The Impact of Rome on the Egyptian Pottery Industry[1]

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This paper looks at pottery as one key to understanding the effects on Egypt of incorporation into the Roman Empire. We look at the impact Roman pottery had on Egyptians and measure aspects of that impact to consider degrees and forms of acculturation, and its limits. Only in recent years has research, fostered particularly by the French Institute and its publication, the *Cahiers de la céramique égyptienne*, begun to give adequate attention to pottery of the Roman period in Egypt. One result, strikingly underscoring the complexity of the interactions between indigenous and new social forces, has been to demonstrate that production and distribution of "Roman" pottery in Egypt long outlasted Roman rule. We can now see that this pottery has much to tell us about the selective patterns of change that Roman conquest could bring.

It was only with the publication, in 1992, of the great mass of material from the important site of Elephantine that a more detailed analysis of relationships became possible. In this article we have divided the interactions into certain components, and measured each of these as precisely as is now possible. By itself, the Elephantine material provides a rich source for analysis. We hope that we are also establishing a framework that will prompt similar studies of material from other sites.

[1] We first presented much of the material in this paper at the 1997 convention of the American Institute of Archaeology in a session "Indigenous Peoples in the Roman Empire: Identity and Transformation," organized by Peter S. Wells, whom the authors thank for providing stimulus and encouragement. Andrea Berlin made many helpful and trenchant comments. We also thank students who participated. Liz Turchin and Lori Wiederrich assisted in early stages, and Betty O'Brien and Suzan Sengoz worked patiently and meticulously to check final figures and enter corrections. Any remaining mistakes are of course ours alone.

At the time of the Roman conquest, Egypt had, of course, a long tradition of producing fine pottery. Throughout its history, potters had been intermittently receptive to foreign developments. J. Bourriau has traced instances of borrowings from prehistoric times to the Arab conquest. She notes that there do not seem to be any generally applicable reasons why some periods were more open to outside influence than others. She illustrates only a few imitations of widely circulated shapes at any given time (Bourriau 1981: 130–39). Students of Roman pottery are fortunate because the abundant data on production around the Empire make it possible to trace relationships more fully. Roman rule in Egypt brought a long period during which potters continually borrowed many vessel types originating outside of Egypt, at the same time ingeniously reworking the borrowed shapes.

It is important to note, however, that the receptivity to outside forms occurred in specifically limited spheres. Certain groups of pottery, primarily tablewares used for serving solid foods, were radically transformed. Others, including most domestic pottery and tablewares used for liquids, remained immune. Bourriau notes a tendency among scholars to concentrate on "Roman and Romanizing" ceramics, ignoring the large quantity of production that remained unaffected (1981: 88). The distinction is important. Looking at the adoption of European pottery among Native Americans, Marshall and Maas conclude that "the role of material culture was found to be more dynamic in ceremonial contexts than in the carrying out of everyday tasks suggesting resistance to change is more acute in the 'habitus' of everyday life" (Marshall and Maas 1997: 288). In this paper we are defining selective patterns of change that seem to indicate processes similar to those outlined in their case studies.

The extent, and limits, of the transformation can be clearly seen in the finds from one site, Elephantine (see map, fig. 1). The site has been admirably documented. In 1992, Robert Gempeler published a comprehensive account of the pottery from the excavations carried out by the German Archaeological Institute between 1969 and 1982. Gempeler noted the lack of "a systematic treatment of pottery from the conquest of the Egyptians by the Romans in 30 B.C. to the conquest by the Arabs in A.D. 641" (1992: 15), but his book goes a long way toward remedying that lack. The pottery he includes begins a generation after the Roman conquest, and continues several centuries after A.D. 641. It includes over seven hundred types and many subtypes. This paper draws on Gempeler's data to delineate some processes of Romanization.

A. Roman Pottery in Egypt: State of Scholarship

Knowledge of pottery of the Roman period in Egypt has developed slowly during most of this century, increasing more swiftly during the last twenty years. The main sites from which Roman pottery has been published are shown in table 1, and on the map, fig. 1. The table shows the nature of each site, the period covered, and the date of the main publications.

The first significant studies came from excavations of monasteries and sites close to important Pharaonic sites at Sakkara and Thebes. They produced important typologies of forms (Quibell 1912; Winlock and Crum 1926; Mond and Myers 1934). As knowledge of Roman pottery outside Egypt expanded, and as most sites in Egypt were chosen for investigation specifically because of their importance in the Roman period, researchers recognized great diversity in the patterns of importation and local production and distribution. The publications of Alexandria in 1976, the Kellia in 1977, Ashmounein and Gurna in the 1980s, and Tôd in the 90s have been particularly significant in establishing classifications of fabrics and shapes from datable contexts. Pottery from a wide variety of habitation and burial sites has now been published. The geographical and chronological distribution of the published material has been uneven. The majority of the sites are in Upper Egypt. Partly because of the continued interest in monastic sites, about half the publications concentrate on the final centuries of Roman rule. Only a few concentrate on the earlier period, first through third centuries. Five publications include pottery from the whole period of the empire. One of these is Elephantine, discussed here. Probably few sites yielded the same wealth of pottery types as Elephantine: in any event the other pottery reports are not extensive enough to allow analysis similar to the one presented here.

B. Elephantine

Three factors make Elephantine a particularly significant site for study of acculturation in pottery: the location in the far south of Egypt, the relation to the Roman army, and the role as a center of pottery production.

1. Location

Elephantine is an island in the Nile just south of the city of Syene or modern Aswan, and downstream from the First Cataract, above which the Nile is no longer navigable. Syene was the last important settlement before the border outposts that the Romans established to the south.[2] Changes introduced into the Nile Valley from the Mediterranean world would normally take some time to affect this distant area. During the preceding period of Ptolemaic rule, Hellenic and Mediterranean influences, including importation and immigration, had flourished in the Delta, but made less difference to most of the Valley. By the first century B.C., "native" Egyptian society had already blended many influences, but remained deeply conservative. Roman rule led gradually to a much greater mixing of people and cultures throughout the country (Bagnall 1993: 230–35 and passim; Bowman 1986). Hellenistic pottery had enjoyed considerable popularity in Upper Egypt, even prompting imitation by local producers at Elephantine (Rodziewicz 1992) but the coming of the Romans brought

[2] Boundaries Alston 1995: 28, 33–34, 201–3; Adams 1983, Adams 1986.

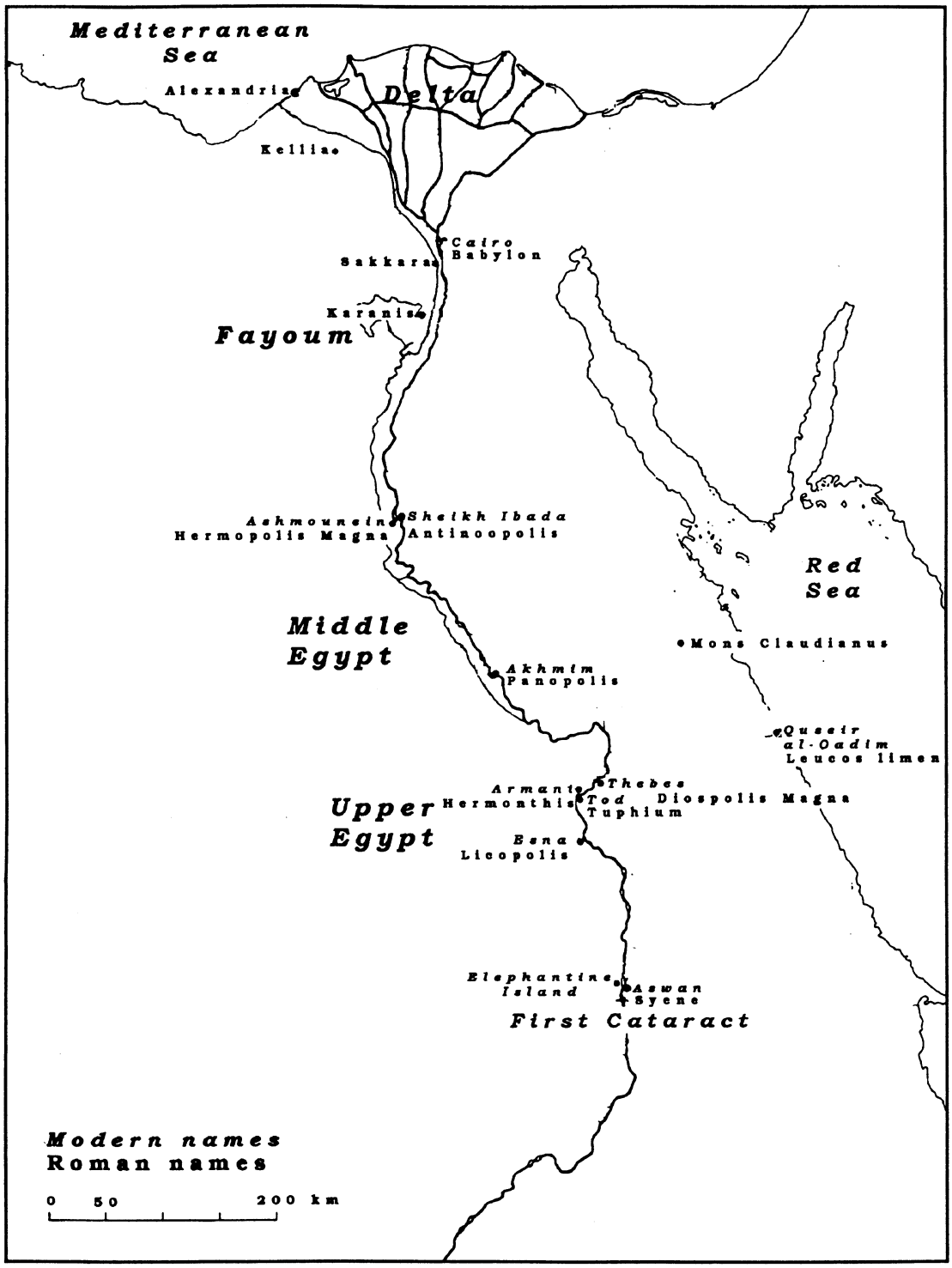

Fig. 1. Map of Egypt showing sites of the main publications of Roman period pottery. The map, adapted from Bowman 1986 fig. 1, shows the Roman landscape. When there is a modern name in common use, it is given first with the Graeco-Roman after it. Baqaria (modern name, no ancient name known) and the Bucheum are about four miles due west of Armant, and do not appear separately on the map. (Licopolis = Letopolis).

