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THE ARCHAEOLOGY OF OAK PARK VENTURA COUNTY, CALIFORNIA

VOLUME III

Edited by

C. William Clewlow, Jr.

David S. Whitley

Monograph XI
Institute of Archaeology
University of California, Los Angeles

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THE ARCHAEOLOGY OF OAK PARK
VENTURA COUNTY, CALIFORNIA

VOLUME III

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MONOGRAPH XI
INSTITUTE OF ARCHAEOLOGY
UNIVERSITY OF CALIFORNIA
LOS ANGELES, 1979

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CHAPTER 1
INTRODUCTION
TO OAK PARK PREHISTORY

C. W. Clewlow, Jr. and D. S. Whitley

BACKGROUND

This volume is the final publication in a series of three issues concerning the investigations of the Inland Chumash Research Project in a portion of the Medea Creek Drainage, Ventura County, California (Clewlow, et al. 1978a; 1978b). As the final volume in this series, it culminates two years of data collection and data presentation and presents a number of interpretations and conclusions concerning both the Oak Park area specifically and a portion of the southern Inland Chumash area in general.

The directions and goals of the Inland Chumash Research Project have been amply outlined in the previous volumes on Oak Park. However, as this volume addresses interpretive and inferential problems that are larger in scope than that of the immediate Medea Creek drainage and Oak Park area, it is necessary to clarify a few points of reference that are used throughout this issue. The concern of this investigation, first, is the settlement system of the Southern Inland Chumash. By the Southern Inland Chumash we refer specifically to the prehistoric population that occupied those valleys and drainages on the inland side of the Santa Monica Mountains, such as the Conejo, Russell, Triunfo, Lindero, Medea and Las Virgenes Canyons. We call these series of inland valleys the Conejo Corridor or, more generally, the Conejo area. Secondly, our interest is in the settlement system of this area. Our units of analysis, accordingly, are sites rather than the artifacts within individual sites. While we have in the past, and do here, provide some basic descriptive data from site excavations and surface collecting, we have generally kept our inferential level primarily consistent with our units of analysis, archaeological sites.

This monograph has been written as a series of independently authored articles, but an attempt has been made to structure these works toward a single, coherent discussion of the Inland Chumash peoples, as so defined for this study. Certain chapters are almost completely descriptive data presentations; these are necessarily included because they document the conclusion of our fieldwork on the Oak Park area. The remaining chapters review pertinent previous research, present some theoretical discussions on archaeological method and theory and, ultimately, provide a conceptual model of the Southern Inland Chumash.

The Oak Park Area and the Archaeology of Oak Park

Oak Park is a 2,665 acre parcel of land located in southeastern Ventura County, north of and adjacent to the intersection of Kanan Road and the Los Angeles-Ventura county border. This land is situated within the southern foothills and small alluvial valleys of the east-west trending Simi Hills. Lindero Canyon and the Palo Comado watershed form the western and eastern boundaries, respectively, of the property. Elevation of the parcel ranges from 970 feet above sea level at the southern extreme to 2,100 feet above sea level on a mountaintop in the northeast corner of the proposed subdivision.

The topography of Oak Park is characterized by gently sloping foothills in the middle-southern and middle-western portions of the property, with relatively steep and rugged valleys and cliffs on the remainder of the parcel. Lindero Creek, running north-south, drains the western quarter of the parcel. Medea Creek and roughly six small tributaries drain the remainder of Oak Park; these again run north-south. Both of these streams feed Las Virgenes Creek, which winds through the Santa Monica Mountains to empty into the Pacific Ocean at Malibu.

Although all but 182 acres of Oak Park are presently undeveloped, ranching activities occurring within the last 100 years have disturbed much of the local vegetation. In addition, surface archaeological remains may have been disturbed. Much of the property is covered with non-native grasses, although remnants of the native coastal sage scrub are found on the steep upper hillsides, with oak woodlands in certain ravines and some chaparral on northern slopes.

As of summer, 1978, 17 archaeological sites had been located within the proposed Oak Park subdivision, representing a wide range of prehistoric activities and a long period of aboriginal occupation (see Figure 1). During the summer of 1978 researchers from the UCLA Archaeological Survey, under the direction of Dr. C. William Clewlow, Jr.

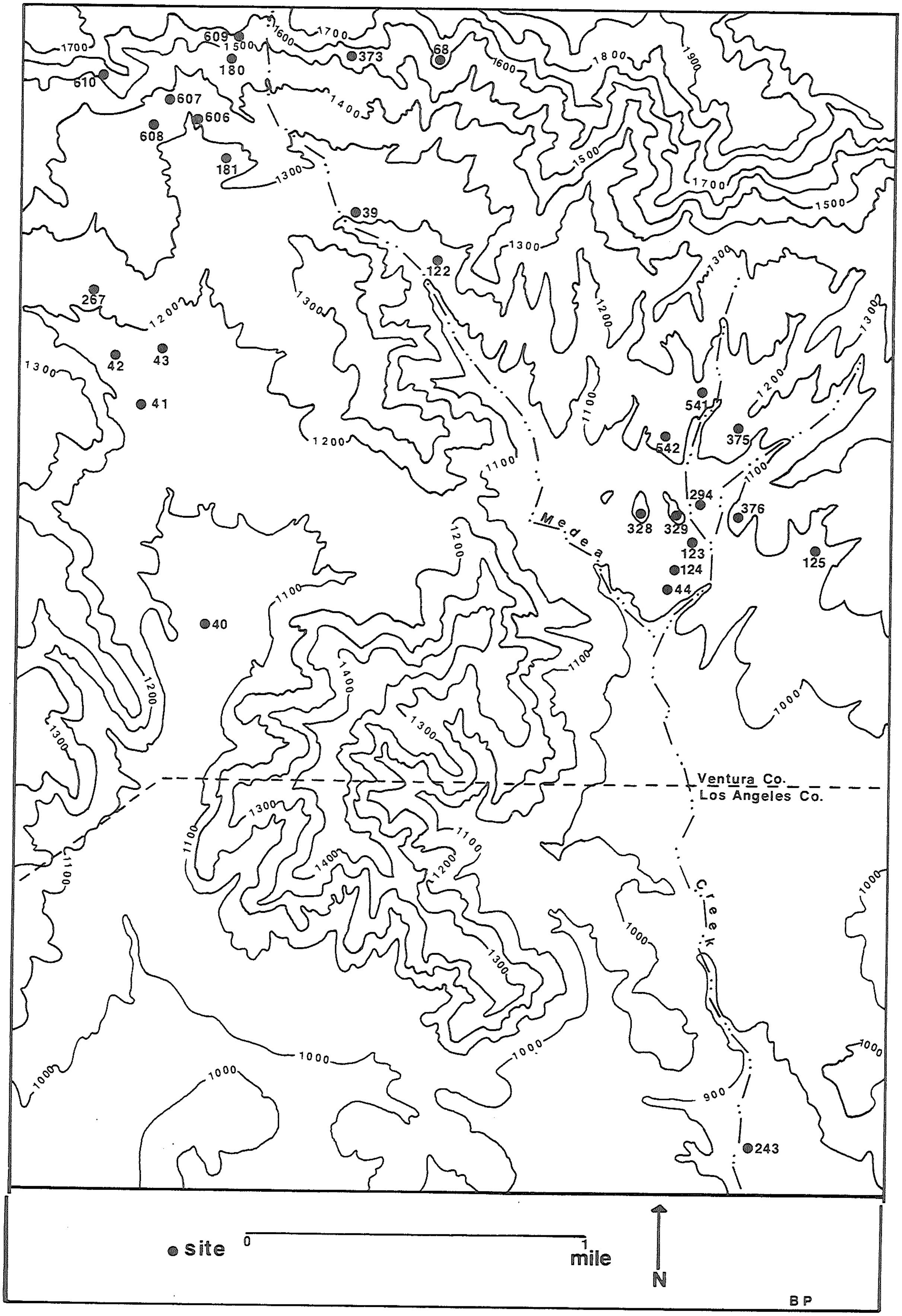


FIGURE 1 : MAJOR ARCHAEOLOGICAL SITES OF THE MEDEA CREEK DRAINAGE

undertook a series of surface collections and test excavations of ten of these archaeological sites. The 1978 field project was a continuation of previous excavations at Oak Park that were performed during the fall of 1976 and summer of 1977. In addition, the 1978 investigation is an integral aspect of the Inland Chumash Research Project, a long term, multidisciplinary effort of the UCLA Institute of Archaeology.

To provide a framework for presenting the data obtained during the 1978 field season at Oak Park, Chapter 2 consists of a review of some of the pertinent literature as regards this final report on Oak Park. It is not meant to be a comprehensive review of Chumash archaeology; rather, its focus is on the research in the Conejo Corridor and certain other selected works germane to the final conclusions of this volume. Additionally, it results in some initial conceptual interpretations regarding the nature of the settlement pattern in the Inland Chumash area. The notion of site-complexes, as presented initially in Chapter 2 and elaborated throughout the volume, may appear to be a facile interpretation of the archaeological record. It is apparent, however, that it has resulted in substantial improvements in the interpretation of, and the ability to analyze, Inland Chumash cultural history.

Chapter 3 consists of a data presentation on the surface archaeological remains that were collected during the 1978 field season. Here our notion of the site-complex has been used to examine concentrations of surface artifacts not as individual and unrelated sites, but as distinct, and related activity areas within two major behavioral units found on Oak Park, the South site-complex and the North site-complex.

The fourth chapter details the fieldwork and results of a small-scale excavation of a midden deposit located within the North site-complex of Oak Park. Again the emphasis is on descriptive data presentation, although some inferences about the late prehistoric trade network are presented. The following chapter presents a discussion of the excavation of two rockshelters, again both within the North site-complex. The artifacts recovered from these two rockshelters provide a set of interesting, comparative data that result in their interpretation as two distinct locations for specific ritual activities.

The fifth and final chapter draws upon our archaeological investigations at Oak Park and other sites in the Conejo Corridor, as well as the work of other modern researchers and the ethnographic notes of John P. Harrington, to develop a simple, but formal, model of Chumash organizational structure. This provides a notion of what the Chumash political structure was essentially at the time of the Spanish arrival in California. Additionally, it concludes this stage of our research and consequent interpretations of Inland Chumash cultural history. It is important to emphasize, however, that we view this just as the end of one stage of research by the Inland Chumash Research Project. Further research is planned and, indeed, underway. The value of this future work will be not only to further document the cultural history of an aboriginal population of California, but to improve and, possibly, completely revise the conclusions that we have obtained at this stage of our research.

CHAPTER 2
A HISTORICAL PERSPECTIVE ON THE RESEARCH AT OAK PARK

D. S. Whitley

INTRODUCTION

Archaeological research in the Chumash area has a long history, but the focus of the resultant corpus of work has been almost entirely on the coastal area. Previous investigations of inland sites, in fact, have been analyzed almost entirely from a coastal perspective. As an aid in interpreting the Oak Park material, explicitly from an inland point of view, this chapter reviews the work previously completed in this area and some neighboring, but pertinent, inland zones.

Research at Oak Park

Archaeological research at Oak Park began in the early 1960s, when informal surveys of the property discovered and recorded a number of archaeological sites. Ven-40 and Ven-44 were noted at that time and a surface collection was taken from these two sites by Michael Glassow and Chester King in 1962. The artifacts recovered from this collection have been stored at the UCLA Museum of Cultural History Archaeological Storage Facility.

In the spring of 1966 excavations were initiated at Ven-39, the El Robledo site, which is a midden deposit located on one of the northern reaches of the Medea Creek. This excavation was conducted by Dr. James N. Hill, directing a field school for the UCLA Department of Anthropology. Work continued at this site intermittently until the spring of 1969. While a final site report on Ven-39 is still under preparation by Eugene Stelzer, UCLA graduate student, certain portions of the data recovered from this site have appeared in other publications. According to Martin (1972), Ven-39 was occupied from ca. 100 B.C. to A.D. 1000. However, these dates were obtained from two carbon-14 tests, which is not an adequate sample with which to bracket the period of occupation of the site in absolute terms. It is possible that the inhabitation of the site may actually have extended for a longer period.

Martin (ibid.) also suggests that Ven-39 was a seasonal hunting and gathering camp, although no justification for this assessment is presented. A comparison of faunal remains from Ven-39 and three other inland sites she has identified as villages (LAn-167, LAn-246, and LAn-243v) indicates that Ven-39 falls into the same hunting/butchering pattern as the other villages. The only anomalous site, in fact, is the Medea Creek village (LAn-243v), whose differences can possibly be attributed to the fact that it postdates the three other sites.

Other studies using data from Ven-39 have been methodological. Weide (1966) collected soil samples from the site to test pH analysis as a means for establishing site size. Projectile points were used by Christenson and Read (1977) as a case study for different approaches to numerical taxonomy. While these two papers have been useful works in regard to questions of methodology and analysis, their focus was not on the prehistory of the Chumash. Thus, they do not present any information of substantive importance to the archaeology of Ven-39. (Some brief research notes on Ven-39, in addition, have been published by Olsen 1968:295.)

The 1966 and 1969 field schools at Ven-39 also undertook a systematic survey of the Oak Park region during which the following sites were recorded: Ven-68, Ven-122, Ven-123, Ven-124 and Ven-125 (see Figure 1). Chester King, Nelson Leonard and Clay Singer collected surface artifacts from Ven-123 and Ven-124 during this period. Artifacts from these surface collections were catalogued and accessioned at the Museum of Cultural History Archaeological Storage Facility, UCLA. Unfortunately, no attempt was made to record the intrasite proveniences of these artifacts, and it is now impossible to determine if any meaningful spatial patterning in the artifact distributions was present in 1966.

In 1972 Nelson Leonard recorded the large midden site of Ven-294, located just northeast of Ven-123. Limited excavations at this site were undertaken by Robert Lopez, directing a field class from Moorpark College, during that same year. This field class uncovered a number of burials which suggested the presence of a late component in the site's occupation (Rosen 1978). Unfortunately, no publication or manuscript has as yet resulted from this investigation, and therefore no specifics of the recovered collection are available.

During the summer of 1975, Dr. C. William Clewlow, Jr. directed a systematic surface survey of the property as the preliminary step of an environmental impact assessment of the proposed Oak Park development (Clewlow n.d.a.). This survey resulted in the location of a number of previously unrecorded sites, including Ven-373, Ven-374, Ven-375, and Ven-376 (ibid.). Accordingly, four sites were chosen to be tested for subsurface components and to determine areal dimensions and cultural/temporal affiliations. These sites, Ven-123, Ven-125, Ven-294 and Ven-375, were surface collected and sampled in the fall of 1976 (Pastron, Wells and Clewlow 1978). This limited investigation suggested that Ven-125 represented a late prehistoric occupation in the drainage that was preceded by the inhabitation of Ven-294. Both of these sites were determined to be, at least, intermittently occupied villages. The small samples recovered from Ven-123 and Ven-375 exhibited noticeable differences with the range of materials obtained from the other two sites, suggesting that these might have been limited-use areas (ibid:59-60).

Large scale research excavations were conducted at Oak Park during the summer of 1977 (Clewlow 1978). During this project large samples were obtained from Ven-125 (Wells 1978), Ven-294 (Rosen 1978), Ven-123 (Dillon 1978); and all remaining surface materials on Ven-44, Ven-124 (ibid.) and Ven-375 (Dillon n.d.) were systematically collected. In addition, research reports on pollen samples (Woosley 1978), faunal remains (Langenwalter 1978; Roeder 1978), shellfish (Hector 1978) and resource acquisition (Rosen 1979) were produced. The substantial research represented by these papers forms much of the basis for this present report.

Dillon (1978) has identified Ven-123, Ven-44 and Ven-124 as Millingstone sites. Of the three, only Ven-123 contained a subsurface archaeological deposit. The artifact assemblage from this site is dominated by groundstone and large cobble/core tools; small, finely-chipped flake tools are rare. Similarly, no shell was encountered within the midden deposit. Ven-44 and Ven-124 are small knolltop lithic scatters, adjacent to Ven-123. Assemblages from these two knolltops (obtained by systematically recollecting these sites and reanalyzing the unprovenienced collections of King, Leonard and Singer) are, again, dominated by groundstone and large core/cobble tools, leading Dillon to tentatively suggest that the two knolltops were to "some degree" contemporary with the subsurface deposit of Ven-123 (ibid:71-73). While this seems to be a reasonable suggestion, it must be pointed out that none of the artifacts that Dillon considered are known chronological markers. That is, groundstone and large core/cobble tools are found in the inland area from the beginning to the end of the aboriginal occupation. They are, thus, not diagnostic of a site's temporal position, although they are representative of specific activities or functions.

It seems reasonable, then, to suggest that the subsurface deposit at Ven-123 and the surface scatters at Ven-44 and Ven-124 are indicative of similar activity patterns. Whether they represent contemporaneous sites remains to be determined.

The surface component at Ven-123 yielded an artifact collection showing significant differences in the types, ranges and materials of artifacts from that of the subsurface deposit. Dillon has compared this vertical change in artifacts to the assemblage recovered from Ven-294 and suggests that the surface artifacts at Ven-123 may be contemporaneous with the lower levels, or earliest occupation, at Ven-294 (ibid.). In sum, Ven-123 has been interpreted as "a specialized focus of a limited industrial activity, rather than a village" (ibid:124) based on the size of the subsurface deposit, although a probable house floor "implies some form of permanent occupation, at least by a small family group, and the range of artifact types denoting different usage and activities is not what one would expect at a "single industry" site (ibid.). Temporally, it can be seen as immediately predating Ven-294.

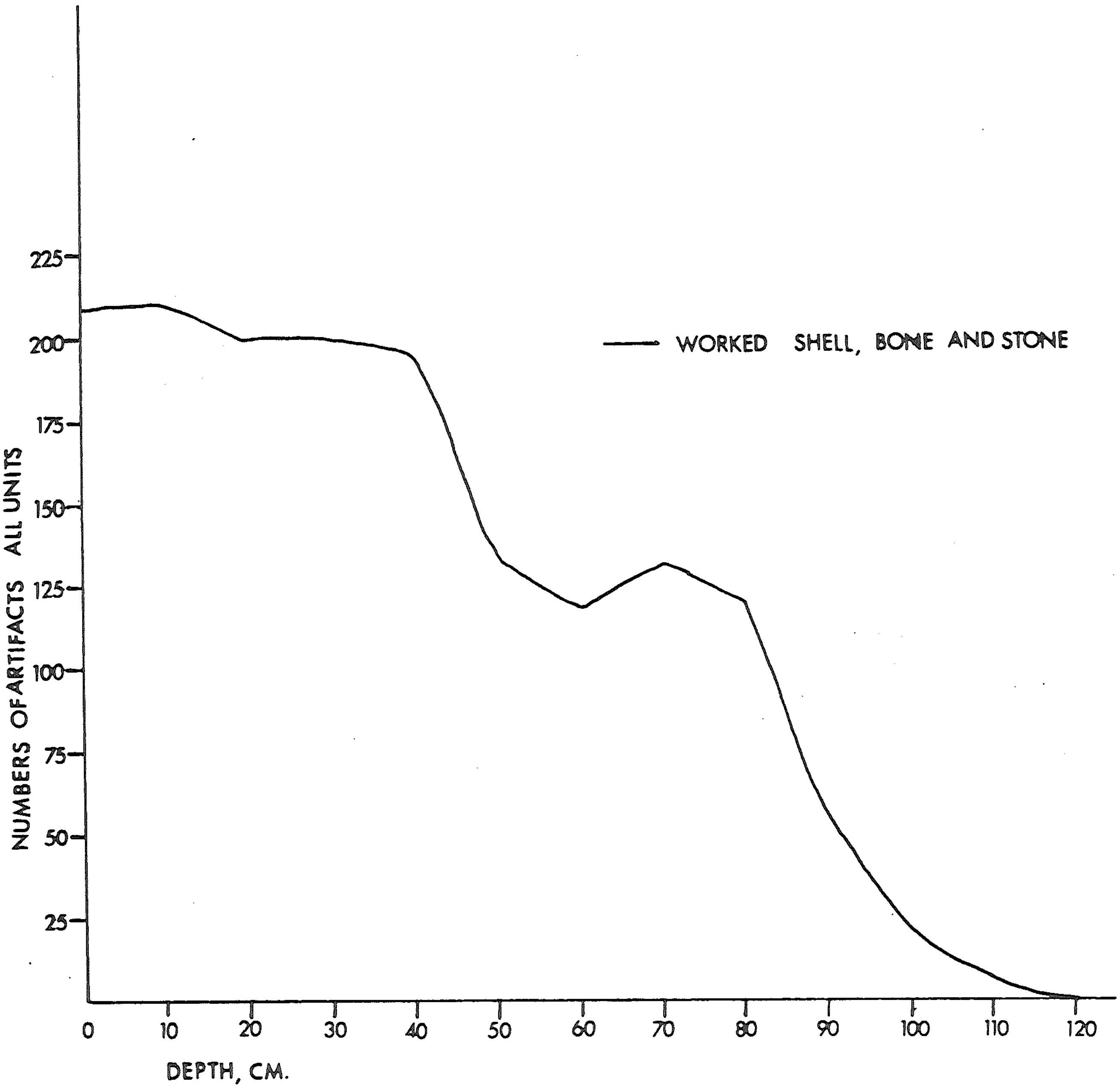
Rosen (1978) has argued that the vertical artifact distribution at Ven-294 exhibits a "bimodality" indicative of two occupations. The first, dated by four carbon-14 samples, is explained as representing sporadic occupations from ca. 6000 B.C. to 40 B.C. The second occupation is suggested to have occurred after "Period 1 abandonment" and to have lasted at least until A.D. 1100 and perhaps as late as A.D. 1400 (ibid.). The analysis and interpretation of these data bring up two important questions.

First, Rosen notes that the early carbon-14 dates do not agree completely with either the 16 obsidian hydration dates obtained from the site or with the relative dating suggested by the tool assemblage (ibid:14). An examination of Table 1 in the site report (ibid:15) indicates that the three earliest carbon-14 dates were obtained from abalone shell specimens. Martz (1976:3) has outlined some of the problems that occur when using shell samples in radiocarbon analysis. Basically, these are that shell tends to become easily contaminated either in the ocean (due to upwelling) or underground (as a result of carbonate exchange with groundwater). To quote Martz (ibid:2), "As a result of upwelling, sea shells and charcoal may not be comparable." It is possible that the three shell samples, dating between 8,250 ± 160 B.P. and 3,740 ± 160 B.P., are contaminated and that the hearth charcoal specimen (2350 B.P.) is a more reliable sample.

The horizontal and vertical proveniences of these specimens lend even greater suspicion to their veracity. While the charcoal specimen was recovered from Locus A, and therefore was somewhat distant from the other samples, it was found at a depth of 108 cm. The shell samples, found in closer proximity to one another on Loci B and C, indicate ages of 1700 B.C. and 5200 B.C. for the 40-50 cm. levels from two units spaced 20 meters apart, with a date of 6200 B.C. located 28 meters from the 1700 B.C. date but at a depth of 70-80 cm. While it is obvious that vertical comparisons cannot be made directly across the arbitrary excavation levels of an unstratified site, it is apparent that there is no suggestion of an interpretable vertical or spatial pattern in the provenience of these dates. A conservative position is that the charcoal sample from Locus A represents the beginnings of occupation at Ven-294, which covers a span (as suggested by the obsidian hydration dates) through approximately A.D. 1100. Thus, while the occupation of Ven-294 may extend back 8,000 years, a conservative attitude suggests an age of about 2500 years.

Second, a faunal analysis of Ven-294 (Langenwalter 1978) failed to recognize any significant vertical changes in hunting remains and, unfortunately, little attempt was made to substantiate the hypothesized dual occupations in the original site report. Vertical artifact distributions have been reexamined and are summarized in Figures 2 and 3. The curve of Figure 2, representing the total number of worked shell, bone and lithic artifacts measured on the vertical axis and plotted against excavation level on the horizontal scale, does not indicate either a "bimodality" nor a clear discontinuity interpretable as an abandonment. Rather, the graph resembles one tail of a normal curve.

Figure 2 indicates that there is an apparent and seemingly significant quantitative difference in the artifact yields for the 0-40 cm. levels and the 40-80 cm. levels on the site. This, conceivably, could be taken to represent intensified site use towards the present. However, this is not the only reasonable interpretation of this vertical change. Field notes from the excavation at Ven-294 indicate a break in vertical artifact density ca. 40-50 cm. on Locus B, while the density on Locus C was relatively consisent (Villanueva, personal communication). This is illustrated in Figure 3 which, while showing a general attenuation in artifact density from top to bottom of the midden, indicates that vertical artifact deposition, generally interpreted as representing temporal activity patterns, is compounded by horizontal shifts in the focus of these activities. These horizontal movements, again, represent temporal shifts in the pattern of land-use on a site. Thus, while artifact density (and, by inference, human activities) declines on Locus B and Locus B', ca. 60 cm, it is apparent that artifact



SOURCE: ROSEN, 1978

FIGURE 2 : VERTICAL DISTRIBUTION FOR ALL WORKED ARTIFACTS
VEN - 294

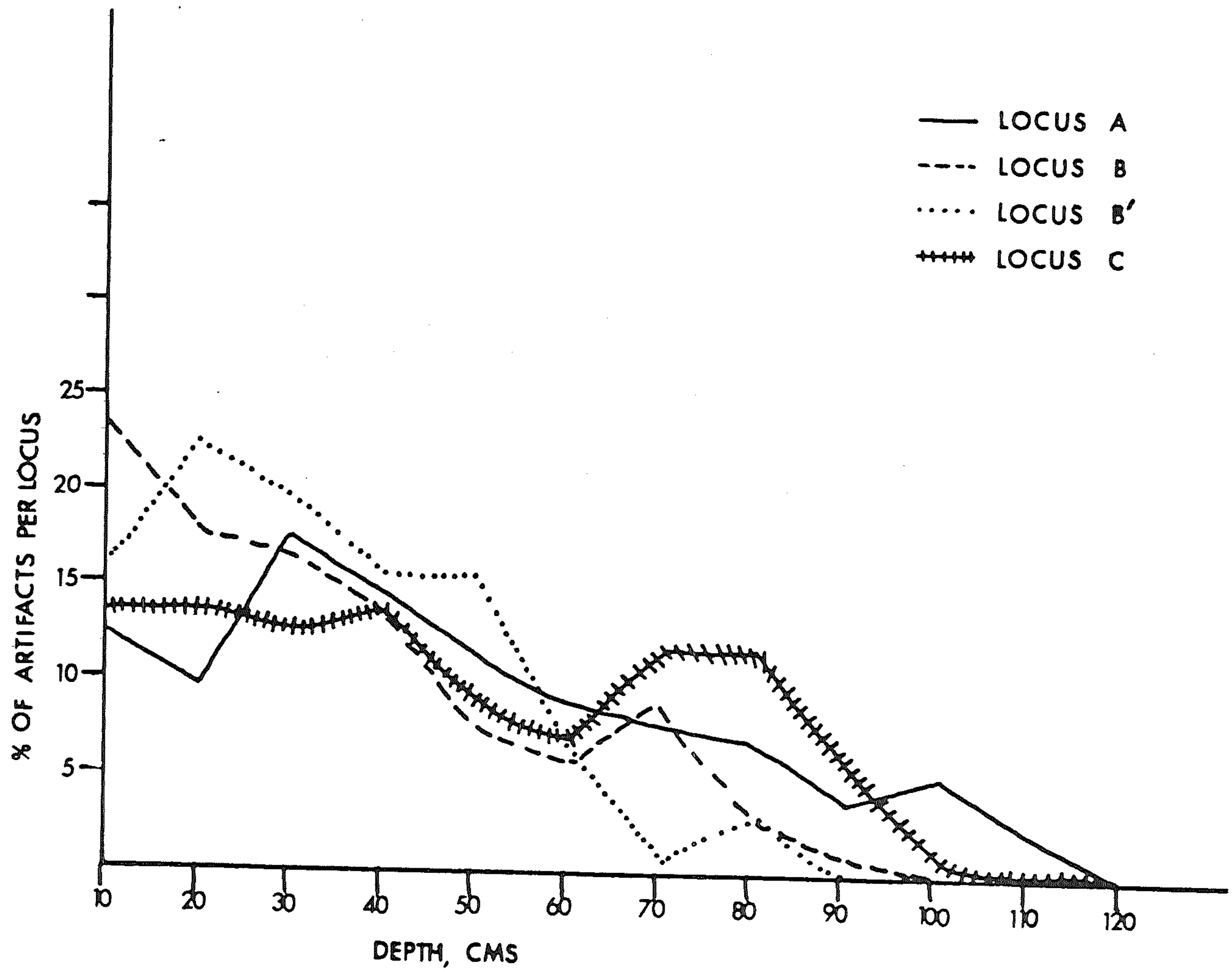


FIGURE 3 : VERTICAL ARTIFACT DISTRIBUTIONS, BY LOCUS: VEN-294

density (and the activities that generated these remains) increased on Locus C in the same levels.

However, it is not immediately apparent that the artifacts recovered from a certain arbitrary level in an unstratified site are necessarily contemporaneous with those recovered from the same depth at another location. This is because, as mentioned above, temporal change has both a vertical and horizontal trajectory across and through a site. While this argument may be intuitively obvious, its importance for archaeologists working in unstratified midden sites has not been emphasized enough. The complexity of the archaeological sampling problem is illustrated in Figures 4 and 5, which represent hypothetical archaeological sites. Figure 4 depicts a classic case of "layer-cake" stratigraphy and is representative of the normative model many archaeologists hold of archaeological sites. Temporal changes are studied solely by vertical changes in artifact distributions; implicitly, here, human behavior across space is seen as constant, resulting in uniform horizontal artifact distributions. Figure 5 is a more realistic representation of prehistoric behavior patterns, with both vertical and horizontal shifts in artifact distributions occurring through time. For an archaeologist looking, for example, at a column sample, the problem is to determine whether vertical changes are due to changing cultural patterns or just horizontal shifts in activity areas. This, however, was not done in the analysis of Ven-294. Instead, vertical changes were isolated from the spatial dimension, and the supposed pattern of dual occupations, separated by an abandonment, remains a hypothesis with no substantive support. At this point it is not possible to determine whether the noticeable change in the curve of Figure 2 represents any significant change in either material culture attributes or population size.

This argument suggests that Ven-294 very well may have been occupied continuously, and possibly by a relatively constant population size. However, it raises a larger philosophical issue that can only be briefly treated here. This is that the conceptualization of Ven-294 as evidenced in the original site report and as depicted in Figure 1 represents a Newtonian philosophy regarding time and space, i.e., time and space are treated as separate dimensions. Analysis can be undertaken by considering only one of these factors. Thus, the vertical artifact distribution at Ven-294 is interpreted with no regard for spatial factors. Since the 1940s, archaeologists have been arguing for a process-oriented approach to the study of prehistoric remains (see, for example, Steward 1942; Willey and Phillips 1958; and especially, Binford 1968 and 1977). Interest in <u>process</u> has developed in the sciences, in general, out of a Kantian

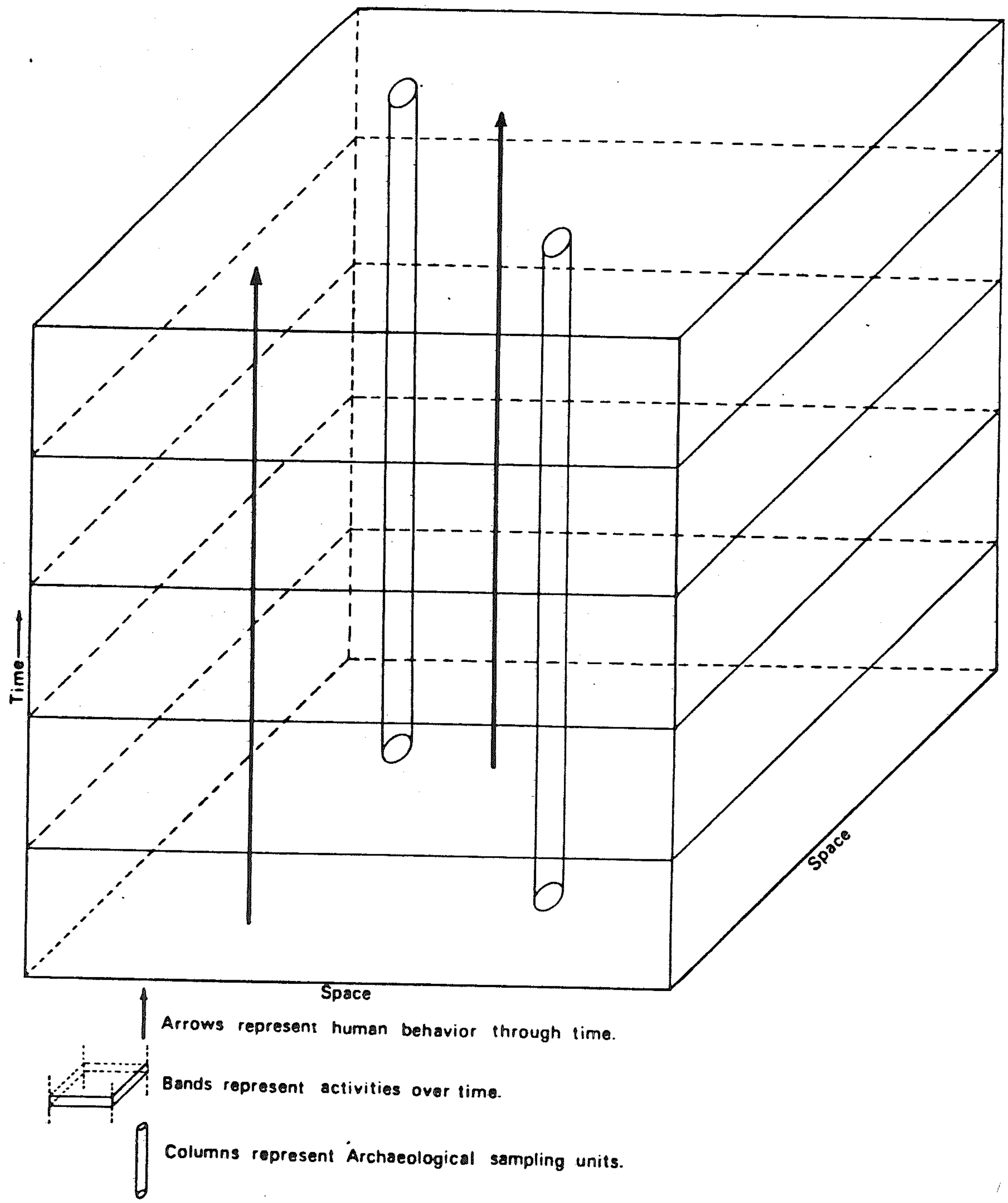


FIGURE 4 : A HYPOTHETICAL ARCHAEOLOGICAL SITE, FROM A NEWTONIAN PERSPECTIVE

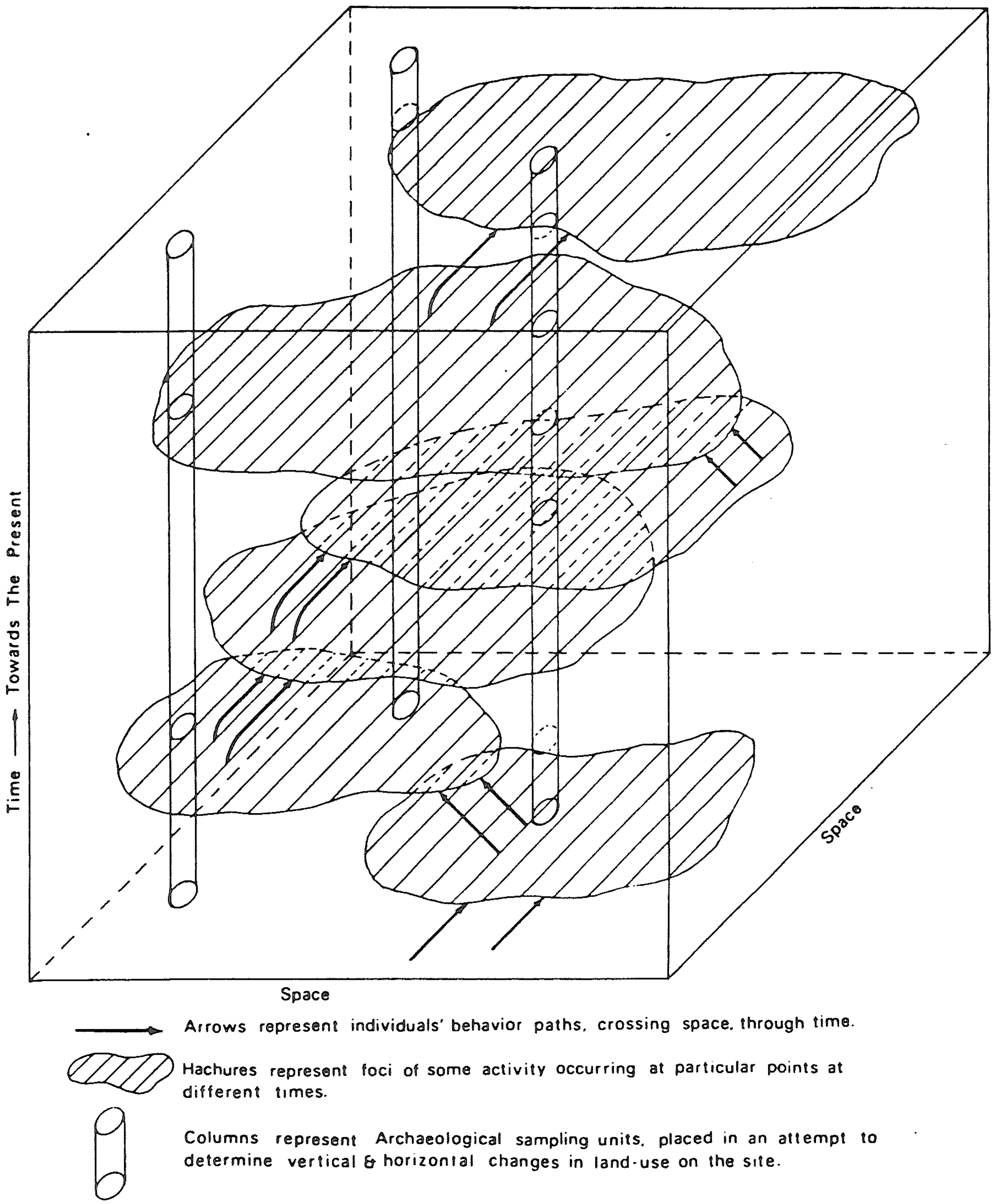


FIGURE 5: A HYPOTHETICAL ARCHAEOLOGICAL SITE, FROM A KANTIAN PERSPECTIVE

philosophy. Here time and space are inseparable; one cannot be considered without including the other. A Kantian perspective of an archaeological site and the behavior that created it is represented in Figure 5. It is argued, then, that the original interpretation of Ven-294 is representative of the general approach taken by many archaeologists. This approach to analysis, which is implicitly Newtonian, tends to isolate time from space. The avowed goals of most archaeologists, however, are founded on Kantian principles. Thus, a major contradiction between the underlying philosophies of archaeologists' methodologies and their research goals is seen to exist.

