

I MATERIALI RESIDUI NELLO SCAVO ARCHEOLOGICO

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ASPECTS OF RESIDUALITY IN THE PALATINE EAST POTTERY ASSEMBLAGE

This paper discusses aspects of residuality encountered in the analysis of the pottery assemblage recovered in the Soprintendenza Archeologica di Roma/American Academy in Rome excavations carried out on the northeast slope of the Palatine Hill during the period 1989-1993 (henceforth referred to as the Palatine East excavations) (Hostetter et al. 1993). The excavations, which focused on the area of a late imperial domus, recovered nearly 20 metric tons of pottery in contexts deposited between the second half of the 1st century AD and the modern period. This contribution focuses on problems raised by the presence of residual materials for the study of short-term fluctuations in the consumption of craft goods (pottery) and foodstuffs (wine, olive oil, fish products) in the city of Rome. After discussing the definition of residuality, this paper develops a method for classifying the pottery within a context with regard to its phasing, and then illustrates aspects of applying this method by evaluating one specific group of late imperial materials from the Palatine East.

I would like to begin by briefly considering what we mean by the term "residual" since there is, to my knowledge, no generally accepted definition of this concept in archaeology. My impression is that archaeologists notionally understand residual materials to be artifacts and ecofacts initially discarded a considerable length of time prior to their deposition in the context in which they were recovered. While all residual materials will thus have been subject to redeposition, the fact of redeposition does not in and of itself qualify an item as residual, since disturbance and redeposition may occur one or more times shortly after initial deposition. But how much time must have passed between initial and final deposition for an item to be regarded as residual? In practice it seems that this is rarely defined in an explicit manner. If we were to press the matter, however, I suspect that we would find that residuality is determined by the perspective of the individual researcher. Since different analyses are framed according to different time scales, what represents a significant lapse of time, for example, for an archaeologist concerned with the phasing of a particular

stratigraphic sequence may not be regarded as such by a researcher interested in the reconstruction of economic *conjonctures*.

The question of the time-scale adopted by a researcher thus looms large in any effort to consider the phenomenon of residuality. My own interest lies in the analysis of short-term fluctuations in the consumption of craft goods and foodstuffs in the city of Rome during the imperial period. This interest follows from my conviction that long-term processes can only be understood in light of the specific events and short-term processes of which they are the cumulative result. For the analysis of short-term patterns, the recognition of residual materials becomes acutely important, since these not only provide insight into the formation processes that underlay the deposition of specific contexts (Ricci *et al.* 1992 : 386-93; Evans, Millet 1992), but may also introduce noise that significantly interferes with a researcher's ability to recognize the range and relative importance of sources involved in the supply of a settlement at any one moment in time. In accordance with this position, I have adopted for my work a definition of residuality that is fairly rigorous from a chronological point of view : I regard any sherd initially discarded before the beginning of the formation of the context from which it was recovered as residual. It should be noted that this definition does not simply equate residuals with all secondary materials, since contexts are not infrequently deposited over extended periods of time, during which they may receive a considerable amount of material that, while secondary, is coeval with the period of the context's formation.

Operationalizing this definition of residuality is not without difficulties. First, there is the problem of establishing with accuracy the beginning date of a context's deposition. In practice the only workable approach is to adopt the *terminus post quem* for the context immediately preceding the context in question in the stratigraphic sequence. For contexts which were deposited following either a lengthy depositional hiatus or a period of negative deposition, or for contexts which succeed contexts that lack good dating material, this will not be a very accurate estimate, with the result that a considerable portion of the residual materials may not be recognized as such.

