

# Comments on Contributions to the Prehistory and Archaeology of Camp Pendleton

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This collection of papers concerning archaeological research on Camp Pendleton presents the results of a wide variety of research efforts aimed at understanding the archaeology, prehistory, and ethnohistory of Camp Pendleton. These papers exemplify the advantages of a research program encompassing a large number of archaeological sites within one large tract of land in that most papers include comparative analyses focusing on sites not only of different time periods but also in different localities of the property. They document, consequently, aspects of settlement system change seldom possible to accomplish in California archaeology.

In many respects, the archaeology of Camp Pendleton mirrors what has been occurring in recent years on a number of other military bases in California, including Vandenberg Air Force Base (where I have worked), San Clemente Island, Fort Irwin, and several others. Because of the extensive (although not usually intensive) nature of land-use on each of these bases, relatively thorough archaeological investigations have taken place at sites in many parts of the large land areas encompassed by these bases, and the results of these investigations have increased significantly our knowledge of the prehistory of the regions in which the military bases are located. Moreover, cultural resource managers on most of these bases have had a genuine interest in ensuring that archaeological investigations take full advantage of modern archaeology's potential to learn about prehistory, as exemplified by the specialized studies on which I am commenting. In short, the archaeology being undertaken on military bases is some of the best in California, and that occurring on Camp Pendleton certainly is no exception.

My comments below concern those aspects of the papers that I found especially interesting or that I think have broader implications. It is only natural, of course, that my past experiences in and knowledge of southern California archaeology, as well as my research interests, have affected my reaction to the papers. Nonetheless, I found that all the papers had intriguing aspects, and they all struck me as important contributions to our knowledge of prehistory or ethnohistory of coastal San Diego County.

The first paper in this volume is authored by Goldberg and Byrd and presents the micromorphological analysis of soils at several Camp Pendleton sites in an effort to understand the processes that created the archaeological deposits. A main goal of their analysis was to determine the extent to which soils are geogenic or anthropogenic, recognizing, of course, that deposits at a site may be a combination of the two. They are also concerned with the extent to

which site deposits have been disturbed by gopher burrowing, a form of bioturbation that has significantly affected many sites in California.

Although Goldberg and Byrd make an excellent case for the value of micromorphological soils analysis, I would argue that it should be viewed as a complement to the more conventional analyses that entails characterization of soil profile characteristics based on “macromorphological” characteristics. The two approaches produce different kinds of information, and both have the potential to produce data relevant to addressing questions regarding the nature and origin of and disturbance to site soils. Furthermore, one approach may be more efficient than the other in generating particular kinds of information.

Recovery and analysis of macrobotanical remains slowly is becoming standard procedure in California archaeology. Reddy’s paper is part of this growing trend, which began to pick up momentum within the last 10 years. Her paper exemplifies the utility of information derived from macrobotanical remains, especially if the analysis includes samples from a number of sites of different ages within a large geographic area. An especially interesting result of her analysis is the recognition that acorns appear to have become important relatively late in prehistory—later than apparently was the case in other parts of California. In contrast, the importance of grass seeds throughout Camp Pendleton prehistory is not so surprising. Another intriguing result of Reddy’s analysis is the fact that sites with many deep bedrock mortar holes are not associated with exceptionably large quantities of acorn parts among the macrobotanical remains. The reasons for this anomaly remain unclear, although Reddy recognizes that various factors may have affected preservation of macrobotanical remains in archaeological deposits.

Reddy presents a graphic model of how exploited plant (and other) resources end up being preserved for use in reconstructing a subsistence/settlement system. The model includes the general aspects of subsistence behavior that produce macrobotanical remains as well as the combination of factors that affect survival of these remains. She indicates that the model may be used to predict changes in diet breadth and resource utilization. Basically, this model identifies the major factors that must be controlled if one wishes to infer aspects of subsistence and settlement. Consequently, it has its utility more within the realm of induction than prediction.

Making sense of data derived from macrobotanical remains still is very much in its infancy, and we do not yet have sufficiently developed methods for translating macrobotanical data into human behavior. (Another factor, one that has not yet received much attention in California, is contamination of macrobotanical samples by naturally produced carbonized remains.) Reddy points out that macrobotanical remains are best preserved in Camp Pendleton sites with undisturbed and “densely packed midden.” This is an important observation, and an explication of the particular characteristics of midden deposits that enhance preservation

would be an important contribution to our efforts to understand the meaning of macrobotanical data.

In his paper presenting an analysis of animal bones recovered from Camp Pendleton sites, Wake identifies some distinct temporal patterns in the importance of faunal categories. He notes that fish and nonmarine waterfowl were most important in Early Archaic sites, which he relates to the existence of estuaries during that time period. In contrast, he reports that Late Prehistoric sites do not contain bones of these fauna due to the estuaries having disappeared by that time. Instead, they contain evidence of an emphasis on small fauna such as rodents and rabbits. Wake notes that the breadth of diet derived from animals narrowed by the Late Prehistoric period, which is opposite of what Reddy found with regard to plant foods and appears also to be opposite of dietary trends elsewhere in late prehistoric California.

