

# SAS BULLETIN

NEWSLETTER OF THE SOCIETY FOR ARCHAEOLOGICAL SCIENCES

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FROM THE EDITOR  
*CARMEN TING*

Hopefully the bulletin is able to make it in time as your reading materials for the summer. Don't be surprised if you are not finding your usual entries such as interview, extended abstract and short research reports in this issue. This because we are slowly transitioning into a more timely, online presence. We have been posting new materials on our blog (don't get confused with the website or Facebook pages) as they come in. Please visit our blog: <http://socarchsci.blogspot.com>.

In this issue, in case you were unable to attend the past Society for American Archaeology annual meeting in Albuquerque, you can now read the afterthoughts of a session entitled 'Archaeological Science outside the Ivory Tower' that was sponsored by the SAS, as well as the extended abstract of the winners of the SAS R.E. Taylor Student Poster Awards. We are also initiating a new column called 'The Forum', in which we will discuss some of the hot topics in archaeological science. The first topic we are investigating is funding opportunities and the prospect of archaeological science around the world. This issue will also include some of the fantastic insights on archaeological ceramics, brought to you by our associate editor Charlie Kolb.

Whether you are going away for fieldwork or crunching data in the laboratory or even better actually going on a

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vacation, I hope you are having a great summer. The bulletin will be back again for the next academic year. See you again in September-ish!

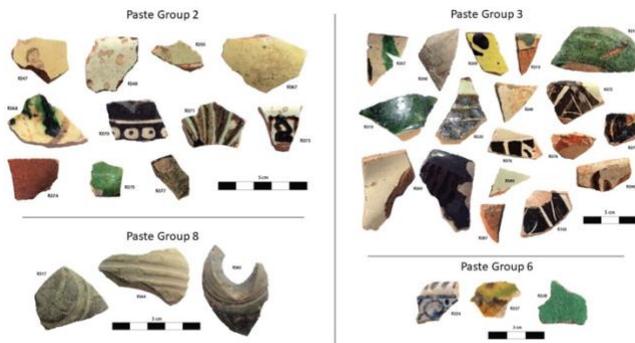
REVIEW OF 'ARCHAEOLOGICAL SCIENCE OUTSIDE THE IVORY TOWER: PERSPECTIVES FROM CRM'  
*DUANE PETER, DP HERITAGE CONSULTING AND ACRA*

Ongoing communication between Dr. Andrew Zipkin of Arizona State University and Vice President for Social Media and Outreach for The Society for Archaeological Sciences (SAS) and Duane Peter, Chair of the American Cultural Resources Association (ACRA) Task Force for Promoting Synergy between the Academy and the Cultural Resources Management (CRM) industry revealed a common interest in promoting increased collaboration between academic and CRM professionals. As a result, Dr. Zipkin invited Mr. Peter to attend a Society for American Archaeology session, "Archaeological Science Outside the Ivory Tower: Perspectives from CRM" (Zipkin and Leslie 2019) and provide a review of the session. SAS sponsored the session as a means of seeking partnerships with the CRM community...

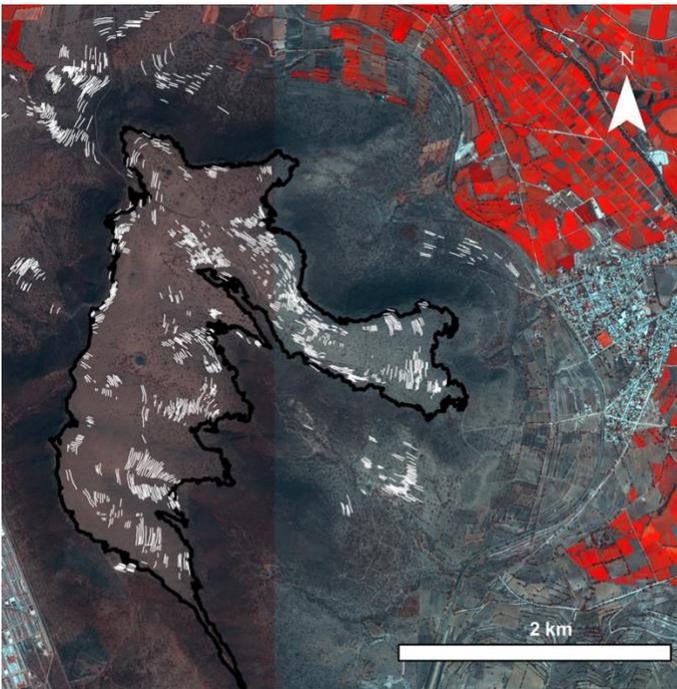
If you would like to know more about Duane's thoughts on the session, please visit the following link: <https://socarchsci.blogspot.com/2019/05/archaeological-science-outside-ivory.html>.

EXTENDED ABSTRACT OF THE RECIPIENTS OF THE SAS R.E. TAYLOR STUDENT POSTER AWARDS AT THE SOCIETY FOR AMERICAN ARCHAEOLOGY

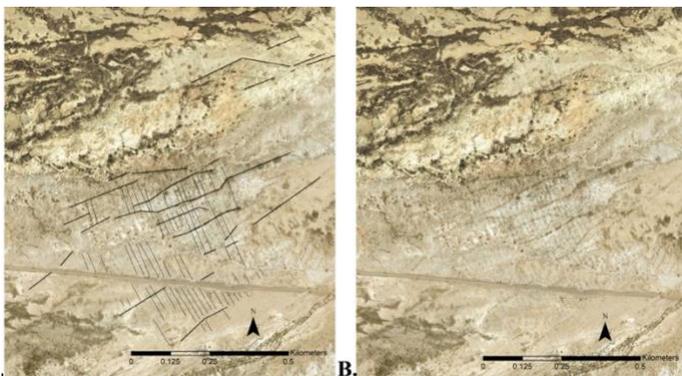
Catherine Klesner (Arizona State University) was the winner of the R.E. Taylor Student Poster Award, whereas Eunice Villasenor (Arizona State University) and Rachel Cajigas (University of Arizona) had both received honourable mention. Here is a glimpse of some of the images related to their respective research:



Glazed ceramics from medieval Central Asia along the Silk Road (image courtesy of Klesner et al.).



Satellite image of Cerro de la Mesa Ahuamada with mapped terraces in white (image courtesy of Villasenor et al.).



Map showing the irrigation canals (image courtesy of Cajigas et al.).

You can find out more about their award-winning research, in following links:

<https://socarchsci.blogspot.com/2019/06/more-on-re-taylor-student-poster-award.html>

<https://socarchsci.blogspot.com/2019/06/re-taylor-student-poster-award-at-84th.html>

THE FORUM: FUNDING OPPORTUNITIES AND THE PROSPECT OF ARCHAEOLOGICAL SCIENCE AROUND THE WORLD

In this round, we are very honoured to have contributions from Professor Aubrey Cannon (Professor, McMaster University) and Dr Andrew Roddick (Associate Professor, McMaster University), and Dr Siran Liu (Research Associate, University of Science and Technology Beijing) to share with us the funding situation in Canada and China respectively. Follow the link below to find out more about what they have to say:

<https://socarchsci.blogspot.com/2019/07/forum-funding-opportunities-and.html>

ARCHAEOLOGICAL CERAMICS  
Charles C. Kolb, Associate Editor

This issue contains four topics: 1) Previous Professional Meeting; and 2) Book Reviews on Ceramics.

**Previous Professional Meeting: SAA: Interesting Papers on Ceramics from the Society for American Archaeology Meeting: 9-14 April 2019**

A “Symposium: The Legacies of *The Basin of Mexico: The Ecological Processes in the Evolution of a Civilization*,” in two parts with 21 presentations, celebrated the 40<sup>th</sup> anniversary of the publication of this influential, landmark book written by William T. Sanders†, Jeffrey R. Parsons, and Robert S. Santley†. Destiny Crider (Luther College) presented “Advances in the Study Archaeological Ceramics of the Epiclassic-Early Postclassic Basin of Mexico” in which she discussed the Basin survey and related archaeological projects which provided a ceramic chronology, but also a legacy of archaeological materials available for continued research. She evaluated some major propositions reported by Sanders, Parsons, and Santley and discussed her own two decades of studies of utilizing ceramic materials from Basin survey and other

related projects. Compositional studies have been developed and new methods and approaches continue to refine interpretation of production and exchange, however the complexity of Basin geological patterns requires continual reassessment and innovation in using sourcing data. She reviewed five major areas in the Basin and looked at Transitional phase ceramics, notably Coyotlatelco (Red on Natural and Red on Cream) and Oxtotipac Negative Resist and summarized her studies of ceramics from the Early Epiclassic, Epiclassic Coyotlatelco, Early Postclassic Mazapan, and Early Postclassic Tollan and Aztec I. Her work pointed out that ceramics can inform on a range of issues from population migration, changes in cuisine, innovation and emulation in technology and crafting, and local access to clay and mineral resources on the landscape. Another paper in the symposium by Charles C. Kolb (Independent Scholar), "In the Beginning: TVP and TMP -- Reflections on the Classic Teotihuacan Period Survey in the Teotihuacan Valley, 1962-1964," reviewed ceramic studies by Carlos Betancourt (1920), Sigvald Linné (1934, 1942), Laurette Séjourné (1959; 1963; 1966a, b, c), Florencia Müller (1978), Evelyn Rattray (2001), and Kolb (1973; 1984; 1986; 1988a, b, c; 1995; 1997).

Tamara Bray (Wayne State University) and Leah Minc (Oregon State University) "Comparative Analysis of Imperial Inca Pottery from Ecuador using INAA." Inca ceramics are found across an enormous expanse of Andean South America, and known for their high degree of uniformity in vessel form, proportionality, and embellishment. A significant issue in Inca archaeology concerns the issue of imperial pottery production. The authors ask how did the Inca manage the production of their signature style and achieve the level of standardization that they did? Early thinking assumed that imperial pottery was mass-produced in highly controlled workshops in the capital city of Cuzco and exported from there to points around the Empire. Subsequent studies at provincial Inca sites hinted that state pottery production and distribution was a more regionalized affair. Recent analyses of paste types and clay sources from various sectors now confirm that Inca pottery production was largely decentralized and occurred at any number of locales throughout the Empire. The present study contributes to this picture by reporting on the compositional analysis of Inca ceramics from several key Late Horizon sites in Ecuador. Bray and Minc's findings indicate that imperial style wares in the northern Andes were manufactured locally in different regions. Further, within each region, these wares were produced in multiple paste recipes, implying a lack of centralized control of the manufacturing process. [Inka is the preferred spelling.] James Davenport (University of New Mexico) and Marie-

Claude Boileau (University of Pennsylvania) coauthored "Reconstructing the *Chaîne Opératoire* of Inka and Local Pottery from Pachacamac, Peru Using Compositional Analyses and X-Radiography." They note that in the Inka Empire (Tawantinsuyu), Inka polychrome pottery was used for state-sponsored purposes. This pottery was not produced solely in the imperial core and distributed to provincial contexts, but rather was produced by a diverse range of potters recruited from subject populations across the empire, working both part- and full-time for the state. These potters made pottery in their traditional and imperial styles, as well as hybrids between the two. Despite being made by a variety of producers, Inka Polychrome Pottery was highly standardized in form and decoration. The author's research project investigated the production of both Inka polychrome and local pottery from the regional center of Pachacamac, the political center of the Ychsma polity and an oracle and pilgrimage center that was subjugated and expanded by the Inka during the Late Horizon (CE 1400-1532). Using compositional analysis of pastes and pigments with INAA and AL-ICP-MS, morphometric analyses of form, and analysis of forming technique and sequence through X-radiography, this research attempts to reconstruct the *chaîne opératoire* of this pottery, which in turn reveals information about who these potters were and what their relationship was with the empire.

A very interesting paper was presented in the "Symposium: Art, Archaeology, and Science: Investigations in the Guatemalan Highlands" and given by Brent Woodfill (Winthrop University) and Erin Sears (Smithsonian Institution and University of Kentucky) "El Aragón: A Late Classic Town in Highland Alta Verapaz." Members of Proyecto Salinas de los Nueve Cerros were contacted by a local contractor who had uncovered what turned out to be the largest ceramic figurine workshop yet discovered in Mesoamerica. Emergency financing from the National Science Foundation allowed a salvage excavation of the site in July 2018. Although the site of El Aragón has been heavily damaged by the growth of Cobán over the past 60 years, archaeologists recovered more than 400 fragments of figurines and the molds – some complete -- for making them, as well as thousands of ceramic pieces -- more than at any other known Mayan workshop. These artifacts provide significant information about figurine manufacture, interregional ties, and the economic foundation of this important site in an uninvestigated area of the Maya world. The figurines played a key role in Mayan politics and economics; it is likely that leaders gave them to allies and subjects to strengthen and publicize important relationships. It also appears that El Aragón survived and even thrived, as nearby cities such as Cancuén succumbed to political turmoil that unleashed a

three-century-long “collapse” around the Mayan world. A longer report is soon to be published in *Science*. In the same symposium Eugenia Robinson (Montgomery College) and Ronald L. Bishop (Smithsonian Institution) gave a paper entitled “Ceramics from Q’umarkaj: Heritage Collection and Instrumental Neutron Activation Analysis.” Research on the ceramic collections from Q’umarkaj, capital in the K’iche’ area of Guatemala, housed at the Middle American Research Institute, Tulane University, provided an opportunity to delimit areas of ceramic production and trade in the Terminal Classic - Late Postclassic periods. The results of INAA on a sample of 82 monochrome domestic wares, censers and bichrome ceramics representing nine types identified by John Weeks at Chisalin. Studies of the elite pottery published by John W. Fox *et al.* (1992) from a central sector of the site began with INAA analysis of a single Tohil-like vessel whose chemistry did not match the Soconusco region. Museum research at the National Museum of Archaeology and Ethnology in Guatemala found almost all of the vessels from the cache of broken vessels from Q’umarkaj. Projected research will evaluate the Fox thesis that these vessels date to an Epiclassic-Early Postclassic migratory period tied to the founding of Q’umarkaj and the identification and iconography depicted on these vessels. Because there were three ceramic sessions scheduled simultaneously, I was unable to attend the following, but include the paper abstract: Carmen Ting, Athanasios Vionis, Vasiliki Kassianidou, and Thilo Rehren co-authored “Did the Student Become the Master? The Development of the Glaze Technology in Cyprus during the 13<sup>th</sup> to 17<sup>th</sup> Centuries AD.” “Despite marking the beginning of glazed ware production in Cyprus in the 13<sup>th</sup> century, the Paphos-Lemba production was a short-lived one and was replaced by other productions in the Famagusta, Lapithos, and Nicosia region. However, we know very little about the glaze technology of these later productions. Did they continue using the same technology as the early production, indicating the occurrence of direct learning from the Paphos-Lemba craftsmen? Or did the later productions have different technologies, which might reflect the influence from other well-established traditions, since there was a marked increase in the movement of and contact with people from places such as Latin Syria and Venice. This paper seeks to explore the range of technologies characteristic of these later productions, in terms of the glaze composition, the method of glaze application, the method of slip preparation, and the mode of decoration. The resultant data will be first compared with the early local glaze technology, and then with the published data on contemporaneous glaze technology in the Mediterranean. This will allow us to understand the changes and continuities in glaze technology within the local context, and their link to the broader technological

trends and socio-political developments.” I am uncertain if Carmen was able to attend the SAA meeting as she was not present at the SAS Business Meeting later on Saturday afternoon.

### Book Reviews on Ceramics:

Readers will likely be interested in a recent comparative book review by Penn State’s Ann E. Killebrew, Associate Professor, Classics and Ancient Mediterranean Studies, Jewish Studies, and Anthropology (2019). “Recent Publications on Archaeological Ceramic Analyses and their Contributions to the Study of Ancient Pottery Technology,” *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 7(1):139-147. DOI: 10.5325/jeasmedarcherstu.7.1.0139.

<https://www.jstor.org/stable/10.5325/jeasmedarcherstu.7.1.0139>

[https://www.jstor.org/stable/10.5325/jeasmedarcherstu.7.1.0139?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/10.5325/jeasmedarcherstu.7.1.0139?seq=1#page_scan_tab_contents)

*Pottery Analysis: A Sourcebook*, Second Edition by Prudence M. Rice; *The Oxford Handbook of Archaeological Ceramic Analysis* by Alice M. W. Hunt; *Ceramics in Archaeology: From Prehistoric to Medieval Times in Europe and the Mediterranean—Ancient Craftsmanship and Modern Laboratory Techniques* by Ninina Cuomo di Caprio; *Materiality, Techniques and Society in Pottery Production: The Technological Study of Archaeological Ceramics through Paste Analysis* by Daniel Albero Santacreu; and *Ceramics and Society: A Technological Approach to Archaeological Assemblages* by Valentine Roux. All of these have been reviewed by me previously (or in the *current issue*, SASB 42(2) Roux, see below). *Pottery Analysis: A Sourcebook*, 2<sup>nd</sup> ed.: SASB 38(3):3-7 (Fall 2015); *Oxford Handbook of Archaeological Ceramic Analysis*: SASB 40(3)5-9 (Fall 2017); *Ceramics in Archaeology: From Prehistoric to Medieval Times in Europe and the Mediterranean: Ancient Craftsmanship and Modern Laboratory Techniques*: SASB 41(4):20-23 (Winter 2018); and *Materiality, Techniques and Society in Pottery Production: The Technological Study of Archaeological Ceramics through Paste Analysis*: SASB 41(4):23-27 (Winter 2018).