More complex, however, are the problems associated with the effort to estimate the date of a vessel's initial deposition relative to the beginning date of the formation of the context from which it was recovered. The first of two fundamental difficulties in this area concerns the problem of determining the effective end date (however defined) for the use of specific pottery classes and/or forms. Efforts to make such determinations have been complicated by the presence of large amounts of residual material in most

contexts and by the difficulty in determining with accuracy the dates of contexts within which particular pottery classes and forms occur. In theory, the first of these problems can be addressed through the analysis of primary contexts, such as shipwrecks, and the second through the analysis of contexts that can be accurately dated through association with dated historical events. In practice, however, contexts of these two kinds are rare, with the result that even the best estimates for the end dates of specific pottery classes and forms retain an undefinable degree of uncertainty. Fulford (Fulford, Peacock 1984 : 109-110) attempted to develop a systematic approach to determining a form's end date in his analysis of the African *sigillata* from the Avenue du President Habib Bourguiba site at Carthage. In this study he assumed that the point in the site sequence at which the abundance of a form relative to the other African *sigillata* forms underwent significant decline corresponded to the time at which that particular form ceased to become regularly available. While valuable, this approach is limited by the fact that it requires lengthy sequences of large groups of pottery and will work only for forms that ceased to be available fairly suddenly at the height of their popularity rather than at the conclusion of a period of more or less gradual decline.

Our ability to define the end dates for particular pottery classes and forms will likely vary as a function of the dynamics of their production and use. Thus, the introduction of new forms and the discontinuation of old forms of mass-marketed tableware, such as African *sigillata*, may have taken place in a sudden and uniform, if not always regular manner (Going 1993), since, with high visibility consumer products of this kind, novelty is apt to have played an important role in determining marketability (Wallace-Hadrill 1994 : 143-47). Since most mass-marketed tableware vessels probably remained in use for no more than a few years before breakage and discard (Rice 1987 : 293-99), form substitutions can be expected to have produced distinctive patterns in the archaeological record, such as those observed by Fulford. In contrast with mass-marketed tableware forms, classes of transport amphorae had long life spans. The existence of a close identification between the appearance of a container and its content appears to have militated against change, with the result that specific classes generally remained in production for a period of a century or more, and variability in the intensity of their consumption in any particular area over time was more likely to have been determined by shifting patterns of agricultural production than matters of taste. Furthermore, individual specimens sometimes remained in use for periods of as long as several decades, presumably as storage containers, industrial fixtures, etc. (Paterson 1982 : 146-48; Laurence 1994 :

5-7). The combination of these factors suggests that determining end dates will remain a considerably more problematic undertaking for transport amphorae than for mass-marketed tableware forms.

The second problem associated with the effort to estimate the date of a vessel's initial deposition relative to the date of the context in which it was recovered stems from the simple fact that many pottery classes and forms will have remained in use from considerably before the beginning date of a context's formation until well into the period of its deposition or beyond the date of its closing. In cases of this kind there is no objective chronological basis for classifying a vessel as either in phase or residual. The degree of vessel completeness (i.e. the portion of a vessel occurring within a particular context) and/or brokenness (i.e. the number of pieces into which a vessel has been broken) (Orton, Tyers 1990 : 86), or the degree of sherd abrasion (Schiffer, Skibo 1989) may provide evidence of a pot's previous depositional history, hence some basis for identifying it as residual or in phase. However, evaluating these factors frequently involves subjective determinations, and may not help clarify the initial date of a vessel's discard.

In classifying the sherds from the Palatine East excavation with regard to their phasing, I have developed a method that recognizes four categories :

- 1) in phase;
- 2) indeterminable;
- 3) residual;
- 4) unknown.

Sherds are assigned to one of these four categories on the basis of the currently accepted production/use dates for the form to which they belong, or, where the form cannot be determined, their pottery class. The four phasing categories are defined as follows :

1. in phase :
pottery class/form beginning date \geq context beginning date
2. indeterminable :
pottery class/form beginning date $<$ context beginning date
pottery class/form ending date $>$ context beginning date
3. residual :
pottery class/form ending date $<$ context beginning date
4. unknown :
insufficient information to assign to any of categories 1-3.

The aim of this classification is to indicate those sherds which are certainly relevant, possibly relevant, and certainly irrelevant to pottery consumption at the time of each context's deposition. This approach to the organization of assemblage data permits the more ready recognition of both change and continuity in pottery

consumption from any one context – the minimally recoverable segment of time in a site sequence – to another.