TABLE 1. Major S ites for the Study of Roman Pottery in Egypt*

Delta:			
Alexandria	city	late Roman	Rodziewicz 1976
Kellia	monastery	late Roman	Egloff 1977
Cairo-Fayoum Area:			
Karanis	city	middle to late Roman	Johnson c1981
Sakkara	monastery	late Roman	Quibell 1912
Middle Egypt:			
Akhmim (Panopolis)	city	late Roman through Islamic	Schrunk 1993
Ashmounein (Hermopolis Magna)	city	early to late Roman	Bailey 1982, Spencer and Bailey c1982, Spencer et al. c1983–c1986
Mons Claudianus	fort and village	early to middle Roman	Tomber 1992
Upper Egypt:			
Armant (Hermonthis)	city	Pharaonic through Islamaic	Mond and Myers 1940
Baqaria	village	late Roman	Mond and Myers 1934
the Bucheum	tombs	early Roman	Mond and Myers 1934
Elephantine	habitation	early Roman through Islamic	Gempeler 1992, Rodziewicz 1992
Esna (Latopolis)	monastery	late Roman	Jacquet-Gordon 1972
Quseir al-Qadim (Leucos Limen?)	city	early to middle Roman	Johnson 1979, Whitcomb 1982
Thebes (Diospolis Magna): St. Epiphanius	monastery	late Roman	Winlock and Crum 1926
Thebes (Diospolis Magna): the Valley of the Queens	habitation (partly monastic)	Pharaonic through late Roman	Lecuyot 1996
Thebes (Diospolis Magna): Gurna	habitation	Pharaonic through Islamic	Mysliwiec c1987
Tôd (Tuphium)	city	Pharaonic through Islamic	Pierrat 1991, 1996

*When there is a modern name in common use, it is given first with the Graeco-Roman after it. No ancient name is known for the Roman village near modern Baqaria.

about a transformation. The products changed, the volume increased, the distribution expanded.

These changes were not due to increased importation of pottery into Upper Egypt. Imports remained limited in the Roman period, as they had been in the Ptolemaic. There were, specifically, very few imported pieces among the German finds at Elephantine, and most were amphorae rather than fine wares (Gempeler 1992: 57). Imitation of foreign types, however, became a major industry in the area. This imbalance between number of imports and degree of influence is not unusual in Egypt: in the discussion of "foreign influences" mentioned above, Bourriau notes that "the quantity of foreign ware in circulation does not seem to be a relevant factor" to the receptivity of the native potters at any time (Bourriau 1981: 130).

2. *Military Presence*

One reason why the Romans made a greater impact on the population of Upper Egypt than the Ptolemies had done was that they stationed army units throughout the Valley. The army always played an important role in Romanizing

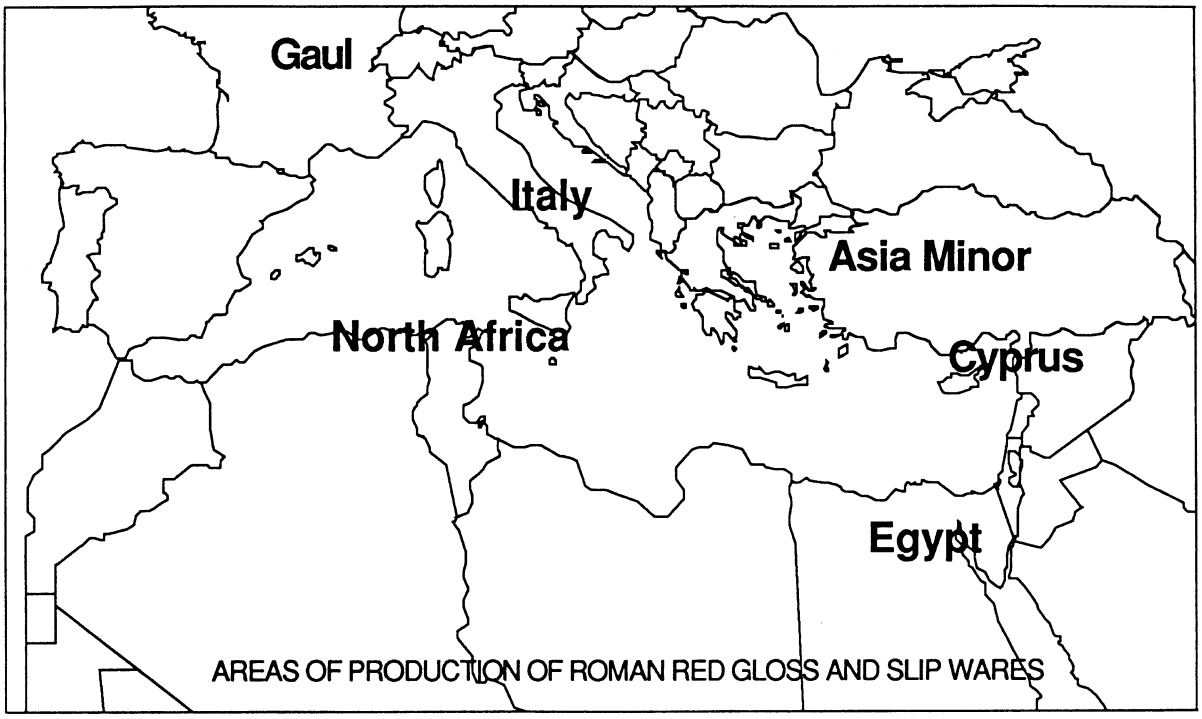

Fig. 2. Map of the Roman empire showing major areas of production of terra sigillata.

conquered areas, but details of that role are debated. Three recent studies have painted differing pictures. Fentress sees the army in Numidia as a major force in center-periphery relations: Pollard argues that the army in Dura Europus was substantially isolated from the native population. The fullest study, based on copious available sources, is Alston's work on Roman Egypt. The combined evidence of documents and archaeological finds has led him to suggest "a kinder, gentler Roman army," as Bagnall puts it in his mildly skeptical, but basically accepting review: that is, an army closely integrated into Egyptian society, often recruited from the native population, not living as a sharply separated elite (Fentress 1979; Pollard 1996; Alston 1995; Bagnall 1997). The pottery evidence seems to support this interpretation (see below).

Alston collects the well-studied information for the stationing of troops in Egypt. Their distribution fluctuated over time, but they were always scattered through the province (Alston 1995: 33–35, map 2 p. 34). The most important garrison, the one permanent legionary encampment, was at Alexandria. After Alexandria, Syene (Aswan) was one of the most important, perhaps the most important site. Troops were quartered there to defend the southern border of the province. From the Augustan period on, the garrison usually consisted of several cohorts (three in the time of Strabo, Alston 1995: 28, 177). This military presence presumably brought the first customers demanding imitations of "terra sigillata" (the term we will use to include all the Roman fine table wares that influenced Egyptian production, see map, fig. 2[3]). The imitations began to be made shortly after the first troops arrived (Gempeler 1992: 56). Bourriau points out that in other periods of Egyptian history foreign influence does not correlate with presence or absence of foreign settlers (1981: 130), but in this case the connection seems clear.

The military presence cannot be said to have continuously brought influence from the "center"

[3] Under this term we include both stamped red gloss and non-stamped red slip wares, briefly identified on p. 10 below.

to the "periphery" in the simplest sense of those terms, because after the early first century A.C. the most important centers of pottery production were not in the center of the Empire. The sources from which the inspiration for new types came into Egypt after the Roman conquest were geographically diverse, and bore no relation to the sources of the troops. The reasons why certain areas dominated pottery trade in the Empire have yet to be fully understood; Hugo Blake's analysis of issues remains provocative (Blake 1978: 437–38; compare Greene 1986: 163). Peacock, reviewing the evidence, characterized the location of some of the most important nucleated complexes as "extraordinary" (Peacock 1982: 115–20). The production areas that dominated the empire-wide trade also provided the main sources of Egyptian imitations (see D-2 below). Since so few imports are attested, at least in Upper Egypt, the mechanism for diffusion of new shapes remains unclear.

Although the coming of the army almost certainly initiated the changes discussed in this paper, the impact of the army on later developments is less clear. The military presence would have had continuous impact in two ways. First, the military created movement in and out of regions. However many soldiers were recruited locally, some units and officials were always arriving from other parts of the empire. This movement probably provided one stimulus for the continued awareness that Egyptian potters and their customers had of changing fashions throughout the empire. Alongside that interest went a readiness to reshape the Roman prototypes (see figs. 9, 14, 19).

Secondly, the military formed a secure market. The soldiers' pay did guarantee a steady purchasing power, and probably contributed to the prosperity of the region as a whole. This prosperity fluctuated, but did not decline in the later centuries (Alston 1995: 103–10; Bagnall 1997: 509, 510).

The Aswan production, however, ultimately found markets much wider than the soldiery of Aswan, or elsewhere in Egypt. Its "Romanized" pottery seems by the later Empire to have become ubiquitous both in cities and in monasteries. Soldiers may still have created a substantial part of the market for later production, but the question is whether the military customers formed a distinct elite group that inspired imitation among civilians, or whether soldiers had been assimilated into Egyptian society.

Elephantine may provide some relevant evidence. Grossmann and Gempeler argue that the building of houses on the island as a group in the fifth century, and their abandonment again as a group in the sixth, probably reflects the stationing of a cohort here (Grossmann 1980: 21–29; Gempeler 1992: 52). If they are correct, this interpretation of the habitations would harmonize with Alston's findings, particularly his analysis of living conditions at Karanis (Alston 1995: 117–42; Bagnall 1997: 511). The soldiers at Elephantine would have been living in small mud brick houses similar to those of native Egyptians; many of them may well have been native Egyptians. They would have formed a compact group, unlike the soldiers and veterans at Karanis, but not a group sharply distinguished from civilians.

If the military had constituted an outside elite, the indigenous population might have sought to imitate them by buying foreign-appearing pottery. On the evidence presented by Alston and others, it seems more likely that, for much of the time, the military were not regarded as alien, and that was probably true of the pottery as well. The continued production of a significant number of borrowed types long after the departure of the Roman soldiers, and long after similar production had ceased everywhere else around the Mediterranean, provides a final indication of how deeply Romanized forms had become integrated into the life of Upper Egypt.

3. Pottery Production

The finds from Elephantine also derive importance because they come from a major center of pottery production. A number of centers throughout Egypt specialized in production of Romanized types (see *Coptic and Nubian Pottery*). These centers probably conformed to the patterns defined by Peacock as "nucleated workshops" and "manufactories" (Peacock 1982: 9–10), but no direct evidence of their organization has so far been found. In 1987 and 1988, an Egyptian and French team led by P. Ballet explored production sites in the Delta and the Valley. Some centers in the Delta and in Middle Egypt have been identified, while more remain to be found (Ballet et al. 1991, Ballet and Vichy 1992). These

sites produced pottery with alluvial clay fabrics. In Upper Egypt, the identified production sites concentrate near the kaolin clay beds near Syene (the modern Elephantine-Aswan area). The team located several beds of kaolin clay, but little information has so far been published about them (Ballet et al. 1991), and the extent of the area having such clay beds cannot yet be clearly determined. The clay beds near Aswan produced clay comparable in quality to those of North Africa and other production centers. (On the importance of the right clay to terra sigillata manufacture, see Peacock 1982: 62–63, 119). This clay was used for a broad range of products called "Aswan wares" (Adams 1986). These include the Romanized products analyzed in this paper. Ballet's team concludes that by the late Roman period the workshops of the Aswan area, including Elephantine, constituted the largest producers of Romanized fine wares in Egypt (Ballet et al. 1991: 141–42).

