

BOOK REVIEWS

THE SCHOOL IS NOT QUITE DESERTED

MCCALL, G. S. (ED.) 2011. *PUSHING THE ENVELOPE: EXPERIMENTAL DIRECTIONS IN THE ARCHAEOLOGY OF STONE TOOLS*. NOVA SCIENCE PUBLISHERS, INC., NEW YORK.

ISBN 978-1-61761-007-3 (HB 179 PP., 45 B/W ILLS., 13 TABLES)

Pushing the Envelope is a collection of papers resulting from two graduate seminars given by the editor, Grant McCall, in 2007 and 2009. The goals of this publication are simple. McCall and authors seek new actualistic methodologies to explain the archaeological stone tool record. The volume aims at “inferring past human behavior of interest from the observations we make on static arrangements of archaeological stone tools specifically ‘justifying’ past methodological approaches, addressing current theoretical questions, and outlining future directions for research.”

The nine chapters in the volume are introduced in a straightforward and compelling way by McCall, who justifies the volume’s broad spatial and temporal scope by framing them in Dickensian spirits of past, present and future. McCall draws attention to a number of themes running throughout the papers, including typology, knapping skill, and raw material determinism that he suggests, can only be tackled with new, novel approaches.

Scott Maddux begins the volume by exploring the knapping skill of Pliocene Hominids. Comparing the residues of an introductory knapping class to an assemblage from Lokalalei, Maddux tests the criterion set forth by Delagnes and Roche (1999) to evaluate “complex” flaking at the earliest East African localities (e.g. Gona, Lokalalei). Maddux concludes that quantitative criteria are surprisingly poor discriminators of knapper-skill, while qualitative criteria, such as knapping mistake frequency and form are far more reliable. Maddux’s timely article comes hot on the heels of a number of other articles dealing with early complex flaking techniques at Lokalalei (Moore 2010; Stout 2011 and responses) but draws very different conclusions (i.e. Moore’s spandrel effect).

In a similar vein, Cerisa Reynolds (Chapter 2) searches for knapping skill identifiers of

Paleoindians by comparing the prime metrics and morphological traits of the artifacts of the same experimental collection to those of a prehistoric North American surface collection. In contrast to previous studies (Stout 2002; Weedman 2002), Reynolds finds no significant quantitative differences between the two collections. Eschewing the simple conclusion, that knappers from the Thie site were unskilled, Reynolds rightly outlines how taphonomy, raw material availability, and personal style can obfuscate traces of skill in the archaeological record. Instead Reynolds favors the hypothesis that the artifacts were expediently manufactured, and are therefore in line with the experimental set.

In Chapter 3, McCall harkens back to the early work of Binford and Jelinek on handaxe functionality and applies it to recent work on mental templates governing biface morphology (Stout 2002; McPherron 2000). McCall argues that while mental templates may have existed, stone tool form is a poor data source to prove this and he thus focuses his argument on the spatial relationship between handaxes, their associated debitage and other flakes. Using data from Olorgesailie and coastal Acheulean Namibian sites to re-explore the Clacton/Olorgesailie dichotomy, McCall concludes that handaxes were highly curated objects and that their discard in regions of lithic raw material scarcity suggests a key role for lithic raw material economy. McCall outlines a generalized model of handaxe life-history whereby handaxes are manufactured, transported, used as a cutting tool, and/or source of sharp flakes, and discarded at strategic locations without raw material or at locations of high raw material availability. While this is no doubt an important research direction, McCall notes, but is unduly dismissive of the role of site formation processes, even though recent work has demonstrated that concentrations of Palaeolithic handaxes in fluvial sediments, (at

least in Southern England) are often governed by hydrology, rather than reflective of human occupation sites (Ashton & Hosfield 2010; Hosfield 2011).

In Chapter 4, Alexander Woods argues that outdated cultural history paradigms have falsely shaped modern perceptions of European blade industries. Deconstructing how different methods of classifying Upper and Middle Palaeolithic technologies have marred recent attempts to identify blades as far back as the Middle Palaeolithic (Bar-Yosef & Kuhn 1999), he explores the relationship between the typology and technology of blades and the implication of this relationship for the use of blades as cultural or evolutionary markers. Woods explores problems in studying the origins of blade technologies advocating ecological/social reasons for their appearance in the Upper Palaeolithic.

Jonathan Thomas tackles stylistic variability in lithic manufacture in literature review (Chapter 5). Thomas shows how stone tool morphologies are related to unconscious individual knapper idiosyncrasies as well as intentional styles. Identifying variation however is influenced by reduction sequences, knapper skill, and ultimately pedagogy. He suggests that the making of stone tools "may not be a uniquely human behavior, but being aware that it is an actively constituted one is."

McCall and Brent Pelton (Chapter 6) present observations on, what they call, an "idiotic" experiment knapping ice. They are quick to admit that ice, while eminently knappable, played little to no role as a raw material for tool production. In spite of this, they manage to adroitly apply their observations to understanding the properties of very soft knapping materials by using ice as a proxy. They conclude, that hard hammers are most effective in knapping ice in contrast to previous discussions that suggest the contrary. McCall and Pelton suggest that brittleness, a heretofore unexplored factor, plays a key role in describing knapping properties of stone and thus pave a future avenue of research.