A context by context study of this kind, in contrast with projects in which assemblages from contexts of the same phase are combined in order to achieve adequate sample size, is practicable in part because of the substantial number of contexts recovered at the Palatine East that contained amounts of pottery in the hundreds of kilograms.

In order to illustrate some of the advantages derived from the use of this classification method as well as some of the problems it raises, I will examine the results of its application to the materials from one of the contexts excavated at the Palatine East. This context, A (105), was a large fill of soil and refuse excavated from inside a small (3,6 × 1,1 m) chamber belonging to the late imperial *domus*. At the time of its excavation the conspicuous number of largely complete vessels in this context suggested that, in contrast to the other large, late imperial fills that had been excavated previously on the site, this was a primary dump deposited over a relatively brief span of time, perhaps as a single event. Among the refuse included in this context were large amounts of construction debris, animal bone, glass, and over 510 kg of pottery. I am currently preparing the pottery from A (105) for publication in monograph form, and the various points touched on here will be developed more fully in this other publication.

The dating evidence from the sequence to which A (105) belongs indicates that it was formed during the first half of the 4th century. It lay immediately above three sizable fill deposits containing a combined total of ca. 200 kg of pottery. All three can be assigned closing dates in the late 3rd century on the basis of the presence of the Hayes Form 50 in African *sigillata* C³ and the absence of any examples of African *sigillata* D. Context A (105), itself, contained six coins: a *denarius* of 57 BC; two *antoniniani*, one of AD 270 or later, the other of AD 270-75; a radiate fraction of AD 295-299 and another of AD 296-297; and a *nummus* of AD 300-301. The latest datable lamps are examples of the Bailey Type S, which began ca. AD 270. The latest datable pottery consists of several vessels in African *sigillata* D, including 14 examples of the Hayes Forms 58B, and one example each of the Atlante L.2-3, the Hayes Form 59A, and a previously unrecognized flanged bowl or mortarium. The Atlante assigns both the L.2-3 and the Hayes Form 59A beginning dates in the AD 320s. The dating of the former, however, is based on weak evidence, while more recently examples of the latter have been recovered together with specimens of the Hayes Form 58 in the foundation fills at the nearby Arch of Constantine, dated on historical grounds to the period AD 312-315 (C. Panella, personal

communication). The deposition of A (105) thus cannot have begun any earlier than the last decade of the 3rd century, must have ended no earlier than AD 300, and may well have concluded as early as ca. AD 312. The large amount of pottery in the context suggests that the absence of common forms may well be significant from a chronological point of view, and the lack of African *sigillata* D forms characteristic of mid- to later 4th century AD deposits elsewhere on the site, such as the Hayes Forms 61A and 67, together with the absence of African lamps, makes a closing date any later than the middle of the century seem highly improbable. The rarity of the Hayes Form 59A in this context may suggest a closing date during the first rather than the second quarter of the century, and my inclination is to assign the formation of this deposit to an indeterminate span of time during the period AD 300-325, while remaining open to the possibility that it may have been closed as late as ca. AD 350. To date, little pottery from the Rome area has been published for this period. This was an epoch of profound administrative and economic change in the Empire, marking what Giardina (1986 : 22-23) has termed the "provincialization" of Italy, and for this reason the analysis of the in-phase materials from A (105) promises to yield results of considerable archaeological interest.

The pottery from A (105) was subjected to detailed program of qualitative and quantitative analysis. In a first step the assemblage was divided into three broad functional groupings, table and utilitarian wares, cookwares, and transport amphorae. The materials in each of these groupings were then divided into their respective pottery classes, and the materials in each pottery class assigned to a specific form, as this could be determined. The materials in each class were quantified by sherd count, rim sherd count, and weight, while those assigned to individual forms were quantified by an estimated number of vessels measure based on the number of different rims. General information regarding degrees of vessel completeness and vessel brokenness was recorded on a form by form basis in an unsystematic manner. Finally, all materials were assigned to one of the four phasing categories previously described.

