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FROM THE EDITOR

THOMAS R. FENN

I hope that the Summer is treating you all well. It seems as soon as you turn around another season passes. One thing I also see with greater frequency these days are high-profile stories on breaking news of the latest break through or discovery, and great many employed the methods and techniques of archaeological science to achieve their discoveries.

What does this mean? It means that the continued fast-pace consumption of these methods and techniques by the public and private sectors, and continued innovation in the methods and their applications to addressing archaeological questions, will lead to even more news stories. While archaeological scientists in the United States suffer from a lack of adequate funding in the form of research grants, the usage in the U.S. continues to expand. The struggles for support in the U.S. are well documented (e.g., Killick D. 2015. The awkward adolescence of archaeological science. *JAS* 56: 242-247), and likely will not change soon. However, this issue is being subverted, to some extent, by increased collaboration between archaeologist and other scientists who have extant labs and equipment, and who have access to better funding sources, allowing not only for continued support of facilities, instruments and equipment, but which also are providing new funding streams to develop new laboratories and analytical facilities.

IN THIS ISSUE

Finally, I want to remind our readers that we still are seeking to fill two positions at the *SAS Bulletin*, that of Associate Editor for the Meetings Calendar, and an updated version of a long-standing position, Associate Editor of Archaeo-Dating (formerly Associate Editor of Radiocarbon Dating). This latter position will bring us news and research on all forms of archaeological dating. If one of our members is interested, or if you want to recommend someone you think would be interested, please contact me as soon as possible about this opportunity.

SAS STUDENT RESEARCH INTERNATIONAL TRAVEL AWARD WINNER

Stranded in South East Europe: LA-ICP-MS Analysis of Iron Age Glass Beads

Ana Franjic, PhD Candidate, UCL Institute of Archaeology

My doctoral research, titled *Iron Age Glass Technology in South East Europe* and supervised by Prof. Ian Freestone and Dr Ulrike Sommer, looks at glassmaking and glass use on the territories of present-day Bosnia and Herzegovina, Croatia, and Slovenia during the first millennium BCE. The project seeks to contribute to our broader understanding of glass use in Iron Age Europe by assessing the variability in the technological recipes and styles of glass items occurring in the given period, and mapping the interrelations between various territories and communities, as well as large-scale patterns of prehistoric trade and exchange networks.

Glass beads are abundant in the Iron Age archaeological record of the region; the number of items retrieved speaks of extensive use of this material, especially when compared to the Late Bronze Age. How glass was perceived and valued as a material in prehistory has been a subject of some debate. However, the distinct contexts in which it is found during the Iron Age in this region – as part of the rich burial attire indirectly ascribed to female

figures, 1 table). The excavation methodology developed for Gird-i Bazar by Kreppner, Forster, and Squitieri is evaluated as are the digital documentation system and the collection registration system. Absolute chronology and ^{14}C dating (by Radner) and relative stratigraphy (by Kreppner and Squitieri) are reviewed briefly. The bulk of this section presents the results of the work conducted in the eastern part of the site (by MacGinnis and Kreppner), in the Connecting Trench (by Stone) and in the western part (by Bartl). Notably, Square 269929 has a kiln with 206 diagnostic sherds. The period of abandonment and degradation are also discussed.

"D. Samples and finds from Gird-i Bazar, 2015" (3 chapters, pp. 77-108, 19 figures). Tina Greenfield introduces the bioarchaeological sampling strategy and details the plant and animal remains, zooarchaeological samples, palaeobotanical specimens, and human remains, as well as discussing future research. Section D2. "The pottery from Gird-i Bazar, 2015: A preliminary study" by Jean-Jacques Herr (pp. 80-99) is the focus of this part of the monograph. The author begins with clear statement about the research questions, periodization and its terminology, the chronological classification of pottery as "Neo-Assyrian," the archaeological phases of the Neo-Assyrian period (NA I, 10th -9th centuries BC; NA IIa, 8th century BC; NA IIb, 7th century BC; and NA III, 7th /6th-5th centuries BC), and the designation "Iron Age IV" in the Iranian Zagros region. Iron Age IV is chronologically delimited by the end of Level II at Godin Tepe c. 650 BC and the appearance of "Clinky Ware" or "Cinnamon Ware" in the Middle Parthian period (c. 150 BC to first century AD). At the site of Gird-i Bazar and in all the areas surveyed by the MAFGS, there is an absence of the "Grey Ware" typical of Iron Age II (1250-750 BC) in northwestern. Further notable absentees are the "Triangle Ware" and "Festoon Ware," which are hallmarks of Iron Age III (750-600 BC) in Western Iran and Iron Age IV (600 BC to first century AD) in the north-western Zagros Region.