*Ceramics and Society: A Technological Approach to Archaeological Assemblages*. Valentine Roux in collaboration with Marie-Agnès Courty. Cham, Switzerland: Springer International Publishing, 2019. xxxi + 329 pp., 46 b/w illustrations, 102 illustrations in color, 10 tables, 6 sets of references, index. ISBN 978-3-030-03973-8: \$84.99 / £63.99 / 74,96 € (eBook), and 978-3-030-03972-1: \$109.99 / £79.99 / 93,59 € (hardcover). This volume is a translation by Louise Byrne of Roux’s original French edition, termed a “manual,” published in 2016 as

*Des céramiques et des hommes: décoder les assemblages archéologiques*, Nanterre: Presses Universitaires de Paris Ouest, 415 pp. (48,93€, neuf €26,00€); and slightly updated to early 2019, in the main, by citations to her own publications (2017 and 2019) and citations to three chapters (by Duistermaat, Santacreu *et al.*, and Whitbread) in Alice M. W. Hunt's edited *Oxford Handbook of Archaeological Ceramic Analysis* (2017); it was reviewed by me in *SAS Bulletin* 40(3):5-9 (Fall 2017). Roux points out that "certain chapters" in *Ceramics and Society* have been emended but most are unmodified direct translations of the 2016 manual. At times she calls the current volume a manual or a handbook. It is rather expensive book although designed to be a graduate/advanced undergraduate textbook; the color illustrations certainly added to the price.

Valentine Roux is Director of Research at the National Center for Scientific Research (CNRS, France). Her work combines ethnoarchaeology in India and archaeology in the Near East with the aim of highlighting the anthropological regularities underlying the evolutionary trajectories of ancient technological traditions. Much of her research has been devoted to the development of reference frameworks, whether about the diagnostic attributes of manufacturing techniques, their properties, the quantification of their constitutive components, the cognitive and motor skills involved, or, more recently, about the conditions favorable to their diffusion. These frames of reference were built during two stages: a first stage where regularities were highlighted, a second stage where the mechanisms that found them were studied. During this second stage, there is always a change of scale and need for interdisciplinary research which explains her numerous collaborations with researchers in geosciences, economy, psychology and sociology. At the same time, the application of anthropological regularities to the archaeological assemblages of the ancient Near East has necessitated the development of new theoretical and methodological frameworks that led her to renew, more particularly, the ceramic technological approach. Roux was rewarded in 2015 with the CNRS silver medal and in 2016 with the Legion d'Honneur under the Ministry of Scientific Research.

She is a prolific author recently editing and contributing to a "Special Issue: Social Boundaries and Networks in the Diffusion of Innovations," co-edited with Gianluca Manzo in *Journal of Archaeological Method and Theory* 25(4):697-1154 (2018) which included her own article: V. Roux, B. Brill, and A. Karasil "Weak Ties and Expertise: Crossing Technological Boundaries," pp. 1024-1050. As the sole author, she also has just published "The Ghassulian Ceramic Tradition: A Single Chaîne

Opératoire Prevalent throughout the Southern Levant," *Journal of Eastern Mediterranean Archaeology and Heritage Studies* 7(1):23-43 (2019). Roux dedicates the volume to the memories of Jean-Claude Gardin, a Central Asian archaeologist and theoretician, for his epistemological contribution and to Jacques Tixier, a prehistorian and specialist in lithic technology at CNRS, for establishing the bases of technological analysis (p. v) and acknowledges the assistance of several dozen scholars (pp. vii-viii), nearly all French, noting that "pottery is a complex field necessitating pluridisciplinary collaboration" (p. vii). Gardin's *Archaeological Constructs: An Aspect of Theoretical Archaeology*, Cambridge: Cambridge University Press (1980) is especially influential.

*Ceramics and Society* is organized into six chapters each with its own set of references (a total of 684 citations) and "List of Figures" (pp. xiii-xxx) n = 141, and "List of Tables" (p. xxxi) n = 10. Chapter 1: "Introduction to Ceramic Technology" (pp. 1-14, 2 figures, 85 references). "The aim of this manual is to provide a cutting-edge theoretical and methodological framework, as well as a practical guide, for archaeologists, students and researchers to study ceramic assemblages. As opposed to the conventional typological approach, which focuses on vessel shape and assumed function with the main goal of establishing a chronological sequence, the proposed framework is based on the technological approach. Such an approach utilizes the concept of, which is geared to an anthropological interpretation of archaeological objects" (p. 1). Roux provides a lengthy discussion and cogent summary about *chaîne opératoire* and its six implications for archaeology (p. 6) and reviews interpretive procedures referencing Gardin (1980) and Gally (2011) among others. Archaeological artifacts can be interpreted on the basis of regularities "brought to light in actualist settings ... and enables us to overcome the "analogy dilemma."

In an extensive and detailed Chapter 2: "Description of the *Chaînes Opératoires*" (pp. 15-127, 57 figures, 4 tables), Roux proposes a descriptive system of the ceramic *chaîne opératoire* from collection of the raw material (clay) through firing processes. In this chapter, she describes the main actions that organize the transformation of the clay into a finished product; a subsequent section describes the *chaîne opératoire* involves in implementing each of these actions. Roux reviews the emic viewpoint (the potter's discourse) versus the etic perspective (scientific discourse) and provides numerous relevant citations to the literature in examining the nature of clay minerals, clay sources, and clay materials and ceramics. In 2.1 Collection and Transformation of Clay Materials (pp. 16-40) she considers paste preparation and comments on required

properties of the clay materials: malleability; source materials and deposition contexts; clay extraction; mineralogy, texture, and structural states of natural clay materials (there is a useful schematic representation of the atomic structure of clay minerals -- kaolinite, halloysite, montmorillonite, illite, and smectite -- depicted in Fig. 2.3). Splendid color illustrations show the selective exploitation of clay resources, textural and structural states of raw clays, and paste preparation. The fragmentation (crushing) of clay materials, granulometric sorting, hydration, the removal of coarse undesirable elements, adding tempers (with comments on improving plasticity, resistance to mechanical and thermal shocks, thermal conduction, heat transfer, and conserving the coolness of water). Paste preparation and homogenizing the paste involves wedging and kneading and maturing and biodegradation. Part 2.2 Fashioning (pp. 41-92) commences with definitions of terminology: methods, techniques, operating procedures, gestures, and tools (active, pressure, percussion, passive, rotary implements (turntable or *tourne* and several types of wheels). Eight "roughing-out techniques are detailed and accompanied by color images and line illustrations: coiling technique (pinching, spreading, and drawing), coil forming processes, and coil joint procedures; slab technique, forming and joining procedures; modeling by pinching, drawing, and hammering wet paste; molding; preforming by pressure percussion, beating/paddling leather-hard paste, and hammering leather-hard paste. The section on wheel-throwing procedures is accompanied by a superb eight-page discussion by Gandon, Casanova, and Bootsma on the effects of centrifugal. Roux focuses on shaping wet paste by wheel coiling and molding, trimming excess materials, and fashioning separate elements such as handles, spouts and feet. Fig. 2.42 is a classification chart of roughing-out and shaping techniques.

2.3 Finishing (pp. 92-95) provides information on finishing wet pastes to a leather-hard state by smoothing and brushing. In 2.4 Surface Treatments (pp. 96-101) she reviews treatments by friction (softening, burnishing, and shining) and the application of coatings of clay minerals, organic materials, graphite, glazes, and smudging. Part 2.5 Decoration (pp.102-109) is surprisingly brief and provides some basic information on painting with pigments, decoration with hollow and relief techniques, five types of impression, and four types of incision. Excision, the application of separate elements, and modeling are likewise very basic modeling. 2.6 Drying (p. 110) is documented in less than half a page, and 2.7 Firing (pp. 110-121) provides rather basic information on temperatures, heating rates and smoking times, and atmospheres. Firing techniques are documented and presented by differentiating open versus enclosed firings

(the latter can be open or closed) and she mentions cooling times. Firing vessels without contact between vessels and the combustible may be done in direct flame kilns, indirect flame kilns, or radiant heat kilns. Vertical updraft kilns and horizontal updraft kilns are described; the author states that there are "many variants of the vertical form and "variable" stacking methods. However, Roux does not mention down draft kilns or muffle kilns (generally associated with large-scale production), or prehistoric types that continued into the historic era, notably Jingdezhen egg-shaped kiln, Dragon kilns, and Anasazi trench kilns.

Prudence M. Rice and W. David Kingery's edited volume with ten chapters, *Ceramics and Civilization VII: The Prehistory and History of Ceramic Kilns*, Westerville, OH: American Ceramic Society (1997), and the J. C. Watkins and P. A. Wandless manual *Alternative Kilns & Firing Techniques: Raku \* Saggar \* Pit \* Barrel*, Asheville, NC [USA]: Lark Books (2006) are among basic sources that could be cited. In addition, *Ceramics and Society* contains no full discussion of fuels, only comments about the use of dung patties and bamboo wattle waste, but no discussion of fuelwood or other combustibles and, of course, no rigorous discussion of the locations of firings within or outside of settlements, the time of firing (time of day or night), firing durations (hours and minutes), temperatures reached, cooling time, firing loss rates (failures or accidents resulting in wasters or fused ceramics), and disposal of the losses or their reuse. Some comparative data from Gosselain (1992) and Livingstone Smith (2001) is conflated in Table 2.4.

James J. Sheehy's chapter, "Ceramic ecology and the clay/fuel ratio: Modeling fuel consumption in Tlajinga 33, Teotihuacan, Mexico," in C. C. Kolb. (ed.), *Ceramic Ecology Revisited, 1987: The Technology and Socioeconomics of Pottery*, British Archaeological Reports International Series S436, Oxford: British Archaeological Reports (1988) pp. 199-226, provides a valuable discussion on fuelwood. Other notable reports that could be cited include those by Seona Anderson and Fusun Ertug-Yaras, "Fuel fodder and faeces: An ethnographic and botanical study of dung fuel use in central Anatolia," *Environmental Archaeology* 1:99-110 (1998); Sissel Johannessen and Christine Hasdorf, "A History of Fuel Management (A.D. 550 to the Present) in the Mantaro Valley, Peru," *Journal of Ethnobiology* 10(1):61-90 (1990); Naomi F. Miller, "The use of dung as fuel: An ethnographic example and an archaeological application," *Paléorient* 10(2): 71-79 (1984); and Bill Sillar, "Dung by preference: the choice of fuel as an example of how Andean pottery production is embedded within wider technical, social and economic practices" in *Technological*

*Choice in Ceramic Production* (Symposium), World Archaeological Congress 4, University of Cape Town, pp. 1-7 (1999). Roux's chapter, "Description of the Chaînes Opératoires," concludes with "References" (pp. 121-127) including 138 citations.

Chapter 3: "Identification of the *Chaînes Opératoires*" (pp. 129-216, 61 figures, 1 table). The author states that "Identifying ceramic *chaînes opératoires* is a difficult exercise for several reasons. The first is that each gesture produces traces that can obliterate the preceding traces.... The second reason is the pluriform, polysemous nature of the ceramic macro-traces: not only can the same trace be obtained by different techniques, but also the same technique can engender different traces.... Finally, a last reason involves the taphonomic processes that can affect the conservation of ceramics" (p. 129). The complexity of ceramic production is the reason why ceramic technology developed more slowly than lithic technology. This chapter is divided into two major parts: the first on the preparation of the clay materials and the second on fashioning, finishing, surface treatment, decoration and firing. 3.1 Technological Interpretation of Paste (pp. 130-139) begins with a discussion of methodologies, a descriptive framework (fine mass, coarse fraction, and porosity) followed by the characterization of petrofabrics (technical operations, petrofacies and provenance). In 3.2 From Fashioning to Firing (pp. 140-212), Roux considers methodologies and descriptive grids: macroscopic and mesa- and microscopic scale. Initially characterized are the macroscopic parameters and variables associated with relief, types of fracture, surface characteristics, decorative traits, radial section color, and hardness (established with a durometer). The mesa- and microscopic examinations characterize deformations and the descriptive attributes of deformations seen on fresh sherd sections. Diagnostic features of fashioning techniques and methods focuses on two major families of rough out techniques, with and without rotary kinetic energy (RKE), to identify the different operations used by the potter. Pores, coil and slab fractures, distinctions between molding and hammering, paddled wheel-thrown ceramics, and trimming are discussed and examples illustrated with color images. Radiography and X-ray computer tomography "offer new perspectives" (p 191). An essay by Alain Pierre entitled "Application of X-Radiography to the Identification of Fashioning Techniques" (pp. 192-195) is included. The final part of the chapter deals with diagnoses of wet paste and leather-hard paste finishing, softening, burnishing, shining, clay coating, slips, coating with organic materials, tools and gestures associated with decorations and with varnishes, and glazing are reviewed and firing colors described briefly (surfaces and radial sections) and oxidation versus reduction atmospheres. Reconstruction

of the *chaînes opératoires* utilizes a two page quotation (p. 210-212, Fig. 3.61) taken from J. P. Hillman's description of the fabrication of jars from Bronze Age Tell Arqa during the first half of the third millennium BC (2006). Roux's "References" (pp. 212-216) include 72 entries.

Chapter 4: "Classification of Archaeological Assemblages According to the *Chaîne Opératoire* Concept: Functional and Sociological Characterization" (pp. 217-258, 9 figures, 2 tables). The author notes that "ceramic assemblages are traditionally classified into morphological or morpho-stylistic types, or types combining shapes and petrofabrics. These classifications are aimed at constructing chrono-cultural typologies" (p. 217). She discusses the reasons and methodologies of each, referring to elements discussed in Chapters 2 and 3. 4.1 Classification by Technical Groups (pp. 119-124) accompanied by diagram of a techno-tree; 4.2 Classification by Techno-Petrographic Groups (pp. 218-224) with a discussion of sampling procedures and two pages of excellent color illustrations, Fig. 4.3; 4.3 Classification by Morpho-Stylistic Groups (pp. 226-230) with an example of a Middle Bronze Age jar typology developed by French archaeologist Bertille Lyonnet (1997) and an example of decoration classification by American geologist-archaeologist Anna O. Shepard (1965); and, lastly, 4.4 Classification by Techno-Stylistic Trees (p. 230). Roux next reviews 4.5 Classification by Functional *Versus* Sociological Variables (pp. 230-244) including vessel functions (shapes and functions such as storage, transfer, culinary, and special activities) and decoration and function. Missing here is any mention of American anthropologist Dorothy Washburn's innovative assessments of pottery design, symmetries of pattern design on material culture both ethnographic and archaeological, which go well beyond Shepard's initial work and deserves inclusion in any volume on ceramic decoration: *Symmetries of Culture: Theory and Practice of Plane Pattern Analysis* (1988) and *Symmetry Comes of Age: The Role of Pattern in Culture* (2004) both by Dorothy K. Washburn and Donald W. Crowe (Seattle: University of Washington Press) and Washburn's edited book *Embedded Symmetries: Natural and Cultural* (University of New Mexico Press, 2004). More than 50 relevant publications appear online in <https://upenn.academia.edu/dorothywashburn> and [https://www.researchgate.net/profile/Dorothy\\_Washburn](https://www.researchgate.net/profile/Dorothy_Washburn) Roux's chapter also includes discussions of clay properties and surface treatment and functions, as well as pottery use alterations and function (citing James M. Skibo's *Pottery Function: A Use-alteration Perspective* (New York: Plenum Press, 1992) but not his more recent elaboration, *Understanding Pottery Function* (New York, Heidelberg, Dordrecht, and London: Springer, 2013) reviewed by me in *SAS Bulletin* 35(4):28-30 (Winter 2012) or a

comparative review of both: *Amazon.com*, November 27, 2012. [http://www.amazon.com/Understanding-Pottery-Function-Archaeological-Technique/product-reviews/1461441986/ref=cm\\_cr\\_dp\\_text?ie=UTF8&showViewpoints=0#R10H3FS2YU37XH](http://www.amazon.com/Understanding-Pottery-Function-Archaeological-Technique/product-reviews/1461441986/ref=cm_cr_dp_text?ie=UTF8&showViewpoints=0#R10H3FS2YU37XH) An eight-page article by Martine Regert “Organic Residues, Clues to the Function of Ceramic Vessels” is an informative inclusion (pp. 237-244). In 4.6 Classification by Functional *Versus* Complex Sociological Variability (pp. 245-249) Roux characterizes homogeneous ceramic assemblages as simple or complex, while heterogeneous assemblages are also similarly described as simple or complex. Detailed examples of each of the four are extracted from the literature. Mixed assemblages, she points out, are partly made up of locally-produced ceramics and partly by vessels produced outside of the local zone (p. 249). In a “4.7 Conclusion” (pp. 249-250) she contends that successive sortings are preferable to using petrographic analysis; however, your reviewer remains unconvinced based upon her presentation in this volume. The “References” (pp. 250-258) includes 161 citations.

