

of the beads, especially those which are triangular in shape, have their own unique styles and motifs. The author also states that Kiffa and Oualata beads have a central core made of "white glass powder paste" (page 16). This is not the only technique used: a large number of beads are fabricated simply by using an inexpensive monochrome European glass bead as a core onto which differently colored powdered-glass pastes are applied to form the outer layer of decoration. A simple piece of bottle glass, ground to the proper form and polished, is also sometimes used as a core.

Another omission worth mentioning concerns the incomparable beads made from the wood of "faux-ebene" trees that grow along and near the Senegal River. They are inlaid with fine silver threads in motifs that protect against the evil eye and are worn principally in Mauritania. Also, beads made of scented paste, popular throughout Africa, especially in Senegal, Mali, Mauritania and Togo, represent a very important subject that is not mentioned either.

In the description of Prosser-molded or "tile" beads on page 9, the author writes that "most of these beads come from Czechoslovakia." It is important to note the Bapterosses Company of France was, from the late 1860s to the 1970s, among the principal suppliers of this type of bead to West and Central Africa. In particular, toward the end of the 19th century, Bapterosses beads were in great demand in the Congo (Fourneau 1954). These same beads were appreciated throughout Africa for their quality, form and color for many years (Bessone 1987).

Although the above-mentioned omissions, among others, may be deemed important enough to have been included in this book, it should be noted that any work with such an enormous scope might be considered to have gaps in the information it provides.

Beads and Beadwork of West and Central Africa is interesting because of the author's well-chosen research sources, as well as its inexpensive price, especially for "the interested layman" who is being exposed to the subject for the first time. However, for many, including scholars and researchers, the book risks being a point of frustration because of its weak bibliography that significantly reduces the potential value of the general information contained within. The omission of specific reference information

concerning the "useful articles and monographs" on page 55 is extremely limiting to those who read her book and desire to further their knowledge of this most interesting subject. Although it is stated that "many interesting articles can be found," there is no way to follow up on this fact, leaving the reader hungering for more but with no further hope to satisfy the hunger.

Finally, it should be noted that IFAN, mentioned in the book as the *Institut Français d'Afrique Noire*, was renamed the *Institut Fondamental d'Afrique Noire* after Senegal's independence in 1958. This may not appear significant to those who are unaware of the institute and its overall mission, but to those who are, this incorrect name will surely be the subject of some concern.

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

James A. Bennyhoff and Richard E. Hughes.
Anthropological Papers of the American Museum of Natural History, Vol. 64, Part 2, New

York, 1987. 96 pp., 14 figs., 13 tables. \$10.50 (paper).

For archaeologists in California and the Great Basin, the publication of Bennyhoff and Hughes' *Shell Bead and Ornament Exchange Networks Between California and the Western Great Basin* was anxiously awaited and long overdue. While the discussion of shell beads and ornaments in the western Great Basin is the ultimate goal of the text, the primary use of the publication will be the typology and classification procedures for identifying *Olivella* shell beads and shell ornaments. Indeed, Chapter 1, which comprises the bulk of the publication (63 pages), consists of a synopsis of shell bead and ornament typologies for California and the Great Basin as developed by the senior author over the past 30 years. The remaining discussion of shell exchange is 15 pages long and is followed by eight pages of an appendix providing provenience information on the California and Great Basin shell beads discussed in the text.

The original purpose of the monograph was to report on the shell beads and ornaments from Gatecliff Shelter, Nevada, one site within the larger Monitor Valley research project directed by David H. Thomas. In the process of comparing the bead and ornament data from Gatecliff with other assemblages in the Great Basin, Bennyhoff and Hughes realized that the original standard for comparing shell beads and ornaments (Bennyhoff and Heizer 1958) was inadequate. A significant amount of new information had accumulated during the past two decades regarding the distribution and dating of shell assemblages. Their goal, consequently, was to "quantify and objectify the classification process in the hope that this would encourage standardization of reporting" (p. 83).

