THE PALATINE EAST POTTERY PROJECT: A HOLISTIC APPROACH TO THE STUDY AND PUBLICATION OF AN EXCAVATED POTTERY ASSEMBLAGE FROM ROME

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Abstract: *This paper presents an overview of the methodological procedures being employed by the Palatine East Pottery Project to study and publish the 12 tons of Roman pottery recovered in the Palatine East Excavations in Rome. By combining traditional and innovative procedures used for the classification, characterization, quantification, and presentation of the materials dated to ca. AD 50–450/500, the final result of the project will represent a methodologically ambitious exposition of a large pottery assemblage spanning nearly the entire period of the Roman Empire.*
Keywords: *Roman pottery, processing, recording, quantification*

INTRODUCTION

The Palatine East Pottery Project (PEPP) is an archaeological initiative aimed at studying and publishing the ca. 12 metric tons of Roman-period pottery recovered in the Palatine East Excavations carried out on the northeast slope of the Palatine Hill, near the Arch of Constantine, in downtown Rome (**Fig. 1**). Between 1989 and 1995 the Palatine East Excavations uncovered the remains of an early third-century AD structure in brick-faced concrete (see *Hostetter et al. 1990; 1993; 1994; Hostetter & Brandt 2003*), probably to be identified as a townhouse.

The Palatine East Excavations produced large deposits of pottery dating to the period running from the middle of the first century AD to the second half of the fifth century AD. In the course of the excavations, the pottery from the site, assigned to four general functional categories (tablewares, utilitarian wares, cookwares, and amphorae), was subjected to a standardized set of study procedures. First, the pottery from each stratigraphic unit (context) was washed, set out in screens to dry, and subjected to an initial chronological evaluation. Then, it was sorted into the standard classes, wares and amphora classes, recognized in the literature and subjected to basic quantification involving two measures: weight and number of sherds.

PEPP is employing a combination of traditional and innovative methods for the classification, characterization, and quantification of this material and the presentation of its results. The results will constitute a methodologically ambitious exposition of an unusually large assemblage of material that will shed important light on patterns in the consumption of pottery and the array of amphora-borne foodstuffs (wine, olive oil, processed fish products) in the city of Rome over nearly the entire course of the imperial period. This paper provides a general overview of the battery of methods being employed by PEPP.

FABRIC CLASSIFICATION AND ANALYSIS

For the purposes of PEPP, a fabric is defined as a ceramic body produced using a distinct set of raw materials (base clay, tempering material, and/or surface coating) and/or paste preparation/surface coating practices. Differences in fabrics between and among classes presumably reflect differences in raw materials and paste preparation practices, and may represent distinct geographical areas and/or manufacturing traditions.

The study of fabrics is begun with a general overview of a specific class with the aim to identify the various fabrics represented by examining breaks and surfaces with the naked eye, and the fracture surfaces of small detached chips under a binocular microscope. Two fabric descriptions employing a standardized set of attributes and attribute values are composed for each identified fabric: one for hand specimens, in other words, sherds viewed with the naked eye, and one for examples viewed under low magnification (e.g., *Ikäheimo 2003: 17–22*). A reference card is prepared by gluing chips from several sherds that represent the range of variation attested within a fabric onto a note card for convenient viewing under a microscope (**Fig. 2**).

Each fabric is assigned a temporary number in a numerical range defined by the general nature of the raw materials employed in its manufacture (e.g., 000-099: calcareous body with fine quartz and sometimes mica; 100-199: calcareous body with fine/medium quartz and calcareous rock fragment; 200-299: calcareous body with volcanic material; etc). Grouping fabrics in this way serves to suggest fabrics that may be closely related to one another, for example, two fabrics that originate in the same geologic region.