In Chapter 5: “Technical Skills” (pp. 259-282, 9 figures, 1 table), Roux considers the nature of skills (modeling, molding, wheel throwing, and wheel coiling) and expertise. A study published in 1989 by Valentine Roux and Daniela Corbetta, “Wheel-throwing technique and craft specialization” in Roux, in collaboration with Corbetta, *The Potter’s Wheel: Craft Specialization and Technical Competence*, New Delhi: Oxford and IBH Publishing, pp. 10-91, forms the basis for the chapter in *Ceramics and Society* (2019). The 1989 book is out of print but available gratis, thanks to Professor Roux, as a download

[https://www.academia.edu/8408574/The\\_potters\\_wheel\\_Craft\\_specialization\\_and\\_technical\\_competence](https://www.academia.edu/8408574/The_potters_wheel_Craft_specialization_and_technical_competence). Roux and Corbetta, the latter a researcher in experimental psychology, conducted ethnoarchaeological field experiments in northwest India from 1983 to 1988 in order to understand structural and functional parameters in wheel-thrown pottery. Other research has been undertaken in Sénégal, Africa by A. Gelbert (1997, 2003). These investigations combined with information and paradigms of the organization of craft production published by Cathy Costin beginning in 1991 and in Kim Duistermatt’s chapter “The Organization of Pottery Production: Toward a Relational Approach” Alice M. W. Hunt’s edited *Oxford Handbook of Archaeological Ceramic Analysis* (2017:114-147). Roux reports on motor skill requirements, stages of teaching and training, and different skill requirements needed in coiling versus molding. In 5.2 Expertise (pp. 269-279), mechanical constraints on expertise are documented and skill variability and degrees of skill are reviewed; Table 5.1 illuminates 12

technological variables and observations of skill variability (after S. Budden’s research in Bronze Age Hungary, “Skill amongst the sherds ...” in Ina Berg’s edited *Breaking the Mould*, Oxford: Archaeopress, pp. 1-17. Roux also discusses skill variabilities that result in individual potter’s “signatures” and motor habits and product standardization (following the work of American archaeologists D. E. Arnold and Nieves 1992; Benco 1988; Costin 1991, 2000; Costin and Hagstrum 1995; Longacre *et al.* 1988; Longacre 1991, 1999; and Stark, 1995a, 1995b; among others). Some of these publications began as oral presentations in Ceramic Ecology symposia. In her “Conclusions” (p. 279), the author emphasizes that the characterization of archaeological ceramics in terms of skills is central to technological analysis. The “References” (pp. 279-282) include 64 citations.

In Chapter 6: “Anthropological Interpretation of *Chaînes Opératoires*” (pp. 283-324, 4 figures, 1 table), Roux characterizes the organization of production in 6.1 The Socioeconomic Complex (pp. 283-293), following Costin (1991) and Costin and Hagstrum (1995) and reviews the elementary technical operations and consumed and produced goods, Table 6.1. In 6.2 Cultural Histories (pp. 293-307), African work by Gosselain (2008, 2011) and others and Dupont-Delaleuf (2011) in Central Asia. There is a very interesting section on cultural lineages and evolutionary trajectories and an essay by Sebastien Manem entitled “Modeling the Evolution of Technical Traditions and Learning Pathways with a Phylogenetic Approach” (pp. 297-301) which includes a cladistics diagram of taxa. There are commentaries on historical scenarios, innovation, and diffusion, the latter divided into demic and cultural. Lastly, 6.3 Evolutionary Forces (pp. 308-315) concerns developmental technique, conditions for technological change, and the 6.4 “Conclusion” (pp. 315-316) whereby the “potency” of the ceramic *chaîne opératoire* lies not only in the ability to explore the functional and sociological variability of ceramic assemblages but also show the cultural and historical implications of this variability. The “References” (pp. 316-324) include 164 items. A double-column “Index” (pp. 325-329) focuses only on topic entries.

Regarding the “References,” Roux cites more than 20 of her own publications and an additional 13 in which she is the senior author; many are listed in academia.edu for downloading. Her lifelong work is an admirable corpus of research and should be further considered by students of archaeological ceramics. A careful reader should be able to differentiate among the three “Arnolds” cited in the references and texts: Dean E. and Philip (both Mesoamericanists) and Dorothea, an Egyptologist. Roux references a classic work by Orton, Tyers, and Vince,

*Pottery in Archaeology* (1993), which is now dated and replaced by a second edition authored by Orton and Hughes (2013), reviewed by me in *SAS Bulletin* 37(1):7-9 (Spring 2014); likewise her citations to Prudence Rice's *Pottery Analysis: A Sourcebook* (1987) should refer to the revised second edition (2015), reviewed in *SAS Bulletin* 38(3):3-7 (Fall 2015).

Chapters 3: "Identification of the *Chaînes Opératoires*" (pp. 129-216) and 4: "Classification of Archaeological Assemblages According to the *Chaîne Opératoire* Concept: Functional and Sociological Characterization" (pp. 217-258) could be augmented by Simona Scarcella's edited monograph *Archaeological Ceramics: A Review of Current Research*, British Archaeological Reports International Series S-2193, Oxford: Archaeopress (2011), reviewed in *SAS Bulletin* 34(2):6-9 (Summer 2011). A majority of the 14 contributions to Scarcella's volume characterize or employ the *chaîne opératoire* (Roux contributed a chapter entitled "Anthropological interpretation of ceramic assemblages: foundations and implementations of technological analysis"). The chapters by Berg, Laneri, Roux, De La Fuente, Jeffra, Gheorghiu, and Deal explicitly use *chaîne opératoire*; in the introduction to the volume. In the introductory essay, "Chaîne opératoire and ceramics: classifications and typology, archaeometry, experimental archaeology, and ethnoarchaeology," Kolb (2011:5-19) discussed the ceramic production sequence from finding raw materials (clays and tempers) through fabrication, dispersal and final disposition of vessels and sherds, and related it to the methodology of Ceramic Ecology. Roux (p. 321) references only one chapter by Gabriel Ramón Joffre (2011) on itinerant Andean "swallow potters" published in the Scarcella monograph; however, the other contributions provide additional perspectives on *chaîne opératoire*.

A number of minor errors appear in the texts and bibliographies: p. 12: Gosselain and Smith (2005) should be Gosselain and Livingstone Smith; p. 251: Bowser J. B. (2008) should be B[renda]. J.; p. 306 and 320: Marro *et al.* (2014) the Kuro-Araxe culture [French designation] would be Kura-Araxes in the English-language version; p. 321: Olesen, Asta (1994) the reference to Copenhagen should be Copenhagen; and p. 323: Stark, M. T. (ed.) (1993) Washington, WA/London should be Washington, DC/London; all of these are verified in WorldCat. English-language editorial proof readers should have dealt with these nuances.

In summary, this is a splendid, detailed, and clearly written handbook on pottery analysis and certainly the best in terms of integrating *chaîne opératoire* into ceramic analyses that feature technological rather than typological

approaches. Roux provides a valuable Francophile perspective on non-physicochemical assessments; indeed, it is a nontraditional approach for classifying ceramic assemblages. A strength of this volume lies in the inclusion of a more than one hundred excellent color images and nearly fifty line drawings as well as the insertion of relevant topical essays by French scholars that are not published elsewhere. From American and British viewpoints there are gaps in the coverage that have been noted in the review, notably on drying, firing, use wear and vessel contents analyses, and the characterization of design motifs. Physicochemical analyses are not an element of ceramic assessment in this volume (see Rice 2015 and Hunt (ed.) 2017), and what happens to the finished products (use and discard) is understated in her handbook. Roux states that "Pottery is the most ubiquitous find in most historical archaeological excavations and serves as the basis for much research in the discipline. But it is not only its frequency that makes it a prime dataset for such research, it is also that pottery embeds many dimensions of the human experience, ranging from the purely technical to the eminently symbolic" (back cover) and demonstrates a significant perspective and theoretical and methodological frameworks for assessment. How to study is accompanied by explanations of why these methods are essential for interpreting the human factor in the fabrication of ceramics from raw materials acquisition through final disposition, which is what Ceramic Ecology is all about.

*The Roman Pottery Manufacturing Site in Highgate Wood: Excavations 1966-78*. Anthony E. Brown and Harvey L. Sheldon. Archaeopress Roman Archaeology 43. Oxford: Archaeopress, Oxford, 2018. 404 pp., 228 figures, 10 tables, multiple bibliographies. ISBN-13: 978-1784919788, ISBN-10: 1784919780. £60. (paperbound) and open access available at <http://www.archaeopress.com/Public/download.asp?id={7C40D7CA-7E5A-4537-A9E9-678506E443C1}> This is a unique monograph. Readers who work with ceramic materials will likely learn much about kiln construction problems and resolutions, and pottery analysis from the work that Brown and Sheldon report. Some of this book reflects traditional holistic assessments of material culture, solid cartographic and archival research, and meticulous ceramic analysis. There are also significant archaeometric studies using ceramic petrography and chemical characterization. The Highgate Wood pottery collection played a significant role in more recent publications on pottery quantification and vessels equivalent measures. Brown and Sheldon's backgrounds, interests, and professionalism assured the publication of this splendid and thoughtful report.

Tony Brown was a member of the academic staff of the University of Leicester for more than thirty years, moving there in 1964 as an Assistant Staff Tutor (Organising Tutor for Leicestershire). In 1966 he became Organising Tutor for Northamptonshire and in 1968 Staff Tutor in Archaeology. From 1990 he held a joint appointment with the School of Archaeological Studies, retiring in 2001 as an Emeritus Reader. During the earlier part of his career he engaged in rescue excavations for the Department of the Environment (Roman pottery kilns at Harrold in Bedfordshire and the Roman small town of Towcester in Northamptonshire), thereafter concentrating rather more on fieldwork and documentary studies of the medieval and post-medieval landscapes of the English Midlands. He has written or collaborated in the production of some sixty papers and either singly or with others written or edited books on the topography of Leicester, medieval moated sites, garden archaeology, Roman small towns, archaeological fieldwork, and antiquarian writing in the 18th century. He also edited the journal *Northamptonshire Archaeology* and its predecessors from 1966 to 1984. Harvey Sheldon was Field Officer for the Southwark and Lambeth Archaeological Committee from 1972 until 1975, then Head of the Department of Greater London Archaeology in the Museum of London from its establishment in 1975 until 1991. During this period he was also a part-time tutor in the Department of Extra-Mural Studies University of London, and later, in the Faculty of Continuing Education, Birkbeck, University of London. From the late 1990's until 2010 he had responsibilities for the faculties archaeological field programme and for the direction of its Master of Arts in Field Archaeology. Since 2011 he has been an Hon. Research Fellow in the School of Social Sciences, History and Philosophy at Birkbeck. He part-edited and contributed to *Interpreting Roman London: Papers in Memory of Hugh Chapman*, (Oxford: Oxbow, 1996), and *London under Ground: The Archaeology of a City* (Oxford: Oxbow, 2000). His recent articles include: Enclosing Londinium: the Roman landward and riverside walls in *Trans London, Middlesex Archaeological Society* 61 (2010); Roman London: early myths and modern realities? in *Hidden Histories and Records of Antiquity*, LAMAS Special Paper 17 (2014); 'Rescue': Historical Background and founding principles in *Rescue Archaeology Foundations for the future* (2015); and Tony Legge and continuing education at the University of London 1974-2000 in *Economic Zooarchaeology* (2017). Harvey is also directly involved in many aspects of London archaeology and he currently chairs both the Rose Theatre Trust and the Council of the London and Middlesex Archaeological Society.

Highgate Wood is a wooded park owned by the Corporation of the City of London in the parish of Hornsey, now part of the London Borough of Haringey. The Roman pottery manufacturing site there was discovered in 1962 by Tony Brown during an archaeological survey of the public open spaces of this area. The initial work by Brown and Sheldon has been reported in four issues of *London Archaeologist* (1969, 1970, 1971, and 1974). Excavations by volunteers over a period of eight years uncovered at least ten pottery kilns, waster heaps, ditches and pits, but only a few definite structures. The pottery from the site (a total of 1,200 kg was recovered) indicates a period of occupation extending from the first half of the 1<sup>st</sup> century AD to the later 2<sup>nd</sup> century. The pottery made at the site included initially a vegetable tempered handmade ware, but subsequently the bulk of it consisted of a grog tempered ware and then pottery in a sandy fabric which is well-known from assemblages in London. The type of kiln varied with the pottery fabric; there was possible evidence for a pre-Roman pit firing, and later kilns set in ditches were of the twin flued type, eventually replaced by the more familiar above ground kilns with raised floors. Changes in pottery fabric were reflected in different methods of clay preparation, which led to changes in the function of the various ditches, the stratigraphy of which, along with the variation in the fabrics, was significant in enabling the four broad phases into which the site has been divided, to be proposed. The report includes a detailed analysis of the forms and fabrics of the pottery made at Highgate. My review focuses on the pottery and kilns. This monograph is divided into four parts, each with a series of highly descriptive and illustrated narrative sections or chapters, a two-page bibliography, and acknowledgments; there is no index. Initially there is a "List of Tables" (p. ii), ten are enumerated, and "List of Figures" (pp. iii), with 228 citations.

"Part I: The Excavations" (pp. 1-56, 41 figures) provides important contexts with an "Introduction" detailing the site location and description. Because of the existence of trees and the nature of Highgate Wood as a public park, the site was excavated by means of relatively small trenches separated by baulks; the soil is acidic (4.2 pH average). "The Excavation" includes definitions and descriptions of four chronological phases: *Phase 1* (First half of the 1<sup>st</sup> century AD) has grog tempered Highgate B pottery and Central Gaulish samian ware. Features excavated include three kilns (#6, 7, and 10) and elaborate levigation pits. *Phase 2* (Mid- to end of 1<sup>st</sup> century AD) has a change in pottery fabric, Highgate Wood B/C, which contains a mixture of grog and sand. Two kilns (# 3 and 9) are largely above ground single chambered updraft kilns with raised floors; there is a third possible kiln. *Phase 3* (c. AD 100 to

160). Most of the pottery found at Highgate belongs to this phase. The fabric (Highgate C) is wheel thrown, generally a reduced grey, and sandy, the sand probably in most cases *not* a deliberate addition but incorporated naturally in the potting clay. Five updraft kilns were excavated: (#1, 4, 5, and 8) and Kiln 9 which was reused and older reused levigation pits; two large kiln dumps were also excavated. Samian ceramics, of which there was a considerable quantity, ranged in date from the pre-Flavian to the Hadrianic/Antonine and included the latest pieces from the site. *Phase 4* has samian pottery of early to mid-2<sup>nd</sup> century date, as well as mid-2<sup>nd</sup> century mortaria and two mortar fragments, which likely fall within the range AD 150-200; Kiln #2 is associated with this phase.

“Part II: Highgate Wood, Wider Aspects (pp. 57-82, 8 figures). This part is an excellent report focusing on landscape history. Evidence for other pottery making sites in or near Highgate Wood are discussed and the archaeology of north London, prehistory and the Roman period and the context of the Highgate Wood site are reviewed and show the nature of the early woodland and changes in its composition. The area was important in the Anglo-Saxon period as demonstrated by the presence of three late Saxon and medieval houses found during the excavation and indications of woodland management. One of the reasons why Highgate Wood survives today is that in the Middle Ages it was a part of the deer park owned by the Bishop of London; the earliest documentation dates to 1227. The park was huge, covering an area of 363 hectares (898 acres), and was a very visible indicator of the bishop’s status and gave him exclusive rights to its resources. It was initially a deer park and woodlot, later exploited for construction gravel. Archival documentation and cartography and archaeological test excavations support its history and use. Research has shown human interest in the wood spanning a much longer period than this, from the late Mesolithic of c.7000 BC up to the present day; the Roman potters represent simply *one episode* in a long sequence of activity. The really significant thing is that Highgate Wood still exists, a remarkable survival of woodland which has remained a feature of the landscape for several thousand years. Part II has its own “Bibliography” (pp. 79-82) with 83 entries. The preservation of the site includes the identification of remarkably preserved features such as a Phase 2 cartway.

