

UC Merced

Journal of California and Great Basin Anthropology

Title

Bettinger: *The Archaeology of Pinyon House, Two Eagles, and Crater Middens: Three Residential Sites in Owens Valley, Eastern California*

Permalink

<https://escholarship.org/uc/item/34r964q5>

Journal

Journal of California and Great Basin Anthropology, 13(1)

ISSN

0191-3557

Author

Yohe II, Robert M.

Publication Date

1991-07-01

Peer reviewed

REVIEWS

The Archaeology of Pinyon House, Two Eagles, and Crater Middens: Three Residential Sites in Owens Valley, Eastern California.

Robert L. Bettinger. New York: *American Museum of Natural History Anthropological Papers* No. 67, 1989, 355 pp., 98 figs., 102 tables, \$38.00, (paper).

Reviewed by:

ROBERT M. YOHE II

Dept. of Anthropology, Univ. of California, Riverside, CA 92521.

This volume represents a commendable descriptive compendium of the results of the extensive excavation and analysis of materials from three archaeological sites located in two environmental zones (Pinyon Woodland and Desert Scrub) in the Owens Valley. This work represents an extension of the Owens Valley Project begun by Bettinger in 1971 to gather data useful in the development of models of prehistoric settlement and subsistence. During 1972-1973, a large "probabilistic" surface survey was initiated in the valley for the purpose of identifying sites within specific environmental settings. With the use of artifactual chronological indicators (primarily projectile points) encountered at these sites during the survey, Bettinger believed that he could discern changes in subsistence through time. These observed changes include: (1) a shift in emphasis from riparian plant resources to Desert Scrub plant resources between 1200 B.C. and A.D. 600; (2) intensive pinyon exploitation between A.D. 600 and A.D. 1000 (defined by the appearance of upland pinyon camps); and (3) decrease in big game hunting after A.D. 1000 (reflected in the disuse of upland hunting stations).

However, realizing the limitations imposed by complete reliance on surface assemblages,

especially with respect to chronology, Bettinger decided that excavations would be necessary to test his subsistence model further. He chose three of the best representative sites recorded during his initial survey to excavate between 1978 and 1981: a pinyon camp (Pinyon House) and two occupation sites (Two Eagles and Crater Middens).

Pinyon House (no trinomial provided) is located at an elevation of 2,195 m. (7,200 ft.) in the Inyo Mountains on the eastern side of Owens Valley on the edge of the Pinyon Woodland plant community. The site consists of structural remains (two standing structures, five rock rings, and seven house depressions) and a scatter of surface artifacts spread over an area of 135 x 120 m. Two additional small loci are thought to be functionally related to the site and consist of an artifact scatter and three structures 200 m. to the south and another surface scatter 100 m. to the north. In the absence of any significant depth to the deposit, eight of the 17 identified structures were excavated, and extensive surface collections were undertaken. This recovery effort yielded 66 typeable projectile points, 42 milling implements, 66 ceramic artifacts, numerous flaked stone tools, and several miscellaneous artifacts (incised slate, shell beads, bone tools, etc.) in smaller numbers. Of particular interest are several historical artifacts including a wooden cone paddle, a composite wooden pinyon hook, enamelware, various metal cans, glass buttons, Levi-Strauss clothing fasteners, and the remains of three bottles.

Chronologically, Pinyon House appears to have been occupied over a period of approximately 5,000 years based on obsidian hydration, radiocarbon analyses, and artifact types. There were two radiocarbon assessments, one from a

pinyon beam in Structure 1 ($1,630 \pm 80$ r.c.y. B.P.; UCR-1108), and another from a beam in Structure 3 (440 ± 80 r.c.y. B.P.; UCR-1107). Obsidian hydration readings range from 6.3 ± 0.4 to 1.2 ± 0.1 microns that Bettinger calculates to be equivalent to calendric dates from 2,261 B.C. to A.D. 1821 (see discussion below). Based on artifact frequencies, the main occupation is believed to have been between A.D. 300 and 1930.

