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Experimental Archaeology as a Pillar of Archaeological Education

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Historically, Experimental Archaeology (EA) has contributed significantly to larger issues regarding archaeological method and theory (Coles 1973; Johnson 1978; Reynolds 1999). More recent work, involving a variety of material culture, demonstrates that EA's potential for further contribution is nearly limitless (e.g. Outram 2008 and papers therein). Established degree programs in EA (University of Exeter, established in 2000), burgeoning magazines and journals (e.g. EuroREA), Open-Air centers (e.g. Butser Farm, U.K.; Lejre, Denmark), and independent craft groups (Umha Aois, Ireland; http://www.umha-aois.com) bespeak academic and public recognition of the subfield's unique ability to test assumptions, to create middle range data sets that help archaeological interpretation, and to suggest hypotheses that can be tested by future archaeological excavations.

While EA advocates may look forward to a bright future within the larger framework of archaeological method and theory, let me suggest that the nature of EA also lends itself to a much more practical matter; education. Below, I provide four reasons why EA can serve as a pillar of undergraduate and graduate studies in archaeology. Then, I discuss how experimental approaches to archaeology can help educators engage with the vast array of student interests in archaeology, and how this in turn can be beneficial to archaeology as a whole.

EA encompasses all sorts of research involving technology, taphonomy, and preservation. However, for the purposes of archaeological education presented here, it should be noted that by «experimental archaeology» I mean actualistic studies that involve testing the manufacture,

Figure 1: Julia Heeb (nee Wiecken) demonstrates prehistoric bronze-casting to Master-level students at the Experimental Archaeology «playground,» a substantial area of land (1 hectare) designated for long-term outdoor archaeological experiments at the University of Exeter, U.K. Photo: M.I. Eren

use, and discard of replicated prehistoric technologies (Figure 1). This may involve laboratory analyses, but without an actualistic component a project ceases to fall in the realm of EA.

Experimental Archaeology and Archaeological Education

(1) *Experimental Archaeology compels students to learn both the «what» as well as the «why» of material culture.* In order for an experimental analysis to be valid and applicable archaeologically, it must be actualistic. This requires replicated artifacts to be produced as closely as possible to those found in the archaeological record. Experimental and experiential practice with the procedures and techniques necessary for accurate artifact replication not only requires students to memorize *what* a particular artifact or artifact trait looks like (e.g. a lithic flake with a lipped platform), but also *why* it appears the way it does (e.g. soft-hammer percussion striking a core at a specific angle). Recognizing both the «what» as well as the «why» of an artifact trait transforms a static typological approach into a holistic and dynamic view of material culture vital for all aspects of archaeological interpretation (Figure 2).

(2) *Experimental Archaeology teaches students how to ask questions, create projects,*

Figure 2: Metin Eren demonstrates flintknapping at Southern Methodist University, Dallas, Texas, for a more dynamic lesson on prehistoric lithic technology. Photo: B.S. Eiselt.

and publish research. While some broad, long-term, and expensive archaeological experiments do exist (e.g. Aubry et al. 2008), many can be focused, short, and economical (e.g. Eren et al. 2005). Smaller archaeological experiments are perfect projects for undergraduate- or M.A.-level theses. Such projects require knowledge of the literature in order for a student to identify gaps or assumptions in logic involving material culture. Additionally, EA projects provide excellent experience in small project design, familiarizing the student with the scientific process, method and materials organization, and teamwork. Thus, smaller, focused EA projects provide essential skills that will come in handy when the time comes for students to tackle larger scale projects (i.e. excavation). Many EA project do not require large grants. For example, a recent study of mine (Eren et al. 2008) only cost a $12.00 bus ticket to the coast to gather flint. In another study involving butchering fish and the location of resulting bone cut-marks (Willis et al. 2008), many materials were donated by North American fisheries, resulting in the entire study costing less that $700.00 (L.M. Willis, personal communication). These sums of money are easily reimbursed by departmental or university funds/ grants, which the student can prepare himself or herself. Also, since excellent EA projects can be done in 6-9 months during academic year, there is no reason why students will have to miss field experiences during the summer season.

Since the student creates his or her own datasets, EA is the perfect avenue for student publication. Substantive theoretical contributions, or publications involving archaeological excavation, can take years to complete. Additionally, in order to publish excavated remains, permission is often needed from an antiquity department or the director of an excavation, which can delay analysis and publication even further. In contrast, data produced through EA is the student's own, and it takes less time than excavation to produce it. This permits students to publish papers earlier in their graduate or undergraduate careers, which, when coupled with the usual archaeology-regiment (fieldwork, artifact analysis, advanced graduate degrees), may help tremendously when the time comes for job applications.