Limitations of space preclude the publication of the full set of pottery phasing data from this context; for the purposes of the present discussion I will limit my presentation to a summary by pottery class of the data obtained through the estimated number of vessels measure (See Tables 1 and 2). It should be noted that data of this kind probably tend to elevate the apparent portion of an assemblage represented by residual materials in comparison with a measure such as sherd weight. The reason for this lies in the fact

that vessels which have undergone multiple episodes of redeposition will have broken into more pieces than those which have not, and under conditions of partial recovery the former will accordingly have a higher probability of being represented than the latter (Orton, Tyers and Vince 1993 : 169-70).

The presence of a moderate amount of residual pottery demonstrates that the initial interpretation of this context as a primary dump deposited over a brief span of time was mistaken. With just a few exceptions, to be discussed below, the residuals consist of small, conspicuously abraded sherds, each from a different vessel. Since the depositional basin for A (105) consisted of four walls in brick-faced concrete that still rise to well above the level of the context's upper surface, these materials cannot have been introduced into the deposit through erosion or the incidental disturbance of neighboring contexts, but must have been dumped inside the chamber. It is thus evident that A (105) consists either entirely of deliberately redeposited secondary materials, or of a mix of primary and deliberately redeposited secondary materials. The low degrees of vessel completeness associated with several of the in phase vessels suggests that at least some of these are secondary materials. The high degree of completeness and low degree of brokenness associated with many of the vessels in this context, points which distinguish it from the other 4th-5th century dumps excavated in and around the *domus*, may be accounted for by the sheltered nature of A (105)'s depositional basin, which would have served to limit post-depositional disturbance and shifting, with their attendant breakage and scattering.

The gross differences between the three functional groupings that are evident in the estimated number of vessels data are probably due in substantial part to the varying state of our knowledge regarding the chronologies of the forms subsumed under each, and should not therefore be attributed any general significance. The modest amount of materials assigned to the in phase category is to be expected, since these consist primarily of the African *sigillata* D forms that served to date the context and two classes of transport amphorae (the Keay 52 and Keay 25B) with poorly established beginning dates that had not been attested previously in contexts as early as A (105). The ongoing study of the Palatine East pottery assemblage will almost certainly permit the bulk of the materials here classified as unknown to be shifted to the indeterminable and, to a lesser extent, the in phase category. Among these will likely be a majority of the regionally-produced fineware and color-coat fineware, much of the west-central Italian cookware, and at least four classes of transport amphorae of probable Italian origin (Ostia I.455/456, Palatine East 1-3). Some portion of the

finewares and west-central Italian cookwares will also be moved to the residual category, but these materials will probably represent a relatively small number of vessels.

The large proportion of materials assigned to the indeterminable and unknown categories represents a major impediment to the resolution of distinct moments in pottery consumption at Rome. The problem lies in distinguishing between recent residuals and materials that are in phase. One may attempt to derive an estimate for the proportion of the indeterminable and unknown materials likely to be either in phase or residual by extrapolating from the proportion of materials classified as in phase to those classified as residual, but this presupposes that the proportion of all pottery represented by the classes to which these forms belong remained invariant through time, an assumption that may well be false. It is worth noting, however, that among the materials classified as residual there is a substantial number of vessels dating to the later 2nd and 3rd century AD, a fact which suggests that there may also be significant amounts of pottery of this date among the materials classified as indeterminable and unknown.

The resolution of this problem may also be approached through the evaluation of degrees of vessel completeness and vessel brokenness. The conspicuously low degree of vessel completeness and high degree of vessel brokenness displayed by virtually all of the residual materials in A (105), including most of those dating to the later 2nd and the 3rd century AD, suggests that in the case of this specific context there is a strong positive correlation between a high degree of completeness and/or a low degree of brokenness and a vessel being in phase. While, as previously noted, some of the in phase materials show low degrees of vessel completeness, a systematic correlation between a particular pottery class or form and either a low degree of vessel completeness or a high degree of vessel brokenness may be taken as strong evidence that the given pottery class or form is residual. If one accepts the general validity of these inferences it becomes possible to further evaluate the probable phasing of a substantial portion of the materials assigned to the indeterminable and unknown categories. The two casserole forms in African cookware assigned to the indeterminable category provide a good illustration of this. Of the 55 examples of the shallow casserole form, the Hayes Form 23B, there are several that can be classified as largely complete, a fact which suggests that a substantial portion of the vessels belonging to this form are probably in phase. In contrast, there are but 10 examples of the deep casserole form, the Hayes Form 197. All consist of small sherds that represent only a minor portion of the vessel to which

