Late Roman African Cookware of the Palatine East Excavations, Rome

A holistic approach

Janne P. Ikäheimo

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1 INTRODUCTION

"The time has come," the Walrus said,
"To talk of many things:
Of shoes--and ships--and sealing-wax--
Of cabbages--and kings--
And why the sea is boiling hot--
And whether pigs have wings."

(Lewis Carroll, Through the Looking-Glass 1871)

1.1 SCOPE OF THE STUDY AND THE MAIN PROBLEMS

The necessity of a holistic approach as well as the need of narrative accounts have recently been outlined as the two main objectives of archaeological ceramology – a discipline that has long counted on chronology and typology – in the third millennium.[1] In fact, while form catalogues and date lists may come as a relief for excavation directors in their search of chronological extremes of a given site, they tell us hardly anything about the chorological dimension of pottery and related topics, such as individual behaviors or socio-cultural meanings.[2] One possible approach to these themes is the reconstruction and examination of the operational sequence (*chaîne opératoire*) or the life cycle of a given ceramic ware,[3] which may reveal us how technological choices and pottery distribution resulted in interaction between different production and consumption activities in larger cultural contexts.[4]

The present paper, which is entirely devoted to African cookware, attempts to fill a part of this prominent gap in the field of Roman pottery studies. African cookware, one of the few Roman cooking wares subjected to voluminous interregional trade or exchange, was produced in the province of Africa Proconsularis (present-day Tunisia) from the early 1st at least to the late 5th century AD.[5] The best example underlining the importance of African cookware exports in the western Mediterranean is the city of Ostia, where this pottery constitutes the majority of cookwares found in many mid- and late Imperial deposits.[6] In general, the quantity in which African cookware is frequently found outside Tunisia is another reason that makes it a rewarding subject for a detailed study.[7] But while the state-subsidized traffic in agricultural products from Roman Africa has traditionally been regarded as the decisive factor contributing to this success, attention has seldom been paid to the life cycle of African cookware.

As the life cycle of pottery includes all the stages from the acquisition of raw materials to the consumption of finished pots, the following discussion introduces a holistic examination of extended sherd families from some twenty-one hundred African cookware vessels found in the Late Roman deposits of the Palatine East excavations (ca. AD 270-550), one of the major excavation projects taken place in Rome within the last twenty years.[8] Hence, the first objective of this paper is to use the study assemblage[9] to trace down the technological choices related to African cookware fabrics, forms, and other aspects of production.[10] These observations will inevitably lead to questions concerning the distribution and consumption of this pottery in the western Mediterranean. As the answers to these questions are heavily depended on the value and mode of distribution of exported pottery, the present paper may be seen in a broader context as a modest contribution to the study of Late Roman trade.

The other important stimulus for this study lies in the history of Roman pottery studies, the most obvious reason being the long-lasting lack of interest towards the class of undecorated common wares.[11] It is hardly surprising that African cookware has never been studied as a unique group, but only in association with the corresponding tableware, African Red Slip ware. The reasons why cooking wares were long omitted in the study of archaeological ceramics as well as counter-arguments speaking on behalf of specialized cookware studies have recently been expressed by Skibo and Schiffer.[12]

Firstly, in spite of their plain appearance, cookware vessels can be regarded as one of the most important inventions in the history of technology, because ceramic cooking vessels made previously unexplored resources of food available to mankind. Secondly, as objects – in spite of their relatively crude and humble appearance – cookpots actually result from a careful selection of raw materials and manufacturing techniques. Such precautions were necessary, because in use a cookpot must withstand rapid temperature changes, caused by cycles of heating and cooling which may even repeat several times in a day. Although the previous arguments alone are enough to justify this study, additional comments emphasizing the value of each of the themes will be made in respective sections.