“Part III: The Pottery” (pp. 83-344, 1 tables, 56 figures). “The pottery from Highgate Wood” (pp. 85-106, 2 tables, 18 figures) is authored by Paul A. Tyers who wrote *Roman Pottery in Britain* (London: Batsford, 1997) and *Atlas of Roman Pottery in Britain*, 2<sup>nd</sup> ed. (Oxford: Oxbow Books, 2009), and coauthored with C. R. Orton and A. G. Vince, *Pottery in Archaeology* (Cambridge: Cambridge

University Press, 1993). Tyers notes that the 1969 to 1974 reports on the work at Highgate Wood included detailed typological analyses, numerous illustrations, and statistical data on the forms and decorative elements, and though not formally published they were duplicated and widely distributed among students of Roman ceramics in the London area and beyond. The data from Highgate also contributed significantly to the debates about pottery quantification, with papers by Orton (Orton 1970 and 1974) employing sophisticated statistical methods, and time on a mainframe computer, to investigate the relationship between the rim and base sherds, and suggest reconstructions of the vessel forms based on the very fragmentary waster material. This work contributed to the development of the vessels equivalent measure, widely used in Britain during the subsequent decades (Orton 1975 and 1993). Tyers traces the earliest study of Highgate pottery to Sir Mortimer Wheeler’s *Roman London* (1929) and a few *sigillata* to pottery reports from the Department of Urban Archaeology (DUA) of the Museum of London in 1979 and 1980 which quantified the Highgate-type fabrics from domestic assemblages in the City of London. A significant monograph, *The archaeology of Roman London Volume 5: A dated corpus of early Roman pottery from the City of London* by Barbara Davies, Beth Richardson and Roberta Tomber (CBA Research Report 98. London: Council for British Archaeology, xviii + 275 pp., 1994) is also cited. This document is, by the way, now updated to 2017 and available as a download at [https://archaeologydataservice.ac.uk/archives/view/cba\\_rr/rr98.cfm](https://archaeologydataservice.ac.uk/archives/view/cba_rr/rr98.cfm). The 1994 report provides detailed information on the specific wares discussed in the “Analysis of the excavated pottery.” Non-local pottery at Highgate included Verulamium-region white wares, Baetican olive-oil amphoras, and 19 other wares from Gloucester, the Rhône valley, Central Gaul, Cologne, and London (Table 1, pp. 89-92). The Highgate Wood products are well-documented: HWA: vesicular ware, HWB: grog-tempered ware, HWBR: red-slipped grog-tempered ware, HWC: grey sand-tempered wares, HWB/C: transitional grog-and-sand tempered ware, and HWC+: grey sand-tempered ware with additional large rounded sand filler. Splendid color figures illustrate these fabrics (Figures 51-55). The sequence of production is reported (Table 2) and line drawings of selected pottery from Phases 1-4 are illustrated (Figures 56-19). There is a separate Bibliography” with 24 entries.

“Analysis of the excavated pottery” (pp. 107-264, 17 figures). This study begins with the identification of abbreviations, reference numbers, and list of acknowledgments as to who worked on the pottery. The analysis begins phase-by-phase and “unit of analysis” within each phase detailing local and non-local pottery,

vessel types, quantities, temper, site contexts and associated cultural material, and chronology, and includes tabulations and line drawings (profiles) for each of the 56 excavation units containing ceramics that were analyzed. This is the longest and most complex part of the monograph and I have synthesized the data presented. The numbers in brackets e.g. [3], indicate numbers of units within a phase. *Phase 1* (three units): [one each] circular structure, pit, and trench. *Phase 2* (20 units): structures [2], pit [1], trenches [2], ditches [5], ditch fill [4], clay preparation/levigation pits [2], and kilns [4]. *Phase 3* (28 units): structure [1], pits [5], trenches/features [2], ditches [6], secondary ditch fill [1], depression [1], hearths [2], Western section [1], clay preparation/levigation pits [2], kilns [4], kiln remains [1], and kiln dumps [2]. *Phase 4* (four units): [one each] pit, ditch, feature, and kiln. And lastly, *Unphased and topsoil* [1]. “*Terra Sigillata*” (pp. 265-269, 2 tables, 2 figures) authored by B. M. Dixon, J. Bird, and P. A. Tyers. The corpus of 586 specimens included four stamps on *terra sigillata* and 25 decorated pieces; chronological distributions and site distributions are documented and an additional “Bibliography” lists seven references. “The Mortaria” (pp. 270-275, 1 table, 3 figures) written by K. F. Hartley and P. A. Tyers. Fifteen stamped specimens produced by seven identified artisans were cataloged. The assemblage is dominated by products of the Verulamium region but with a small number of vessels from other sources: Rhône valley, Gloucester region, and Colchester region. The stamps are illustrated, chronologies presented, and site distribution illustrated; an additional “Bibliography” list ten items.

“Potter’s stamp on grey ware (no. 1245)” (pp. 276, 1 figure) prepared by V. Rigby. The precise number and reading of the ligatured letters on this molded foot-ring is uncertain; the specimen matches the fabric of platter-types from a yet to be identified production center; one reference. “The Hercules Medallion in *sigillée claire B* (no. 1056)” (pp. 277-281, 1 figure) by P. A. Tyers. The pale buff fabric and surviving parts of Hercules’ body is described. Tyers suggests the fragment is *sigillée claire B*, the product of the ceramic industries of the Rhône valley, between Vienne and Orange and flourished from the mid-2<sup>nd</sup> to later 3<sup>rd</sup> century AD. Specimens in Roman Britain are rare but have been found only at the Tower of London Inner Ward and Roman fort at Hardknott; the “Bibliography” lists 19 sources. “Report on a Spouted Strainer Bowl (no.1049)” (pp. 282-286, 1 figure) authored by P. Sealey reviews the forms of spouted strainer bowls, the development of the form in Britain, its manufacture, and function. The view taken here is that such vessels had no real connection with wine services and were used instead for straining Celtic beer: the additional “Bibliography” has 33 citations. “The reconstruction of vessel no. 174” (p. 287-293, 4 figures) by

P. A. Tyers begins with a description of the sherds (walls, bases, and flange) and reconstruction of the vessel form – a *clibanus* or domed lid baking cover, a form found in early Imperial Central Italy with a few specimens from sites in Spain and Reims, France dated to the second half of the 1<sup>st</sup> century AD. The author reviews Italian imports in Britain and concludes that only two examples for these lids have been found in British excavations: Gloucester, St Oswald’s Priory, and London, 41 Eastcheap. He offers several speculative interpretations regarding the Highgate specimen.

“Petrographic Analysis of Roman Pottery” (pp. 294-311, 1 table, 11 photomicrographs of thin sections) by P. S. Quinn. Patrick Sean Quinn should be well-known to readers of this column on “Archaeological Ceramics” as he has published two major books, both reviewed by Charles Kolb: *Interpreting Silent Artefacts: Petrographic Approaches to Archaeological Ceramics* (P. S. Quinn, ed.; Oxford: Archaeopress, 2010) reviewed in *SAS Bulletin* 33(3):5-9 (Fall 2010); and *Ceramic Petrography: The Interpretation of Archaeological Pottery & Related Artefacts in Thin Section* (P. S. Quinn; Oxford: Archaeopress, 2013) reviewed in *SAS Bulletin* 36(3):7-10 (Fall 2013). Thin section petrographic analysis was undertaken on 30 pottery sherds, one clay object, an experimental replicate vessel and three raw material samples from the Roman production site of Highgate Wood. This report is an amalgamation of two previous studies (Quinn 2012a, 2012b) on Roman ceramics from the site, with the addition of six extra samples. The analysis was conducted in order to characterize composition and answer specific questions about the craft technology employed in their manufacture. Possible sources of raw materials that could have been utilized for the production of Roman pottery at Highgate Wood are also suggested. The thin petrographic composition of the samples was compared to the macroscopic descriptions of the seven Highgate Wood pottery fabrics (Tyers 1996; Tomber and Dore 1998) as well as previous thin section petrographic analyses of pottery from this site (Davies 1984). A comparison was made between the 30 pottery samples and the composition of the clay ball, the experimental pot manufactured from local clay (Brightwell *et al.*, 1973), as well as the local clay and sand samples in order to determine whether these represented a match for the ceramics in terms of raw materials and preparation techniques. Thin section preparation and analysis was undertaken at the Institute of Archaeology, University College London. Quinn briefly details the procedures.

The results and macroscopic fabric interpretations were reported (Table 6 and Figures 180-190; the 11 photomicrographs each have six images = 66 total images;

image widths vary and are given in the figure legends). The numbers in parentheses indicate the number of specimens studied: Early HWB (5), HWA (3), HWB (6), HWB/C (2), Early HWC (5), HWC (6), and HWC+ (1). Clay ball and experimental pottery sample (2); the composition does not match that of any of the archaeological or raw material samples analyzed from Highgate Wood that were presented in this report. Local clay and sand samples were also examined. Possible raw material sources are reviewed. Highgate Wood is located mainly on sediments of the Palaeogene London Clay Formation. Sediments of the Claygate Member and Bagshot Sand occur at the southern end of the modern extent of the woods. More recent, superficial deposits of the Dollis Hill Gravel and the Lowestoft Formation occur just to the north. Ample sources of fine clay and looser sandy sediments therefore occur nearer to the site. One or more of these could have been utilized for ceramic manufacture in Roman times. London Clay is the dominant lithology at Highgate Wood and underlies the Roman kiln site. This is a fine, often silty grey to brown clay. It contains glauconite in places, especially in the sandier levels and at the base. This might suggest that the London Clay could have been the source of the clay used to manufacture silty Roman pottery samples HW12, 14, 19 and 20, which contain glauconite. The additional "Bibliography" has 16 entries.

"Chemical Characterization of Pottery by ICPS" (pp. 313-321, 1 table, 4 figures) by Michael J. Hughes (his affiliation with the British Museum Research Laboratory is unstated). The aim of his investigation was to see whether chemical analysis using ICPS (inductively coupled plasma spectrometry) could confirm the division of the pottery into the fabric groups described; 49 specimens were selected and six fabric groups were identified: A fabric (number of sherds analyzed = 5); Early B fabric (vesicular wares) hard but brittle (n= 8); B fabric: grog-tempered ware (includes fine silty quartz plus some white mica) (n= 10); B/C fabric (n= 6); Early C fabric: transitional grog-and-sand tempered ware (more sand than standard B) – likely to be a mixed group (n= 10); and C fabric: grey sand-tempered wares (very fine textured) (n= 10). A single sample of clay recovered from the site was also analyzed to see what relationship if any it bore to the pottery fabrics. It had been fired as part of a kiln experiment in 1973, and in this form was analogous to the physical form of the pottery being analyzed. Chemical analysis using inductively-coupled plasma atomic emission spectrometry (ICP-AES, or ICPS for short) of the fabric of pottery gives a chemical fingerprint and thus information on its source, reflecting the clay from which it was made. Powdered samples were obtained from the pottery by drilling with 2 or 3mm diameter tungsten carbide drills fitted into a hand-held low voltage electric

drill. In addition, the samples sent for ICPS analysis included a portion of a Certified Reference Material (NBS679 Brick Clay -- produced by the US National Institute for Standards and Technology, Washington DC) in the analysis batch but without identification to the laboratory as such.

The results and interpretations of the ICPS analyses employed Principal Components Analysis (PCA) and Linear Discriminant Analysis (DC) with MINITAB version 16. A first discriminant analysis was carried out using almost all the elements from the ICPS analysis: aluminium, iron, magnesium, calcium, sodium, potassium, titanium, manganese, lithium, nickel, scandium, vanadium, yttrium, zinc, chromium, cobalt, copper, rubidium, strontium, zirconium, and a selection of the rare earth elements: lanthanum, cerium, neodymium, samarium, europium, dysprosium, and ytterbium. The second discriminant function is associated positively with rubidium, chromium, dysprosium and strontium (descending order), and negatively with potassium, vanadium, samarium, zirconium and iron. The patterning is quite distinctive: the rare earth elements contribute strongly to the first discriminant function (which contains most of the inter-groups differences in analysis), and trace elements dominate the second function, with the exception of potassium (major element). All the sherds plus the clay sample were subjected to a Principal Components Analysis using the same chemical elements as the first discriminant analysis. The objective in Principal Components is to take a set of variables on each object (in this case, the element concentrations on each sherd) and find a much smaller number of indices (components) which represent all the principal features of the analysis. The first principal component contained 57% of the variation in the set of analyses; the second 13%; and the third 8%. The first three components thus contained cumulatively 78% of the variation, indicating that they very effectively summarize the ICPS data on each ceramic. The petrographic differences in fabric (different proportions and types of temper) tend to show up however as relatively small differences in between-fabric chemistry, since the clay minerals in the fabric (rather than, for example the quartz temper) contain almost all the percentages of elements apart from silicon in the overall chemistry of the ceramic. Fabric B it is suggested from analysis has lower percentages of temper compared to other fabrics. The data is summarized in Tables 7 and 8, and Figures 191-194.

The ICPS analyses show evidence of *systematic differences* between the clay chemistry of the six fabrics, such that they can be differentiated from each other by chemical analysis. Fabric A is however the most distinctive, while the remaining fabrics show associations:

early B and B are fairly close chemically, as are early C and C, but the pairs show greater differences than within each pair. Fabric B/C falls intermediate in chemistry between them, and like early C are the least consistent fabric groups. The sample of clay was assigned by discriminant analysis as being most similar to early B fabric; it is in any case generally consistent with the chemistry of the pottery fabrics. The “Bibliography” contains ten references.

Nine other reports on pottery complete Part III. “*Terra Sigillata*” (pp. 265-269, 2 tables, 2 figures) authored by B. M. Dixon, J. Bird, and P. A. Tyers. The corpus of 586 specimens included four stamps on *terra sigillata* and 25 decorated pieces; chronological distributions and site distributions are documented and an additional “Bibliography” lists seven references. “The Mortaria” (pp. 270-275, 1 table, 3 figures) written by K. F. Hartley and P. A. Tyers. Fifteen stamped specimens (seven identified artisans) were cataloged. The assemblage is dominated by products of the Verulamium region but with a small number of vessels from other sources: Rhône valley, Gloucester region, and Colchester region. The stamps are illustrated, chronologies presented, and site distribution illustrated; an additional “Bibliography” list ten items. “Potter’s stamp on grey ware (no. 1245)” (pp. 276, 1 figure) prepared by V. Rigby. The precise number and reading of the ligatured letters on this molded foot-ring is uncertain; the specimen matches the fabric of platter-types from a yet to be identified production center; one reference. “The Hercules Medallion in *sigillée claire B* (no. 1056)” (pp. 277-281, 1 figure) by P. A. Tyers. The pale buff fabric and surviving parts of Hercules’ body is described. Tyers suggests the fragment is *sigillée claire B*, the product of the ceramic industries of the Rhône valley, between Vienne and Orange and flourished from the mid-2<sup>nd</sup> to later 3<sup>rd</sup> century AD. Specimens in Roman Britain are rare but have been found at the Tower of London Inner Ward and Roman fort at Hardknott; the “Bibliography” lists 19 sources. “Report on a Spouted Strainer Bowl (no. 1049)” (pp. 282-286, 1 figure) authored by P. Sealey discusses the forms of spouted strainer bowls, the development of the form in Britain, its manufacture, and function. The view taken here is that such vessels had no real connection with wine services and were used instead for straining Celtic beer: the additional “Bibliography” has 33 citations. “The reconstruction of vessel no. 174” (p. 287-293, 4 figures) by P. A. Tyers begins with a description of the sherds (walls, bases, and flange) and reconstruction of the vessel form – a *clibanus* or domed lid baking cover, a form found in early Imperial Central Italy with a few specimens from sites in Spain and Reims, France dated to the second half of the 1<sup>st</sup> century AD. The author reviews Italian imports in Britain and concludes that only two examples for these lids have

been found in British excavations: Gloucester, St Oswald’s Priory, and

“The Baked Clay Objects” (pp. 322-344, 2 tables, 4 figures) together with a separate “Bibliography” (pp. 330-331) having seven entries. Nearly 500kg of baked clay material from the kilns, dumps and ditches were examined. Featureless clay fragments (mostly from Phase 2) included kiln furniture firebars, clay plates or sheets, perforated sheets, fittings for the support of flue arches, aids to stacking and supporting pottery in the kiln, triangular clay objects (weights?), and other small objects (lid, spindle whorl, beads, crucible, and weights). All the experiments carried out with reproduction kilns at Highgate have run up against the problem of collapsing flue arches during firing; Kiln 4 had short heavy rings of baked clay and illustrated how the Roman resolved this problem.

“Part IV: The Other Finds” (pp. 345-388, 19 figures). “The Metal Small Finds” (pp. 345-359) by M. J. Hammerson and M. R. Hull† characterizes 14 copper or bronze brooches, 17 other bronze objects, 6 coins (one AR Denarius, Roman republic, L Julius Bursio c. 83 B; four British – one King George III and three Queen Victoria), 7 lead objects, and 117 fragments of iron (mostly heavily corroded). “The Stone Artifacts” (pp. 360-370) written by A. Wardle reports 51 fragments of worked stone: hones (Roman and post-Roman) querns, and unidentified forms; distributional maps of hones and querns accompany the tabulations. “The Glass” (371-379) by D. B. Harden† and J. D. Shepherd is a catalog of glass from vessels, beads and rings, and windows; a map of distribution accompanies the report. “Highgate Wood and Queen’s Wood: The Flintwork” (pp. 380-384) authored by A. D. Lacaille† and J. Cotton is an analysis of 857 struck pieces and 25 burnt pieces. “The Prehistoric Pottery” (p. 385-387, 1 figure) in catalog form authored by J. C. Barrett, describes 23 sherds distributed randomly across the site. “Biological Remains” (p. 388) included a few animal and human bones, soil samples, and charcoal specimens are reported. Part IV has a separate “Bibliography” (pp. 389-390) with 29 citations, and “Acknowledgments” (pp. 391-392).