The Two Eagles site (no trinomial provided) is located at an elevation of 1,524 m. (5,000 ft.) within a Desert Scrub plant community. It consists of 28 rock structures and a surface artifact assemblage covering 8,400 m.² Like Pinyon House, the distribution of cultural remains is largely horizontal rather than vertical, with the deposit being only a few centimeters in depth. A total of 13 of the 28 rock structures was excavated, and 43 15-m.² surface units were collected. Three of the structures contained hearths, but remains of posts were absent. The artifacts recovered include 244 milling implements, 43 typeable projectile points (two Elko, 14 Rose Spring, 13 Cottonwood Triangular, and 12 Desert Side-notched points), core tools, debitage, and a small number of faunal remains ($n = 212$). Flotation analysis revealed the presence of muhly seeds (*Muhlenbergia* sp.) that would have been available for collection and consumption from July to November. The chronology for this site is based on obsidian hydration readings and projectile point types, suggesting occupation between 1,200 B.C. and A.D. 1860. Based on these data, the site is believed to have been a short-term seed-processing camp occupied predominately between A.D. 600 and A.D. 1860.

The largest and most complex site of the three investigated by Bettinger is Crater Middens (no trinomial provided). It is situated at 1,311 m. (4,300 ft.) along a seasonal stream channel on the floor of the Owens Valley. Like Two Eagles, it is in a Desert Scrub plant community,

but water would have been available at either Big Pine Creek within 800 m. or Little Pine Creek 400 m. to the north. The site is 100 x 600 m. in size and consists of five separate loci, designated middens I-V. Culturally-modified soil was present at all loci save Midden I that contained no subsurface deposit. Surface features include bedrock milling features and 17 rock rings, 14 of which were interpreted as house rings.

The artifact yield from Crater Midden was the greatest of the three sites under study. Next to debitage ($n = 54,760$), milling equipment was the most common class of artifact recovered from the site, including 363 metates and 213 manos. Also recovered were cobble hammerstones, ceramics (including Owens Valley "grayware"), 536 bifaces (10 complete), and 223 projectile points, 184 of which were typeable. Here Desert Side-notched points were most common ($n = 64$), followed by Rose Spring points ($n = 54$), Cottonwood points ($n = 49$), Elko series points ($n = 8$) and Humboldt ($n = 3$). Historical artifacts include glass trade beads and two glass flake "tools." Ecofacts include 7,657 pieces of bone (with *Lepus californicus* being the most common identified animal) and 42 species of identified seeds from flotation samples, including Indian rice grass (*Oryzopsis hymenoides*), blackbrush (*Coleogyne ramosissima*) and blazing star (*Mentzelia congesta*). Seasonal implications based on the floral remains are that this site was most frequently occupied from May to October.

Chronological indicators of period of site use include radiocarbon assessments (corrected to A.D. 30 to A.D. 1500), obsidian hydration (interpreted as 500 B.C. to A.D. 1821), and projectile points, the majority of which (80%) postdate A.D. 1300 according to Bettinger's scheme. The overall temporal range of occupation appears to span from A.D. 1 to the historic period. The site is interpreted as a multi-function site that was occupied year-round with

middens II and III acting as places of residence, plant processing, and stone tool manufacturing and maintenance. Midden I may have served as an occasional residence, perhaps during ritual seclusion (menstrual huts?), while middens IV and V show minimal use similar to middens II and III.

In the final chapter, Bettinger provides a synthetic treatment of his work, including his interpretations of new archaeological data collected during this study and their implications with respect to the model of human settlement and subsistence proposed in his dissertation (Bettinger 1975). He offers a hypothetical Crater Middens subsistence-settlement system where the Crater Midden site serves as a permanent, central habitation area occupied year-round by 30 individuals (six families). Areas outside the Crater Middens catchment zone would be visited on a seasonal basis and would result in the development of temporary camps (such as Two Eagles, 11 km. northeast of Crater Middens). Pinyon camps such as Pinyon House represent short-term, resource-specific camps that probably were occupied four to ten weeks at a time until the end of the pinyon harvest.