To summarize, in this author's opinion, no temporal changes in artifact distributions have been positively demonstrated at Ven-294. This does not necessarily mean that no changes occurred over time at this site; rather, the methods currently employed by archaeologists are both inadequate to deal with the complexities of temporal/spatial processes and at odds philosophically with the aims of the discipline. It is felt that a clear recognition of the problem, however, is the first step towards developing a methodology that is both philosophically consistent with, and analytically appropriate for, the goals envisioned by researchers.

An analysis of shellfish remains (Hector 1978) at Ven-294 indicates a vertical density drop-off with depth. Again, this may or may not represent a change in the use of shellfish through time, although similar vertical density patterns at three of the site's loci suggest that in this case it may be a more reasonable assumption. The shellfish report, however, emphasizes the minimal contribution that marine resources made to the diet of the site's inhabitants. An analysis of fish remains (Roeder 1978) corroborates this conclusion. Further, it is suggested that fish resources were obtained by trading with the coast, rather than caught directly by the prehistoric population from Oak Park, as evidenced by the absence of fishing gear in the site's artifact assemblage (ibid:125).

Thus, the previous research at Ven-294 indicates that it was a habitation site, probably occupied after Ven-123, at which a large variety of activities occurred. Whether temporal changes in cultural and activity patterns occurred is undetermined. Coastal resource remains indicate some contact with the shoreline environment, and types of artifacts absent at the site have led one author to suggest that this may indicate trade with the coastal population rather than direct access to the coast.

Finally, a cursory examination of the artifacts from nearby Ven-39 suggests that Ven-294 and Ven-39 were contemporaneous, and the carbon-14 samples from the two sites indicate, at least, that Ven-39 was occupied towards the latter end of Ven-294's inhabitation. In addition, this examination (which we point out was neither rigorous nor thorough) suggests a functional similarity between these two midden sites. Both contain analogous collections of projectile points, large quantities of groundstone and similar types of shell beads. It can be noted, too, that although these sites are circa 1-1/2 miles apart, they are both situated within essentially identical environmental settings, such that the set of exploitable resource zones available to the populations of either site were essentially the same.

Ven-125 is interpreted by Wells (1978) as a seasonally occupied camp or small temporary settlement associated with a larger population center. Projectile points and beads indicate that it was occupied during the Late period, with a maximum temporal span of A.D. 700 to 1785 and minimally only occupied from ca. A.D. 1500 to 1700 (ibid.). Faunal remains from Ven-125 (Langenwalter 1978) show a change from the range of environments that had been exploited at Ven-294. Specifically, chaparral species (such as brush rabbit) are rare at Ven-125, although they are common in the Ven-294 collection (ibid.). Shellfish remains from this site, finally, exhibit similarities with the proportions recovered from Ven-294, with mussel, abalone and littleneck clam predominating. In that these represent shell species found in a restricted coastal environment, it can be argued that the environmental zones from which Oak Park's inhabitants obtained shellfish did not change significantly over time.

Previous research at Oak Park indicates a lengthy aboriginal occupation for the area. Habitation sites are represented by Ven-123, Ven-39, Ven-294, and Ven-125. Ven-123 apparently predates Ven-294, indicating a minimum age (based on the arguments presented above) in excess of 2500 years B.P. Initial impressions from Ven-39 are that it is contemporaneous with Ven-294, dating from ca. 500 B.C. to approximately A.D. 1100. While Ven-123 and Ven-294 are immediately contiguous, Ven-294 and Ven-39 are separated by approximately 1-1/2 miles. Thus, acceptance of the proposition that they were temporally contemporaneous requires some explanation of their closeness and similarity. As mentioned above, a cursory examination of the artifact assemblage from Ven-39 suggests that it was functionally analogous to Ven-294. Although it could be argued that Ven-294 and Ven-39 represent seasonal occupation sites inhabited at different periods in the Oak Park population's yearly hunting and gathering rounds, an examination of their environmental settings suggests otherwise. Both sites are located in basically the same environmental zones with essentially identical catchment areas. It is proposed here that these two sites are contemporaneous and functionally analogous. Further, it is suggested that they represent two separate population units, each exploiting similar ecological zones. Formalization of these hypotheses and adequate tests of their supporting arguments will only be possible when a final report on Ven-39 is available.

Ven-125, from all indications, postdates both Ven-294 and Ven-39. In addition, it is somewhat smaller in vertical and horizontal extent than these earlier sites, which can be explained by its more limited temporal occupation span. The artifact assemblage from Ven-125 differs significantly from the earlier occupations. Noticeably absent are the quantities of groundstone that were recovered from Ven-294 and Ven-39. Yet, it is known ethnographically that the Inland Chumash relied heavily on plant resources. It is argued that this difference in artifact assemblages over time does not represent a radical shift in resource exploitation patterns; rather, it indicates increasing functional localization over space. That is, Ven-125 does not represent a substantial change from a heavy reliance on plant resources to one strongly emphasizing hunting, but a somewhat consistent hunting and gathering pattern in which certain activities generally only occur at specific locales. Functional localization in hunting patterns, in fact, is suggested by the changes seen in faunal remains. Hunting still appears to contribute to the total aboriginal diet in the same way that it did at Ven-294; however, hunting patterns show more locational specialization in that fewer environments are being exploited. Following this argument, it can be suggested that many specialized activity sites, such as Ven-124, Ven-40, and Ven-44, which show a strong predominance of groundstone in their artifact assemblages, are not millingstone sites in the temporal sense, but millingstone sites in a functional sense. These sites are more probably temporally related to late sites such as Ven-125, where groundstone is rare, but where plant resources are known to have been important parts of the diet. Similarly, the functional specialization of these small sites is supported by their consistent location on low knolls, which tend to be best situated to pick up any local breezes, thereby maximizing their utility as winnowing stations.

In sum, a general notion of the chronology and functional specialization of some of the sites on Oak Park has been obtained from previous research. However, any clear understanding of the area's prehistory requires a consideration of the other sites on the Medea Creek drainage and of the prehistory of the surrounding inland area. The following section briefly summarizes some of the previous research that is germane to an understanding of the archaeology of Oak Park.

ARCHAEOLOGICAL RESEARCH IN THE SURROUNDING AREA

Considerable archaeological research has occurred in the area historically occupied by the Chumash but, with rare exception, it has been both site specific and undertaken with a strong coastal perspective. For example, an *a priori* assumption of many writers has been that inland sites, such as those found in the Oak Park region, represent seasonal camps of the coastal Chumash and their predecessors. Seemingly, no consideration for the integrity of the inhabitants of the Conejo Valley area as a separate, year-around population was made. This assumption contradicts ethnographic data gathered by John P. Harrington in the Ventura area. One of his unpublished notes on the Ventureño dialect, collected from the informant Fernando, illustrates the recognition of the coastal versus the inland populations:

> V. (Ventureño) *anakskutanpinpin* = shore birds --- *maritimas*. The coast Indians were compared with the birds which were always along the seashore playing and preying on little seashore bugs. *pinpin* refers to travelling along (the) seashore. *kalpinli* = I travel along the coast by the seashore. *K^cKutan* = I get up, rise from bed, (;) said by children. *anak* refers to a small group of anything. This word, *anakskutanpinpin*, is applied by the inland Indians to the coast Indians. (J. P. Harrington collection, Box 10, National Anthropological Archives, Smithsonian Institution, Washington, D. C.).

Similarly, the chronology for the entire Chumash area has been one either based on coastal sequences, resulting in an emphasis on diagnostic artifacts related to maritime adaptations, which are obviously not applicable in inland sites (see, for example, Rogers 1929; Wallace 1955 and Harrison 1965), or one originally proposed for central California by Lillard et al. (1939). This last scheme seems to fit the inland area better than the coastal sequences, although its application to southern California has been limited largely to shell bead collections (see, for example, Gibson n.d.; King 1973). These bead seriations, in addition to providing a relatively tight chronology, avoid the inconsistencies and difficulties inherent in using changes in functional artifacts (that may be related to a site's environmental situation) as diagnostic types. However, lacking beads and organic material (as is common, for example, on small surface scatters) there is no recourse for the researcher but to attempt to frame a site chronologically in terms of the coastal sequences. Thus, a well-defined chronology, based on data obtained from functionally similar sites with reliable absolute dating controls, is one of the most important needs in inland research. Once a temporal framework has been established for this area, it will be possible to adequately correlate the inland record with the coastal sequence and begin to rigorously examine the influences that changes in one area had on the other.

Although archaeological research along the coastal Chumash area has a relatively long history, investigations in the inland area began with a somewhat slower start. The Rev. Stephen Bowers showed the first interest in the archaeology of the Conejo Valley area, specifically, when he looted an unidentified aboriginal cemetery in 1877. Since Bowers' collections have been housed at the Smithsonian Institution in Washington, D.C., it has been possible to examine the accession records of the Institution's Department of Anthropology in regard to his Conejo collection. Unfortunately, the only items identified as originating in his Conejo investigations proved to be either geological specimens or non-aboriginal historical artifacts. Arthur Woodward, in a more scientific vein, excavated what he called the Canterbury Cave and Lake sites for the Los Angeles County Museum of Natural History in the early 1930s (Woodward, n.d.). This site complex is located at the eastern end of the Hidden Valley and has been destroyed by the modern, man-made Lake Sherwood. A historic village was evidently located here which, possibly, was one of the four visited by both the Portola and Anza expeditions in the eighteenth century.

Modern research began in this area with excavations at Ven-15, the Triunfo Rockshelter (Kowta and Hurst 1960). This small site is reported to have contained an artifact assemblage very similar to that found in the Early Millingstone Horizon, as indicated by a comparison with the Topanga Culture described for LAn-1 by Treganza and Malamud (1950). The preservation of perishable items at this site contributes some depth to our understanding of the material culture of the area's early inhabitants.

Glassow (1965) has reported on excavations at Ven-69, the Conejo Rockshelter. This small site is located above the north fork of the Arroyo Conejo, approximately two miles east of a site complex situated on the main branch of the drainage. Glass trade beads indicate that

Ven-69 was occupied into the historic period and a reexamination of the projectile points collected at the rockshelter suggests that its inhabitation was also contemporaneous with those at Ven-261, Ven-272 and Ven-449, located along Arroyo Conejo. Glassow suggests that the inhabitants of this rockshelter derived most of their resources from the inland area, although occasional supplements of marine resources were obtained specifically from Mugu Lagoon. In addition, Glassow proposes that the shelter was permanently inhabited, logically, by a social unit composed of a single family group.

Ven-70, located on the northern foothills of the Santa Monica Mountains overlooking the Conejo Valley, was excavated and discussed by Leonard in 1966. This Late period site is argued to represent a temporary camp periodically used by the coastal population to exploit plant resources (Leonard 1966), although it is not completely clear why this position is taken. Further, it is suggested that Ven-70 is more like the Gilmore Ranch site, located on the coastal side of the Santa Monica Mountains, than Ven-69. This is not surprising in that the first two sites are open-air camps or villages, while Ven-69 is a small rockshelter. Finally, shellfish remains from Ven-70 suggest a tie to Shuwalashu, the historic site at the mouth of Big Sycamore Canyon, rather than to Mugu Lagoon (ibid.).

The first excavation of an entire site complex is discussed by King, Blackburn and Chandonet (1968). This complex consists of the three Century Ranch sites, LAn-225, LAn-227 and LAn-229, located along the Las Virgenes Creek and, therefore, downstream from the Oak Park area. A chart (ibid:93) dates the occupations of these sites from approximately 5500 B.C. to 3000 B.C., 150 B.C. to A.D. 850, and A.D. 850 to 1800, respectively. The temporal gap between the inhabitation of LAn-225 and LAn-227 is explained as representing a period during which no inland villages existed (ibid.), although it is conceded that part of the occupation of LAn-1 in Topanga Canyon may date from this period. Rather, it is suggested that most of the inland villages were first settled ca. 2300 B.P., which marks the end of a period of rapid innovations in fishing technology on the coast. The only other change in site distributions in the Santa Monica Mountain area that is noticed is the establishment of gathering camps, probably around A.D. 1200.

While the dating of the two latter sites, LAn-227 and LAn-229, seems well substantiated in this report, no explanation is presented for the date of 5500 B.C. to 3000 B.C. assigned to LAn-225, nor for the proposition that the period from ca. 3000 B.C. to 150 B.C. lacked inland villages. However, the justification for the age of LAn-225 appears to be outlined in an earlier report (King 1967) in a discussion of Early Millingstone mortuary complexes. The similarity between the burials at LAn-225 with the earlier graves at the Tank Site (ibid:64) and the similarity between these early interments at the Tank Site and a carbon-14 dated lower burial at the Little Sycamore Shellmound apparently form the basis for assigning LAn-225's occupation to the 5000-3000 B.C. range.

It is not clear, however, from the discussion and definition of the three proposed temporally diagnositc mortuary complexes that they form meaningful diagnostic units. The first mortuary complex is characterized as containing "either flexed burials or reburials under cairns of millingstones and other large rocks," although at the Glen Annie site "several extended burials also are contemporary with the complex..." (ibid:64). The second phase is tentatively dated by a carbon-14 sample associated with a burial at LAn-222, and is defined on the basis of extended burials, although "flexed burials are also found at this time" (ibid.). Finally, the last complex "is composed of flexed burials usually face down" (ibid.). No mention of cairns is made for either the second or third complexes, and no other distinguishing characteristics are presented.

Although five burials positioned under cairns were located at LAn-225, only one was sufficiently preserved to indicate the body position. Seemingly, then, we are led to believe that the very early age of LAn-225 has been determined solely on the presence of cairns covering the human remains. Excavations at Oak Park, on the other hand, indicate that cairn burials were used in this drainage throughout the prehistoric period. Thus, there is a continuity in burial practices within this drainage indicating that these factors are not adequate temporal diagnostics. It is argued that the mortuary complexes as outlined by C. King (1967) are not sufficiently defined to propose an age of 5000-3000 B.C. for LAn-225. To summarize, it is argued here both that there is not enough evidence to justify the antiquity assigned in the literature to Ven-225 and that there is reason to believe that a Millingstone horizon occupation immediately preceded the Intermediate period in this part of the inland area. No evidence of a 2000 year hiatus in inland habitation is indicated.

Major excavations were conducted at the Medea Creek village and cemetery (LAn-243v and c) during the late 1960s. This site is located about two miles south of Ven-294, and may represent the small historic village noted by Portola and referred to as Agua Amarga ('bitter water').

A limited site report (Singer and Gibson 1970) and a partial analysis of the cemetery (L. King 1969) have been published on LAn-243. King's (ibid.) analysis of burials at this site has led her to make a series of inferences about Chumash social organization. First, she suggests that social identity was ascribed by birth and that the population represented in the cemetery came from a ranked society. Second, areal divisions and differences in graves and grave lots led her to hypothesize that three kinship groups, with differing statuses, are buried in the cemetery. Next, temporal continuity in the grave lots within the defined areal units indicates that the social structure was stable for the 300 years that the cemetery was used. Finally, a comparison with Stickel's (1968) analysis of the earlier Rincon cemetery suggests that at some time in the prehistoric period a transition was made from an egalitarian to a ranked society.

While there is some amount of subjectivity in King's areal analysis of the grave lots and consequent areal differentiation, she provides a considerable amount of ethnographic evidence supporting her conclusions. Thus, her suggestion that exactly three kinship groups are represented in the cemetery is not as important as her recognition of ascribed status within the burial population and her attempt to link status groups to a ranked kinship structure in the Chumash area.

Singer and Gibson (1970), as mentioned above, have provided an analysis of the stone tools excavated from the village area of LAn-243. This study indicates that a wide range of general maintenance and manufacturing activities occurred on the site. Primary extractive tools are noticeably rare, which is explained in that numerous specialized seasonal gathering sites are located upstream and in the immediate vicinity of LAn-243. Unfortunately, no documentation of the other classes of artifacts recovered during the excavation of the village are included in the report, so important information on faunal and molluscan remains, bone and shell artifacts, and temporal diagnostics is unavailable.

Within the last four years the Inland Chumash Research Project has intensively investigated the prehistory of the Conejo Corridor. In addition to research at Oak Park, of which this volume is a result, surveys, preliminary subsurface tests and major excavations have been undertaken, or are currently being completed, in Lindero Canyon, at Westlake, and in the Arroyo Conejo. These studies have contributed greatly to a comprehensive understanding of the archaeology of the area, and have indicated significant patterns and trends in the aboriginal occupation of this region.

Three seasons of research on the Arroyo Conejo have resulted in both a complete inventory of the sites in this area (Clewlow, n.d.b) and preliminary excavation results from Ven-65 (Prichett and McIntyre 1979), Ven-261 (Whitley et al., n.d.; Prichett and McIntyre 1979), Ven-170, Ven-171, Ven-272, Ven-437 and Ven-449 (Clewlow, n.d.c). This work, most of which is in the final editing stages for publication, has identified the west side of the Arroyo Conejo as the location of at least one, and possibly two, site-complexes similar to those at Oak Park and Century Ranch (Whitley, n.d.:123). It has been noted in this drainage that the pattern of settlement and, by inference, the environmental requirements for village location, did not differ significantly from the Early Millingstone through the early Late period. During the terminal late prehistoric period, however, some change is indicated, with the latest site locations moving off the table directly above the main branch of the Conejo to less accessible locations above smaller tributary streams (Whitley et al., n.d.). Additionally, excavations at Ven-271 (Johnson 1979) located just north of the Ventura Freeway at Westlake Boulevard, indicate a prehistoric inhabitation beginning in the Early Millingstone horizon and continuing through the Late period.

A considerable amount of research, in addition, has been completed in the inland areas surrounding the Conejo Valley region. This work, to varying degrees, bears on the research at Oak Park. The Simi Valley Rockshelters, located at the eastern end of Simi Valley and, therefore, northeast of Oak Park, were excavated in the late 1940s (Shiner 1949) and again in 1967 (Burnham and Durbin, n.d.). These latter authors suggest that the occupants of these Late period shelters were Chumash speakers and that the marine supplement to their diet was probably derived from a sandy-bottom lagoon environment such as occurs at the mouth of the Calleguas River at Point Mugu. In addition, they point out how common Desert Side-Notched points are in the Inland Chumash area. This is in contrast to other authors who have been perplexed by the appearance of this "Shoshonean" point type in the coastal California area (cf. Glassow 1965). Recent research has substantiated these authors' contention; in the Conejo Valley area, side-notched points have been reported from Ven-69 (Glassow 1965), Ven-261, Ven-294 (Rosen 1978), and Ven-39. Eberhart (1957:212) has suggested a date of 1000 to 1200 for their introduction into southern California and Clewlow (1967) dates them from A.D. 1300 to historic times in the Great Basin. However, the sites in which they have been found in the Conejo area are generally Intermediate/early Late period villages. While no absolute dates have been obtained associated with the side-notched points, the relative dating of these sites suggests that the age of this point type in this area may be earlier than is argued in the literature. It can be hypothesized, in fact, that these side-notched projectile points predate A.D. 1000 in the Chumash area and that, rather than representing a Shoshonean influence into the Chumash area, they may indicate a Chumash influence into the desert areas of southern California. Obviously more research into this problem is required before any conclusions can be made.

Susia (1961), Greenwood and Browne (1963) and Galdikas-Brindamour (1970) have reported on excavations of inland village sites. These three excavations all involved Late period sites and provide comparative material for the Oak Park research. The first two reports are representative of the "coastal" perspective that many authors have taken towards inland sites. This can, undoubtedly, be attributed to the lack of previous inland research at the time they were written. Galdikas-Brindamour (ibid.), on the other hand, presents one of the first attempts to establish these late inland sites as sedentary villages. In addition to recognizing the probable sedentary nature of LAn-246, she establishes the importance of trade and identifies social ranking within the excavated cemetery population at the site.

Previous substantive research, then, has built up a considerable data base and has served to define some of the major problems to be addressed by later researchers. Leonard (1971) has provided the only substantial synthesis of this area which, while undertaken at a relatively early stage in inland research, has managed to predict some of the gross trends in the culture history of this part of the Chumash sphere. In general, the developmental sequence for this area was characterized by increasing population size and concomitant intensified resource exploitation, as well as social complexity (ibid.). While continuity in site location is recognized in this synthesis, particularly regarding coastal villages, the predominance and importance of this pattern is somewhat overlooked for the inland area. Thus, while trade and inter-village interaction may increase towards the present, the basic locational requirements and, by inference, ecological needs of the population can be considered constant in the Conejo Valley. Similarly, in that there is a consistent association of early/middle/late inhabitants at a number of locations, it is not apparent that population size necessarily increased. Rather, the general pattern of these site complexes suggests that it may have been relatively constant in the inland area.

Tainter (1972; 1975) has provided models of economic organization between the coastal/inland populations and within the inland area for the Santa Ynez Valley. While this valley is at the northern extreme of the Chumash territory, these papers are of importance because they specifically address some of the issues discussed in this volume. Implicit in both of these works is the notion that the inhabitants of the Santa Ynez Valley were a permanent inland population.

The first work (i.e., Tainter 1972) attempts to explain the apparent hierarchical ranking of settlements (as evidenced by ethnographic accounts; see Brown 1967:48; L. King 1969:41; Landberg 1965:34-35) as the result of a fluctuating resource base in the inland area. A simulation of the inland environment indicates that, in the long run, factors of productivity fluctuations and storage requirements were not severe enough to have resulted in a resource deficit that, in turn, would result in an inland dependence on coastal resources and concomitant hierarchical relationship. Thus, Tainter suggests that the network of resource distribution would have worked efficiently, producing an equilibrium condition in which population density was maintained in the inland area and no necessary economic dependence on the coastal villages would develop. The problem of explaining the ethnographically recorded ranking of settlements is, accordingly, assumed to be left unanswered.

Two major objections can be voiced about this simulation that cause us to reconsider Tainter's conclusions. First, the simulation assumed an unrealistic metric for the inland/coastal exchange system: yearly productivity results in deficit, adequate or surplus conditions for the inland population vis-à-vis the coastal group. An implicit aspect of this assumption is the direct monetary equation of inland and coastal resources: a load of deerskins, seemingly, is valued exactly as a basket of shell beads. This seems unreasonably simplistic for a group considered to have used a standardized monetary system.

Second, and more important, is Tainter's implicit assumption that equilibrium conditions can be equated with regional equality or, more specifically, regional inequalities only result from disequilibrium conditions. As Tinkler and Johnson (1971) have shown, these terms are by no means synonymous. Rather, and recent regional economic development literature has emphasized this point (see, for example, Holland 1976), regional inequalities can, and often do, occur in equilibrium conditions. While the realization of this fact has severe implications for the viability of the traditional economist's equilibrium models, for archaeologists it indicates that simple ecological equilibrium models, such as that proposed for the

Santa Ynez Valley, are ill-suited for simulating complex inter-regional interactive systems in which structural parameters built into the system may be the determining factors in the final output state, regardless of the equilibrium/disequilibrium conditions of the economic/ecological subcomponents of the system.

Tainter (1975) provides an analysis of the historic period inter-village economic interaction specifically within the inland Santa Ynez Valley. Again the approach is ecological. Large population size and ethnographic evidence are used to argue that each village had specific territories within this drainage. These territories are then identified and the available plant resources from each territorial unit are quantified. A comparison between units indicates that these villages had differential access to plant resources. It is unclear whether this differential access resulted in villages unable to obtain critical amounts of these resources within their respective units. In other words, although some hypotheses outlining flows of resources between villages are presented, it is implicitly assumed that villages, for example, with the least access to chaparral communities, are deficient in the resources only obtainable within that plant zone and are unable to satisfy this deficiency internally with substitution from their more prevalent resources. While the arguments for inter-village spatial competition and consequent territorialization that are presented seem good, the hypotheses for inter-village interaction fall short of providing more than a repetition of the truism that differential access to resources tends to result in interaction. More important, and overlooked by Tainter, is the similar truism that differential access to resources tends to result in hierarchical structuring within these interaction networks (see, for example, Tinkler 1972a; 1972b).

Finally, C. King (1971) has combined ethnographic and archaeological evidence to develop some general notion of economic interaction between the Channel Islands, coastal and inland Chumash populations. It is obvious that the exchange network was extensive and involved aspects of market and social/ceremonial exchanges. Blackburn (1974) has emphasized the importance of non-market exchange in integrating the aboriginal population. The works of both these authors illustrate the complexity of and the articulation between the Chumash economic and social systems.

CONCLUSIONS

This review of some of the more pertinent previous research in this area has been undertaken to establish a framework for the substantive and theoretical perspectives that will be developed later in this volume. As such, it has, perhaps, been overly critical or, at least, has been subjectively constructed in that only those aspects of site reports and papers that lend credence to, or require refutation for, arguments to be made later have been presented. However, it is appropriate at this point to bring together some general substantive and theoretical points that result from this discussion.

First, it is obvious that a substantial prehistoric record has been preserved, to varying degrees, within the inland Chumash area. This indicates both a long temporal occupation and a rather large population size. Any notion that the inland area was sparsely populated, during any period since the Millingstone, seems unwarranted. Second, it has been emphasized that the settlement pattern in the Conejo Valley area is characterized by a series of site complexes, each containing occupations ranging from the Early Millingstone through the Late period. Similar site complexes are found in other parts of the United States where, for example, Southwestern pueblos in some areas are invariably located adjacent to or on top of earlier pithouse settlements. There are a series of implications for this phenomenon, some of which are substantive and some of which are theoretical.

Substantively, in that these site complexes do not evidence access to different environmental zones, it is assumed that each of them was occupied by distinct population units, either continuously (i.e., year-round) or seasonally. Logically, these can be inferred to be extended family groups. In addition, the continuity in settlement location suggests that the environmental requirements for this population did not appreciably change over time. The archaeological record generally substantiates this, in that a somewhat generalized artifact assemblage is present in all time periods, with only minor stylistic changes in certain artifact types. Finally, a relatively constant population size can be inferred, in that the number of early versus late villages does not appear to differ significantly. It is assumed here that apparent differences in sizes of sites can be attributed to different lengths of occupation, and that each village had essentially the same number of inhabitants.

Theoretically, two important points can be made. First, if the argument for constant population size is accepted (and, indeed, substantiated by further research), the implicit acceptance by many archaeologists (see, for example Boserup 1965) of the notion that population growth is an exogeneously given variable in human populations and, therefore, a causal factor in cultural change and evolution can be rejected. Second, and equally important in terms of archaeologists' attempts at making inferences about the cultural evolution of a society based on its settlement pattern (see, for example, Earle 1976), the settlement pattern does not appear to change over time. With the recent introduction from geography of spatial statistical techniques into archaeology, researchers have made direct inferences about social structure based solely on settlement patterns. Following this type of reasoning, we would be led to infer that social organization during the Early Millingstone was identical to that of the Late period, only because the settlement patterns are the same. This seems very unreasonable and contrary both to our notions of cultural evolution over time and to archaeological evidence of increasing social complexity in this area as inferred from cemetery excavations. While this type of reasoning is explicitly not used here, it is important to point out that this problem has developed not from attempts to analyze settlement patterns, but by the assumption that a settlement system's spatial pattern is directly analogous to its organizational pattern; that is, to the functional structure of the social organization. In a later chapter a model of the inland settlement system is presented. It is emphasized, however, that this is a structural representation of the functional system inferred to be prehistorically present, rather than a mathematical interpretation of site locations.

To summarize, then, some general patterns in site location, occupational continuity and site size have been obtained by reviewing the previous research in this area. These patterns suggest inferences about the constancy of population size and number of population units within the Conejo area over time. However, these patterns also hide some of the changes that undoubtedly occurred in this area between 1000 B.C. and A.D. 1770.

CHAPTER 3
SURFACE ARCHAEOLOGY AT OAK PARK

D. S. Whitley, M. Schneider and M. Drews

INTRODUCTION

As a result of the need for bureaucratic and clerical expediency, archaeologists have been forced to record every "isolated" or "distinct" group of artifacts or patch of midden as a separate archaeological site. The definitions for "isolated" and "distinct," however, are largely intuitive; many site surveys are undertaken with no clear notion of when two adjacent "sites" become one "site" or, more importantly, when one "site" become two. Thus, our notion of "site" itself, as a unit of analysis, is somewhat unclear.

Recent emphasis on the regional approach to the archaeological record has resulted in attempts to make site definitions more rigorous. Generally, a certain distance or intervening topographical feature between two otherwise similar artifact clusters is taken to indicate separate sites. While this has resulted in explicit statements about the distance and/or topographic features used in distinguishing distinct sites, no clarification of the underlying assumptions about the importance of space in structuring behavior patterns in this type of approach is really made. Thus, it is not apparent that a certain specified distance between artifact groupings has any real meaning in terms of the prehistoric behavioral patterns creating the archaeological record in a certain region.

Previous research at Oak Park reflects this methodological problem. Seventeen archaeological sites have been recorded on the parcel; yet it is not apparent, in many cases, that these 17 areas represent spatially or behaviorally distinct units. The artifact scatters of Ven-44 and Ven-124, for example, grade into one another in the swale between the two knolls on which these sites are located (Dillon 1978), and the habitation site at Ven-123 is assumed to be distinct from the habitation at Ven-294 due to an intervening creek, separating these two "sites" by all of about 20 yards. While this situation is common in archaeology and can, no doubt, be attributed here to the fact that the area was surveyed for a period of over 15 years by various different researchers, it has structured our conceptual attitude and, as a consequence, methods of analysis and interpretation of the archaeological record. Assigning distinct site designations to each artifact scatter clustering around Ven-294, in fact, is an implict interpretation of the archaeological record, based solely on intuitive (and probably incorrect) notions about the importance of an artifact's geographical location, that is performed prior to any analysis of the data.

As mentioned above, clerical expediency has resulted in each researcher at Oak Park assigning new site designations to what are essentially reassessments of previous site records. Thus, the 1978 field season was faced with collecting and interpreting ten of these "sites," and the historical precedent of their distinction as identifiable, unique cultural resources necessitates incorporating aspects of this clerical system into our report. This chapter, then, discusses the location, collection, analysis and interpretation of seven sites determined to be surface scatters, found within Oak Park. Conceptually, however, we have restructured our analysis along our notion of site-complexes, two of which are located in the parcel.

Site complexes are defined as geographically distinct and functionally analogous clusters of prehistoric activity remains. Here, purposely, we give no rigorous definition of "geographically distinct"; while it is intuitively obvious that the site complexes we have identified in the Conejo Valley area are distinct (see Figure 6), we avoid employing any absolute spatial metric at this point of analysis. This, basically, is because of methodological problems involving the application of spatial statistics to archaeological data. First, for example, tests of clustering in a spatial series (such as nearest neighbor tests or quadrat counts) are tests based on continuous spatial distributions. Accordingly, observed distributions are fitted to Poisson, negative-binomial, etc., mathematical distributions to identify clustering, randomness or uniformity in spacing. However, it is obvious that archaeological sites are not located in continuous space; that is, their distribution is constrained to certain vegetation zones, particular landform areas or specific soil types, each of which has its own spatial distribution. Thus, any consideration of the correspondence between the observed distribution and the theoretical (i.e., mathematical) distribution requires knowledge of the distribution of the underlying environmental variables that structure site location. Tests for goodness-of-fit to identify clustering, uniformity or randomness in spacing, then, require a comparison between the observed distribution and a compound-theoretical distribution (such as the Poisson-Poisson, Poisson-negative binomial, etc.), which must be chosen using some knowledge of the process generating the spatial distribution of the underlying environmental constraint. At this point, we do not have that information. (See Whitley n.d.b) for a further discussion of the problems with the spatial analysis of archaeological data.)

Secondly, and similarly, since site complexes are located on a discontinuous "environmental space," we feel it would be misleading to even make some general statement about spacing, such as "site complexes tend to be x-miles apart." Here, again, the metric is one of continuous space, while it is clear that site-complex spacing is the result of the more complicated, discontinuous spatial distribution of environmental factors.

More importantly, we propose that these site-complexes are functionally analogous; that is, they each contain evidence of a complete range of prehistoric activity patterns. Thus, we expect to find (and, indeed, even site survey records indicate that) adjacent to each habitation area there are various specialized activity zones, such as chipping stations, winnowing stations, etc. In this sense, the use of separate site designations for a series of adjacent activity areas can be seen as the implicit imposition of a settlement or activity area typology on a site complex. Each site complex, seen as a distinct, independent economic unit, should then contain a comparable set of these activity types and a comparable functional artifact assemblage.

In addition, in the previous chapter it was noted that these site complexes are located in essentially identical environmental zones. Thus, it is argued that they do not represent different habitation loci for groups making seasonal hunting and gathering rounds. Rather, each represents the remains of separate population units, occupying each complex permanently or, possibly, during the same season of each year. We point out that our notion that they occupy identical environmental zones is meant in a relative rather than absolute sense. A detailed site catchment analysis of the complexes would undoubtedly indicate differences in the relative proportions of certain plant communities to others surrounding each complex. However, we have not attempted such an analysis for two reasons. First, such an approach implicitly assumes an areal territoriality based on relatively regular boundaries (for example, Thiessen polygons; see Tainter 1975). Ethnographic evidence for boundaries between aboriginal groups indicates that major topographic features were generally the delineating features between units (see Kroeber 1953). Thus, we have no real basis for defining territorial units. Second, while some attempts have been made to quantify available resources into meaningful food units, such as potential numbers of calories, it is very

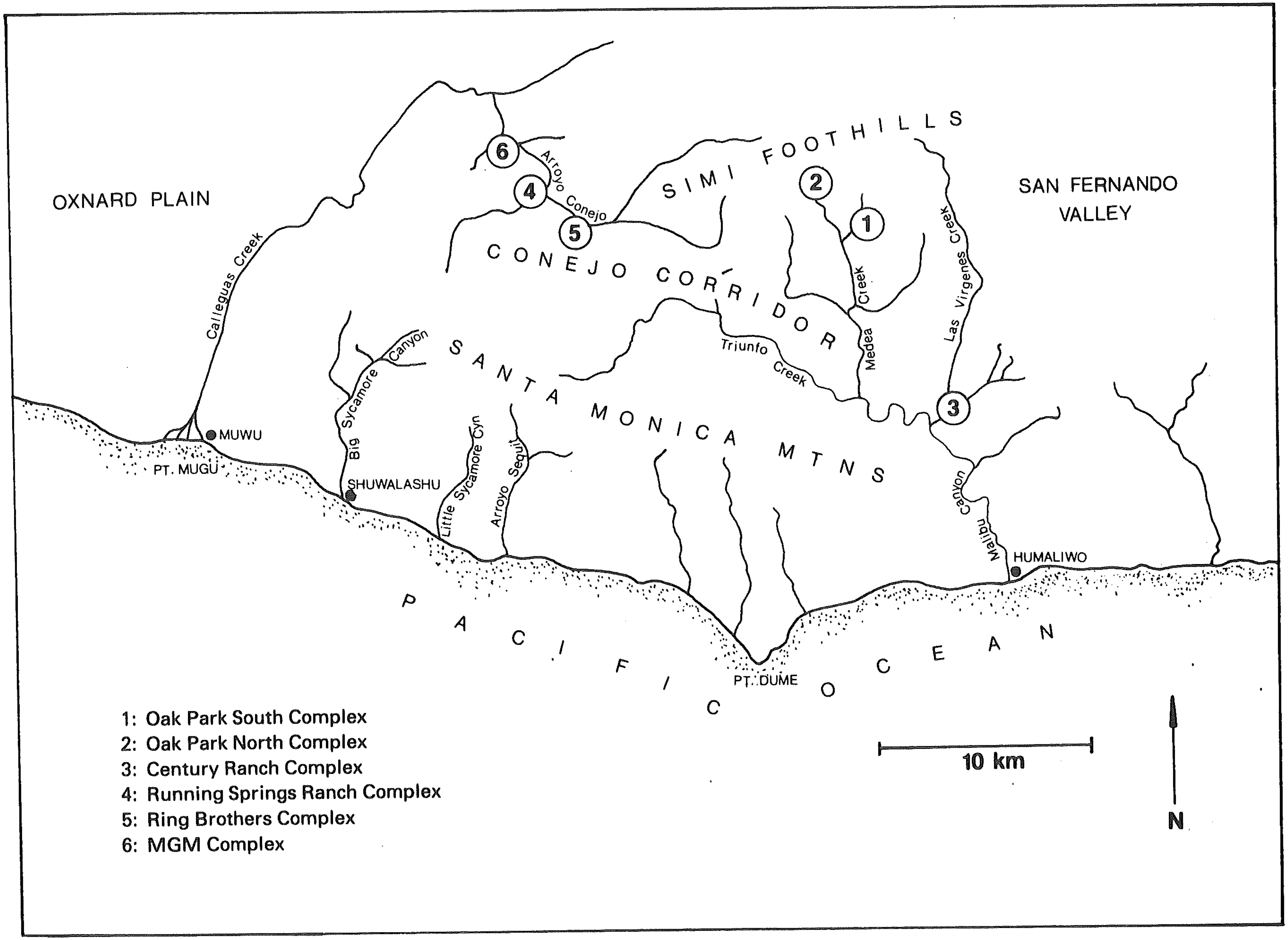


FIGURE 6 : SOME SITE COMPLEXES IN THE CONEJO CORRIDOR

difficult to determine which, if any, of the available resources were below a critical requirement level and whether internal substitution for these resources could have alleviated the demand for them. This problem of potential resource quantification and critical demand becomes acute when no real notion of the population size is available.

Thus, our definition of site-complexes as located in identical environmental zones reflects the notion that each complex had access to generalized coastal sage scrub, oak woodland, and chaparral plant communities. Some minor differences in the relative degree of access to these different communities can probably be found between complexes, but these differences may not be important in terms of resource exploitation by these separate units. In this sense, we implicitly assume that the environmental space of site locations is constant throughout the Conejo Valley area. Again, however, we recognize that this has no direct analog to geographical space as measured in meters or miles and recorded in degrees of latitude and longitude. Hence, no attempt is made to apply a geographical space metric to the environmental space in which site-complexes are situated.

Finally, it is suggested in the previous chapter that each complex indicates an inhabitation for the complete temporal range in the Conejo Corridor starting with an Early Millingstone occupation and continuing into the late prehistoric period. This suggests that each of these complexes was occupied by a distinct population group and that these population groups followed the same generalized patterns of habitation location and resource exploitation for about 3000 years. Glassow (1965) has proposed that Ven-69 was permanently occupied, probably by a single family group. His arguments can be related to the site-complexes, suggesting permanent occupation, possibly by extended family groups or small bands.