Pottery from the workshops of the Aswan area was shipped throughout Egypt. Previously, some specialized ceramic products might be distributed widely, but organized distribution of a wide range of vessels seems to be a new development of the Roman period. By the end of the first century A.C., Aswan wares appeared at both the Valley of the Queens and Mons Claudianus (Lecuyot 1996; Tomber 1992). Their popularity increased, and by the end of the Empire they played a major role at most sites in Upper Egypt for which we have information. Aswan fine wares appear in large numbers even in Alexandria, although Romanized wares produced in the Delta were easily available there (Rodziewicz 1976). It is notably difficult to find a clear rationale behind the location of major production sites of Roman pottery (see above), but the factors favoring Elephantine were the ease of down river transport, the stimulus of a military presence, and, probably most important, the local availability of kaolin clay.

At the beginning of the Romanized production in the area, the military may have provided not only the first customers, but the first potters (Gempeler 1992: 56). The role of Roman soldiery in making table wares has now been clearly demonstrated at an encampment in Jerusalem, where they used local clay skillfully to imitate terra sigillata forms. The pottery from this site is being published by Jodi Magness (Andrea Berlin, personal communication, May 21, 1998; on previous evidence for military production of "imitation samian," Peacock 1982: 142).

That initial development, however, led to a native industry. Most of the production discussed here was the work of Egyptian potters for Egyptian customers. No great change in training need have occurred. Roman fine ware production required high quality clay, well prepared, and that was available at Elephantine. Terra sigillata manufacture could involve creation of relief decoration, but relief decoration was never a factor in Egyptian production, so that technique did not have to be learned by the local potters. Finally, the production required care in firing to obtain the hard gloss or slip surface (on conditions of pottery production, see Hayes 1997: 18–25; Peacock 1982: 52–74). Egyptian potters were already skilled in making fine slip wares, including fine red slip ware (Hayes 1976: 39; Bourriau 1981: 85–86, no. 168). The main change in technique involved sharper definition of parts in profiles, not a difficult skill to acquire.

There is no evidence for the organization of production (see Peacock's categories cited in A above). The German excavators found abundant evidence of pottery production in the form of waste material, but were unable to locate the kilns. Ballet's team found two kiln sites in the Aswan area, but none at Elephantine itself (Ballet et al. 1991).

4. Stratification

The greatest drawback of the pottery data from Elephantine arises from the uneven preservation of strata. The German excavations uncovered a habitation site occupied from the first to the tenth centuries of our era (Grossmann 1980: 21–24). The early explorations from 1906 to 1910 and in 1918 and subsequent sebakh digging had disturbed large areas of the site. The amount of datable pottery differs with the different stratification preserved. Only two houses could be dated to the Augustan period, and so only a relatively small number of types can be dated to the first century A.C. The second, third, and fourth centuries yielded better stratification. The clearest chronology comes from the

late houses, built in several phases from the fifth to the seventh centuries.

C. System of Classification

Most of the publications of Roman pottery in Egypt (cited in table 1) divide it by wares, stressing fabric and slip color in establishing a classification system. In early stages of excavation, the archaeologists at Elephantine divided the pottery into "wares," defined as "Gefässe mit der gleichen Kombination von Tongemisch und Oberflächenbehandlung" (vessels with the same combination of clay composition and surface treatment), but Gempeler's publication eliminates that division (Gempeler 1992: 15). He discusses wares (Gempeler 1992: 21–23), but considers a typology based on forms to be more significant, because most forms cut across ware boundaries. He is only discussing the pottery produced in this area, sometimes grouped together as "Aswan" wares (see A above). As we suggest at the end of this article, we think that ware distinctions, especially distinctions in use of slip and paint, will be significant factors in interpreting developments even in this material. We limit ourselves here to analyzing Gempeler's data.

He divides all the pottery into two large categories of forms, table vessels and kitchen vessels (Geschirr). Each category is then divided into "groups," and then into "forms," also called types. Each form is assigned a number. He frequently divides a numbered type into two to four subtypes, assigned letters *a* through *d*. Differences between subtypes may involve size, or morphology; and some morphological differences can be substantial. Sometimes Gempeler traces different subtypes to different origins, and they frequently have different dates, so in the following statistics, with the exception of tables 2 through 4, we have counted each variant as a separate type.

D. Analysis

1. Groups

Both categories, that is, table and kitchen vessels, exhibit a high degree of variability in type. The table vessels have slightly more variety. Gempeler defines 720 numbered vessel types, 361 belonging to table vessels and 359 belonging to kitchen vessels (excluding eighteen types of imported amphorae). When all subtypes are counted, the eight groups of table vessels constitute 474 types, and the eight groups of kitchen vessels constitute 410.

The categories and groups show striking divergences in their receptivity to outside influence. Table vessels change far more than kitchen vessels. Not all groups of table vessels are equally affected, however. The three tables (2, 3, 4) show these variations.

Of the kitchen vessels, only twenty-six imitate forms produced elsewhere (see table 3). Twenty-three were modeled on North African shapes. Three also appear in, or were introduced from, Palestine or Syria. Of the 361 table vessel shapes, on the other hand, 117 are probably modeled on non-Egyptian shapes. Most of the receptivity concentrates in three groups: in one small group, plates, and in two large ones, shallow bowls and deep bowls.

2. Table Vessels

We have analyzed the data for the table vessels in more detail. We look first at the overall picture, then break it down group by group. In each case, we give an overview of the sources of inspiration (shown in pie charts), and then trace the development through time (shown in line graphs). In discussing the three most receptive individual groups we also present line graphs distinguishing two degrees of borrowing: a) direct imitation, and b) derivatives. "Derivatives" are a varied category. They include both second-generation developments of earlier imitations and shapes related to but not directly imitating Roman shapes. They demonstrate the readiness of the native potters to experiment with the new vocabulary.

It is important to remember that these statistics refer to numbers of types, rather than numbers of vessels. The great number of types is itself striking. The potters had a continuing interest in diversity, imitating a whole range of similar shapes, and producing variants of those shapes.

Some indication of the frequency with which the types occur can also be seen in these charts. Absolute numbers are not available. The exca-

TABLE 2. Table Vessels: Types and Their Origins*

Form	*Numbered types*	*All types*	*North African*	*Other Non-Egyptian*
plates	12	18	9	1
shallow bowls	92	118	25	12
deep bowls	86	141	39	12
beakers	45	62	1	12
tureens	14	17	1	4
jars	17	23		1
pitchers	56	56	one imitated type: found in Europe, N. Africa, and East	
bottles	39	39		

TABLE 3. Kitchen Vessels: Types and Their Origins

Form	*Numbered types*	*All types*	*North African*	*Other Non-Egyptian*
saucepans	24	30	7	
casseroles	34	42	3	
open jars	89	94	4	1 (shape also found in Palestine)
closed jars	80	88	1	
basins	18	20		
amphoriskoi	39	42		
amphorae	54 (18 imported)	55	8	2 (Palestine and Syria)
lids	21	22		

TABLE 4. Unusual Vessel forms

23 forms	2, both single finds, with parallels outside Egypt	S-13, pan, shape found in Hispanic TS.
		S-14, plate-like vessel, shape found in North Africa, East. Italy.

*In these tables, analysis is based on the individually numbered types, because these give a better picture of the relationship between Table Vessels and Kitchen Vessels. Table Vessels are subdivided far more frequently than Kitchen Vessels. All subsequent charts and graphs show subdivisions counted as separate types, see above.

vators considered that the uneven preservation of stratigraphy from different periods made it useless to present a statistical analysis based on counting and weighing sherds. Gempeler however does classify all his types in six divisions by frequency (Gempeler 1992: 50). We have added together the types he calls "sehr häufig" (represented by over 100 vessels or rim sherds) and "häufig" (represented by 50 to 100 vessels or rim sherds) to obtain our "common types."

2a. All Groups

The first two pie charts indicate the strength of the impact from outside, and its sources. These charts divide the types made at Elephantine into those that were inspired by models from North Africa, from the "West," meaning Italy and Gaul, from the "East," meaning Asia Minor and Cyprus (for these four areas, see fig. 2), and "native" Egyptian types. Types called

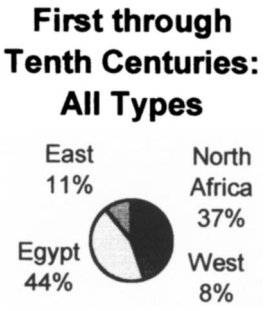

Fig. 3. Sources of Roman table vessel forms: all types.

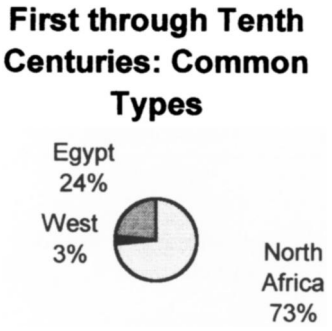

Fig. 4. Sources of Roman table vessel forms: common types.

"native" Egyptian may be Pharaonic, or Ptolemaic in origin, or may represent new inventions during the Roman period. Their common characteristic is that they do not copy forms manufactured elsewhere in the Roman Empire.

When Egypt became a Roman province, the dominant fine ware in the Roman world was red gloss ware. Production began in Italy in the first century B.C. with so-called Arretine ware, then in the middle of the first century A.C. spread to Gaul. North African production of red slip wares also began in the first century A.C. North African products were the dominant imports throughout the Empire from the second to the fifth century. Workshops in Asia Minor and on Cyprus produced and exported significant amounts of red slip wares throughout the Roman period (called Eastern Sigillata A and B in the early centuries, Phocaean and Cypriote Red Slip wares in the later period: for an updated summary of all major Roman wares, see Hayes 1997). Egyptian products imitate models from all these centers.

The first pie chart, fig. 3, shows that over ten centuries, Egyptian types made up almost half of all the fine vessel types, and North Africa contributed the lion's share of the models that were imitated. If we look only at the common types, fig. 4, the picture changes markedly. Egypt and North Africa continue to dominate, but North Africa contributes many more popular types. Forty-four percent of all types are Egyptian, thirty-seven percent North African, eleven percent Eastern, and eight percent Western: when common types are considered, twenty-four percent are Egyptian, three percent Western, and the rest North African.

The line graphs indicate the longevity of the Roman impact, as well as the way it changed over time (figs. 5 and 6). Some of this apparent change reflects the changing amount of evidence for different periods (see B-4 above). Imitation of Roman pottery probably began in the Augustan period, steadily increased in importance, and gained such a strong footing that it long outlasted Roman rule. Interestingly, the number of foreign-influenced types and the number of specifically Egyptian types followed a roughly similar curve. Production of native types of red slip tableware begins a little later and more slowly than the foreign-influenced production, but reaches its peak at the same time, and continues strongly up to the Arab conquest in the mid-seventh century.