The ceramic corpus of the 2015 excavations at Gird-i Bazar was studied according to *chaîne opératoire*, fabric and typology. A total of 1700 "diagnostic" sherds were found in 145 collections registered across the entire site. Together with "non-diagnostic" sherds, a total of 125 kg of sherds were collected. To date, the material from 36 collections has been fully studied. The analysis of 666 diagnostic ceramic sherds from key contexts utilized parallels from the Assyrian heartland and western Iran. As of June 2016, 45 samples from the 2015 excavations of Gird-i Bazar have been exported for microscopic and chemical undertaken at UCL by Alexander Sammut under the supervision of Patrick Quinn. Technical aspects (burnishing techniques, red slipping, and firing process), five Fabric Classes (Fabric class A: "Very Coarse Ware"; Fabric class B: "Coarse Ware"; Fabric class C: "Medium Coarse Ware"; Fabric class D: "Medium Fine Ware"; and Fabric class E: "Fine Ware" are characterized. Vessel shapes included Open Shapes (hemispherical bowls, hemispherical bowls with triangular rims, carinated bowls, and coarse plates [or lids?], and trays; Closed Shapes (jars, pots, and pots with handles); and Miscellanea. Preliminary conclusions and the chronological ranges of the ceramic assemblage are discussed. This section concludes with a discussion of selected small finds from the 2015 excavations by Wilkinson, Squitieri, and Zahra Hashemi (Université Paris 1). The artifacts include: a zoomorphic clay figurine, brick fragment, one iron arrowhead ("bodkin"), pounders and polishers, and stone pendant or weight.

"E. Conclusions and prospects" by Kreppner and Radner (pp. 109-111, 1 figure) presents a summary assessment of the work so far. The first season at Gird-i Bazar has proven the excavation and registration methods to be highly efficient while at the same time tailored to produce detailed, geo-referenced data, including bioarchaeological and geoarchaeological samples that make an entirely new contribution to understanding life on the eastern frontier of the Assyrian Empire. In the summer of 2016, the complete excavation of the kiln structure and of the partially uncovered single-room buildings will serve to further elucidate Gird-i Bazar's layout and function. Lastly, "F. Appendix: Looking for Muṣaṣir: The 2014 magnetometer survey at Mujeser" by Jörg Fassbinder (pp. 112-118, 6 figures) reports on Mujeser in the Soran district of the province of Erbil, the possible site of the capital of the kingdom of Muṣaṣir. It is also available online at https://www.academia.edu/27921035/Exploring_the_Neo-Assyrian_Frontier_with_Western_Iran_The_magnetometer_survey_of_Qalat-i_Dinka. This is a significant informative analysis of the results of the initial season of excavations and preliminary study of the ceramics with a goal of elucidating the Assyrian-Iranian frontier of region during the Neo-Assyrian period.

Maya Potters' Indigenous Knowledge: Cognition, Engagement, and Practice. Dean E. Arnold, Boulder, CO: University Press of Colorado, 2017. 334 pp., 93 black and white figures, tables, endnotes, references, and index. ISBN: 978-1-60732-655-7, $78.00 (cloth), $63.00 (ebook). Based on fieldwork and reflection over a period of almost fifty years, *Maya Potters' Indigenous Knowledge* is a sequel to Dean E. Arnold's classic assessment of pottery production *Ceramic Theory and*

Cultural Process, Cambridge: Cambridge University Press, 1985, and a prequel to his other two books on Ticul pottery–making and distribution: *The Evolution of Production Organization in a Maya Community*, Boulder: University Press of Colorado, 2015 (reviewed in *SAS Bulletin* 38(1):2-5, Spring 2015) and *Social Change and the Evolution of Ceramic Production and Distribution in a Maya Community* (Boulder: University Press of Colorado, 2008 (reviewed in *SAS Bulletin* 32(2):24-27, Summer 2009). The first book on Ticul potters (2008) characterized diachronic social change and subsequent modifications in demand, production, and distribution for the period 1965-1997, whereas the second volume (2015) focused on the potters and their families, and units of production 1965-2008. *Maya Potters' Indigenous Knowledge* moves from these topics to the social contexts for the indigenous technology of pottery production. His book *Ecology and Ceramic Production in an Andean Community* (New Studies in Archaeology, Cambridge: Cambridge University Press, 1993) is *not* a part of this quartet of books (I reviewed the Andean volume for *The Old Potter's Almanack*: Joint Newsletter of the Prehistoric Ceramics Research Group and the Ceramic Petrology Group, British Museum, London, 2(1):7-9, March 1994). *Ceramic Theory and Cultural Process*, Arnold notes, "was written to show that pottery was not totally plastic and that the pottery-making process itself also had agency in the cultural patterns necessary in its production" (*Maya Potters' Indigenous Knowledge*, p.25). His studies of the intersection of ethnology and archaeology in ethnoarchaeological research predates the use of the term "ceramic ethnoarchaeology," is grounded in ethnography, and focuses on the ecological contexts for pottery production.

