Book Reviews

Prehistoric Craftsmanship

Lithic Technology. Making and Using Stone Tools. Papers from a congress, Chicago, Aug. 1973. EARL SWANSON, Ed. Mouton, The Hague, 1975 (U.S. distributor, Aldine, Chicago). x, 252 pp., illus., + plates. $27.50. World Anthropology.

Over the last decade there has been in archeology a renascence of studies of stone tool technology. A group of young scholars, inspired and taught by Don Crabtree and François Bordes, have devoted their talents to acquiring the skills and rediscovering the techniques involved in the manufacture and use of stone implements. This renewed interest in lithic technology is not just an isolated fad or whim; it reflects the new optimism and scientific approach that the "new archeology" has brought to the discipline. It is only too frequent, for most of prehistory, that we are left with an archeological record that consists almost entirely of stone implements; without a detailed knowledge of how these implements were made and used, we can make very little of the similarities and differences "apparent" between lithic assemblages. The recent work of "lithic technologists" attempts to replace the intuition, "common sense," and rather imprecise ethnographic analogies on which we have depended in the past with knowledge gained by careful experimentation using the tools and methods of science.

This volume, a collection of papers from the 9th International Congress of Anthropological and Ethnological Studies, epitomizes this renewed interest and the new approaches being employed. As is typical of such collections, the quality of the papers is uneven, with some added variation introduced by the fact that the majority are short and presumably substantially as they were read at the congress, whereas a few are quite long, much too long to have been read aloud. The short papers present mainly results and conclusions or discussions of terminology without much mention of methods or techniques. This is not a limitation suffered by the long papers. The short papers are worth reading, if only to get an impression of the kinds of information that lithic technologists can provide and the kinds of questions they can frame about stone implements. Certainly a few are excellent examples of their genre, such as Crabtree's, which is as good a summary of the problems addressed by lithic technologists as can be found, and Purdy's, which summarizes her work on the thermal treatment of flint. There is a quantity of useful information in all the longer papers, but space only permits the mention of a couple that this reviewer found particularly interesting.

Joel Gunn, in a paper entitled "Idiosyncratic behavior in chipping style," attempts to isolate some technical features of implements that would be useful in distinguishing the work of individual knappers in lithic assemblages. He employs a series of multivariate statistical analyses using data from laser spectrograms, which reflect scar orientation, in trying to distinguish among the work of five experimental knappers and a (presumed) single prehistoric knapper. While this effort is not entirely successful, the approach is a most interesting one which does offer a reasonable hope that such distinctions can be achieved and provides a new technique for extracting reliable data on scar orientation.

Another interesting paper is "Toolmaking and tool use among the preceramic peoples of Panama" by Anthony Ranere. In a straightforward manner, which contrasts favorably with some of the other papers' gratuitous "flow diagrams," "models," and their verbal accompaniment, Ranere interprets some lithic assemblages from Panama in the light of his experiments in replicating the implements and their wear patterns. His utilization experiments were limited to woodworking, and it is therefore not surprising that he interprets most of the wear patterns on the archeological specimens as traces left by woodworking. Had he conducted a broader range of experiments, working a variety of materials, one might feel more confidence in his specific interpretations, although his general conclusions are probably correct. Despite such shortcomings, this paper demonstrates how much valuable information can be extracted by a modern student of lithic technology using the experimental approach.

The final part of the book is a discussion section that begins with two critical "Comments" by J. Coe and J. Epstein followed by short replies from the various authors. This, as might be expected, is the liveliest section of the book. Both Coe and Epstein, but especially Epstein, point out some methodological problems and basic questions that have been glossed over or ignored by some of the authors here (and the authors of many other papers elsewhere on lithic technology). Their "Comments" are a fitting way to end the volume, and help to unify and generalize what would otherwise be a rather desultory, though interesting, collection of papers on a new area of archeological research.

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Sorting Out a Populace

Aboriginal Tribes of Australia. Their Terrain, Environmental Controls, Distribution, Limits, and Proper Names. NORMAN B. TINDALE. With an appendix by Rhys Jones. University of California Press, Berkeley, 1975. xii, 404 pp. + plates + loose maps, boxed. $50.

Few people have contributed as much to our understanding of the Aboriginal societies of Australia as has Norman Tindale during his long research career. At the end of World War I he began work in entomology, a field in which he has remained active. Soon afterward he extended his interests to various aspects of Aboriginal life and society, and in the ensuing 50 years he has pursued his investigations among Aboriginal communities in many parts of Australia. In addition, in those early days he and a few colleagues initiated systematic archeological inquiries into the prehistory of the Aborigines. Later he joined with Birdsell in a program of long-term research into the physical anthropology of the Aborigines, the results of which they have attempted to integrate with the data derived from his anthropological and archeological work. In all, this is a formidable record of sustained and productive scientific endeavor.

Tindale's research into the social organization of Aboriginal tribes has always been very much in the vein of what nowadays is called cultural ecology in the United States. In the 1930's and 1940's, at a time when most British (including Australian) anthropologists were preoccupied with structural-functional sociological analyses of kinship systems and terminologies, too often divorced from identifiable environmental settings, Tindale concerned himself with the basic questions of how Aborigines adapted to and made a living in differing ecological regions, how effective were the

various technologies devised by these hunters, fishers, and gatherers, and what effects such substantive factors had on Aboriginal patterns of residence, mobility, and interaction, including intermarriage. In short, almost from the start of his investigations Tindale was tackling the kinds of problems that only recently have become central for many anthropologists who study small-scale "tribal" societies, whether of relatively nomadic hunters and gatherers or of sedentary horticulturalists.