Two site-complexes have been identified in Oak Park. We have labelled these the North and South Complex, respectively (see Figure 6). The South Complex centers on the midden deposits at Ven-123, Ven-294 and Ven-125. The North Complex consists of an arc of sites starting with Ven-122 and Ven-39, extending west and then south into the Lindero Canyon. Most of the sites in this complex are not in the Oak Park parcel and, consequently, could not be included in this investigation. Fieldwork currently underway on this adjacent property, however, will enable us to add this additional data to our analysis in the near future.

A series of sections follow that outline the location, fieldwork methodology and analysis of the portion of these site-complexes within the Oak Park parcel. The material has been organized by site-complex and by clerical site designations within each complex. While limited interpretations of recovered artifacts are presented following the artifact descriptions for each site, it is emphasized that the unit of analysis used in this volume is the site or, more correctly, the site-complex, rather than the artifact itself. Thus, more substantial interpretations are detailed in a later chapter, although these too are of a regional rather than of an artifact specific nature.

THE SOUTH COMPLEX

Introduction

The South Complex is located immediately north of the intersection of Kanan Road and Tupelo Drive, in the south central portion of Oak Park. Ven-123, Ven-294 and Ven-125 form the habitation zones in this complex. Previous work on this midden area has been discussed in the second chapter of this volume, but, to summarize, it indicates an inhabitation extending back beyond 2300 B.P., starting at Ven-123, shifting to Ven-294 and finally moving to its final location on Ven-125. While some changes in artifact types are noticed between sites, there are indications of a similar resource exploitation pattern throughout the sequence. The noticeable scarcity of groundstone at Ven-125 is suggested to correlate with the apparent specialized activity areas in the complex, Ven-44 and Ven-124. Surface collections of these scatters suggest that they were plant processing areas which we have termed winnowing stations due to their location on small knolltops where breezes are prevalent. One other site was previously investigated in this complex: Ven-375. This surface site was apparently a large, open air chipping station; that is, an area of lithic tool manufacture characterized by unused primary and secondary flakes.

Five areas determined to be surface deposits were collected during the 1978 field season in the South Complex. These areas (Ven-328, Ven-329, Ven-376, Ven-541 and Ven-542) are discussed below by their clerical designation.

Ven-328

Introduction

Ven-328 is located on top of a small knoll north of Ven-44, Ven-123 and Ven-124, and one-eighth mile west of Ven-294 (see Figure 1). Chamise, sage and yucca cover the knolltop and its steeper flanks, while oak and foreign grasses occur along its gentler contours. The seasonal course of Medea Creek lies about one-quarter mile west of the site, and an eastern tributary of this creek runs 200 yards east of Ven-328.

Due to natural and agricultural factors that have been part of the development of the area over the years, a moderate amount of disturbance and destruction has occurred at the site. Heavy erosion on the knolltop and its southern slope have gradually removed most of the overlying soil. Very small, sparse grasses occur intermittently on these eroded slopes and cobbles of naturally and mechanically fractured quartzite occur on these and surrounding steeper sides. Presently, sheep seasonally graze the area and while cultivation is not evident on the site itself, furrow scars appear along the gentler slopes of the knoll base.

Ven-328 was first recorded in 1977 by members of the UCLA Archaeological Survey. Originally two loci were defined on the site; Locus 328A situated on the knolltop and 328B located along its eastern side. Both loci were described as containing light scatters of primary quartzite flakes with some quartzite tools. No other materials were mentioned. A complete surface collection and limited subsurface testing of this site was undertaken in 1978 and is described below.

Fieldwork Methodology

After establishing a datum on the knolltop, locus 328A was traversed with transects of four crew members spaced two meters apart. The light artifact density on the site enabled the crew to record the exact provenience of each artifact by sighting in its location from the datum with a Brunton compass and then measuring the horizontal distance to the artifact with a surveyor's chain. An identical procedure was employed at locus 328B; however, the recorded quartzite scatter at this locale proved to be all naturally formed flakes and cobbles, so no actual collection was recovered from this spot. Recovered artifacts are summarized in Table 1.

TABLE 1

SURFACE COLLECTION SUMMARY, VEN-328

Accession Number	Provenience (measured from datum)	Material	Length cm.	Width cm.	Thickness cm.	Description
597-1	12.5 m. 24° E. of N.	Obsidian	2.3	1.8	0.4	Flake, one edge retouched and utilized
597-2	12.5 m. 24° E. of N.	Chalcedony	2.0 1.5	1.3 1.8	0.65 0.5	Two waste flakes
597-4	20 m. 37° E. of S.	Quartzite	8.5	7.8	4.3	Cobble hammerstone

After surface collecting the site, 12 six-inch diameter auger holes were excavated. Eight of these holes were placed at five-meter intervals along the east-west longitudinal axis of the knolltop and the remaining four were placed along two north-south axes at both ends of the first transect. These auger holes were excavated by approximate 10 cm. levels. Loosened soil from each level was removed and screened through 1/8-inch mesh. All augering was taken down to bedrock, which ranged from 18 cm. below ground surface on the knolltop to 50 cm. in depth on the eastern slope. Auger results indicate that no subsurface cultural deposit is present on this site.

Fieldwork Results

The recovered collection consists of one unworked quartzite cobble which was utilized as a hammerstone, one obsidian flake with retouch and scraper utilization on one edge; and two chalcedony waste flakes. The provenience and dimensions of each of these are included in Table 1.

Interpretation

The small artifact collection recovered from Ven-328 indicates that a very limited amount of lithic working occurred on this knolltop. This site can be considered an incidental lithic production area in the South Complex. No temporally diagnostic artifacts were recovered, so it is not possible to date the site. It seems likely, however, that it could have been used at any point during the occupation of the South Complex.

Ven-329

Ven-329 is situated on a high knolltop, with an elevation of about 1100 feet above sea level, and overlooks Ven-294 to the east. The vegetation cover is predominantly low sagebrush and chamise, suggesting that little ground surface disturbance has occurred on the site. Schiowitz and Fulmer, the original recorders of the site, found a number of waste flakes and some pieces of shell on the site surface, suggesting to them that Ven-329 might contain a midden deposit.

Fieldwork Methodology

After establishing a datum on the knolltop, a series of systematic transects were walked across the top and upper half of the sides of the knoll in an attempt to locate and collect all surface artifact remains. Vegetation, while dense in certain spots, was generally light enough that bushing was not warranted. Each artifact was given a field number, located in reference to the datum with a Brunton compass and surveyor's chain, and collected.

Two perpendicular power auger hole transects were placed across the center of the knolltop to determine if a subsurface deposit was present on the site. These two transects were oriented north-south and east-west, respectively, and included five holes spaced in five-meter intervals for each transect. These holes were bored by levels of approximately 10 cm. each; loosened dirt was screened through 1/8-inch mesh. No subsurface component was indicated.

Fieldwork Results

Archaeological indicators recovered from Ven-329 are limited to one small bone fragment weighing less than one gram (#600-1) and 13 waste flakes (#600-2, 3, 4): four of chert, weighing 3.0 gm. collectively; four of chalcedony, weighing 3.2 gm.; three of quartzite, weighing 12.1 gm.; and two of fused shale, weighing 6.1 gm.

Interpretation

Ven-329 appears to be functionally analogous to Ven-328; that is, a small, incidental lithic workshop used very sporadically during the occupation of the South Complex.

Ven-376

Ven-376 is situated on the westernmost end of an east-west trending ridge, overlooking Ven-294 and Ven-123 to the northwest and west respectively. The site presently covers an area of about 600 square meters. Shallow grading has occurred along the northern and eastern portions of the ridge, making the original size of the site impossible to estimate. In addition, an indirect impact from heavy machinery traffic on the extant portion of Ven-376 has damaged what remained of the site in 1978. Non-native grasses are the predominant vegetation on the ridge. Ground coverage varies from fairly dense to light in areas where bedrock is exposed at the ground surface.

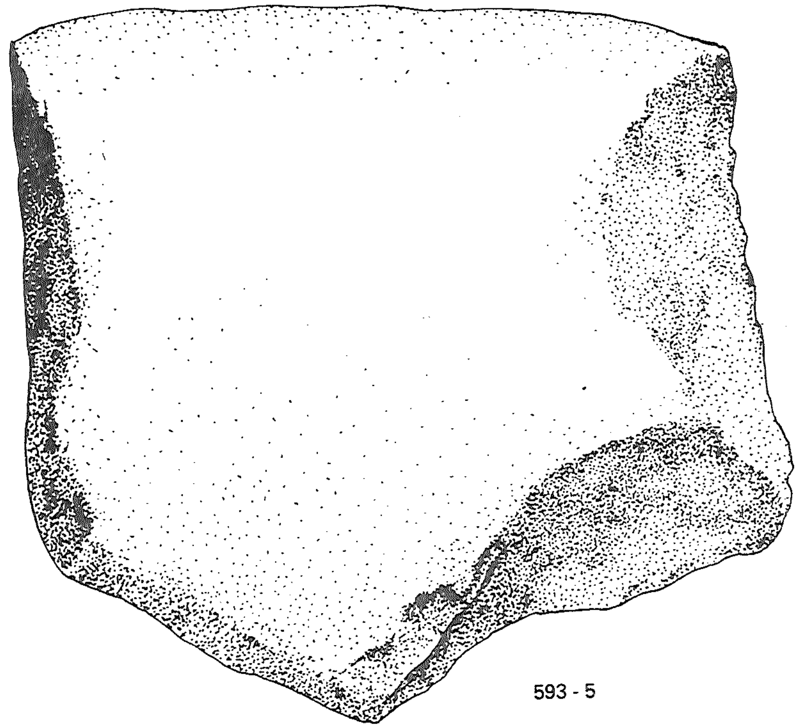
Fieldwork Methodology

After establishing a datum on the highest point of the ridge at Ven-376, a north-south line was staked out along what was estimated to be the central axis of the extant portion of the site. Four 15-meter square collection units were staked along either side of the north-south line and numbered consecutively from the datum, with units 1 through 4 located east of the center line and 5 through 8 west of the line. Ground cover in the collection area was relatively light, so no clearing was necessary. Each unit was then inspected and identified artifacts were numbered, mapped and placed in bags by unit.

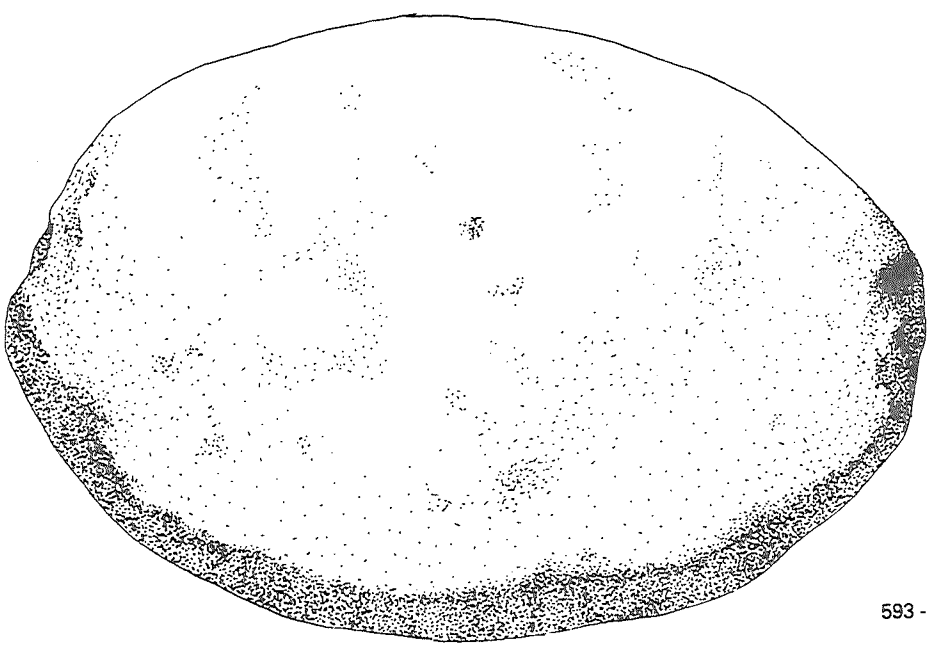
Subsurface testing consisted of excavating 12 six-inch diameter auger holes, located in five meter intervals along the north-south line through Ven-376. These were dug by approximate 10 cm. deep levels, with all dirt screened through 1/8-inch mesh. No cultural material was recovered during this process.

The surface collected artifacts from Ven-376 are described in Table 2, with proveniences and dimensions listed. This collection contains only two worked flake tools: one unifacially worked chert scraper (593-12), and one quartzite item (593-2) which is crudely worked unifacially but does not exhibit use wear. In addition, the collection includes one chert and three quartzite waste flakes with scraper use wear; one quartzite cobble utilized as a chopper; and a quartzite cobble core used as an angular hammerstone. The only other core collected is a chalcedony micro-core with three parallel-sided blade scars. Eight unutilized waste flakes were collected. All of these are quartzite, and all are fairly large, ranging in size from 3.9 cm. by 3.0 cm. (12.6 gm.) to 6.9 cm. by 4.8 cm. (57.1 gm.).

In addition, four pieces of groundstone were found: three granite manos, one complete and two with one end broken off; and one shaped, sandstone basal ground stone fragment. One mano (593-9) has one flat ground surface and the other two (593-6 and 593-18) have two flat ground surfaces. Each has been pecked on the ground surface and on the edges. The basal fragment (593-5) has two flat ground surfaces and one rounded, gently sloping edge suggesting that it may be a piece of a bowl. This piece is illustrated in Figure 7.



593 - 5



593 - 18

FIGURE 7 : VEN - 376

TABLE 2

SURFACE COLLECTION SUMMARY, Ven-376

Accession Number	Provenience (Quadrant No.)	Material	Length cm.	Width cm.	Thickness cm.	Description
593-1	1	Quartzite	6.5	4.0	1.9	Waste flake, 44.9 gms.
593-2	1	Quartzite	8.4	5.8	4.0	Crudely worked unifacially, no apparent utilization
593-3	1	Quartzite	8.1	6.9	2.7	Large flake utilized on one slightly concave edge as scraper
593-4	2	Quartzite	6.6	9.0	3.2	Large flake, one straight edge utilized as scraper
593-5	2	Sandstone	9.4	8.7	5.3	Fragment of shaped basal groundstone, possibly bowl - two flat ground surfaces and one rounded gently sloping edge
593-6	2	Granite	10.1	7.5	4.3	Mano, one end broken off, two flat ground surfaces, pecking on both surfaces and edges
593-7	2	Chalcedony	2.3	1.5	1.1	Micro-core, three parallel-sided blades removed
593-8	2	Quartzite	10.7	7.0	5.7	Cobble core utilized as angular hammerstone
593-9	2	Granite	12.3	9.5	6.1	Mano, one end broken off, one flat ground surface, pecking on edges and ground surface
593-10	2	Quartzite	5.6	4.1	3.5	Waste flake, 64.2 gms. Exhibits recent crushing

TABLE 2 (2)

Accession Number	Provenience (Quadrant No.)	Material	Length cm.	Width cm.	Thickness cm.	Description
593-11	2	Chert	2.8	2.7	2.2	Small straight-edge flake scraper, unworked
593-12	2	Chert	4.4	3.7	2.0	Unifacial pressure flaking on concave edge, utilized as scraper
593-13	2	Quartzite	6.9	4.8	1.9	Waste flake, 57.1 gms.
593-14	6	Quartzite	8.2	6.5	3.3	Unworked cobble with bifacial chopper use-wear
593-15	6	Quartzite	3.9	3.0	0.9	Waste flake, 12.6 gms.
593-16	6	Quartzite	5.1	3.3	1.2	Unworked convex flake scraper
593-19	7	Quartzite	5.0 4.0	4.0 3.0	2.0 2.5	Two waste flakes, 76.0 gms.
593-20	7	Quartzite	5.9 3.9	3.8 3.6	2.5 2.1	Two waste flakes, 84.9 gms.
593-18	10 m. so. of datum	Granite	11.9	8.9	5.3	Cobble mano, two fairly flat ground surfaces, pecking on edges

Interpretation

The artifacts collected from Ven-376 are all either large, crude flake and core tools, or fragments of groundstone. The groundstone indicates that plant preparation was an important activity at this site. The nature of the smaller lithics suggests that they, too, may have been part of a food production tool kit; all are large and crude and could have been utilized in cutting and pulping activities where no precision was required. Although one chalcedony micro-core was recovered, this appears to be incidental to the other artifacts on the site. This micro-core, with a number of parallel-sided blade scars, appears to be part of the blade tradition that was common in the Conejo Corridor and was first recognized at Ven-272 (Whitley and Clewlow n.d.).

Again, no temporally diagnostic artifacts were recovered from Ven-376, so it is impossible to date the use of the site. It seems likely, especially in light of its location adjacent to the midden deposits in the site-complex, that it was sporadically used during the entire occupation of the area. Functionally, the site appears to have been primarily a plant production station.

Ven-541

Ven-541 is located in a small flat bordered by a large knoll to the southwest, foothills to the north and a tributary of Medea Creek to the east. Ven-375 is situated on the opposite side of this stream and Ven-542 is found on the south face of the large knoll south of Ven-541. Dense, tall foreign grasses and scattered oak trees cover most of the flat upon which the site is located. Light brown adobe is the predominant soil type, except along the eastern portion of the site, adjacent to the stream channel. Here the topsoil has been heavily eroded, exposing a rocky subsoil with a light sage and chamise ground cover. Seasonal sheep grazing, natural erosion and probable historic discing have caused some ground surface disturbance.

Fieldwork Methodology

A complete collection of the surface artifacts from Ven-541 required an initial clearing of the dense vegetation on the site. Because of the rocky nature of the ground surface, hand-bushing using weed-cutters had to be substituted for more efficient and less arduous power weed-cutting machinery. Following an inspection of the cleared ground surface, fourteen 15-meter square collection units were placed in an L-shaped pattern over the site. Four units, numbered 10 through 13, were placed adjacent to each other on the southern portion of the site. The remaining units, numbered 20 through 29, adjoin two of the southern units and extend in pairs 75 meters eastward to the edge of the streambed (see Figure 8).

Each collection unit was systematically inspected. Each identified artifact was assigned a field number, located on each collection unit's respective recording gridsheet, and collected. Groups of artifacts found within 1/2 meter of one another were defined as clusters and recorded and bagged as such.

Eighteen six-inch diameter auger holes were dug to determine if any subsurface deposit could be identified on Ven-541. These were located in increments of 7.5 meters along the east-west axis of collection units 20 through 29. In addition, the remaining eight auger holes were placed in two north-south transects along the eastern edges of units 10, 20 and 25, and 22 and 27, respectively. These were spaced 15 meters apart. No artifacts were encountered in the augering, indicating that no subsurface component is present on the site.

Fieldwork Results

A summary of artifacts recovered from each surface collection quadrant designated for Ven-541 is contained in Table 3. A total of 85 waste flakes were collected: 39 from quadrant 28, 22 from quadrant 29, and smaller amounts from each of six other quadrants. The majority of the waste flakes (70%) are chert and the remainder are chalcedony and quartzite.

Worked artifacts recovered include the following bifacially shaped artifacts: a chalcedony knife midsection (#590-8) which has been retouched and utilized on both edges; a convex-base biface fragment (590-27) whose size suggests that it is probably a portion of a knife; a chalcedony projectile point tip fragment (590-24); and a chert basal fragment of a stemmed projectile point (590-25) which is discussed below. These artifacts are illustrated in Figures 9 and 10. The only other artifact recovered is a polyhedral quartzite cobble fragment which has one highly polished, flat, elliptical surface (590-28). The provenience and dimensions of each of these artifacts is provided in Table 3.

The basal projectile point fragment from Ven-541 (590-25) is unusual in this area; it does not appear to fall within any of the recognized types for

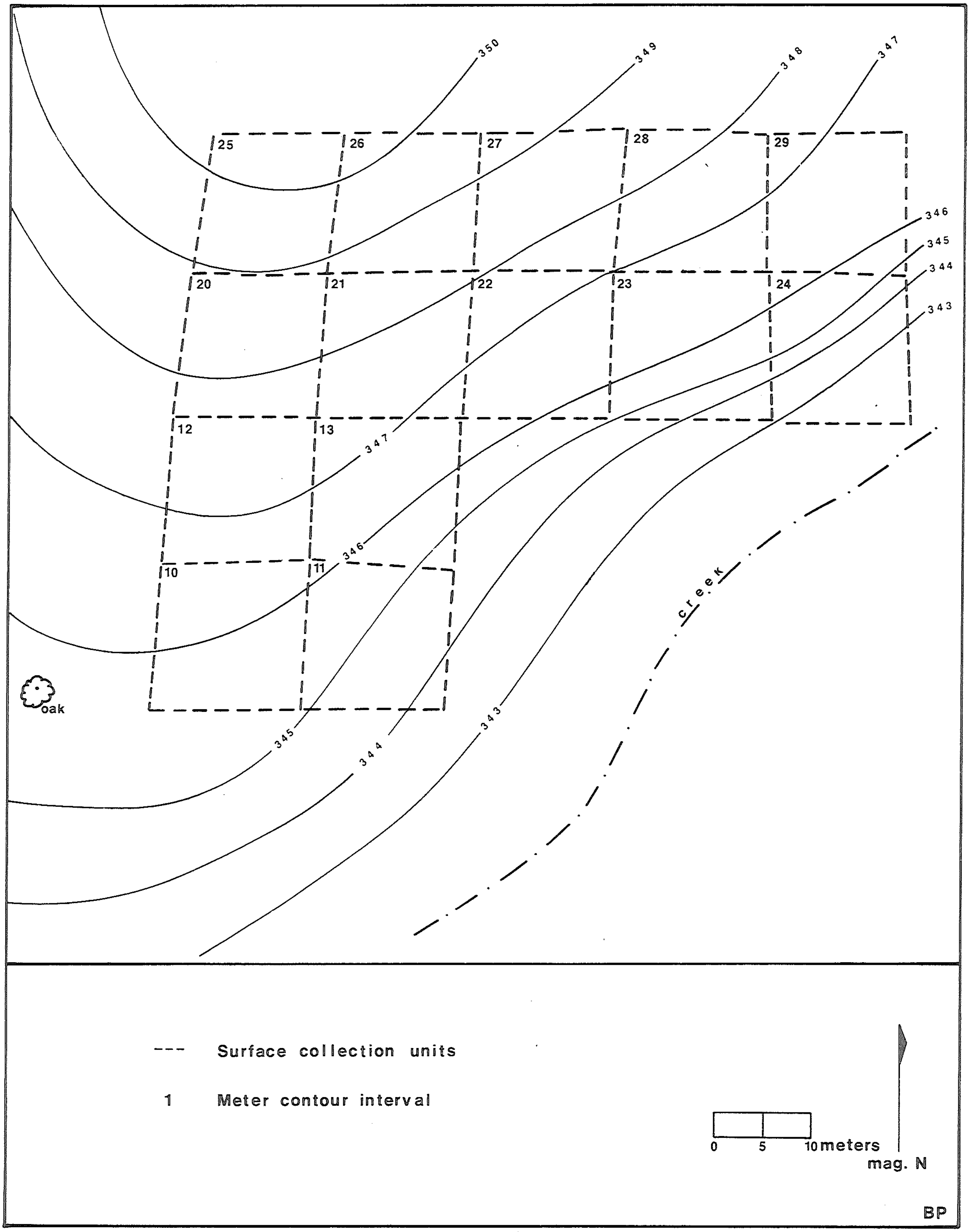


FIGURE 8 : VEN - 541

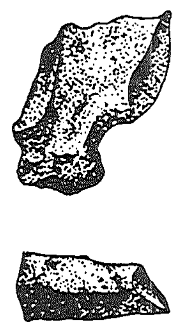
the Chumash area. However, its fragmentary nature makes it difficult to adequately reconstruct its shape. This point has a broad, finely pressure-flaked stem that expands slightly at the terminal end. The artifact appears to be deeply notched, although it is not possible to determine the configuration of the sides. Two possible reconstructions are presented in Figure 9.

The only point recorded from this area that has any resemblance to this artifact is one recovered at Ven-123, #385-422 (Dillon 1978:122, Fig. 27d). Both points bear more similarity to desert point types than to anything recovered from the Chumash area. However, as was pointed out earlier, most research into Chumash prehistory has emphasized coastal sites. Early components on the coast are characterized by large, poorly worked, nondescript projectile points. Recent research at Oak Park (particularly the Millingstone component at Ven-123) and nearby Ven-271 indicates that a noticeable tradition of well-worked, large chert knives and projectile points was present during the early period in this portion of the inland area. Presently, the sample of these points is not large enough to establish an adequate typology for these artifacts, but it is clear that a significant number of these items were either being produced in the Conejo area or traded in from the desert region during this period. Again, the resemblance between these point types and some of the early desert types is noticeable and further research will undoubtedly produce some interesting comparisons for a potentially interesting problem: Chumash and desert trading and influence patterns.

Interpretations

The artifact assemblage collected from Ven-541 is characterized by unutilized waste flakes with a small number of knives and projectile point fragments. Clearly this area was the focus of lithic activities. However, the absence of any lithic working tools (such as hammerstones) or primary lithic refuse (such as cores) indicates that this was not a primary lithic production area. Rather it appears to be an area of casual lithic working, analogous to Ven-375, located on the opposite side of a tributary of Medea Creek that borders Ven-541 (see Dillon n.d.).

Although the recovered projectile point from this site does not fit into any of the types that have been indicated as known chronological markers in this area, its similarities to early desert style points suggests that Ven-541 was used during the earliest occupation of the South Complex. This does not indicate, however, that the area was not used during later



590 - 25

FIGURE 9 : VEN - 541: POSSIBLE RECONSTRUCTIONS FOR PROJECTILE POINT #590 - 25

590 - 24

590 - 8

590 - 27

FIGURE 10: VEN - 541

TABLE 3

SURFACE COLLECTION SUMMARIES, Ven-541

Accession Number	Provenience (Quadrant No.)	Material	Length cm.	Width cm.	Thickness cm.	Description	No. waste flakes/weight in gms. (Summed by unit)
590-1	11	Chert				One waste flake	
	11	Cherty-siltstone				One waste flake	2/ 0.9
590-2	12	Quartzite				One waste flake	1/ 0.2
590-3	13	Chalcedony				One waste flake	
	13	Chert				One waste flake	2/ 3.5
590-4	20	Quartzite				Two waste flakes	2/ 1.4
590-7, 9	21	Chert				Six waste flakes	
	21	Chalcedony				Four waste flakes	
	21	Quartzite				Two waste flakes	
590-8	21	Chalcedony	1.9	1.9	0.6	Knife midsection re-touched and utilized on both edges	12/14.8
590-10, 11	22	Chert				Two waste flakes	
	22	Quartzite				Two waste flakes	4/81.2

TABLE 3 (2)

Accession Number	Provenience (Quadrant No.)	Material	Length cm.	Width cm.	Thickness cm.	Description	No. waste flakes/weight in gms. (Summed by unit)
590-18, 21, 23	28	Chert				32 waste flakes	
	28	Chalcedony				Four waste flakes	
	28	Quartzite				Three waste flakes	39/89.9
590-26, 29, 30	29	Chert				17 waste flakes	
	29	Chalcedony				Three waste flakes	
	29	Quartzite				Two waste flakes	
590-24	29	Chalcedony	1.1	1.2	0.4	Projectile point tip fragment	
590-25	29	Chert	2.5	2.0	0.7	Basal fragment of large, stemmed projectile point	
590-27	29	Chert	1.8	1.9	0.8	Convex basal biface fragment	
590-28	29	Quartzite	7.8	4.1	4.4	Polyhedral cobble with one highly polished flat surface	22/22.8
590-31	1 cm. auger 2N	Chalcedony				One waste flake	1/ 0.3

periods. In all probability this surface scatter functioned as an outlying activity area throughout the occupation of this complex.

Ven-542

Site Description

Ven-542 is an extensive, open air lithic scatter, located on the southern face of a large knoll that is situated approximately 150 meters north of Ven-294. The slope of this knoll is relatively gradual on the south side, while it drops off sharply on the north, west and especially east sides. An arroyo, in fact, runs along the eastern edge of the knoll. A dense cover of wild European grasses and fresh disc-scars on many cobbles on the site suggest that the ground surface has been disturbed in the recent past.

Fieldwork Methodology

After clearing the vegetation from the slopes and top of the knoll, a series of 15-meter square collection units were staked on the site. Thirty-nine of these were systematically inspected, with all artifacts numbered, recorded and collected by the field crew. Figure 11 shows the locations of the collection units. The provenience and descriptions of all worked artifacts is presented in Table 4. Tabulations for waste flakes, by unit, are outlined in Table 5.

While the gravelly, immature, inorganic nature of the soil on this site made it extremely unlikely that a subsurface cultural deposit was present, an attempt was made to insure the absence of buried remains by boring a series of power auger holes on the site and examining the subsurface material recovered from them. Thirty-four holes were excavated; eleven in a transect to the south, five in a transect to the east, seven in a transect to the west, and eleven in a transect to the north of our established datum. These were all spaced in ten-meter intervals. Excavated soil was removed in approximate 10 cm. levels and screened through 1/8-inch mesh. No cultural remains were encountered below the surface.

Artifact Descriptions

Surface collected artifacts from Ven-542 are summarized by collection unit in Table 4. Table 6 shows the distribution of bifacially worked flake tools. As can be seen from this table, a total of five bifaces were

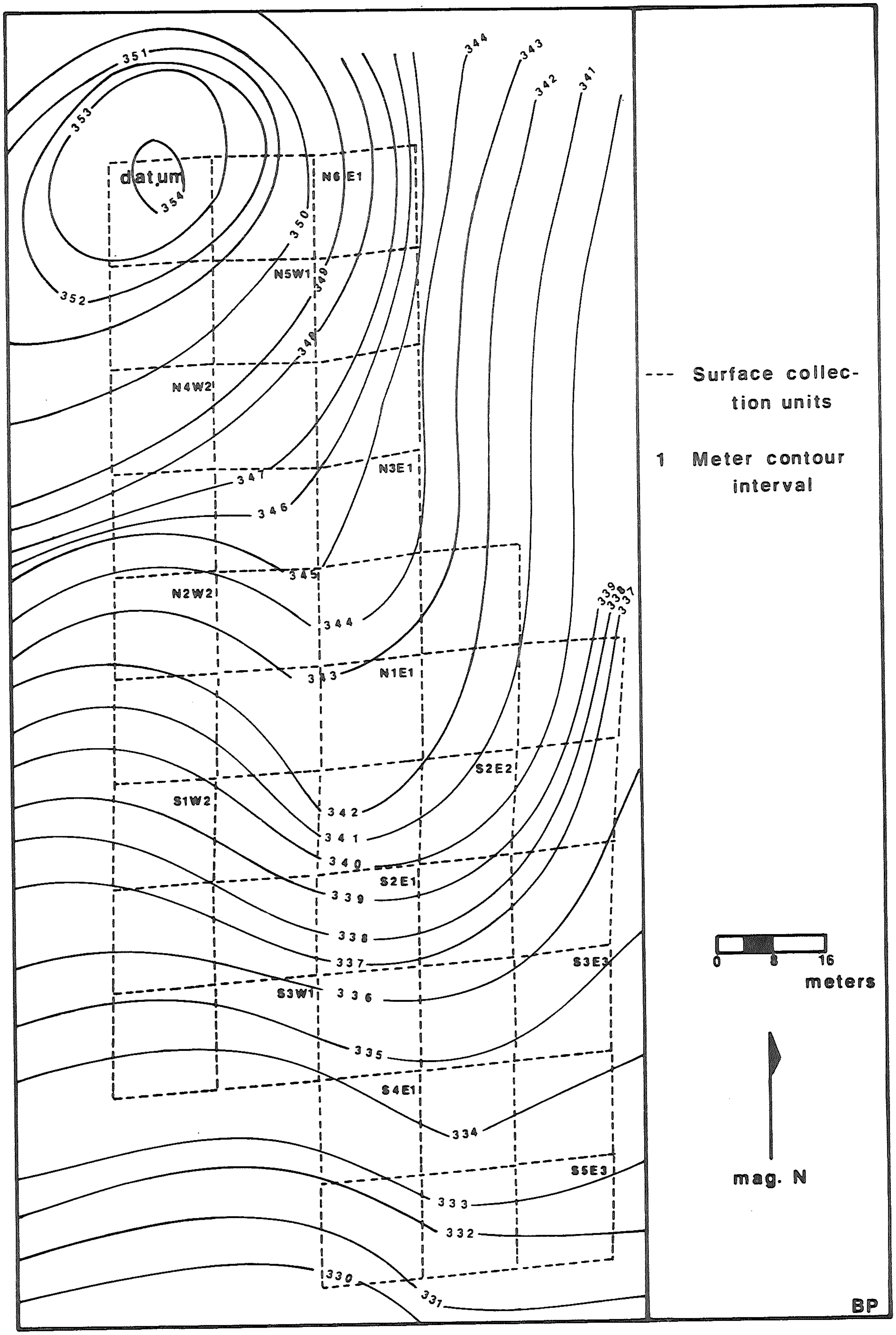


FIGURE 11: VEN 542

TABLE 4

UNIT SUMMARIES, Ven-542

Accession Number	Provenience	Material	Dimensions of worked artifacts Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-2	N1, E1	Chert	3.0	2.0	1.2	Beaked scraper, unifacially worked on all sides	
589-3	N1, E1	Quartzite	7.5	7.5	3.0	Unifacially worked cobble utilized as a chopper	
589-4	N1, E1	Sandstone	8.8	6.5	5.5	Mano fragment, pecking on edges, no shaping, one flat ground surface	
589-5	N1, E1	Sandstone	10.7	9.0	4.7	Fire cracked complete mano, pecking on all edges and one large surface, ground on opposite surface	
589-6	N1, E1	Quartzite	3.8 9.9	3.0 3.0	0.9 1.0	Two unworked flakes utilized as scrapers	10/124.8
589-30	N1, E2	Granite	13.2	7.8	3.0	Mano fragment, shaped cobble, broken on horizontal plain - ground on surface present	

(continued)

TABLE 4 (2)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-31	N1, E2	Granite	9.2	6.2	3.5	Unshaped cobble mano, ground on two surfaces, smooth except on one end, possibly used as hammerstone	
589-32	N1, E2	Shell	3.0	1.9	0.3	Fragment of Haliotis shell	
589-33	N1, E2	Bone	1.4	0.9	0.2	Small fragment	
589-36	N1, E2	Quartzite	8.0	4.5	4.0	Unifacially worked chopper	
589-37	N1, E2	Quartzite	6.9	4.1	1.5	Elongate polyhedral cobble core, flakes removed from all sides	
589-38	N1, E2	Quartzite	5.6	6.0	2.8	Unifacially worked chopper	
589-41	N1, E2	Quartzite	6.8	6.5	1.7	Unifacially worked chopper	
589-41	N1, E2	Chalcedony	1.9	2.5	0.5	One edge utilized as scraper	23/852.4
589-44	N1, E3	Fused shale	4.4	3.2	1.1	Unifacially worked and utilized as a scraper	11/126.1

(continued)

TABLE 4 (3)

Accession Number	Provenience	Material	Dimensions of worked artifacts Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-8	N2, E1	Chert	8.5	6.0	4.0	Core cobble utilized on two edges as a chopper	
589-9	N2, E1	Quartzite	3.5	2.6	1.3	Beaked scraper, unifacially worked	
589-10	N2, E1	Chert	2.3	1.6	0.6	Small notched scraper	5/273.1
589-16	N2, E2	Quartzite	6.0	5.8	5.3	Angular hammerstone utilized on several edges	
589-17	N2, E2	Quartzite	7.5	6.4	3.3	Bifacially worked chopper	
589-18	N2, E2	Quartzite	7.1	8.0	2.5	Bifacially worked chopper	
589-20	N2, E2	Chert	3.5	2.7	1.1	Bifacially worked chopper - small	3/259.8
589-47	N3, E1	Granite	12.0	8.3	4.3	Elongate cobble mano with three flat grinding surfaces, battered on both ends	
589-48	N3, E1	Quartzite	13.1	9.5	4.5	Bifacial chopper	8/383.0

(continued)

TABLE 4 (4)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-54	N4, E1	Chert	3.1	2.3	0.7	Unifacially retouched scraper	14/581.5
589-59	N5, E1	Quartzite	7.1	4.4	1.7	Large biface, bifacially retouched on tip and one edge	
589-60	N6, E1	Quartzite	7.0	5.3	2.4	Unifacially worked, unretouched chopper, utilized on one edge	
589-61	N6, E1	Quartzite	4.1	3.5	2.2	Concave scraper	
589-62	N6, E1	Quartzite	3.6	3.2	1.9	Core cobble	
589-63	N6, E1	Quartzite	6.3	5.7	3.8	Core cobble	
589-64	N6, E1	Chert	1.6	2.1	0.7	Concave scraper	
589-65	N6, E1	Quartzite	18.1	13.2	3.7	Massive flake, roughly triangular, utilized on long edge, possibly as hoe	4/105.0
589-24	N1, W1	Quartzite	7.5	7.5	3.5	Angular hammerstone	
589-25	N1, W1	Chert	3.3	2.5	0.6	Retouched concave scraper	4/ 70.7
589-28	N1, W2	Chert	2.5	2.5	1.1	Scraper, one notched edge, utilized on three edges	3/ 6.0

(continued)

TABLE 4 (5)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-12	N2, W1	Quartzite	8.5	6.0	5.5	Cobble with bifacial flaking on one edge to form chopping edge	
589-13	N2, W1	Quartzite	8.6	7.0	4.0	Angular hammerstone	
589-14	N2, W1	Chert	3.6	2.9	1.0	Retouched and utilized on one convex and one concave edge (scraper)	4/ 19.9
	N2, W2						3/ 53.2
	N3. W1						1/ 8.8
	N3, W2						5/ 18.1
	N4, W1						6/ 69.8
589-58	N5, W1	Shell				Very small fragment	4/ 14.3
	N6, W1						1/ 6.8
589-68	N6, W2	Bone	3.2	0.9	0.3	Fragment	
589-69	N6, W2	Quartzite	3.5	3.5	1.1	Retouched and utilized concave scraper	
589-70	N6, W2	Quartzite	6.5	8.0	5.7	Prepared platform core, utilized as angular hammer	

(continued)