In his new book, Arnold examines the indigenous knowledge of traditional Maya potters in Ticul, Yucatán, Mexico as it is embedded and expressed in Maya language and behavior, and he describes it in terms of materials engagement theory – it is the first book-length treatment using this theory in a pottery-making community (p. xvii, 215). In his thoughtful assessment, Arnold examines craftspeople's knowledge and skills, their engagement with their natural and social environments, the raw materials they use for their craft, and the process for making pottery. Following Lambros Malafouris and Tim Ingold, and to a lesser extent Colin Renfrew, Arnold argues that potters' indigenous knowledge is not just in their minds but extends to their interactions – "engagement" -- with the environment, raw materials, and the pottery-making process itself and is recursively affected by visual and tactile feedback. Pottery is not just an expression of a mental template but also involves the interaction of cognitive categories, embodied muscular patterns, and the engagement of those categories and skills with the production process. Indigenous knowledge is a product of the interaction of mind and material, of mental categories and action, and of cognition and sensory engagement-the interaction of both human and material agency. While Arnold's previous work has been significant in ceramic ethnoarchaeology, *Maya Potters' Indigenous Knowledge* moves beyond to provide new evidence and opens up new concepts and approaches to understanding cultural processes. Engagement theory has become an important and widespread theoretical approach and "indigenous knowledge" (as cultural heritage) is the focus of much current research in anthropology, archaeology, and cultural resource management.

The front matter includes lists of "Figures" (pp. ix-xii) and "Tables" (pp. xiii-xv) and a "Preface" (pp. xvii-xxx, 4 endnotes), plus nine chapters of varying lengths. The book concludes with 361 "References" (pp. 231-256) listing 41 of Arnold's previous publications, and a conflated double-column "Index" (pp. 257-264) focusing on proper nouns and topics. In Chapter 1 "Introduction" (pp. 3-29, 7 endnotes, Arnold reviews pottery production paradigms and introduces engagement theory, following up with a cogent essay, "Why Engagement Theory? (pp. 9-14), and a review of the components of the theory. He next reviews the behavioral chain (*chaîne opératoire*), the semantic structure of knowledge, customary muscular patterns, feedback, and technological choices. This is followed by a short review of the structure of his book. Chapter 2 "How Was the Data Collected?" (pp. 30-49) presents a fascinating personal account of field research and data collection beginning with work conducted as a graduate student in 1964. The personal experiences as a participant observer, especially in the complex process of firing ceramics in a kiln, sensitized him and expanded his horizons. The late Louana M. Lackey – a professional potter and archaeologist -- has also commented that her fieldwork in Acatlán, Estado de Puebla, Mexico, befitted from working as a participant observer with the potters; see *The Pottery of Acatlán: A Changing Mexican Tradition* (Norman: University of Oklahoma Press, 1991). Arnold also recounts experiences in learning the Yucateck Maya language which enabled him to better interact with the craftspersons. There is a summary of his methodology and its history and a section reviewing the research data collection and the archiving of fieldnotes and photographs.

Chapter 3 "The Potters' Engagement with the Perceived Landscape" (pp. 50-78, 9 figures, 4 tables). In this chapter he examines the potters' perceptions of the landscape and the importance of scheduling activities