These interests led Tindale early in the 1930's to what has been his major undertaking and perhaps his most significant contribution to Australian anthropology—a meticulous analysis of the determining characteristics and the distribution of the 600 or so Aboriginal tribes that occupied the Australian continent at the time of European settlement. The problem of tribal identification and location has plagued investigators, whether anthropologists, historians, missionaries, or administrative officials, ever since the first European explorers and settlers began describing the Aborigines. Each writer tended to impose on his observations (which often were exiguous in the extreme) his own definitions of the various kinds of local groupings he encountered, and these denominations were frequently the unexamined products of the literary or scientific fashions of the time. In consequence, as the quantity of published or archival accounts grew, confusion was steadily compounded, to the point where later inquirers often felt they were drowning in a sea of ambiguity and could make little or no sense of earlier descriptions of Aboriginal local arrangements. Did a particular proper name refer to a given tribe, or to one of its constituent bands, or to a nonlocalized descent group within it? What was the extent of its territory? Were there demarcated boundaries? Who actually lived there? Moreover, what were the relationships among the several names given by independent observers to what appeared to be one community? These are the kinds of questions that Tindale set out to answer, and *Aboriginal Tribes of Australia* is the culmination and synthesis of his labors, both in the field and in the archives.

The book comprises two distinct parts. The first, entitled The People and the Land, is more than a prolegomenon to the second, which is essentially a gazetteer. In the first section Tindale carefully describes what he takes to be the fundamental local groupings found among Aborigines everywhere in Australia—the family hearth group, the clan and horde, and the tribe. He then shows how these units are set in the context of regional variations in the Australian environment, together with the ranges of foodstuffs available and of the indigenous technologies of food procurement. He goes on to indicate the significance of these substantive differences for the size and stability of tribal groups and for the frequency and nature of their interactions, whether in armed encounters or for the circulation of commodities and of women. At the same time, he does not underestimate the importance of Aboriginal moral values and religious beliefs, or of totemic rituals in maintaining local arrangements. That is to say, nonmaterial, ideological facts are as much a part of these ecosystems as are the material elements.

Obviously, given that Tindale has ranged over a whole continent and across almost two centuries of records of uneven reliability, anthropologists with special knowledge of individual groups or localities may take exception to certain of his assertions or interpretations, and I have no doubt that some will do so in the appropriate journals. Nevertheless, I consider the first part of the book to be not only a solid, reasoned justification of Tindale's methods and opinions but also an excellent overview of the important characteristics of Aboriginal societies and of Aboriginal culture in general. It should impel Australian fieldworkers to reexamine their own material and arguments, and at the same time it provides a valuable introduction to Australian Aboriginal life for other anthropologists and social scientists.

The second part of the book lists and locates geographically all the known tribes, points to specific problems of identification, and cites the relevant authorities. There is also a list of all the variant tribal names, keyed to the master list. In addition, in a separate case, there is a large and detailed map of Australia on which the tribal territories are delineated. In an appendix Rhys Jones pulls together what is known or can be inferred about the tribal organization and distribution of the extinct Tasmanian Aborigines.

As Tindale remarks, in an enterprise of this magnitude there will inevitably be some errors to be corrected and some misinterpretations to be amended. But, as it stands, the gazetteer is unambiguous and easy to use. It is a reference work of enduring value, not simply for Australian specialists but for anyone interested in the study of hunting and gathering societies. Anthropologists, archeologists, historians, all of us will remain greatly indebted to Tindale for undertaking such an onerous task and for bringing it to so successful a conclusion.

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Differentiating Cells

Cell Cycle and Cell Differentiation. J. REINERT and H. HOLTZER, Eds. Springer-Verlag, New York, 1975. xii, 334 pp., illus. $29.70. Results and Problems in Cell Differentiation, vol. 7.

That some correlation exists between cell division, cell determination, and the expression of specific differentiated properties has been recognized for decades, and the papers in this volume document that relationship in a variety of systems. Some of the papers present potential model systems, some are detailed reviews of a particular system, and some are highly speculative presentations focused on the cell cycle and differentiation.

Of the first type are papers by Wood and Shapiro on the prokaryote *Caulobacter* and by Nelson *et al.* on the fungus *Neurospora*. They describe organisms that hold great promise for the genetic dissection of the cell cycle and cell differentiation, but in which analysis of these processes is still at a relatively primitive stage.

Papers that are basically reviews are those by Hunt on neuronal specificity, King on the *Drosophila* ovary, Braun on tumorigenesis in plants, Tsanev on liver function, and Borun on histones. Hunt establishes the plausibility of a role for cell cycles and cell lineages in the establishment of neuronal specificity and defines a framework for further experimentation. Typographical errors mar Hunt's paper and Borun's otherwise interesting account of the history of the histone problem and of possible roles of histones in regulating cell activities. Tsanev's very detailed review is informative and focuses mainly on correlations between proliferative activity and the functional states of already differentiated liver cells both in vivo and in vitro. King's review of the cell cycle and cell differentiation in the *Drosophila* ovary presents what is currently the clearest example of the relative roles of cell lineage and cell environment in differentiation and is perhaps the most stimulating paper in the volume. The only other paper on insects is one by Lawrence on cuticle development; its superficial, almost casual nature is unfortunate, since Lawrence is the only author in the volume who seriously questions the nature of the evidence on "quantal" cell cycles.

Largely speculative papers are those by Dienstman and Holtzer on myogenesis, Weintraub on erythropoiesis, Phelps and Pfeiffer on neurogenesis, Gurdon on cyclic reprogramming of gene expression, and Meins on cell determination in plants. Dienstman and Holtzer present a very clear statement of Holtzer's rigid cell lin-