2 FABRICS

2.1 INTRODUCTION

In his thorough work on the African Red Slip ware Hayes characterizes the fabric of African pottery as follows:[1] *"fairly coarse with granular appearance, color orange-red to dark red, commonest inclusion lime: either in small particles or occasional larger lumps, white or brownish fine quartz particles together with occasional black particles and rare small specks of silvery mica."* Although the study of the composition of archaeological ceramics has progressed considerably since the early 1970's, Hayes' fortunate statement (cf. section 1.2.1) is still a decent summary of the current knowledge on the petrology of African pottery. The reason why the study of African fabrics has not advanced at the same speed with other classes of Roman pottery is obvious: on macro- and even on microscopic level the majority of these fabrics are substantially uniform in their composition, and thus difficult to distinguish from one another.[2]

The compositional uniformity of African pottery fabrics arise from the geology of North Africa, characterized by substantially homogeneous quartz sand and limestone bearing tertiary sediments, from which precise source areas can rarely be defined[3]. As a result, the principal inclusions found in virtually all African pottery, including various types of African Red Slip ware, utilitarian ware and amphorae, are quartz and calcareous particles of heterogeneous origin. Small amounts of feldspar (plagioclase, orthoclase and microcline), quartzite and trace amounts of muscovite with infrequent biotite mica and rare pyroxenes, fine-grained sandstone, foraminifera and quartz-bearing limestone have also been observed.[4] A more profound discussion on the nature of different tempering materials will be presented in section 2.5, which attempts to evaluate their effect upon the production and use of these vessels.

Although the preceding review on the state of the compositional analysis of African cookware may seem somewhat pessimistic, it must be stressed that the study of some other subcategories of African pottery has lately advanced considerably, thanks to the extensive utilization of various petrographic and chemical analyses.[5] The most recent example on the advantages of chemical analysis has been published by Mackensen and Schneider, who used wavelength-dispersive x-ray fluorescence (WD-XRF) to define compositional differences between the African Red Slip ware products of several kiln-sites located in the present-day Tunisia.[6] The results confirmed that at the very least the North Tunisian production can be distinguished from the Central Tunisian one,[7] while even the identification of individual production sites within a restricted geographical area seems to be possible to a certain extent.[8] The following discussion will show that the distinction between North and Central Tunisian products can also be made in African cookware both chemically and mineralogically.[9]

The most apparent feature to be utilized to separate the two major productions from one another, is the appearance of Central Tunisian fabric, which customarily has a distinctive dark red color resulting from the firing process and contains regularly abundant limestone inclusions.[10] The somewhat traditional definition of Carthaginian (i.e. North Tunisian) fabric, on the other hand, as buff colored and very sandy,[11] is also accurate. Central Tunisian production has been further divided into three fabric variants, the identification of which is based on the variability in the amount of quartz and limestone temper.[12]

Still, a production center making use of several clay deposits of different geological origin may have produced several fabrics, which cannot necessarily be separated from the output of several production sites dispersed on a wide area but exploiting mineralogically similar raw material sources.[13] African cookware classifies as a potential example of such case, because it has been attributed to only one group on the basis of mineralogy,[14] while the results of chemical analysis evidenced the existence of two distinct groups.[15] It will be shown, however, that these two groups correspond with the North and Central Tunisian components of African cookware defined in the present study.

The fabric classification presented in the following pages is mainly based on visual observations accomplished with a high-powered stereomicroscope. In spite of recent advances in ceramic archaeometry, visual comparison is still a valid research method that can be successfully applied to the classification of archaeological ceramics. Frequently, the limit for the precision of fabric determinations is set by the number of finds. If the quantity of research material exceeds several thousand diagnostic sherds, visual inspection is in fact the only applicable method if the examination of every find in the assemblage is desired.[16] The results are also accurate enough for most purposes, even if the assemblage to be examined is extremely homogeneous, like most African pottery.[17] The next logical step in fabric studies, however, involves the testing of the samples from each of the categories based on visual inspection with some method of compositional analysis. Hence, laboratory analyses

3 FORMS

3.1 INTRODUCTION

This section is designed to describe the methods and conventions used in the following pages, which offer a discussion on some twenty-one hundred African cookware vessels that have been divided into several forms and form variants. The material will be presented in six groups, of which the most consist of forms related to one another by the function. The most apparent exception is the group of Central Tunisian casseroles, which is presented separately from the North Tunisian production, because of its distinct form repertoire. By contrast, lids of Central Tunisian origin will be introduced with the rest of African cookware lids, as some of the forms are also common in North Tunisian production.