The beginning of Chapter 1 provides a brief review and critique of the two major *Olivella*-shell bead typologies previously used by researchers in California prehistory: Lillard, Heizer and Fenenga (1939), later revised by Gifford (1947) and Beardsley (1954). Rather than augmenting one of the previous typologies, Bennyhoff and Hughes chose to create a new one that could be expanded more easily. Table 1 provides a useful comparison of Bennyhoff and Hughes' classification with the earlier typologies.

As Bennyhoff and Hughes readily admit, their classification is of the "splitting" not "lumping" variety. Beads are classified based on their form. Nonetheless, the authors are attempting to provide basic metrics and description-of-form variations to identify "cultural associations through time and space" (p. 86). Beads are measured according to a standard orientation of the *Olivella* shell, spire up and canal down. Growth lines are always vertical so that length and width measurements are not confused. A diagram illustrates the parts of the shell and examples of the location of certain bead forms taken from different parts of the shell. The diagram and accompanying glossary are helpful for the novice researcher.

The synopsis provides standard measurements in millimeters for bead diameter, length, width, curvature, thickness, and perforation diameter, as appropriate to a particular form. The description of the Class frequently makes reference to the site or location within California for which the type is most clearly represented. No numbers are given, however, for how many of the beads from these sites were measured in developing the standard measurements, including the size range and mean perforation diameter. Presumably this information could be retrieved by checking the collections for the particular sites illustrated in the drawings for each type. The source and temporal significance of each Class and subclass is discussed. This is followed by a brief discussion of the Great Basin occurrences referenced to a table that indicates the site number(s) and estimated time period for that particular bead form. When the information is available, the authors indicate whether the beads were recovered from a burial or midden.

I have used this classification system for typing *Olivella* beads recovered from several sites throughout California, and have had few difficulties with the basic procedures for measuring and classifying bead types. The collections were all from loose associations within a midden, not from grave lots that had been radiocarbon dated or seriated. One bead form proved difficult to type, however, and it suggests some problems with the typology that need to be clarified through future studies.

The one difficulty I had in applying the classification was distinguishing between Class L and

M rectangular bead forms. As the artifacts were recovered from a midden and the measurements for the beads had a wide range, it was difficult to determine where the break should be in determining whether the beads were Thick Rectangles (L) or Thin Rectangles (M). To illustrate this problem, consider the measurements given for each form. The subclass L2 Small Thick Rectangle has a length range of 5.0-10.0 mm, a width of 4.0-9.0 mm, and a perforation diameter range of 1.5-2.5 mm. A mean of these is given, with no total number provided for how many beads were measured and from what collections to derive these size ranges. Although the form is labeled "Thick Rectangle," no measurement is given for the thickness of the bead. Subclass M1a Normal Sequin has measurements presented in a slightly different format. The size ranges from a length of 5.0 mm and a width of 4.0 mm up to a length of 12.0 mm and a width of 6.0 mm. The modal size is given rather than the mean. The perforation diameter is given as 1.0 mm "normally." It is not clear whether "normally" should be taken as a mean for some unknown number of specimens measured. Again, no measurements are given for the thickness of this "Thin Rectangle."

Why should anyone be interested in splitting hairs over this issue? It is important because the temporal significance for both subclasses is quite different. L2 is listed as occurring in the Early period (ca. 2000-200 B.C.) whereas M1a is a marker type for Phase 1 of the Late period (ca. A.D. 700-1500). So how does a researcher decide whether the bead forms at this site represent a multicomponent or single component occupation? Obviously, other lines of evidence, such as absolute dating of the deposit and features, need to be brought to bear on this problem before blindly accepting that the bead typology provides reliable temporal indicators of specific periods of occupation (Hartzell, in press). Clearly, more research is needed to identify the metric criteria that distinguish convergent forms if the classification is to have any meaningful temporal significance.

Several critical problems need to be addressed if this classification system is to be used by other researchers with a fair degree of confidence. First, standard reporting on the number of specimens used to develop the metric criteria needs to be presented.