TABLE 4 (6)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by provenience)
589-71	N6, W2	Chert	4.5	2.7	2.3	End scraper	7/ 30.0
589-74	S1, W1	Chalcedony	1.8	1.8	0.6	Concave flake scraper, no retouch	4/ 99.2
589-104	S2, W1	Chalcedony	4.3	3.3	2.1	Large thick flake with bifacial percussion flaking, crude	
589-105	S2, W1	Quartzite	4.1	4.0	2.6	Cobble core	1/ 0.6
	S3, W2						2/ 7.8
589-68	S1, E1	Chert	2.2	2.2	0.7	Pressure-flaked straight edge flake scraper	
589-69	S1, E1	Chert	2.0	2.3	1.4	Retouched concave flake scraper	
589-70	S1, E1	Quartzite	2.7	3.9	1.3	Unretouched concave flake scraper	
589-71	S1, E1	Chert	1.5	1.4	0.6	Small flake scraper with unifacial pressure flaking on one edge	
589-72	S1, E1	Quartzite	1.7	1.5	0.4	Inclined straight edge flake scraper	

(continued)

TABLE 4 (7)

Accession Number	Provenience	Material	Dimensions of worked artifacts Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by Provenience)
589-92	S1, E1	Quartzite	6.0	2.3	1.7	Parallel sided blade, utilized on one edge as a scraper	8/ 73.3
589-83	S1, E2	Basalt	3.5	3.6	1.1	One straight edge utilized as scraper	
589-78	S1, E2	Quartzite	7.3	4.0	4.8	Angular hammerstone	
589-79	S1, E2	Quartzite	2.3	3.9	1.5	Retouched convex flake scraper	
589-80	S1, E2	Quartzite	6.0	4.5	2.8	Unretouched concave flake scraper	
589-81	S1, E2	Quartzite	6.9	6.2	5.1	Prepared platform cobble core, three parallel-sided blades removed	
589-82	S1, E2	Chalcedony	1.6	1.3	0.5	Poorly worked biface fragment, no apparent utilization	
589-86	S1, E2	Quartzite	3.3	2.1	1.2	Inclined concave scraper	
589-87	S1, E2	Quartzite	7.1	7.1	6.1	Core cobble, bifacial chopper	

(continued)

TABLE 4 (8)

Accession Number	Provenience	Material	(Dimensions of worked artifacts Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by Provenience)
589-88	S1, E2	Quartzite	4.5	6.5	2.7	Percussion flakes removed unifacially to create chopping edge	
589-89	S1, E2	Quartzite	4.0	7.0	3.3	Hammerstone	
589-90	S1, E2	Shell				Three fragments _Mytilus_ _californianus;_ One unidentified clam, 4/0.7 gm.	73/525.2
589-92	S1, E3	Quartzite	1.0	2.4	1.5	Concave, end flake scraper	
589-94	S1, E3	Chert	2.1	1.7	0.7	Inclined edge concave flake scraper	3/ 11.5
589-95	S2, E1	Quartzite	10.3	8.0	5.2	Mano fragment, one ground surface, pecked on edges	
589-97	S2, E1	Quartzite	5.4	4.8	2.0	Convex flake scraper	
589-98	S2, E1	Chert	2.0	2.5	0.9	Scraper, pressure flaking on one edge	
589-103	S2, E1	Quartzite	3.7	3.8	1.4	Unifacially percussion flaked convex scraper	12/ 66.5

(continued)

TABLE 4 (9)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by Provenience)
589-108	S2, E2	Bone				Small fragment, 0.1 gm.	15/ 71.3
589-109	S2, E3	Chert	4.0	2.4	0.8	Biface with broken base, retouched on both edges	
589-110	S2, E3	Fused shale	2.5	2.2	1.2	Straight-edged scra-per	8/ 33.8
589-112	S3, E1	Chalcedony	1.1	1.0	0.8	One concave edge shaped by unifacial pressure flaking, uti-lized as scraper	4/ 1.4
589-118	S3, E2						5/ 40.8
589-118	S4, E1						3/ 9.6
589-118	S4, E2	Quartzite	9.1	5.5	6.5	Cobble mano fragment, one flat ground surface, no pecking or shaping	
589-118	S5, E1	Chert	4.5	3.0	0.9	One edge bifacially worked, one edge uni-facially worked, both show knife utilization	2/ 15.7

(continued)

TABLE 4 (10)

Accession Number	Provenience	Material	Dimensions of worked artifacts: Length cm.	Width cm.	Thickness cm.	Description	Waste Flakes (number/weight in gms.) (Summed by Provenience)
589-120	S5, E2	Sandstone	6.5	3.5	4.3	Mano fragment with two ground surfaces, pecking on edges and both grinding surfaces	1/ 5.8

TABLE 5

DISTRIBUTION OF UNUTILIZED BULK LITHICS BY MATERIAL, VEN-542

Accession Number	Provenience	Chert	Chalcedony	Quartzite	Fused Shale	Quartz	Siltstone	Fine-grained volcanic	Basalt	Type	Total no. items/ weight in gms. (Summed by Provenience)
589-6	N1, E1	2/ 2.2	2/ 8.3	1/21.0		1/ 6.4		1/ 1.0		Flake	
589-7	N1, E1	2/84.6								Cobble	
589-1	N1, E1		1/ 1.0							Flake	10/124.5
589-34	N1, E2	1/16.9								Cobble	
589-35	N1, E2			1/430.3						Cobble	
589-39	N1, E2	1/34.5								Cobble	
589-40	N1, E2	5/ 6.1	4/ 2.8	5/21.8						Flake	
589-41	N1, E2	4/ 40.0		2/300.0						Flake	23/852.4
589-42	N1, E3	1/ 4.0	1/ 4.9							Flake	
589-43	N1, E3	2/ 3.8	2/ 1.9	5/111.5						Flake	11/126.1
589-11	N2, E1		1/ 3.7	4/269.4						Flake	5/273.1
589-19	N2, E2			1/194.8						Cobble	
589-19	N2, E2										
589-21	N2, E2	1/64.0								Cobble	
589-21	N2, E2	1/ 1.0								Flake	3/259.8

(continued)

TABLE 5 (2)

Accession Number	Provenience	Chert	Chalcedony	Quartzite	Fused Shale	Quartz	Siltstone	Fine-grained volcanic	Basalt	Type	Total no. items/ weight in gms. (Summed by Provenience)
589-49	N3, E1			1/55.6						Flake	
589-50	N3, E1			1/281.4						Flake	
589-51	N3, E1	3/18.7		2/26.8			1/ 0.5			Flake	8/383.0
589-55	N4, E1	1/ 0.9					1/35.0				
589-56	N4, E1	1/16.4		11/529.2							14/581.5
589-66	N6, E1			4/105.0						Flake	4/105.0
589-27	N1, W1	3/ 6.6		1/64.1						Flake	4/70.7
589-29	N1, W2	3/ 6.0								Flake	3/ 6.0
589-15	N2, W1	1/16.4	3/ 3.5							Flake	4/ 19.9
589-22	N2, W2	1/41.0		1/11.0						Cobble	
589-23	N2, W2	1/ 1.2								Flake	3/ 53.2
589-45	N3, W1			1/ 8.8						Flake	1/ 8.8
589-46	N3, W2	2/ 6.2	1/ 7.8	2/ 4.1						Flake	5/ 18.1
589-53	N4, W1	1/65.0								Cobble	
589-52	N4, W1	2/ 3.3	2/ 1.4	1/ 0.1							6/ 69.8

(continued)

TABLE 5 (3)

Accession Number	Provenience	Chert	Chalcedony	Quartzite	Fused Shale	Quartz	Siltstone	Fine-grained volcanic	Basalt	Type	Total no. items/ weight in gms. (Summed by Provenience)
589-57	N5, W1	1/ 4.2	1/ 1.2	2/ 8.9						Flake	4/ 14.3
589-67	N6, W1			1/ 6.8						Flake	1/ 6.8
589-72	N6, W2	3/ 6.0	1/ 4.0	3/20.0						Flake	7/ 30.0
589-75	S1, W1			1/62.5							
589-76	S1, W1			1/32.9						Cobble	
589-77	S1, W1	2/ 3.8								Flake	4/ 99.2
589-106	S2, W1	1/ 0.6								Flake	1/ 0.6
589-115	S3, W2	1/ 2.3		1/ 4.7						Flake	2/ 7.0
589-73	S1, E1	6/19.9		2/53.4						Flake	8/ 73.3
589-84	S1, E2	1/ 3.4								Flake	
589-91	S1, E2	12/87.0	18/17.3	39/404.4					3/13.1	Flake	73/525.2
589-93	S1, E3		3/11.5							Flake	3/ 11.5
589-96	S2, E1	1/19.3								Flake	
589-99	S2, E1			1/20.1						Flake	
589-100	S2, E1	1/ 1.3								Flake	

(continued)

TABLE 5 (4)

Accession Number	Provenience	Chert	Chalcedony	Quartzite	Fused Shale	Quartz	Siltstone	Fine-grained volcanic	Basalt	Type	Total no. items/ weight in gms. (Summed by Provenience)
589-101	S2, E1	1/ 1.0								Flake	
589-102	S2, E1	1/ 0.5	5/15.6	2/ 8.7						Flake	12/ 66.5
589-107	S2, E2	5/10.2	6/ 0.6	4/60.5						Flake	15/ 71.3
589-111	S2, E3	3/ 2.5	4/ 7.8	1/23.5						Flake	8/ 33.8
589-113	S3, E1	2/ 1.0	1/ 0.2	1/ 0.2						Flake	4/ 1.4
589-114	S3, E2	1/ 0.1		4/40.7						Flake	55/ 40.8
589-116	S4, E1		1/ 0.1							Flake	
589-117	S4, E1	2/ 9.5								Flake	3/ 9.6
589-119	S5, E1			2/15.7						Cobble	2/ 15.7
589-121	S5, E2		1/ 5.8							Flake	1/ 5.8
589-122	Auger S5, S6 0-10 cm.	1/ 0.7			1/ 7.7					Flake	
TOTAL BY MATERIAL:		82/612.1	58/99.4	109/3197.9	1/ 7.7	1/ 6.4	2/35.5	1/ 1.0	3/13.1		257/3973.1

TABLE 6

DISTRIBUTION OF BIFACIALLY WORKED FLAKE TOOLS, VEN-542

Accession Number	Provenience	Material	Length cm.	Width cm.	Thickness cm.	Description
589-59	N5, E1	Quartzite	7.1	4.4	1.7	Large, bifacially retouched on tip and one edge
589-104	S2, W1	Chert	4.3	3.3	2.1	Large thick flake, crudely worked with bifacial percussion flaking
589-82	S1, E2	Chalcedony	1.6	1.3	0.5	Poorly worked biface fragment with no apparent utilization
589-109	S2, E3	Chert	4.0	2.4	0.8	Biface with broken base, retouched on both edges
589-118	S5, E1	Chert	4.5	3.0	0.9	One edge bifacially worked, one edge unifacially worked, both with knife use-wear

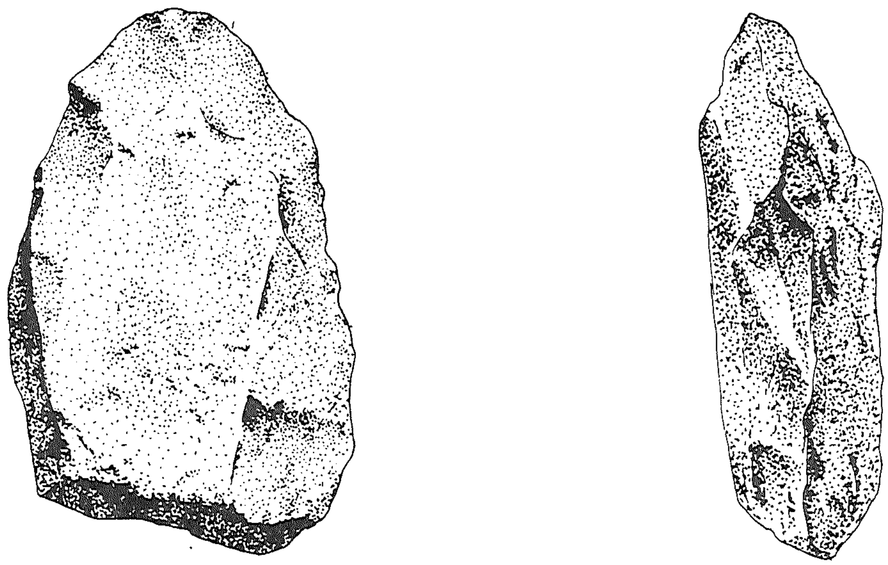
collected. Three of these are chert: one with only one bifacially worked edge, one with bifacial pressure flaking on both edges, and one thick, crudely worked flake; one is quartzite, with bifacial pressure flaking on one edge and the tip; and one is a small chalcedony fragment, poorly worked, with no apparent utilization. No projectile points were found. One biface (589-59) is illustrated in Figure 12).

Table 7 shows the distribution of unifacially worked flake tools (scrapers). Out of a total of fifteen, nine of these are chert, four are quartzite, one is chalcedony, one is fused shale. They range in size from 1.1 cm. by 1.0 cm. to 4.4 cm. by 3.2 cm. No areal clustering of these artifacts within the site is indicated.

The distribution of unworked utilized flakes is shown in Table 8. Eighteen of these flakes exhibit scraper use-wear while the nineteenth specimen (589-65), a massive quartzite flake, exhibits crushing along one long edge, indicating that it may have been used as a hoe for digging. Eleven of the utilized flakes are quartzite, four are chert, two chalcedony, one fused shale and one basalt. They range in size from 1.0 cm. by 2.4 cm. to 6.0 cm. by 4.5 cm., excluding the specimen that has been identified as a hoe, which measures 18.1 cm. by 13.2 cm., and is 3.7 cm. thick. These artifacts were found distributed throughout the site.

The distribution of unutilized waste lithics, by collection unit and material, is given in Table 5. As can be seen from this table, 109 of a total sample of 257 are quartzite (42%), 82 are chert (32%), 58 are chalcedony (23%), and the remaining 3% include fused shale, quartz, siltstone, fine-grained volcanic and basalt. The average weight of the quartzite samples is 29.3 gm., while that of the chert and chalcedony samples is 7.5 gm. and 1.7 gm., respectively. The largest cluster found within any one excavation unit was 73 flakes collected from unit S1, E2, 50% of which are quartzite. The number of items found in the remaining collection units ranges from one (in each of four units) to 23 (unit N1,E2 adjacent to the cluster in unit S1, E2).

As can be seen from Table 9, cores and core/cobble tools collected from Ven-542 include seven quartzite cores, including one which exhibits chopper use-wear; two prepared-platform cores, one of which appears to have been reutilized as an angular hammerstone; and one chert core which exhibits crushing, indicating chopper utilization. The collection also includes six unifacially worked quartzite choppers; five bifacially worked choppers: four quartzite and one chert; one flat-surface hammerstone; and four cobbles utilized as angular hammerstones.



589-59

FIGURE 12: VEN - 542

TABLE 7

DISTRIBUTION OF UNIFACIALLY WORKED FLAKE TOOLS, Ven-542

Accession Number	Provenience	Chert	Chalcedony	Quartzite	Fused Shale	Basalt	Length cm.	Width cm.	Thickness cm.
589-2	N1, E1	X					3.0	2.0	1.2
589-44	N1, E3				X		4.4	3.2	1.1
589-9	N2, E1			X			3.5	2.6	1.3
589-54	N4, E1	X					3.1	2.3	0.7
589-25	N1, W1	X					3.3	2.5	0.6
589-28	N1, W2	X					2.5	2.5	1.1
589-14	N2, W1	X					3.6	2.9	1.0
589-69	N6, W2			X			3.5	3.5	1.1
589-68	S1, E1	X					2.2	2.2	0.7
589-69	S1, E1	X					2.0	2.3	1.4
589-71	S1, E1	X					1.5	1.4	0.6
589-79	S1, E2			X			2.3	3.9	1.5
589-98	S2, E1	X					2.0	2.5	0.9
589-103	S2, E1			X			3.7	3.8	1.4
589-112	S3, E1		X				1.1	1.0	0.8

TABLE 8

DISTRIBUTION OF UTILIZED FLAKES, Ven-542

Accession Number	Provenience	Chert	Chalce-dony	Quartzite	Fused Shale	Basalt	Length cm.	Width cm.	Thickness cm.
589-6	N1, E1			X			3.8	3.0	0.9
589-6	N1, E1			X			3.9	3.0	1.0
589-41	N1, E2		X				1.9	2.5	0.5
589-10	N2, E1	X					2.3	1.6	0.6
589-61	N6, E1			X			4.1	3.5	2.2
589-64	N6, E1	X					1.6	2.1	0.7
589-65	N6, E1			X			18.1	13.2	3.7
589-71	N6, W2	X					4.5	2.7	2.3
589-74	S1, W1		X				1.8	1.8	0.6
589-70	S1, E1			X			2.7	3.9	1.3
589-72	S1, E1			X			1.7	1.5	0.4
589-92	S1, E1			X			6.0	2.3	1.7
589-83	S1, E2					X	3.5	3.6	1.1
589-80	S1, E2			X			6.0	4.5	2.8
589-86	S1, E2			X			3.3	2.1	1.2
589-92	S1, E3			X			1.0	2.4	1.5
589-94	S1, E3	X					2.1	1.7	0.7
589-97	S2, E1			X			5.4	4.8	2.0
589-110	S2, E3				X		2.5	2.2	1.2

TABLE 9

DISTRIBUTION OF CORES AND CORE/COBBLE TOOLS, VEN-542

Accession Number	Provenience	Material	Length cm.	Width cm.	Thickness cm.	Description
589-3	N1, E1	Quartzite	7.5	7.5	3.0	Unifacially worked chopper
589-37	N1, E2	Quartzite	6.9	4.1	1.5	Core
589-36	N1, E2	Quartzite	8.0	4.5	4.0	Unifacially worked chopper
589-38	N1, E2	Quartzite	5.6	6.0	2.8	Unifacially worked chopper
589-41	N1, E2	Quartzite	6.8	6.5	1.7	Unifacially worked chopper
589-8	N2, E1	Chert	8.5	6.0	4.0	Core utilized as chopper
589-16	N2, E2	Quartzite	6.0	5.8	5.3	Angular hammerstone
589-17	N2, E2	Quartzite	7.5	6.4	3.3	Bifacially worked chopper
589-18	N2, E2	Quartzite	7.1	8.0	2.5	Bifacially worked chopper
589-20	N2, E2	Chert	3.5	2.7	1.1	Bifacially worked chopper
589-48	N3, E1	Quartzite	13.1	9.5	4.5	Bifacially worked chopper
589-60	N6, E1	Quartzite	7.0	5.3	2.4	Unifacially worked chopper
589-62	N6, E1	Quartzite	3.6	3.2	1.9	Core
589-63	N6, E1	Quartzite	6.3	5.7	3.8	Core
589-24	N1, W1	Quartzite	7.5	7.5	3.5	Angular hammerstone
589-12	N2, W1	Quartzite	8.5	6.0	5.5	Bifacially worked chopper
589-13	N2, W1	Quartzite	8.6	7.0	4.0	Angular hammerstone
589-70	N6, W2	Quartzite	6.5	8.0	5.7	Prepared platform core utilized as angular hammerstone
589-105	S2, W1	Quartzite	4.1	4.0	2.6	Core
589-78	S1, E2	Quartzite	7.3	4.0	4.8	Angular hammerstone
589-81	S1, E2	Quartzite	6.9	6.2	5.1	Prepared platform core
589-87	S1, E2	Quartzite	7.1	7.1	6.1	Core utilized as bifacial chopper
589-88	S1, E2	Quartzite	4.5	6.5	2.7	Unifacially worked chopper
589-89	S1, E2	Quartzite	4.0	7.0	3.3	Hammerstone

Eight pieces of groundstone were collected from Ven-542. All of these are manos or mano fragments; three are sandstone, three are granite and two are quartzite. They were all found east of the datum, five in the northern quadrant and three in the southern quadrant. The provenience and dimensions of each of these, along with descriptions, are included in Table 10.

In addition, shell fragments were found in three units (N1E2, N5W1 and S1E2) and bone fragments were found in three units (N1E2, N6W2 and S2E2). The dimensions of each of these specimens can be found in the unit summaries in Table 4.

Interpretations

The artifacts recovered from Ven-542 include utilized stone cutting and scraping tools (e.g., bifacially and unifacially worked flake tools), lithic production remains (waste flakes and cores), and plant processing tools (manos). The large proportion of quartzite waste flakes, along with naturally occurring quartzite cobbles on the site, indicate that primary lithic production, focusing on this resource, occurred on this knolltop. In considering all but unworked waste bulk lithics, groundstone comprises 11.4% of the site's assemblage; unifacially worked flake tools, 2.14%; utilized flakes, 27.1%; cores, 11.4%; cobble tools, 21.4%; and bifacially worked flake tools, 7.1% of the total. These percentages can be compared to the midden site on the Conejo drainage, Ven-272, where a prepared-platform core/blade industry has been identified (Whitley and Clewlow n.d.). At Ven-272, 21% of the recovered assemblage consists of cores, of which about two-thirds show evidence of platform preparation. Cores only comprise 11.4% of the total assemblage at Ven-542, and only two of these (less than one-third of the total) evidence platform preparation. There is increasing evidence that blades, micro-blades and prepared platform cores are relatively common in the Conejo Corridor, particularly in late sites; in fact, it appears that many early researchers failed to notice them in their collections. At Ven-542, the insignificance of this prepared-platform core/blade industry may be the result of an unidentified temporal difference, or it may be the result of the poor quality of the native lithic resource, quartzite.

As mentioned above, no temporally diagnostic artifacts were recovered from this area. No date of use, consequently, can be assigned to it. In all probability, it was utilized, to some degree, during the entire occupation of the South Complex.

TABLE 10

DISTRIBUTION OF GROUNDSTONE, VEN-542

Accession Number	Provenience	Material	Length cm.	Width cm.	Thickness cm.	Description
589-4	N1, E1	Sandstone	8.8	6.5	5.5	Mano fragment, one flat ground surface, pecking on edges and shaping
589-5	N1, E1	Sandstone	10.7	9.0	4.7	Fire-cracked, complete mano, pecking on all edges and one large surface, ground on opposite surface
589-30	N1, E2	Granite	13.2	7.8	3.0	Shaped cobble mano fragment, broken on horizontal plain
589-31	N1, E2	Granite	9.2	6.2	3.5	Unshaped cobble mano, ground on two surfaces, smooth except on one, and possibly used as hammerstone
589-47	N3, E1	Granite	12.0	8.3	4.3	Elongate cobble mano with three flat grinding surfaces, battered on both ends
589-95	S2, E1	Quartzite	10.3	8.0	5.2	Mano fragment, one ground surface, pecked on edges
589-118	S4, E2	Quartzite	9.1	5.5	6.5	Cobble mano fragment, one flat ground surface, no pecking or shaping
589-120	S5, E2	Sandstone	6.5	3.5	4.3	Mano fragment with two ground surfaces, pecking on edges and both grinding surfaces

South Complex Summary

Five sites were surface collected in the South Complex during 1978: Ven-328, Ven-329, Ven-376, Ven-541 and Ven-542. Four of these, Ven-328, -329, -541 and -542, are predominantly flake and core/cobble tool lithic scatters. Ven-376 appears most similar to the plant processing stations known as Ven-44 and Ven-124. The range of variation in site types within the South Complex, then, includes villages (Ven-123, -125, and -294); winnowing stations (Ven-44, -124 and -376); small chipping stations (Ven-328 and -329); and large lithic production areas (Ven-541 and -542). The specialized activities represented at the smaller surface sites are all within the range of activity patterns found within the artifact assemblages of the midden deposits, with the exception of a ground stone complex in the Late period village (i.e., Ven-125). It can be suggested that a thorough analysis of the village assemblages, based on the individual assemblages from the spatially distinct activity areas, might be very enlightening in terms of isolating activity areas within these midden deposits. It is implicitly assumed here that the activities occurring at these surface scatters are limited in type and scope; this being acceptable, it seems reasonable that these relatively "pure" assemblages of limited activity remains would provide a good guide for defining functional components within a midden. Again, it is emphasized that this assumes that their spatial isolation is indicative of functional differences.

Finally, while no comprehensive excavation and analysis of a Late period village was made during the 1978 fieldwork, it has been suggested that the spatial distribution of these surface scatters, when viewed in light of ethnographic evidence for the Chumash subsistence patterns and the assemblages from all of the midden deposits, indicates that a functional localization of certain activities occurred during the Late period. Evidence of this has also been found at Ven-449, a late village in the Arroyo Conejo drainage. At this site, a relative decrease in the use of fused shale towards the present has been identified (Whitley, n.d.a.). This material has been found to have a statistically significant correlation with functional tool types; specifically, biface knives and projectile points. As a consequence, it has been suggested that activities involving these types of tools did not necessarily decline through time, but moved in location off the site itself (ibid.). A similar pattern can be suggested for the South Complex, where the midden constituents of Ven-294 and -125 do not appreciably change, but where there are significant differences in the artifact assemblages. The existence of winnowing stations, in particular, may be representative of the movement of certain activities away from the habitation zones.

THE NORTH COMPLEX

Introduction

The North Complex is located in Lindero Canyon and portions of the upper reaches of Medea Creek (see Figure 6). It consists of an arc of sites; these are not as clustered as those forming the southern complex. Six sites in this North Complex are located on the Oak Park property: Ven-39, Ven-40, Ven-68, Ven-122 and Ven-373. Prior to September, 1978, six sites had been recorded on the adjacent North Ranch parcel. Recent work on this property by the Inland Chumash Research Project has enlarged that number by five. Once this current research at North Ranch is completed, a thorough analysis of the North Complex can be undertaken.

Presently, and in regards to Oak Park, some initial notions can be developed about the North Complex from the research at the two midden sites, two lithic scatters and two rockshelters that have been investigated. Ven-39 and Ven-122 are apparently the village sites for this complex. Ven-39 has been discussed in Chapter 2 of this volume and our initial excavations at Ven-122 are discussed in the following chapter. Ven-68 and Ven-373, two dry rockshelters with subsurface cultural deposits but no organic midden soil, are also discussed in a later chapter. Thus, only the surface collections of Ven-40 and Ven-374 are considered here.

Ven-40

Introduction

Ven-40 has been determined to be a small lithic scatter, located in the middle of a broad expanse of Lindero Canyon. The site is situated on top of a small knoll located above the confluence of Lindero Creek and a small northeast trending tributary. It appears to cover an area of about 525 square meters. Sites Ven-41, -42, -43 and -267 are located approximately one mile upstream from Ven-40; downstream Lindero Creek flows through a narrow portion of the canyon and then drains eastward, connecting with Medea Creek and, eventually, the Pacific Ocean at Malibu.

Presently, two oak trees occur on Ven-40 and oak woodlands are present throughout Lindero Canyon in areas adjacent to the stream. Wild oats and mustard cover most of the site surface, indicating historic disturbance across the site. Disc scars on some of the recovered artifacts substantiate this inference.

Glassow, King and Leonard discovered Ven-40 in 1962. At that time, they unsystematically surface collected the site, but, 16 years later, the data has still not been analyzed or published. An attempt was made in 1978 to systematically record and collect any remaining artifacts and determine if a subsurface cultural deposit is present at the site.

Fieldwork Methodology

After removing all vegetation from the site and surrounding area with a high weed mower, a systematic visual inspection of the ground surface was undertaken. This was implemented by having crew members, spaced five feet apart, traverse the site in a series of regular transects. Each identified artifact was located in relation to a datum placed on the top of the knoll, using a Brunton compass and a surveyor's chain. Each artifact was assigned a field number and collected.

Additionally, a series of power auger holes were placed at ten meter intervals along north-south and east-west axes from the datum. These auger holes were excavated in approximate 10 cm. levels, with loosened dirt screened through 1/8-inch mesh. No subsurface artifacts were encountered.

Fieldwork Results

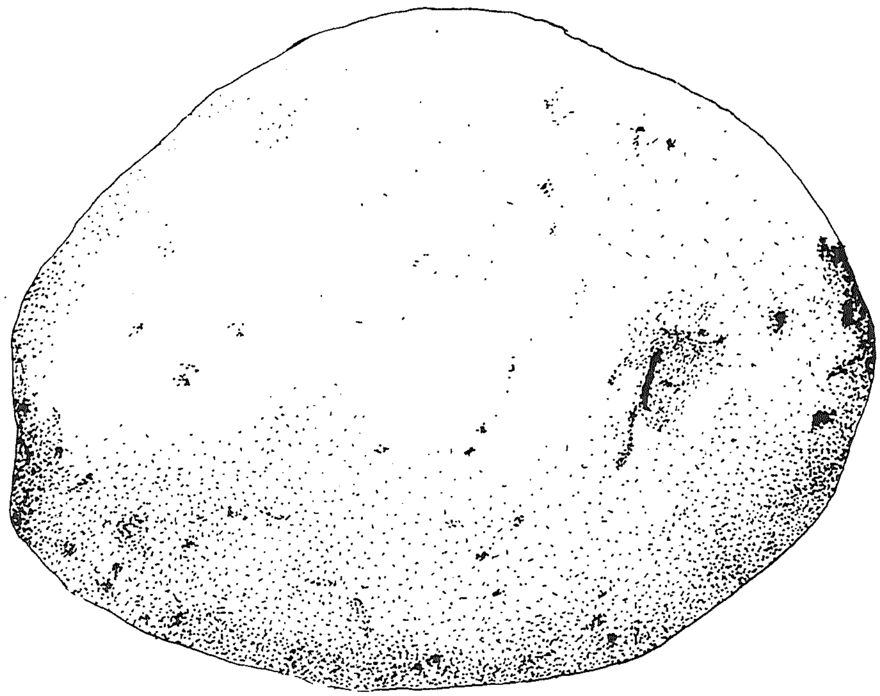
A summary of the artifacts collected from Ven-40 is contained in Table 11. The collection consists of four cherty-siltstone cores, one with two long prismatic blades removed; two waste flakes, one cherty-siltstone, and one chalcedony; one complete mano (594-8) and one mano fragment (594-7), both quartzite. The complete mano, which is illustrated in Figure 13, has one ground surface and exhibits pecking on the edges but no shaping. The ground surface is slightly domed, indicating that its use involved a rocking motion. The fragment has two ground surfaces and exhibits pecking on the edges but no shaping. There is a very slight curvature on each of the grinding surfaces.

In addition, a large quartzite cobble, which exhibits fresh crushing and flaking, was found, indicating that ground surface disturbance has occurred in the recent past. This artifact, along with six other specimens, were found clustered in a pile under an oak tree on the site, indicating that

TABLE 11

SURFACE COLLECTION SUMMARY,
VEN-40

Accession Number	Provenience	Material	Length cm.	Width cm.	Thickness cm.	Description
594-1	Oak Tree	Cherty-Siltstone	8.6	4.5	3.7	Core
594-2	Oak Tree	Cherty-Siltstone	8.2	3.9	2.1	Core fragment
594-3	Oak Tree	Cherty-Siltstone	2.3	1.7	1.4	Waste flake
594-4	Oak Tree	Cherty-Siltstone	8.5	5.1	4.7	Core, two long prismatic blades removed
594-5	Oak Tree	Cherty-Siltstone	11.6	7.7	5.8	Two pieces of one cobble core (broken recently)
594-6	Oak Tree	Quartzite	13.4	10.9	6.5	Large cobble, exhibits recent crushing and flaking indicating site disturbance
594-7	Oak Tree	Quartzite	7.0	7.5	4.2	Mano fragment, ground on both sides, pecking on edges, no shaping
594-8	40 m. S. of datum	Quartzite	11.5	9.0	4.0	Mano: ground unifacially, pecking on edges, no shaping
594-9	Auger S-3 Surface	Chalcedony	1.7	1.7	0.4	Waste flakes



594 - 8

FIGURE 13: VEN - 40

the knolltop has probably been pothunted since 1962.

A cursory examination of the artifact assemblage unsystematically collected in 1962 was made in an attempt to develop a better notion of the function of this site. These previously collected artifacts are whole or fragmentary portions of groundstone or large cobble tools, predominantly hammerstones. Manos, specifically, appear to be the majority of the collection.

Interpretation

The recovered artifacts from Ven-40 indicate that the site represents a limited activity area. Artifacts collected in 1962 indicate that the predominant function at this site involved the use of groundstone. The preparation of plant foods is, consequently, indicated. In this respect and in terms of the location of the site (specifically, on a low knoll situated within a large open space), it can be seen as analogous to Ven-44 and Ven-124 in the South Complex, thus representing a winnowing station.

No temporally diagnostic artifacts were recovered from the site. It has been suggested earlier, however, that these winnowing stations may be manifestations of Late period functional localization. While Ven-40 very possibly was used throughout the occupation of the North Complex, it may correspond to the late occupation at Ven-122.

Ven-374

Introduction

Ven-374 is a small lithic scatter located on a high ridge overlooking Lindero Canyon. Ven-40 is approximately one-half mile west of this site and Ven-181 is located about the same distance to the north (see Figure 1). The ground surface at Ven-374 has been disced and the groundcover during the summer of 1978 consisted of wild European grasses.

Fieldwork Methodology

After clearing the ground surface of Ven-374 with a high weed mower, crew members walked a series of systematically spaced transects. All artifacts were numbered and located in reference to a datum placed on the site.

Additionally, two perpendicular transects consisting of four auger holes each were excavated in north-south and east-west axes out from the datum. These auger holes, spaced five meters apart, were excavated in approximate 10 cm. levels, with all loosened dirt screened through 1/8-inch mesh. No subsurface material was encountered during this process.

Fieldwork Results

Ven-374, described as a small lithic scatter by its original discov-erers, produced three unutilized waste flakes; two of chalcedony, weighing 1.2 and 0.95 gm. each, and one of chert, weighing 0.56 gm.

Interpretations

The limited artifact collection from Ven-374 indicates that it was a small lithic chipping station, possibly representing only a single use.

North Complex Summary

Surface collections were completed at Ven-40 and Ven-374 during the summer of 1978. These collections suggest that Ven-40 functioned as a winnowing station and Ven-374 was a small chipping station. A number of other sites have been located in the immediate vicinity and can be considered part of this complex: Ven-39 and Ven-122, two midden deposits; Ven-68, Ven-373, Ven-609, Ven-610 and Ven-611, small rockshelters; Ven-41, Ven-42, Ven-43 and Ven-607, which, from site survey records, appear to be groundstone scatters; Ven-180, Ven-181 and Ven-608, similarly, surface lithic scatters; and Ven-606, apparently a small midden deposit. Current research on the North Ranch, containing the majority of these sites, will complete the picture on this complex.

However, it is evident that a wide range of site types is present in the North Complex, including winnowing stations, lithic scatters, village sites and rockshelters. The presence of the large number of utilized rock-shelters, two of which are discussed in a later chapter, is the result of unusual microgeomorphological factors. Thus, it seems likely that further research into these sites may reveal activities and artifact assemblages not contained at open air complexes.

CONCLUSIONS

Research on Oak Park's South Complex, centering on Ven-123, Ven-125 and Ven-294, indicates that a series of small activity areas surround these midden deposits. Limited stone tool working is indicated in areas designated as Ven-328, Ven-329, Ven-376, Ven-541 and Ven-542. Groundstone related activities, interpreted as plant production, or winnowing stations, predominated at Ven-44, Ven-124 and Ven-376. Activities probably occurred in each of these areas throughout the occupation of the complex. However, the winnowing stations may represent Late period localization of functions.

The North Complex, focused on middens at Ven-39 and Ven-122, has not yet been fully investigated. The two sites surface collected and discussed in this chapter suggest that the pattern of chipping stations/winnowing stations found in the South Complex is replicated here. Site survey records of the other sites in the complex seem to substantiate this pattern too.

Continuing research on the North Ranch portion of this complex should provide adequate data for comparisons with the South Complex. The pattern that seems to be appearing involving plant processing versus incidental chipping stations suggests some interesting future research problems. If ethnographic records support the notion that plant collection and processing was a sex/age specific task in Chumash society, a detailed comparison of the artifact assemblages from these winnowing stations might reveal a pattern of site contents indicating what was essentially a woman's tool kit. Unfortunately, many of these specialized activity areas were rather irresponsibly collected during the 1960s, so that only minimal associational information was retained.

Additionally, a more thorough analysis of the complete lithic assemblages from a number of these site complexes would provide some interesting comparative data. This, unfortunately, was beyond the scope of the 1978 research, although the general trends have been outlined here.

CHAPTER 4
PRELIMINARY EXCAVATIONS AT CA-Ven-122

D. S. Whitley, M. Schneider, J. Simon and M. Drews

INTRODUCTION

CA-Ven-122 is a midden deposit located on a small flat lying between the steep east bank of Medea Creek and one of its smaller tributaries. An oiled dirt road presently bisects the site, isolating the dense midden patch immediately above Medea Creek from a large, light lithic scatter with a shallow subsurface component. The midden deposit on the west side of this road is covered with chaparral and other native plants, suggesting that only a minimum of surface disturbances have occurred in this area of the site. In contrast, the eastern portion has evidenced considerable mechanical alteration; this section of Ven-122 was bulldozed in an attempt to locate archaeological features while work was underway at Ven-39, located approximately 200 meters to the north. As might be expected, the vegetation here is predominantly European grasses and thistles.

Preliminary fieldwork was initiated in 1978 with the goals of defining the site's size and making some general assessments about its cultural and temporal characteristics that could be used to guide later, more intensive research at Ven-122. Additionally, a small artifact collection was required so that some initial indications about the research questions of the Inland Chumash Research Project could be obtained. Excavation and surface collection was conducted by a UCLA field class in archaeology, directed by Dr. C. William Clewlow, Jr. and supervised by Marilyn Beaudry, and additional excavation was performed by a crew of professional archaeologists from the UCLA Archaeological Survey. This chapter describes the fieldwork methodology, what this fieldwork indicates about the surface and midden components of the site, the recovered artifact collection, and an initial analysis of certain classes of recovered artifacts. In preparation is a detailed analysis of the faunal remains from the site.

FIELDWORK METHODOLOGY

Surface Collection

After clearing all vegetation off the site and surrounding area, 15 contiguous surface collection units were placed on Ven-122 (see Figure 14). Eleven of these measured 15 meters square. The four remaining units (4, 13, 14 and 15) were 5 by 15 meters in size. These units were placed in an attempt to define the western boundary of Ven-122's surface component. All artifacts, including worked tools, waste lithics, and faunal and molluscan remains, were collected and bagged with their exact proveniences recorded, for each unit. Raw counts for this surface collection are presented in Table 12.

Excavation

Fifteen one-meter square excavation units were dug on Ven-122 as an aid in estimating the size of the site and to obtain a small artifact collection. These units were located arbitrarily and in two cases two contiguous units were excavated to fully uncover significant features that had been identified. Figure 14 illustrates where these units were placed.