In most cases, the identification of a new form has been based on the shape of the entire vessel, whereas conspicuous differences in the shape of a rim are generally considered to be the principal criteria for defining variants. Five of these classes, namely lids, pans, shallow casseroles and both deep casserole groups, are definitions commonly used with this particular class of ancient ceramics. The last group has been reserved for miscellaneous finds, a heterogeneous assemblage consisting of less than a dozen sherds. Most of these belong to bases, which were intentionally separated from ring-shaped handle attachments (form F). The latter form is shown to belong together with lid rims, which have been more often than not erroneously identified as lid/plates. Because of the evident relationship, they will be presented together with lid rims.

The presentation of each group begins with an overall characterization, which applies to all the forms it includes. Although these forms are functionally related to one another, the function of the group as a whole is not necessarily fixed. For this reason, the function of each group will be discussed separately from the general introduction (see section 3.9).[1] Only in cases when the study assemblage offers specific evidence on the use of particular form or variant, or the function may have differed from the group it has been traditionally attributed to, this question will be picked up at the point of its introduction. This theme will be examined here with a variety of methods. These include comparisons with potential associated forms, both by establishing correlation coefficients based on their distribution in horizons and charting relative cumulative frequency distributions from vessel diameters.[2] Both the shape of a form and the characteristic surface finishes may also point to its use. The traces resulting from use-alteration, visible in form of wear marks and soot patches, are yet another important source of information.

The discussion on each group may include a description of several forms and variants. A form is defined here as "*a distinct vessel shape attained by a specific set of primary forming operations*", whereas minor variations in vessel morphology or secondary forming operations have been used to distinguish (form) variants. These variants may bear witness to "*workshop origin, a distinct function of method of use, or some diachronic morphological changes.*"[3] No particular set of rules was followed when defining the variants, although the variability detected in the shape of the rim was usually the most decisive criterion. The material was approached from "splitter's" point of view, meaning that it was first split to the smallest possible fractions. The establishment of such careful classification was assumed to provide additional information on both the typology and chronology of African cookware. However, much of the variability first thought to be chronologically significant, was both so inconsistent and randomly occurring that it probably resulted from "*a potter's attempt to relieve the tedium of throwing so many pots each day.*"[4]

Each entry contains the following information. The distribution of a form or a variant in the study assemblage is summarized in a table, which also includes the principal vessel dimensions – such as rim diameter and width – and fabric distribution. As the criterion used to identify forms follows examples set by previous research, a form may be referred to with several names. The classification proposed in the pages of *Late Roman Pottery*[5] is generally preferred. After a short characterization of the form, attention is turned to its chronology. Examples of the form or variant recovered from a known production site located in Africa Proconsularis will be mentioned separately, while the full discussion about this evidence is presented in section 4.4. A list of other published examples of the same form or variant (i.e. comparanda), which is intended to be a representative sample instead of complete list of known occurrences, has been incorporated in the find catalogue.

The find catalogue (see Appendix 1) includes a detailed presentation of one to three indicative examples of each form or variant.[6] Besides the description of a vessel form, some remarks on manufacturing techniques are also included, although they will receive a more thorough treatment in section 4.1. All the catalogued examples are illustrated, but because in many cases the material found in Late

4 PRODUCTION

4.1 FORMING

As indicated in the preceding chapter, all the African cookware vessels were formed on the potter's wheel. The use of this technique is shown by various marks, mainly horizontal striations and ridges, visible both on the exterior and interior surface.[1] It does not seem likely that the potter's wheel would have been used to shape only certain vessel parts,[2] because similar striations and ridges were equally observed in the body sherd material. Thus, African cookware was normally shaped with the following method, which most centers producing pottery for exportation in Roman Africa used, irrespective of their geographical location or date. Not surprisingly, as forming methods are probably the most conservative segment of the potter's craft,[3] it is still the most widely followed procedure in wheel-throwing.

