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Title:

Sampson: *Nightfire Island: Later Holocene Lakemarsh Adaptation on the Western Edge of the Great Basin*

Journal Issue:

Journal of California and Great Basin Anthropology, 8(1)

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Publication Date:

1986

Permalink:

<http://escholarship.org/uc/item/5wq3p6dd>

Keywords:

ethnography, ethnohistory, archaeology, native peoples, Great Basin

Abstract:

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Nightfire Island: Later Holocene Lakemarsh Adaptation on the Western Edge of the Great Basin. C. Garth Sampson, with contributions by C. Melvin Aikens, James A. Bennyhoff, Ruth L. Greenspan, Richard E. Hughes, and Joanne M. Mack. *University of Oregon Anthropological Papers* No. 33, 1985, 553 pp., 241 figs., 52 tables, \$15.00 (paper).

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This book is the long-awaited report of the 1966 - 1967 excavations of Nightfire Island, a stratified site in the Klamath Basin, south-central Oregon. The excavations were planned and directed by Leroy Johnson (at that time Curator of Ethnology at the Museum of Natural History, University of Oregon). Over the years, numerous individuals have examined portions of the assemblage (especially the fauna, pollen, obsidian, and sediments). The final interpretations, however, are the result of C. Garth Sampson's monumental synthesis of stratigraphy, paleoenvironment, and cultural patterns.

The report is of special interest for its studies of changing lakeside adaptations in relation to Holocene paleoenvironments. The site is located in a marshland adjacent to Sheepy Creek on the western edge of Lower Klamath Lake. Human occupation in the site vicinity (evidenced by redeposited artifacts) began about 6,000 B.C. and continued, except for short periods of abandonment, until late prehistoric times.

The earliest use of the site was focused on a natural platform (either a streambank, levee ridge or a reed-and-tussock island) which served as a waterfowling station. Between about 4,800 and 3,000 B.C., subtle changes in the use of the site are tied to

climatic fluctuations. At some time around 3,000 B.C., the platform was extended and stabilized by the intentional introduction of tons of basalt rubble. Except during a short period of abandonment at about 2,500 B.C., and a long occupational hiatus between 1,300 and 600 B.C., the site functioned as a semi-permanent village for the next three millennia. Initially, occupants constructed pit houses with clay-lined floors and the site rapidly accumulated a thick layer of deposits. After reoccupation around 600 B.C., clay-lined pit houses gave way to less substantial structures, suggesting a shift toward greater residential mobility.

A notable shift occurred at about 100 B.C., when the site may have served as a short-term fishing camp. From about A.D. 300 to 1,300, the site was again used as a village, with this period marked by the introduction of the bow and arrow, interment of the dead in cemeteries at the site, establishment of coastal trade, and hostile relations with neighboring groups. At some time before the ethnographic period, the site was abandoned.

The book is conceptually divided into several sections. Chapter 1 sets up the research focus, framed within a discussion of site catchment and ethnographic Modoc subsistence strategies. A model of change in the local environment, directly based on the bristlecone pine record from the White Mountains (about 500 km. southeast), is used to predict relative lake levels, increases in open water, and decreases in marshland over the past 6,000 years. Changes in site catchment are then compared to changing site function over time, assuming that people first came to the site with fully developed strategies and technologies for exploitation of lacustrine/marsh resources (i.e., the *know-it-all* model). A rival *learner* model sets up a contrasting series of expectations,

assuming that the first site occupants had no prior marshland experience and developed necessary subsistence techniques and technologies over a long period of time. As might be expected, the competing models are doomed to remain unresolved in the context of this one site. Surprisingly, the failure to distinguish between learner and know-it-all lakeshore adaptations does not seriously detract from the overall presentation and analysis.

Following the introduction, four chapters are devoted to correlating excavations, strata, and dating of the deposits. Given the complex depositional history of the site, stratigraphic correlations were especially difficult to make due to the excavation interval sampling method using 256 unconnected 2 x 2-meter units. The suite of 27 radiocarbon dates provides a fairly consistent range of dates bracketing the strata (with a few conspicuous reversals). Obsidian hydration rind measures, taken from flakes in radiocarbon-dated levels, however, do not distinguish between strata; yet, there are some interesting gaps (consistent with inferred periods of abandonment) and some broad trends linking several blocks of contiguous strata.