The degree to which Egypt welcomed this aspect of Romanization can be shown by the persistence of the borrowed types. Roman imitations continued to be made long after Roman production elsewhere around the Mediterranean had died out, and the development curves for native and Roman-inspired types continue to be similar in the later centuries (seventh through tenth). Multiplication of types seems to occur and drop off simultaneously in imported and native types. The Egyptian types, however, often consist of uncommon or even unique pieces.

The graphs also show changes in the influence of different centers of production. These correspond roughly to the changes in the relative "market share" enjoyed by each center in the Empire as a whole. Western types appear in small numbers in up to the fourth century, then decline sharply in the fifth and disappear

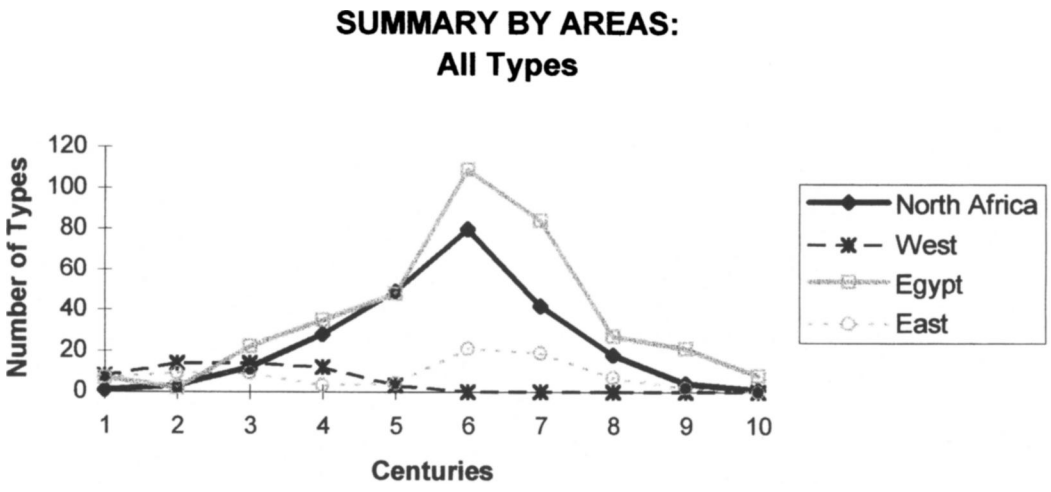

Fig. 5. Development of Roman table vessel forms: all types.

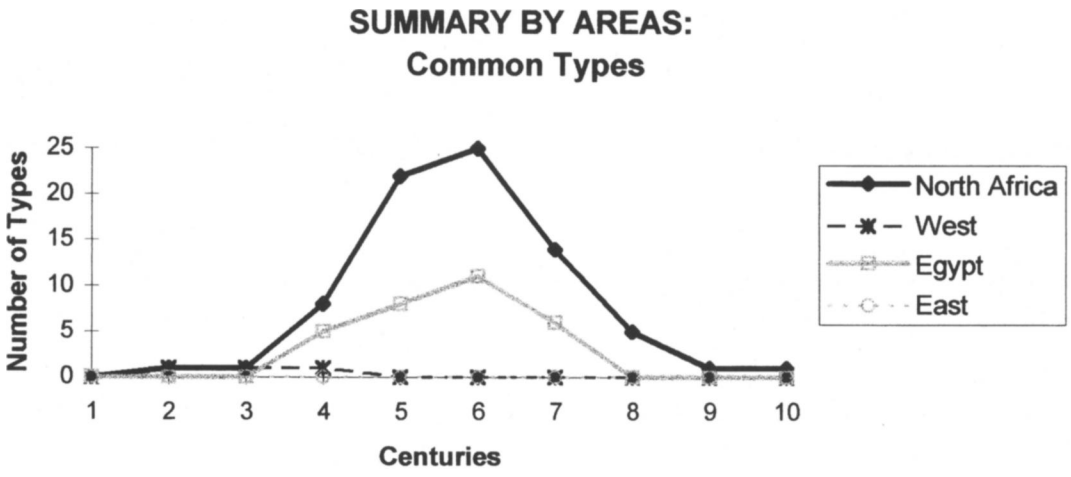

Fig. 6. Development of Roman table vessels forms: common types.

thereafter. Eastern types make a small contribution in early centuries, and then again in the sixth through seventh centuries, and decline thereafter. North African and Egyptian types appear infrequently in the first centuries, but rise steadily from the third to the sixth century, before declining.

We have already noted considerable divergence in the amount of borrowing, and will now turn to consider each of the larger groups. They are: (1) plates (Teller), (2) deep bowls (Tiefe Schale), (3) shallow bowls (Flache Schale), (4) beakers (Becher), (5) tureens (Schüsseln, a word not easy to translate), (6) jars (Töpfe), (7) bottles (Flaschen), and (8) pitchers (Krüge). Plates are flat, straight sided shapes. Groups two through six are open or very slightly closed forms. Two, three and four are divided on the basis of rim to body and height to width ratios. Their boundaries admittedly overlap in places (Gempeler 1992: 17–18). Groups five and six are deep, slightly closed forms. The tureens have straight sides and the jars have curved or angled. Seven and eight are decisively closed forms with clearly differentiated

TABLE 5. Kitchen Vessels: Types and Their Origins

Gempeler	*Hayes 1972*	*Bailey 1982*	*Adams 1986*	*Pierrat 1991*
Teller	plate	plate	plate	plat
Tiefe Schale	bowl	deep bowl	bowl	bol
Flache Schale	dish	shallow bowl	bowl, plate	coupe, coupelle
Becher	beaker, goblet	deep cup	cup	coupe, gobelet
Schüssel	deep bowl		bowl	coupe
Topf	jar		bowl, vase	vase
Krug	jug, flagon		jug	pichet
Flasche	bottle		bottle	flacon

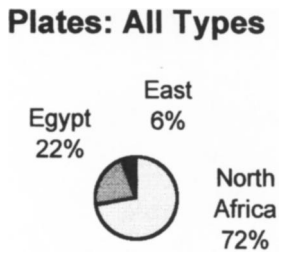

Fig. 7. Sources of plates: all types.

profiles. This division into groups constitutes the most comprehensive and clearly defined typology so far published for Roman fine wares, although it puts more different types in one "group" than most systems do. Approximate equivalents used by other scholars discussing the Roman table ware in Egypt appear in Table 5. These are not exact equivalents, because each scholar uses different criteria, rarely specified, to discriminate between shapes.

2b. Plates

Gempeler defines plates as "flat bottomed straight sided vessels." He distinguishes eighteen types (twelve numbered types with six variants), of which North Africa contributes thirteen, the East one (Eastern Sigillata B), while Egypt produced four native types (two numbered types, one of which had three variants) (pie chart, fig. 7).

Production of plates begins within a generation of the Roman conquest (line graph, fig. 8). Plates grow in popularity, and then die out long before other shape-groups. North African and Eastern Sigillata influences begin modestly and at the same time, but Eastern numbers remain static while North African rise steadily up to the fourth century. Egyptian plate types appear in the fourth century and continue to the sixth. After the sixth century plates, one of the earliest and in some ways most consistently Romanized of the shapes, cease to appear.

There is no line graph for common plates, because only four types were common. One, inspired by a North African prototype, appears from the second through the fifth centuries, and three Egyptian types (the three variants of one numbered type) appear from the fourth through the sixth.

The final line graph relating to the origins of plate types indicates the degree to which potters altered their models (fig. 9). About two thirds of the externally-inspired types are direct copies. One third, including the earliest attested borrowing, are freer adaptations.

2c. Shallow Bowls

Shallow bowls were far more popular and varied than plates (pie chart, fig. 10). There were 118 types of shallow bowls,[4] compared to eighteen types of plates. Egypt contributed well over half or fifty-eight types, North Africa forty-seven types, the East eleven types, and the West two. Nineteen shallow bowl types were common (pie chart, fig. 11). Of those, North African shapes inspired fourteen, while five were Egyptian inventions.

The earliest types of shallow bowls were inspired by prototypes from Western Europe, but in the third century North African and Egyptian

[4] There are ninety-two numbered types. Twenty forms are subdivided into two variants, and three forms are subdivided into three variants.

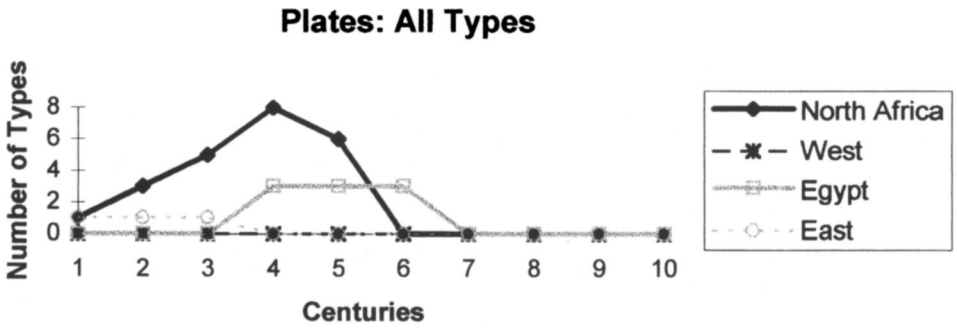

Fig. 8. Development of plates: all types.

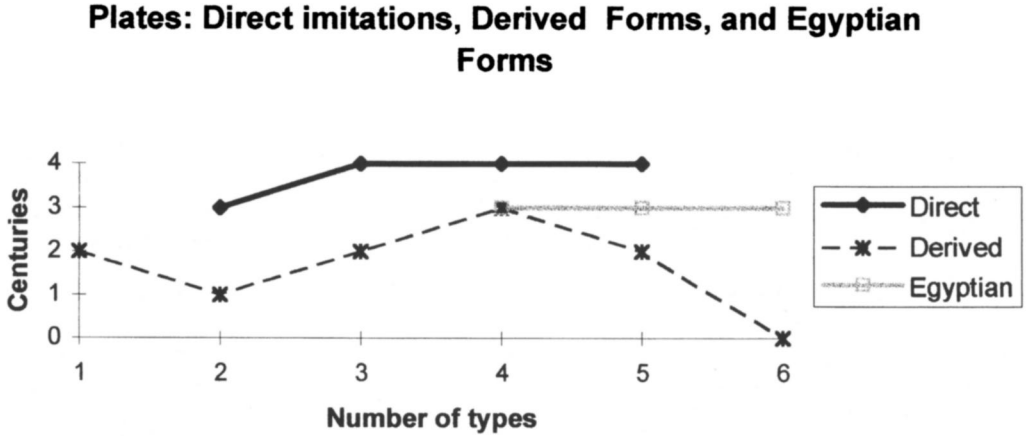

Fig. 9. Plates: direct imitations, adapted forms, "native" Egyptian forms.

