have enjoyed a significant share of the Rome pottery market.

The ratio of cookwares to tableware/utilitarian wares by the economic value measure comes to almost exactly 1.5. The ratio of these two functional groups by the weight measure is the same, while that obtained by the estimated number of vessels measure is equal to 1.6. Various measures thus suggest that at this time Romans consumed roughly one and one-half times as much cookware as they did tableware/utilitarian ware. While this ratio might be compared from deposit to deposit, either through time or across space, any divergences revealed by such an undertaking might be attributed to one or more of a variety of different factors (e.g., differences in foodways, variability in the cost of imported versus local pottery, the availability of containers in metal, glass, etc.), making interpretation difficult.

We may uncover more meaningful structure in the deposit by examining the data against the background of the supply zone model developed in Section 1.5. The first distinction to be made in this regard is between pottery produced in the extra-Italian supply zone and that manufactured in the four Italian supply zones (i.e., the urban intramural, urban extramural, suburban, and extra-urban Italian supply zones). The former includes eight classes of pottery produced in either the province of Zeugitana or that of Byzacena (African Sigillata A, C, and D, Tunisian Utilitarian Ware 1, 2, and 3, North Tunisian Cookware, and Central Tunisian Cookware), both in the diocese of Africa, which combined represent ca. one-third (34.3 percent) of the total. A ninth class, Red-Painted Fineware 3, equal to 0.4 percent of the total, may also originate in one of these two provinces. The origin of one additional class, Quartzite Cookware, equal to 0.4 percent of the total, remains uncertain. Thus, slightly more than one-third of the pottery in these two functional groups was produced in either Zeugitana or Byzacena, while no more than ca. one-half of one percent, and perhaps none at all, originated elsewhere outside the diocese of Italia.

The remaining ca. two-thirds (65 percent) of the pottery in these two functional groups originated within the diocese of Italia. These materials include pottery belonging to three classes that can be assigned with a fair degree of confidence to the extra-urban Italian supply zone. These are Heavy-Glazed Ware, presumably from either the province of Flaminia or that of Venetia et Histria, in northern Italia, which represents 0.1 percent of the total, Central Tiber Red-Slip Ware, probably from the Ameria/ Statonia/Ocriculum/Falerii Novi region of Tuscia et Umbria, which represents 3.3 percent of the total, and Red-Painted Fine-ware 3, perhaps from one of the provinces of southern Italia (if not from either Zeugitana or Byzacena), which is equal to 0.4 percent of the total. The remaining material, equal to slightly more than 60 percent of the total, consists almost entirely of five classes that cannot be assigned to a specific supply zone with adequate certainty. These include Fineware 1, Color-Coat Fineware 1, Volcanic Utilitarian Ware, and West-Central Italian Cookware 1 and 2.

In the interest of resolving at least a portion of the analytical impasse that stems from the impossibility of assigning the materials belonging to these five classes to one or another of the supply zones, a program of NAA is being carried out involving 175 specimens of pottery from the Palatine East sequence and a group of comparative clay specimens from Rome. The aims of this work, being undertaken at the analytical facility at the University of Illinois Department of Nuclear Engineering, are to identify distinct compositional groups among the various classes of pottery with fine-grained,

calcareous fabrics represented in the site assemblage, and to evaluate the possibility that these are of Roman origin by comparing their compositional attributes with those of specimens of Pliocene marine clay obtained from exposures in the Gianicolo/Vatican area, where, as discussed in Section 1.5, it seems likely that there was a potters' quarter in imperial times. The author has in previous research subjected a wide array of fine-grained calcareous potting clays from sources throughout Lazio, Campania, Umbria, and Toscana to NAA at the Smithsonian Institution/National Institute for Standards and Technology analytical facility,[20] and it may prove possible to intercompare these data with the results obtained with the Palatine East pottery in order to identify the probable proveniences of any materials produced further afield in west-central Italy.

While the chemical assaying of the specimens included in this program of analysis has been completed, the resulting data have yet to be subjected to the full array of statistical operations normally employed to evaluate the underlying structure. Preliminary analyses of data have already succeeded in shedding considerable light on basic issues of provenience regarding some of the classes under consideration, however, including Fineware 1, Color-Coat Fineware 1, Central Tiber Red-Slip Ware, and Red-Painted Fineware 3, and the main conclusions of this work are thus worth reviewing here. The detailed presentation of the results will appear in the volume of the Palatine East final reports dedicated to the site pottery assemblage.