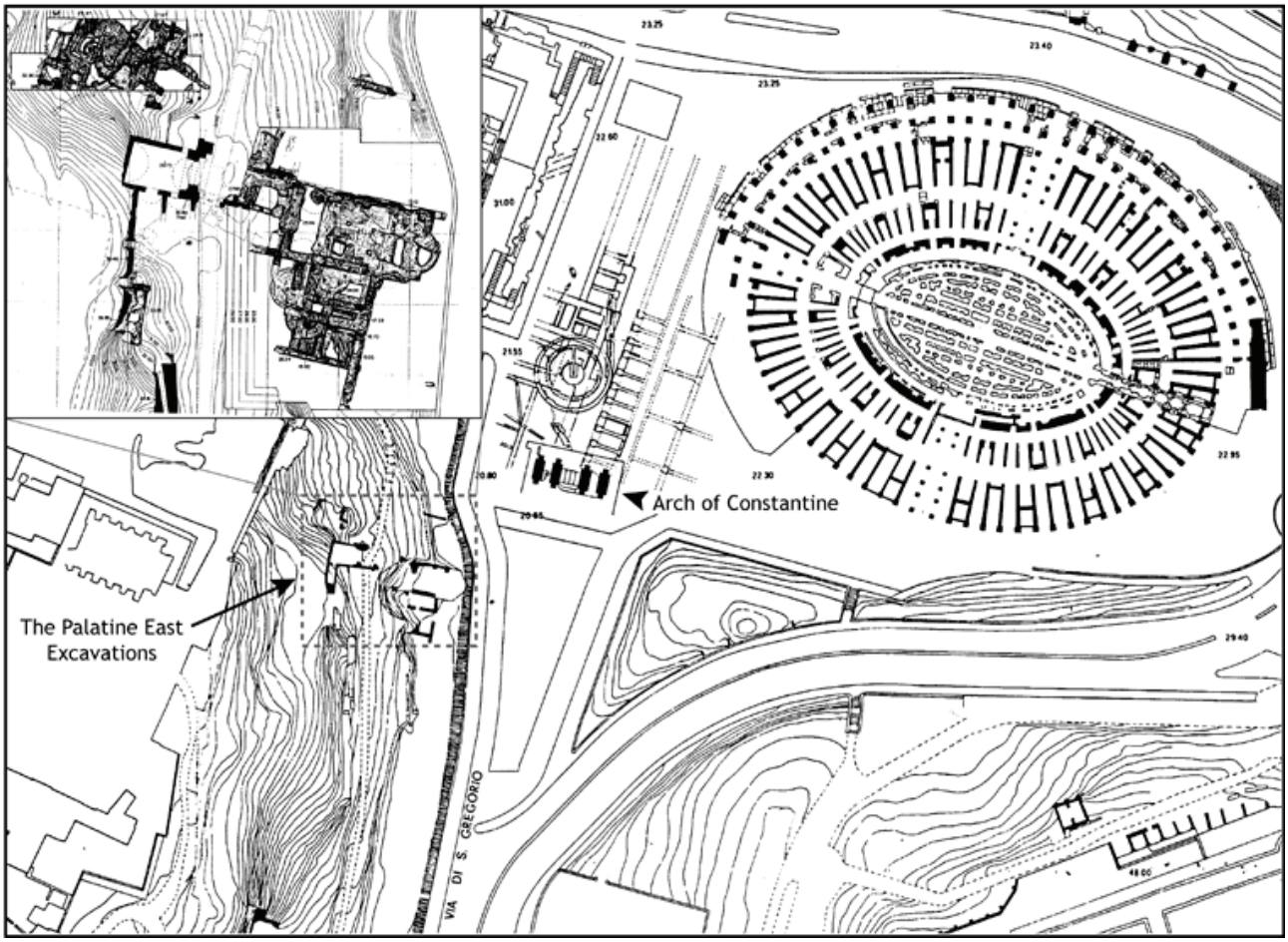

Fig. 1 The location and structures of the Palatine East excavations

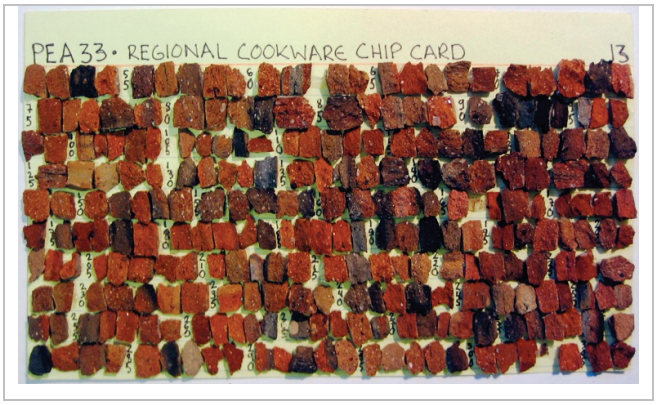

Fig. 2 Reference chip card

In the terminal phase of the project the several score fabrics identified will be combined as necessary and assigned permanent fabric numbers according to a similar scheme.