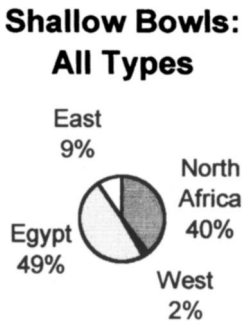

Fig. 10. Sources of shallow bowls: all types.

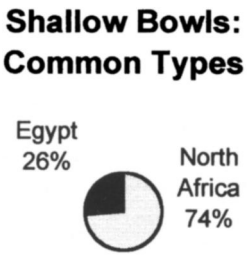

Fig. 11. Sources of shallow bowls: common types.

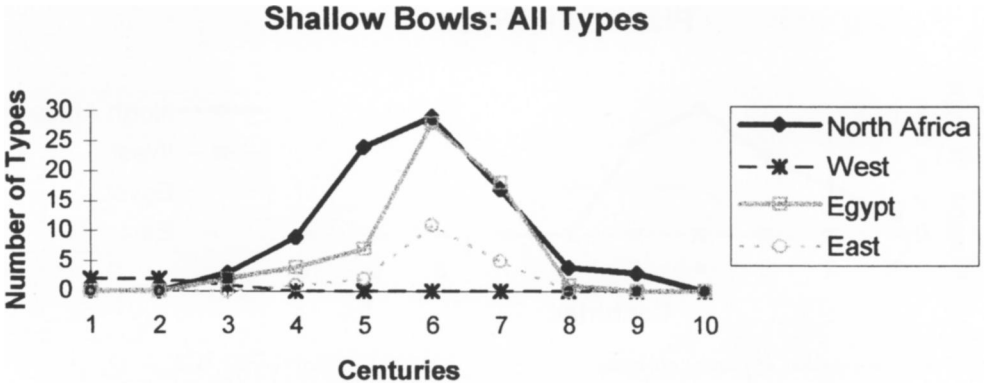

Fig. 12. Development of shallow bowls: all types.

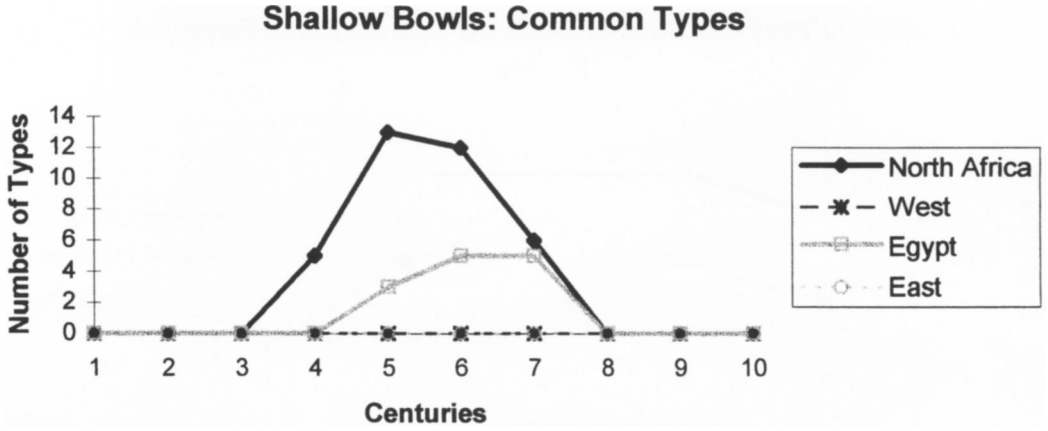

Fig. 13. Development of shallow bowls: common types.

types began to appear, and in the fourth century an Eastern type appeared (line graph, fig. 12). Development is at first similar to that of the plates, in that two Western types appear in the first centuries, but then disappear, Eastern types appear later, and increase to eleven in the sixth century. North African and Egyptian types both appear only in the third century, and then rise to twenty-nine North African and twenty-eight Egyptian types by the sixth century. The greatest popularity of the shallow bowls, as distinct from the greatest variety in types, was between the fifth and seventh centuries, as the line graph of common types shows (fig. 13).

The decline is not so precipitous or so complete as the decline in plate types. The seventh century still produces seventeen North African and eighteen Egyptian types. One Egyptian type still appears in the eighth century, and the three North African types persist until the ninth. No types are common after the seventh century.

Potters were even more likely to alter prototypes of shallow bowls than of plates (fig. 14). More than half of all the borrowed forms come only indirectly or with major changes from their ultimate models.

2d. Deep Bowls

Deep bowls are the most varied of all these groups (pie chart, fig. 15). There are a total of 141 deep bowl types.[5] Egypt contributes a smaller share than the first two groups, contributing

[5] There are eighty-six numbered forms, of which forty-six are not subdivided. Twenty-eight are subdivided into two variants, eight into three, three into four, and one into five variants.

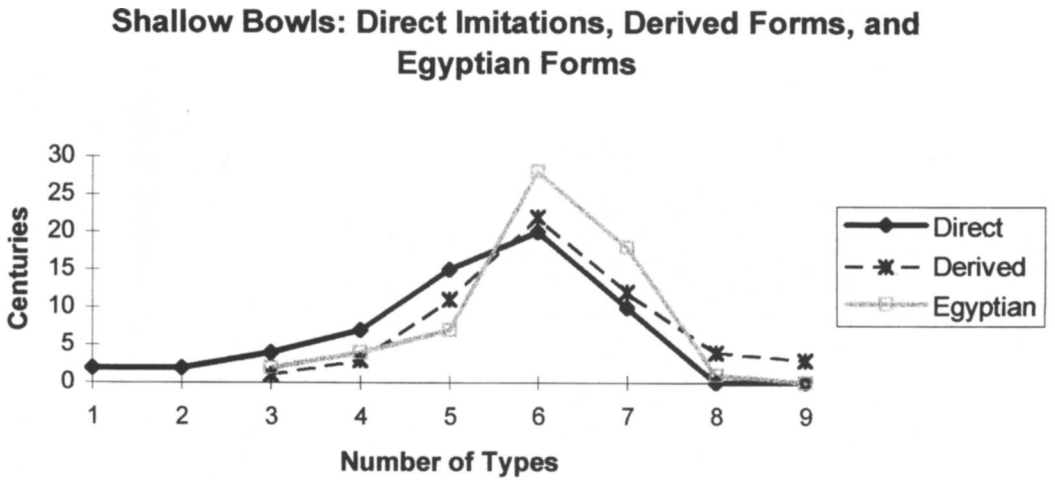

Fig. 14. Shallow bowls: direct imitations, adapted forms, "native" Egyptian forms.

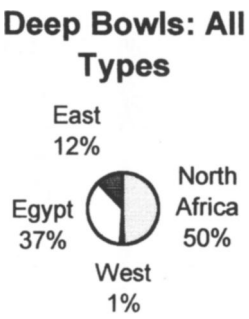

Fig. 15. Sources of deep bowls: all types.

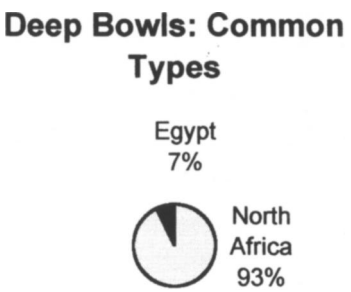

Fig. 16. Sources of deep bowls: common types.

fifty-two original types. Two types originated in the West, seventeen in the East, and seventy are North African in inspiration. There are slightly less common types of deep bowls than of shallow bowls (pie chart, fig. 16). Fourteen types are common. Only one is Egyptian; the rest are North African.

Deep bowls begin in the first century with Egyptian, Eastern, and Western types (line graph, fig. 17). Once again, there is an early Western contribution that dies out after the fourth century, an Eastern contribution in two spurts, one early (Eastern Sigillata) and one in the sixth, seventh and eighth centuries (Phocaean and Cypriote). North African types do not appear until the third century, but their number climbs swiftly through the sixth century, then declines equally drastically. Egyptian types follow roughly the same pattern, without ever reaching the same height. Eastern types remain negligible. Both Egyptian and North African types continue into the tenth century in small numbers.

When we look at common types, we find only one is Egyptian, made from the fourth to the sixth century (line graph, fig. 18). North African-derived types continued to be common through the tenth century (five common types in the eighth century, one each in the ninth and tenth).

Imitation of foreign models is much more frequently indirect than direct (fig. 19). The number of forms that are variants rather than copies of foreign types rises swiftly. In the sixth, seventh,

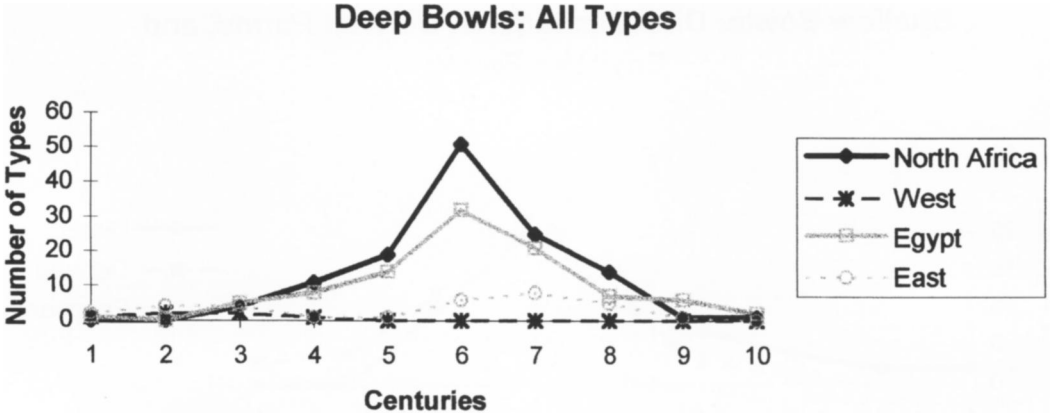

Fig. 17. Development of deep bowls: all types.

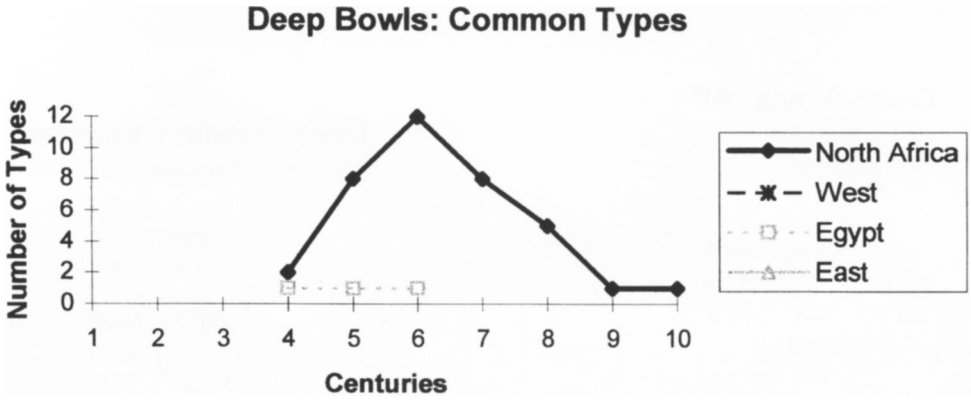

Fig. 18. Development of deep bowls: common types.

and eighth centuries variants are four times as numerous as direct copies.

