

risks of radiation. This is a serious allegation because the method is the cornerstone of radiation risk assessment. I think the argument is incorrect. The doubling dose is defined as the dose required to give a rate of mutation equal to twice the spontaneous rate, irrespective of the molecular basis of the mutations. However, the issue is moot since Sankaranarayanan concludes that the doubling dose method should not be abandoned anyway.

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## Ceramics and Territory

**Stylistic Boundaries among Mobile Hunter-Foragers.** C. GARTH SAMPSON. Smithsonian Institution Press, Washington, DC, 1988. 186 pp., illus. \$31.50. Smithsonian Series in Archaeological Inquiry.

A decade ago C. Garth Sampson and his research team undertook an archeological survey of some 5000 square miles in the South African central plateau, where they located 16,000 archeological sites and observed a "staggering amount" of surface archeological material, primarily lithics and ceramics. This amazing yield led Sampson to undertake a systematic survey of the upper valley only—a mere 2000 square miles, which is ambitious by any archeological standards—with the goal of collecting the ceramics, which came from 987 localities. This monograph is the analysis of *some* of those ceramics: about 7043 decorated sherds deriving from a minimum of 2815 bowls. Its explicit aim is to elucidate the territorial (that is, sociopolitical) boundaries of the Stone Age peoples who occupied the Upper Seacow Valley.

The people who are believed to have left the remains are termed Bushmen or "para-historic" hunter-foragers (not gatherers or collectors, although the data to support the label forager are admittedly not yet available). The name Bushmen is intended to distinguish them from the living Kalahari San, whose precise genealogical and cultural relationship to them is not discussed or considered necessarily relevant, and the analogies that are drawn (and drawn often!) from the Kalahari San are said not to be direct historic analogies.

The archeological remains of the Bushmen hunter-foragers are usually referred to as the Smithfield industry and can be traced back to the 14th or even the 8th century A.D. in various locales in southern Africa. Since excavations in two stratified rock-

shelters in the Upper Seacow valley yielded some European materials in the uppermost centimeters of deep (38-centimeter) accumulations of Smithfield materials, it may be that Bushmen occupied the area into the late 18th and early 19th century, but we are given no "earliest" dates for their presence or any sense of how much time is represented by the surface collections analyzed here. This lack of chronological context is a significant problem that is not adequately addressed.

Moving easily from ethnoarcheological and ethnographic observations of the Kalahari San to the Upper Seacow River archeological context, Sampson envisions that the Upper Seacow Bushmen were highly mobile and undertook periodic (band?) movements between waterholes and shorter-term family or individual movements in and out of camp. Chapter 1 generates the model of a band territory that predicts the distribution of "emblemic style," in the terminology of Wiessner, as drawn from and then mapped back onto the core-area, annual-range, lifetime-range mobility patterns known from ethnographic observations of several families of the Dobe !Kung.

More than 70% of the book is given over to the ceramic analysis, which involves a suite of methodological operations and mappings to infer the "spatial organization of style" and refers back to the "predictive model" set out in the first chapter. One can only marvel at the combination of assumptions, techniques, and interpretative musings that yield a variety of patterns in the spatial distributions of various decorative motifs and techniques. Since the unquestioned "bedrock assumption" (p. 171) is that there are stylistic boundaries that are, in turn, "signaled" by ceramic motifs, Sampson pursues various methods in order to figure out "how boundaries are likely to reveal themselves" (p. 171).

For the student of spatial analysis in archeological research, there is a gold mine here: isopleth maps, isometric distribution maps, analyses and mapping of accumulative percentage differences, for example, that are considered in light of such factors as topographic variables (such as presence of river channels or mountain ranges) and problems of sample size. A critical reading of how the maps may create as much as "reveal" boundaries could be a valuable exercise for a graduate seminar. There must be at least 150 maps and figures in just 170 pages, not including the dozens of close-up photos of the various rocker stamp and non-rocker (small spatulate and double-tip stylus, for example) motifs on ceramic sherds.

Overall, the book is written in an eloquent style that, however, often begs the

most interesting issues. Despite the impressive archeological fieldwork and ingenious and meticulous analysis, Sampson never really engages the difficult conceptual framework of "style" or the question why these Bushmen would have "sent" stylistic messages about "group" in ceramic motifs. There is not (yet?) any archeological support for the problematic notion that pottery decoration as group signaling would first appear under conditions of stress induced by scarce resources or population crowding. Despite the fact that a rich, diverse, and contested literature on style exists, there is no real questioning of Wiessner's types of style ("emblemic" and "assertive"), and the most interesting interpretative issues are taken up only in a 5-page final chapter. In the end, we are left with rather unsatisfying observations about the archeological study of style: since we have yet to be able to use lithics to make inferences about style, and since this hunter-forager context offers thousands of ceramics that appear more amenable to such decoding, there is adequate justification for a stylistic analysis. But the really interesting contextual question that this work implies is avoided: why, in this particular social and historical context, would ceramic motifs have been sociopolitically meaningful to and symbolically deployed by the Bushmen hunter-foragers?

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## Books Received

**Asbestos and Other Fibrous Materials.** Mineralogy, Crystal Chemistry, and Health Effects. H. Catherine W. Skinner, Malcolm Ross, and Clifford Frondel. Oxford University Press, New York, 1988. x, 204 pp., illus. \$35.

**Atmospheric Ozone Research and Its Policy Implications.** T. Schneider *et al.*, Eds. Elsevier, New York, 1989. xviii, 1047 pp., illus. \$192.75. Studies in Environmental Science, vol. 35. From a symposium, Nijmegen, The Netherlands, May 1988.

**Atomic and Molecular Beam Methods.** Vol. 1, Giacinto Scoles *et al.*, Eds. Oxford University Press, New York, 1988. xxiv, 721 pp., illus. \$95.

**Biological Waste Treatment.** Avshalom Mizrahi, Ed. Liss, New York, 1989. xiv, 296 pp., illus. \$79.50. Advances in Biotechnological Processes, vol. 12.

**The Biology of Nematocysts.** David A. Hessinger and Howard M. Lenhoff, Eds. Academic Press, San Diego, CA, 1988. xii, 600 pp., illus. \$75. From a symposium, Irvine, CA, Aug. 1986.

**The Biology of Polar Bryophytes and Lichens.** R. E. Longton. British Bryological Society and Cambridge University Press, New York, 1988. viii, 391 pp., illus. \$95. Studies in Polar Research.

**Cellular Basis of Immune Modulation.** J. Gordon Kaplan, Douglas R. Green, and R. Chris Bleackley, Eds. Liss, New York, 1988. xxviii, 656 pp., illus. \$120. Progress in Leukocyte Biology, vol. 9. From a conference, Banff, Alberta, May 1988.

**Coffee.** Gordon Wrigley. Longman Scientific, Harlow, U.K., and Wiley, New York, 1988. x, 639 pp., illus. \$148. Tropical Agriculture Series.

**Communications Satellite Handbook.** Walter L. Morgan and Gary D. Gordon. Wiley-Interscience, New York, 1989. xxxviii, 900 pp., illus. \$69.95