In order to obtain more detailed information regarding the nature and possible provenience of the various fabrics identified PEPP is also carrying out a program of mineralogical analysis. For each fabric, 1–3 of the specimens chosen for catalogue description are selected to fabricate both a polished thick section and a thin section. These are then analyzed and photographed in the University at Buffalo Department of Classics Archaeological Materials Analysis Laboratory.

Fig. 3 Selection of local fineware from Palatine East

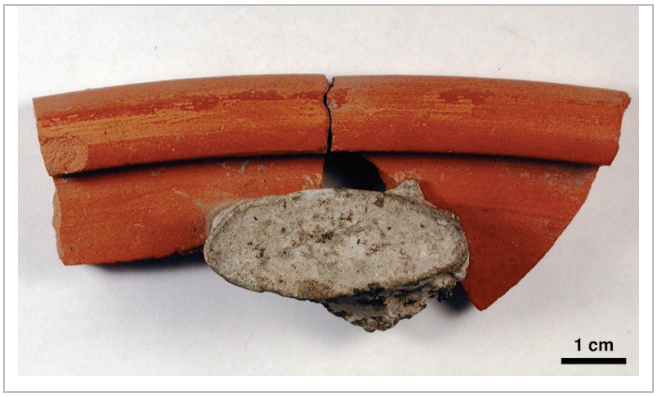

Fig. 4 Two joining sherds from African Sigillata D dish/bowl repaired by hole and clamp technique from Palatine East (for details, see Peña 2007a: 238–239)

In addition to mineralogical analysis PEPP has undertaken a program of chemical analysis aimed at evaluating the likely provenience of the Fineware; a class of tableware manufactured in fine-grained marine clay assumed to be of local or regional origin (**Fig. 3**) and certain related classes. The project involved the neutron activation analysis (NAA) of ca. 150 vessels and test tiles manufactured from marine clays obtained from outcrops in the Gianicolo/Valle del Inferno area, the part of Rome that was the city's principal locus of pottery manufacture in Antiquity and the Middle Ages.

The resulting trace element data separated ca. 85% of the specimens into one main compositional group. As the specimens in this group vary widely with regard to form and date, it can be suggested that the bulk of the Fineware consumed at Rome during the imperial period was derived from a large homogeneous clay source exploited for a period of several centuries. The results also indicated that the test tiles are compositionally similar to the main Fineware group, suggesting that these vessels were manufactured from clay obtained from outcrops in the Gianicolo/Valle del Inferno area (*Wisseman et al. 1994; De Sena et al. 1995*).

FORM CLASSIFICATION AND ANALYSIS

For the purposes of PEPP, a form is defined as a distinct vessel shape obtained by a specific set of primary forming operations. A variant is an expression of a specific form that embodies one or more distinctive secondary forming or finishing operations, for example, the addition of decorative appliqués or the addition of rilling or a tooth on a flanged casserole rim (*Peña 1999: 60; 2007b: 158*).

The study of a specific fabric class is begun with a general overview in order to identify the various forms and variants represented by diagnostic sherds (i.e., rims, bases and handles). Each form and variant recognized is assigned a temporary number in a range determined by the general morphology of the form in question, with a unique series for each of the four general functional groupings: e.g., tableware: 100-199 for bowls; 200-299 for dishes; 300-399 for mortaria and similar, etc. Each form and variant is thereafter subjected to additional quantification procedures involving two measures: estimated number of vessels and estimated vessel equivalents.