The remainder of the shape-groups, that is, beakers, tureens, jars, bottles, and pitchers, follow different patterns, in which North African influence is considerably less, and Egyptian originality correspondingly greater. Graphs distinguishing direct imitation from more indirect derivation cease to be appropriate. Few shapes appear frequently enough to justify graphs of "common types."

The next group we will look at, the beakers, still follows a chronological development somewhat similar to that of deep and shallow bowls and plates, but the next two, the tureens and jars, follow more divergent paths. Bottles and pitchers are present only in small numbers. Few types have parallels outside Egypt.

2e. Beakers

There are sixty-two types of beakers, of which forty-two are native to Egypt, ten are Western, nine Eastern, and only one comes from North Africa (pie chart, fig. 20).[6] Beakers are the only shape in which Western types play any significant part.

[6] There are forty-five numbered forms, of which seven are subdivided into two variants, and five are subdivided into three variants.

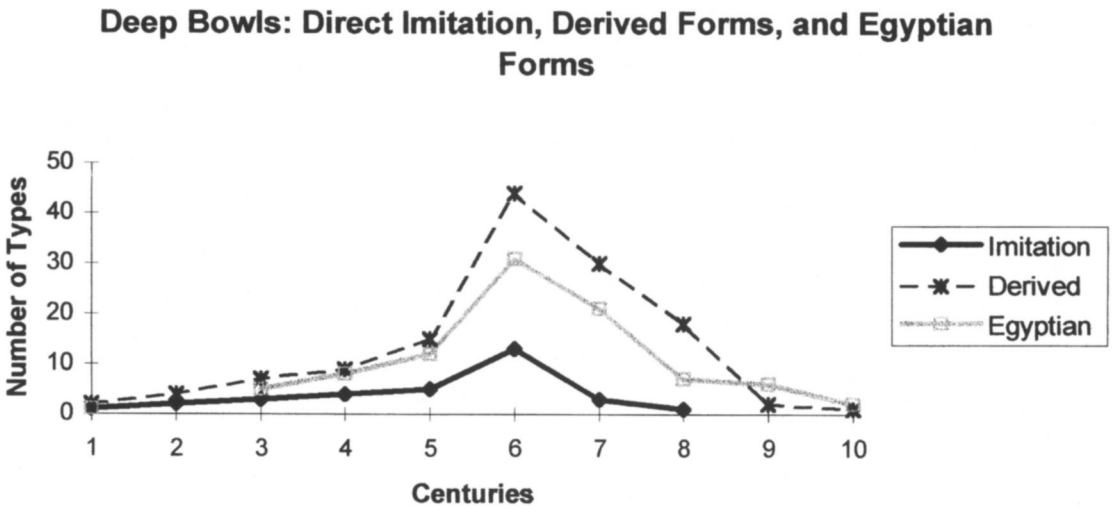

Fig. 19. Deep bowls: direct imitations, adapted forms, "native" Egyptian forms.

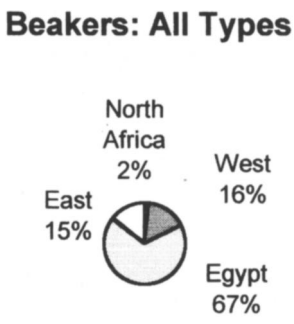

Fig. 20. Sources of beakers: all types.

Like the deep and shallow bowl types, beaker types increase rapidly in the fifth, sixth and seventh centuries, but beakers continue to diversify in the seventh century before finally declining (line graph, fig. 21). In the first two Roman centuries, several beaker types from the West and the East appear. At first, the numbers are about equal, five West and four East, but then the Western types jump to nine while number of Eastern types remains constant. In the third century a single Egyptian type appears, but native types increase to seventeen in the sixth century and eighteen in the seventh. They decline to three in the ninth century, and no beakers appeared in the limited tenth century contexts at Elephantine.

Considering the important native contribution to this group, it is perhaps surprising that no Egyptian types can be attested until the third century. This lack may be due to the nature of the evidence, since the sample from the early centuries is smaller (see B-4 above).

Two beaker types were common, that is, represented by fifty or more sherds. Both are Egyptian, and occur from the fourth to the seventh centuries.

Half of the borrowed types are direct copies and half more indirect versions.

2f. Tureens (Schüsseln)

Tureens (deep vessels with straight flaring or vertical walls) present a different picture. They are a primarily Egyptian group (pie chart, fig. 22). There are only seventeen types,[7] twelve of which originated in Egypt. The East inspired four, and North Africa one. No type was even present in large enough numbers to be considered common.

Tureens appear later than the groups considered so far, and Egyptian types are earliest (fig. 23). One appears in the fifth century, five in the

[7] There are fourteen numbered forms; one has two variants, and one has three.

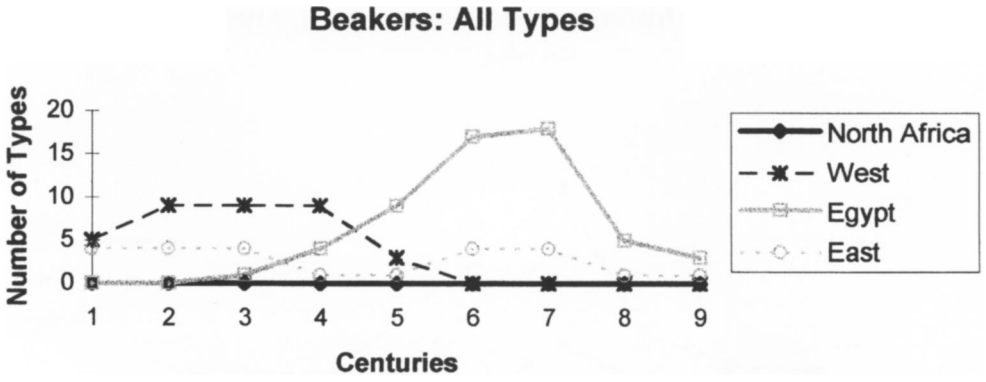

Fig. 21. Development of beakers: all types.

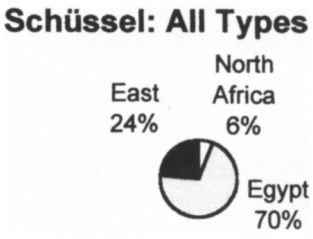

Fig. 22. Sources of tureens (Schüssel): all types.

sixth, and nine in the seventh. Two Eastern-influenced types appear in the seventh century, and one in the eighth. The Egyptian types continue into the tenth century, and very probably later.

2g. Jars

There are twenty-two types of jars (deep vessels with curved or carinated walls).[8] Jars are all Egyptian except for one Western type, which appears only in the first century (line graph, fig. 24). The number of Egyptian types increases in the seventh, eighth and ninth centuries (ten, nine, and nine types respectively), and production continues into the tenth century. There are no common jar types.

The two groups of strongly closed shapes are pitchers and bottles.

[8] There are seventeen numbered shapes, two of them divided into two types, and one into four types.

2h. Pitchers

There are fifty-six types of pitchers, of which ninety-six percent are native (line graph, fig. 25). No type is subdivided. The only common form among these closed vessels is a pitcher type that originated in Italy and appears throughout the Mediterranean area (Middle Roman Jug 1: Gempeler's T804, 1992: 139).

2i. Bottles

There are thirty-nine types of bottles, all separately numbered types (line graph, fig. 26). None of them come from non-Egyptian forms. Two of the types also appear in Nubia, but Gempeler does not state whether they originate in Nubia or Egypt.

E. Summary

Plates, the group with the highest number of direct imitations and least original Egyptian forms, peak early and then disappear. The disappearance of the plates in the sixth century coincides with a sharp rise of shallow and deep bowls. In the continuing process of Romanization the use of large vessels, presumably serving dishes, has been modified for Egyptian taste. The shape-groups best represented in the pre-Roman (Ptolemaic and Pharaonic) traditions, that is, shallow bowls, deep bowls, and beakers, show the greatest inventiveness and variation after the Roman Conquest. Deep bowls show the highest number of derivative types, that is, native adapta-

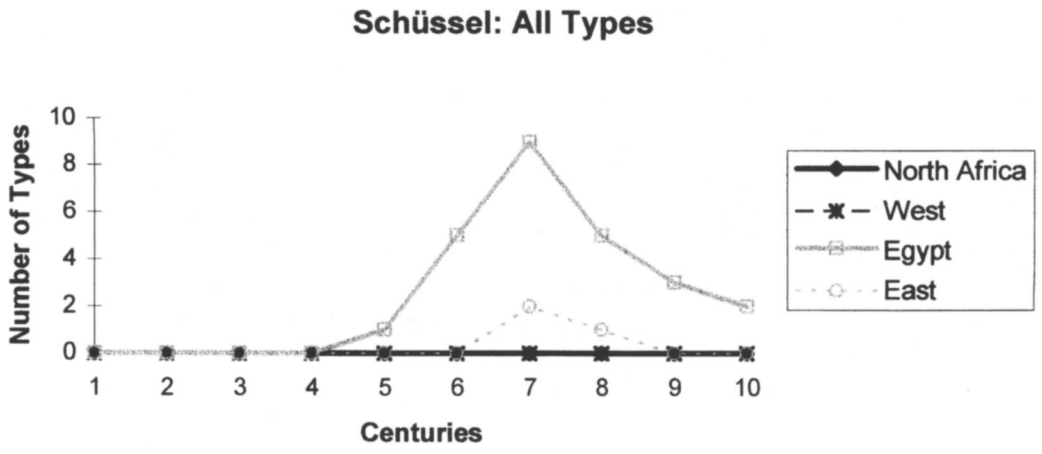

Fig. 23. Development of tureens (Schüssel): all types.

Fig. 24. Development of jars: all types.

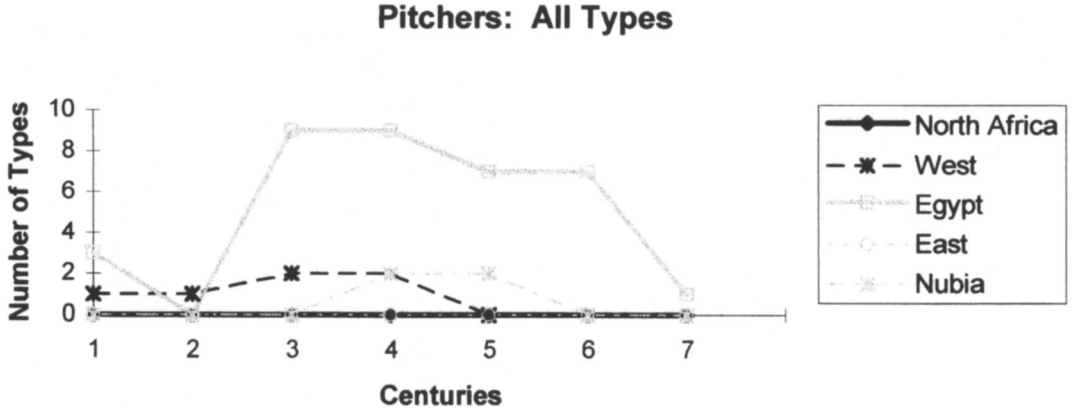

Fig. 25. Development of pitchers: all types.

