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REVIEWS

Shell Bead and Ornament Exchange Between California and the Western Great Basin.

James A. Bennyhoff and Richard E. Hughes. American Museum of Natural History *Anthropological Papers* 64:Part 2, 1987, 96 pp., 14 figs., 13 tables, \$10.50 (paper).

Reviewed by:

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This monograph is an important contribution to California archaeology. It includes a description of types of *Olivella biplicata* shell beads made in California and a discussion of changes in frequency of exchange between California and the Great Basin. An appendix presents information concerning the proveniences of beads in Great Basin archaeological sites.

The bead typology stresses criteria that differentiate types used during different times. The descriptions include information concerning when types were used and specify the criteria that distinguish types. Illustrations of *Olivella biplicata* shells show the parts of the shell used to make different types of beads. With these illustrations, examples of whole and broken shells, the typology presented in this monograph, use of reference collections, and tools to accurately measure beads, archaeologists should be able to describe *Olivella biplicata* shell beads. The publication of the typology should aid archaeologists in describing beads from sites in California, the Great Basin, and the Southwest. The authors wisely caution that the accurate description of beads requires measurement and observation of all significant characteristics.

The typology is largely the result of 30 years of analysis of California and Great

Basin beads by James Bennyhoff. Bennyhoff is recognized as a leader among archaeologists specializing in the study of California archaeology and ethnohistory. His publications and interactions with other scholars have stimulated both research linking archaeological sites to historical records and research concerning beads, ornaments, and other artifacts. The relation of ethnohistoric and archaeological data and the discovery of artifact sequences through burial lot seriation have resulted in some of the most important discoveries in California archaeology and ethnohistory.

The typology is not intended to be the last word on shell bead types. New types and variants of *Olivella biplicata* shell beads continue to be discovered and attributes discovered to be diagnostic of particular periods may be found on beads of other time periods. For example, in southern California, ground saucers (Type G4) have been noted as diagnostic of the early Middle Period. Wall disc (Class J) beads with identical characteristics are now known to occur in Late Period Phase 2 contexts along with similarly dorsal- and/or ventral-ground cupped beads (Type K1). Dorsal- and ventral-ground wall disc and cupped beads used during Phase 2 often are incised around their margins. Some historic Class H disc beads also have been found with dorsal grinding. The distinction of types of dorsal-ground beads made from the walls of *Olivella* shells requires knowledge concerning their context, particularly the other types of beads with which they were used. The authors note that similar caution is necessary when classifying rough, large, lipped (Type E3c) and split, drilled and split oval beads (Types C2 and C3) which often have the same characteristics but were used at different times.

The authors discuss the dating of the central California sequence. They note that existing radiocarbon dates can be used to support different dating schemes. A similar situation exists in southern California. Many of the radiocarbon dates associated with bead and ornament assemblages in southern California are from sea shells whose radiocarbon content is affected by upwelling, which apparently was variable in both space and time. In general, it appears that the radiocarbon dates I used to date the southern California sequence (King 1981) may be as much as or more than 600 years too old. Considering the probable influence of upwelling, it appears that scheme B2 presented by Bennyhoff and Hughes is close to the dating of the southern California sequence. The discovery of bilobed *Glycymeris* sp. beads and *Olivella dama* barrel beads similar to those used during the Sacaton and Santa Cruz phases of the Hohokam in a late Middle Period context at the Oro Grande site (King 1983) indicates that the end of the Middle Period is later than A.D. 700 and possibly as late as A.D. 1150. Gifford also reported a *Megathura crenulata* ornament which apparently is a late Middle Period type in a Pueblo II context and a split, punched bead (Class D) characteristic of the Middle-Late Period transition in a Pueblo III context. These associations indicate that the Middle Period may have ended around A.D. 1150. Cross dating with the Southwest supports scheme B2 with regard to the beginning of the Late Period.