Wake makes the interesting observation that capture of small mammals is less risky than large mammal hunting. What he means is that small-mammal capture is more reliable and does not require as much investment in technology. This reminds me of the argument that many have made with regard to shellfish in comparison to terrestrial game animals. Even though both shellfish and small mammals would rank relatively low in comparison to large game animals such as deer, they are generally important components of the diet because of their abundance, reliability of acquisition, and small investment in technology.

Wake notes that sea mammal bones were significantly more abundant in one of the Later Archaic period sites. The importance of sea mammals, particularly pinnipeds, appears also to have increased during roughly the same time period in the Santa Barbara Channel region, where I have worked. I have wondered whether these increases seen at a number of sites correlate in time and what factors may have determined such increases, even if it turns out that they occurred at different times. Were there specific times when sea mammals were especially abundant, either regionally or at particular locations? Was technology developed that enhanced procurement of sea mammals? Perhaps some of the Camp Pendleton sites hold clues that may lead to answers to such questions.

Engstrom presents in his paper a reconstruction of 19th-century physical geography. He notes that the Little Ice Age persisted into the 19th century, causing temperature and precipitation to fluctuate more dramatically than is the case today. He also documents significant changes in topography and vegetation resulting from intensive livestock grazing, lumbering, and fires. In particular, stream courses became scoured due to significantly more intensive runoff, creating barrancas bordered by steep walls.

The importance of Engstrom's paper lies not in what it tells us about prehistoric environments but instead in what we must consider in attempting to reconstruct the environment at the beginning of European colonization. Due to the impacts of historic land-use practices, the environment we see today in many parts of California is much different than that 400-plus

years ago. Engstrom gives us an idea of just how significant these changes may have been in coastal regions of southern California. At the same time, he provides a picture of the nature of the environment to which the Luiseño and Juaneño populations were adapting when they first were visited by European explorers and colonists. It is also worth noting that climatic fluctuation of the sort that accompanied the end of the Little Ice Age surely occurred earlier during the Holocene. Although the nature and impact of earlier climatic fluctuation may have been quite different than those Engstrom discusses, his reconstruction gives us some idea of the magnitude of environmental change associated with such climatic fluctuations.

The final paper in the set is authored by Johnson and Crawford, who provide information on the number and locations of Luiseño and Juaneño rancherías on or adjacent to Camp Pendleton. They also created a genealogical database for determining the relationship of contemporary Luiseño and Juaneño descendants to specific ranchería on Camp Pendleton. Much of the information used in their analysis comes from data they derived from the *padrones* of Mission San Luis Rey. Their compilation of genealogical and locational information from the *padrones* is an example of mission register research that has become popular over the last 30 years or so. The use of desktop computers to compile these data has greatly facilitated this task and has allowed the data to be used for a variety of quantitative analyses.

Of the nine rancherías on or near Camp Pendleton, the locations of only four are definitely known. Johnson and Crawford have inferred the approximate locations of the other five on the basis of intervillage marriage patterns. Locating the sites pertaining to these five rancherías will be an interesting challenge to archaeologists working on or near Camp Pendleton.

Perhaps the most important discovery of Johnson and Crawford's research is that clan names were fortuitously recorded in the *padrones*. They recognized that small ranchería were associated with one clan and large ranchería were associated with multiple clans. We have known that the Luiseño and Juaneño had patrilineal clans for some time, but this new information provides details regarding their geographic context. This is another example of the value of mission register research in elucidating the nature of aboriginal California culture roughly at the time of mission founding.

Summarizing my comments, each of the papers addresses research issues appropriate to a particular realm of data: soil constituents, macrobotanical remains, vertebrate remains, climatic records, and mission registers. Each paper stands by itself for the most part, and I found that I could not comment on the contribution each paper has made to reaching project research objectives. It is clear, nonetheless, that knowledge of the prehistory and ethnohistory of coastal northern San Diego County is expanding rapidly as a result of the research reported in these papers and others not within the scope of my review.

Three decades ago, archaeological programs at universities and colleges were the principal source of knowledge about California prehistory. This is no longer the case. Contract-funded,

non-academic research now is generating most of this knowledge. I have been wondering, therefore, about my role in California archaeology as an academically based archaeologist. My university expects me to obtain grants and fellowships to support my research, but the funding from these sources almost never is adequate for undertaking the wide variety of specialized analyses that typifies the larger contract-funded projects such as those occurring on Camp Pendleton. My academic colleagues and I must be satisfied with more narrowly focused research, and we must attempt to make contributions at the frontiers of knowledge. Some of us are involved in contract-funded research, but the nature of our academic positions precludes management of large-scale projects under tight schedules. As a consequence, we see emerging in California archaeology not exactly a division of labor but more of a partnership in which private-sector and academic archaeologists are finding ways to complement each others' research. My comments presented above are, in a sense, an example of this emerging partnership.