Second, the basis for selecting the metric criteria needs to be explicit and justified. For example, why is modal size, range, or mean used interchangeably when reporting measurements for different classes? Third, provenience information used to form the basis of the typology needs to be presented, along with a discussion of the reliability of the dating. A number of sites discussed by the authors were excavated many years ago. The dating and grave lot seriation information is not always available or well justified. Therefore, problems with dating need to be made explicit.

Finally, one must bear in mind that Bennyhoff and Hughes' interpretation that shell bead and ornament trade between the Great Basin and California was at a peak during the Early period (ca. 2000-200 B.C.) based on the total number of beads recovered from Great Basin sites to date must be taken with a great deal of caution. The total number of beads recovered and identified from any temporally significant context is quite small and statistically insignificant. The meaningfulness of the classification must be considered in light of the minimal information provided about the sample size and reliability of the dating on the bead types that form the basis of the overall classification.

Having pointed out the problems with the monograph, let me emphasize what I believe are the strengths of this publication. Bennyhoff and Hughes provide the first clear metric criteria for beginning to organize data on *Olivella*-shell beads. The typology is clear and easy to use. The principal data used to form the basis of the metric criteria distinguishing the types are given in the text by reference to site numbers. Thus, researchers can locate the primary data and conduct further studies to clarify problems such as those presented above for Class L and M rectangular bead forms. The concluding discussion of California Trade Centers draws on a number of sources of information and will undoubtedly form the basis for future studies and comparisons. Bennyhoff and Hughes, whether intentionally or not, have clearly pointed out the lines of research we will need to conduct to clarify many of the problems facing Californian and Great Basin researchers using shell beads and ornaments as temporal indicators.

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Glass Trade Beads in the Northeast, and Including Aboriginal Bead Industries.

Gary L. Fogelman. *The Pennsylvania Artifact Series, Booklet No. 70*, Fogelman Publishing Company, Turbotville, Pennsylvania, 1991. i-iv + 44 pp., 29 figs., folded-in color poster. \$15.00 (paper).

In 1937, Gerald B. Fenstermaker published an article in *The Pennsylvania Archaeologist*, the newly established Bulletin of the Society for Pennsylvania Archaeology, entitled "Indian Glass Trade Beads." The purpose of this article was to describe the distinctive styles of glass beads found in Lancaster County and to correlate them with the known historic periods, beadmakers and traders. Included in the article was a chart depicting the "Evolution of Indian

Beads," as well as drawings of several reconstructed necklaces (Fenstermaker 1937:73-5). While the scholarship on glass beads and their role in the culture of Native Americans has advanced considerably since Fenstermaker's day, the popularity of this approach remains undiminished. Gary Fogelman's glossy booklet is the most recent addition to this literature.

The author's goals are ambitious. In a brief "Intent" section, he outlines four basic purposes for this booklet and its accompanying poster: 1) to familiarize the reader with a complex topic (glass trade beads); 2) to provide a "glimpse" of native beadmaking; 3) to look at how trade goods were assimilated into native culture; and 4) to put both glass trade beads and native-made beads into "a chronological perspective." These are daunting challenges for any bead researcher. Not surprisingly, the results of Fogelman's effort are mixed.

Fogelman divides his text into ten parts. Each ostensibly covers a particular subtopic. Some of these subsections are quite useful; other are, frankly, awful. Let's start with the good news. Fogelman is on firmest ground when discussing glass beads. Part III provides a review of previous classification systems and problems in bead research. Part IV summarizes manufacturing techniques, while Part V discusses bead terminology and includes an interesting compilation of the slang terms used in bead description. Part VI is a reprint of the classification system for glass beads developed by Kenneth and Martha Ann Kidd. Originally published by Parks Canada in 1970, the Kidd system, as amended by Karlis Karklins (1985), has become the standard for describing glass beads in northeastern North America. By making this information more broadly available, Fogelman has performed a valuable service to both collectors and scholars — helping us to speak the same descriptive language. Unfortunately, the Kidds' color plates were not reprinted along with the descriptions.

On the not-so-good side, there are several weak sections. Part I is an ill-fated effort to discuss native beads pre and post European contact. This is a large and complex topic, and Fogelman's choppy, shallow