The evidence of the various forming and finishing operations involved in the manufacture of forms and variants is also identified and the order in which these were undertaken is determined (e.g., *Peña 1999: 71–137; Ikäheimo 2003: 32–71*). The reconstruction of these operations not only sheds light on the specific manufacturing sequence, but is also employed in the quantification of all classes other than amphorae. At the conclusion, for each form represented, a form description is composed and a limited number of examples are selected for cataloguing. This involves assigning them a unique number and composing a catalogue description for a small number of the most complete or otherwise most representative examples in the site assemblage.

As part of the study of each form, information regarding how that form was used is recorded. This includes the presence, intensity, and location of sooting, the presence of incrustations, the presence and intensity of surface damage in the form of abrasion, scratches, and chipping, and the presence of repairs (**Fig. 4**) and other physical modifications that may be linked to reuse (see *Peña 1999: 151–152; 2007a: 197–205*). The attention accorded to individual vessels has also permitted us to identify an extremely large number of cross-joins (i.e., sherd-links, see *Orton et al. 1993: 209–212*), that is, instances whereby pieces of a single vessel have been recovered in two or more contexts. It is anticipated that this information will shed light on various aspects of the site formation processes at work at the Palatine East, including refuse discard practices in Rome during the imperial period.

QUANTIFICATION

The quantification of materials is being undertaken with three aims: to produce quantitative data 1) in formats similar to those produced by other projects in the Mediterranean, 2) that can be intercompared from context to context at the Palatine East and with contexts from other sites in a statistically valid manner, and 3) that represent more economically meaningful information than the data produced by the various measures traditionally employed in pottery research (*Peña 2007b: 159–163*). Quantification is undertaken at two levels: the pottery class and the form.

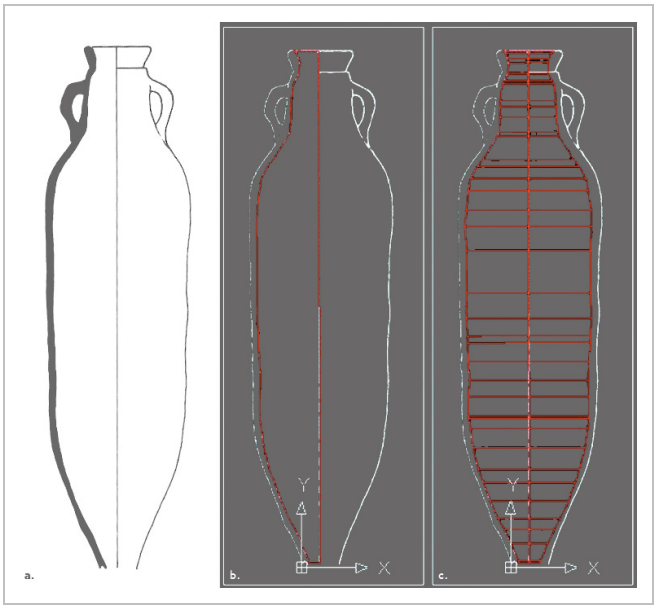

Fig. 5 Intermediate stages of VESCAP performed with Keay 25 -amphora: a) scanned profile drawing, b) traced interior profile and c) closed polyline

Quantification at the level of the pottery class involves two quick and easy measures that are widely applied in the Mediterranean: weight of sherds and number of sherds. In addition, the number of rim, base, and handle sherds can be readily recovered from the data collected in the course of quantification at the level of form. Quantification at the level of the form involves two well-known, if not very widely applied measures, the estimated number of vessels represented (EVREP - minimum number of vessels) and the estimated vessel equivalents (EVE - the sum of the percentage portions of vessels represented). The EVREP measure is carried out using both rims and bases for all classes other than amphorae, and for rims, bases, and handles for all amphora classes. Although these measures are relatively time-consuming, it should be noted that EVE is the only quantitative measure that is not affected by variation in the level of breakage and completeness within a context, and thus the only one that yields data that can be intercompared in a valid fashion with those from other contexts (e.g., *Orton 1989*).

In addition, PEPP is experimenting with further quantitative measures. Firstly, data are being collected regarding the capacities of all amphora classes represented in the assemblage. While there is a certain amount of amphora capacity information available in the literature (e.g., *Peacock & Williams 1986: 52*), the bulk of the capacity data being employed is generated by means of a CAD routine termed VESCAP that allows the user to estimate the capacity of a vessel from a published profile drawing (*McCaw 2007*).