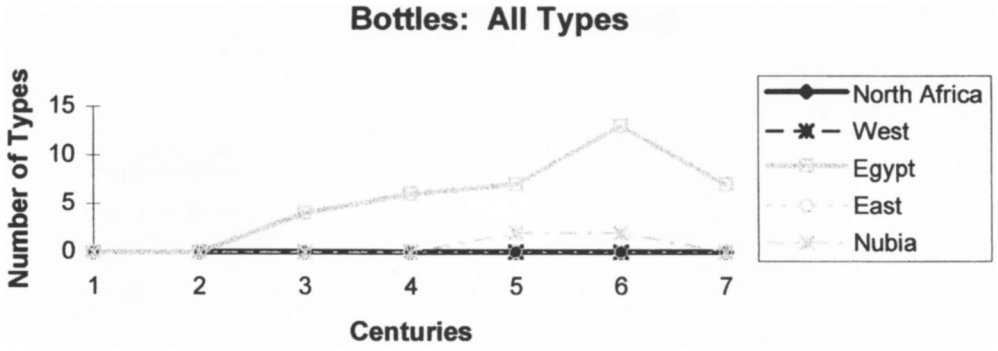

Fig. 26. Development of bottles: all types.

tions rather than direct borrowings. This may reflect consumer demand for continual variation. Shallow bowls and beakers have the highest number of types that originate in Egypt. The Egyptian types of shallow bowls, however, like the Egyptian types of deep bowls, often do reflect outside prototypes, but as amalgams rather than one to one imitations. Beakers, jars, and tureens, on the other hand, have clearly native forms, not comparable to any foreign types.

Pitchers and bottles are also unrelated to outside forms, but they are uncommon, and many survive only as unique fragments. Throughout the Empire closed forms were more likely to be local in origin. Closed forms for the table (as against those for storage) were produced and used in far smaller numbers than the open forms. They were far more awkward to ship. Their shapes could be changed by fashion, but probably did not respond to changes in types of food and drink or table manners as much as the open receptacles did.

F. Interpretation and Suggestions for Further Research

We will conclude by suggesting factors involved in these developments. The factors may be broadly divided into those relating to appearance, and those relating to function.

In appearance, the Roman prototypes differed from pottery in use in Egypt in 1) their sharp, metallic shapes and 2) their hard glossy red surfaces (although some precedent for the latter had existed, see B-3 above). Both characteristics became desirable immediately after the conquest. Later their popularity declined as white slipped ware and painted wares gained prominence, but the two existed side by side for centuries. Plates, which are notable for their flat surfaces, and which have the least resemblance of any of these groups to pre-Roman forms, died out sooner than the other forms. Part of the later innovation in other groups involved greater production of forms with long, continuously curved sides that resembled pre-Roman forms. Such forms also provided scope for the white engobe and painted designs that became increasingly popular, alongside the shiny red surfaces (Gempeler 1992: 22–23). (Surface treatment is not an important divider of wares or types in Gempeler's system, but it does play a significant part in these developments.)

When we turn to function, we have to consider size. All Roman plates, and many bowl types, were considerably larger than any forms previously used in Egypt. Their popularity probably reflects a change in table manners rather than in foodstuffs. It seems to be a lasting change, because when plates disappear shallow bowls of similar diameter rise in popularity, probably to serve the same function.

To introduce an analysis based on vessel size, we have made five divisions based on rim diameter: very small (under 11 cm), small (11 to 20 cm), medium (20 to 30 cm), large (30 to 45 cm), and very large (over 45 cm). Types that consistently run over these boundaries were counted in more than one division. We assume that differences in size relate to differences in function. To discuss

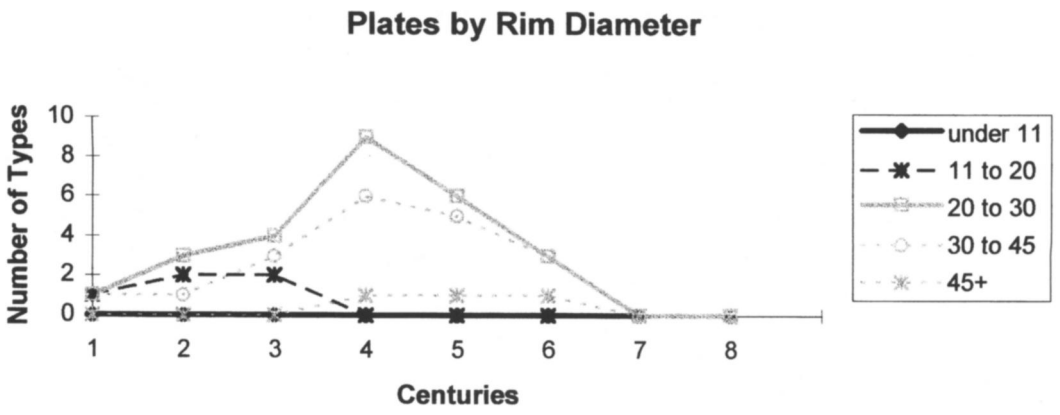

Fig. 27. Development of plates by rim diameter.

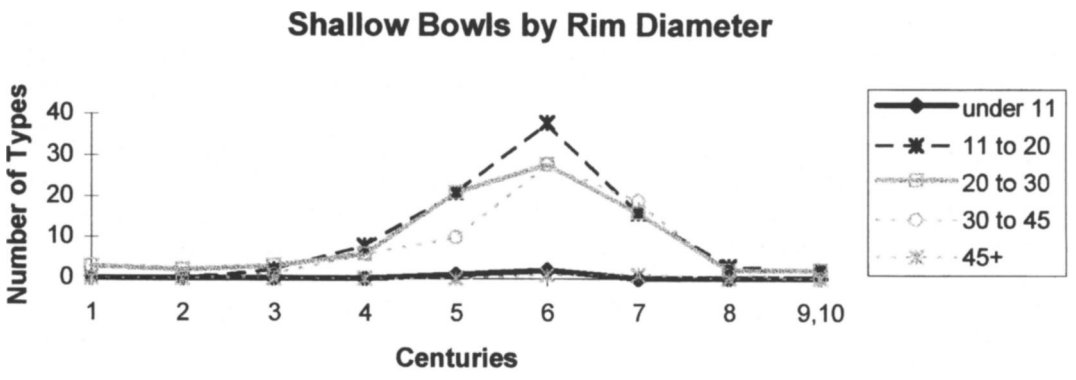

Fig. 28. Development of shallow bowls by rim diameter.

that issue would require considering total size, that is capacity, as well as rim diameter. Detailed consideration of functional implications must be deferred for later study.

When the types of plates are divided according to their rim diameters, the increases in size are plain (fig. 27). In the first and second centuries, types are evenly divided between small and medium. In the following century the number of types in these two categories rises, and a type measuring between 30 and 45 cm appears. By the fourth century the small types have disappeared, and one type measuring over 45 cm has appeared. It is the larger types that continue in the next two centuries. Hayes says plates made for individual use in Gaullish terra sigillata usually measured 16 to 18 cm (1997: 25–26). Some of the earliest plates at Elephantine may have been used for individual servings, but emphasis on large platters for group service increases.

No chart is necessary for the four common types. The "common" type with a North African origin (second to fifth centuries) can be medium or large in size. The common Egyptian types (fourth to sixth centuries) are large.

Shallow bowls also show an increase in size, but with more variation (fig. 28). The earliest bowls are medium sized, 20 to 30 cm. In the third century, two types of small bowls and one large bowl type appear. The increase in types in the next century is fairly evenly distributed among these three classes. In the fifth century

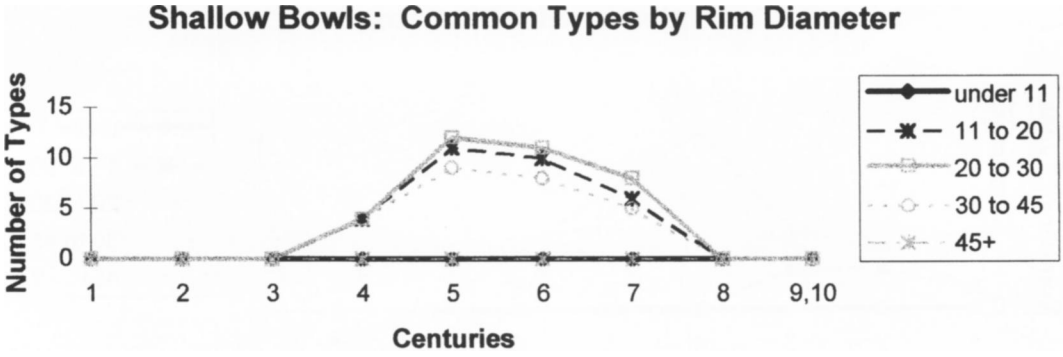

Fig. 29. Shallow bowls: development of common types by rim diameter.

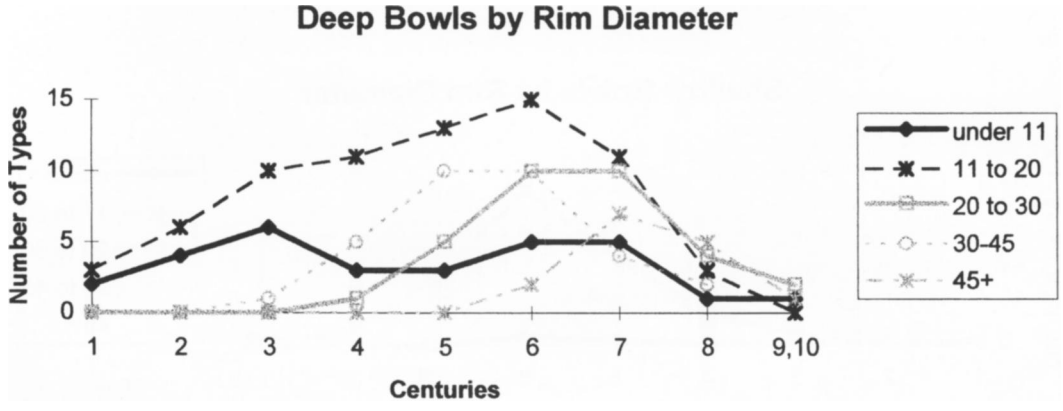

Fig. 30. Development of deep bowls by rim diameter.

the number of large types decreases, but that is a temporary phenomenon, and by the sixth and seventh centuries the three classes, small, medium, and large, are about equally represented. The sixth and seventh centuries also see the appearance of one very large type. It overlaps, and outlives, the appearance of the very large plate type mentioned above, so may have a similar function in table service. At first there are no very small bowls (that is, under 11 cm), but a couple appear in the fifth and sixth centuries. When the graph is restricted to common types, small, medium, and large bowls appear in approximately equal numbers (fig. 29).