Five basic propositions are explored in the last chapter that have been advanced by Bettinger and others over the past 15 years (Bettinger and King 1971; Bettinger 1975, 1977) that relate to a model of settlement and subsistence in the Owens Valley during the last 5,500 years. These are: (1) there was stability in the basic adaptive pattern over time; (2) lowland villages shifted location from riverine to desert scrub settings between 1,200 B.C. and A.D. 600; (3) intensive pinyon procurement began after A.D. 600 in central Owens Valley; (4) the importance of big game diminished in the diet after A.D. 1000; and (5) the late prehistory of the Owens Valley (3,500 B.C. to Historic times) is characterized by increasingly intensive resource use. In short, Bettinger believes these propositions are supported by the information

gathered from his excavations. Therefore, this implies the success of his original surface survey in providing data sufficient to produce useful models and that such surveys should serve as the basic archaeological tool in the Great Basin.

This monograph is a descriptive *tour de force* and is well-endowed with finely executed figures and a plethora of data tables. The text is largely well-written and straightforward with a few exceptions (a hypermorphological approach to ceramics, for example). However, in spite of its praiseworthiness, there are a few points that merit discussion.

The first of these concerns the formula used to arrive at the calendric "dates" for the obsidian hydration readings ($Y = 800.3X - 831.2$). Why was it chosen over other rates? A similar rate ($Y = 800.3X - 811.2$) is footnoted in a paper by Bettinger describing a method of establishing a hydration rate for Fish Springs obsidian (Bettinger 1989), but nowhere in the text is this information provided. A discussion of its genesis or at least a referral to the source would be important for the critical reader to consider before accepting calendric assignments.

Secondly, several references germane to many of the issues broached by this study have gone unmentioned. Granted, it is difficult for any scholar to keep up with the sheer volume of information that is currently being generated in our field, but it is important for one to consider works concerning their own general study area. Although Bettinger does concede that projectile points have their limitations as time-markers, he neglects to mention the studies that suggest problems with the utility of dart points as temporal indicators (Flenniken and Raymond 1986; Flenniken and Wilke 1986). Also, despite a rather interesting recent paper concerning the predictability of pinyon crops (Sutton 1984), Bettinger defers to the standard Great Basin model of pinyon unreliability proposed by Thomas (1973) that was based on data from *Pinus edulis* rather than the species found in the

western Great Basin (*Pinus monophylla*). Additionally, an alternative to the model of the Numic expansion proposed by Bettinger and Baumhoff (1982) was offered by Sutton (1986, 1987), yet it is completely ignored by Bettinger. Even if one does not accept the validity of the most recent works, for the sake of good scholarship it is important to consider these alternate views and present an argument for why they are or are not sound.

A long-standing pet peeve of this reviewer that was again prodded by a discussion in this report has been the proposition that big game (i.e., ungulate) exploitation in general became less important to the overall adaptive strategy of native peoples in the Great Basin after A.D. 600 (cf. Bettinger and Baumhoff 1982). The evidence for the contrary view is by far more convincing, especially in eastern California and adjacent parts of Nevada. Why are there significantly greater numbers of projectile points, presumably manufactured for the purpose of dispatching artiodactyls, at the Rose Spring site after A.D. 600 than before (see Lanning 1963: Table 3)? And recent studies of game drive corrals in eastern California and western Nevada show a strong late prehistoric tradition of substantially-constructed pronghorn and deer corral-and-wing traps (Arkush 1986, 1989; Arkush and Wilke 1985; Wilke 1986; Parr 1989). What is fascinating is Bettinger's attempt to save a component of his model by stating that change in artiodactyl bone frequencies at Midden III of Crater Middens may support this contention, although, he admits, the data are few. Yes, they are. When one looks at the faunal table (Table 9.35, pp. 280-281), it will be noted that the change in artiodactyl bone frequency between levels 20 to 30 cm. and 10 to 20 cm. is *one* bone (from three specimens to two). All other levels from 0 to 50 cm. contain two identified specimens. This is supposed to reflect a shift away from ungulate exploitation? For a scientist who often employs statistics to support

his conclusions, Bettinger amazed this reviewer by resorting to this weak thread of evidence.