The fortunate preservation of the archaeological sites at Highgate Wood is astounding, the historical report on the site and area is unparalleled, the precision and care of site features and artifacts has been exceptional, and the quality and detail of the final report is incomparable. Almost four decades have passed since the excavations were conducted and some portions of sections of this monograph were prepared decades ago (and updated since) and your reviewer has been privileged to read this book -- and very glad that it has been published and open access as well as print. I am reminded as of a similar archaeological project

and can recall the long hours of laboratory analysis and report writing (and rewriting) since I was a graduate student at the time: *Archaeological Investigations of Sheep Rock Shelter, Huntingdon County, Pennsylvania*, 3 vols., Joseph W. Michels (ed.), Occasional Papers in Anthropology at Penn State 5.1-5.3, University: Department of Anthropology, Pennsylvania State University, 1966-1968. A dozen students labored for 14 months to produce more than a thousand pages of analysis and interpretation.

Frankly, I am not surprised at the excellence of the excavations conducted at Highgate Wood or the merit of the artifact analysis and quality of the written report – these are qualities to be emulated. British archaeologists have been doing this kind of splendid analyses and reporting for some time and I am reminded of another outstanding British report I recently reviewed for another publication to which I often contribute: *The Deptford Royal Dockyard and Manor of Sayes Court, London: Excavations 2000-2012* by Antony Francis (London: Museum of London Archaeology, 2017). *Naval Historical Foundation Book Reviews*, December 19, 2018. 8 pp.

<http://www.navyhistory.org/2018/12/the-deptford-royal-dockyard-and-manor-of-sayes-court/> This 16.6 ha site on the Thames River was active from 1513 through 1869 and still in use through World War II. In addition to the shipyards and related facilities it had encompassed pubs, taverns, lodging houses, tenements, butcher shops, green grocers, and tobacconist shops during several expansions. Hence, clay tobacco pipes and domestic and imported pottery were recovered from the site. Like Brown and Sheldon's work on Highgate Wood, Francis was assisted by 28 colleagues who undertook the specialist studies.

*Mesopotamian Pottery: A Guide to the Babylonian Tradition in the Second Millennium B.C.* James A. Armstrong and Hermann Gasche, with contributions by Steven W. Cole, Abraham Van As, and Loe Jacobs. Mesopotamian History and Environment, Series II, Memoirs IV. Ghent and Chicago: A Joint Publication of the University of Ghent and the Oriental Institute of the University of Chicago, 2014. xix + 102 pp., 48 figures, 136 plates, 9 tables. ISBN 978-940032-18-1 (CH), ISBN 978-1-61491-018-3 (USA), \$180.00 (hardcover) **Out of Print.** Hard copies are available from commercial vendors for prices ranging from \$537.00 to \$951.00. Fortunately, it is also available from the publisher gratis as a printable PDF download at <https://oi.uchicago.edu/research/publications/misc/mesopotamian-pottery>

As a result of the long-term cooperation between archaeologists from the University of Ghent and the

Oriental Institute of the University of Chicago and with the collaboration of many other excavators in southern Iraq and surrounding regions, Armstrong and Gasche have produced a guide to the Babylonian pottery of the 2<sup>nd</sup> millennium B.C. The focus is on more recent excavations, where the pottery has been stratigraphically excavated and well recorded. The vessels are presented in groups based on shape. On the plates the groups are laid out both chronologically and geographically, so that developments over time and regional distinctions are readily apparent. Maps show where each group is attested. Synoptic tables permit the reader to find groups quickly. There are detailed discussions of the forms and their geographical distribution, as well as a treatment of the historical implications of the evidence. Cuneiformist Steven W. Cole reviews recent chronological debates and ceramic specialists Abraham Van As and Loe Jacobs present a study "The Babylonian Potter: Environment, Clay and Techniques." Using pottery found in verified context in well-conducted excavations, going back to the 1930s, but relying especially on the collaboration of other excavators who were working in southern Iraq from the 1960s onward, the authors created a typology of all major forms, showing the subtle changes that occurred in individual shapes through time at one site and at related sites. It also shows regional variations in shapes. Their graphic presentation of the forms makes visible a centuries-long break in occupation of numerous sites in southern Iraq beginning in the time of Samsuiluna, the successor to Hammurabi of Babylon, and another break at the end of the millennium. There are detailed discussions of the forms and their geographical distribution, as well as a treatment of the historical implications of the evidence.

The volume has seven major parts beginning with a tabulation of references and background material prior to the lengthy "Description of Pottery Groups." The "Bibliography" (pp. ix-viii) has 494 entries, including the older editions of Orton *et al.* (1993) and Rice (1987); there are a few minor citation errors. Significantly, there are references to important articles appearing in the *Newsletter of the Department of Pottery Technology*, Volumes 1-19 (Leiden University, Netherlands) (1983-2002) which became the *Leiden Journal of Pottery Studies* Volumes 20-26 (2004-2010). The "Acknowledgments" (p. xix) credit the support provided by the late Léon De Meyer, Rector of the University of Ghent, and McGuire Gibson of the Oriental Institute of the University of Chicago who read and commented on the manuscript; and several dozen other colleagues are also thanked. The "Introduction" (pp. 1-2) includes a review of the early efforts -- beginning in the late 1980s -- of the Working Group in relation to the present study and evaluates the materials used in this study. The authors note that "none of the sites used in the study

provides an unbroken sequence for the 2<sup>nd</sup> millennium” (p. 2) and comment on the importance of Tell e-Dēr in the Northern Alluvial Plain of northern Babylonia and the site of Nippur in the south. Steven W. Cole discusses issues of dates and sequences in “Chronology Revisited” by (pp. 3-6), while “Key Stratigraphic Sequences” (pp. 7-12) are documented in detail for the Northern Alluvial Plain (two sites), Southern Alluvial Plain (five sites), Middle Euphrates (one site), Diyala Basin (two sites), and Susiana (one site).

The fourth part of the book, “Description of Pottery Groups” (pp. 13-73) has an “Introduction” (pp. 13-73) providing specifics on major topics including the arrangement of vessel shapes (commencing with largest open vessels), layout of the groups on the plates (including scales for the drawings), whole profiles and sherds, vessel rim diameters, manufacturing techniques (based on “The Babylonian Potter...” detailed subsequently in this volume), maps showing the geographical distribution of each ceramic group, and synoptic tables (Tables 1-8). The chronological system is based upon the *Mesopotamian History and Environment: Memoirs* (1989-2014), particularly *MHEM 4*. The highly detailed “Descriptions of the Shapes” (pp. 15-73) documents each of 55 ceramic families (Family 5 through Family 280) each with groups and subgroups, any *comparanda*, references to 136 plates (pp. 103-305).

A highlight of the volume – *and a valuable resource for anyone interested in ceramic materials and fabrication* -- is a brief section “The Babylonian Potter: Environment, Clay and Techniques” by Abraham van As and Loe Jacobs (pp. 75-94. Figures 22-48, Table 1). Seven topics are considered: 1) Material and Methods; 2) The Raw Materials; and 3) The Production Sequence clay sourcing and the preparation of the clay body, shaping techniques (open and closed forms and decoration), drying, and firing technique. 4) Evidence of the Raw Materials Used and Pottery Technology: raw materials (traces, Low-tech Fabric Analysis, High Tech Analysis, sherds, and clay samples; 5) “An Ethnoarchaeological Note” 6) The Form, Function, Use and Manufacturing Technique of a Ceramic Vessel; and 7) Summary and Conclusions. The Low-Tech assessments includes the use of binocular microscopy, identification of mineral inclusions, pore analysis, fibrous porosity and fabricating clay test bars for aplastic or temper studies. The High-Tech Analysis includes only the use of microprobe examinations of sherds and clay. “An Ethnoarchaeological Note” includes information derived from contemporary potters and brick-makers in communities northeast of Baghdad collected in 1985 and 1986. Most pottery production focused on water jars fired in updraft kilns. Fabrication techniques reviewed include

hand-forming, wheel-throwing, finishing, decoration, and drying and firing. The authors comment that “archaeologists and technologists do not always ask the same questions and therefore do not necessarily find answers that are mutually comparable” (p. 93).

In “Final Remarks” (pp. 95-102) the authors conclude that their analysis demonstrated that there is a need to redate previously published material on 2<sup>nd</sup> millennium Mesopotamian ceramics (p. 95). In this regard, they provide a Survey of the Babylonian Ceramic Tradition in the 2<sup>nd</sup> Millennium divided into six chronological periods in which regional differences, decoration, manufacturing techniques, and core-periphery issues are reviewed. The periods are: 1) 20<sup>th</sup> Century (Ur III Period) which continued 3<sup>rd</sup> millennium forms; 2) 19<sup>th</sup> and 18<sup>th</sup> Centuries (Isin-Larisa Period); 3) 17<sup>th</sup> Century (Era of Hammurabi and Samsuiluna or Early Babylonian Period); 4) 16<sup>th</sup> Century (Late Old Babylonian Period); 5) 15<sup>th</sup> and 14<sup>th</sup> Centuries (Early Kassite Period); and 13<sup>th</sup> through 11<sup>th</sup> Centuries (Late Kassite and Isin II Period). In the “Conclusion” (p. 102) the comment that this guide provides a tool for archaeologists to use in dating pottery and that there is a continuous Babylonian ceramic tradition for the 2<sup>nd</sup> millennium. Pottery shapes and fabrication techniques in both the heartland and periphery reflect the expansion and contraction of Babylonian political and economic power. Lastly, the final section of the volume “Plates, Synoptic & Stratigraphic Tables” *in fine* provides splendid photographs, ceramic cross-section profiles, and commentary on sites, specific ceramic specimens. Stratigraphy, Munsell color designations, and remarks notably on chronology and contexts.

This is a remarkable assessment and an extremely valuable, essential guide to ceramics for scholars of Mesopotamian culture for the 2<sup>nd</sup> millennium. It is a landmark achievement and the methodology could/should be hopefully replicated in other areas of Asian and New World archaeology.

*Atlas of Ceramic Fabrics 1: Italy: North-East, Adriatic, Ionian. Bronze Age: Impasto.* Valentina Cannavò and Sara Tiziana Levi. Archaeopress Archaeology. Oxford: Archaeopress, 2018. viii + 141 pp., 18 figures, 14 tables, and 16 color plates containing 167 illustrations, 71 footnotes. Available both in printed and e-versions. Printed ISBN-13 9781784918590, ISBN-10: 9781784918590, Epublication ISBN 9781784918606. £29.00/ \$58.00 (hardcopy); ePublication in PDF format online £16.00. These prices are for individuals but available for less from online vendors; prices are higher for libraries and institutions.

Cannavò obtained her Ph.D. in archaeological science (2010) from the University of Modena and Reggio Emilia where she is a research fellow and teaches pottery technology (Ferrara University) and applied geoarchaeology (Modena and Reggio Emilia University) to graduate students. She has been in charge of the database of prehistoric pottery and since 2009 she has been the director of the field laboratory of the excavation at San Vincenzo Stromboli (Aeolian Islands). Her research focuses on the archaeometric investigation of ancient pottery with publications in *Journal of Archaeological Science: Reports* 16:521-531, December 2017: "Fabrics and archaeological facies in northern Italy: An integrated approach to technological and stylistic choices in Bronze Age pottery production" by Cannavò, Cardarelli, Lugli, Vezzalini, and Levi. The volume under review here follows that focus and organization. A tradition of pottery production is well-attested in northern and central Italy during the Middle and Recent Bronze Ages (17–12<sup>th</sup> century BCE). In order to characterize that pottery production, this paper presents a synthesis of available archaeometrical data. Petrographic, mineralogical (X-ray powder diffraction, XRPD) and chemical analyses (X-ray fluorescence spectroscopy, XRF) were compiled from Emilia, Romagna, southern Veneto and northern Tuscany. Four hundred vessels from 21 sites were analyzed, of which 147 are presented here for the first time. From Emilia, characterized by Terramare facies, 20 regional fabric groups, based on temper composition and general production trends, were defined from the surrounding area. The raw materials used for paste preparation clearly reflected the different geological and cultural contexts and were in accordance with local production. In contrast, an exchange of products, styles and craftsmen was visible in the Po Valley and Tuscany. The results of this investigation indicate that the archaeological facies in northern Italy during the middle phases of the Bronze Age were different not only stylistically but also in terms of technological choices and traditions. Another relevant publication is "p-XRF analysis of multi-period Impasto and Cooking Pot wares from the excavations at Stromboli-San Vincenzo, Aeolian Islands, Italy" in *STAR: Science & Technology of Archaeological Research* 3(342):1-8, June 2017, by Cannavò Photos-Jones, Kevi, and Brunelli. This exploratory study focuses on the elemental analysis by p-XRF (portable X-Ray Fluorescence Analyzer) of 62 samples of coarse wares, consisting of Bronze Age handmade burnished ware, so-called Impasto, and of Cooking ware (dated from the Roman period to Modern times). All wares originate from the site of San Vincenzo, Stromboli, and Aeolian Islands. The question addressed here is whether it is possible to differentiate between local (Aeolian) and imported (non-Aeolian) fabrics with the use

of the p-XRF; 42 of the 62 samples were also subjected to petrographic analysis by way of testing the hypothesis. Sara Levi obtained a Ph.D. in archaeology at Sapienza University in Rome (1996) and currently teaches archaeology at Hunter College in New York City, after spending eight years as a member of the Faculty of Mathematical, Physical and Natural Sciences at Università degli Studi of Modena e Reggio Emilia as professor of archaeological methodology. Her areas of research include Italian and European protohistory (Bronze and Early Iron Age), archaeological stratigraphy, and interdisciplinary (typological, technological and archaeometrical) investigation of pottery. Since 2009 she has led interdisciplinary archaeological investigations at San Vincenzo Stromboli (Aeolian Islands) and at Cannatello (Agrigento), and has published in a volume on the Italo-Mycenaean pottery (2014).

*Impasto* is defined (p. 5) as "typical" prehistoric and protohistoric pottery in the Central and Western Mediterranean that is coiled or molded, usually burnished, incised or impressed with geometric decorations, and fired in the open air or in single chamber kilns. The content of this *Atlas* is organized into five parts. 1 "Introduction: Q and A" by Levi (pp. 1-15, 14 footnotes, 2 figures, 2 tables, and 1 plate). Levi discusses the relevance of pottery for archaeological research the need for an atlas, how the pottery was selected, sampling strategy and analyses, description and definitions of fabrics, sample size, chronological ranges, a note on what previous projects are included, and a note about what data has been published previously. Geographic divisions were made according to maritime rather than territorial boundaries. The study involves material from 62 archaeological sites (there are 63 listed on the map, Figure 2) which provided 935 samples (Table 1, pp. 10-11); each sample is characterized by site, area, number of samples, chronology, reference publication, and analyses undertaken: chemical (XRF, ICP. Or INAA) or "other" (SEM and XRD). Table 2 (p. 13) provides information of seven chronological periods spanning Early Bronze through Early Iron; the research focuses on three areas of the Italian Peninsula: North-East, Adriatic, and Ionian. 2 "Fabrics" by Cannavò and Levi (pp. 16-42, 21 footnotes, 13 figures, and 6 tables). A total of 73 fabrics are classified and distributions reported. The lithology includes Effusive, Intrusive, Metamorphic, Sedimentary, and Generic or untempered (Table 4 and Figures 6a-h). The North-East area has 20 sites and 322 samples with 21 fabrics (Table 5); the Adriatic has 12 sites and 223 samples with 20 fabrics (Table 7); and the Ionian has 31 sites and 390 samples with 32 fabrics (Table 7). Table 8 includes ca. 400 samples from Tuscany where petrographic studies were made on 52 samples from eight sites.

3 “Archaeological implications” by Levi and Cannavò (pp. 44-57, 31 footnotes, 5 figures, and 6 tables). The authors consider chronological and functional trends (Tables 9-12, Figures 14-15) and include two xeroradiographs. Pumice, calcite, and siltstone are notable as inclusions. The raw material and paste preparation show distinctions that are geological and in some cases, cultural. Circulation (e.g. distribution) in the protohistoric period was limited except for several prestigious/utilitarian wares; the differences between the three areas are reported (Tables 13-14). There is a brief summary on the social organization of production and experimental studies, and consideration of fabrics, manufacturing techniques, firing, and vessel morphology (Tables 10-12). Lastly, stylistic and technological interactions are seen in geographical and chronological variations and technological choices (Figures 17-18).

In 4 “Databases” by Cannavò, Levi, Daniele Brunelli and Andrea Di Renzoni (pp. 58-130, 5 footnotes, and 15 plates) the authors characterize four databases, DB1 through 4; the information presented is descriptive, classificatory, and interpretive. Collectively, the research undertaken by the project spans the Early Neolithic to Early Iron Age and focuses on a variety of ceramic artifacts (not just pottery vessels) as well as geological materials (clays and sands). More than 2,500 samples from nearly 200 Central Mediterranean are being analyzed. DB1 Samples by fabric (pp. 63-79): the fabrics are documented by composition and description; DB2 Samples by site (pp. 80-106): site data on fabrics present, compositions, descriptions, and chronology are presented; DB3 Fabrics description (pp. 107-114): the criteria from Chapter 1 are the organizational parameters, percentages of clasts, voids, and matrix are recorded. DB4 Fabrics (pp. 115-130): fabrics are ordered by lithology and illustrated by microphotographs of petrographic thin-sections with two different magnifications (Plates 2-15 with 148 images); scales are reported in the plate descriptions at the bottom of each page, however, there are no color bars or greyscales. Plate 16 includes miscellaneous images taken during the fieldwork. The final part of the *Atlas* is 5 “Bibliography” (pp. 131-141) with 152 entries in English or Italian (Cannavò contributed seven and Levi 38); the most recent dated 2017.