Because many of the beads recovered in the Great Basin occurred in relatively few lots and sites, conclusions concerning the frequency of trade into the Great Basin may be revised as the result of new discoveries. Apparently during the end of the Early Period and the transition to the Middle Period, trade from California to the Great Basin was most intense. Grooved rectangles (Class N) and

barrel and cap end-ground beads (Types B3 and B4) are Early-Middle transition bead types which probably were made in southern California and have been found as far north as Winnemucca Lake. Since preparing my dissertation, I have seen many grooved rectangle beads which were recovered in an apparent Early Middle cremation mortuary at Encino in the San Fernando Valley. I know of only one grooved rectangle from within Chumash territory. It appears that this type of bead was made by people in the Los Angeles Basin or on Catalina Island. It is possible that the large number of terminal Early Period and Early-Middle Period transition beads in the Great Basin, which were made in southern California, was the result of the maintenance of strong social ties between a social group that expanded throughout the area at the end of the Early Period and was ancestral to the Uto-Aztecan speaking groups which historically occupied a large area of southern California and the Great Basin.

The typology presented in this monograph should be carefully studied and regularly used by archaeologists working in California. The conduct of archaeological programs in California should require basic knowledge of the sequence and types of beads used. The conduct of California archaeology by individuals who have not learned the basics of shell bead typology is analogous to the conduct of Southwestern archaeology by individuals who do not know the types of pottery they recover.

Bennyhoff and those of us who also have chosen to study beads have accumulated a body of knowledge which too often has been ignored by individuals who conduct archaeological programs in California. I have sat through many talks and read many papers prepared by individuals who demonstrate their ignorance of knowledge which would enable them to accurately date their sites and describe social relationships. The publication of

this monograph should remove any excuse for not learning this basic knowledge. In addition to careful study of this monograph, I recommend that individuals conducting research in particular regions be familiar with published and unpublished reports concerning beads found in the region and surrounding regions. Reports by the authors and individuals listed in the first paragraph of the acknowledgments section are recommended because of consistency of reporting which has resulted from interactions with Bennyhoff and cooperative efforts to discover sequences of beads, ornaments, and other artifact types through seriation of burial lots and features.

REFERENCES

King, Chester

- 1981 *The Evolution of Chumash Society: A Comparative Study of Artifacts Used in Social System Maintenance in the Santa Barbara Channel Region Before A.D. 1804*. Ph.D. dissertation, University of California, Davis.
- 1983 *Beads and Selected Ornaments*. In: *Archaeological Studies at Oro Grande, Mojave Desert, California*, Carol H. Rector, James D. Swenson, and Philip J. Wilke, eds., Chapter 5. Redlands: San Bernardino County Museum Association.



Human Skeletal Biology: Contributions to the Understanding of California's Prehistoric Populations. Gary D. Richards, ed. Salinas: Coyote Press *Archives of California Prehistory* No. 24, 1988, iv + 178 pp., 10 figs., 79 tables, 3 maps, \$9.95 (paper).

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The six articles contained in this volume are concerned with the analysis of a number

of prehistoric California skeletal samples, each author utilizing a different approach. Patricia E. Lieberman's article on biological distance based on nonmetric traits ("The Effect of Inter-observer Error on Biological Distance Measures Derived from Non-Metric Trait Research") is of particular methodological importance. She analyzes the results of three observers scoring the same California skulls for nonmetric traits. Interobserver error is found to be great enough that the resulting biological distance statistics between samples are quite different. In human osteology, little attention has been directed at interobserver error in the observation of these traits, perhaps because few workers examine the same samples. Lieberman's article serves as a good reminder that data gathered by different researchers cannot be used in a comparative regional study. Her analysis of the sources of disagreement for the traits is useful and may help future workers in their trait definitions.

Charlene Dickinson-McDonald's article ("Femoral Circumference as an Indicator of Sex in Prehistoric Central California Indian Populations") reports on a sex determination technique focusing on femoral circumference at the midshaft. She also supplies statistics on maximum femoral length, antero-posterior diameter at midshaft, and medio-lateral diameter at midshaft. A similar, but more extensive study using nine femoral measurements and nine humeral measurements, was reported by Dittrick and Suchey earlier (Dittrick 1979; Dittrick and Suchey 1986). These two studies conducted independently by Dickinson-McDonald and Dittrick and Suchey allow comparison of results using the same Central California samples at the Lowie Museum of Anthropology.

Results for the Combined Horizon and Early Horizon show similar sectioning points and percentages of correctly classified bones