Bettinger should be praised, however, for his break from the use of the term "Rosegate" for projectile points identified as belonging to the Rose Spring/Eastgate series. This unfortunate contraction has been used with reckless abandon since its proposal by Thomas (1981), who claimed that these two forms graded into each other in the Great Basin. However, Bettinger recognizes that the two point types are quite distinct in eastern California, one being clearly basal-notched, made on a triangular preform, and exhibiting a high degree of workmanship (Eastgate), the other corner-notched or side-notched and often crudely formed (Rose Spring). Bettinger correctly notes that the Eastgate form is rare in east-central California. Recent reexcavations at Rose Spring (CA-Iny-372) and a reanalysis of the materials collected by the Riddells and J. T. Davis in the 1950s and 1960s revealed only two points, as originally noted by Lanning (1963), that could be assigned to the Eastgate series (Yohe n.d.).

The author also seems to acknowledge a potential problem with Thomas' (1981) method of distinguishing between Rose Spring and Elko series projectile points by the width of the base. According to the Thomas key, corner-notched projectile points with a base width greater than 1.0 cm. and weighing more than 3.0 g. are categorized as dart points. This method of discrimination does not appear to work well in eastern California, where Bettinger has found that many points weighing under 3.0 g. have base widths greater than 1.0 cm., suggesting an unexpected variability in arrowpoints. He attributes this to the prototypes of the first arrowpoints being more dart-like in their base width than the later models of Rose Spring points. The reviewer suspects that this may be the result of simple differences in individual arrow makers (it is doubtful that these people used calipers to measure the basal widths of their

points). Measurements taken from the Rose Spring points in the CA-Iny-372 collection at the Lowie Museum of Anthropology show that 11 (25%) of the 43 *complete* corner-notched projectile points weighing under 3.0 g. have basal widths *greater* than 1.0 cm. (Yohe n.d.).

In sum, this work is an important contribution to the archaeology of eastern California and the Great Basin. Despite its occasional flaws, the data presentation is generally excellent and it will become a standard reference for the region.

REFERENCES

- Arkush, B. S.
 1986 Aboriginal Exploitation of Pronghorn in the Great Basin. *Journal of Ethnobiology* 6:239-255.
 1989 The Pre-contact and Post-contact Archaeology of the Mono Basin Paiute: An Examination of Cultural Continuity and Change. Ph.D. dissertation, University of California, Riverside.
- Arkush, B. S., and P. J. Wilke
 1985 A Lithic Assemblage from Whisky Flat, Nevada. Paper presented at the annual meeting of the Society for California Archaeology, San Diego.
- Bettinger, R.
 1975 The Surface Archaeology of Owens Valley, Eastern California: Prehistoric Man-Land Relationships in the Great Basin. Ph.D. dissertation, University of California, Riverside.
 1977 Aboriginal Human Ecology in Owens Valley: Prehistoric Change in the Great Basin. *American Antiquity* 42:3-17.
 1989 Establishing an Hydration Rate for Fish Springs Obsidian. In: *Current Directions in California Obsidian Studies*, R. E. Hughes, ed., pp. 59-68. Berkeley: University of California Archaeological Research Facility Contributions No. 48.
- Bettinger, R., and M. Baumhoff
 1982 The Numic Spread: Great Basin Cultures in Competition. *American Antiquity* 47:485-503.
- Bettinger, R., and T. King
 1971 Interaction and Political Organization: A Theoretical Framework for Archaeology in the Owens Valley. Los Angeles: University of California Archaeological Survey Annual Report 13:139-150.
- Flenniken, J. J., and A. Raymond
 1986 Morphological Projectile Point Typology: Replication, Experimentation, and Technological Analysis. *American Antiquity* 51:603-614.
- Flenniken, J. J., and P. J. Wilke
 1986 The Flaked Stone Assemblage from Hogup Cave, Utah: Implications for Prehistoric Lithic Technology and Culture History in the Great Basin. Paper presented at the Great Basin Anthropological Conference, Las Vegas.
- Lanning, E. P.
 1963 The Archaeology of the Rose Spring Site, Iny-372. University of California Publications in American Archaeology and Ethnology 49(3).
- Parr, R. E.
 1989 Archaeological Investigation of the Huntoon Pronghorn Trap Complex, Mineral County, Nevada. Master's thesis, University of California, Riverside.
- Sutton, M. Q.
 1984 The Productivity of *Pinus monophylla* and Modeling Great Basin Subsistence Strategies. *Journal of California and Great Basin Anthropology* 6:240-245.
 1986 Warfare and Expansion: An Ethnohistoric Perspective on the Numic Spread. *Journal of California and Great Basin Anthropology* 8:65-82.
 1987 A Consideration of the Numic Spread. Ph.D. dissertation, University of California, Riverside.
- Thomas, D. H.
 1973 An Empirical Test for Steward's Model of Great Basin Settlement Patterns. *American Antiquity* 38:155-176.
 1981 How to Classify the Projectile Points from Monitor Valley, Nevada. *Journal of California and Great Basin Anthropology* 3:7-43.
- Wilke, P. J.
 1986 Aboriginal Game Drive Complexes at and near Whisky Flat, Mineral County, Nevada. Paper presented at the Great Basin Anthropological Conference, Las Vegas.