(seasonal, monthly, etc.). Here he seeks to understand the engagement of Maya potters with pottery-making by employing two complementary epistemologies: 1) indigenous traditional ecological knowledge, and 2) scientific categories that enable "outsiders and scientists" to understand the potters' viewpoint more objectively. He focuses on several ecological parameters, notably ethnoecology and the geological context of the Yucatan, sources of raw materials, the forest (*k'a'ash*), and the ethnoecological Zones in the Northern Yucatán. In "Ethnogeology" he characterizes the Yucateck view of fuelwoods used for firing (Table 3.3, pp. 65-68) – a very valuable contribution – then examines specific geological and human-created phenomena: *ch'e'en* (a well or sinkhole), *chultun* (a cistern), *aktun* (a natural cave), *sah kab* (a marl mine), and *tantan lu'um* (a hole in the earth). Lastly, in "Ethnopetrology," he comments on the Maya view of "rocks" (Table 3.4, pp. 77-78), another valuable summary reminding us of Eskimoan linguistic variants for "snow." Chapter 4 "The Potters' Engagement with Raw Materials" (pp. 79-129, 13 figures, 9 tables, 19 endnotes). The potters' engagement with mineralogy (ethnomineralogy) identifies variants for "clay": *k'at* (clay), *sak lu'um* (white earth), *sah kab* (white powder), *sah kab* for construction purposes (natural marl), the sources of "clays" and preparation of *sah kab* for use as pottery temper, including subclasses, temper variability, and native quality tests (salty taste and drying properties). Distinctions of temper versus construction *sah kab* date back to at least the Terminal Classic period (AD 800-1100). *Hi'* temper used in cooking pots has significant technological advantages known since antiquity (Puuc Unslipped Ware, AD 800-1100). Table 4.9 (p. 116) summarizes the categories of temper types. The results of ATR-FTIR and XRD studies are noted. In Chapter 5 "The Potters' Engagement with Paste Preparation" (pp.121-128, 6 figures), Arnold focuses on how the potters view and engage with the problems of *changing properties* of the raw materials. Preparing the raw materials and paste preparation behavior as material engagement are the primary topics. Potters' indigenous knowledge factors include: 1) repertoire of vessel shaped, 2) repertoire of vessel sizes, 3) customary muscular patterns, and 4) sensory feedback.

Chapter 6 "The Potters' Engagement with Vessel Forming" (pp. 129-153, 8 figures, 9 tables, 3 endnotes). The ways in which potters *conceive* the creation of a pottery vessel and that ways in which they produce it, are covered in this chapter. Five forming techniques, four traditional vessel shapes of water transport jars in the 1960s, rim variations and their meaning, and individual variation in rim forms are characterized. More than a half-dozen other traditional shapes are detailed (also in Arnold 2008120-121). Changes in vessel production since the 1960s are related to the installation of piped water into local households. Chapter 7 "The Potters' Engagement with Drying and Firing" (pp. 157-197, 16 figures, 9 tables, 11 endnotes). Arnold considers the potters' perceptions and indigenous knowledge in building traditional kilns and the stages and the substages of firing are documented. The genders of pottery-makers are related to subsistence scheduling (see Arnold 1985:99-108) but tend to be women for fabrication and men for firing. Women prefer to sell pottery unfired or ask a male relative to fire it. There are two types of firing technologies, firing for cooking pottery and firing non-cooking pottery. The construction of kilns in terms of materials and structure are detailed. There is especially valuable information on building beehive-shaped structures in terms of unique mortars and special kinds of rocks, as well as the facing direction of the kiln door due to wind direction, details on kiln parts. Another part of this chapter considers drying pottery prior to firing, slipping, final drying, fuel preparation, kiln loading, and actual firing. The importance of the warming stage (*chokokinta'al*) and final firing stage (*ts'ooksa'al*) are documented as are variations in the firing process and firing accidents.

Chapter 8 "Ticul Pottery as a "Distilled Landscape" / "Taskscape" (pp. 198-214, 1 figure, 3 tables, 12 endnotes). The author synthesizes some of the data derived from his research and discusses social and religious dimensions of the raw materials and their sources, including clay (*yo' k'at*), temper for cooking pottery (*aktun hi'*) and non-cooking pottery (*yo' sah kab*), red slip (*tantan lu'um*), water (*che'en*), and fuel for firing (*k'ash*). Ritual pottery (such as that used in the Day of the Dead rituals) is seen as symbols of a distilled landscape, while ancient ceramics from Ticul represent a "distilled community of practice." Chapter 9 "Conclusion" (pp. 215-230, 6 endnotes). The conclusion ties together aspects of the previous discussions and Arnold persuasively argues for the importance of understanding the engagement of the potters in the "making process" if we are to correctly understands and interpret the past. He comments of indigenous knowledge, learning, ethnoarchaeology as Cultural Heritage, the implications of his methodology, and reviews what drives changes in indigenous knowledge.

Speaking as an archaeologist, your reviewer has read his published books (and reviewed most), read some of his manuscripts submitted to presses for publication (including the current one), and read many but certainly not all of his articles and book chapters; 70+ are available online: https://fieldmuseum.academia.edu/DeanArnold.