The profile is first scanned at 1200 dpi (**Fig. 5a**). If no scale is present, a scale bar is scanned with the profile.

Fig. 6 End product: 3-D solid used for vessel capacity calculation

The resulting black and white raster file is then brought into CAD and converted to a bitonal image and scaled using the scale bar. Once scaled, one half of the interior profile is traced (**Fig. 5b**), using the polyline command and the polylines delimiting the interior wall, central axis, and rim of the amphora are then joined to create a closed polyline (**Fig. 5c**). Using the three-dimensional solids function, the closed polyline is revolved 360 degrees about the profile's central axis, yielding a three-dimensional solid (**Fig. 6**) that represents the vessel's interior. The volume of this solid is then calculated by the mass properties command, which yields a figure in cubic litres. The mean values obtained for each class can then be multiplied by EVE data to estimate the amount of foodstuffs represented by the amphorae in each context.

Secondly, the information regarding the several operations involved in the forming and finishing of each form is being combined with weight data to estimate the relative amounts of labour and raw materials represented by the examples of each non-amphora form represented in a context. This measure, as it is currently envisaged, can be expressed in the form of an equation (**Fig. 7**, for details, see *Peña 2007b: 162*). It is assumed that the resulting data represent a closer approximation of the relative economic values of the vessels in question than those obtained by means of traditional measures.

DOCUMENTATION AND PUBLICATION

Specimens designated for special treatment are catalogued by assigning the specimen a unique number and composing of a detailed description of the piece according to a standardized set of categories and values. Catalogued specimens that represent the most complete or otherwise representative example of a form or variant and/or that bear a text (maker's stamp, titulus pictus/dipinto or graffito) are drawn in profile in pencil at 1:1. A rubbing is made of all maker's stamps, and these are used to produce a pencil drawing of the stamp.

$$ecvl = wt \cdot rmpi + \sum_{k=1}^{n} (fmi_k \cdot eve_k) \sqrt{} (wt / eve)$$

where: ecvl= economic value;
wt= weight of sherds;
rmpi= raw material processing index;
n= number of different forms/variants represented;
fmi= form-manufacturing index;
fmi_k= form-manufacturing index for form/variant k, where $1 \leq k \leq n$;
eve= sum of estimated vessel equivalent values for all forms/variants;
eve_k= estimated vessel equivalent value for form/variant k, where $1 \leq k \leq n$

Fig. 7 Equation for the calculation of economic value of pottery other than transport amphorae

Catalogued specimens that bear a text or decorative elements, such as an appliqué, stamped design, or slip painting, are photographed in black and white, while catalogued specimens that bear unusually informative evidence for the forming/finishing operations employed in their manufacture or conspicuous evidence of modification or use are photographed in colour.

A data spreadsheet is maintained for each pottery class. This contains a separate workbook for recording information regarding: 1) all catalogued specimens, 2) cross-joins, 3) individual rims and bases, 4) summarized data for rims, bases, handles and other sherds by form/variant by context, and as many additional workbooks as it is found useful. For each class a report including all fabric descriptions, form descriptions, and catalogue entries, along with observations and conclusions of a general nature is produced. Finally, the data included in individual class spreadsheets are uploaded into two master databases; one that contains information regarding all catalogued specimens, and one that contains all quantitative data. A text file that is a master list of all fabrics and another that is a master list of all forms/variants is also maintained.

The project results will be published as a volume in the Palatine East Excavations final reports series, which is being produced under the aegis of the Soprintendenza Archaeologica di Roma. For the ease of use, portability and printing, the print publication will contain a companion CD-ROM that will present the basic data pertaining to each of the various pottery classes. This will be produced using a web design program that allows users to navigate in a non-linear fashion between various types of information: data tables, form descriptions, catalogue descriptions, profile drawings, photographs of sherds, stamps, and tituli picti, photomicrographs of thick sections and thin sections. The basic data for the various pottery classes represented in the assemblage will also be released on a rolling basis via the University at Buffalo Department of Classics website:

(http://www.acsu.buffalo.edu/~tpena/index.htm).

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