The classes of pottery selected for inclusion in the program of analysis include Fineware 1 (53 specimens), Color-Coat Fineware 1 (30 specimens), Color-Coat Volcanic Ware (one specimen), Central Tiber Red-Slip Ware (31 specimens), and Red-Painted Fineware 3 (two specimens), as well as two classes not present in A (105), Roman Red-Slip A Ware - a distinctive class of low quality red-slip ware of 4th/5th c. date (32 specimens) - and Glazed Fineware - a class with a fine, calcareous body covered with a blue-green glaze common in contexts at the Palatine East dating from the last quarter of the 1st to the last quarter of the 2nd c. (16 specimens). Also analyzed were 10 specimens belonging to various other classes, including Italian Sigillata, Middle Adriatic Sigillata, and Çandarli Ware. Among the 175 specimens analyzed were 51 from A (105), including 18 specimens of Fineware 1, 22 specimens of Color-Coat Fineware 1, one specimen of Color-Coat Volcanic Ware, eight specimens of Central Tiber Red-Slip Ware, and two specimens of Red-Painted Fineware 3. Table 10 presents a concordance of these materials. Much of the remaining Fineware 1 and Color-Coat Fine-ware 1 included in the program of analysis was drawn from Context B (180), a large deposit dating to the late 5th or early 6th c. The clays, which were fired into test tiles at 900 degrees centigrade, include six specimens obtained from the abandoned Cava Aurelia clay pit in the Monti della Creta district (elevation ca. 30-40 m a.s.l.), and four specimens taken from a lens of gray clay interleaved with layers of sandy clay exposed in a scarp on the grounds of the Villa Doria Pamphili, near the Via di Donna Olimpia entrance (elevation ca. 55 m a.s.l.). The former sampling location lies near the middle of the portion of this formation exposed in the Gianicolo/Vatican area, while the latter lies at or near its top.

Portions of the trace element data obtained for the pottery and clays have been subjected to two preliminary studies. The first of these, here termed Study 1, subjected the compositional data for 49 of the pottery specimens, including 23 from A (105), to statistical analyses aimed at highlighting distinctions between classes assumed to be of probable Roman and extra-Roman origin.[21] The second, here termed Study 2, subjected compositional data for 69 of the pottery specimens, including several of those included in Study 1 and 38 of those from A (105), to analyses aimed at uncovering structure among the classes assumed to be of probable Roman origin.[22] This second study also undertook a limited amount of comparison between the compositional data for these materials and those for the clay specimens.

In Study 1, a cluster analysis divided the group of 49 specimens into two large clusters, one consisting of 31 specimens, including 18 examples of Fineware 1, 12 examples of Color-Coat Fineware 1, and one example of Glazed Fineware, and the other consisting of 17 specimens, including two specimens of Italian Sigillata, five specimens of Central Tiber Red-Slip Ware, five specimens of Roman Red-Slip Ware A, three specimens of Glazed Fineware, one specimen of Fineware 1 (**080**), and the single specimen of Color-Coat Volcanic Ware (**104**).[23] In addition, the sole example of Red-Painted Fineware 3 (**113**) was situated apart from these two clusters as a singlet. If one assumes that the first large cluster consists wholly or in part of materials produced at Rome, as is suggested both by the criterion of abundance and by the results of Study 2, this result would appear to be in general agreement with the inferences regarding the proveniences of these classes presented in Section 2.5, where it was suggested that Fineware 1 and Color-Coat Fineware 1 were both produced from the same Rome-area clay, and that Central Tiber Red-Slip Ware and Red-Painted Fineware were produced with two other clays from outside the Rome area.