*Atlas of Ceramic Fabrics 1. Italy: North-East, Adriatic, Ionian. Bronze Age: Impasto* presents and interprets the petrographic composition of Bronze Age Impasto pottery (23<sup>rd</sup> -10<sup>th</sup> centuries BCE) found in three areas of the eastern part of Italy. This monograph is the first of a proposed series of atlases organised according to geographical areas, chronology and types of wares. Hence, it becomes a “tool” that the authors believe could be used

to compare the different components of the ceramic pastes and verify the provenance of non-local vessels. It is anticipated that this work will demonstrate that technological variability is as important as vessel morphological and stylistic and decorative parameters. The real proof of the utility of this incredibly detailed compilation will be in its subsequent use by investigators. For the preparation of this review, I have used a hardcopy edition and note that the glued binding is sturdy but not stitched and wonder if use will loosen the pages. Hence, the e-book version may, indeed, be a better investment.

*Atlas of Ceramic Fabrics 2 Italy: Southern Tyrrhenian. Neolithic – Bronze Age.* Sara T. Levi, Valentina Cannavò and Daniele Brunelli with contributions by Andrea Di Renzoni. Archaeopress Archaeology. Oxford: Archaeopress. 160 pp., 40 figures, 17 tables and 16-page color plate section containing 163 illustrations. ISBN 9781789691177. £35.00 hardback, eBook ISBN 9781789691184, from £16 +VAT if applicable). Hardcopies are less expensive from book dealers £28.00. Published 04/30/2019. This book, the second in a series of atlases organized according to geographical areas, chronology and types of wares, presents and interprets the petrographic composition of pre and protohistoric pottery (6<sup>th</sup> -1<sup>st</sup> millennium BCE) found in the southwestern part of Italy. *Atlas of Ceramic Fabrics 2* is the second in a series of atlases organized according to geographical areas, chronology and types of wares. In this volume, the authors’ document 890 samples from 29 sites and review more than 50 years of interdisciplinary archaeological, technological and archaeometric research. Ninety 90 petrographic fabrics (potters’ ‘recipes’) are defined and presented based on their lithological character, a tool that may be used to compare the different components of the ceramic pastes and to determine possible provenance of non-local pots. The volume is organized in chapters focused on methodology, fabric description and distribution, followed by the archaeological implications and the database, with contributions by Andrea Di Renzoni (CNR-ISMA, Roma). Illustrations and descriptions of the fabrics and the list of samples provide a rigorous and transparent presentation of the data. The archaeological implications are discussed, cross-correlating the origin with technology, variability, standardization, chronology, function, social organization, circulation, style, typology and cultural identity. This volume, like its predecessor, aims to demonstrate that technological variability is as important as stylistic distinctions.

*Fragile Biography: The Life Cycle of Ceramics and Refuse Disposal Patterns in Late Antique and Early Medieval Palestine.* Itamar Taxel. Babesch Annual Papers on Mediterranean Archaeology, Supplement 35. Leuven,

Paris, and Bristol, CT: Peeters Publishers, 2018. x + 183 pp. 131 figures (mostly in color), chapter endnotes, bibliographies, and an index. ISBN: 978-90-429-3690-4. €82.00 / \$103.00. Portions of the book (the “Table of Contents” and “Introduction”) are posted on:

[https://www.academia.edu/37713957/Taxel\\_I\\_2018\\_Fragile\\_Biography\\_The\\_Life\\_Cycle\\_of\\_Ceramics\\_and\\_Refuse\\_Disposal\\_Patterns\\_in\\_Late\\_Antique\\_and\\_Early\\_Medieval\\_Palestine\\_BABESCH\\_Supplements\\_35\\_.Leuven](https://www.academia.edu/37713957/Taxel_I_2018_Fragile_Biography_The_Life_Cycle_of_Ceramics_and_Refuse_Disposal_Patterns_in_Late_Antique_and_Early_Medieval_Palestine_BABESCH_Supplements_35_.Leuven)

and

[https://www.researchgate.net/profile/Itamar\\_Taxel/publication/328784115\\_Taxel\\_I\\_2018\\_Fragile\\_Biography\\_The\\_Life\\_Cycle\\_of\\_Ceramics\\_and\\_Refuse\\_Disposal\\_Patterns](https://www.researchgate.net/profile/Itamar_Taxel/publication/328784115_Taxel_I_2018_Fragile_Biography_The_Life_Cycle_of_Ceramics_and_Refuse_Disposal_Patterns)

*Fragile Biography* is the first comprehensive synthesis of the life cycle of ceramics and of refuse management in ancient Palestine during the later Roman, Byzantine and Early Islamic periods (4<sup>th</sup> to 11<sup>th</sup> centuries CE). Taxel’s study sheds light on selected material culture-related behavioral practices of the people who produced, used and manipulated ceramics during late antique and early medieval times. The research presents the local picture of pottery use-life, including prime use, reuse, repair, recycling and disposal. The reuse, repair and recycling of pottery reflect a plethora of behavioral practices, some common to the greater Mediterranean and Near Eastern world and some unique to the discussed region and periods. Similarly, the discussion of refuse disposal, while using selected case studies, has shown that attitudes towards the residues of people’s activity were basically similar in different regions and periods, though the ways in which refuse was managed was often dictated by specific cultural and regional circumstances. He has made a splendid initial attempt unveil the mental rationale behind a number of cultural and he concluded that pragmatism motivated the rather frequent reuse, repair and recycling of pottery, a characteristic that became more dominant in Late Antiquity.

The volume has an “Introduction” (pp. viii-x), nine chapters, two appendices, two bibliographies, and an index. Taxel comments that his “interest in the general discipline of behavioral archaeology and, more specifically, in the various less-conformist attitudes to the study of ancient pottery and of refuse disposal assemblages has to a great degree been inspired by a groundbreaking book published in 2007 by J. Theodore Peña” -- *Roman Pottery in the Archaeological Record* (Cambridge and New York: Cambridge University Press, 2007); reviewed in *SAS Bulletin* 30(3):15-16 (Fall 2007). In Chapter 1 “Pottery Life Cycle and Refuse Disposal Patterns in Late Antique and Early Medieval Palestine: *Theory and Practice in Context*” (pp. 1-4, 1 endnote) he states that “my

interest in the archaeology of late antique and early medieval Palestine, including a close acquaintance with the ceramic assemblages of these periods has encouraged me to carry out a thorough study of contemporaneous pottery and waste deposits from a behavioral archaeology perspective.” ... Taxel’s goal is to address a lacuna in the literature by departing from Peña’s work and other related studies. His study is “freely based on the structure of Peña’s book which I found useful, while adapting it to the region and periods under discussion and to my own preferences and subjects of interest, and - when necessary - modifying or criticizing Peña’s model to some extent.” In addition to Peña’s seminal work, Taxel also refers to Y. Brand’s *Ceramics in Talmudic Literature* (1953, published in Hebrew) and Gloria London’s *Ancient Cookware from the Levant: An Ethnoarchaeological Perspective* (Worlds of the Ancient Near East and Mediterranean, Sheffield and Bristol, UK: Equinox Publishing, 2016); reviewed in *SAS Bulletin* 40(2):9-19 (Summer 2017).

Chapter 2 “Pottery in Late Antique and Early Medieval Palestine: A Typo-Chronological Synopsis” (pp. 5-16, 19 figures, 5 endnotes). Taxel elaborates six classifications: table wares, cooking wares, utilitarian wares, a wide variety of transport and storage vessels (mostly amphorae) including jar stoppers, lamps and lanterns, and architectural ceramics. Chapter 3 “Pottery in Late Antique and Early Medieval Palestine Economic and Functional/Behavioral Aspects” (pp. 18-69, 38 figures, 62 endnotes). Among the topics covered are archaeological evidence and ownership; unique, damaged, new, and cached vessels; and primary use characteristics focusing on domestic contexts as well as industrial/artisanal and agricultural, religious and public buildings, secular public buildings, and tombs and cemeteries. Chapter 4 “The Reuse of Transport and Storage Wares” (pp. 70-106, 35 figures, 29 endnotes). The reuses include water drawing vessels; settling vats/sumps; pipe sections; bellows; architectural elements; fish nets; hearths or braziers; basins or troughs; stands of props; dovecotes; strainers, funnels, and libation conduits; burial containers and grave markers; grinding, polishing, or scooping elements; “body hygiene elements”; gaming pieces or tokens; and epigraphic mediums. Chapter 5 “The Reuse of Other Ceramic Classes” (pp. 107-115, 8 figures, 8 endnotes). Other class reuses include storage containers; water drawing vessels; settling vats/sumps; ovens or hearths; bowls/basins or troughs; strainers and funnels; polishing implements; stoppers or gaming pieces; paving tiles; bakery trays; grinding palettes; and epigraphic media.

Chapter 6 “Pottery Repair” (pp. 116-124, 6 figures, 11 endnotes). A brief review of the methods of repair, classes of vessels that were repaired (the use of lead clamps rather

than string or leather thong lacing); patching with plaster; reasons for repair; and techniques for reducing vessel size but maintaining original function. Chapter 7 “Pottery Recycling” (pp. 125-131, 12 figures, 3 endnotes). Uses include foundation construction fill, consolidating materials incorporated into mortar, pavement resurfacing material, mosaic *tesserae*, wall coating or fill, and ground for ceramic temper or grog. Chapter 8 “Refuse Disposal Patterns: Pottery and Beyond” (pp. 132-154, 13 figures, 24 endnotes). Taxel discusses general aspects of refuse disposal and presents a typology of contexts recorded in Late Antiquity and Early Medieval Palestine: 1) extramural/offsite dumps with two case studies; 2) intramural dumps and one case study; 3) extramural/offsite fertilizing deposits and one case study; and 4) intramural fertilizing deposits and one case study. “Provisional” refuse caches are also reported. Chapter 9 “Pragmatism above All: Ceramics and Garbage as Mirroring Lifestyle and Mentality in Late Antique and Early Medieval Palestine” (pp. 156-159, 2 endnotes). The author provides an overview and summary of the preceding narrative and comments how his presentation is an extension geographically and culturally of Peña’s volume on Roman era pottery. Appendix I. “Maps and Lists of Sites Mentioned in the Text” (pp.161-163) provides two maps designating a total of 157 archaeological sites that he studied in preparing this publication. Appendix II. “Snapshots of Ceramics Life Cycle in Ottoman and Mandatory Palestine” (pp. 164-169), 7 figures) focuses on more recent and contemporary examples of ceramic reuses. The last sets of materials in the volume include a “List of Illustrations” (pp. 170-174); “Bibliography” (pp. 175-188) which includes “Bibliographical Abbreviations” (pp. 175-176), eight “Historical Sources” (p. 176), and “List of References” with 551 entries (pp. 176-188); a double column “Index” (pp. 189-192) emphasizing proper nouns.

This is a unique body of research on an under-reported aspect of pottery studies. It is well-written, logical in format and presentation, and illustrated with splendid color images. Taxel provides a systematic analysis of the life cycle (or biography) of pottery vessels within the greater Roman world, although he is influenced by models and ideas of behavioral archaeology published in some earlier pioneering studies. The book is primarily engaged, from both the material culture and historical/literary evidence, with the geographical region of modern-day Israel and the Palestinian Authority, which represents the main area of historical Palestine. His modifications relate to the region and time period assessed. Nonetheless, this volume provides a potentially new starting point for the assessment of ceramic materials in many areas of the world, especially—but not confined to -- Southwest, Central, and

South Asia, the Far East, Mesoamerica, and the Andean Region of South America.

*Identidad y Estilo entre las Alfareras Mixtecas y Amuzagas de la Costa de Oaxaca y Guerrero, México.* Frances Ahern. *Arqueología Oaxaqueña* 3. Oaxaca, Oaxaca, México: Centro INAH Oaxaca, 2010. xv + 59 pp., 22 figures, 95 plates (images), 14 tables. ISBN 978-607,00-2924-0. \$10.00 soft cover. Frances (Francie) Ahern (1925-2017) earned her BA and MA at the University of Minnesota in Chinese Government and Civilization then taught high school social studies in Nebraska and Long Island, New York. Summers she took courses in a variety of social studies, arts, and humanities at Columbia University, Purdue University, Carnegie-Mellon University, Universidad de Guadalajara, Instituto Allende, and the New School for Social Research. These studies culminated in a doctorate in anthropology from the State University of New York at Stony Brook in 1993. Her dissertation focused on the stylistic variations and uses of pottery among the coastal Mixtec and Amuzgo in Mexico – the subject of the monograph being reviewed. She spent much time in Oaxaca a place she considered a “second home” and conducted research at the archeological site of Monte Alban. Following retirement she taught English as a second language then traveled the world and went to China where she taught at universities in Chengdu, Wuhan, and Fujian. Additional information is to be found in her obituary:

<https://www.legacy.com/obituaries/nytimes/obituary.aspx?page=lifestory&pid=184779279>

The monograph, entirely in Spanish, is based in part on Ahern’s 1993 dissertation *Pottery Stylistic Variation among Coastal Mixtec and Amuzgo: An Ethnoarchaeological Study* with fieldwork undertaken in Mexico 1988-1991. Ahern’s study of women potters in contemporary, traditional pottery-producing communities of the Pacific coast of southeastern Oaxaca and southeastern Guerrero was pioneering research and augments other studies in the states of Oaxaca and Puebla. Between 1993 and 2004 she studied the traditional pottery industries of Mixtec and Amuzgas communities, and expanded and refined her dissertation research and tested the frequently tacitly accepted premise that the geographic extent of a pottery style matches the distribution of ethnic identity. Ahern documented manufacturing technology, the social organization of production, and market strategies that link producers and consumers. A total of 127 potters from nine towns and villages were interviewed and observed and household ceramic inventories conducted in 15 communities.

The volume has nine chapters and significant illustrations -- figures and photographic plates -- of the pottery-making process and the informants she interviewed. There is valuable documentation on pottery firing techniques using kilns and open locations. The “Prefacio” by Marcus Winter, editor of the *Arqueología Oaxaqueña* series, includes information on ethnoarchaeology and the importance of ceramics for chronology and identification of social differences. A “Prólogo” by Robert Markens characterizes the Valley of Oaxaca, Monte Alban, and provides an outline of Ahern’s research. There is also a list of 19 publications on ceramic studies undertaken in Oaxaca (p. xiii). Ahern provides “Agradecimientos” (Acknowledgments).

“Introducción: Huellas Cerámicas: Patrones Amuzgas y Mixtecos de la Costa” (pp. 1-3, 2 figures). There are two ethnolinguistic groups, the coastal Mixtec and Amuzgas – both speak Oto-Manguéan languages and live in agricultural communities. Five Mixtec and one Amuzgas communities were selected for Ahern’s study on pottery-making. She provides a description of the coastal region and Mixtec social structure. In “Cerámica de la Costa (pp. 4-5, 2 figures) kitchens, ovens, and ceramic vessels used there (ollas, cántaros, jicaras, and calabazas) are described. The third chapter, “Ceramistas Mixtecos en el District de Jamiltepec” (pp. 7-28, 8 figures, 77 plates [images], 1 table) focuses on four villages, detailing locations, demographics, and village layouts. San Pedro Jicayán: eight women potters identified by name, social statuses, numbers of children, and a discussion of potting location and space. The location of clay sources, processing, methods of fabrication (slab building and molding over an broken vessel), slips/englobes, used, and a lengthy presentation about painted decoration with mostly natural figure (animals) and fewer geometric designs, the locations/zones of painting on the vessels. Kiln firing is documented including kiln construction (adobe and some stone as raw materials), fuels and fuel costs, and especially variations in length of firings and firing temperatures by the potters (Table 1). A second village, San Antonio Tepetlapa, is characterized less fully with information on three potters. The fabrication methods are very similar to those used in San Pedro. For San Lorenzo Mechoacán Ahern’s narrative focuses on fabrication and painted pottery decoration. In the fourth community, Santa Catarina Mechoacán, like the previous three villages, the discussion emphasizes the elaborate painting and designs; however, here the firings are open air rather than kiln.

The fourth chapter, “Las Ceramistas Amuzgas de La Guadalupe, Municipio de Ometepec, Guerrero” (pp. 28-33, 2 figures, 6 plates, 2 tables) describes the community’s location, demographics, and clay sources used by 22

women potters. Fabrication is by slab-building or molding and the vessels are elaborately decorated; pottery stacking for open air firing is noted as is the use of fuelwood. Lengths of firing time and temperature variations are documented (Tables 2 and 3). In “Las Ceramistas Mixtecos de San Cristóbal, Guerrero” (pp. 34-40, 4 figures, 13 plates) Ahern again characterizes locations and demographics – there were 71 female potters and she studied 44, although only a few are actually mentioned in her narrative by designation not by name (SC16, for example). Clay sources are noted and pottery-making techniques are similar to those in the other villages; the focus is on painted decoration (naturalistic and geometric designs). Kiln or oven (*horno*) building is described and firing temperatures and lengths of firing reported (Tables 4 and 5).