Fieldworkers dug each unit, following standard archaeological practices, by arbitrary ten cm. levels. Soil from each of these levels was screened using 1/8-inch mesh and recovered artifacts were recorded, collected and processed by each level per each unit. Additionally, field notes were taken on the subsurface deposit of each level and the artifact associations noticed during excavation procedures. These units were excavated until bedrock was encountered. Raw counts for each level of each unit are presented in Table 12. Sections follow outlining fieldwork results, including an inventory and interpretation of the recovered artifacts and a discussion of two features found at Ven-122. The final section details our preliminary conclusions regarding this site.

FIELDWORK RESULTS

Subsurface Deposit

As mentioned above, in addition to a large surface lithic scatter, a

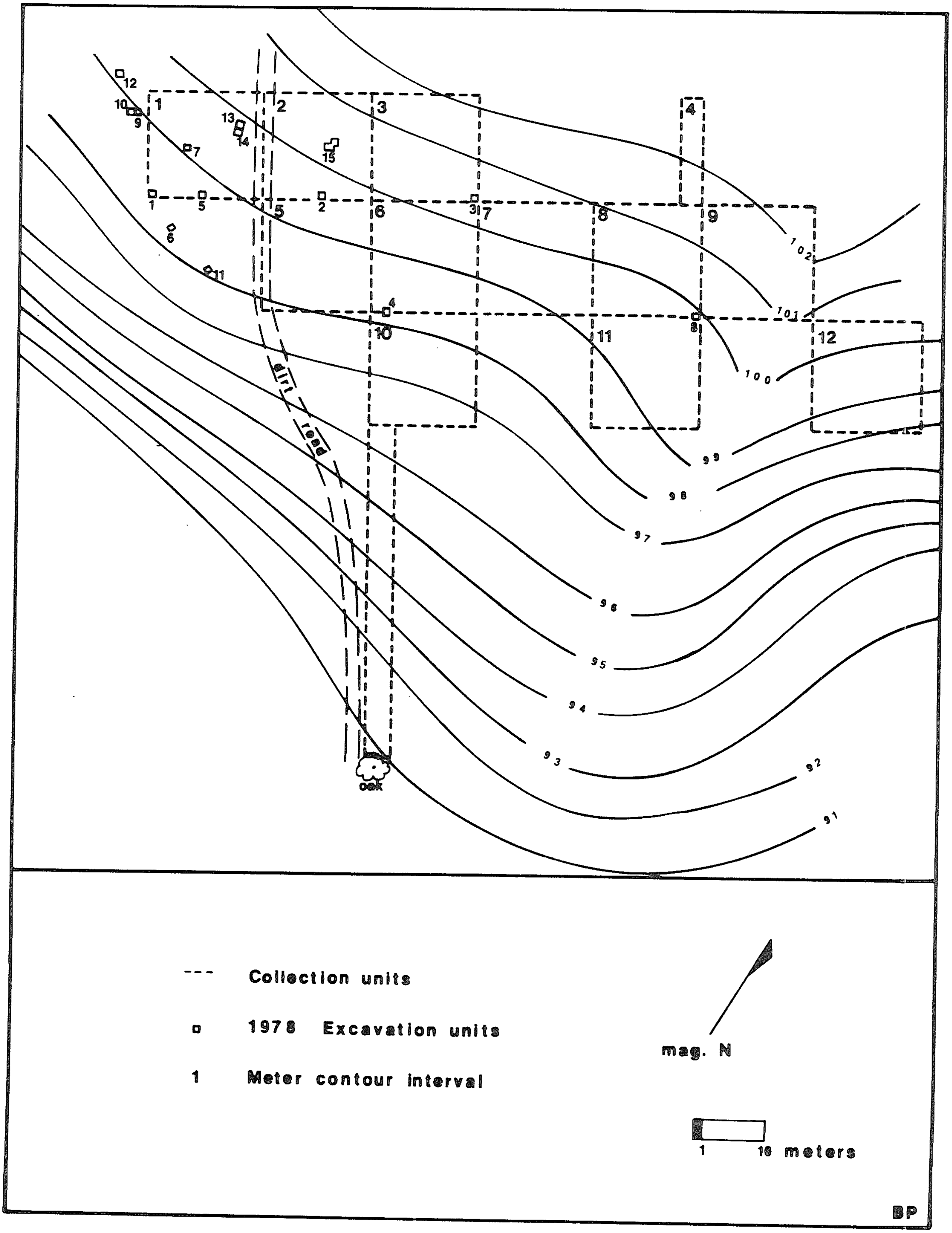


FIGURE 14: VEN - 122

TABLE 12

UNIT SUMMARIES, VEN-122

Unit No.	Level	Waste Lithics No. items/ weight in gms.	Utilized Flakes No. items/ weight in gms.	Ochre No. items/ weight in gms.	Quartz Crystals No. items/ weight in gms.	Bone Tools	Cores and Core Tools	Unifacially Worked Lithic Tools	Bifacially Worked Lithic Tools	Projectile Points	Beads	Groundstone
I	0-10	86/86.7	5/ 5.8	?/ 6.8	1/ 0.4	2		3		1	7	
	10-30	55/84.3	3/ 5.8	?/ 0.45				3			11	
	30-40	22/50.4		23/ 3.2	1/ 0.2						2	
	40-50	8/17.6	4/14.5	1/ 0.2		1					2	
	40-60	5/ 0.3	3/ 3.2									
	50-60	20/ 7				2						
	60-70	33/20.8	5/10.0	1/ 0.3				1			1	
	70-80	4/ 0.5										
	80-90	9/ 8.6		1/ 0.2	1/ 0.2							
II	0-10	12/ 2.3										
	20-30	3/ 3.0	2/14.8	19/ 5.4								
	30-40	6/ 3.7	1/ 2.3									
	40-50	1/ 0.1	1/ 6.9									
	50-60	1/ 2.4										
III	10-15	1/ 3.9										
IV	0-10	2/ 2.4										
	10-20	39/26.4	2/ 1.1	7/ 1.8						1		
	30-40											

TABLE 12 (2)

Unit No.	Level	Waste Lithics No. items/ weight in gms.	Utilized Flakes No. items/ weight in gms.	Ochre No. items/ weight in gms.	Quartz Crystals No. items/ weight in gms.	Bone Tools	Cores and Core Tools	Unifacially Worked Lithic Tools	Bifacially Worked Lithic Tools	Projectile Points	Beads	Groundstone
V	0-10	16/32.7	4/14.1		1/ 0.2					2	2	1
	10-20	16/25.3	3/ 5.5	4/ 0.4					1			1
	20-30	17/14.9	5/14.9	8/ 0.6		1					4	
	30-40	20/37.0	2/16.3	1/ 0.4							4	1
	0-40	1/101.2						1				1
	40-50	40/35.5	6/11.2	12/ 4.8						1	6	
	50-60	33/28.9	5/27.4	12/ 3.0	1/ 0.1						3	
	60-70	9/26.9	4/ 7.3								1	
	70-80	5/ 6.8										
	80-90	5/ 1.7										
VI	0-10	251/38.9	1/ 2.0	?/ 9.25	4/ 2.4	2	1				15	
	10-20	190/29.2	9/52.1	1/ 3.4	5/ 1.0	1	1	2			5	
	20-30	102/21.9	3/ 1.4	1/ 1.1	2/ 0.2			1			5	
	30-40	124/19.6	5/13.7	1/ 6.8	1/ 0.6						5	
	40-50	70/26.2	4/ 5.9	1/ 2.3	1/77.9			2			1	
	50-60	68/46.6									2	
	60-70	34/ 8.3	1/ 2.5	2/ 0.2				1				
	70-80	37/29.4		2/ 0.2								
VII	0-10	76/50.8	4/47.9	1/ 1.6				2				1
	10-20	35/24.1	4/ 7.2	11/ 6.6							1	1
	20-30	38/29.8	1/ 1.4	3/ 0.7				1	1		7	
	30-40	34/10.4	2/16.2						1		3	
	40-50	17/10.3		7/4.5							3	
	50-60	6/ 0.6										
	Unknown	1/ 0.5	1/ 2.3									1

TABLE 12 (3)

Unit No.	Level	Waste Lithics No. items/ weight in gms.	Utilized Flakes No. items/ weight in gms.	Ochre No. items/ weight in gms.	Quartz Crystals No. items/ weight in gms.	Bone Tools	Cores and Core Tools	Unifacially Worked Lithic Tools	Bifacially Worked Lithic Tools	Projectile Points	Beads	Groundstone
VIII	0-10	2/12.0										
	10-20	3/18.0								1		
IX	0-10	17/51.1	1/12.6	3/ 0.4								
	10-20	8/ 2.1						1				
	20-30	4/ 0.7	2/ 1.4							1		
	30-40	1/ 1.4										
	40-50	1/ 0.5										
X	0-10	27/44.1						1		1		
	10-20	14/ 3.2					1					1
	20-30	5/ 3.7										
	30-40											
XI	0-10	94/196.4	1/20.0		2/ 2.9				2	2		
	10-20	106/156.2	10/52.6			1		1			1	1
	20-30	45/23.6	2/ 2.7	?/ 2.45	2/ 0.5					1	1	
	30-40			4/ 0.4					1		1	
	40-50	23/12.9	1/ 0.2	?/ 0.4	1/ 0.1			3				
	50-60	5/ 0.7	4/ 2.6	3/ 0.5								
	60-70	18/ 4.0	1/ 0.6	?/ 1.6								
XII	0-10	11/ 4.6	2/ 5.8	2/ 0.5								
	10-20	2/ 0.1	2/ 1.9									
XIII	0-10	50/31.0	2/ 2.0				1	1	1		4	
	10-20	45/13.5	2/10.9	4/ 0.7		1				1	6	
	20-30	59/90.9	2/10.4					1			8	
	30-40	50/23.2	1/ 1.0	1/ 0.8							5	

TABLE 12 (4)

Unit No.	Level	Waste Lithics No. items/ weight in gms.	Utilized Flakes No. items/ weight in gms.	Ochre No. items/ weight in gms.	Quartz Crystals No. items/ weight in gms.	Bone Tools	Cores and Core Tools	Unifacially Worked Lithic Tools	Bifacially Worked Lithic Tools	Projectile Points	Beads	Groundstone
XIII (cont.)	40-50	22/ 8.2		1/ 0.1							3	
	50-60	12/ 2.8	1/11.4					1			1	
XIV	0-10	80/36.7	4/44.8	3/ 2.2			1			1	10	
	10-20	77/37.6	3/ 5.1	7/ 0.8								
	20-30	53/29.4		3/ 0.3			1		2		10	
	30-40	39/17.4	2/ 2.7							1		
	40-50	31/14.6		4/ 0.7		1			1		3	
	50-60	26/10.2	2/ 7.1					1	1		2	1
	60-70	12/ 4.0										
XV	0-10				1/ 0.2							2
	10-20	2/ 0.5		1/ 1.1								1
	20-30	1/ 2.5		5/ 1.9								
	30-40	1/ 0.1						1				
XVa	0-10			1/ 0.1			1					
	10-20	7/ 1.3	1/20.3	4/ 0.2	1/ 0.3							
	20-30			2/ 0.2								
XVb	0-10			1/ 0.1								
	Unknown	11/11.0	3/19.9				1		1			
Surface Collection Unit												
I			1/180.4					1				
II		2/ 6.7										
III							1		1			1

TABLE 12 (5)

Surface Collection Unit	Waste Lithics No. items/ weight in gms.	Utilized Flakes No. items/ weight in gms.	Ochre No. items/ weight in gms.	Quartz Crystals No. items/ weight in gms.	Bone Tools	Cores and Core Tools	Unifacially Worked Lithic Tools	Bifacially Worked Lithic Tools	Projectile Points	Beads	Groundstone
IV											
V	15/117.4	6/23.3					1				
VI	4/ 0.3										
VII											
VIII	20/48.7	1/38.2	1/ 0.1				1				
IX	3/ 6.1										
X	2/48.2						1				
XI											
XII											
XIII											
XIV											
XV	5/ 1.8										
Unknown						1	1		1		

dark, sandy midden component was located on the western side of the site. This deposit is located, largely, between excavation unit 1 and the road in this area; midden depth varies between 65 and 35 cm., and consists of an undifferentiated dark brown soil. Immediately beneath this horizon a soil color change occurs, indicating a transition into a light-colored, decomposing parent-material layer. Bedrock is present approximately ten cm. below this transition zone.

The Artifact Collection

The surface collection and excavation at Ven-122 was undertaken with limited, but specific, goals. It was felt necessary to fit the site chronologically and culturally within the established framework for the prehistory of the area and to determine if the site substantiated our notion that the North and South Site Complexes were analogous. This can be satisfied with a consideration, first, of the temporally diagnostic artifacts recovered during the fieldwork and, second, by a general consideration of the overall artifact assemblage and comparison to other sites in the area. Further, an interest in inland/coastal organizational structure has resulted in an examination of trade indicators (specifically, maritime resources found at Ven-122 and at other inland sites). A section follows presenting a general tabulation of the artifact assemblage at Ven-122. Chronologically sensitive projectile points and shell beads are discussed in more detail to establish the period of occupation at Ven-122. Finally, an analysis of shellfish remains is outlined to develop some inferences about prehistoric organizational structure in this area. A detailed analysis of marine fish and faunal remains germane to this discussion is presently underway at UCLA and will be reported in a subsequent paper.

The small size of the collection precluded any lengthy consideration of a lithic typology; while numerous typologies have been used in this area, they have not been used in the present paper, first, because considerable problems have occurred in trying to replicate them, and, second, because it is felt that typologies should only be constructed to answer specific questions. The use of a previously developed typology, formulated by one particular researcher, generally restricts an investigation to those questions which were, or could have been, addressed by the person initially implementing the typology, or to questions of a comparative nature. Our concern in the lithic analysis regarding all but the projectile points is simply to provide a preliminary description of the range of artifact variability found at the site. Thus we have attempted to provide data on generalized classes of lithic tools, combining both morphological and functional characteristics in a rather intuitive manner.

Initially we recognize distinctions between flake tools, cores-core/cobble tools and unutilized bulk lithic waste. This distinction is based on stages in the production of stone tools: cores-core/cobble tools are primary lithic materials, with or without modification due to shaping and/or use-wear. Examples are prepared-platform cores reused as pulping planes, groundstone, and hammerstones. Flake tools and unutilized bulk lithic waste, of course, are either primary removals from cores-core/cobble tools, or secondary removals from primary flakes. Flake tools are either modified and/or retouched, thereby intentionally altering their shape or characteristics (e.g., sharpening), or waste flakes that have been utilized and have consequent evidence of use-wear. Unutilized bulk lithic waste, or debitage, lacks any evidence of intentional modification or use.

Flake Tools

Two types of worked flake tools are distinguished here: bifacially modified and unifacially modified tools. Bifacially-worked pieces include those with the widely recognized functional categorizations such as projectile points, knives, gravers and drills. Nine readily typeable projectile points or projectile point fragments were recovered from the site; additionally, three small basal fragments have been tentatively typed and three untypeable point tips were collected. Proveniences, dimensions and descriptions of these are provided in Table 13 and illustrations are provided in Figure 15.

All but one of the typeable points are common to late sites in this area, and are readily recognized in the local typologies as convex-base, concave-base and stemmed points (see King et al. 1968 for descriptions of these). These three point types are all late period time markers, with the concave- and convex-base points probably postdating A.D. 1300 and the stemmed point appearing slightly earlier than the other two types. Glassow (1965), Wells (1978) and Whitley (n.d.a.) have all discussed the possible significance of the concave versus convex points; as yet no resolution has been achieved.

The fourth typeable point has not, to our knowledge, been previously recorded in this area. This artifact is a small, finely pressure-flaked chalcedony blade with a single shoulder on one longitudinal side. The opposite edge (that is, the unshouldered side) is relatively straight. This point is illustrated in Figure 15. The rarity of this style in inland

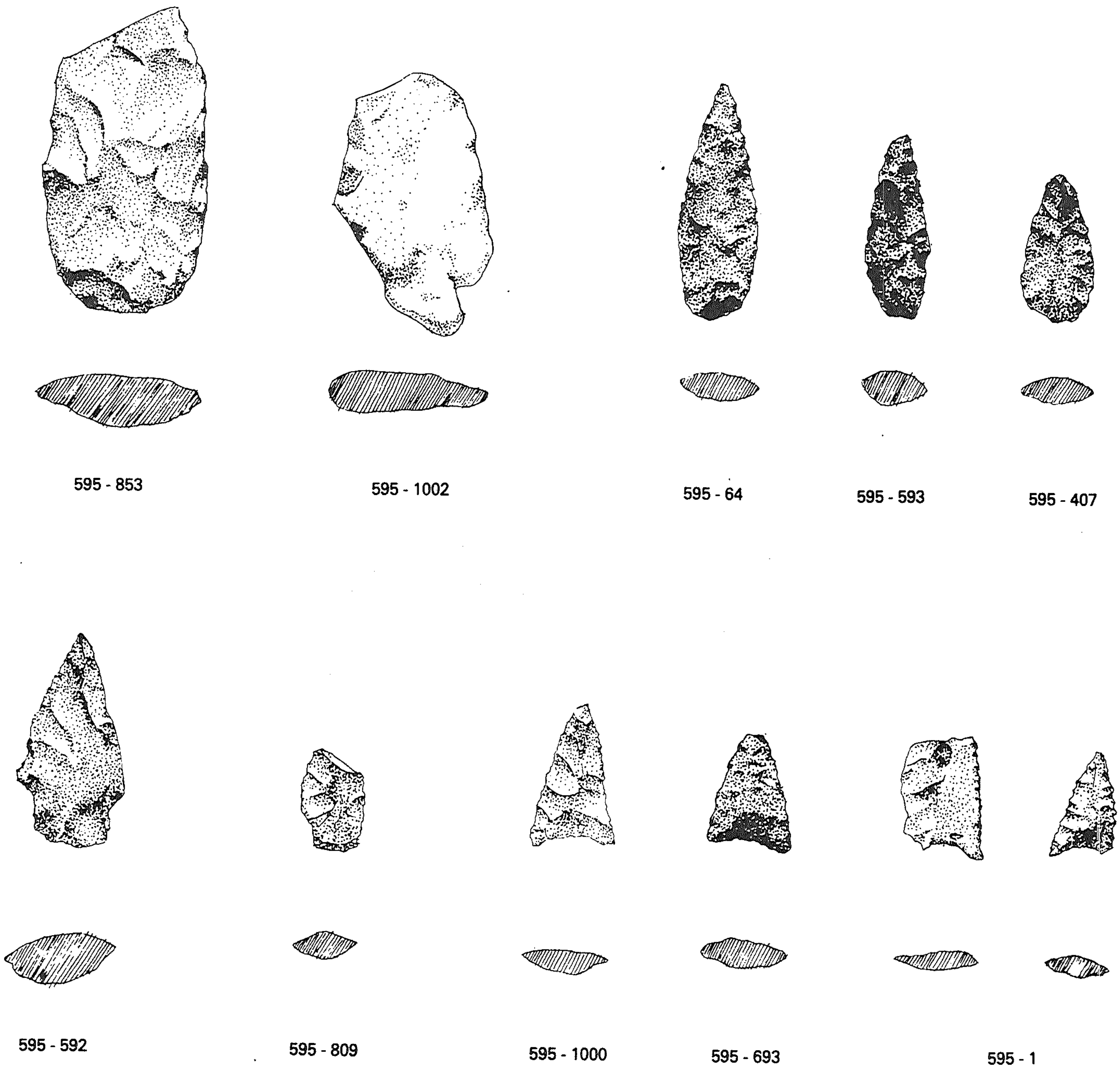


FIGURE 15: VEN 122

TABLE 13

PROJECTILE POINTS, VEN-122

Accession Number	Provenience Unit	- Level	Material	Weight gms.	Length cm.	Width cm.	Thickness cm.	Type
595-592	13	10-20	Chert	3.8	3.5	1.8	0.8	Stemmed
595-805*	14	30-40	Chalcedony	.7	1.6	1.0	0.4	Small, single-shouldered
595-1*	5	0-10	Chert	1.2	1.3	1.8	0.2	Concave base, serrated
595-1	5	0-10	Chert	.8	.9	1.7	0.2	Concave base, serrated
595-693	10	0-10	Chert	.8	2.7	1.3	0.4	Concave base
595-1000	Surface		Chalcedony	2.0	2.3	1.4	0.3	Concave base
595-407	1	0-10	Fused shale	1.2	2.3	1.1	0.4	Convex base
595-64	5	40-50	Chert	2.0	4.0	1.8	0.5	Convex base, serrated
595-593	8	10-20	Fused shale	1.3	3.0	1.1	0.6	Convex base, serrated
595-500*	4	10-20	Chert	0.4	1.7	0.7	0.4	Basal fragment (triangular base?)
595-710*	9	20-30	Chert	0.2	1.2	0.8	0.2	Basal fragment (concave base?)
595-728*	11	0-10	Chert	0.2	1.1	0.6	0.3	Basal fragment (concave base?)
595-729*	11	0-10	Fused shale	.1	1.0	.5	.2	Point tip
595-511*	11	20-30	Fused shale	.7	2.1	.9	.4	Point tip
595-669*	14	0-10	Chert	.2	1.3	0.7	0.2	Point tip

(*Fragmentary)

contexts suggests that it may represent an aberration; the only similar piece is a very large, single-shouldered chert knife or hafted spear point that was recovered from Ven-271. This biface was collected from an Early Millingstone context and is easily five times the size of the shouldered point from Ven-122. Their morphological similarity is, consequently, probably incidental.

Six small fragmentary portions of projectile points were unearthed at Ven-122. Three of these are point tips and, hence, cannot be typed. The remainder are small basal fragments. Two of these are suggested to be convex-base points and the third appears to be a portion of a triangular projectile point, similar to those recovered from Century Ranch, Ven-294 and Ven-170. The small size of these three pieces, however, precludes any definite identification; thus, they can only tentatively be assigned to these categories.

The distribution of biface tools, excluding projectile points, collected from Ven-122, is shown in Table 14. As can be seen from this table, a total of 13 biface tools were recovered, all of which are fragmentary.

These artifacts were distributed throughout the site vertically, with concentrations found in adjacent units 13 and 14 (five out of 13 total), and in unit 11 (three out of 13 total). Six of the artifacts are made of chert, three of chalcedony, two of fused shale, one of siltstone, and one of obsidian.

Two artifacts identified as gravers were excavated from Ven-122. These are defined as high-backed flakes with bifacial retouch and use-wear on two sides converging to a point. One, from the 0-10 cm. level of unit 6, measures 5.0 cm. by 2.9 cm., and is 1.6 cm. at its thickest section; the other, from the 10-20 cm. level of unit 7, measures 1.2 cm. by 0.8 cm. and is 0.5 cm. thick. Both are made of chert.

The distribution of the 33 uniface tools (scrapers) collected is shown in Table 15. These artifacts were distributed throughout the site vertically, with concentrations found in unit 1 (seven artifacts), unit 6 (six artifacts), and unit 11 (four artifacts), all of which are located in the southeastern portion of the site. The majority of these tools are made of chert and chalcedony. Other materials used include fused shale, quartzite and basalt. One chalcedony scraper, found in association with Feature 2, was covered with red ochre powder.

TABLE 14

DISTRIBUTION OF BIFACIALLY WORKED LITHIC TOOLS
VEN-122

Accession Number	Provenience Unit	Level (cm.)	Material	Length cm.	Width cm.	Thickness cm.	Description
595-27	V	10-20	Chert	2.0	2.8	1.0	Basal knife fragment
595-119	VII	20-30	Chalcedony	1.9	2.0	0.5	Fragment, one bifacially worked edge, retouched bifacially
595-273	VII	30-40	Obsidian	2.2	1.2	0.7	Fragment, one bifacially worked edge
595-730	XI	0-10	Chert	1.8	0.9	0.8	Fragment, one bifacially worked edge, retouched bifacially
595-731	XI	0-10	Chalcedony	1.2	0.9	0.3	Fragment, two bifacially worked edges, retouched unifacially
595-535	XI	30-40	Fused shale	2.5	1.6	0.8	Knife tip, retouched
595-598	XIII	0-10	Fused shale	1.0	1.2	0.3	Knife tip, retouched
595-810	XIV	20-30	Chalcedony	1.7	1.4	0.3	Knife tip, retouched
595-815	XIV	20-30	Chert	2.2	1.5	0.3	Knife midsection, retouched
595-789	XIV	40-50	Chert	1.0	2.0	0.6	Basal knife fragment, retouched
595-824	XIV	50-60	Chert	1.0	1.3	0.5	Fragment, one bifacially worked and retouched edge
595-569	None		Chert	2.8	1.7	0.9	Knife midsection, retouched
595-853	Surface Unit III		Siltstone	5.0	2.7	0.8	Basal knife fragment, may have been hafted

*Note: Excludes projectile points.

TABLE 15

DISTRIBUTION OF UNIFACIALLY WORKED LITHIC TOOLS
VEN-122

Accession Number	Provenience Unit	- Level	Material	Length cm.	Width cm.	Thickness cm.
595-400	I	0-10	Fused shale	1.7	1.2	0.4
595-401	I	0-10	Chalcedony	1.9	1.7	1.1
595-402	I	0-10	Chert	2.2	1.7	0.4
595-311	I	10-30	Fused shale	3.7	1.5	1.1
595-312	I	10-30	Chert	3.7	2.1	1.0
595-313	I	10-30	Chert	3.7	3.2	0.6
595-303	I	60-70	Chert	1.9	1.5	0.6
595-279	V	0-40	Quartzite	4.5	4.2	3.3
595-189	VI	10-20	Chert	2.0	1.5	0.4
595-190	VI	10-20	Fused shale	0.7	1.3	0.3
595-226	VI	20-30	Fused shale	2.3	2.7	0.7
595-262	VI	40-50	Chert	2.0	1.9	0.5
595-263	VI	40-50	Fused shale	2.2	1.4	0.4
595-491	VI	60-70	Quartzite	5.5	4.2	1.7
595-99	VII	0-10	Fused shale	1.4	1.5	0.3
595-99	VII	0-10	Fused shale	2.5	1.4	0.6
595-122	VII	20-30	Quartzite	5.6	3.3	2.4
595-715	IX	10-20	Chalcedony	2.7	1.3	1.2
595-830	X	0-10	Chert	2.0	1.0	0.5
595-542	XI	10-20	Chert	3.1	2.9	1.3
595-523	XI	40-50	Fused shale	2.5	2.4	1.0
595-524	XI	40-50	Chert	1.8	0.9	0.2
595-525	XI	40-50	Chert	2.0	1.3	0.2
595-601	XIII	0-10	Chert	2.2	0.8	0.7

(continued)

TABLE 15 (2)

Accession Number	Provenience Unit	- Level	Material	Length cm.	Width cm.	Thickness cm.
595-639	XIII	20-30	Chert	2.9	1.6	1.1
595-1001	XIII	50-60	Chalcedony	4.8	2.5	1.2
595-825	XIV	50-60	Fused shale	1.9	2.1	0.5
595-784	XV	30-40	Chert	4.0	2.4	0.8
595-299	Surface I		Chalcedony	6.8	2.7	1.4
595-288	Surface V		Basalt	3.5	2.8	0.7
595-841	Surface VIII		Chert	3.8	2.8	0.9
595-680	Surface X		Chert	3.3	2.9	1.0
595-567	Unknown		Quartzite	5.2	4.5	1.7

A total of 162 unworked flakes exhibiting signs of use as scrapers or knives were collected from Ven-122. The distribution of these artifacts, by unit and material, is shown in Table 16. As can be seen from this table, these artifacts were distributed throughout the site, and the materials most commonly used are chert, fused shale, quartzite and chalcedony. Generally, the quartzite flakes tend to be the most massive, suggesting that they were used for tasks requiring larger cutting surfaces or in the preparation of harder materials. Whitley (n.d.a) has shown that there is a statistically significant positive correlation between certain types of lithic materials and the production of projectile points versus other bifacially worked tools. A similar correlation may exist between certain tasks involving waste flakes of different materials.

Cores and Core/Cobble Tools

Five cores were found at Ven-122, including one of fused shale, one of chalcedony, and three of chert, of which one is a prepared-platform core from which long prismatic blades have been removed. The fused shale artifact is a micro-core which appears to have been reused as a scraper.

Cobble tools recovered include three bifacially percussion-flaked choppers, two of quartzite and one of basalt; one chert hammerstone, exhibiting crushing use-wear; and one massive quartzite chopper with step fractures.

The provenience and dimensions of each core and core/cobble tool is given in Table 17.

Groundstone

The 14 ground stone artifacts recovered from Ven-122 are listed in Table 18. One of these (595-615) is a large sandstone basal groundstone fragment. No shaping is evident on this piece, but there is a slight circular concavity on the grinding surface. A small curving basal fragment (595-698) was also found. It is made of tuff and is polished on both the inside and outside surfaces. Other identifiable groundstone artifacts include a small basalt bowl fragment with a ground polish on the top rim (595-116), a quartzite mano fragment with one ground surface exhibiting no shaping or pecking (595-108), and a sandstone object with one planar ground surface. This is probably a fragment of a metate (595-282).

The remaining groundstone artifacts are cobble manos and exhibit the following characteristics: one is bifacially ground and shaped, one is bifacially ground but no shaping is evident, two are unifacially ground with pecked edges but no shaping, and five are unifacially ground with no shaping evident. One of the latter has a pecked edge. The provenience, material, and dimensions of each of these artifacts is provided in Table 18.

Waste Lithics

The distribution of waste lithics, by unit and material, is shown in Table 19. As can be seen from the table, waste material was distributed throughout the site with the largest concentrations found in units 6, 14, 11, 1, 13, 7 and 5, in descending order.

The most common waste materials found were fused shale (33% of the total), chert (28%), quartzite (17%) and chalcedony (15%). Of these four, the average size of the quartzite flakes is the largest (2.49 gm. each), and the average size of the fused shale flakes is the smallest (0.16 gm. each), with the average size of chert and chalcedony flakes falling between these two (0.46 gm. and 0.76 gm., respectively).

Shellfish Remains

Because shellfish species tend to inhabit specific localized micro-environments along southern California's coastline, numerous authors have used these remains as an indication of the probable origins of the coastal to inland movement of foodstuffs. Thus, shellfish are one of the best forms of evidence concerning prehistoric economic organization that archaeologists have in this area. All shellfish from Ven-122, accordingly, was bagged by collection unit and level, sorted by species and weighed and tabulated. The results of this analysis are presented in Table 20 by unit and level and summarized in Table 20. It is obvious from these data that Mytilus californianus, Protothaca staminea and Haliotis sp., representing 82.0, 7.8 and 6.8% of the total shellfish collection by weight, were the most significant molluscan remains at this site.

As Wells (1978) has pointed out, Mytilus californianus and Haliotis sp. are found along extensive portions of the coast in an open rocky shoreline environment, while Protothaca staminea is only found in abundance on sheltered rocky beaches, such as occur at Malibu. Other species that commonly are present in inland sites, such as Saxidomus nuttalli, Tivela stultorum and Chione undatella, inhabit sandy bottoms like the estuary at Mugu Lagoon. The absence of Saxidomus, Tivela and Chione suggests

TABLE 16

DISTRIBUTION OF UTILIZED FLAKES

Unit	MATERIAL									Total
	Chert	Chal-cedony	Quart-zite	Tuff	Basalt	Quartz	Silt-stone	Fused shale	Fine-grained volcanic	
Provenience Unknown	2/ 5.9		1/14.0							3/ 19.9
I	7/13.4	4/ 6.7	6/11.9					3/ 7.3		20/ 32.0
II	2/12.0	1/ 2.3	3/24.9							6/ 39.2
IV	1/ 0.2							1/ 0.9		2/ 1.1
V	13/37.7	1/ 1.2	11/172.8	1/ 2.5	1/ 0.8		1/ 5.0	8/11.2	1/ 0.2	37/231.4
VI	11/ 7.5	4/ 8.2	2/52.3					8/ 3.6	1/ 6.8	26/ 78.4
VII	6/16.5		4/59.9			1/ 1.4		2/ 2.4		13/ 80.2
IX	2/12.9							1/ 1.1		3/ 14.0
XI	6/ 3.0	4/ 8.0	7/65.5					2/ 2.2		19/ 78.7
XII	1/ 0.4	2/ 6.1						1/ 1.2		4/ 7.7
XIII	5/13.4	2/13.3	2/19.8							9/ 46.5
XIV	2/ 6.0	3/17.3	1/28.1					5/ 8.3		11/ 59.7
XVa			1/20.3							1/ 20.3
Surface I			1/180.4							1/180.4
Surface V			2/18.5					3/ 4.6	1/ 0.2	6/ 23.3
Surface VIII			1/38.2							1/ 38.2
TOTAL BY MATERIAL	58/128.9	21/63.1	42/706.6	1/ 2.5	1/ 0.8	1/ 1.4	1/ 5.0	34/42.8	3/ 7.2	

TABLE 17

CORES AND CORE/COBBLE TOOLS
VEN-122

Accession Number	Provenience Unit	Level	Material	Length cm.	Width cm.	Thickness cm.	Description/Type
595-175	VI	0-10	Fused shale	1.3	1.2	1.0	Micro-core, one edge reused as scraper
595-209	VI	10-20	Quartzite	7.2	5.8	5.0	Bifacial chopper, fire colored
595-697	X	10-20	Quartzite	10.1	7.3	3.5	Scraper with step fractures
595-599	XIII	0-10	Chert	2.2	1.5	1.3	Core
595-811	XIV	0-10	Chert	1.2	1.8	1.6	Micro-core
595-682	XIV	20-30	Quartzite	8.7	5.4	3.4	Bifacial chopper
595-765	XVa	0-10	Basalt	4.1	3.8	2.5	Bifacial chopper
595-852	Surface III		Chert	5.2	4.5	3.4	Hammerstone, used for crushing
595-570	Unknown		Chalcedony	4.2	3.4	2.9	Core
595-1003	Unknown - Surface		Chert				Prepared platform core, long prismatic blades removed

TABLE 18

GROUNDSTONE, VEN-122

Accession Number	Provenience Unit	Provenience Level	Material	Length cm.	Width cm.	Thickness cm.	Description/Type
595-11.	V	0-10	Quartzite	6.8	5.2	3.2	Unifacially ground cobble, no shaping
595-71	V	10-20	Quartzite	4.5	3.5	3.1	Unifacially ground cobble, edge pecked
595-282	V	0-40	Sandstone	8.0	4.9	4.3	One planar ground surface, probably fragment of metate
595-51	V	30-40	Quartzite	8.5	4.5	3.0	Unifacially ground cobble, no shaping or pecking
595-105	VII	0-10	Quartzite	5.9	3.7	2.4	Unifacially ground cobble, no shaping or pecking
595-108	VII	10-20	Quartzite	6.7	5.2	2.5	Mano fragment - cobble with one ground surface, no shaping or pecking
595-116	VII	Un-known	Basalt	7.0	4.0	2.4	Bowl fragment, ground surface on top rim
595-698	X	10-20	Tuff	6.6	4.4	3.2	Small curving fragment of basal groundstone, polished on inside and outside surfaces
595-541	XI	10-20	Quartzite	9.0	5.0	3.4	Cobble with one ground face, edge pecked but not shaped
595-615	XIV	50-60	Sandstone	23.7	10.0	10.0	Large basal groundstone fragment evidencing slight circular concavity in grinding surface, no shaping evident

(continued)

TABLE 18 (2)

Accession Number	Provenience Unit	Provenience Level	Material	Length cm.	Width cm.	Thickness cm.	Description/Type
595-770	XV	0-10	Tuff	8.5	6.4	5.3	Unifacially ground cobble, no shaping
595-770	XV	0-10	Quartzite	6.4	4.8	1.7	Unifacially ground cobble, pecking along edge, no shaping
595-778	XV	10-20	Quartzite	4.1	5.0	4.1	Bifacially ground cobble, no shaping or pecking
595-854	Surface III		Granite	6.0	4.6	3.4	Bifacially ground and shaped

TABLE 19

DISTRIBUTION OF WASTE LITHICS BY MATERIAL
(Number items/weight in grams)

Unit No.	MATERIAL													
	Chert	Chal-cedony	Quart-zite	Tuff	Basalt	Quartz	Silt-stone	Obsidian	Fused shale	Sand-stone	Unidenti-fied	Jasper	Fine-grained volcanic	Total
I	74/44.9	44/80.9	20/84.4	4/27.1	10/ 4.9	3/ 5.3	1/ 0.3	1/ 0.3	78/18.3	1/ 7.8	1/ 1.3	4/ 0.5	0	241/276
II	5/ 9.1	6/ 3.4	3/ 4.9	0	1/ 0.1	0	0	0	10/ 0.7	0	0	0	0	25/ 18.2
III	0	0	1/ 3.9	0	0	0	0	0	0	0	0	0	0	1/ 3.9
IV	10/ 3.6	9/11.9	9/11.3	1/ 0.1	0	0	1/ 0.1	0	10/ 1.0	0	0	0	1/ 0.8	41/ 28.8
V	59/53.3	11/11.4	46/204.7	8/10.2	1/ 1.8	2/ 8.1	1/ 1.0	0	32/13.4	0	0	0	2/ 7.0	162/310.9
VI	256/47.2	130/40.6	170/88.9	11/ 2.0	1/ 0.1	2/ 2.0	1/ 1.0	2/ 2.8	291/26.5	1/ 0.2	2/ 6.2	1/ 0.2	8/ 2.4	876/220.
VII	65/26	24/11.9	36/56.7	3/10.3	1/ 0.2	1/ 0.7	1/ 0.1	0	64/ 5.5	0	4/ 1.3	5/ 1.6	3/12.3	207/126.6
VIII	3/ 1.8	0	2/28.2	0	0	0	0	0	0	0	0	0	0	5/ 30.0
IX	7/ 1.4	10/41.4	1/ 1.4	2/ 9.9	0	0	0	0	8/ 1.5	0	0	3/ 0.2	0	31/ 55.8
X	6/ 5.5	5/ 7.2	9/21.1	0	5/ 1.7	1/ 0.5	0	0	13/ 5.3	0	0	4/ 9.5	0	43/ 50.8
XI	44/53	39/24.2	84/260.7	5/16.9	8/ 4.6	2/ 6.8	0	0	101/23.2	0	1/ 0.7	1/ 0.1	4/ 2.3	289/392.5
XII	2/ 0.3	3/ 0.9	1/ 2.7	0	0	0	0	0	7/ 0.9	0	0	0	0	13/ 4.8

TABLE 19 (2)