Chapters 6 through 9 are concerned with prehistoric environment and diet, including botanical investigations (pollen and plant macrofossils), mammals, avifauna, and fish. Interestingly, domestic dog is present throughout the entire sequence of deposits. There are notable fluctuations in percentages of faunal elements by stratum, reflecting changing site environment as well as subsistence shifts. Bison is restricted to the early occupations (disappearing at about 1,300 B.C.); variation in waterfowl species (for example, divers versus dabblers) is tied to lake levels and marshland-to-site relationships.

More than 200 pages of the report (chapters 10 through 17) are devoted to artifact description, including beautifully illustrated examples of grinding stones, projectile points, cutting tools and bifaces, bone awls and points, pendants and beads, and stone pipes. The careful description, attention to technological details, and beautiful drawings have no counterpart in any previous Great Basin report of similar scope (in spite of the unsatisfactory ordering of the projectile point typology).

Three subsequent chapters describe house floors and related features, the context of burials representing 45 individuals, and the human skeletal remains. The discussion of the house floors is difficult to follow, largely due to only partial exposure of most structures during excavation, and the uncertain relationship between floors exposed in noncontiguous units. As noted below, this is a serious short-coming in the report, since conflicting interpretations of overlapping projectile point styles are focused on the "house-building strata."

The concluding chapters synthesize significant environmental, subsistence, and technological data to reconstruct the changing role of the site over time, ultimately fitting it within the broader context of the Desert West.

The report is most satisfying in the descriptive detail and richly illustrated artifacts. It certainly achieves the objective stated in the "Preface," that is, to describe the site "as fully as possible" and to provide "a clear and complete record of what was found and where it was recovered."

A serious problem, however, remains unresolved. There is no convincing explanation for the incredible overlap among the projectile point types considered to be "time-sensitive" elsewhere in the western Great Basin. The projectile points seem

hopelessly mixed in the middle deposits (dating between 2,700 and 300 B.C.). Here, highest frequencies of Rose Spring series co-occur with highest frequencies of Elko Eared and Elko Corner-notched; highest frequencies of Northern Side-notched points overlap the Elko and Rose Spring series. The only clear differentiation among types occurs at the extreme ends of the sequence, with Large Notch and Unifacial points exclusively restricted to the basal deposits (3,000 to 5,000 B.C.), and with 95% of all Gunther subtypes limited to the upper strata (after A.D. 540).

In his analysis of variability of obsidian use through time (Chapter 11), Hughes attributes the stratigraphic overlap (especially in overlapping distributions of Elko series and Northern Side-notched points) to churning as a result of house-pit excavations. Sampson (Chapter 13) takes issue with this view, conceding some difficulty with typological separations, but maintaining essential stratigraphic integrity. Apart from scavenging and reuse of earlier points by later occupants (which would account for earlier points in later deposits, but not the reverse), he fails to see how charcoal and fauna could remain stable while obsidian artifacts moved about.

If not due to mixing, how can one explain the co-occurring frequency peaks of nearly every diagnostic corner- and side-

notched projectile point type in the middle strata? Rather than assuming contemporaneity of so many different point styles, a more likely explanation might be attributed to bioturbation during periods of site abandonment and aboriginal churning during intensive periods of village occupation. Since charcoal usually is collected from undisturbed cultural contexts, while artifacts are collected from units of fill enclosing living surfaces and disposal zones, radiocarbon dates may accurately date structures and features while artifacts reflect dispersal and mixing. As Hofman (1986) has demonstrated by plotting movement of refitted artifacts, even clearly stratified sites (without visible intrusions) show evidence of considerable vertical and horizontal rearrangement of cultural materials.

Unfortunately, these processes were not systematically addressed, and the problem with the projectile points likely will remain unresolved. The failure to account for post-depositional processes undermines the analytically derived site structure, in spite of the elegance of the interpretation and the numerous supporting lines of evidence.

REFERENCE

Hofman, Jack L.

- 1986 Vertical Movement of Artifacts in Alluvial and Stratified Deposits. *Current Anthropology* 27(2):163-170.