In Study 2, a cluster analysis divided the group of 69 specimens into one large cluster of 47 specimens, including 25 of Fineware 1 and 22 of Color-Coat Fineware 1, and two smaller clusters, one consisting of four specimens, including two of Fineware 1 and two of Color-Coat Fineware 1, and one consisting of seven specimens, including six of Fineware 1 and one of Color-Coat Fineware 1.[24] One specimen of Fineware 1 (**083**) was positioned as a singlet loosely associated with these three clusters. There were, in addition, nine specimens either arrayed in pairs or positioned as singlets, including six of Fineware 1, among them **075** and **077**, three of Color-Coat Fineware 1, and one of Color-Coat Volcanic Ware. An evaluation of the ratios between selected elemental concentrations suggests that the compositional distinctions that characterize the two smaller clusters of four and seven specimens may reflect dilution/enrichment tied to variations in the concentration of calcium in these vessels.[25] The structure within the large cluster of 47 specimens would not appear to be archaeologically significant, as replicate analyses of a single vessel in Fineware 1 from B (180) were assigned to different parts of the cluster.

Similarly, the two vessels from A (105) in Color-Coat Fineware 1 with barbotine petal decoration that appear likely to have been produced by the same workshop (**087** and **092**)

Table 10: Concordance of vessels in A (105) subjected to NAA.

CLASS	CAT. NO.	NAA NO.	CLASS	CAT NO.	NAA NO.
Fineware I	067	071	Color-Coat Fineware I	093	147
	068	060		094	114
	069	059		095	077
	070	106		096	076
	071	104		097	na
	072	na		098	na
	073	068		099	113
	074	na		100	111
	075	108		101	112
	076	102		102	110
	077	109		nic	061
	078	107		nic	061
	079	105		nic	065
	080	079		nic	144
	081	na		nic	145
	082	101		nic	146
	083	103		nic	148
	084	na	Color-Coat Volcanic Ware	104	078
	085	na	Cent. Tiber Red-Slip Ware	111	na
	nic	058		112	na
	nic	067		nic	167
	nic	069		nic	168
	nic	072		nic	169
Color-Coat Fineware I	086	070		nic	170
	087	066		nic	171
	088	063		nic	172
	089	080		nic	173
	090	074		nic	174
	091	073	Red-Painted Fineware 3	113	075
	092	064		114	115

Abbreviations: nic = not included in catalogue; na = not analyzed; Cent. = Central.

were assigned to different parts of the cluster. In all likelihood, this structure reflects some combination of analytical error and natural compositional variation between vessels produced from the same clay.

While visual examination of the data for the Gianicolo/Vatican area clay specimens indicates that they are compositionally distinct from the materials assigned to the large cluster, bivariate plots using selected pairs of elements suggest that they are generally similar.[26] A close match would not, in any event, be expected, given the fact that the clay formation in question is exposed over roughly 40 m of the stratigraphic column in the Gianicolo/Vatican area, and at least one of the sources from which the clay specimens subjected to analysis were obtained, the Cava Aurelia clay pit, would not have been accessible in antiquity. By the same token, the visual comparison of the compositional data for the vessels in this cluster with those for Fine-ware and Color-Coat Fineware vessels from the previously mentioned workshop at La Celsa, which were determined by the author in a program of analysis

carried out using the Smithsonian Institution/National Institute of Science and Technology analytical facility, indicates that the A (105) vessels were manufactured using a clay distinct from that employed by this establishment.[27] For the time being, the best interpretation would thus seem to be that the vessels in the large cluster were produced from Pliocene marine clay outcropping somewhere in the Gianicolo/Vatican area. The interpretation of the 10 Fineware 1 and Color-Coat Fineware 1 vessels either assigned to pairs or placed as singlets remains unclear, although it cannot be excluded that some or all of these were manufactured from clays compositionally distinct from this clay and may not be Rome-area products. The chemical data thus suggest that at least 37 of the 40 examples of Fineware 1 and Color-Coat Fineware 1 included in the program of analysis, equal to 93 percent, were probably manufactured with Pliocene marine clay from the Gianicolo/Vatican area, and are thus likely to be the products of workshops situated within either the urban intramural or the urban extramural supply zone.