Unit No.	Chert	Chal-cedony	Quart-zite	Tuff	Basalt	Quartz	Silt-stone	Obsidian	Fused shale	Sand-stone	Unidenti-fied	Jasper	Fine-grained volcanic	Total
XIII	67/23.4	50/24.5	16/100.2	2/ 3.0	8/ 3.2	2/ 0.5	3/ 0.9	0	86/11.2	1/ 0.4	2/ 1.4	0	1/ 0.8	238/169.5
XIV	97/33.6	31/16.2	22/46.3	2/ 9.7	15/19.8	1/ 0.1	1/ 0.1	2/ 0.3	127/18.2	0	0	5/ 0.8	3/ 0.8	306/145.9
XV	1/ 0.3	0	1/ 0.1	0	0	0	1/ 0.2	0	1/ 2.5	0	0	0	0	4/ 3.1
XVa	1/ 0.1	0	1/ 0.2	0	1/ 0.7	0	0	0	4/ 0.3	0	0	0	0	7/ 1.3
Lost provenience	5/ 2.9	3/ 4.0	3/ 4.1	0	0	0	0	0	0	0	0	0	0	11/ 11.0
Sur-II	1/ 5.4	1/ 1.3	0	0	0	0	0	0	0	0	0	0	0	2/ 6.7
Sur-V	3/11.6	3/ 4.1	4/91.4	0	2/ 7.9	0	0	0	3/ 2.4	0	0	0	0	15/117.4
Sur-VI	2/ 0.1	1/ 0.1	0	0	0	0	0	0	1/ 0.1	0	0	0	0	4/ 0.3
Sur-VIII	6/ 5.6	1/ 0.9	10/41.6	0	0	0	0	0	3/ 0.6	0	0	0	0	20/ 48.7
Sur-IX	1/ 1.2	0	1/ 4.2	0	0	1/ 0.7	0	0	0	0	0	0	0	3/ 6.1
Sur-X	1/ 2.4	0	1/45.8	0	0	0	0	0	0	0	0	0	0	2/ 48.2
Sur-XV	0	2/ 0.7	2/ 1.0	0	0	0	0	0	0	0	1/ 0.1	0	0	5/ 1.8
Total	716/ 332.7	373/ 285.6	443/ 1103.8	38/ 89.2	53/ 45.0	15/ 24.7	10/ 3.7	5/ 3.4	839/ 131.6	3/ 8.4	11/ 11.0	23/ 12.9	22/ 26.4	2551/ 2078

TABLE 20

VEN-122: RAW WEIGHTS AND COUNTS OF SHELL BY UNIT, EXCAVATION LEVEL AND SPECIES
(weight in gms./number items)

Unit No.	Level	Mytilus	Chione calif.	Protothaca staminea	Chione undatella	Saxidomus	Haliotis	Aequipecten	Unidentified	Other
I	0-10	19.4/212		3.0/22			.1/ 1		.1/ 1	
	10-30	47.6/192	.7/1	2.5/ 9			1.6/ 7		.5/ 1	Chiton .4/1
	30-40	11.8/ 84		.8/ 5			.6/ 9			Chiton .1/2
	40-60	13.6/ 92		1.2/ 7			.1/ 1		.4/ 2	Chiton .1/1
	60-70	4/ 38		.2/ 2			.1/ 1			Chiton .1/1
	70-80	.5/ 4		.1/ 1						
	80-90	20.1/ 16		.1/ 1						Chiton .1/1
II	0-10									
	10-20									
	20-30	2.3/ 1								
III										
IV	0-10									
	10-20	.5/ 4					.1/ 4			
	20-30									
	30-40	27.9/312		.3/ 8			6.7/32		.1/ 1	

(continued)

TABLE 20 (2)

Unit No.	Level	Mytilus	Chione calif.	Protothaca staminea	Chione undatella	Saxidomus	Haliotis	Aequipecten	Unidenti-fied	Other
V	Surface						1. 1			Tivela Stultorum .1/1
	0-10	6.8/ 56		1.2/ 5			12.5/ 3	.1/ 1		Chiton .4/2
	10-20	13.7/ 62		.8/ 5				.1/ 1	.1/ 1	Chiton .1/1
	20-30	25.0/101		1.1/ 5			2.3/ 5			Balanus .4/3
	30-40	23.0/102		2.5/10				.1/ 1		Chiton. 7/1
	40-50	20.5/ 98		4.0/12					.8/ 1	Turritella .6/1 Balanus .2/1 Chitin 1.2/4 Platform Mussel 1.1/6
	50-60	21.3/ 65		1.8/ 9						Chiton 1.1/3
	60-70	4.7/ 20		1.4/ 5						
	70-80	1.3/ 10		.1/ 1						Chiton. 1/2
	80-90	.3/ 8					.1/ 1			
VI	Surface	.3/ 3					.1/ 1		.1/ 1	
	0-10	43.4/420	.1/ 1	2.4/21					.2/ 3	Chiton 1.0/1
	10-20	25.2/395		3.6/17	.1/ 2	.1/ 1		.3/ 1		Tivela Stultorum 3.1/1
	20-30	18.2/174		3.8/22			3.3/25			
	30-40									
	40-50	28.1/169		.3/ 5			5.0/35			

(continued)

TABLE 20 (3)

Unit No.	Level	Mytilus	Chione calif.	Protothaca staminea	Chione undatella	Saxidomus	Haliotis	Aequipecten	Unidentified	Other
VI (cont.)	50-60	20.5/168		.6/ 5			3.0/17			
	60-70	10.9/128		.1/ 2			1.4/14			
	70-80	4.1/ 69								
VII	0-10	20.4/202		1.6/ 9						Chiton .4/3
	10-20	21.4/181		1.0/ 8					.2/ 2	Chiton .2/2
	20-30	10.2/116		1.6/ 6			.1/ 1			Chiton .1/2
	30-40	15.6/123		.5/ 4		.5/ 1	.2/ 7		.3/ 3	
	40-50	7.9/ 43		1.3/ 5						
VIII	Surface	.1/ 6								
IX	0-10	.1/ 1					.1/ 2			
	10-20	.5/ 7		.1/ 2						
	20-30	12.0/ 98		.3/ 5			1.1/14			
	30-40	.1/ 1		.2/ 1						

(continued)

TABLE 20 (4)

Unit No.	Level	Mytilus	Chione calif.	Protothaca staminea	Chione undatella	Saxidomus	Haliotis	Aequipecten	Unidenti-fied	Other
X	0-10			.1/ 1						
	20-30	3.0/ 5		.1/ 1						
	30-40	2.6/ 2								
XI	0-10	13.6/129		2.1/17	.1/ 1		.1/ 1		1.7/43	
	10-20	11.9/124		2.0/10	.1/ 1		.2/ 3		.1/ 1	
	30-40	10.0/ 55		1.0/ 3						
	40-50	6.1/ 52		.3/ 4			2.1/15		.2/ 3	
	50-60	1.8/ 17					.1/ 4			
	60-70	3.2/ 19								
XII										
XIII	0-10	9.7/ 68		1.5/11			1.7/15		.2/ 2	Tivela Stultorum .1/1
	10-20	15.9/114		1.2/19			.8/ 3		.2/ 3	
	20-30	19.9/152		.4/ 7			5.9/28			
	30-40	20.8/155		2.5/14					.1/ 1	Chiton .1/2
	40-50	3.0/ 21		1.1/13			2.6/11			

(continued)

TABLE 20 (5)

Unit No.	Level	Mytilus	Chione calif.	Protothaca staminea	Chione undatella	Saxidomus	Haliotis	Aequipecten	Unidenti-fied	Other
XIV	0-10	9.6/ 96	.3/ 4	.2/ 7			3.1/22			Tivela Stultorum .3/6
	10-20	14.5/145	3.2/11				2.8/19			
	20-30	31.1/146		2.5/ 8			2.2/11		.1/ 1	
	30-40	10.0/ 63		1.5/10			2.2/13		.1/ 1	Tivela Stultorum 4.3/1
	40-50	15.1/ 59		1.2/ 4			.1/ 3			
	50-60	5.7/ 29		.7/ 5			3.0/14			
	60-70						.2/ 7			
XV	0-10	.1/ 2								
	10-20						.1/ 2			
XVa	0-10	.2/ 2					.1/ 1			
	10-20	.2/ 5					.1/ 1			

that the shellfish from Ven-122 were most likely obtained from the Malibu area. This follows a pattern seen at both Ven-125 and Ven-294, two other sites in the Medea drainage, where Haliotis and Protothaca again provide the second and third most important contributions of shellfish to the midden.

A comparison of shellfish remains by drainage and by estimated site age, in fact, reveals some very interesting patterns for the inland area. First, Table 21 summarizes the shellfish collections for two inland drainages, Medea Creek/Malibu and the Arroyo Conejo. Not surprisingly, Mytilus is the predominant species at all sites except Ven-437. (Bove n.d.), has explained this anomaly as being the result of uncovering a single, complete Haliotis shell that skewed the otherwise very small sample at this site.) Within the Medea Creek/Malibu drainage, Haliotis and Protothaca are consistently the second and third most important species, except at LAn-229, where Tegula is third in importance and Haliotis is insignificant. These specimens, as mentioned above, are those normally occurring in a micro-coastal environment such as that found at Malibu Beach.

In the Arroyo Conejo, on the other hand, the importance of the sandy bottom dwelling clam species is evident. This is consistent with Glassow's (1965) suggestion that trade of marine resources in this arroyo was funneled down the Calleguas Creek to the Mugu Lagoon area. This suggests a general structure for at least one aspect of coastal/inland interrelationships: these marine resources were traded along natural topographic features, specifically up the drainages that cut through the Santa Monica Mountains. Leonard (1966) has made a similar argument about the shellfish remains at Ven-70. He suggests that they originated along the coast near Shuwalashu, at the mouth of the Big Sycamore Canyon, upon which Ven-70 is located.

An examination of Table 22 reveals another interesting pattern. This table groups sites by their period of occupation, based on projectile point types recovered during excavation. While there is no consistent pattern in the kinds of species present in significant numbers on the early/intermediate versus late sites (this being attributable to their geographic location as established above), there is a noticeable difference in the number of significant species, and by inference, range of coastal micro-environmental collecting areas represented in these gross temporal groupings. The early sites consistently contain more significant species, regardless of their location. Thus, while each drainage has a pattern of three or four predominant species that lasts throughout the sequence,

TABLE 21

SHELLFISH COLLECTIONS FROM TWO INLAND DRAINAGES, BY SPECIES AND PERCENT OF TOTAL WEIGHT*

	Mytilus californianus	Haliotis sp.	Protothaca staminea	Saxidomus nuttali	Tivela stultorum	Chione undatella	Aequipecten circularis	Tegula funebralis	Donax gouldii	Acanthina paucilirata	Mopalia	Chiton	Source
Medea/Malibu Drainage													
Ven-122	82	7.8	6.8	-	-	-	-	-	-	-	-	-	
Ven-125	55.4	13.9	14.7	-	-	-	-	-	-	2.1	1.9	-	Wells, 1978
Ven-294	70	15	5	4	2	-	3	-	-	-	-	-	Hector, 1978
LAn-229	68.6	-	15.9	-	-	-	-	7.9	-	-	-	1.3	King et al., 1968
Arroyo Conejo Drainage													
Ven-65	37	-	13	11	29	1	4	-	-	-	-	-	Prichett and McIntyre 1979
Ven-170	43.6	-	-	42.4	-	6.3	3.9	-	3.6	-	-	-	Bove, n.d.

(continued)

*Species contributing more than 1.0% of the total weight of shell at each site.

TABLE 21 (2)

	Mytilus californianus	Haliotis sp.	Protothaca staminea	Saxidomus nuttali	Tivela stultorum	Chione undatella	Aequipecten circularis	Tegula funebralis	Donax gouldii	Acanthina paucilirata	Mopalia	Chiton	Source
Arroyo Conejo Drainage (cont.)													
Ven-171	53	20	-	2	5	9.8	2.8	-	3.8	-	-	-	Dillon, n.d.
Ven-272	87.8	-	-	9.6		-	1.7	-	-	-	-	-	Whitley, n.d.a
Ven-437	18	73	-	-	-	-	8.6	-	-	-	-	-	Bove, n.d.
Ven-449	82	1.1	-	11		-	3.2	-	-	-	-	-	Whitley, n.d.b
Ven-69	73-89	-	-	3-10	-	-	-	-	-	-	-	-	Glassow, 1965

TABLE 22

SHELLFISH COLLECTIONS FROM 11 INLAND SITES
BY ESTIMATED PERIOD OF OCCUPATION
(FIGURES ARE PERCENT OF TOTAL WEIGHT*)

	Mytilus californianus	Haliotis sp.	Protothaca staminea	Saxidomus nuttali	Tivela stultorum	Chione undatella	Aequipecten circularis	Tegula funebralis	Donax gouldii	Acanthina paucilirata	Mopalia	Chiton	Source
Late Sites													
Ven-122	82	7.8	6.8	-	-	-	-	-	-	-	-	-	
Ven-125	55.4	13.9	14.7	-	-	-	-	-	-	2.1	1.9	-	Wells, 1978
LAn-229	68.6	-	15.9	-	-	-	-	7.9	-	-	-	1.3	King et al., 1968
Ven-272	87.8	-	-	9.6		-	1.7	-	-	-	-	-	Whitley, n.d.a
Ven-449	82	1.1	-	11		-	3.2	-	-	-	-	-	Whitley, n.d.b
Ven-69	73-89	-	-	3-10	-	-	-	-	-	-	-	-	Glassow, 1965
LAn-246	37	33	11	-	-	-	-	-	-	-	-	-	Galdikas-Brindamour, 1970

(continued)

*Species contributing more than 1.0% of total weight.

TABLE 22 (2)

Intermediate/ Early Sites	Mytilus californianus	Haliotis sp.	Protothaca staminea	Saxidomus nuttali	Tivela stultorum	Chione undatella	Aequipecten circularis	Tegula funebralis	Donax gouldii	Acanthina paucilirata	Mopalia	Chiton	Source
Ven-294	70	15	5	4	2	-	3	-	-	-	-	-	Hector, 1978
Ven-65	37	-	13	11	29	1	4	-	-	-	-	-	Prichett and McIntyre 1979
Ven-170	43.6	-	42.4	-	6.3	3.9	-	3.6	-	-	-	-	Bove, n. d.
Ven-171	53	20	-	2	5	9.8	2.8	-	3.8	-	-	-	Dillon, n. d.

(No temporal diagnostics were recovered from Ven-437, so it is not included in this analysis.)

there is evidence that the focus on one specific coastal micro-environment increases toward the present.

The shellfish analysis, then, indicates strong regional patterns in coastal/inland trade. Shell in the Conejo Corridor in general appears to originate either from the coast at Malibu, Big Sycamore Canyon or Mugu Lagoon, each of which contained large prehistoric and historic villages which are known ethnographically to have exercised considerable political control over the aboriginal population. While shellfish remains alone are not sufficient to conclude that these three coastal villages controlled inland spheres structured along these drainages, these data do suggest that this is a reasonable hypothesis that should be further tested. Similarly, the temporal pattern of shellfish use supports such a hypothesis: the decreasing number of coastal micro-environments represented in sites toward the present suggests that an increase in control or, at least, that a strengthening trading structure was developing. Additionally, the nature of the coast between Point Mugu and Malibu suggests some notions about the characteristics of trade in the early versus late periods: it seems very unlikely that shellfish originating in Mugu Lagoon would have been traded down the rocky coast to Malibu and then up the drainage to the Oak Park area. That the earlier sites contain significant proportions of shellfish from these distant coastal areas suggests, rather, that more inland interaction was occurring in this time period. It seems probable that the trade of Mugu-dwelling shellfish to Oak Park, for example, occurred via the Calleguas Creek and Arroyo Conejo, and then across the easily traversable Conejo Corridor. While these notions are offered as what we consider to be reasonable hypotheses, it should be pointed out that these contrast with other authors (e.g., King et al. 1968) who have argued that inland interaction was very limited in the early period and increased only toward the historic. However, no supporting arguments or justifications for this latter position have been given, so it is not possible to evaluate it as an alternative hypothesis at this point.

Shell Beads

One hundred forty-five whole or fragmentary beads were recovered from Ven-122. Two of these are steatite; the remainder are predominantly shell disc, saucer and cups. Olivella biplicata is by far the most common shell source for these beads, accounting for at least 81% of the collection. These beads were measured and typed using Gibson's (n.d.) terminology. The tabulations, by type, unit and excavation level, are presented in Table 23.

TABLE 23

BEAD TYPES BY UNIT AND LEVEL

	Olivella thin-lipped oval	Olivella thin-lipped round	Clam disc	Mytilus disc	Olivella saucer	Olivella cup, Phase 1	Olivella cup, Phase 2	Mytilus cylinder, Phase 2	Mytilus cylinder	Olivella spire-lopped	Olivella Barrel	Steatite	Haliotis disc	Olivella-full-lipped	Olivella cylinder	Unidentifiable
	1600-1700	1520-1600	1000-1300	750-1810	700-1500	500-1780	1400-1785	1520-1785	1520-1785	1250-1785	6000 BC-1250 AD		1500-1675	1700-1780	1500-1785	
Unit I																
0-10	1	1	1	2	1	1										
20-30	1			4	3		3									
30-40					1				1							
40-50					1		1									
60-70					1											
Unit V																
0-10					1			1								1
20-30		2				1										
30-40				1	2		1									1
40-50					2	1		2								
50-60				1	2											
60-70						1										

(continued)

TABLE 23 (2)

	Olivella thin-lipped oval	Olivella thin-lipped round	Clam disc	Mytilus disc	Olivella saucer	Olivella cup, Phase 1	Olivella cup, Phase 2	Mytilus cylinder, Phase 2	Mytilus cylinder	Olivella spire-lopped	Olivella Barrel	Steatite	Haliotis disc	Olivella full-lipped	Olivella cylinder	Unidenti-fiable
	1600-1700	1520-1600	1000-1300	750-1810	700-1500	500-1780	1400-1785	1520-1785	1520-1785	1250-1785	6000 BC-1250 AD		1500-1675	1700-1780	1500-1785	
Unit VI																
0-10				2	3	1	2	1				1				5
10-20					2		1			1						1
20-30				1	3						1					
30-40				1	2	1							1			
40-50										1						
50-60							1									1
Unit VII																
10-20					1											
20-30					2	2	3									
30-40					3											
40-50		1			1											1
Unit XI																
10-20				1												
20-30					1											
30-40				1												

(continued)

TABLE 23 (3)

	Olivella thin-lipped oval	Olivella thin-lipped round	Clam disc	Mytilus disc	Olivella saucer	Olivella cup Phase 1	Olivella cup Phase 2	Mytilus cylinder, Phase 2	Mytilus cylinder	Olivella spire-lopped	Olivella Barrel	Steatite	Haliotis disc	Olivella full-lipped	Olivella cylinder	Unidenti-fiable	
	1600-1700	1520-1600	1000-1300	750-1810	700-1500	500-1780	1400-1785	1520-1785	1520-1785	1250-1785	6000 BC-1250 AD		1500-1675	1700-1780	1500-1785		
Unit XIII																	
0-10				1	1									1		1	
10-20	1				5												
20-30				1	4		1	1							1		
30-40					3	1										1	
40-50					1	1	1										
50-60					1												
Unit XIV																	
0-10					5	1	3									1	
20-30		1		2	2	2	1	1				1					
40-50					3												
50-60							1	1									
Totals:	3	5	1	18	57	13	19	7	1	2	1	2	1	1	1	13	145 total
%:	2.1	3.4	0.7	12.4	39.3	9.0	13.1	4.8	0.7	1.4	0.7	1.4	0.7	0.7	0.7	8.9	

The bead analysis indicates that Ven-122 was occupied between the period from A.D. 500 to 1785, with the initial habitation probably beginning after A.D. 700 and definitely before 1250. The presence of one Olivella full-lipped bead suggests that occupation extended into the eighteenth century, and indicates that Ven-122 was contemporaneous with Ven-125. Similarly, both these sites were in use during the initial occupation of the Medea Creek village, LAn-243v.

The beads recovered from Ven-122 seem to correspond to Gibson's (1975) Late period complex, which he has also identified at Medea Creek, the Mulholland site (LAn-246), Century Ranch (LAn-227 and LAn-229), and Area 2 of Humaliwo (Malibu, LAn-264). As suggested above, Ven-125 is also characterized by this bead complex.

Bone Tools

Thirteen bone tool fragments were recovered from Ven-122: twelve awl fragments and one scraper. As shown in Table 24, five of these artifacts were found in unit 1 and four were found in unit 6, located approximately five meters from unit 1, with no intervening excavation units. They were distributed throughout the site vertically with five concentrated in the 0-10 cm. level. Two of the awl fragments, one from the 20-30 cm. level of unit 5, and one from the 40-50 cm. level of unit 14, have been burned.

Miscellaneous Artifacts

Ochre and Chalk

Pieces of ochre or chalk were discovered in 46 separate excavation levels or surface collection units. This represents 83.25 gm., which is comparable to the collection recovered at Ven-125, where 88.60 gm. were excavated (Wells 1978:169, Table 9). However, the total excavated midden sample from Ven-125 exceeds that from Ven-122 by a magnitude greater than four, indicating that Ven-122 contains an unusual concentration of this particular item. Additionally, a scraper from unit 13 was uncovered in the 50-60 cm. level that had been coated with red ochre. The distribution of ochre and chalk is summarized in Table 25.

Quartz Crystals

Twenty-five quartz crystals were collected at Ven-122. None of these bear evidence of having been hafted with asphaltum, although

TABLE 24

DISTRIBUTION OF BONE TOOLS
VEN-122

Accession Number	Provenience Unit	Provenience Level	Type	Length cm.	Width cm.	Thickness cm.	Description
595-371	I	0-10	Scraper	1.7	0.7	0.5	
595-372	I	0-10	Awl	1.2	0.6	0.4	Worked and polished awl fragment
595-429	I	40-50	Awl	1.5	0.3	0.1	
595-480	I	50-60	Awl	3.7	0.5	0.4	
595-481	I	50-60	Awl	3.0	1.1	1.1	Fragment, striations present
595-36	V	20-30	Awl	1.1	0.5	0.5	Distal fragment of awl or pointed tool, burnt
595-156	VI	0-10	Awl	3.0	1.0	0.4	Worked and polished awl fragment
595-158	VI	0-10	Awl	1.4;2.0	0.5;0.8	0.1;0.5	Two worked and polished awl fragments, one with sharp point
595-199	VI	10-20	Awl	2.0	0.6	0.1	
595-545	XI	10-20	Awl	2.0	0.8	0.2	
595-596	XIII	10-20	Awl	2.7	1.5	1.3	
595-790	XIV	40-50	Awl	1.7	0.8	0.3	Fragment, burnt at tip

TABLE 25

DISTRIBUTION OF OCHRE AND CHALK

Accession Number	Unit	Level	Number items/Weight in gms.
595-414	I	0-10	1/ 6.8
595-334	I	10-30	1/ 0.45
595-404	I	30-40	22/ 3.0
595-438	I	30-40	1/ 0.2
595-432	I	40-50	1/ 0.2
595-310	I	60-70	1/ 0.3
595-458	I	80-90	1/ 0.2
595-829	II	20-30	19/ 5.4
595-496	IV	10-20	7/ 1.8
595-16	V	10-20	4/ 0.4
595-37	V	20-30	8/ 0.6
595-55	V	30-40	1/ 0.4
595-69	V	40-50	12/ 4.8
595-78	V	50-60	12/ 3.0
595-183	VI	0-10	1/ 9.25
595-194	VI	10-20	1/ 3.4
595-216	VI	20-30	1/ 1.1
595-238	VI	30-40	1/ 6.8
595-255	VI	40-50	1/ 2.3
595-492	VI	60-70	2/ 0.2
595-456	VI	70-80	2/ 0.2
595-97	VII	0-10	1/ 1.6
595-114	VII	10-20	11/ 6.6
595-131	VII	20-30	3/ 0.7

(continued)

TABLE 25 (2)

Accession Number	Unit	Level	Number items/Weight in gms.
595-133	VII	40-50	7/ 4.5
595-706	IX	0-10	3/ 0.4
595-512	XI	20-30	?/ 2.45
595-533	XI	30-40	4/ 0.4
595-528	XI	40-50	?/ 0.4
595-554	XI	50-60	3/ 0.5
595-556	XI	60-70	?/ 0.6
595-574	XII	0-10	2/ 0.5
595-585	XIII	10-20	4/ 0.7
595-621	XIII	30-40	1/ 0.8
595-628	XIII	40-50	1/ 0.1
595-812	XIV	0-10	3/ 2.2
595-796	XIV	10-20	7/ 0.8
595-802	XIV	20-30	3/ 0.3
595-786	XIV	40-50	4/ 0.7
595-780	XV	10-20	1/ 1.1
595-767	XV	20-30	5/ 1.9
595-749	XVa	0-10	1/ 0.1
595-750	XVa	10-20	4/ 0.2
595-758	XVa	20-30	2/ 0.2
595-762	XVb	0-10	1/ 0.1
595-843	Surface VIII		1/ 0.1

Total: 83.25 gms.

traces of this easily could have disappeared over the years. The provenience and weights of these artifacts are summarized in Table 26. It can be noted from this tabulation that an unusual concentration of crystals was collected from unit 6.

Shaped Calcareous Sandstone Object

An unusual shaped piece of calcareous sandstone (595-1002) was found in surface collection unit 9. This object, measuring 4.2 cm. by 2.7 cm. by 1.4 cm., is a lenticular specimen of white sandstone that appears to have been ground into the shape of a corner-notched projectile point resembling an Elko-Eared projectile point from the Great Basin. No everyday function can be suggested for this object and no similar artifacts are known to have come from surrounding sites by these authors. This object is illustrated in Figure 15.

Excavated Features

Two extant archaeological features were encountered during the excavation of Ven-122, a single burial and a small hearth. Both were located west of the dirt road bisecting the site, that is, within the midden deposit on Ven-122.

Feature 1

This feature consists of a single burial, found interred in a shallow intrusive pit during the excavation of units 9 and 10. A small cairn, composed of seven rocks, was found positioned immediately above the burial. The cranium of the burial was located directly underneath one of the larger rocks of this cairn. While a number of waste flakes and one large pulping plane were found in the midden soil forming the matrix around these rocks, no artifacts were uncovered associated with the interment.

The grave consisted of a circular cavity, approximately 60 cm. in diameter, that had been excavated approximately 10 cm. into a light-colored sandstone bedrock. Total original depth of the intrusive pit, as estimated by the location of the cairn above the skeleton, was approximately 25 to 30 cm. The body was placed in the grave in a tightly flexed position on its left side, with its face down. Orientation was toward the west.

TABLE 26

DISTRIBUTION OF QUARTZ CRYSTAIS
VEN-122

Accession Number	Unit	Level	Number items/ Weight in gms.
595-397	I	0-10	1/ 0.4
595-416	I	30-40	1/ 0.2
595-463	I	80-90	1/ 0.2
595-22	V	0-10	1/ 0.2
595-82	V	50-60	1/ 0.1
595-832	VI	0-10	4/ 2.4
595-195	VI	10-20	5/ 1.0
595-224	VI	20-30	2/ 0.2
595-244	VI	30-40	1/ 0.6
595-254	VI	40-50	1/77.9
595-733	XI	0-10	2/ 2.9
595-510	XI	20-30	2/ 0.5
595-527	XI	40-50	1/ 0.1
595-772	XV	0-10	1/ 0.2
595-752	XVa	10-20	1/ 0.3

At the request of Native American monitors, provided by the Candeleria Intertribal Council at Ventura, who were present at the time the skeleton was exposed, the burial was left in situ and reburied after having been examined and photographed. Consequently, no osteological study was made of the skeleton. However, it appeared to be a mature adult, possibly female, with no immediately apparent bone pathologies. While no grave goods were found in the matrix of the intrusive pit, it is possible that some may have been present beneath the skeleton.

Feature 2

Feature 2 consists of a large hearth, measuring approximately 65 cm. in diameter, that was located in excavation units 13 and 14, 30 cm. beneath the modern ground level. Substantial amounts of waste lithics, shell and faunal remains were found in the midden forming the matrix around the hearth. Additionally, fire-reddened earth was noticed within the roughly oval shape of the hearth. A soil sample was collected from this hearth that will be floated and analyzed at a later date.

Two unusual artifacts uncovered in the excavation units containing this feature are a small, single-shouldered chalcedony projectile point, described earlier, and a unifacially flaked chalcedony scraper. This scraper, found in the 50-60 cm. level of unit 13, was covered with red ochre. Its location was in a level immediately below that of the hearth, so direct association with this feature is questionable.

Both Feature 1 and Feature 2 are common to Late period Chumash sites. Flexed burials, with the head oriented to the west are, in fact, a hallmark of the Late period. Cairn coverings in the Late period are less common, but not unknown, and seem to be the norm for all burials that have been encountered in Oak Park, regardless of temporal context. Although a possibility exists that more burials are present at Ven-122, this seems unlikely in light of excavations at nearby Ven-125 and the contemporaneous late sites in the Arroyo Conejo, Ven-272 and Ven-449. None of these last three sites have produced burials, suggesting that during the Late period small villages did not contain burial grounds. Substantial cemeteries were probably located at centralized locations that were used by numerous small villages. This also suggests some notions about the structure of the social organization vis-à-vis the settlement pattern during the Late period. Ethnographically we know that the larger villages had a number of satellite settlements or dependencies tied to them economically and socially. Some authors (e.g., Greenwood, n.d.) have suggested that the noticeable clustering of villages in the inland area, such as found on Oak Park in both the South and the North Complexes, may represent these large villages and their satellites. This volume has emphasized that these clusters should be interpreted as single, long-term habitations that, consequently, may have formed the satellite villages of other, larger villages. Thus, it can be argued that late sites with cemeteries formed these capital villages; smaller sites, such as Ven-122 and Ven-125, as a consequence, were probably allied with these larger sites politically, economically and socially.

Assuming that no other burials are encountered at Ven-122, the single burial uncovered is somewhat anomalous in that interment occurred at the habitation site rather than at a centralized cemetery. Although no grave goods were uncovered with the skeleton, suggesting that it may have been a low status burial, the lack of any deviations from the standard mortuary practices and the difficulty that would have been required to excavate the burial pit (which L. King, 1969, uses as one indication of burial status) make this a questionable inference to accept.

CONCLUSIONS

The evidence collected from CA-Ven-122 has been used to develop a number of inferences and hypotheses both about this site specifically and about the archaeology of this area in general. First, the lithic and bone artifacts collected indicate that a wide range of general maintenance and processing activities were probably occurring on the site. No evidence of a specialized industry is noticeable. Projectile point types indicate that the site was inhabited during the Late period. A shell bead analysis has refined the temporal context of the site even further, indicating an occupation from at least A.D. 1250 to 1700.

An analysis of shellfish remains indicates that the occupants of the site had opportunities to obtain coastal resources, probably from the area surrounding the prehistoric and historic village of Humaliwo, located at the mouth of the Malibu Creek. This trading pattern, along with the features mentioned above, shows a striking similarity between this site and nearby Ven-125. These two sites, located approximately two miles apart in essentially the same environmental zones, contain the same bead complexes and projectile point types, have evidence that the same kinds of activities were undertaken at each site, and have similar foodstuff remains in their middens. We can only interpret these facts as indicating that both sites were occupied at the same time but by different groups of people.

Finally, it is noticed that Ven-122, as the apparent final occupation in the North Complex, suggests a situation analogous to that found with Ven-125 and the South Complex, and the settlement pattern in the Arroyo Conejo with late prehistoric habitations situated at Ven-272 and Ven-449. Each of these complexes contain early through late prehistoric components; none contain evidence of historic occupations. The continuous occupation from the early through the late periods in these locations and the absence of historic components indicate a very significant shift in the settlement pattern at this time. It has been suggested that the introduction of European diseases resulted in both a reduction of the aboriginal population and a concentration of both the survivors and of wealth in the remaining settlements. This concentration, at least, is substantiated by the discontinuity seen in the settlement pattern from the late to the historic period in this area.

CHAPTER 5
THE EXCAVATION OF THE OAK PARK ROCKSHELTERS, CA-Ven-68 AND CA-Ven-373: TWO SACRED PLACES IN THE SIMI HILLS

C. W. Clewlow, Jr., D. S. Whitley, M. Drews and J. Simon

INTRODUCTION

Previous surveys of the Oak Park property located two rockshelters containing evidence of aboriginal use: CA-Ven-68 and CA-Ven-373 (see Figure 1). These two sites appear to be part of the North Complex's activity sphere and, while the existence of two dry rockshelters may have resulted in the preservation of an unusual association of artifacts, the activities that occur at these two overhangs are probably well within the range of those occurring within every site complex. Much of the early research on the Inland Chumash, in fact, focused on the excavation of rockshelters, including Canterbury Cave (Woodward, n. d.), the Triunfo Rockshelter (Kowta and Hurst 1960), the Simi Valley Rockshelters (Shiner 1949; Burnham and Durbin, n. d.), and the Conejo Rockshelter (Glassow 1965). The Oak Park Rockshelters, however, appear to be substantially different from these other sites. Descriptions of these two shelters follow, including details on the excavations, recovered artifacts and cultural interpretations made of their contents.

CA-Ven-68

CA-Ven-68 consists of a series of small, south-facing rock overhangs located at the base of a prominent sandstone outcrop, near the bottom of Simi Peak (see Figure 1). Ven-39 and Ven-122 are situated within plain view of the shelters, approximately one-half mile to the south. One shelter here was found to contain cultural material. This overhang covers an area about three meters square with a one meter high back ceiling sloping to a 2.5 meter opening at the front of the shelter. The western side of this overhang is completely exposed; eroded sandstone along the northeastern side of the overhang protects an area of approximately one square meter on this side.

Intermittent tributaries of Medea Creek have headwaters located on either side of the Ven-68 outcropping, flowing southward within 200 feet of the western side of the shelter and 400 feet from the eastern side. Chamise and sage grow on the steep slope leading up to the site, and non-native grasses and oak woodlands cover most of the valley below Ven-68.

Five one-meter square units and three 1.5 meter by one meter units were excavated on Ven-68. Two of the one-meter square units were placed outside of the overhang line; the remainder were located within the shelter. All units were numbered along an east-west line: units 1, 2, 3, 5, 6, and 7 were located within the rockshelter, unit 8 was situated south of the overhang and unit 4 was placed to the west.

Material was excavated using trowels, placed in buckets and sifted through 1/8-inch mesh screens. All recovered cultural material was bagged by unit and level and transported to the UCLA Archaeological Survey for analysis. Each unit was excavated to bedrock in arbitrary ten cm. levels. The average depth of all units was 20 cm., with a range of 10 cm. in unit 5 (along the back wall) to 30 cm. in units 2 and 3 (in the center of the shelter).

The deposit at Ven-68 consisted of a loose, light brown sandy soil, derived from the sandstone forming the outcrop in which the site is located. Very little, if any, organic decomposition has occurred in this deposit, resulting in a considerable amount of natural root remains circa 10 cm. below the surface. This organic preservation also indicates that no habitation refuse was deposited within the rockshelter.

Cultural materials uncovered during the excavation are tabulated by unit and depth in Table 27. It is obvious from this table that, with the exception of a small amount of charcoal recovered from the 0-10 cm. level of unit 1, shell and bone are the predominant archaeological indicators from Ven-68.

The recovered artifact collection from this rockshelter, then, is very unusual, consisting mostly of shell fragments. The distribution of these suggests that they are not the result of a single excursion to the site and the discovery of two nearly complete Haliotis and one whole clam shells is peculiar in that whole specimens of these species were normally used rather than discarded, Haliotis for beads and ornamental items and clam shells for beads and in basketry production (cf. Craig 1966).

TABLE 27

EXCAVATION UNIT SUMMARIES, VEN-68

Museum Accession No.	Unit	Level	Description
599-003	I	0-10 cm.	shell fragments, all Mytilus californianus (11.4 gm.)
599-018		0-10 cm.	charcoal fragments
599-019	I	0-10 cm.	mammal bone fragments (0.7 gm.)
599-020	I	0-10 cm.	shell fragments, all Mytilus californianus (0.6 gm.)
599-021	I	0-10 cm.	small mammal bone fragments, unidentifiable (0.2 gm.)
599-022	I	10-20 cm.	small bone fragments (0.2 gm.)
599-014	II	0-10 cm.	shell fragments, all Mytilus californianus (8.2 gm.)
599-015	II	0-10 cm.	burnt bone fragments (3.3 gm.)
599-002	II	10-20 cm.	shell fragments, all Mytilus californianus (4.0 gm.)
599-012	II	10-20 cm.	shell fragments, some Mytilus californianus (1.4 gm.), large rim of small Haliotis cracherodii (4.7 gm.)
599-013	II	10-20 cm.	bone fragments (0.7 gm.)
599-009	III	0-10 cm.	shell fragments, all Mytilus californianus (4.1 gm.)
599-011	III	10-20 cm.	shells, Mytilus californianus fragments (4.0 gm.); one whole Chione undatella (12.5 gm.)

(continued)

TABLE 27 (2)

Museum Accession No.	Unit	Level	Description
599-010	III	20-30 cm.	shell fragments, Mytilus californianus (0.8 gm.) and Haliotis (1.2 gm.)
599-016	III	20-30 cm.	shell fragments, all Mytilus californianus (0.4 gm.)
599-007	V	0-10 cm.	shell fragments, all Mytilus californianus (11.7 gm.)
599-001	VI	0-10 cm.	shells, one almost whole Haliotis cracherodii (18.6 gm.); Mytilus californianus fragments (3.2 gm.)

CA-Ven-373

CA-Ven-373 is a small, shallow concavity which has eroded into a sandstone outcropping near the southern base of Simi Peak. This south-facing rockshelter is situated approximately 1660 feet above sea level, overlooking a broad valley containing Ven-39, Ven-122 and Ven-181. A seasonal headwater of Medea Creek is located one-quarter mile to the east of the site, separating Ven-373 from the ridge where Ven-68 was discovered.

Chamise and coastal sage, interspersed with dense non-native grasses, occur in abundance on the steep hillsides surrounding Ven-373. The rugged topography of the immediate surrounding area makes the rockshelter relatively inaccessible thereby minimizing any recent human disturbance on the site. Natural factors, such as wind and chemical erosion of the sandstone outcrop, have been more severe, resulting in the deposition of some overburden over the cultural deposit but probably not contributing to any artifact displacement.

The shelter measures approximately three by five meters in horizontal dimensions with a height of 1.5 meters in the rear and two meters at the front of the overhang. A large sandstone boulder lies at the front of Ven-373, partially obscuring the opening. This appears to be the remains of an ancient roof-collapse; it extends well into the cultural deposit, resting upon bedrock immediately south of units 1 and 2.

Twelve collection units were excavated at this rockshelter. Units 1 though 3, 8 and 11 measured a complete one meter square with units 1, 2 and 3 forming a trench just inside the large rock at the front of the shelter. Units 4 through 7, 10 and 12 were, to varying degrees, slightly smaller than one meter in size; their dimensions were restricted by either the back wall of the sandstone outcrop or the boulder at the front of the opening.