Yohe, R. M. II

n.d. A Reevaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavations at the Rose Spring Site (CA-INY-372). Ph.D. dissertation, University of California, Riverside (in preparation).



Western Pomo Prehistory: Excavations at Albion Head, Nightbird's Retreat, and Three Chop Village, Mendocino County, California.

Thomas N. Layton (with contributions by Dwight D. Simons and Glen Wilson). Los Angeles: University of California Institute of Archaeology Monograph No. 32, 1990, 229 pp., 77 figures, 74 tables, \$20.00 (paper).

Reviewed by:

MARK E. BASGALL

Far Western Anthropological Research Group, Inc.,
P.O. Box 413, Davis, CA 95617.

Upon hearing that Tom Layton's work at Albion Head had been published in monograph form, those of us with an interest in northern California prehistory were excited. A host of presented and circulated papers by Layton and students had already hinted at the importance of this research, and we looked forward to seeing the data and interpretations presented in one, widely disseminated form. The document (which reports also on investigations at two interior sites) offers much to ruminate on, but leaves unanswered some key questions. Conducted under the umbrella of a single research plan, the monograph deals with three separate studies, performed from 1980 to 1984 at sites on Albion Head (CA-MEN-1704, MEN-1809, and MEN-1844), in 1984 at Nightbird's Retreat (MEN-1805), and in 1985 at Three Chop Village

(MEN-790). After a brief introduction that outlines the research design and previews major results of the study, subsequent chapters summarize work at each of the localities.

Research at Albion Head was designed to achieve three aims: (1) define and date any archaeological components and assemblages represented at the subject sites; (2) trace the core territory of sociocultural groups that deposited those materials; and (3) identify the point at which the study area came under control of people speaking Pomoan languages. Various linguistic reconstructions suggest that the Pomo language family spread and differentiated from an ancestral homeland near Clear Lake (Halpern 1964; Oswalt 1964), arriving at the Mendocino coast sometime within the last two millennia. Albion Head was thought to possess good potential for tracing such movements insofar as ethnographic accounts indicate that the coastal strip was not permanently occupied during historic times. Sites in "peripheral" areas should contain curated tool assemblages (made elsewhere of tool stone from core areas); display seasonal, task-specific occupational profiles (with less noise than loci in core territories); and as a result, provide a good vantage from which to monitor regional cultural dynamics.

The three Albion sites, situated on the headland north of the Albion River mouth, comprise flaked stone and shell accumulations of moderate size (430-590 m.²) and depth (60 to 80 cm.). Layton identifies "living surfaces" in two deposits (MEN-1809 and MEN-1844), reflecting "either the end product of a period of occupation or an isolated event" (p. 13), after which a site was abandoned long enough to initiate development of a new O Horizon. Soils at MEN-1704 were too churned to preserve distinct strata. Fieldwork at these locations resulted in excavation of 145 1.5 x 1.5-m. units (198 m.³), a truly impressive amount for a student effort, and the recovery of a diverse artifact assemblage including flaked stone tools (projectile points,