“Variación estilística” (pp. 41-42, 1 table) provides a discussion and analysis of 18 stylistic attributes found on pottery made in San Pedro Jicayán. Table 6 is a correlation of villages and the attributes. “Patrones de Comercio Cerámico” (pp. 43-47, 3 figures, 1 table) focuses on the purchase of pottery vessels. Sales by the potters typically are in weekly public markets or on fiesta days in nearby villages in the states of Oaxaca and Guerrero. Table 7 synthesizes data on distances to the markets, the populations of communities where the pottery is sold, and numbers of potters engaged in the sales. Some communities are visited up to 208 times per annum. In “Distribución Espacial” (pp. 48-55, 1 figure, 7 tables) Ahern reports a ceramic inventory from 300 homes in terms of vessel types and origins of production (Tables 8-14). There is a notable variation of numbers of water jars (cántaros) – fewer in homes with piped water as opposed to those where water has to be carried in from a communal source. Mixtecs purchase pottery fabricated by other Mixtecs while Amuzgas obtain their pottery only from San Cristóbal or Amuzgas de La Guadalupe. “Observaciones Finales” (pp. 56-57) is a brief summary of this ceramic ethnoarchaeological research. It is clear that both the Mixtecs and Amuzgas employ fabrication techniques that originated in Prehispanic times; the potter’s wheel (*torno*) is not used by the potters in any of the communities studied. It is unclear if the clay sources are also Prehispanic; decorative elements have become more elaborate in Post-Conquest times. Notably, the areas of pottery distribution correlate with the ethnolinguistic boundaries. “Referencias” (p. 59): 18 references are listed but are not cited within the narrative. Two of the references are to research published by Diane Ryesky in 1977 on elements in Oaxacan textile decoration. Sidebar: Diane and your reviewer were students who worked on the Penn State excavations near Teotihuacan, Mexico in 1962. She was a brilliant student, completing a doctorate from New

School for Social Research and joining a then new, unknown but progressive company: Microsoft.

This traditional ethnographic study of peasant potters in southwestern Mexico is especially valuable for archaeologists, confirming some of the assumptions often relied on by archaeologists but rarely tested, as well as illuminating unforeseen factors that could affect the spatial relationship between style and social identity and linguistic affiliations. Scholars interested in firing temperature and duration will find the tabular data useful. Ahern's research is little-known but ranks alongside other early investigators of Oaxacan pottery-making at larger communities such as Atzompa (Jean Hendry, Charlotte Stolmaker, and Mary Thieme) and Coyotepec (Paul and Henrietta Van de Velde), among others. See also *Continuity and Change in a Domestic Industry: Santa Maria Atzompa, a Pottery Making Town in Oaxaca, Mexico* by Mary Stevenson Thieme (Fieldiana Anthropology n.s. 41, Chicago: Field Museum of Natural History, 2009) reviewed by me in *SAS Bulletin* 33(1):15-16 (Spring 2010). Obviously, acculturation in Mexican communities (and elsewhere), the loss of traditional pottery-making skills, and the replacement of ceramics by metal and plastic containers deprives anthropologists and archaeologists the ability to document these fabrication and decorative techniques.

*Traditions and Innovations: Tracking the Development of Pottery from the Late Classical to the Early Imperial Periods.* Sarah Japp and Patricia Kögler (eds.), Proceedings of the 1<sup>st</sup> Conference of IARPotHP Berlin, November 2013, 7<sup>th</sup>-10<sup>th</sup>, Wein: Phoibos Verlag, 2016. ISBN 978-3-85161-160-1, 537 pp., 119 color and 107 b/w illustrations, 11 tables, 11 graphs. 99, 00 € / £63.18 hardcover print edition, 69, 00 € e-book. IARPotHP is the International Association for Research on Pottery of the Hellenistic Period; 70+ scholars from 22 countries attended the conference. The 34 published papers were limited to 4,000 words maximum in English, French or German with a 250 word English abstract; and five illustrations (but not all authors followed these guidelines). Contributors followed the German Archaeological Institute (DAI) Style Sheet:

<http://www.dainst.org/en/publication-guidelines?ft=all>.

The volume is dedicated to the memory of Pia Guldager Bilde (1961-2013), a founding member and first secretary of IARPotHP. Front matter includes a "Preface by the Editors" (p. 11), a "Preface by the Chair of IARPotHP" (pp. 13), and Patricia Kögler's "Introduction: The Aim of the Conference" (pp. 15-16). Kögler notes that ca. 530 BC red-figure technique began to replace black-figure style that in the late 4<sup>th</sup> century BC red-figure decoration was abandoned and replaced by over-painting and modest ornamentation. The Hellenistic period was characterized

by new shapes, new wares, and new types of applied clay relief as well as increased individualization and the emergence of new production centers, innovation, and the abandonment of long-lived traditions. The papers in this conference focused on production and technological aspects and their underlying social processes. New ways of visualizing and assessing ceramic finds is also a trait among these contributions. Lastly, she states that this conference is anticipated as a prelude to others.

In the main, these papers are traditional presentations focusing on particular wares and/or sites with descriptive narratives and often accompanied by vessel or specimen catalogs. Personally, five papers are notable: Rotroff on moldmade bowls, Berlin on Sardinian site tablewares, Japp *et al.* on kiln stacking, Ferguson's analysis of Tell Madaba pottery, and Jackson's archaeometric study of green-glazed pottery using NAA and PIXE-PIGME. The illustrations throughout the volume are clear and crisp and the incredible number of splendid color images is an outstanding feature of this scholarly volume. Because of the number papers and the lack of obvious divisions and groupings by the editors, this review focuses on salient parts of the individual presentations. Each paper has its own references and there is no index.

Elisa De Sousa "From Greek to Roman Pottery in the Far West" (pp. 17-28, 5 figures, 40 footnotes, 23 references). Portugal was a peripheral area during the Iron Age until the arrival of Greek pottery during the second half of the 5<sup>th</sup> century BC in the southwest Iberian Peninsula. The province of Algarve was previously influenced by the Phoenicians 8<sup>th</sup>-6<sup>th</sup> centuries BC and by Romanization in the last third of the 2<sup>nd</sup> century BC. Italic production dominated the assemblages along the Atlantic west coast and included dishes, plates, fish platters, Greek inspired vessels and Roman Republic Kuass ware. Francisco J. García-Fernández, Antonio M. Sáez-Romero, and Eduardo Ferrer-Albelda "The Hellenization of Taste in Turdetania: Tradition and Change in Ceramic Assemblages in the Valley of the Guadalquivir in the Late Iron Age" (pp. 29-41, 4 figures, 47 footnotes, 28 references). Emphasis is on the 4<sup>th</sup>-3<sup>rd</sup> century BC changes in Turdetanian pottery and introduction of foreign features. Locally-produced transport wares (amphorae) were less affected than other types by Hellenistic influences; common wares were for storage, preparation, and presentation of cold foodstuffs and the Greek ring-base foot was adopted; and globular pots as kitchen wares and cazuelas were integrated into the assemblage; foreign morphological features were frequently grafted onto pre-existing local shapes, but new forms included frying pans indicative of the adoption of roasting and cooking with little water. Antonio M. Sáez-Romero "Grey Wares of Late Punic Gadir (4<sup>th</sup> -3<sup>rd</sup>

centuries BC). Some Features of the Hellenization of Local Tableware” (pp. 43-54, 5, figures, 12 footnotes, 20 references). The author focuses on the main ceramic types made during the Classical and Hellenistic periods for local consumption. From the end of the Late Bronze Age to 6<sup>th</sup> century BC, local grey tablewares were reduced fired and has glosses surfaces. New forms introduced in Classical times were the fishplate small plates, bowls, and Attic bosols. Substantial quantities of pottery were produced and fabric types and tableware repertoire are detailed. Ana María Niveau de Villedary y Mariñas and Antonio M. Sáez-Romero “The Red Slip Tableware of Punic and Early Roman Gadir/Gades (4<sup>th</sup>-1<sup>st</sup> cent. BC): An Update on the So-called «Kuass Ware»” (pp. 55-68, 6 figures, 18 footnotes, 17 references). Kuass finewares from the Cadiz Bay region varied in quality of firing and decoration and the authors present a chronological framework of production of Gadiritan red finewares during four stages 4<sup>th</sup>-1<sup>st</sup> century BC: 400-325, 325-250, 250-200, 200-200/75 BC. Over time there is a shift from Attic imitations to Romanization influenced by Italic black gloss and Campanian tableware. Examples of “varnishes” (slips) are detailed and ornamental characteristics (palmettes, rosettes, and plastic attachment), and “typological proposals” notes for each of the four stages. The need for archaeometric studies and the identification of secondary production centers is stressed.

Violeta Moreno Megías “Kuass Ware in Turdetan Communities: Distribution and Local Production in the Lower Guadalquivir Valley, SW Spain” (pp. 69-77, 5 figures, 24 footnotes, 22 references). Punic Kuass ware distributions (6<sup>th</sup>-5<sup>th</sup> centuries BC) and local imitations of the 4<sup>th</sup> century are easily confused. Similarities and imitations are easily confused except for glaze quality and the stamp motif repertoire. Unusual vessel forms are “always imported” and included closed oil lamps and salt cellars. The diverse ethnic and social compositions of the population of Gadir figure into these variants. Imports and imitation wares from nine settlements are considered in the study. Laura Ambrosini “Tradition and Innovation: The Ring *Askos* in Late Red-figured Faliscan Pottery” (pp. 79-86, 6 figures, 41 footnotes, 52 references). The ring *askos* originated during the Late Helladic in Greece and Cyprus during the Orientalizing period. Ambrosini considers Faliscan pottery workshops during the last decades of the 4<sup>th</sup> century BC. Issues with the word “askos” as a goatskin vessel are reviewed and vessel forms and decorations are discussed based on a study of museum pieces: five Red-figure *askoi*. Paola Puppo “Trade Exchanges in the Western Mediterranean: The Distribution of *sombreros de copa*” (pp. 87-98, 5 figures, 56 footnotes, 70 references). Vessels in the shape of a cylindrical hat produced in the Iberian Peninsula 3<sup>rd</sup>-2<sup>nd</sup> century BC are linked to Ibero-

Roman culture. Kilns found in Fontescaldes, Spain produced evidence of two vessel forms and a number of decorations; chronological changes are reviewed. Vessels are distributed in 60 sites along coastal Sicily, Sardinia, and the Italian Peninsula. Theories regarding vessel function are reviewed: containers for honey or dried fruit, funerary urns, and multiple functions.

Sabine Patzke “The Etruscan *ceramica sovraddipinta* – Innovation in the Lifetime of a Pottery Type” (pp. 99-109, 3 figures, 50 footnotes, 45 references). Patzke reports on “vases with decoration in superimposed colour,” i.e. overpainted ware, a technique that spread to Latium during the Classical period and into Hellenistic times. She discusses the invention, diffusion, and adoption of the ware, noting that a simple economic model does not account for small incremental changes over time. Three phases of productions are defined: Praxis group, Sokra group, and Phantom group. Diachronically, there is a loss of artistic skills in production. Etruscan products were exported to Corsica and the coasts of France and Spain in the 3<sup>rd</sup> century BC and vessels occur predominantly in grave and sanctuary contexts. Carlo De Mitri “Changes in Cooking Ware Technology between the 3<sup>rd</sup> and the 1<sup>st</sup> Centuries BC on the South Adriatic Coast: The Case of Salento” (pp. 111-122, 5 figures, 26 footnotes, 44 references). The Salento Peninsula in southeast Italy underwent the Romanization acculturation process seen in three main vessel forms and their functions: pots, casseroles, and pans. New forms used in burials were introduced in the 3<sup>rd</sup> century BC. The *Torre Santa Sabina* shipwreck provided material for analysis. New forms of amphorae, sigillata, and cooking wares were introduced in the 2<sup>nd</sup> and 1<sup>st</sup> centuries BC in Oria, Brindisi. Tyrrhenian Aegean basins were also recovered. The ceramics suggested a possible triangular trade route. All vessels are illustrated as line drawings. Marek Palaczyk “Major Innovations in the Rhodian Wine-Trade after 200 BC? – Rhodian Stamps from Monte Iato in West Sicilian Context” (pp. 123-134, 5 figures, 23 footnotes, 26 references, 2 appendices). One hundred clay stamps are discussed in terms of fabricants and eponyms for the period 190-170 BC. No viable distribution patterns were discerned. The “fabricant” was neither a single potter nor owner of a pottery workshop; Palaczyk believes the fabricants were specialized officials who managed Rhodian wine production and trade. An appendix lists all of the named derived from the stamps and figures illustrate 37 of the names and chronological distributions. Charikleia Palamida, Fani K. Seroglou, Mark L. Lawall, and Aggeliki Yiannikouri “The Emergence of ‘Hellenistic’ Transport Amphorae: The Example of Rhodes” (pp. 135-150, 3 figures, 40 footnotes, 74 references). The authors review Rhodian typologies 1960 to 2004 as well as 13

excavated contexts from Rhodes and “a few” from outside of Rhodes. Eight types comprise the typology (all illustrated in Fig. 2): RhI, RhI.1, RhI.2, RhI.3, RhII, RhIII.1, RhIII.2, and RhIII.3. They remind us that transport amphorae of the Aegean world “advertised their point of origin by their distinctive shape” but that this is only partially correct. As there was an early period of experimental forms, a “ratchet effect,” with gradual incremental shifts in form. Trajectories of innovation include potters and “fabricants.” Innovation, adaptation, imitation, and further innovation characterize diachronic variation in fabricant control, potters, and workshop choices.

Konstantinos Filis “The Local Transport Amphorae from Aigion” (pp. 151-167, 5 figures, 16 tables, 71 footnotes, 85 references). This ancient city, located on the Corinthian Gulf, has been occupied from Neolithic times to the present but only since the Hellenistic period became populous. Rescue excavation data on workshops and kilns resulted in the identification of fabrics of three types of amphora: 1) fine micaceous and 2) fine micaceous with argillaceous fragments, both local; and 3) micaceous defined by vessel form and stamps. The stamps appear to define workshop areas. Petar Popović “Painted Pottery from Kale - Krševica: Imported or of Local Provenance?” (pp. 169-175, 5 figures, 17 footnotes, 14 references). The site, dated 4<sup>th</sup>-3<sup>rd</sup> century BC, is located in southeastern Serbia and was excavated 2001ff. The assemblage consists of 200,000 fragments (10,500 useful vessel shapes). The painted pottery group is discussed and had hybrid shapes (bowls with incised rim and spur handles: *kantharoi*. Motifs (spirals, other geometric forms, and foliage) and pottery frequencies are characterized. Local potters and painters (less well trained painters or unskilled craftsmen) or non-local artisans are discussed as potential producers. Ivanka Kamenjarin “Hellenistic Pottery from Siculi (Resnik), Croatia” (pp. 177-185, 5 figures, 15 footnotes, 17 references). Ancient Siculi (modern Resnik) is located in Kastela Bay in the Adriatic and has been excavated since 1991, but pottery studies have only recently begun. It is a Hellenistic settlement of the 2<sup>nd</sup> century BC that has a violent end at the end of the 1<sup>st</sup> century BC. Amphorae (mostly Lamboglia 2) are stamped and stoppered and with coarse calcite tempered paste. Also recovered were Megaron mold-made relief pottery (HMRP) in the form of craters, conical cups, and drinking bowls with motifs, primarily vegetative, but also dolphins and bull’s heads. Branko Kirigin “*Pithoi*/Dolia from Central Dalmatian Islands” (pp. 187-191, 4 figures, 11 footnotes, 21 references). Sherds from 200+ sites from the Greek and Roman periods were studied based on field research on rims and fabrics; no laboratory analysis. The *pithoi* are up to 2 m in height capable of holding 4000 liters of liquid.

Three types of *pithoi* were defined at Pharos covering Late Classic to Early Imperial periods: I: neckless, 5<sup>th</sup>-2<sup>nd</sup> c. BC; II: various with 4 rims forms and 4 fabrics; and III: stamped with personal names.