they once belonged. This suggests that this latter form should probably be regarded as residual. As the Hayes Form 197 is quite common at the Palatine East in contexts dating to later in the 4th century AD, this may point to some temporary interruption of the supply of this form during the late 3rd and/or early 4th century AD. Observations of this kind based exclusively on degree of vessel brokenness must, of course, take into account the robustness of the forms in question. Thus, while three of the four examples of the Peacock and Williams Class 47 (Kapitän 2, Niederbieber 77) amphora are represented by complete amphora tops, all eight examples of the Peacock/Williams Class 56 (Kapitän 1) amphora occur as small rim fragments. While these two classes were manufactured in what appears to be the same fabric, the former has a much narrower neck and a thickened rim, suggesting that its upper portion was significantly less prone to breakage subsequent to discard than that of the latter.

As previously mentioned, there is a small number of instances in which forms classified as residual are represented by specimens displaying either a high degree of vessel completeness or a low degree of vessel brokenness. This raises the possibility that the end date for these should be pushed later and the form reclassified as indeterminable. The first of these is the Hayes Form 14/17 in African *sigillata* A, a form that has generally been thought to have gone out of use during the second quarter of the 3rd century AD. Of the three examples of this form, two are substantially complete. This is a fact of some interest, since it may be an indication that north Tunisian tableware manufacturers continued to produce and export their wares to Rome, if only in a very limited way, straight through the upheavals of the 3rd century AD down to the revival of a mass export market for north Tunisian tablewares with the introduction of the African *sigillata* D forms at the beginning of the 4th century AD. In another such instance, A (105) produced a nearly intact example of a thin-walled ware beaker with a globular body and an offset rim in a distinctive regional fabric. It is hard to imagine how such a fragile vessel could have withstood redeposition without suffering any significant dispersal of its fragments, and this piece raises the possibility that some regional producers may have continued to manufacture thin-walled ware forms considerably later than has been credited. Finally, the sole example of the Ostia II.521/III.369-370 (Spello) amphora, a wine container from the Tiber Valley/Umbria region, occurs in the form of a complete amphora top. This is the only complete top among the residual transport amphorae, and may indicate that Tiber Valley/Umbrian wine continued to be shipped to the *urbs* down to the end of the 3rd century AD. Previously it has been thought that

this class of transport amphora ceased to reach Rome during the later 2nd century (Panella 1989 : 145-46), and that the Tiber Valley/Umbria region no longer served as a significant supplier of wine to the city after that date.

One final point worth noting in connection with these data is the considerable extent to which both the richness (the number of classes) and the evenness (the uniformity of the distribution of vessels among these classes) of the A (105) pottery assemblage is likely conditioned by the presence of only a modest amount of residual material. Some of the recent scholarship (Leonard and Jones 1989) has advocated the use of richness and evenness measures for the characterization and comparison of archaeological assemblages. Due to the effects produced by the presence of residuals, however, the results obtained through the application of these measures for A (105) would likely reflect more about site formation processes than patterns in the consumption of pottery and foodstuffs at any one moment in time. This observation suggests that richness and evenness measures should be employed for economic analyses only in cases where researchers enjoy exceptionally good chronological control of the material to be analyzed.

The method here described for characterizing pottery assemblages with respect to phasing provides an approach for systematically distinguishing between vessels certainly relevant, possibly relevant, and irrelevant to patterns of consumption at the time of an assemblage's formation. It suffers from the fact that it is only as good as the absolute dates accepted for the beginning and ending dates for the formation of a context and for the various pottery classes and forms represented. The judicious consideration of patterns of vessel completeness and brokenness permits the further evaluation of the large amounts of materials that will often be categorized as indeterminable or unknown. Further research into the relationship between, on the one hand, completeness, brokenness and sherd abrasion, and, on the other, different vessel forms and/or different kinds of redeposition may put such considerations on a sounder footing. The principal advantage of this method is the fact that it permits the tracing of stability and change in a pottery assemblage through a site sequence on a context by context basis, thereby facilitating chronologically fine-grained analyses of pottery consumption.