An interesting contribution by Bryan Kendall (Chapter 7) presents a predictive model for archaeological sites using existing GIS. Because of the complexity and time-consumption of large-scale GIS projects, Kendall presents a parsimonious methodology

for extracting focused archaeological questions from previously collected large-scale datasets. In this case, Kendall uses Iowa Site File as a database to explore patterns of mobility, raw material exploitation, and site use in the past.

Rachel Horowitz evaluates and compares biface reduction and curation indices in Chapter 8. Horowitz identifies the untranslatability of different biface curation indices as a problem for intra-assemblage comparisons. After summarizing six different indices, she concludes that stage assignments (Beck *et al.* 2002), average edge offset (Callahan 1979), Johnson's Thinning Index, and Ridge Count Retouch Index (Andrefsky 2008) are effective at estimating biface reduction and curation indices. In spite of this, she presents no significant correlations between any of these methods. Instead, she cautions readers that certain methods are simply more apt for specific circumstances. Although Horowitz's criticisms may be well founded, the source and presentation of her data somewhat confounded her argument.

Using a Namibian surface collection, Jayur Meghta and David Chatelain (Chapter 9) explore if certain sizes of expedient flakes were preferred by LSA knappers in a Wilton Industry Assemblage. Following an extended summary of Namibian archaeology, the authors demonstrate a weak correlation between primary axis measurements and visually assessed usewear on complete flakes. However, given the high ratio of utilized flakes over microblades, they suggest that expedient flakes were selected for the majority of tasks as opposed to formal tools for the LSA people. They conclude that either a lack of raw materials, or ready availability of flakes was the cause of intensive selection for flakes as tools.

The volume is bookended by a concluding chapter (Chapter 10) by McCall, the stadium anthem title of which is meant to convince any Scrooges still left of the importance of lithic analysis in archaeology. McCall suggests that stone tools can be used as a source of evidence of broad characteristics of their makers' behavioral patterns. Stone tools are technological systems developed to deal with both immediate and longer-term anticipated problems and therefore may be used to infer patterns of economic behavior. "The

recognition of prehistoric economic life ways and its relation with other external variables serves as the basis for scientific theory building."

The indelible traces of McCall's teaching are found throughout the papers. In addition to recurrent bibliographies, contributions are remarkable for a clear and informal writing style that often belies salient and sophisticated conclusions. The papers demonstrate a strong emphasis on empirical data collection and results that are relevant to current archaeological questions of the kind that must have been asked in McCall's incredibly dynamic class (I wish I had been there!). Complaints about this volume are unfortunately trivial: Unclear graphic presentation is often accompanied by poor copyediting. The book would have gained by the inclusion of abstracts of all articles.

In many ways, this book is an unintended Festschrift to the late Lew Binford. It is a sterling example of how processualist archaeology has influenced multiple generations of new archaeologists and how new actualistic studies continue to contribute to answering the most contemporary issues in archaeology. The book is also an example of what ambitious professors and students can potentially achieve in a remarkably short period of time.

REFERENCES

- Ashton, N. and Hosfield, R. 2010. Mapping the human record in the British Early Palaeolithic: Evidence from the Solent River system. *Journal of Quaternary Science*, 25 (5): 737–753.
- Bar-Yosef, O. & Kuhn, S.L. 1999. The Big Deal about Blades: Laminar Technologies and Human Evolution. *American Anthropologist*, 101 (2): 322–338.
- Beck, C., Taylor, A. K., Jones, G. T., Fadem, C. M., Cook, C. R. and Millward, S. A. 2002. Rocks are heavy: Transport costs and Paleoarchaic quarry behavior in the Great Basin. *Journal of Anthropological Archaeology*, 21 (4): 481–507.
- Callahan, E. 1979. *The Basics of Biface Knapping in the Eastern Fluted Point Tradition: A Manual for Flintknappers and Lithic Analysts*. Archaeology of North America Volume 7.
- Hosfield, R.T. 2011. Rolling stones: Understanding river-rolled Paleolithic artifact assemblages. *Geological Society of America Special Papers*, 476: 37–52.
- McPherron, S.P. 2000. Handaxes as a measure of the mental capabilities of early hominids. *Journal of Archaeological Science*, 27 (8): 655–663.
- Moore, M., 2010. Grammars of action and stone flaking design space. In A. Nowell & I. Davidson, (eds) *Stone tools and the evolution of human cognition*, 13–43. University Press of Colorado, Boulder, Colorado.
- Roche, H., Delagnes, A., Brugal, J. P., Feibel, C., Kibunjia, M., Mourre, V. and Texier, J. P. 1999. Early hominid stone tool production and technical skill 2.34 Myr ago in West Turkana, Kenya. *Nature*, 399 (6731): 57–60.
- Stout, D. 2002. Skill and cognition in stone tool production: An ethnographic case study from Irian Jaya. *Current Anthropology* 43 (5):693–722.
- Stout, D., 2011. Stone toolmaking and the evolution of human culture and cognition. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 366 (1567): 1050–1059.
- Wilson, J. and Andrefsky, W. 2008. Exploring Retouch on Bifaces: Unpacking Production, Resharpening, and Hammer Type. In W. Andrefsky (ed.) *Lithic Technology. Measures of Production, Use, and Curation*, 86–105. Cambridge University Press, Cambridge.
- Weedman, K. J. 2002. On the spur of the moment: Effects of age and experience on hafted stone scraper morphology. *American Antiquity* 67 (4): 731–744.

Wei Chu