First, the vessel body was thrown right side up, whereupon the rim was formed by folding the topmost part of the clay over and pressing it against either of the surfaces.[4] Thereafter, the vessel was removed from the wheel and allowed to dry enough to become leather-hard. Then, the vessel was inverted and re-attached to the wheel-head so that the excess clay, which had supported the weight of the wall during the forming process could be turned off the bottom with a knife or other suitable tool (Plate 2d). The two-staged forming process, in which turning follows throwing, was destined to even the vessel thickness and ensure more homogeneous drying.[5] If necessary, this stage also involved the turning of a ring handle or foot in the middle of the exterior surface. Alternatively, finishing touches were applied to the bottom of the vessel with a combed tool producing a corrugated surface. The protruding carination (Plate 2e), which is especially characteristic of shallow casseroles, was also formed by turning at this stage.

Another interpretation of the same evidence suggests that the presence of a carination indicates the junction of two separately formed vessel parts.[6] In fact, the presence of a carination in some African cookware vessel forms, like the Hayes 23 shallow casserole and the Hayes 197 deep casserole, led Schuring to propose that production was partly based on the use of moulds. Three possible production methods were suggested to her by a professional potter.[7] Firstly, the base could have been formed in a mould, while the upper wall was thrown from a coil of clay attached to the edge of the bottom. Secondly, the vessel could have been placed inside a mould after preliminary free throwing and consecutively thrown again by pressing the clay against the wall on the mould with a ribbed instrument. Finally, the vessel may have been formed by throwing it over a mould.

Although the use of the second method provides a seemingly convincing explanation for the frequent presence of deep corrugations on the interior surface of the Hayes 197 deep casserole, moulds were unlikely used in the production. Firstly, any experienced potter could have produced these vessels, the shape of which is not complex, by throwing. The turning of the vessel bottom, on the other hand, would be superfluous stage of production if moulds were used. The combined use of moulding and wheel-throwing is risky, as the joint of a coil and moulded base would form a weak area, highly susceptible to cracking in high temperatures. Finally, free throwing with fast wheel has recently been shown to produce an irregular rilling with occasional "clay barbs" and droplets, which are in many cases seen on the interior surface of the Hayes 197 deep casserole (Plate 2f).[8]

Variation in the depth and shape of these corrugations indicates that sometimes the clay was lifted rapidly off the wheel-head only by hand (Plate 2f). At times the process seems to have been aided with a flat-edged tool producing less rounded ridges. The latter method allows the potter to pull up a greater amount of clay at once, as greater pressure could be used over a larger surface area. In general, this fast wheel technique is especially suitable for the production of restricted forms, while the shaping of large to very large plate-like forms, such as the Hayes 181 pan or the Hayes 26/181 pan-casserole, had to be carried out with slower rotational speed (ca. 50 rpm).[9]

The rounded shape of large temper particles in African cookware facilitated the forming of the vessel as well as the production of rounded shapes. The contrast is evident to the form repertory of West-Central Italian cookwares, the production of which was chiefly based on the use of heavily tempered clay including various large angular minerals of volcanic origin, like sanidine. While rims of African cookware vessels have predominantly been finished by hand to shapes that preconceive the use of substantial compressional forces by the potter, the flanged rims of large West-Central Italian casseroles have nearly always been turned to angular shapes.[10] The only exception to this rule is the group of West-Central Italian casseroles, rich in rounded quartz sand temper and presenting less angular rim profiles.[11] In all, the sedimentary production environment of Roman Africa may have been advantageous also in this respect.