Each unit was excavated using a trowel. Dirt was removed in buckets and screened through 1/8-inch mesh. All cultural material was recorded and bagged by excavation unit and level. Additionally, two column samples were removed from within the overhang. The botanical content of the samples was recovered using flotation techniques and these materials are currently under analysis.

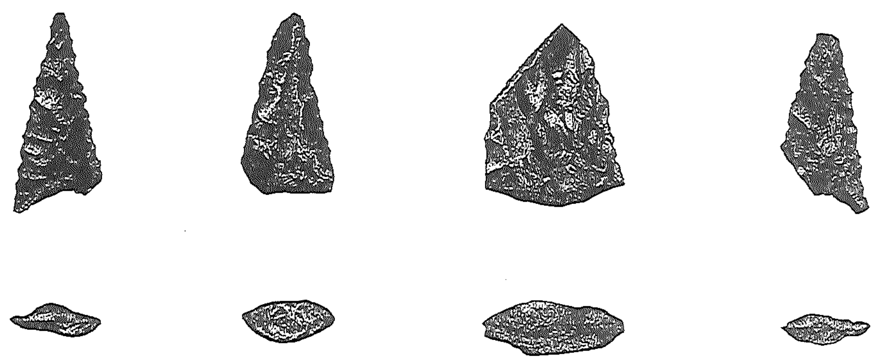
The soil of Ven-373 consists of a loosely compacted, light brown, decomposing sandstone. Because of conditions within the shelter, little, if any, organic decomposition has occurred within the deposit. As a consequence, a considerable amount of vegetable material, consisting mostly of natural root fragments, was uncovered during excavation. This was particularly evident circa 15 cm. below ground level, where a root disturbance layer was noticed across the site. However, no substantial organic material, in the form of normal habitation refuse, was found within the deposit. Consequently, it is not a midden soil. Depth varied from 10 cm. in units 5, 12 and 13 to 60 cm. in units 2, 3 and 8. The slope of the underlying bedrock, then, was extreme.

In contrast to Ven-68, a substantial number of artifacts was recovered from Ven-373. At this shelter, however, lithics, basketry and asphaltum were the predominant artifacts. These are summarized in Table 28.

Lithic artifacts consist of four projectile points (illustrated in Figure 16), one biface knife/scraper, six utilized flakes and seven unutilized flakes. The lithic flakes are notable because of their large size: all are primary flakes removed with a percussion blow from larger cores. Fused shale flakes of this size are rare in most inland sites; the average weight of fused shale pieces from Ven-122, for example, is 0.16 gm. The seven used and unused specimens from Ven-373 average 3.91 gm. However, it is apparent that these specimens are not the result of primary or secondary lithic tool production; no evidence either of stone working implements or retouched flakes were recovered even though 1/8-inch mesh was used to screen all soil from the excavation units.

Three of the projectile points are of the common, concave-base type, indicating that the site was used in the Late period, probably after A.D. 1300. The fourth point is a fragment broken off above the base. However, its general shape and the remains of retouch at one end forming a slight shoulder suggest that it might have been a small stemmed point, usually found in the early half of the Late period. These stemmed points are very common at Ven-261, in the Arroyo Conejo, and have also been found at Ven-125, Ven-122 and Ven-294 in Oak Park.

The absence of shell at Ven-373 is notable, particularly in light of the artifact collection from Ven-68. The one recovered piece, a large, hard piece of *Mytilus*, appears to have been used as a knife along one edge. Ethnographically it is known that the Coast Salish used slivers of mussel shells as knives (Curtis 1907), and it seems likely that the Chumash would have done likewise.



601 - 27 601 - 19 601 - 02 601 - 18

FIGURE 16: VEN - 373

TABLE 28

EXCAVATION UNIT SUMMARIES, VEN-373

Museum Accession No.	Unit	Level	Description
601-32	I	10-20	charcoal and asphaltum fragments
601-33	I	20-30	charcoal and asphaltum fragments
601-34	I	20-30	chert blade, used as scraper. 2.2 x 1.7 x 5 cm.; 2.3 gm.
601-52	I	30-40	charcoal and asphaltum fragments
601-43	II	0-10	fused shale flake, one edge with knife-wear. 3.4 x 2.1 x .5 cm.; 4.3 gm.
601-44	II	0-10	chert flake, scraper use-wear. 3.7 x 1.9 x .9 cm.; 4.5 gm.
601-53	II	0-10	charcoal and asphaltum fragments
601-36	II	10-20	charcoal and asphaltum fragments
601-37	II	20-30	charcoal and asphaltum fragments
601-38	II	20-30	fused shale flake, scraper-use. 2.0 x 2.8 x 0.3 cm.; 2.1 gm.
601-39	II	20-30	fused shale flake, scraper-use. 2.8 x 1.7 x 0.5 cm.; 2.2 gm.
601-40	II	30-40	charcoal and asphaltum fragments
601-41	II	40-50	charcoal and asphaltum fragments
601-42	II	50-60	charcoal and asphaltum fragments

(continued)

TABLE 28 (2)

Museum Accession No.	Unit	Level	Description
601-50	III	20-30	charcoal and asphaltum fragments
601-51	III	40-50	charcoal and asphaltum fragments
601-45	IV	0-10	large fragment of Mytilus shell; edge-worn from use. 4.2 x 2.3 x .4 cm.
601-46	IV	0-10	charcoal fragments
601-48	VI	0-10	charcoal and asphaltum fragments
601-12	VII	0-10	charcoal and asphaltum fragments
601-13	VII	0-10	charcoal and asphaltum fragments
601-15	VII	10-20	charcoal and asphaltum fragments
601-16	VII	20-30	charcoal and asphaltum fragments
601-17	VII	30-40	charcoal and asphaltum fragments
601-18	VII	30-40	concave-base, fused shale projectile point fragment. 2.3 x 0.9 x .23 cm.; 0.6 gm.
601-19	VII	30-40	concave-base, fused shale projectile point. 1.8 x 1.5 x 0.2 cm.; 1.1 gm.
601-20	VII	30-40	high-backed, fused shale flake, drill-wear on point, scraper-wear on edge. 4.3 x 1.8 x 1.2 cm.; 8.2 gm.

(continued)

TABLE 28 (3)

Museum Accession No.	Unit	Level	Description
601-21	VII	30-40	fused shale flake, 2.6 x 1.7 x 0.4 cm.; 1.6 gm.
601-22	VII		2 chert flakes, 2.0 x 1.5 x 0.3 cm; 4.0 x 2.3 x 0.8 cm.; 8.5 gm. total
601-23	VII		chert flake, 2.1 x 2.3 x 0.9 cm.; 7.8 gm.
601-24	VII		chalcedony flake, 2.1 x 1.4 x 0.3 cm.; 1.0 gm.
601-07	VIII	0-10	asphaltum fragments
601-08	VIII	10-20	charcoal and asphaltum fragments
601-09	VIII	20-30	charcoal and asphaltum fragments
601-10	VIII	30-40	charcoal and asphaltum fragments
601-49	VIII	30-40	charcoal and asphaltum fragments
601-25	IX	0-10	charcoal and asphaltum fragments
601-26	IX	10-20	charcoal fragments
601-27	IX	10-20	concave-base, serrated-edge, fused shale projectile point. 2.6 x 1.2 x 0.3 cm.; 0.6 gm.
601-28	IX	10-20	chert biface fragment - retouch and use along two edges, considerable scraper use along third. 2.5 x 1.8 x 0.4 cm. 4.5 gm.

(continued)

TABLE 28 (4)

Museum Accession No.	Unit	Level	Description
601-29	IX	10-20	fused shale flake; 2.2 x 1.6 x 0.5 cm.; 1.6 gm.
601-30	IX	30-40	asphaltum fragments
601-01	X	0-10	fused shale flake; 3.1 x 3.2 x 0.9 cm.; 7.4 gm.
601-02	X	0-10	fused shale projectile point fragment, type unidentifiable. 2.3 x 1.1 x 0.3 cm.; 1.1 gm.
601-03	X	0-10	charcoal fragments
601-04	X	0-10	asphaltum fragments
601-05	X	10-20	asphaltum fragments
601-06	X	20-30	asphaltum fragments
601-31	XI	0-10	asphaltum fragments

Summary: Projectile points: 4 total; 3 concave-based, 1 untypeable. One bifacially flaked tool; 6 utilized flakes. One utilized piece of *Mytilus* shell. Seven unutilized flakes.

Noticeable amounts of charcoal and asphaltum were recovered from almost every unit and every excavation level. These have not been separated because, generally, they represent asphaltum that has been burned and hardened. In a number of cases it appears that these specimens may represent portions of asphaltum covered baskets that had been burned. Due to the unusual preservation of organic materials within the rockshelter, three intact pieces of asphaltum coated basketry were collected. These were all recovered from unit 2 at the 0-10 cm. level.

Basket pieces 1 and 2 appear to have come from different portions of the same vessel. Piece 1 measures 6.8 by 5.5 by 2.2 cm. A thick coating of asphaltum contributes 1.7 of the total 2.2 cm. thickness. Piece 2 is 5.2 by 3.5 by 1.7 cm. in size. The asphaltum layer on this artifact is 1.2 cm. thick. Both pieces have a warp, or foundation, consisting of a bundle of five strands. The weft consists of two elements twisting around a single warp. These characteristics indicate that the artifacts can be considered plain-twined ware, using Mason's (1904) terminology. Both fragments appear to have a weft that leans down to the right. The asphaltum and portions of the basketry on each item appear to have been charred. Piece 1 contains eleven wefts and six warps per 50 mm.; piece 2 has a similar weave size with fourteen wefts and six warps per 50 mm. Each item, additionally, has a light coating of mud on the outside; that is, on the woven elements. Piece 1 is illustrated in Figure 17, and the construction technique has been reproduced.

Piece 3 is a smaller fragment, measuring 4.3 by 3.9 by 0.8 cm. A very thin layer of asphaltum covers the inside portion of this fragment. The pitching, in fact, has impregnated the weave and seeped through to the other side in some places. Weaving consists of plain-twining; each warp element consists of a bundle of five strands; the weft appears to be composed of two elements, each containing two fibers. Mud, again, is present on the outside of the piece. This, in combination with the asphaltum, has made it very difficult to fully identify the construction of this basket fragment. The size of the weave appears to be 12 wefts and 10 warps per 50 mm. None of these recovered fragments contains identifiable rims or starts.

While Chumash basketry is reknowned as containing some of the finest examples of basket weaving known, only about 200 complete baskets still exist (Dawson and Deetz 1965). Of these, the vast majority are coiled baskets; most of the examples of twined ware have been uncovered in archaeological contexts. Heye (1926) reported on a number of asphaltum-coated and twined baskets found in a cave in the Sespe Mountains of

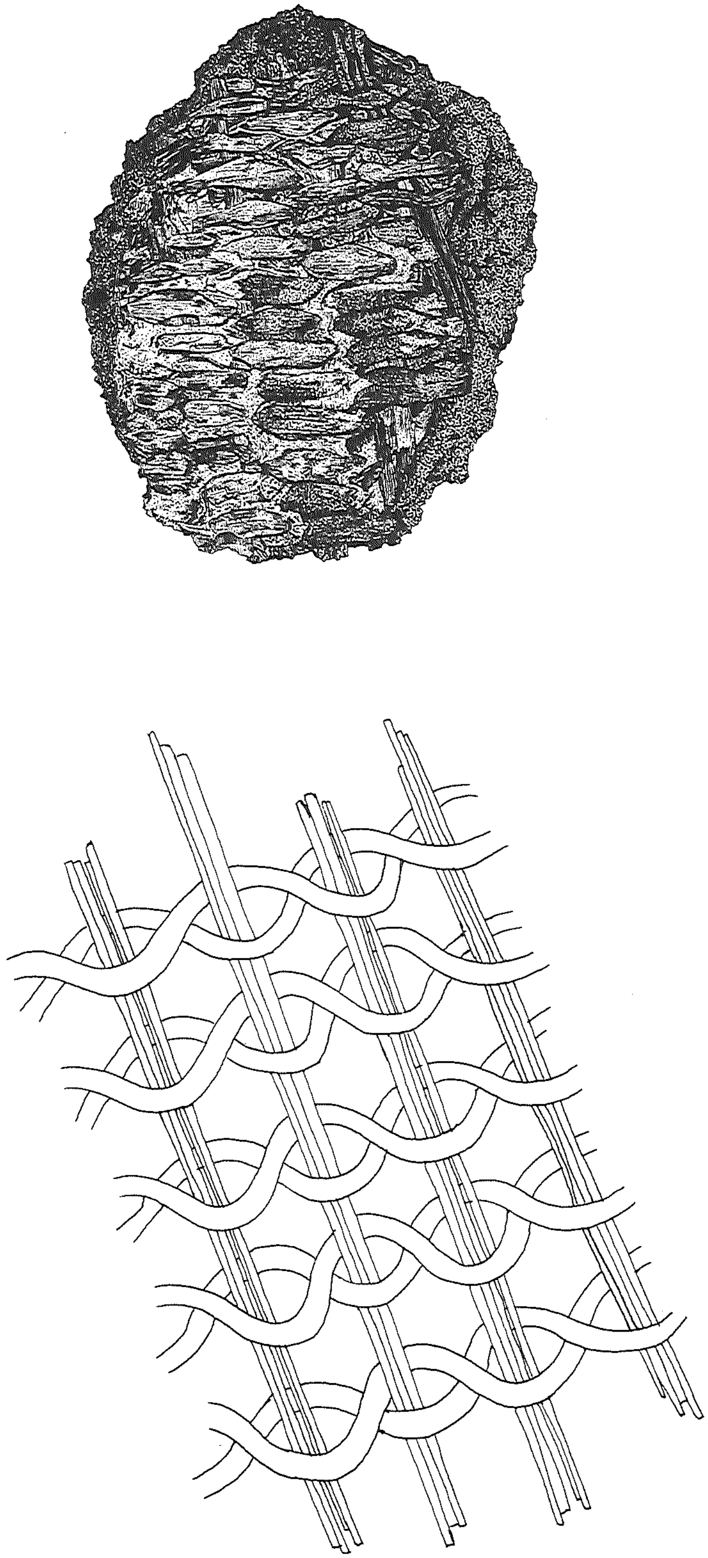


FIGURE 17: VEN - 373: BASKETRY PIECE AND REPRODUCTION OF CONSTRUCTION TECHNIQUE

Ventura County. These included two flat, coiled trays; a large, coiled ovoid basket; and a truncated cone shaped basket; all of these were coated with asphaltum. Additionally, an asphaltum coated, twined cone shaped vessel measuring 7.5 inches in height was described.

Kowta and Hurst (1960) unearthed the remains of one coiled and two twined baskets at Ven-15, the Triunfo Rockshelter. One of these latter examples is an open twine vessel with a two-strand diagonal stitch in which the wefts lean upwards to the left. This fragment was coated with asphaltum. The other twined ware piece was an open twine with no asphaltum treatment. Mohr and Sample (1955) provide a lengthy discussion of a number of samples of twined, pitched water bottles from the Cuyama area. They propose a two-fold typology for these artifacts:

(1) Two strand simple twining (i.e., plain twining), with an upward lean of the wefts to the left; woven on two-strand wrap bundles. This type is thought to be relatively recent and distributed among the Chumash and the Yokuts.

(2) Two strand diagonal twining on a single strand warp. The lean of the wefts is up and to the right. This type is seen as having Great Basin affinities.

Neither of the Triunfo Rockshelter twined fragments fall into either of these two types; both display an upward lean of the wefts to the left, as in the first type, and two-strand diagonal weaves and single-strand warps, like the second type (Kowta and Hurst 1965). However, these authors interpret these differences as the result of temporal differences. They see their specimens in an Early Millingstone context while Mohr and Sample considered late/historic samples.

Additionally, impressions of basketry have been recovered from a number of open-air sites in the southern Chumash area, including Ven-87, LAn-243 and LAn-227. Fourteen specimens were recovered from Ven-87; nine of these are twined ware. All of the twined examples are basically two-strand, plain, Z-twining; that is, two weft elements which twist around a single warp with a lean down to the right. These pieces are interpreted as representing portions of water jugs (Rozaire 1976).

Fifty basketry impressions were recovered from three burials at LAn-227; two of these burials contained only coiled ware impressions; the third contained twined ware fragments. This burial (number 12) had warps consisting of rods or sticks rather than the twisted materials that are characteristic of water bottles from the Santa Barbara area. The weave was a plain, two element, Z-twined technique (Rozaire and Craig 1968).

The Medea Creek cemetery, LAn-243c, also contained a number of coiled and twined basketry impressions (L. King 1969). No analysis of this collection has been published, although Craig (1967:Plate 2) illustrates a specimen of a carrying net from Medea Creek. L. King (1969) suggests that all infants may have been buried in basketry containers.

A considerable amount of ethnographic data on Chumash and, specifically, Ventureño basketry was collected by J. P. Harrington, principally from Fernando Librado (Ortega) and Candeleria Valenzuela (cf. Harrington 1942; Craig 1966 and 1967). Twined ware included (in the Ventureño dialect) the 'uʃ'em or water jug (as called pu-ce-mi at San Buenaventura according to Henshaw; see Heizer 1955); the pətsmu or bailing basket; twined trays called tsa^{h}ja; and twined leaching baskets referred to as tsa^{h}ja'i or šuwoknoə'əš (Craig 1967). Asphaltum was used to coat the 'uʃ'em, the pətsmu, and the x̂(o)'im(ô), a coiled basket used for seed storage.

Although the three basketry fragments from Ven-373 are very small, it seems most likely that they represent the remains of two 'uʃ'em. These were generally small necked bottles with flattened bottoms, approximately 18 inches high and 11 inches in diameter (Dawson and Deetz 1965). According to Fernando, 'uʃ'em were made from a reed 'esmu (also referred to as 'esmu'ŏ), which Craig (1967) has identified as Juncus acutus. This, apparently, is a different, somewhat tougher species than the type used for most coiled basketry, Juncus textilis (or meXmeī). Harrington's informants indicate that 'esmu was pulled, stem by stem (rather than cut), and woven, principally with simple or twill twining. Once a 'uʃ'em was completely woven, the outside was coated with mud, pulverized tar was placed within the jug and about six small heated rocks were rolled around in the vessel to spread the asphaltum and coat the insides. The mud was placed on the outside to prevent the tar from seeping through the weave onto the outside. It was usually left intact. After soaking the inside of the 'uʃ'em with water for two or three days to remove any bitter taste, the jug was used to store water in the hut as a drinking vessel (ibid.).

An additional, unusual artifact recovered at Ven-373 is a large cache of asphaltum, measuring 23.0 by 17.9 by 2.2 cm. in size and weighing 734.2 gm. This bowl-shaped specimen was encountered at the 10-20 cm. level between units 2 and 3. No basketry impressions are present on this piece; in fact, its surface is impregnated with sand. Although no attempt has been made to source the asphaltum in this cache (cf. Gutman 1979), natural tar seeps have been noticed on the Oak Park property by crew members.

INTERPRETATIONS

Ven-68 and Ven-373, separated by approximately one-quarter mile, provide interesting sets of comparative data, both for studies of the two shelters as parts of the North Complex activity sphere and as a unit of comparison with previously excavated shelters in the area. First, as regards comparisons with Canterbury Cave, Ven-15, Ven-69 and the Simi Valley Rockshelters, substantial differences are apparent: these previous excavations all uncovered midden deposits containing a wide variety of artifacts indicating that a complete range of prehistoric activities occurred at these locations. In this sense, these shelters are basically analogous to small villages, such as Ven-122, Ven-125, Ven-272 and Ven-449. The Oak Park Rockshelters, on the other hand, contain a very limited range of prehistoric remains: Ven-68's assemblage is almost totally shellfish; Ven-373's contents are predominated by lithics, basketry and asphaltum. The absence of midden soils at both Oak Park shelters indicates that neither functioned as habitation areas for any substantial period. Thus, their similarities to previously excavated rockshelters in this area are limited to the fact that they are all sites located within rockshelters and that Ven-69, the Simi Valley Rockshelters and Ven-373 all contained concave-base projectile points.

That the Oak Park Rockshelters do not follow the pattern of use found at other shelters in the area suggests that they were either casually used, that is, occasionally, with no specific purpose; or used rarely, but for very specific purposes. If their use was casual, a wide range of artifacts, indicating that no locationally specialized activities occurred at the overhangs, or comparable but limited artifact assemblages, indicating that the rockshelters were only used in a limited number of everyday contexts, would be expected at both sites. However, if their use was based on specific, very special purposes, a limited range of prehistoric remains would be expected. If use was based on some notion of the uniqueness of each place, the limited artifact assemblages would be expected to differ significantly between the two shelters, and reflect the specific uniqueness of each spot.

warps consisting of rods or sticks rather than the twisted materials that are characteristic of water bottles from the Santa Barbara area. The weave was a plain, two element, Z-twined technique (Rozaire and Craig 1968).

The Medea Creek cemetery, LAn-243c, also contained a number of coiled and twined basketry impressions (L. King 1969). No analysis of this collection has been published, although Craig (1967:Plate 2) illustrates a specimen of a carrying net from Medea Creek. L. King (1969) suggests that all infants may have been buried in basketry containers.

A considerable amount of ethnographic data on Chumash and, specifically, Ventureño basketry was collected by J. P. Harrington, principally from Fernando Librado (Ortega) and Candeleria Valenzuela (cf. Harrington 1942; Craig 1966 and 1967). Twined ware included (in the Ventureño dialect) the 'uʃ'em or water jug (as called pu-ce-mi at San Buenaventura according to Henshaw; see Heizer 1955); the pətsmu or bailing basket; twined trays called tsa^{h}ja; and twined leaching baskets referred to as tsa^{h}ja'i or šuwokno ə'əš (Craig 1967). Asphaltum was used to coat the 'uʃ'em, the pətsmu, and the x̤(o)'im(ȯ), a coiled basket used for seed storage.

Although the three basketry fragments from Ven-373 are very small, it seems most likely that they represent the remains of two 'uʃ'em. These were generally small necked bottles with flattened bottoms, approximately 18 inches high and 11 inches in diameter (Dawson and Deetz 1965). According to Fernando, 'uʃ'em were made from a reed 'esmu (also referred to as 'esmu'ö), which Craig (1967) has identified as Juncus acutus. This, apparently, is a different, somewhat tougher species than the type used for most coiled basketry, Juncus textilis (or meXmeī). Harrington's informants indicate that 'esmu was pulled, stem by stem (rather than cut), and woven, principally with simple or twill twining. Once a 'uʃ'em was completely woven, the outside was coated with mud, pulverized tar was placed within the jug and about six small heated rocks were rolled around in the vessel to spread the asphaltum and coat the insides. The mud was placed on the outside to prevent the tar from seeping through the weave onto the outside. It was usually left intact. After soaking the inside of the 'uʃ'em with water for two or three days to remove any bitter taste, the jug was used to store water in the hut as a drinking vessel (ibid.).

An additional, unusual artifact recovered at Ven-373 is a large cache of asphaltum, measuring 23.0 by 17.9 by 2.2 cm. in size and weighing 734.2 gm. This bowl-shaped specimen was encountered at the 10-20 cm. level between units 2 and 3. No basketry impressions are present on this piece; in fact, its surface is impregnated with sand. Although no attempt has been made to source the asphaltum in this cache (cf. Gutman 1979), natural tar seeps have been noticed on the Oak Park property by crew members.

INTERPRETATIONS

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The artifact collections from these rockshelters, as mentioned above, both contain a limited number of kinds of artifacts, which appear to represent caches of very specific items. That these caches are so different suggests that they may represent the remains of sacred or ceremonial activities. Blackburn (1974) indicates that there were two kinds of ceremonial structures during the Chumash ethnographic period: the sawil or shrine, which was often placed on hilltops, promontories or remote places, and the siliyiq or small ceremonial enclosure, erected at fiestas. At the sawil sacrifices of shell beads, seeds or down were made or ceremonies were held. If the Oak Park Rockshelters represent contemporaneous sawil, their differences in artifact content may represent differences in their users' attitudes about each specific shelter's uniqueness as a sacred place, or indicate use by different cult and/or moiety groups (which Bean 1974, suggests were probably present in the historic period).

The use of rockshelters as sacred or ritual localities appears to have been widespread among western North American aborigines. Particularly, these places were used by shamans for the storage of ritual paraphernalia, the performance of arcane ritual, or the deposition of ritually meaningful items. Among the Yokuts, rockshelters, sometimes painted, were thought to often hold shamans' caches (Gayton 1948:113), or to be repositories of tribal equipment ritually concealed at supernatural spots (Latta 1949:179-180). Present day Tarahumara, of northern Mexico, use rockshelters for a variety of activities including ritual caches. Pastron and Clewlow (1974) have reported on one such unusual repository for the Chihuahua Sierra.

Archaeologically, Elsasser (1961) has provided a survey of shamanistic evidence, including rockshelter usage, from Nevada and California. In Death Valley, family shrines and cache localities are reported for rockshelters that "appear to have served a religious or magical purpose" (Wallace 1978:129). Meighan (1969) has reported on a small rockshelter in Topanga which contained a number of carefully manufactured painted pebbles. These items had been deliberately buried, and offer a strong suggestion that the rockshelter had served as a ritual shrine. It is this cave (LAn-341) which presents the closest parallel to the Oak Park shrines. Although the Topanga cave had ambiguous evidence as to its age (ibid:114-116), it recalls the Oak Park sites because of its enigmatic contents, as well as its location in a sandstone outcropping at the head end of a small drainage system. That the Chumash had abundant large scale rituals involving cave use is made clear by Hudson and Underhay (1978), Hudson, Lee and Hedges (n.d.), and Lee (1977). Individual shrines and family shrines were also commonplace. Such a small shrine is probably referred to in a reference from the unpublished notes of J. P. Harrington: "Only Ajala, Agapito, and Jose Venadero used to go over to the sacred cave uʃ'ak ʃteʃ." (Ineseño slip file, old ms. 6017:22, Smithsonian Anthropological Archives).

In conclusion, then, we suggest that the Oak Park Rockshelters were small sawil, or shrines, utilized in ritual context by individuals or small groups from the North Complex. One of the shelters has marine items which may ritually refer to the location of the site at the inland terminus of an ocean draining stream system which was an important determinant of economic and political relationships. The other cache appears to make modest ritual reference to common, though vital, domestic modes.

CHAPTER 6
THE ORGANIZATIONAL STRUCTURE OF THE LULAPIN AND HUMALIWO AND CONCLUSIONS FOR OAK PARK

D. S. Whitley and C. W. Clewlow, Jr.

INTRODUCTION

That the Chumash economic system was based on hunting and gathering has resulted in their undeserved categorization with some of the most primitive cultural systems in the world. It is apparent that their lack of agriculture tempered the attitudes of many early observers and later researchers concerning the relative primitiveness of these people; these investigators' preconceived notions resulted in an inability to discern cultural patterns within the very complex political and social systems of the Chumash. Thus, it was assumed that there was no sophisticated pattern or order to the society when, in fact, the complexity of their organization precluded the casual viewer's discernment of its form.

The sophistication of the Chumash organizational structure has been recognized by recent researchers. Both the archaeological and ethnographical records provide insights into the workings of the Chumash political economy. This chapter investigates this political and economic structure by examining unpublished and published ethnographic reports and unpublished and published archaeological data. Ethnographical and archaeological inferences are used to develop similar but distinct descriptive models of the aboriginal organization in the southern Chumash area. These same data are used to construct formal models of both the geographical extent and structural form of this area's settlement system, based on a graph-theoretic interpretation of structural networks.

It is emphasized that the archaeological data and the ethnographic evidence pertain to distinct time periods in the aboriginal occupation of Ventura County. While the archaeological section considers material from the late prehistoric and the early historic periods, the ethnographic evidence is derived from nineteenth century records and early twentieth century informants. The potential for discontinuities in the aboriginal organizational structure between these two data sets is, thus, great. Significant changes in the settlement pattern at the beginning of the historic period are, in fact, evident and indicate that major changes in the organization of the area probably occurred.

Additionally, there is a difference in the scale of the organization studied by these two data sets. Most of the ethnographic material pertains to the largest organizational units within the Chumash area. The archaeological data, on the other hand, relates specifically to individual settlement systems or subsystems within the larger units. However, an ethnographical data set at a scale similar to that of the archaeological data is formally modelled and allows comparability between the two periods studied. Secondly, it must be pointed out that we have made a fundamental assumption that the structure of the political system was homologous to the structure of the economic system. Thus, we assume a political economy. Finally, it is noted that the structures identified at the scale of the settlement system are used to make some inferences about structure at the higher level. The potential for what is known statistically as making an ecological fallacy in inference from relating the results of one population (or scale) to another is consequently present. However, with these pitfalls explicitly in mind, we feel that interpretations can be made, although their acceptance should come with later cautious verification.

The archaeological and ethnographical models constructed are proposed as two distinct approximations of the structural system of the southern Chumash at two points in time. In this sense they can be viewed generically as a comparative statics approach to modelling a dynamic system. While numerous archaeologists have applied general systems theory to prehistoric data in an attempt to derive dynamic models from the archaeological record, it can be argued that the general systems approach is unsatisfactory in that it is implicitly undynamic and therefore cannot model structural change over time. That is, once a structural system is defined, the iterations in a general systems model operate only on the parameter values of the structural linkages. While these parameter values may be allowed to tend towards zero, thereby eliminating (or in the reverse case, adding) elements to the system, implicitly the structures for the initial state and the final state are the same. Explicitly, the final output state represents a structure that was programmed in the initial output stage; parameter values alone have undergone change.

The graph-theoretic models used in this analysis are, specifically, structural representations of the settlement system, rather than mathematical interpretations of the settlement pattern. It has been pointed out earlier in this volume that archaeologists have too often directly related the spacing coefficient of a settlement pattern to the organizational form of the system or its stage in a cultural evolutionary sequence, even though no empirical or theoretical justification for such inferences have been presented. Additionally, methodological and theoretical problems in applying spatial statistics to archaeological data have been outlined in a previous chapter. While the approach taken in this study is explicitly a regional analysis, these traditional methods of analysis have been avoided. The graph-theoretic interpretations of the Chumash settlement system are, specifically, structural models of hierarchic organization. In geographic terms they are aspatial abstractions of an aspect of the settlement system; any consideration of distance between sites, in these models, is one based on a hierarchical/status distance-metric. Any similarity between a site's hierarchic level and distance from a political capital can then be seen as either coincidental (as purist geographical theorists would argue) or, in that it can be argued that distance and resultant transport costs impose a cost gradient around a central point, so that distance is a surrogate measure of economic cost, a manifestation of a causal relationship.

To develop these models, a consideration of the ethnographic evidence is presented. This includes unpublished material collected by John P. Harrington (principally from Fernando Librado) and housed at the National Anthropological Archives, Washington, D.C. (J. P. Harrington Collection, Box 10; Chumash: General; and Box old 6017:9:9-16). Published material, again generally obtained from Harrington's ethnographic notes, is also considered. A model for the archaeological period, similarly, is constructed by examining published and unpublished data from the Conejo Corridor area. Because of the quality of the data sets in both cases, the models should be viewed as only partially constructed approximations. Further data collection will hopefully improve their form; alternately, it may indicate that they are inadequate representations of the aboriginal systems. They remain, then, on somewhat of a theoretical level. It is felt, however, that they provide a very useful conceptual and theoretical framework for future work in the Chumash area.

ETHNOGRAPHIC EVIDENCE ON CHUMASH ORGANIZATIONAL STRUCTURE

Blackburn (1974), Hudson et al. (1977), Hudson and Underhay (1978), and L. King (1969) have discussed Chumash political organization in the Ventura County area. These authors have used, as their primary sources, the ethnographic notes of John P. Harrington. These were collected primarily from the Cruzeno Indian, Fernando Librado Kitsepawit, who was born at Swaxil on Santa Cruz Island in 1804, but lived for most of his life in the Ventura area. Blackburn's (op. cit.) main emphasis centered on the close integration of the religious and social subsystems of the Chumash culture; he illustrates how the powers of the political figurehead (the wot or chief) and the shaman depended upon their mutual interaction and support. Thus, although two identifiable components of the social organization were present (i.e., the political and the religious), the integration of the two makes it difficult to separate the functioning of either one.

Hudson et al. (1977) and Hudson and Underhay (1978) present a number of Chumash oral narratives and an analysis of the relationship of Chumash cosmology and rock art. In the oral narratives and as background to the analysis of rock art and Chumash cosmology a description of the aboriginal political organization is presented. L. King (1969), similarly, presents some evidence of the area's political organization as a background to her analysis of social organization at the village level. These authors are all in agreement about what they have recognized as "the state of our knowledge about Chumash political organization": explicitly, both Hudson and Underhay (op. cit.) and L. King (op. cit.) presage the model that will be presented here.

These authors suggest that the primary political units of the Chumash were large provinces, governed (to an unspecified degree) by the wots of each province's capital rancheria. These capitals were located at what are now major archaeological sites, including Humaliwo (Malibu), Muwu/Simo'mo (Point Mugu), Shisholop (Ventura), Lijam (Santa Cruz Island), Syuhtun (Santa Barbara), etc. Internally these provinces were structured into some form of a political power hierarchy. L. King (op. cit.) cites a well known Harrington note in which an assistant wot was assigned to govern an area in the Santa Barbara province by the paqwot (head chief) of Syuhtun. Unpublished Harrington notes indicate a similar situation for the Ventura province, concerning tcukaujon (the paqwot at Shisholop) and culuwic, his assistant (J. P. Harrington collection, Box 10, National Anthropological Archives, Washington, D.C.).

Both Hudson and Underhay and L. King suggest that some form of larger organizational structure existed, or was emerging during the historic period, but both are uncertain of its form. The first two authors discussed what they considered to have been a religious confederation that included the coastal and inland provinces extending from Mugu up to, but excluding, Dos Pueblos (Hudson and Underhay 1978:31). While admitting that this alliance (which had an analogous counterpart extending from Dos Pueblos to the northern extreme of the Chumash area that was centered on Point Conception) probably had some political significance, these authors only felt comfortable with the evidence that it was primarily some form of a religious union. We suggest these two territorial units were both specifically political units that organized Chumash society into two distinct governmental bodies. Evidence for this organization has been obtained from some of Harrington's unpublished notes (J. P. Harrington collection, Box 10), from published compilations of his works (primarily Hudson et al. 1977), and from some extraneous sources.

In Harrington's unpublished notes there is a considerable amount of toponymic data from which inferences about the geographical aspects of the Chumash political structure can be made. Fernando Librado, for example, apparently recollected three major political units, with capitals at Humaliwo (Malibu), simo'mo (Point Mugu), and Point Conception. The central zone, governed by simo'mo, was known as Lulapin, and was the area that Fernando was most familiar with. In Harrington's words: "All information dealing with places outside of the Lulapin country was merely hearsay with him" (Box 10). Lulapin, specifically, seems to be a placename for the Point Mugu area, perhaps the Mugu Lagoon. "Lulapin = the place where the water goes in and comes out" (Box 10). Pico, as cited in Heizer (1955:188), similarly, records Lulapin as the location of a ceremonial center, a capital and the residence of a great chief.

However, Lulapin did not refer solely to the inhabitants of Point Mugu. Harrington stated: "Lulapin is the name of Point Mugu. Lula refers to the people living from Santa Gertrudas to Matilija, and pin refers to the coast Indians from Simo'mo to Cojo" (Box 10). Similarly: "Lulapin applied to V(entureño), Island Indians, S. I. (Santa Inez), S. B. (Santa Barbara), Purisma (?). But Kasmali, nipomo, Guadalupe, S. L. O. (San Luis Obispo) did not belong to the lulapin..." (Box 10); "all the inland Indians used to come to (the) coast, so lulapin is a dual word to include the interior and coast Indians" (Box 10). It is clear from these statements and other general remarks made by Harrington (referring to such things as "the houses of the lulapin" or the medicinal practices of the lulapin) that lulapin referred to a substantial population unit, although there is some inconsistency in its geographical extent. It is evident that this term was not used synonymously with any linguistic divisions; Harrington was explicit in his linguistic notes as to which dialect a word or phrase belonged to. At no time was lulapin used in this context. Rather, it referred to a population that crosscut linguistic boundaries. Similarly, it does not appear to have been reserved for a religious body; Harrington's uses of the term have all the indications that it was largely a secular concept.

The importance of lulapin as an organizational unit for the Chumash is less explicit, but is implied in many of the notes. According to Fernando: "halacu was a Mugu captain and his name means Sp(anish) 'atraccion' (attraction)... Halacu was of simomo rancheria. From here (Ventura vicinity) up to onomjo (Dos Pueblos) the year went according to halacu's chronology and from there up the Indians had the chronology of tylynawit" (the captain at Upop)" (Box 10).

Hudson and Underhay (1978:31) have interpreted this note as an indication of the size of the religious alliances. While Hudson et al. (1977: 1) note that the series of tales they have entitled "Halashu's (or Halacu) People" was originally recorded as "The Traditional History of the Lulapin" by Harrington, Hudson and Underhay do not equate the territory ruled by Halacu with Lulapin. Rather, they indicate that this area was probably a religious confederation (as mentioned above), ruled by an officer known as the Kwaiyin (Hudson and Underhay 1978:31).

However, it is clear that Halacu was a wot, that is, primarily a political, rather than religious, figurehead. Hence, the territory cited above can be interpreted as a political domain. The term Kwaiyin appears to have been used initially in reference to a single individual, and later as a title to an office (and, hence, a number of individuals). Hudson et al. (1977) note: "No mention is made of who ruled from Ventura to Humaliwo during this time period. Later Halashu's successor Kwaiyin controlled all the territory from Dos Pueblos to Humaliwo." (ibid.:99). Again, a political function is implied and , similarly, they record that the 'emechesh (common people) unanimously wanted Kwaiyin to replace Halashu as wot of Muwu on Halashu's death (ibid.:17). The Kwaiyin may well have eclipsed Halashu's secular powers. The reference above suggests that he added Humaliwo to the territory of Halashu. Additionally, the Kwaiyin was a member of the siliyak. The name siliyak means "a council of officials" and "the whole world" (ibid.:17). It was a body "like our congress," that the informants suggest was created by the Twenty (that is, the twelve 'antap and eight shan officials from Santa Cruz Island) and the Kwaiyin (ibid.). "Narciso told Fernando that...they therefore formed the siliyak so that no outsider could come here and share rancherias. All newcomers would be required to appear before the siliyak."

(ibid.). Finally, "there were only two siliyak in all this country" (ibid.: 11).

It is apparent that Lulapin was a territory ruled by a governing body composed of a secular official (the Kwaiyin, who was wot of the Mugu area and may have assumed additional religious powers at some point) and 20 ceremonial officials. The integration of the political and religious spheres, as discussed by Blackburn (1974), is again emphasized. Hudson and Underhay (1978:29), in fact, have suggested that the twelve 'antap officials, which were stationed at specific towns or villages, may each also have been the political wot of that community. These authors have also cited Bowers' (1897) manuscript that records a major conference of chiefs held at Muwu every five years to settle civil and legal disputes, and Cabrillo's mention of the two major provinces Xexo and Xucu located along the Channel coast, as further evidence for an organizational structure that was larger than the individual provinces.