Arnold comments that this book is a "pilgrimage" in thinking about pottery production, and notes that his research on Maya Blue, which began as a graduate student for his Masters' degree, is better informed and he better understood the relationship between palygorskite and Maya Blue from the viewpoint to the Ticul potters. (He is currently working on a book-length manuscript about Maya Blue from ethnographic, archaeological, and archaeometric perspectives.)

He seeks to understand the engagement of Maya potters and their pottery-making by using complementary epistemologies – I believe he succeeds. *Maya Potters' Indigenous Knowledge: Cognition, Engagement, and Practice* are a capstone to the Ticul "series" volumes and validate his earlier synthesis (Arnold 1985). Ecology remains an important part of his research design and synthesis of diachronic data collected through five decades, but his disillusionment with cognitive anthropology is clear. The result of this volume is that Arnold has created a new way of thinking about artifact production and has built a solid bridging argument or middle-range research that relates objects and the people who made and used them in complex social and environmental relationships. There is much food for thought in this new book that archaeologists should consider in evaluating their own data and characterizing sociocultural information derived from artifact assemblages and archaeological contexts, especially in thinking about indigenous knowledge when examining diachronic changes. This is a cogent, thought-provoking book with compelling data and persuasive arguments, and belongs on any anthropologist's bookshelf. It is an admirable companion to *Ceramic Theory and Cultural Process* (1985) and secures Arnold's reputation as among a handful of theoreticians who have written about the interpretation of material culture – and places him at the pinnacle of those commenting on ceramic materials.

How Things Make History: The Roman Empire and Its Terra Sigillata Pottery. Astrid Van Oyen. Amsterdam Archaeological Studies 23. Amsterdam: Amsterdam University Press, 2016. 173 pp., 30 figures, 6 tables, 772 footnotes, references. ISBN 9789462980549, eISBN 9789048529933, NUR 682. $99.00 / € 79,00 (hardcover). Van Oyen received her doctorate at the University of Cambridge in 2013 and in 2016 became an assistant professor in the Department of Classics at Cornell University, Ithaca, NY. She has worked on material sources as varied as terra sigillata pottery in France, grain silos in Spain, and Vesuvian houses in Italy, and has written about questions of postcolonial archaeology, material agency, typology, and morality. Van Oyen is the author of "Historicizing material agency: from relations to relational constellation," *Journal of Archaeological Method and Theory* 23:354-378 (2016); "Actor-Network Theory's take on archaeological types: becoming, material agency, and historical explanation," *Cambridge Archaeological Journal* 25:63-78 (2015); and "The Roman City as Articulated through Terra sigillata," *Oxford Journal of Archaeology* 34(3):279-299 (2015). Van Oyen and Martin Pitts edited *Materialising Roman Histories: Beyond Instrumentalism and Representation*, **a review of which follows this review**.

Terra sigillata a ceramic known for a characteristic bright red surface and dating to the first three centuries CE, is found throughout the Western Roman provinces. Drawing on recent ideas in material culture (especially Actor-Network Theory), she asks a "radically new question": what was it about the pots themselves that allowed them to travel so widely and be integrated so quickly into a range of contexts and practices? To answer this question, Van Oyen offers a novel analysis in which objects are no longer passive props, but rather they actively shape historical trajectories. She contends that while pottery was produced across a wide expanse of territory, it was not a "neutral template for how the world works."… "These pots used to be understood as representing Roman identity, because you find them in many parts of the Roman Empire where you didn't necessarily find them before." The author asserts that "archaeologists would say, 'You've got these shiny red pots, and this means that these people have become Roman or assumed Roman identity in some way,' which is very simplistic." Using the analogy to "Coca-Cola," Van Oyen, who is Belgian, says that just because she buys the soft drink doesn't mean she has become "Americanized." And just because people across the Roman Empire bought the pottery as vessels for food doesn't mean they had adapted to Roman culture. "These pots do not universally signify Roman identity," she notes, "they can get interpreted locally in many different ways. But they had become a conceptual category because they were so standardized, omnipresent and recognizable. As a conceptual category, these pots spurred particular historical patterns, such as competition, or consumption that was not determined by class or setting." (pp. ix, 1-7).

Van Oyen was a member of a team conducting archaeological excavations in Tuscany when a student unearthed stacks of the pots on the last day of the excavation. The discovery was completely unexpected because the team had been looking for artifacts for a project documenting Roman peasant life. The project originated at Cornell and moved to the University of Pennsylvania, under the direction of former Cornell