As Volcanic Utilitarian Ware was presumably manufactured by adding volcanic sand to Pliocene marine clay, it seems likely that some, perhaps most of the vessels in this class were also produced by urban workshops. Less can be said regarding the specific points of origin of West-Central Italian Cookware 1 and 2, since, as noted in Section 2.6, the mineralogies of these two classes leave open the possibility that they originated either in the Rome area or further afield in west-central Italy. The urban workshops apparently responsible for the manufacture of Fine-ware 1 and Color-Coat Fineware 1 may well have been engaged in mixed production, and it seems possible that a substantial portion of either of these classes was produced by these same establishments. At the same time, the large size of the urban market may have enabled Rome-area producers to specialize in the manufacture of tablewares, and it may be that a substantial portion of the regional cookwares marketed at Rome were produced at some distance from the city, either in the suburban or extra-urban Italian supply zones. Worth noting in this regard is the fact that West-Central Italian Cookware 2 is much less abundant than West-Central Italian Cookware 1, is represented by fewer forms, and includes a substantially lower proportion of closed forms. Taken together, these points suggest that this class may have been produced farther from Rome than much or all of West-Central Italian Cookware 1.

Turning now to the specific characteristics of the Fineware 1 and Color-Coat Fineware 1 components of the A (105) deposit, the fact that these consist primarily of closed forms, such as juglets and coin banks, and large, bulky vessels, such as basins, fits with the characteristics of urban production as predicted in Section 1.5. Examples of forms also represented among the classes originating outside the two urban supply zones, such as small bowls, are rare. Almost entirely absent are jugs, jars or other forms, the functions of which might have been fulfilled by flat-bottomed amphoras, such as the Keay 52 Amphora, Middle Roman 1 Amphora, and Palatine East 1, 2, and 3 Amphoras. The fact that the coin bank form first occurs in the Palatine East sequence in the first quarter of the 4th c. is a point of some interest, as this raises the possibility that its appearance had some connection with the inflation of the period, which, among other things, led to the adoption of devices such as the *follis*, that served for the packaging of large numbers of coins. Overall, the production of Fineware 1 and Color-Coat Fineware 1 in these urban workshops appears to have involved only very modest inputs of labor. A large portion of the vessels belonging to these two classes are examples of small forms that may well have been thrown from the hump, and the manufacture of both these and the larger vessels appears to have involved a minimum of secondary forming operations, such as the smoothing away of wheel ridging, the trimming of bases, and the addition of attachments. The upper end of these establishments' output, represented by Color-Coat Fineware 1, involved only modest efforts at embellishment, including the addition of a low-quality slip and only rarely the further decoration of vessel surfaces by means of incising, the addition of relief elements in barbotine, and the addition of small bits of glass paste. On the basis of these observations it appears that the workshops involved in the manufacture of these two classes aimed at the mass production of low-quality, low-cost items that would not have to compete with wares produced in the suburban and extra-urban supply zones.

It is of some interest to contrast this picture with that reflected in deposits from the Palatine East dating to the second half of the 1st and the 2nd c. A.D. First, as noted in Section 1.5, some of the fineware and color-coat fineware distributed at Rome during this period appears to have originated at the La Celsa workshop, located in the suburban supply zone. The fineware and color-coat fineware in these contexts demonstrate appreciably greater investments of labor in the form of the smoothing of surfaces, the trimming of bases, and the use of attachments. Also worth noting is the presence of glazed fineware in these deposits. While it is unclear whether or not this class was produced by the same workshops as those responsible for the manufacture of the fineware and color-coat fineware in these contexts, that this was the case seems a reasonable assumption. The manufacture of this class would have required considerable investments beyond those required for the production of fineware and color-coat fineware, including the acquisition and preparation of glazing materials, the mastering of the glazing technique, and the firing of pottery in two stages. The fact that glazed fineware was apparently intended to mimic either bronze or faience also suggests that those who manufactured it aspired to turn out products that consumers would view as embodying at least a moderate level of attractiveness.

The evidence thus suggests that between the 2nd c. and the end of the 3rd c. there was a shift in the methods employed for the manufacture of the finewares distributed at Rome, with the adoption of techniques that permitted significantly higher rates of production. While the evidence is somewhat less clear on this score, there may also have been significant changes in the geography of this production, with a decline or even disappearance of workshops in the suburban zone leaving this market niche almost entirely to urban producers. The reasons for these changes remain uncertain. They may, however, have resulted from a combination of factors, including a decrease in the demand for pottery in the city's hinterland, increased competition from African imports and/or from glassware manufacturers, and even the more rigorous enforcement of the urban customs tax. Interestingly, Annis has documented a