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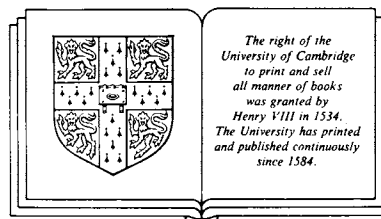
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# TIME, ENERGY AND STONE TOOLS

EDITED BY ROBIN TORRENCE



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For Lewis R. Binford

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## PREFACE

Nearly ten years ago Robin Derricourt of Cambridge University Press invited me to put together an edited book on stone tools, one that would combine innovative theoretical approaches with good solid case studies. I set out enthusiastically to find potential contributors who were pursuing thoughtful research on lithics, but the project turned out not to be so simple as I had naively believed it would. At that time it was (and still is) the case that the major developments in research on lithics focused on *methodological* issues, such as use-wear analysis or conjoining, and the detailed reconstruction of behavior at single sites. Ethnoarchaeological studies were yielding tantalizing data that presented some puzzles for archaeological inferences, but almost no one appeared to be wrestling with the *theoretical* issues raised by this work. All the excitement in archaeology had shifted from artifacts to ecofacts and direct evidence for subsistence.

Disappointed in the response to my enquiries, I shelved the project until 1981 when I had the good fortune to spend five months teaching at Northwestern University. Here I discovered a core of graduate students, led by James Brown and Robert Vierra, who were attempting to apply Binford's theoretical principles about hunter-gatherer subsistence and settlement to stone tools. In addition, we shared an interest in neo-Darwinian theory in ecology concerning the role of optimization in shaping behavior. What provided much of the fun during our heated arguments, however, was that no one agreed about which of the several likely currencies was most relevant for understanding variability in stone

tool form, manufacture, use, maintenance and discard.

Here, then, was the core of what I felt was a highly productive debate: because the issues transcended stone tools, the results could lead to major developments in theory building relevant to the discipline as a whole. For once attempts were being made to look at the general causes lying behind the variability in stone tool form and production, so well replicated and documented in the past but still so poorly understood. Perhaps now stone tools might be worth snatching from the grasp of the specialists who control their study and restored to their rightful place in the center of archaeological studies of past human behavior.

Consequently, in 1982 Robert Jeske and I organized a session at the 27th Annual Meeting of the Society for American Archaeology in Minneapolis so that we could all share our various competing ideas with others grappling with similar issues. A big thank you is owed to Bob for his instrumental role in getting this project back off the ground. Most of the papers in this volume were first presented at the meeting, although they were all extensively revised subsequently in the light of our fruitful discussions and the insightful comments of our discussant, Larry Keeley, to whom we are most grateful. Unfortunately, Peter Woodman's paper could not be included here but those by Joan Gero and Andrew Myers, which were solicited later, help broaden the theoretical and geographical coverage of this volume. We all owe a huge debt to Michael Jochim, who quite late in the day kindly agreed to take on the task of evaluating the overall success of the contribu-

*Preface*

tions from the perspective of someone sympathetic to the use of optimization theory in archaeology but not a specialist in stone tools. Although his insightful criticisms have certainly highlighted problem areas where further thinking or research will be needed and have identified potential limitations in inferences based on lithics, his creative and tantalizing use of ideas put forward here in order to reinterpret changes during the Mesolithic of southwestern Germany is a real tribute to the potential of this theoretical approach and in many ways vindicates the entire book.

For various reasons the book has taken much longer to come to fruition than was originally intended. I would like to express my deepest gratitude to all the contributors for their kind patience and understanding during some difficult times. That their work is still as important and timely as it was in 1982 speaks a great deal for the high level of creativity shown here and for the poverty of theory in archaeology relevant to the organization of technology. This is all the more striking given the continued advances in methods for describing stone tools and their uses.

Various people at Cambridge University Press have also demonstrated admirable tolerance and been very supportive: Robin Derricourt, Claire Davies-Jones, Kate Owen, Peter Richards, and the always helpful and unflappable Sylvia Christiansen. Dorothy Cruse retyped several long manuscripts; Rochelle Lurie, Peter White, Julian Thomas, and especially Andy Myers deserve thanks for their critical assistance in the final stages of production.

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Undeniably optimization theory is a new direction for lithic studies. Yet, all such innovations occur in a specific academic context and one especially important source of inspiration is worth special mention. Most of the authors have had little direct contact with Lewis Binford, but all have been heavily influenced by his highly creative attempts to explore the factors which structure the organization of hunter-gatherer technology. Binford's (1971; 1973; 1983) attacks on traditional thinking about Mousterian variability provided crucial first glimpses into new ways of conceptualizing stone tools, although he had already addressed the question of the meaning of style when designing a typology for projectile points (Binford 1963). He then went on to seriously widen the cracks in established approaches; his seminal studies of technological organization among the Nunamiut set the scene for the issues raised in this book (e.g. Binford 1977; 1978a; 1979; 1983). Such concepts as curated and expedient technologies, embedded procurement of raw materials, or forager and collector subsistence–settlement systems form the backbone of many of these studies or at the very least provide a framework against which to build a different way of thinking. It therefore seems highly appropriate that in recognition of his many fundamental contributions to the development of both method and theory in lithics studies, this volume be dedicated to Lewis R. Binford.

*Robin Torrence*