Deep bowls present a different picture (fig. 30). There is probably a greater discrepancy in the uses of large and small deep bowls than between various sizes in the other shape-groups. The earliest types are fairly evenly divided between very small and small. After the third century, the number of very small deep bowl types decreases, but they remain significant through the eighth century. A large bowl type appears in the third century. By the fourth century there are five large types and one medium type. In the fifth and sixth centuries there is a slight increase in the number of small bowls, but sizeable increases in the numbers of medium and large bowls. Two very large bowls appear in the sixth century. The number of very large bowls increases in the next century, and declines slightly in the eighth century. It is likely that the very large bowls are for table service, and that the change in their number reflects changes both in foodstuffs and in table manners.

Common types are more evenly distributed through time (fig. 31). Most notable is the dominance of the small bowls from the fourth through

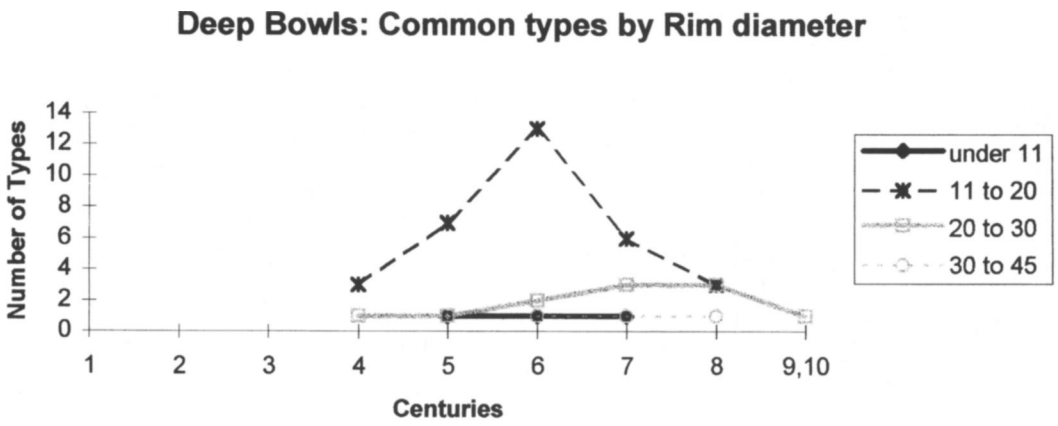

Fig. 31. Deep bowls: Development of common types by rim diameter.

the fifth centuries. The smallest and largest types are precisely even, and therefore overlap on the graph.

This analysis indicates the great value of Gempeler's comprehensive publication. His broad coverage has allowed us to create an overall framework for future analysis. The elements that we have charted are not themselves sufficient for satisfactory interpretation, but they provide strong support for further work. We hope they may also provide a stimulus to similar study, and to fuller publication of pottery inventories. Then we may be able to say more about how and why these striking patterns of change occur.

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Bibliography

Abbreviations:

CCE *Cahiers de la céramique égyptienne, Cairo,* IFAO.

IFAO Institut français d'archéologie orientale du Caire.

Adams, William Yewdale. 1983. Primis and the "Aethiopian" frontier. *Journal of the American Research Center in Egypt* 20: 93–104.

———. 1986. *Ceramic industries of medieval Nubia.* Lexington, Kentucky: University Press of Kentucky.

———. 1988. Ptolemaic and Roman occupation at Qasr Ibrim. In *Mélanges offerts à Jean Vercoutter.* Edited by R. Geus and F. Thill. Paris: Editions recherches sur les civilizations, 9–17.

Alston, Richard. 1995. *Soldier and society in Roman Egypt.* London, New York: Routledge.

Bagnall, Roger. 1993. *Egypt in late antiquity.* Princeton, NJ: Princeton University Press.

———. 1997. A kinder, gentler Roman army? *Journal of Roman Archaeology* 10: 504–12.

Bailey, Donald M.; W. V. Davies; and A. J. Spencer. 1982. *British Museum expedition to Middle Egypt: Ashmunein (1980) British Museum Occasional Papers* 37. London: British Museum.

Ballet, Pascale; Fatma Mahmoud; Michèle Vichy; Maurice Picon. 1991. Artisinat de la céramique dans l'Égypte romaine tardive et byzantine. Prospections d'ateliers de potiers de Minia à Assuan. *CCE* 2: 159–52.

Ballet, Pascale and Michèle Vichy. 1992. Artisinat de la céramique dans l'Égypte hellénistique et romaine. *CCE* 3: 109–19.

Blake, Hugo. 1978. Medieval Pottery: Technical Innovation or Economic Change? In *Papers in Italian Archaeology I: the Lancaster Seminar.* Part II. Edited by Hugo Blake; T. W. Potter; and D. B. Whitehouse. Oxford: British Archaeological Reports, 435–72.

Bourriau, Janine. 1981. *Umm el-Ga'ab: Pottery from the Nile Valley before the Arab conquest.* Cambridge: Cambridge University Press.

Bowman, Alan K. 1986. *Egypt after the pharaohs 332 B.C.–A.D. 642: from Alexander to the Arab Conquest.* Berkeley, CA: University of California Press.

Coptic and Nubian Pottery. Part I. Occasional Paper 1. 1990. Warsaw: National Museum.

Egloff, Michel. 1977. *Kellia: La poterie copte: Quatre siècles d' artisanat et d' échanges en Basse-Égypte, Recherches suisse d' archéologie copte.* Vol. III. Geneva: Georg.

Fentress, Elizabeth W. B. 1979. *Numidia and the Roman army: social military and economic aspects of the frontier zone.* Oxford: British Archaeological Reports.

Gempeler, Robert D. 1992. *Elephantine X: Die keramik römischer bis früharabischer zeit.* Mainz am Rhein: Philipp von Zabern.

Greene, Kevin. 1986. *The Archaeology of the Roman Economy.* Berkeley, CA: University of California Press.

Grossmann, Peter. 1980. *Elephantine II: Kirche und spätantike hausanlagen im Chnumtempelhof.* Mainz am Rhein: Philipp von Zabern.

Hayes, John W. 1972. *Late Roman pottery.* London: British School at Rome.

———. 1976. *Roman pottery in the Royal Ontario Museum: A catalogue.* Toronto: Bryant Press.

———. 1980. *Supplement to late Roman pottery.* London: British School at Rome.

———. 1997. *Handbook of Mediterranean Roman pottery.* Norman: University of Oklahoma Press.

Jacquet-Gordon, Helen. 1972. Ceramique et objets. In *Les Ermitages chrétiens du désert d' Esna.* Vol. III. Edited by Serge Sauneron and Jean Jacquet. Cairo: IFAO.

Johnson, Barbara. 1981. *Pottery from Karanis: Excavations of the University of Michigan.* Ann Arbor, MI: University of Michigan Press.

Johnson, W. R. 1979. Roman Pottery. In *Quseir al-Qadim 1978: Preliminary report.* Edited by Donald S. Whitcomb and Janet H. Johnson. Cairo: American Research Center in Egypt, 67–103.

Lecuyot, Guy. 1996. La céramique de la Vallée des Reines: Bilan préliminaire. *CCE* 4: 145–70.

Marshall, Yvonne and Alexandra Maas. 1997. Dashing dishes. *World Archaeology* 28: 275–90.

Mond, Sir Robert and Oliver H. Myers. 1934. *The Buchemum.* Vol. I. London: Egypt Exploration Society.

———. 1940. *The temples of Armant: a preliminary survey.* London: Egypt Exploration Society.

Mysliwiec, Karol. c1987. *Keramik und kleinfunde aus der Grabung im tempel Sethos' I in Gurna.* Mainz am Rhein: Philipp von Zabern.

Peacock, D. P. S. 1982. *Pottery in the Roman world: An ethnoarchaeological approach.* London, New York: Longman.

Pierrat, Geneviève. 1991. Essai de classification de la céramique de Tôd. *CCE* 2: 145–204.

———. 1996. Evolution de la céramique de Tôd du Iie au VIIe siècle apr. J.-C. *CCE* 4: 189–214.

Pollard, Nigel. 1996. The Roman army as 'total institution' in the Near East? Dura-Europos as a case study. In *The Roman army in the East.* Edited by David L. Kennedy, Ann Arbor, MI. *Journal of Roman Archaeology,* 211–27.

Quibell, J. E. 1912. *Excavations at Saqqara IV (1908–1909, 1909–1910): The monastery of Apa Jeremias.* Cairo: IFAO.

Rodziewicz, M. 1976. *La céramique romaine tardive d'Alexandrie.* Warsaw: Editions scientifiques de Pologne.

———. 1992. Field Notes from Elephantine on the early Aswan pink clay pottery. *CCE* 3: 103–7.

Schrunk, Ivančica Dvoržak. 1993. Egyptian Slip Wares. In *Excavations in Akhmim, Egypt: Continuity and change in city life from late antiquity to the present.* Edited by Sheila McNally and Ivančica Schrunk. Oxford: Tempus Reparatum, 77–82.

Spencer, A. J. and D. M. Bailey, 1982. *British Museum expedition to Middle Egypt: Ashmunein (1981). British Museum Occasional Papers* 41. London: British Museum Publications.

———. 1985. *British Museum expedition to Middle Egypt: Ashmunein (1984). British Museum Occasional Papers* 61. London: British Museum Publications.

———. 1986. *British Museum expedition to Middle Egypt: Ashmunein (1985). British Museum Occasional Papers* 67. London: British Museum Publications.

Spencer, A. J.; D. M. Bailey; and A. Burnett. c1983. *British Museum expedition to Middle Egypt: Ashmunein (1982). British Museum Occasional Papers* 46. London: British Museum Publications.

Spencer, A. J.; D. M. Bailey; and W. V. Davies. c1984. *British Museum expedition to Middle Egypt: Ashmunein (1983).* British Museum Occasional Papers 53. London: British Museum Publications.

Tomber, Roberta. 1992. Early Roman pottery from Mons Claudianus. *CCE* 3: 137–42.

Whitcomb, Donald. 1982. Roman Ceramics. In *Quseir al-Qadim 1980: Preliminary report.* Edited by Donald S. Whitcomb and Janet H. Johnson. Malibu: Undena Publications, 51–115.

Winlock, Herbert Eustis, and Walter Ewing Crum. 1926. *The monastery of Epiphanius at Thebes I: The archaeological material. The literary material.* New York: The Metropolitan Museum of Art.