doubtlessly, largely at the expense of the company (Intermountain Research). This project, however, apparently applied for and received Nevada State Historic Preservation Office grant monies to help offset some of the additional costs. Through these efforts, the results of the James Creek Shelter investigation are available for a wide readership and will prove most useful to it.

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These two reports present the results of archaeological investigations at an important site located along the lower course of Calleguas Creek near its outlet into Mugu Lagoon. Test excavations were undertaken at CA-VEN-110 in 1985 for the Los Angeles District of the Corps of Engineers. This site, listed on the National Register of Historic Places (NRHP), has been subjected to severe impacts because of levee construction and stream channelization along the lower course of Calleguas Creek. The purpose of the excavations was to evaluate the remaining deposits at CA-VEN-110 to determine if the site still met criteria for inclusion into the NRHP.

The unique situation of CA-VEN-110, straddled by the stream channel of Calleguas Creek and subjected to alternating episodes of sedimentation and erosion, led to a complex problem of archaeological investigation. Because remaining site deposits were buried by one to two meters of accumulated silt and mud, a series of 19 backhoe trenches was excavated to remove overburden and evaluate stratigraphy. At seven locations, units (mostly 1 x 1 m.) were hand excavated when midden was encountered, and all deposits were water-screened through 1/8-in. screen. Most sorting of screen residuals was undertaken in the field.

The authors' explication of site formation processes is generally good and helps to clarify a confusing situation, but a few oversights mar an otherwise useful report. Information given in the table regarding the number and thicknesses of midden lenses encountered in the units does not appear at all to match the schematic figure on the previous page. Maps in Figure 3.10 that reconstruct midden contours also create some confusion because they lack a north arrow and are oriented in reverse of previously given maps. No statement is given regarding where
the CA-VEN-110 collection was to be curated, which should be standard information provided in all archaeological reports. It is important to document the ultimate disposition of collections so they may be consulted in the course of future research.

The research design for CA-VEN-110 was kept simple. A series of six questions was formulated regarding site function, chronological placement, season of occupation, and nature of the subsistence base. Of specific interest to the investigators was the relationship of CA-VEN-110 to the nearby, well-developed midden site, CA-VEN-26, that has long been identified with the Chumash placename Simo'mo, and to the Historic Period settlement of Muwu (CA-VEN-11) situated on the eastern arm of Mugu Lagoon. The authors initially postulated that CA-VEN-110 was occupied after Simo'mo was abandoned as a principal residential site about A.D. 1300 and that the shift of the population was related to infilling of Mugu Lagoon and subsequent necessity for greater access to marine resources outside the lagoon. In their conclusions, the authors note that the results of their investigations did not support their original hypotheses. Their analysis of radiocarbon dates indicated contemporaneity with Simo'mo, and no major change in subsistence was revealed by the faunal studies. They conclude that CA-VEN-110, although spatially discrete, was probably a residential community within a larger settlement complex that included CA-VEN-26, traditionally identified as Simo'mo.

In several respects, the chronological interpretations contained in the CA-VEN-110 report are less than satisfactory. Some pratfalls are contained in the radiocarbon calculations that, unfortunately, undermine attempts to answer some of the questions posed in the research design. Contrary to the authors' contention that Simo'mo and CA-VEN-110 exhibit virtually contemporaneous occupation throughout the period of their respective use, the radiocarbon dates for Simo'mo (given in Table 3.14) actually document inhabitancy for five hundred years prior to the earliest date for CA-VEN-110. Thus CA-VEN-26, Simo'mo proper, seems to have been well-established by the early Middle Period. After Simo'mo served as the principal residential site for several hundred years, a segment of the populace may well have settled permanently at CA-VEN-110. Olivella callus cup beads and glass trade beads indicate continued use of CA-VEN-110 during portions of the Late Period and into historic times. Most projectile points from CA-VEN-110 were small, convex-based, and lanceolate. The authors do not use these in their chronological discussions, but it is noteworthy that these points represent a type that is to be expected for the late Middle Period and early Late Period. Unfortunately, provenience data for the points were not reported, so direct comparisons with associated radiocarbon dates and bead types cannot be made.

Analysis of fish remains from three of the units excavated at CA-VEN-110 was undertaken in a subsequent report by Mark Roeder. Roeder draws from studies by fisheries biologists to reconstruct habitat groups for species identified in the analyzed samples. Otoliths were analyzed for seasonal growth indicators by Richard Hud-dleston in an appendix to the main CA-VEN-110 report. From these studies, Roeder makes inferences regarding fishing strategies used by the inhabitants of CA-VEN-110. He notes that a wide variety of marine habitats were exploited and that the optimal season for successful fishing was late summer. Roeder is to be applauded for his innovative use of these methods, and future researchers would do well to include both habitat group reconstruction and otolith seasonality studies in their analytical tool kit. Despite these positive contributions, there are some shortcomings in the CA-VEN-110 fish remains analysis that detract from the impact of the report.