The forming processes of African cookware may also be reviewed in relation to their usefulness, because the shape of a pot has a direct effect on its

5 DISTRIBUTION AND CONSUMPTION

5.1 QUANTIFICATION OF THE STUDY ASSEMBLAGE

5.1.1 Methods and background

Quantification is a branch of archaeology that has only recently been subjected to considerable development, although the method itself was first applied to pottery studies in the late 19th century.[1] Much of the recent progress can be attributed to a group of British scholars, headed by professor Clive Orton, whose long-term work with statistics has shown the value of accurately quantified data and the bias included in the most common measures used in pottery quantification: sherd counts, weights and estimated number of vessels.[2] Some years ago this research culminated in the introduction of a new quantification method – including several not readily understandable terms like "estimated vessel equivalent (*eve*)" and "pottery information equivalent (*pie*)" – together with the release of a relevant software, *The Pie-slice computer package*,[3] for the manipulation of the data. The ultimate goal of the method is to establish the proportions of the life assemblage from a sample, the kind of which any archaeological assemblage ultimately is.

Surprisingly, the improvement of these research tools has not directly resulted in their adoption in archaeological interpretation. For example, the above-mentioned software package has seldom if ever been put into practice in connection with the study of a large pottery assemblage from the Mediterranean. Of the many possible explanations, only two should be brought out here. Firstly, the nucleus of the model proposed by Orton and Tyers is a complex mathematical formula, which is barely understandable without at least a moderate familiarity with archaeological statistics. In fact, the method has even been objected for being overly theoretical.[4]

Secondly, considering the present state of pottery quantification in the Roman Mediterranean, the estimation of vessel equivalents and the counting of pie-slices may be futile. The enormous amounts of pottery produced by urban excavations have usually directed scholars to tackle the material with traditional methods of quantification,[5] like sherd counts and weights, to which the results obtained with more refined methods cannot be directly compared.[6] Therefore, the quantitative evidence from other sites will be discussed separately in the following section.

In the present case, the data for the quantification was obtained with a method, in which an estimated vessel equivalent was determined for each measurable rim sherd family.[7] Their identification has been accomplished subjectively, but also carefully grouping together all the sherds that seem to belong to the same vessel. Thus, the minimum number of vessels, which has been regarded as one of the most reliable and consistent means of analysis,[8] can be determined both as a sum of estimated vessel equivalents and nucleated sherd assemblage counts. The third method included in the analysis for determining the variability arising from the use of different measures is sherd counts.

A comparison of this kind was deemed necessary due to somewhat alarming results of previous case studies. The study of the coarseware assemblage of Berenice, for example, has explicitly shown that methods intended to estimate the absolute number of vessels regularly produce inconsistent results.[9] Therefore, the ultimate aim of the following analysis is to establish the relative proportions of the Late Roman cookware assemblage of the Palatine East excavations as percentages.[10] Although the pie-slice method is not exploited directly, its influence is obvious. In addition, possible changes in the exportation of the two African cookware fabrics has been examined both by comparing them to one another and introducing the group of miscellaneous African cookware fabrics as an additional element into the analysis.

5.1.2 Results and interpretations

The first observation emerging from the cross-tabulation of the three main cookware fabrics with three different methods of quantification (Table 46) is the close resemblance of sherd counts (sherd) and estimated minimum number of vessels (evrep ii). This is not a surprise considering the fragmentary nature of the study material. The calculated minimum number of vessels (evrep i), on the other hand, differs markedly from the other two groups, possibly due to a different state of preservation of various contexts.[11] Another factor that may skew the picture, this time in the favor of West-Central Italian production, is the effect of the vessel shape and size on the probability of preservation. At least the large thick-walled flanged casseroles of West-Central Italian production have likely withstood mechanical wearing better than medium-sized African cookware casseroles with slightly thickened rims.[12] The most important observation to be made, however, is that all three methods of quantification produce a similar overall pattern characterized by the steady decline in the amount of African imports.