Nina Fenn and Christiane Römer-Strehl “The Hellenistic and Roman Pottery from 2013 Excavations at Dimal /Albania: An Illyrian Hilltop-Settlement with Mediterranean Connections in the Hinterland of Apollonia” (pp. 193-207, 7 figures, 44 footnotes, 40 references). A wide spectrum of drinking vessels was excavated and studied spanning the Late Roman period (2<sup>nd</sup>-3<sup>rd</sup> century BC, followed by a hiatus, before the Hellenistic period. Three categories of Hellenistic ceramics were defined: 1) Imported Hellenistic finewares including lamps, beakers, and *skyphos*; 2) Regional Hellenistic finewares including plates, bowls, beakers, and footed bowls; and 3) Regional Hellenistic coarseware with simple decoration and locally-made cookware but no amphorae. Eduard Shehi “Illyrian Cooking Ware (ICW): Some Ideas on the Origin, Production and Diffusion” (pp. 209-221, 10 figures, 33 footnotes, 33 references). A study of pottery from southern Illyrian sites presents an analysis of four specimens, two with rare white mica inclusions and two with white transparent inclusions. ICW derives from a local development through time and was widely produced in other coastal sites and distributed in Albania and coastal Adriatic and Ionian sites. Vasiliki Tsantila “Oiniadai, a Significant Akarnanian Port on the Trade Route from Asia Minor to Italy: The Evidence Provided by the Relief Pottery” (pp. 223-240, 29 figures, 70 footnotes, 51 references). The author reports a macroscopic study of Hellenistic moldmade ware (759 sherds and 13 molds) of which 83.7% are associated with Megarian bowls; eight production sites are discerned for the 2<sup>nd</sup> half of the end century BC onwards. A major transit center is located in the area of the Gulf of Petras. Wolf Rudolph “Prolegomena to the Study of Hellenistic Pottery from above the Cult Centre at the Acropolis of Mycenae” (pp. 241-249, 3 figures, 27 footnotes, 17 references). The author studied paper records and artifacts from the British excavations at Mycenae 1920-1961. He examined the issue of Atheno-centricity – that all of the best ceramics were Attic if not Athenian – promulgated by Langlotz. Rudolph considers the difficulties in examining Hellenistic pottery and its chronology, and identifying traditions and innovation. An example is the Argive stemless cup. Elisabeth Trinkl “Aufstieg und Niedergang einer Gefäßform – die Bauchlekythos” (pp. 251-261, 4 figures, 57 footnotes, 51 references). No English abstract or translation. Trinkl focuses on the Athenian Agora, innovation, and vessel functions, notably *askoi*, *aryballoi*, *alabastra*, *guti*, and *amphoriskoi*. The references are particularly interesting: English (n = 25), German (n = 15),

French (n=9) and one each in Spanish, Italian, and Greek. Guy Ackermann “Les assiettes d’Erétrie à l’époque hellénistique” (pp. 263-272, 5 figures, 33 footnotes, 43 references). Ackerman focuses on assiettes in terms of vessel shapes and decoration, mostly red-orange fabric and black slip, as well as chronology and the production of local ceramic imitations. Production sites are discussed and he reviews three types of “West Slope” decorative technique; undecorated assiettes with red or black slips are dated to the end of the 4<sup>th</sup> to the end of the 2<sup>nd</sup> century BC. Zoi Kotitsa “Historical Change and Ceramic Tradition: The Case of Macedonia” (pp. 273-286, 5 figures, 2 graphs, 77 footnotes, 80 references). Late Classical and Early Hellenistic burials from the 4<sup>th</sup> century BC cemetery at Pydna characteristically are single interments and have coins as grave goods. Associated ceramics are kantharos imported from Attica and Athenian red-figure decorated *pyxis*. There is a decrease in Attic imports over time moving to the exclusive use of local or regional products. A conclusion is that pottery from ancient Macedonia cannot be defined as “Hellenistic” in this region. Anne-Sophie Martz “Traditions et innovations dans la vaisselle céramique de la Maison de Fourni, Délos” (pp. 287-295, 2 figures, 27 footnotes, 16 references). The Maison is located in the urban center at Delos. She discusses previously excavated pottery, noting that the ceramic assemblage is characterized by amphora, pithoi, culinary wares, and fine wares, Issues of tradition and innovation are considered and a detailed catalog of 12 examples excavated in 1960 and 2010 is included.

Susan I. Rotroff “Hausmann’s Workshop and Innovation in the Production of Athenian Mold-made Bowls” (pp. 297-305, 5 figures, 36 footnotes, 24 references). Mold-made relief bowls are a major innovation in Greek ceramics dated to the latter part of the 3<sup>rd</sup> century BC in Athens and fabricated in a single workshop. Rotroff discusses the figures decoration, archaeological contexts, and examples from museum collections. The bowls are possibly copies of silver vessels made a “cheap souvenirs” or drinking ware celebrating a symposium. She provides a series of questions to be answered regarding innovation and survival in future generations. Sarah Japp, Benjamin Engels, and Anneke Keweloh “Kiln Stacking as a Technique for Polychrome Surface Design – A Pergamenian Innovation?” (pp. 307-315, 9 figures, 22 footnotes, 30 references). Pergamenian tableware production dating to the Hellenistic and early Roman period is characterized by new vessel forms and decorative elements. Typically, the surfaces are red brown and black or brownish-black polychromes. The authors discuss theories about the procedures used to produce bichrome vessels including two-stage or three-stage firing (oxidation and reduction), different slip applications, and kiln

stacking (no kiln furniture was used). Misfiring or innovations are considered; “intentional bi-coloring caused by the stacking was not primarily and not solely invented by Pergamenian potters.” Maurizio Buora and Ergün Laflı “Hadra Vases from Rough Cilicia” (pp. 317-327, 4 figures, 36 footnotes, 45 references). The authors review the literature (1985 ff.) and note that these vessels resemble Athenian water jugs but are used to hold the ashes of cremated dead. Two classes of vases are reported discerned primarily on the basis of decoration. Hellenistic deposits with Hadra vases in Cilicia are associated with Ptolemaic grave cultures of the eastern Mediterranean. A catalog of monochrome and polychrome vases and Alexandrian White-ground Hydrati is included. Reyhan Şahin “Red-figure Pottery of the 4<sup>th</sup> century BC from Ainos (Enez) in Thrace: The Final Phase of the Classical Tradition in Eastern Thrace” (pp. 329-340, 5, catalog, 40 footnotes, 45 references). Ainos, an Aeolian colony, is one of the earliest Hellenized cities in Thrace and located at a significant area between Asia Minor and Greece and used in burial rites. The author has identified vessel forms (a variety of vases) and painters. Scenes on the vessels reveal the influence of an Attic subject repertoire. An illustrated catalog of 20 examples documents seven vessel types. Laura Picht “You Are What You Eat (from)? The Development of Plates in Hellenistic and Early Roman Priene” (pp. 341-349, 1 figure, 40 footnotes, 21 references). Picht reviews the development of plates in terms of specific functions, aesthetics, cultural traditions, and simplicity. The find spots are documented and she elaborates rim forms, uses, quality and color of the glazes, and cultural conservatism. From her initial studies, she is uncertain if the plates are locally-produced and/or imported.

Andrea Berlin “Not So Fast: Ceramic Conservatism and Change at Sardis in the Early Hellenistic Period” (pp. 351-358, 3 figures, 3 tables, 8 footnotes, 4 references). Berlin considers the 1965 excavations of a 4<sup>th</sup> to 3<sup>rd</sup> century BC burned room at Sardis located in the area of Lydian-era gold refining. A portion of the floor is intact covered by the collapse of burned roof tiles. Crushed pottery and coins were found under the tiles and a Seleucid-era context presumed. Berlin details the contents of the deposit and its connections to the theater. Thirteen vessel types (11 local and three imported) are documented; the imports (189 sherds) are from drinking vessels, 16 from drinking service, 52 from food service, and 14 “personal” use. Her conclusion is that some local Sardians were “setting a hybrid Lydian-Greco-Persian- style table.” Asuman Baldiran “Roulette Decorated Hellenistic Unguentaria from Stratonikeia” (pp. 359-369, 2 figures, 49 footnotes, 42 references). Two groups of unguentaria with black and red coating were recovered from tombs during the

excavation of a necropolis and were used as burial gifts, Chronologies and diachronic changes are reported. A catalog quantifies nine black-coated and eight red-coated vessels. Vasilica Lungu “C eramique hell enistique de Labraunda:   la recherche d’un faci s carien. Donn es pr liminaires” (pp. 371-381, 6 figures, 43 footnotes, 32 references). Lungu reviews the site location and excavation, pottery production techniques, and presents a typology of serving vessels and bolsols. Preliminary evidence suggests production locales.  ilem Uygun “Samples of Hellenistic Pottery from  ztepe in Southeast Anatolia” (pp. 383-389, 4 figures, 1 table, 64 footnotes, 36 references). This site in the Upper Tigris region was the center of the neo-Assyrian province of Tusha (or Tushan) occupied from the early Chalcolithic period to the Roman Empire 3<sup>rd</sup> century BC to first half of the 1<sup>st</sup> century BC). Hellenistic ceramics are classified into three groups: common ware, storage vessels, and cooking ware. There are six types of plates, five types of bowls, and three jar types. The ceramics are “not pieces of high quality. An illustrated catalog of 28 vessel form characterizes fabrics, dimensions, and location codes.

Ulrike Nowotnick “Hellenistic Influence on Ceramics from Meroe and Hamadab (Sudan)” (pp. 399-414, 5 figures, 49 footnotes, 63 references). The Middle Nile Valley region was dominated by Kush (8<sup>th</sup> century BC-4<sup>th</sup> century AD); Pharaonic influence declined ca. 300 BC and Hellenistic and Ptolemaic influences are afterward seen the pottery. New vessel forms, fabrics, surface treatments, and decorations emerged. The new Hellenistic forms included *kraters* with unusual polychrome decorations, bottle-like *klepsydra* for serving wine (comparanda in metal forms), and *askos*, single-handled jugs. Foreign influences but local fabrication indicates the selective absorption of stimuli. Jonathan Ferguson “Traditions and Innovations in the Late Hellenistic and Early Roman Ceramic Assemblages from Tell Madaba, Jordan” (pp. 415-427, 5 figures, 39 footnotes, 36 references). The TMAP (Tell Madaba Archaeological Project) began in 1996 and there have been 15 field seasons. Three periods are characterized: Greco-Roman: 25,206 diagnostic sherds representing nine functional classes and 45 types; Late Hellenistic: ca 200-63 BC with Rhodian and Koan imported amphorae and imported moldmade oil lamps; and Early Roman changing to Nabataean control: c 639 BC-AD 106 with clear distinctions between service and utilitarian vessels. Ferguson infers changes in cooking repertoires with the use of round-bodies cooking pots and casseroles. Nabataean Painted Fine Ware was recovered but differs in form fabric, and decoration. Renate Rosenthal-Heginbottom “Innovation and Stagnation in the Judean Lamp Production in the Late Second Temple Period (150 BCE-70 CE)” (pp. 429-442, 5 figures, list of

figures, 45 footnotes, 33 references). Wheel-made lamps in the Levant are related to Attic prototypes, and three variants of decorated saucer lamps are reported. Relationships between Greco-Roman and local Judean pottery manufacture is detailed; 34 specimens are illustrated.

Heather Jackson “Green-glazed Wares at Hellenistic Jebel Khalid. Innovation, Imitation or Hellenization?” (pp. 443-453, 4 figures, 1 graph, 51 footnotes, 34 references). Only 5% of the ceramics were imported to the site located in the Upper Euphrates in Syria. Jackson reports a merging of traditional and innovative ceramics and reviews techniques of production and vessel forms, chronologies, and comparanda to consider pale green and deep blue-green glazed wares. Seleucia-on-the-Tigris and Dura Europos has open vessels made in traditional international Hellenistic shapes; closed shapes and amphorae differed. Scientific analyses of the glazes began with wet chemistry (Matson 1943) and have continued since employing NAA and PIXE-PIGME. The green-glaze ware was not manufactured locally as the composition varied from southern Mesopotamian products and pottery from Dura. Closed shapes were largely Hellenized in shape and decoration (imitation?) but another unknown Hellenistic period production center on the Euphrates was producing the pottery. Antioch green-glazed ware came from this unknown source to Jebel Khalid and reached Antioch through trade. Gabriele Puschnigg “Continuity or Innovation in Coarse Wares at Early Hellenistic Merv?” (pp. 455-464, 3 figures, 2 tables, 2 graphs, 44 footnotes, 16 references). The author considers coarse wares from Merv in Central Asia noting that they constitute a small but diverse pottery group (6% of EVEs). Grog-tempered ware is discussed, including vessel repertoires for coarse fabrics Groups C, D, and E; Group A is a handmade pottery from the Seleucid and early Parthian periods. Stratigraphic evidence suggests that the Early Hellenistic coarse wares at Merv represent a continuity or innovation at the site. She believes that there was a continuous tradition of cooking wares made in the Merv Oasis settlements and city of Merv from the Iron Age onwards and that the grog-tempered cooking pots were locally developed based on Hellenistic types. Jean-Baptiste Houal “The Hellenistic Period through the Ceramics of Temez (Uzbekistan) and Balkh (Afghanistan)” (pp. 465-478, 5 figures, 35 footnotes, 34 references). Houal reviews the Hellenistic period (329-145 BC) in the area from the Syr Darya (Darya = River) in the north to the Afghan Plateau in the south which politically includes two old Achaemenid satrapies: Bactria and Sogdiana. The major site excavated by the French was Ai Khanoum on the Afghan side of the Amu Darya and the lesser-studied city of Bactres/ Balkh downstream on Afghan side, and Termez on the north side of the river

excavated by the Uzbeks and Spanish (University of Barcelona). Previous research at Termez (1973-2006) is reviewed with emphasis on the tablewares and some containers. Additional material from Bactres (1923 and 1949), Tepe Zargan, and Bala Hissar -- tablewares and containers, but also cooking wares (basins and pots) is reviewed; closed vessels are rare at these sites. Bertille Lyonnette (2010) has noted the diversity of red slips and the persistence of unslipped forms made during the Hellenistic period. Charles Kolb has contributed invited comments to Houal's chapter when posted online in 2017, see

[https://www.academia.edu/s/3d81d311a0/houal-jb\\_2016\\_the-hellenistic-period-through-the-ceramic-of-termez-uzbekistan-and-balkh-afghanistanpdf](https://www.academia.edu/s/3d81d311a0/houal-jb_2016_the-hellenistic-period-through-the-ceramic-of-termez-uzbekistan-and-balkh-afghanistanpdf) July 10, 2017, 3 pp. Sergej Ushakov and Kateryna Strukova "Grey Ware with Black Coating from Chersonesos: Research Problems and New Findings" (pp. 479-489, 6 figures, 24 footnotes, 19 references). Tauric Chersonesos pottery made in the Northern Black Sea region (southwestern Crimea) has not been studied adequately Grey ware with black coating is one of the lesser studied heterogeneous ceramic groups dating 2<sup>nd</sup> half of the fifth century to first half of the 4<sup>th</sup> century BC. Data suggests that the larger portion was imported from Aegean Greece. Five named variants occur among 11 vessel types and include open and closed forms. Most "good quality" fabrics had no visible inclusions and lack a grey-colored slip. Vessel forms include jugs, guti, salt cellars, cups, bowls, fish plates, and. The authors question if Chersonesos had its own Grey Ware manufactory. Sergej Ushakov, Ekaterina Lesnaya, and Maksym Tiurin "The New Hellenistic Assemblages from the North-Eastern District of the Tauric Chersonesos" (pp. 491-502, 5 figures, 27 footnotes, 24 references). Chersonesos has been excavated over the past 186 years but this paper focuses on 2007-2011 excavations and is a preliminary assessment of tablewares. Three excavations are reported: 1) An 11 m deep well in a basilica's chance with local pottery, black gloss, Attic red-figured and Athenian moldmade specimens. 2) An Early Byzantine cellar produced black gloss and Pergamenian, Ionian and Knidian bowls. 3) Subterranean rooms yielded locally-produced grey, black glazed, and red-slipped pottery, moldmade relief bowls, Athenian bowls, and Rhodian amphorae dating 2<sup>nd</sup> and 3<sup>rd</sup> century BC. Mikhail Treister and Nikolay Vinokurov "Two Emblemata with Portrait Heads on the Red-gloss Bowls from the Site of Artezian in Eastern Crimea" (pp. 503-516, 5 figures, 78 footnotes, 52 references). The site is a fortified settlement northwest of Kersh and the pottery had emblemata with portrait medallions. The authors discuss comparanda, physiognomic features, and "cheap reproductions." They propose that the pieces which have portraits of Theophanes and personages of the Julio-Claudian dynasty (2<sup>nd</sup> century

BC-AD 49) were designed as Roman propaganda. Tatiana Egorova "Hellenistic Black Glazed Pottery from Panticapaeum" (pp. 517-528, 5 figures, 41 footnotes, 37 references). The site in the southern Crimea produced 450 specimens, mostly fragmentary, classified into three groups: 1) Drinking cups with Classical period shapes, *kantheroi* bolstered cups, and Knidian cups (325-150 BC). 2) Wine service vessels including West Slope amphorae (Attic and Pergamenian) and Attic West Slope *oinchoe*. 3) Food service vessels including roulette and palmette stamped plates, fish plates, small bowls, salt cellars, and two Attic *guti* (250 BC). The bulk of the assemblage was Attic imports (2<sup>nd</sup> quarter of the 3<sup>rd</sup> century BC) and Asia Minor imports (mid-3<sup>rd</sup>-1<sup>st</sup> century BC). Irina Shkribliak "Hellenistic Mold-made Relief Bowls from Late Scythian Sites of Crimea" (pp. 529-537, 4 figures, 17 footnotes, 13 references). The sites in northwestern Crimea, excavated since 1827, were "barbarian" and unfortified settlements. Five sites are reviewed: Scythian Neapolis (2<sup>nd</sup> century BC) with bowls produced in Ephesos, Pergamon, Kyme, and the Bosporean Kingdoms. Ak-Kaya fortress yielded bowls made in Ephesos and local Bosporean wares. Belijús had bowls from Ephesos, Pergamon, and Attica. Krimishki excavations yielded bowls from the Demetrios workshop, local Bosporean and Ephesos. Burlík also had bowls from Ephesos and local Bosporean manufacture. Military actions ca. 114-111 BC terminated the importation of pottery to these sites.

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