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ABBREVIATIONS

- Atlante = *Atlante delle forme ceramiche. Ceramica fine romana nel bacino mediterraneo (medio e tardo impero)*, Rome, 1982 (EAA, suppl. 2).
- Hayes = J. Hayes, *Late Roman Pottery*, London, 1972.
- Keay = S. Keay, *Late Roman Amphorae in the Western Mediterranean*, Oxford, 1984 (BAR Int. Ser., 196).
- Mau = A. Mau, *CIL* 4.2, tav. II-III.
- Ostia I = A. Carandini *et al.*, *Ostia I: Le Terme del Nuotatore. Scavo dell'ambiente IV*, Rome, 1968 (Studi miscellanei, 13).
- Ostia II = F. Berti *et al.*, *Ostia II: Le Terme del Nuotatore. Scavo dell'ambiente I*, Rome, 1970 (Studi miscellanei, 16).
- Ostia III = A. Carandini, C. Panella (a cura di), *Ostia III: Le Terme del Nuotatore. Scavo degli ambienti III, VI, VII*, Rome, 1972 (Studi miscellanei, 21).
- Ostia IV = A. Carandini, C. Panella (a cura di), *Ostia IV: Le Terme del Nuotatore. Scavo dell'ambiente XVI e dell'area XXV*, Rome, 1977 (Studi miscellanei, 23).
- Peacock, Williams = D. Peacock, D. Williams, *Amphorae and the Roman Economy: An Introductory Guide*, London, 1986.
- Saraçhane = J. Hayes, *Excavations at Saraçhane in Istanbul. Volume 2. The Pottery*, Princeton, 1992.

BIBLIOGRAPHY

- J. Evans, M. Millet, *Residuality revisited*, in *OJA*, 11, 2, 1992, p. 225-240.
- M. Fulford, D. Peacock, *Excavations at Carthage: The British Mission. vol. I.2 Avenue du President Habib Bourguiba, Salamambo: The Pottery and Other Ceramic Objects from the Site*, Sheffield, 1984.
- A. Giardina, *Le due Italie nella forma tarda dell'impero*, in A. Giardina (a cura di), *Società romana e impero tardoantico. Vol. 3 Le merci gli insediamenti*, Rome-Bari, 1986.
- C. Going, *Economic 'long waves' in the Roman period? A reconnaissance of the Romano-British evidence*, in *OJA*, 11, 1, 1992, p. 93-117.
- E. Hostetter *et al.*, *A late Roman domus with apsidal hall on the NE slope of the Palatine Hill*, in L. La Follette *et al.*, *Rome Papers: the Baths of Trajan Decius, Iside e Serapide nel Palazzo, a late Domus on the Palatine and Nero's Golden House* (JRA suppl. 11), Ann Arbor (Mich.), 1994.
- R. Laurence, *Roman Pompeii: Space and Society*, London-New York, 1994.
- R. Leonard, G. Jones (eds.), *Quantifying Diversity in Archaeology*, Cambridge, 1989.
- C. Orton, P. Tyers, *Statistical analysis of ceramic assemblages*, in *Archeologia e calcolatori*, 1, 1990, p. 81-110.
- C. Orton, P. Tyers, A. Vince, *Pottery in Archaeology*, Cambridge, 1993.
- C. Panella, *Le anfore italiche del II secolo d.C.*, in M. Lenoir *et al.* (eds.), *Amphores romaines et histoire économique: dix ans de recherche*, Rome, 1989 (Collection de l'École française de Rome, 118), p. 139-78.