The growing importance of the West-Central Italian products is the most readily observable

6 SUMMARY

After the examination of some twenty-one hundred vessels from the Late Roman horizons of the Palatine East excavations (Rome), the following conclusions can be made about the cookware that was produced in the province of Africa Proconsularis from the early 1st century AD at least to the mid-/late 5th century AD. Firstly, the study has underlined the importance of versatility in the search of mechanisms behind the process that covers the life-span of a given ware from the selection of raw materials to its distribution and use. Generally speaking, attention should increasingly be paid in classical archaeology to development of archaeological ceramology outside of its traditional limits, where the research methods have been evolving recently in a fast pace.

Despite of some difficulties at the outset, most of which were related to the encoding of variables – vessel fabric, soot deposition, firing etc. – the use of ceramic databases including detailed information on each individual vessel is highly recommended. By dividing the material into manageable units, in the present case chronological phases, the data can then be utilized to point out long-term developments from seemingly homogeneous material. The creation of substantial large units of reference is recommendable, as they tend to soft down the effect of probable contaminants – both residual and intrusive – included in the study assemblage.

In spite of homogeneous raw materials used in production, African cookware is dividable at least into Central and North Tunisian fabrics, both of which comprise several fabric variants. The identification of variants was based on the compactness of clay matrix and the nature of inclusions. While both fabrics are rich in quartz sand, which is present both as a natural inclusion and temper, the compositional differences of the clay matrix as well as the overall non-plastic content have contributed to their dissimilar appearance. The abundance of calcite in dark red Central Tunisian fabric would have produced strong but overly rigid vessels, unless the effect was partially compensated by a firing in somewhat lower temperature compared to local tablewares. In yellowish-red North Tunisian fabric, the abundance of argillaceous rock fragments in some fabric variants did not produce problems of the same kind. Both fabrics were also shown to contain non-plastics of minor importance regarding the vessel performance, but which may act as important indicators in the characterization of the output of individual kiln sites.

The typology of African cookware was studied by dividing the study assemblage into functional groups, forms and variants. This topic did not offer as many possibilities for elaboration as was initially expected. The examination underlined the dual nature of the production. While the four principal forms – lids, pans, shallow and deep casseroles – were produced only by slightly retouching the vessel shape in the course of several centuries, the changing taste of the consumers was tested with the introduction of new forms and variants, most of which were only temporary. Hence, the combination of short- and long-lived forms and variants may offer us some means to use African cookware to establish rough dates for archaeological deposits, at least for those lacking more readily datable material. In addition, the typology of some lid forms was observed to evolve simultaneously with certain pans and casseroles, which together with cumulative rim diameter charts were utilized to define functional sets. Although the study managed to pinpoint new sets as well as to confirm many defined previously, it also brought others under suspicion. The most obvious example of the last case is the widely propagated three-piece set consisting of North Tunisian lid, shallow and deep casserole. The matching number of African cookware lids with other vessels in study horizons hints that African cookware was most likely sold as sets.

Flourishing agriculture, which has traditionally been interpreted as the most important factor contributing to the success of African pottery in the Late Roman period, was in fact significant to African cookware in several ways. The one-way traffic in grain and olive oil from Carthage to Rome did certainly boost the exportation of ceramics, but hardly generated pottery production on its own. The sedimentary environment of African Proconsularis ensured the availability of clay and tempering materials, while other than fresh water sources were most likely used for the production. Another substantial advantage, the importance of which has not been stressed sufficiently, is the favorable climate of North Africa that rendered possible pottery production throughout the year. In respect of the northern shores of the Mediterranean, the reduced fuel consumption of the households also left more room for crafts making use of advanced pyrotechnology. By specializing themselves on the exploitation of agricultural by-products, of which the most important were the various residues of oleoculture, the potters of Roman Africa were able to ensure a continuous supply of combustible materials.

The forming process of African cookware was based on the effective use of potter's wheel followed by complementary techniques of shaping, the most important of which was turning. The typology of