(3) *Experimental Archaeology necessitates curation.* The creation of EA datasets requires their immediate organization and curation so that they may be available for future study. Depending on the specific technology and material culture involved, particular labeling, preservation, and storage procedures must be undertaken. This will facilitate other researchers' access to and examination of the EA dataset (critical for building solid relationships with colleagues). Also, when the particular material culture is encountered archaeologically in the field the student will have some idea of how to organize it properly within larger archaeological collections.

(4) *Experimental Archaeology develops skills useful for interacting with the public.* It is no secret that archaeologists can be

Figure 3: A reconstruction of a Mesolithic hut at Lejre, Denmark, brings the past alive for the visiting public. Photo: M.I. Eren.

poor at communicating their research to the public. Additionally, when archaeologists do interact with the public, technical jargon may preclude full understanding and information transfer. However, performing artifact replications for people interested in the past can serve as opportunities to illustrate principles of material culture, or simply act as a mnemonic device for larger theoretical issues. The tangible nature of EA allows the public to «touch the past» in a unique way not easily forgotten and more digestible than a textbook or lecture (Figure 3).

Experimental Archaeology: A Project-Based Approach to Education

The four benefits of EA presented above are key issues from a student's perspective. But how does this EA help archaeological educators engage with students, many of whom will not go into archaeology as a career? When discussing archaeological education, it is important to note the vast range of interested students and their reasons for archaeological inquiry, especially at introductory university levels. Some students may enjoy hard science but also have interests in history and prehistory; archaeology allows this happy union. Rice (1990: 167) suggests that archaeology be taught as a laboratory science because some students cannot «handle» university level physics and chemistry classes, while biology classes are too competitive due to the presence of «pre-med» students. While it is certainly wrong simply to teach archaeology as a «lab science» in order to cater to students unable or unwilling to take difficult or challenging classes, a «hands-on» experimental approach to archaeology

Figure 4: Archaeology students have all sorts of interests – from the sciences to the arts. Here, Caroline Jeffra artistically crafts a ceramic vessel on the potter's wheel at the University of Exeter's Experimental Archaeology Pottery and Kiln room. Photo: A. Oldroyd.

can help students learn principles of scientific practice and should be included if done correctly and rigorously.

Another important student population interested in archaeology includes artists and art historians (e.g. Hilson 1991). In the same way artists create works for aesthetic enjoyment or as a societal critique, the manual and creative skills acquired through the study of EA can help to further those purposes (Figure 4). If Hilson (1991: 237) is indeed correct when she states that the «study of art cannot be divorced from the study of life and the great issues of our time,» then the artistic approaches to experimental material culture (in her particular case, Neolithic art) may help students question conventional attitudes and assumptions (Hilson 1991: 237) or link important contemporary social issues to the past (e.g. conservation, Hilson 1991: 236).

Finally, archaeology interests social scientists (Donahue and Adovasio 1985:306), anthropologists, student activists (Upham et al. 1988), and ethnographers, especially in the United States where history has intimately wedded these disciplines (Trigger 2006). Teaching students how to replicate one's ancestor's technologies serves as both a physical and symbolic connection to past heritage, ingraining social identity. In addition to providing means for people to discover social identity, archaeological inquiry empowers both cultural groups *and* students to create and define their own identities:

> … learning is situated, taking place in specific contexts with particular identifying features and purposes. A project on archaeology should, therefore, allow for connections between objects and cultures and should somehow relate to the classroom community-culture to make leaning meaningful to the specific students (Pitri 2002: 22).

Thus, given the diverse educational backgrounds and interests of students in archaeology, rather than educators take an «all science,» «all art,» or «all anthropology» approach to the subject, a general, a critically reflecting «project-based» approach (see Hennessey 1975:38; especially Pitri 2002:19; Winkler 2002) that incorporates all these thrusts might be most fruitful. A project-based approach to education develops «hands-on» and «visual» activities derived from a student's interests (Pitri 2002:19). In this sense, experimental approaches to archaeology are project-based, but focused on replicating prehistoric technology. Though Pitri (2002) focuses on the importance of «projects» for children, she suggests important factors derived from a project-based approach. First, projects help establish successful communication by making visible different modes of thought. Second, projects develop individual and group decisions making skills that allow for the opportunity to make invested choices. Third, projects lead to multidimensional problem finding and problem solving.