Reporting errors and methodological problems lessen the usefulness of the tables of
identified fish remains for intersite comparisons. For example, Roeder lists samples from Unit 4 up to 100 cm. in depth, yet the site report by Greenwood et al. indicates that this unit was only excavated to 70 cm. This error may be related to a mistaken assumption that all levels were 10 cm. in depth (a similar misunderstanding occurs in the table for Unit 5). Whatever the cause, the depth errors are unfortunate, because Unit 4 was richest in fish remains, and its reported species data cannot be correlated with the levels in which two radiocarbon dates were obtained. A second problem is that although NISP (number of identified specimens) and MNI (minimum number of individuals) are provided, particular skeletal elements used for identification are not listed. The omission of this type of data is serious, because many taxonomic distinctions were made to species level for fishes that are closely related, and these identifications play a major role in Roeder’s subsequent habitat group analysis. It makes one wonder whether such sophisticated analysis was warranted when the basic evidence is omitted regarding how specific identifications were made.

Perhaps the greatest deficiency in the fish remains analysis is that only materials recovered from the 1/8-in. screen were used for identification purposes. In the site report, column samples were noted to have been removed, but apparently finer screening was never accomplished. This is unfortunate, because it is this reviewer’s experience that the configuration of fish remains is badly skewed by omitting small vertebrae, teeth, and otoliths retained in 1/16-in. screens. For example, at CA-LAN-229 on Malibu Creek, the author documented that the Pacific Sardine was the principal food resource in terms of meat weight among all other fish species based on vertebrae that were ten times to fifty times more prevalent in 1/16-in. samples than in 1/8-in. samples (Johnson 1982). Any attempt to sort out habitat preferences based on only 1/8-in. samples will suffer from lack of information about the contribution that small fishes may have made to the catch.

Roeder questions a hypothesis advanced by Love (1980) that lagoon fisheries may have served to buffer seasonal shortages experienced in areas along the open coast, noting that biologists have compiled considerable evidence for seasonality for estuarine habitats and that little evidence was discovered for lagoon species exploitation in winter. Yet the CA-VEN-110 samples he analyzed were inadequate to determine to what extent Mugu Lagoon was used at any season, because the highest fish biomass available in lagoons and estuaries is represented by small species, like topsmelt and shiner perch, whose remains would only be recovered through fine-mesh screening.

Despite some of the problems noted above, the CA-VEN-110 reports produced by Greenwood and Associates are a welcome addition to the archaeological literature for the Chumash region. Much information is provided that will facilitate comparisons to other sites, especially with regard to subsistence studies and chronological considerations. CA-VEN-110 was occupied during a critical period in Chumash prehistory, when their culture was undergoing a metamorphosis into the type of society later encountered by Europeans. The Middle to Late period transition is currently the focus of a major research project on Santa Cruz Island under the direction of Jeanne Arnold (1990). Arnold maintained that environmental stress produced a restructuring of Chumash society leading to hereditary leadership and elite control over critical economic activities. Her interpretations have been questioned by King (1990), who saw hereditary leadership already in place, and the expansion of a secular economic system arising at this time. The evidence derived from the CA-VEN-110 excavations will contribute to the evaluation of these alternative hypotheses on Chumash cultural changes between the Middle and Late periods.
There will be a sequel forthcoming to the CA-VEN-110 reports reviewed here. Greenwood and Associates documented a 19 percent loss in site deposits over six years based on comparisons with prior investigations. Because of the demonstrated significance of the site, the severity of continued erosion, and the need for further flood control work, a mitigation phase was authorized. Excavations took place in 1986 under the direction of Mark Raab of California State University, Northridge, and a final report is nearing completion. An entire cemetery was uncovered during the mitigation excavations that was not encountered during the testing phase. An extremely acrimonious situation then ensued when a segment to the local Native American community appealed to the courts to stop all archaeological work, preferring instead to let the burials wash out to the lagoons rather than have archaeological research undertaken. The judge ruled that the American Indian Religious Freedom Act did not apply in this case and that proper legal procedures had been followed by Ventura County, the Corps of Engineers, and other defendants (U.S. District Court 1986). The burials and all associated artifacts from the mitigation phase were eventually reinterred at Oakbrook Regional Park near Thousand Oaks after completion of archaeological and physical anthropological studies.

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In 1986 archaeologists discovered buried prehistoric midden deposits some four meters below present street level at a construction site in the heart of modern downtown San Francisco. The authors describe the discovery of site CA-SFR-113 as “serendipitous.” It would seem all the more so because these vestiges of prehistoric culture had survived the late 1850s leveling of the natural sand ridges that incorporated them and subsequent construction episodes atop them.