- J. Paterson, *Salvation from the sea : amphorae and trade in the Roman west*, in *JRS*, 72, 1982, p. 146-57.
- R. Ricci *et al.*, *Roma. Scavo delle pendici nord del Palatino : Relazione preliminare delle campagne di scavo 1990*, in *Archeologia medievale*, 19, 1992, p. 378-408.
- P. Rice, *Pottery Analysis : A Sourcebook*, Chicago, 1987.
- M. Schiffer, J. Skibo, *A provisional theory of ceramic abrasion*, in *American Anthropologist*, 91, 1, 1989, p. 101-115.
- A. Wallace-Hadrill, *Houses and Society in Pompeii and Herculaneum*, Princeton, 1994.

TABLE 1 - Context A (105) : Table/utilitarian wares and cookwares by class and phasing category for estimated number of vessels data. ENV = estimated number of vessels. Cells with counts of 0 correspond to pottery classes attested by parts of vessel other than rim.

TABLE/UTIL. WARES	IN PHASE		INDETER.		RESIDUAL		UNKNOWN	
	ENV	%	ENV	%	ENV	%	ENV	%
African sigillata D	17	9.2						
heavy-glazed	0	0.0						
African sigillata C	8	4.3	32	17.3	0	0.0		
Roman red-slip B			19	10.3				
African sigillata A					15	8.1		
thin-walled					10	5.4		
glazed fineware					0	0.0		
eastern sigillata B					0	0.0		
Italian sigillata					1	0.5		
black gloss					1	0.5		
bucchero					1	0.5		
fineware							44	23.8
color-coat fineware							28	15.1
red-painted fineware							1	0.5
volcanic utilitarian							3	1.6
African utilitarian							5	2.7
Totals (N=185)	25	13.5	51	27.6	28	15.1	81	43.8
COOKWARES								
African			174	41.9	2	0.5		
Aegean					2	0.5		
internal red-slip					2	0.5		
internal slip					0	0.0		
west-central Italian					14	3.3	221	53.3
Totals (N=415)			174	41.9	20	4.8	221	53.3

TABLE 2 – Context A (105) : Transport amphorae by class and phasing category for estimated number of vessels data.

	IN PHASE		INDETER.		RESIDUAL		UNKNOWN	
	ENV	%	ENV	%	ENV	%	ENV	%
Keay 52	5	3.75						
Keay 25B	12	9.0						
Ostia IV.279			2	1.5				
Peacock/Williams 40			6	4.5				
Peacock/Williams 41			7	5.25				
Peacock/Williams 45			4	3.0				
Peacock/Williams 47			4	3.0				
Peacock/Williams 56			8	6.0				
Keay 1			2	1.5				
Keay 3			9	6.75				
Keay 4			1	0.75				
Keay 5			2	1.5				
Keay 6			5	3.75				
Keay 7			6	4.5				
Keay 9/11			2	1.5				
Peacock/Williams 22			1	0.75				
Peacock/Williams 23			7	5.25				
mid-imp. Campanian					2	1.5		
Ostia II.521/III.369					1	0.75		
Mau 35					2	1.5		
Peacock/Williams 27					2	1.5		
Peacock/Williams 10					0	0.0		
Peacock/Williams 9					2	1.5		
Peacock/Williams 29					0	0.0		
Peacock/Williams 3-5					1	0.75		

(P.T.O.)

	IN PHASE		INDETER.		RESIDUAL		UNKNOWN	
	ENV	%	ENV	%	ENV	%	ENV	%
Peacock/Williams 25					2	1.5		
Peacock/Williams 20					1	0.75		
Peacock/Williams 18					1	0.75		
Peacock/Williams 19					1	0.75		
Peacock/Williams 13					1	0.75		
Ostia I.455/456							4	3.0
Palatine East 1							7	5.25
Palatine East 2							7	5.25
Palatine East 3							2	1.5
Peacock/Williams 49 <i>similis</i>							0	0.0
Saraçhane 2							1	0.75
short-neck Tunisian							1	0.75
misc. Tunisian							4	3.0
short-neck Tripolit.							1	0.75
unclassified							7	5.25
Totals (N=133)	17	12.8	66	49.6	16	12.0	34	25.6