Since EA falls squarely within a project-based approach to education, it may encourage students to continue their archaeological education as they see opportunities to *independently* explore their own specific interests in the material culture (Pitri 2002:19), to create their own data, to publish their own results, and to establish their own identity within the discipline. Students' critical reflection upon their own archaeological experiments can reconnect subjectivity and experience with knowledge, allowing «students not only to understand the material and social processes that generate and reproduce their own subjectivity, but also question and even transform these processes and conditions» (Hamilakis 2004:287). Additionally, while EA may inspire more

Figure 5: A designated space (or several) for Experimental Archaeology can provide all sorts of benefits to students and educators alike. Shown here is the central Experimental Archaeology Laboratory at the Department of Archaeology, University of Exeter, U.K. Photo: A.K. Outram.

students to pursue archaeology as a career, it may have the even more positive benefit of increased donation, finance, and funding for archaeological research as more and more students (soon to be 'the public') recall favorable memories of self-discovery, identity creation, and expression through experimentally crafted material culture.

Conclusion

The practical skills EA endows upon students are fundamental to archaeological education and essential for people planning a career in archaeology. Additionally, EA is an excellent «project-based» approach to education that can serve as a common-bond among varied student interests within archaeology. For these reasons, archaeology departments would be well advised to consider developing resources for experimental archaeology. While human resources and knowledge experts regarding various prehistoric technologies may be initially hard to find, a dedicated departmental space for experimental practice, as well as a steady accumulation of materials useful for replicating different artifact types, can go a long way toward enhancing experiences in archaeological education (Figure 5). In turn, better-trained students, increased student publication, more rigorous research, and amplified interaction with the public will enhance any archaeology department's stature, boost its ability to attract future students, improve its alumni career-placement percentages, and justify its existence to its home university, to funding bodies, and to the archaeological discipline as a whole.

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REFERENCES CITED

Aubry, T., B. Bradley, M. Almeida, B. Walter, M.J. Neves, J. Pelegrain, M. Lenoir, and M. Tiffagom
2008 Solutrean Laurel Leaf Production at Maitreaux: An Experimental Approach Guided by Techno-Economic Analysis. In: *World Archaeology* 40 (1):48-66.

Coles, John
1973 *Archaeology by Experiment.* Hutchinson University Library, London.

Donahue, J. and J. Adovasio
1985 Teaching Geoarchaeology. In: *Anthropology and Education Quarterly* 16 (4):306-310.

Eren, Metin I., Manuel Dominguez-Rodrigo, Ian Le, Daniel S. Adler, Steven L. Kuhn, and Ofer Bar-Yosef
2005 Defining and Measuring Reduction in Unifacial Scrapers. In: *Journal of Archaeological Science* 32 (8):1190-1201.

Eren, Metin I., Aaron Greenspan, and C. Garth Sampson
2008 Are Upper Paleolithic Blade Cores More Productive Than Middle Paleolithic Discoidal Cores? A Replication Experiment. In: *Journal of Human Evolution 55* (6):952-961.

Hamilakis, Y
2004 Archaeology and the Politics of Pedagogy. In: *World Archaeology* 36 (2):287-309.

Hennessey, R.A.S
1975 Industrial Archaeology in Education. In: *The History Teacher* 9 (1):29-41.

Hilson, M
1991 Neolithic Art and the Art History Class. In: *Studies in Art Education* 32 (4):230-238.

Johnson, L.L.
1978 A History of Flint-Knapping Experimentation, 1838-1976. In: *Current Anthropology* 19 (2):337-372.

Outram, Alan K. (editor)
2008 Experimental Archaeology. In: *World Archaeology* 40 (1):1-161.

Pitri, E.
2002 Project Learning: Exploration, Discussion, and Discovery. In: *Art Education* 55 (5):18-24.

Reynolds, Peter J.
1999 «The Nature of Experiment in Archaeology,» in *Experiment and Design: Archaeological Studies in Honour of John Coles.* Edited by A.F. Harding, pp. 156-162. Oxbow, Oakville.

Rice, P.
1990 Introductory Archaeology: The Inexpensive Laboratory. In: *Anthropology and Education Quarterly* 21 (2):167-172.

Trigger, Bruce
2006 *A History of Archaeological Thought.* 2nd Edition. University of Cambridge Press, Cambridge.

Upham, S., W. Trevathan. And R. Wilk
1988 Teaching Anthropology: Research, Students, and the Marketplace. In: *Anthropology and Education Quarterly* 19 (3):203-217.

Willis, Lauren M., Metin I. Eren, and Torben C. Rick
2008 Does Butchering Fish Leave Cutmarks? In: *Journal of Archaeological Science* 35 (5):1438-1444.

Winkler, Andrea
2002 Digitized Medieval Manuscripts in the Classroom: A Project in Progress. In: *The History Teacher* 35 (2):1-22.