Malibu's inclusion as part of Lulapin is less clear, and represents one of the many cases in which there are inconsistencies in the data Harrington obtained from his informants. As noted above, one reference records Malibu as part of Lulapin only after the Kwaiyin became the area's leader. Fernando Librado apparently thought otherwise:

> San Fernando (Mission Chumash) did not belong to the lulapin -- they belonged to the humaliwo -- proper name of rancheria = Malibu. Humaliwo was the most prominent of all the Fernandeño (Chumash) rancherias, was on the coast, and all the S. Fernando (Chumash) Indians were called humaliwo because of it. That was the port of the Fernandenos. Fine clams and fishing there. (Box 10).

Bowers, as cited by King (1969:40) substantiates this:

> Pico said that the Maligo (Malibu) Indians living about halfway between Point Mugu and Santa Monica belonged to another nation and were governed by another great chief (not the Mugu chief) who lived in that town, but had jurisdiction over the tribes living eastwardly along the coast.

L. King (ibid.) feels that the Santa Monica Mountain area formed a separate political unit as indicated by the Bowers' reference. She states:

> The villages of the Santa Monica Mountains, from below Point Mugu to a point near Malibu, including the inland villages of s'apwe, hipuk, ta'l'opop and huwam (Thousand Oaks, Westlake Village, Century Ranch, and El Escorpion), formed a group of which Malibu was the largest and therefore probably the principal or "capital" village (ibid:40).

As Brown (1967:7) has suggested, the marriage pattern during the Mission period in this area exhibited an unusual amount of coastal-inland village interaction. This pattern is somewhat unique for the Chumash area, differing substantially, for example, with the marriage pattern in the Santa Barbara area. Brown (ibid.) presents data that can be considered in terms of Mission period interaction for the Santa Monica Mountain area. This is outlined in a following section.

The ethnographic evidence, then, suggests a model for the gross political organization in the Chumash area that can be descriptively characterized as follows: The Chumash area was divided into two major political units, each of which was governed from a single capital village. These capitals, located at Point Mugu and Point Conception, for the southern and the northern units, respectively, governed a number of smaller provinces, each similarly governed by capital villages. In the southern territory, known in Ventureño as Lulapin, these provinces appear to have held essentially equal status and to have maintained some degree of internal autonomy. The control from the capital of Lulapin over these provinces does not appear to have been too great. Each of these provinces, additionally, appears to have had a definite internal hierarchy, both in terms of the social structure of the population and, by inference, in terms of the settlements themselves.

In Lulapin, the primary governing body was the siliyak, a group of individuals whose duties covered both secular and religious matters. The Kwaiyin was the principal officer of this group; he also functioned as the paqwot (head chief) of the capital village of Lulapin at Point Mugu. The remaining individuals were officers in the primary religious organization of the area, the 'antap cult. Additionally, they may have served as the paqwots for each of the respective provinces. The governmental structure within each province probably mimicked this form at each internal hierarchical level. Thus, there were probably provincial siliyak and a series of analogous village organizations. In this interpretation, the 'antap cult is viewed as the major governmental as well as religious body for the Lulapin. This follows logically from Blackburn's (1974) argument concerning the integration of the social and religious systems in Chumash culture.

Internal organization within the (unnamed) northern territory was probably, but not necessarily, similar to that in Lulapin. Additionally, a series of unaligned provinces probably existed. The evidence seems to favor Humaliwo's autonomy, although the contradiction in the evidence is recognized. It is possible (if not likely) that these political units were just emergent during the historic period in the area. In this case it seems likely that their structural forms and geographical extent had not yet stabilized and were still fluctuating; hence, some confusion from the sources might be expected. Additionally, it can be hypothesized that these political/religious systems were responses to the arrival of the Spanish. A comparison with revivalistic cults would then be indicated; however, our argument has been presented to emphasize specifically the political aspects of these structures. The evidence suggests to us that the social organization of the Chumash had advanced beyond the "tribelet" stage common to many native California groups (cf. Bean 1974); rather, it appears to have consisted of emergent confederacies evolving towards elemental chiefdoms.

ARCHAEOLOGICAL EVIDENCE ON CHUMASH ORGANIZATIONAL STRUCTURE

As befits a discipline in which the analysis emphasizes the material culture of a group of people, the archaeological consideration of the Chumash organizational structure focuses on the material trade of a small group of these people during the late prehistoric/early historic periods. The scale of organization examined drops from the major organizational units of the Chumash to one analogous with Brown's (op. cit.) baptismal data; the focus here is resolved specifically on the settlement system(s) in the Conejo Valley area. This change in scale is both necessary and expedient; problems such as major political boundary definition are almost intractable when dealing with groups of people sharing essentially identical cultural traits. Additionally, the research of the Inland Chumash Research Project has been carried out at a regional scale that most closely approaches that of the individual settlement system.

Considered here is one aspect of the inland/coastal trade of commodities. This results in some inferences concerning the structure of the settlement system in the inland zone. Making the assumption that the political system structured this trading pattern, certain discontinuities are cautiously interpreted as evidence of the geographical extent of the larger organizational spheres. While this results in some inferences on the extent of the economic spheres of interaction, it unfortunately does not result in any interpretations of the settlement hierarchy of the area.

Shellfish remains have been discussed in an earlier chapter of this volume as an indication of the structure of prehistoric coastal/inland population interactions. The interpretations of the analysis of these remains from a series of Conejo Valley area sites were suggested as indicating that three major trading networks existed in this region. These networks basically followed the local topographical features; the majority of the shellfish species from sites on specific drainages were found to come from micro-coastal environments now found around the mouths of these drainages. Additionally, the trading pattern over time was found to solidify on the specific micro-environment located at the coastal effluence of the drainage that a series of sites were situated upon. This was interpreted as evidence that the identified trading networks were strengthening toward the present; as a corollary, it can be suggested that this represents increasing political control over these networks.

Assuming that the structures of the political systems and trading networks were homologous, shellfish remains indicate three organizational units for the Conejo area in the late prehistoric period. First, there is a unit that follows the Las Virgenes/Medea Creek drainage; originating at Malibu and including the Century Ranch site-complex and the North and South Site-Complexes on Oak Park. Big Sycamore Canyon provides another somewhat smaller unit, with at least the village of Shuwalashu on the coast and Ven-70 in the inland areas. Finally, a system following the Calleguas Creek up from Muwu and including the Arroyo Conejo is indicated. Whether these three systems are analogous politically, that is, whether they each represent hierarchically equivalent units, is not known. The ethnographic data suggest that Shuwalashu was politically subsidiary to Malibu, but there is no way of testing this notion for the prehistoric period with trade network data of this type.

Thus, the archaeological data is considerably less productive than the ethnographic record in developing inferences about the aboriginal organizational structure. However, if the assumption that the economic system and political system were homologous is correct, and if the single identified historic village on the Arroyo Conejo, Ven-261, is the village referred to as Sapwe by Fernando Librado, L. King's (1969) inclusion of this village as part of the Santa Monica Mountain villages may be incorrect. The archaeological evidence suggests that the sites along the Conejo drainage were economically tied to Point Mugu, and, thus, ethnographically should be part of Lulapin.

A STRUCTURAL INTERPRETATION OF THE ORGANIZATIONAL PATTERN IN THE CONEJO VALLEY AREA

One method of defining the organizational form of a settlement system is to identify the structural relationships in the system and to analyze these relationships as functional linkages or networks. Functional linkages, in this interpretation, are the network of interactions between the various components of the system. Thus, the measurement of the magnitude and directions of interactions between sites is the starting point for developing a model for the organizational structure of a settlement system.

Networks of interactions are best analyzed as topological structures. Topology is a branch of mathematics concerned with analyzing the properties of invariant geometric configurations. Graph theory, as a branch of topology dealing with elementary structure, provides a clear but simple diagrammatic framework for examining networks, configurations and patterns. In graphic analysis, networks or systems are reduced to a series of points or nodes and links or edges. Points can be used to represent persons or settlements in space or within a structured group, while links may represent roadways, interactions or any type of functional relationship between the points (Whitley 1979). Thus, a graph of a settlement system would consist of a series of points A, B, C, D...and a prescribed set of lines linking these points. If we signify a link between two points A and B as $\overline{AB}$, then we can define the path from A to D as the collection of lines of the form, $\overline{AD}$, $\overline{BC}$, $\overline{CD}$, that ultimately connect the two points. The length of the path is the number of lines in it. The distance between any two points is the length of the shortest path between them.

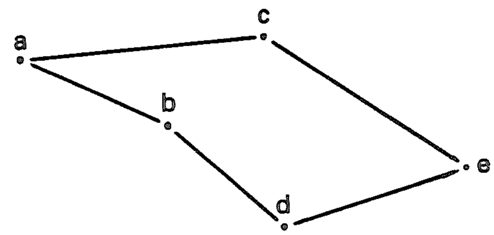
A directed graph or digraph results when links between dyads or pairs of places consist of one-direction flows or interactions. Thus, the link between A and B on a digraph, represented A→B, may signify the movement of a trade item from one locale to another. Obviously A→B and B→A are not the same links and indicate different magnitudes of interactions. Figure 18 illustrates these simple graph concepts.

Figure 18a represents a very simple structure which could, for example, be an interpretation of the reciprocity links between five communities. Note that there are two paths from point a to point e; one with three links passing through points b and d and one with two links passing through point c. The latter is the shortest path. It is considered the distance from point a to point e. Figure 18b is a digraph which could have been drawn to symbolize a series of down-the-line trading systems originating from a single source location, point a. If this were the case, each link in the graph could be assigned a numeric value corresponding to the percentage of the total export of this trade item flowing from point a that it is receiving. Thus, the magnitude of the flow has been added to the graph.

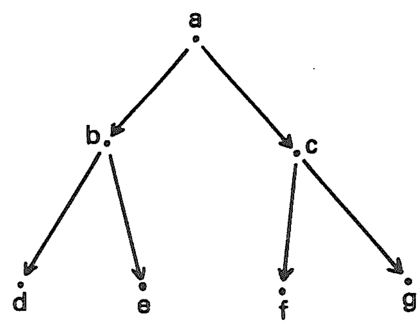
The simplicity of these graphs belies the mathematical ease and elegance resulting from a graph theory analysis. The information contained in graphs can be represented by connectivity or adjacency matrices. In the simple case (Figure 18a), the connectivity matrix is a dichotomous, or binary, matrix, recording links as present (and coded with a "1") or absent (coded with a "0"). Figure 18c consists of a first-order connectivity matrix for Figure 18a. This matrix is of the first-order in that it only records single-link paths. A second-order matrix is coded with both single and double linkage paths between points. The connectivity matrix for a digraph in which flow values have been placed on the links between points records the magnitude of the flows as an indication of a linkage between two places.

Because these graphs can be translated into a matrix form, matrix algebra can be used in an analysis. For example, in a complicated digraph with a large number of points, it may be very difficult to calculate all the possible multi-link paths, and their lengths, between all the points on a graph. This might be desired so that information about the total connectivity of a series of points or the range of interaction spheres in a data set can be obtained. A summation of a series of matrix power expansions will yield a solution matrix containing exactly this information. However, this summation is an almost intractable problem, in itself;

A: A Simple graph



B: A Digraph



C: The First Order Connectivity Matrix For A Above

	a	b	c	d	e
a	—	1	1	—	—
b	1	—	—	1	—
c	1	—	—	—	1
d	—	1	—	—	1
e	—	—	1	1	—

FIGURE 18: AN EXAMPLE OF A GRAPH THEORETIC INTERPRETATION OF A SETTLEMENT SYSTEM

but matrix algebra manipulations make it possible to derive this sum analytically in a relatively straightforward procedure. Whitley (1979) has used this matrix analysis of a graph to examine the use of emblem glyphs as interactions between sites in the Classic Maya Lowlands and has derived a new model for Classic Maya political organization based on his interpretations. Tinkler (1972) has interpreted the matrix as an absorbing Markov-chain, with the corresponding matrix eigenvector representing the transitional probability matrix. Day (1970) has used the matrix in an interpretation of the diffusion of an item to a series of points.

Graphs and their matrix representations are particularly useful for representing hierarchic structures. Harary (1959) has provided a thorough interpretation of the use of digraphs for measuring the amount of status an individual maintains in a hierarchy. Figure 18b could be taken to represent just such a hierarchic structure. Using Harary's terminology (ibid.:24-25); b is subordinate to a if there is at least one path from a to b (in the digraph of the structure). b is an immediate subordinate of a if the distance from a to b, that is, D(a, b) = 1. A hierarchy is defined as an organization in which no two members are subordinates of each other. A tree is a hierarchy in which there is only a single path from any one point to another. Figure 18b is such a tree; however, not all hierarchies are trees.

Two sets of data have been mentioned in the previous section as indicators of the organizational structure of the aboriginal society in the Conejo Valley area. Although these data sets are of limited quality, they can be translated into simple graphic forms to derive some initial interpretations of this organizational structure. First, we consider Brown's (1967) interaction data. This can be represented in a matrix form, as in Table 29. Values in this matrix represent the number of times that Mission baptismal records indicate that an inhabitant of one of eight coastal villages had a relative in another village, or mentioned having interactions in one of those villages. The quality of the data is, thus, somewhat the result of the consistency with which different mission recorders included these asides in their documents. Additionally, it only includes one-half of the interactions; that is, it does not consider references from the inhabitants of the inland villages to the coastal settlements, but only those from the coastal sites to other locations.

This matrix can be depicted in graphic form and, by examining the various subcomponents of the complicated network, some notion of the structure of interaction can be obtained. First consider only the

TABLE 29

HISTORIC PERIOD INTERACTIONS

REFERENCES: TO:

FROM:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	0	0	1	1	1	0	0	0	2	6	3	6	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0
2	3	0	1	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	1	1	0	0	3	0	0	0	0	3	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0
4	0	0	3	0	1	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
6	0	0	0	0	0	0	3	2	0	0	1	0	0	0	0	2	2	0	1	1	0	0	0	1	1	0	0	1
7	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0
8	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0

Compiled from Brown (1967).

KEY:

1 Malibu
2 Loguostojui (Deer Creek?)
3 Lisiksi (Arroyo Sequit?)
4 Shuwalashu (Big Sycamore)
5 Mugu
6 Ventura
7 Carpinteria (Misobsuo)
8 Rincon (Sucu)
9 Talopop (Century Ranch)
10 Sumo (Zuma Creek?)
11 Triunfo
12 Sapwe (Thousand Oaks)
13 Calleguas
14 Santa Clara
15 Sespe
16 Somes
17 Santa Cruz Island
18 Chicagueyetsh
19 Santa Rosa Island
20 Montecito (Salaguaj)
21 Mastec
22 Guaspet
23 Catalina Island
24 Paredon (coloc)
25 Hueneme
26 Pitas Point
27 Matilija
28 Mupu (Santa Paula)

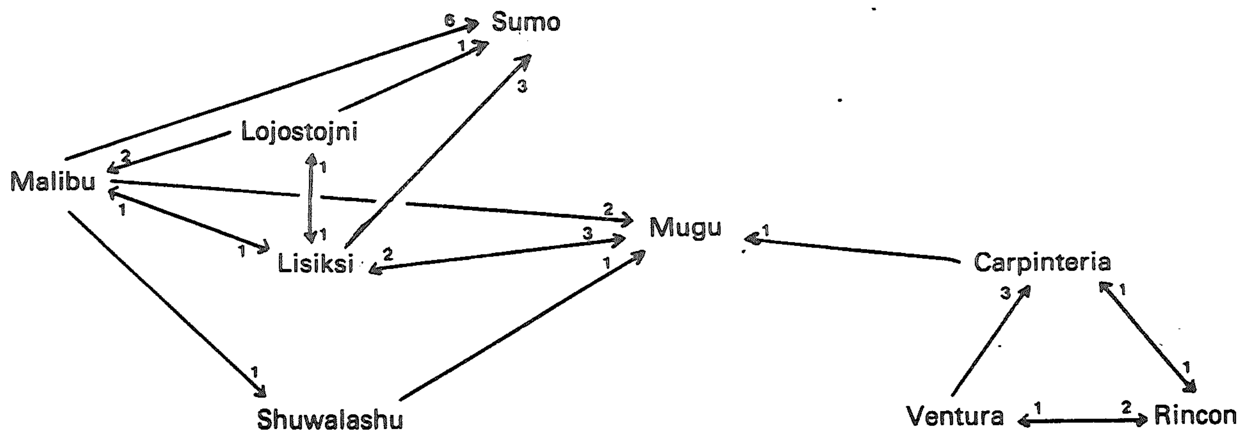
interaction between coastal villages. The graph for this network is illustrated in Figure 19a. In this graph it is clear that two interaction spheres are represented among the coastal villages in the reference matrix. The first of these consists of those villages from Point Mugu eastward. The Mugu village forms a link with Carpinteria and the network of interactions between these western coastal villages.

In graph terms, the structure of references between these sites is considered a bridged network. It can be contrasted with a network containing an articulation point, or a fully-connected graph. If, for example, the flow of a commodity was funneled through either an articulation point or a bridge, it is obvious that this one or these two settlements could exercise economic control over settlements down the line proportional to the value of this commodity. A hierarchy just in terms of accessibility to this item is then imposed on the settlement system. A fully-connected graph, in contrast, indicates that each location has an equivalent accessibility to all other locations. In terms of our reference data, a fully connected graph would indicate that each settlement had an equivalent amount of interaction with each other village.

Political control and consequent organization can be visualized in a similar manner. Whitley (1979), in fact, has provided graphic models of various types of political systems for the Classic Inland Maya. If functional linkages are interpreted as indications of the political control of one point over another, then the system with the minimum topological distance between the controlling point and the lowest level of the power hierarchy can be defined as the system with a governing point containing maximum political power. This type of system is illustrated in Figure 20a. Obviously there are different degrees to which one capital settlement exercised control over a settlement system. In a topological sense, the amount of control contained by a single point can be argued to be proportional to the number of hierarchical levels present in the system. Figure 20b presents a situation in which control has been somewhat decentralized in a dendritic hierarchy. A minimum of political control from a single point will be present if the topological distance between the governing point and the lowest level in the power hierarchy is maximized; that is, if it is equivalent to the number of settlements in the system. This is illustrated in Figure 20c. Finally, no political control is indicated if the structural relationships form a fully-connected graph, as in Figure 20d.

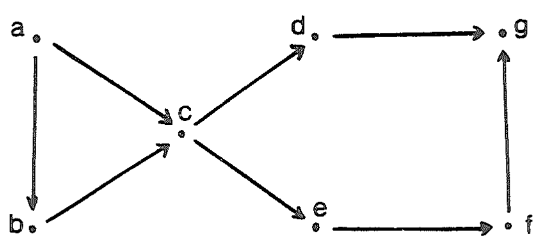
When interactions with inland sites are considered, a rather

A: Mission Data

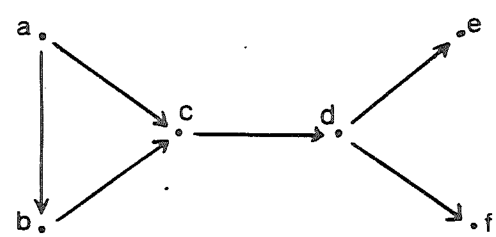


(Arrows point in direction of references. Values next to arrows indicate number of references. Double-arrows indicate references in both directions)

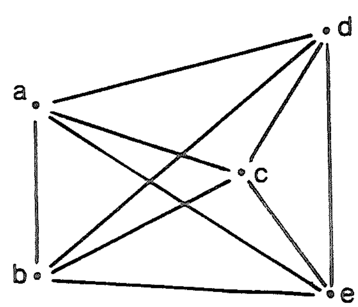
B: Articulation Points, Bridges and Fully Connected Graphs.



Articulation Point at c.



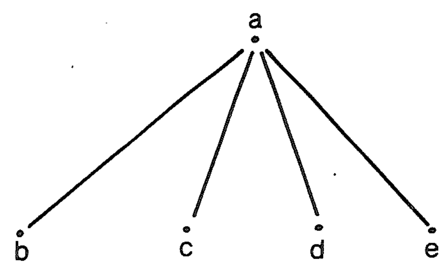
Bridge from points c to d.



A fully connected graph

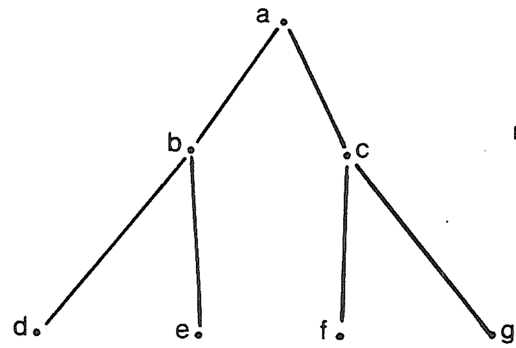
FIGURE 19: INTERACTION GRAPHS FOR COASTAL VILLAGES

A: Maximum political power exercised from one point:



2 heirarchical levels.

B: Intermediate political control exercised from one point:

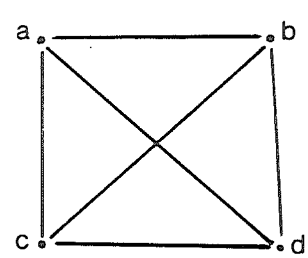


number of hierarchical levels some proportion of total number of settlements.

C: Minimal political control exercised from one point:

number of hierarchical levels equivalent to number of settlements.

D: No political control present:



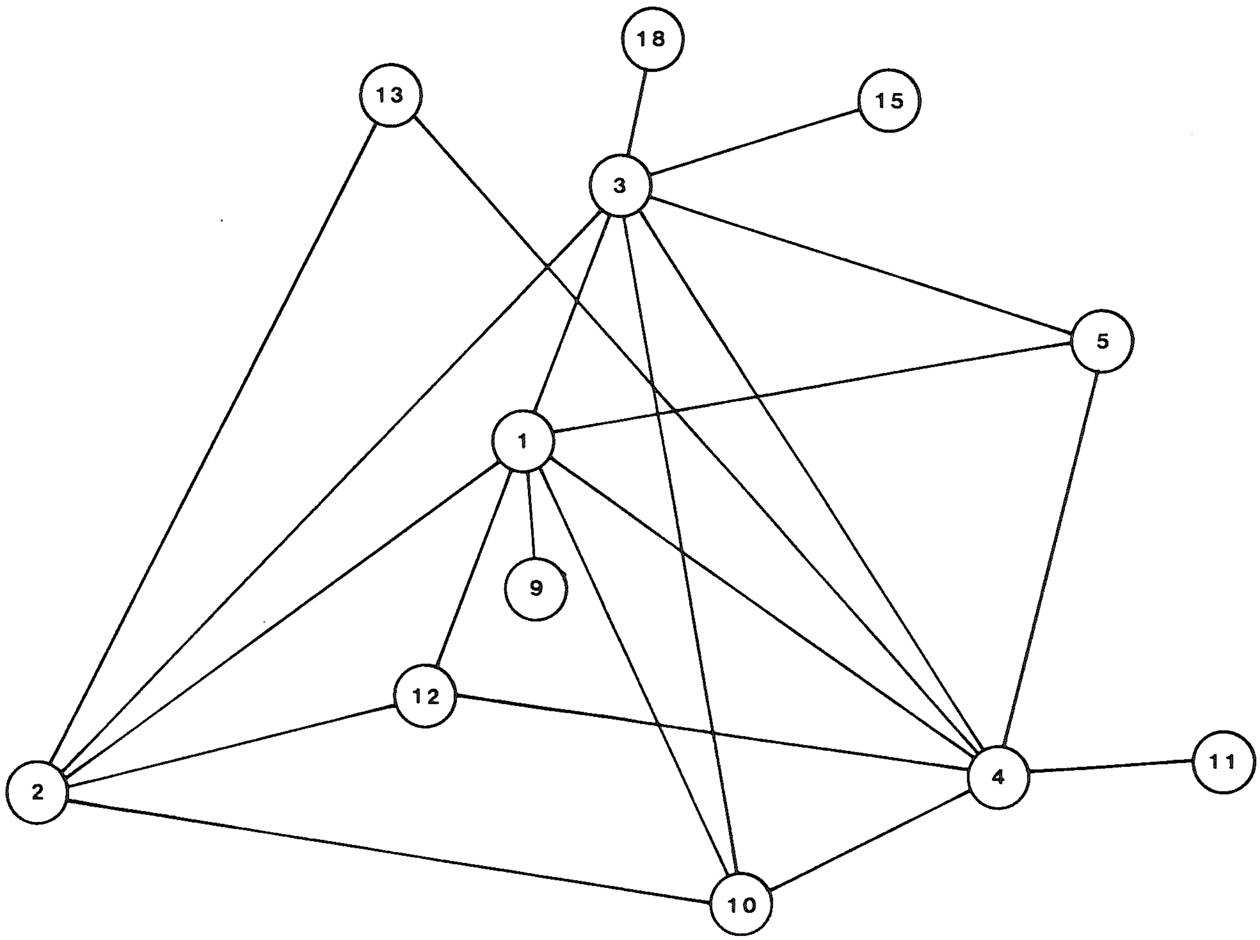
Fully connected graph; no hierarchy present.

FIGURE 20: GRAPH THEORETIC INTERPRETATIONS OF POLITICAL POWER STRUCTURES

complicated graph results. However, it is apparent that this graph has two basic components: a subgraph of interactions occurring in the Santa Monica Mountains, and a subgraph of interactions for the villages north and west of Point Mugu. These subgraphs are illustrated in Figures 21 and 22. It can be noticed in Table 29 that both subgraphs have two settlements in common: Mugu and Triunfo. While the magnitude and direction of references have been left out of these subgraphs, it is important to point out that the inclusion of Triunfo in the Ventura vicinity graph is the result of a single reference from Ventura to this village. Triunfo's ties with the Santa Monica Mountain area villages were more substantial. Thus, we would argue that the reference from Ventura to Triunfo is somewhat accidental and that the basic structure of the organization for this area consisted of two subgraphs, articulated at a central control settlement at Point Mugu.

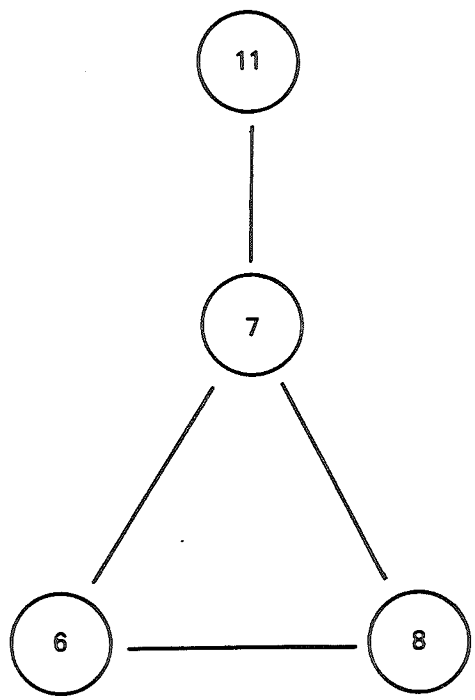
The model proposed for the organizational structure for this area is visually depicted in Figure 23. Mugu provides the articulation point for two major components of interaction. It can be noted that the maximum topological distance between Mugu and any member of either subgraph is only three links. Three hierarchical levels have been indicated for the two subgraphs; this is probably unrealistic, however, in that the data set and the analysis are not exact enough to determine the hierarchical structure within the subcomponents of the system. The interaction network, on the other hand, does indicate that Mugu was relatively well connected to the settlements in each component. Had a rigid internal hierarchical structure existed with Malibu as the capital settlement in the Santa Monica Mountains area, for example, we would have expected less interaction between Mugu and the settlements directly under the control of Malibu. Additionally, no internal subcomponents can be recognized within either subgraph. The implication of this is that each subgraph or organizational territory probably functioned as a single settlement system.

Notice that we have inferred that the structure of the aboriginal organization (specifically political organization) is homologous to the structure of inter-settlement references. Ultimately, the validity of the model rests on this assumption; however, the indicated structure is largely consistent with the ethnographic evidence presented in the first section of this chapter. The Malibu area and the sites evidently controlled by this village are definitely indicated as part of the political sphere of Mugu and, therefore, can be considered part of Lulapin. Interaction between Mugu and the villages within each subgraph or territorial province



(Numbers refer to settlement numbers in Table 29)

FIGURE 21: INTERACTION GRAPH OF THE SANTA MONICA MOUNTAINS SPHERE



(Numbers refer to settlement numbers in Table 29)

FIGURE 22: INTERACTION GRAPH OF VILLAGES WEST OF MUGU

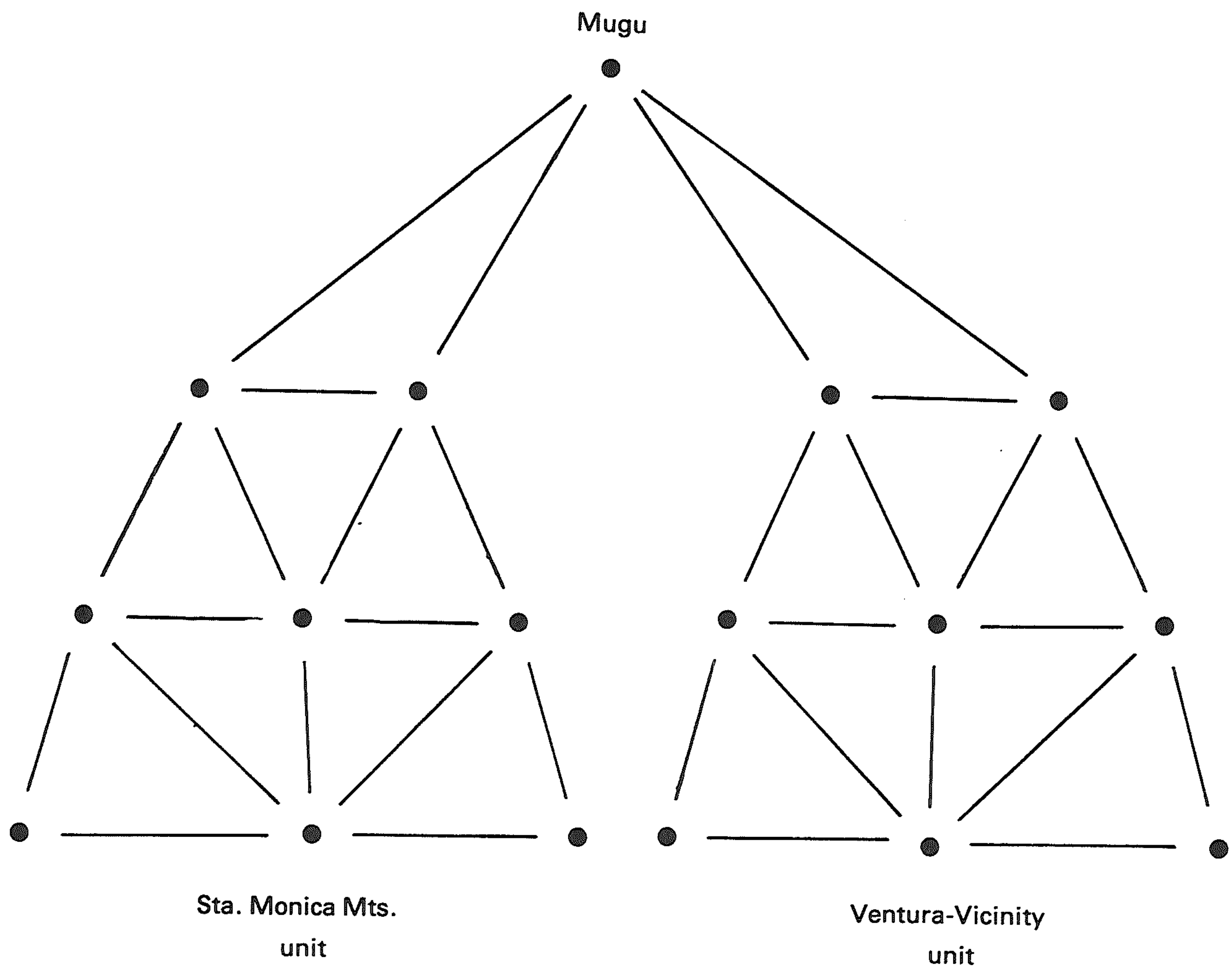
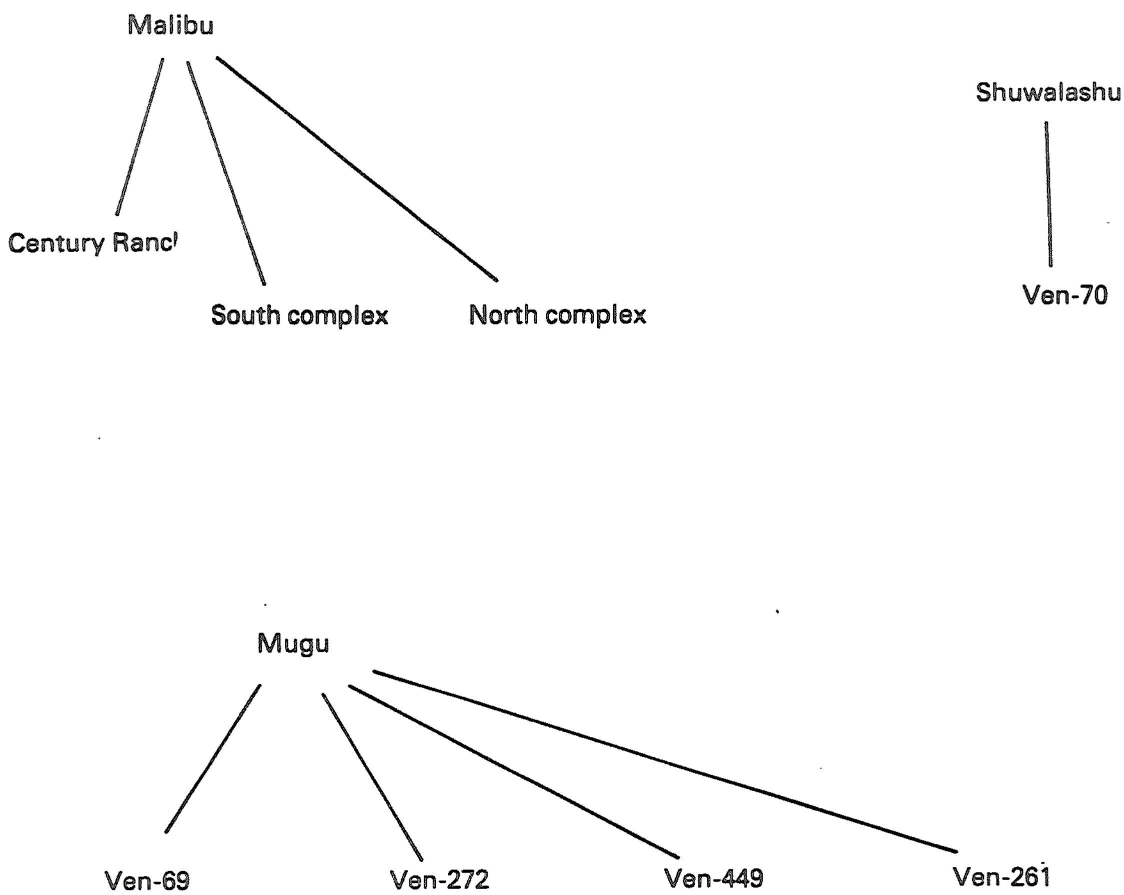


FIGURE 23: ORGANIZATIONAL STRUCTURE DURING THE HISTORICAL PERIOD



(No hierarchical structuring is intended in these graphs)

FIGURE 24: THE TRADE OF SHELLFISH IN THE SANTA MONICA MOUNTAINS

suggests that these provinces did not have a large amount of autonomy and that Mugu exercised more political control than was hypothesized from the review of the ethnographic evidence. Additionally, the number and form of inter-village interactions (including marriage patterns) in the Malibu province does not appear to be significantly different from that found in its counterpart to the northwest.

The archaeological evidence for the trade of shellfish from the coastal villages to the inland area suggests an internal structure for the interaction within the Malibu province. Thus, the structure investigated is at a slightly different scale than that which was previously analyzed. The structure for this interaction is depicted in Figure 24. This extremely simple series of graphs does nothing more than suggest that three spheres of interaction existed within this province. No internal hierarchy can be implied from this data. However, when compared with the results of previous interaction analysis, very different internal structures are suggested. The mission data suggests that no noticeable subcomponents existed in the settlement system. The trade data, on the other hand, indicates three rather rigid networks of interaction.

Two potential explanations for the difference in the implied internal structures can be suggested. First, the data sets represent, to some degree, different periods of time. Thus, the differences may indicate changes over time. In that some historic villages have been included with the shellfish data, some temporal overlap in the data sets actually exists, indicating that this is not a totally satisfactory explanation. Second, the assumption that the network of economic interactions was homologous with the political organization of the area may not be tenable. This seems to be the most likely cause for the divergence in the two inferred internal structures.

However, it must be cautioned that the internal structure as implied by the mission data was interpreted under the assumption that the network of these interactions was homologous with the political organization of the system. This assumption is no more reasonable than that relating economic networks to political organization. The above discussion could, thus, be turned around and it could be argued that, since the two inferred internal networks are not similar, the one inferred from the mission references is the most unlikely. Obviously, we have not been successful in establishing the internal components of the Malibu territory.

A review of published and unpublished ethnographic data has enabled us to make a series of inferences about the political organization of the Chumash and how this political organization was structured. The major political unit in the Southern Chumash area has been identified as Lulapin, ruled by the Kwayin at Point Mugu. Political control and the form of the government has been suggested to have been highly integrated into the religious and ceremonial life of these people. The major organizational body for both the political and religious spheres appears in fact to have been the 'antap cult. Internally, Lulapin was probably organized into a series of provincial territories, ruled to some degree by local chiefs living in primary villages. A similar political unit may have existed in the area from Dos Pueblos northward.

An analysis of mission data has resulted in a very simple formal model of portions of the structure of Lulapin. Archaeological evidence was less successful in helping to establish a structural model for the settlement system of this area. The ethnographic model suggests that the capital village of Lulapin, located at Point Mugu, may well have exercised substantial internal control over its respective provinces. Finally, it can be noted that the analytical framework used in the development of this structural model provides a very useful methodology for examining and interpreting organizational systems such as political units.

CONCLUSIONS

Two years of research at Oak Park by the Inland Chumash Research Project consisted of the excavation of four sites and the surface collection of all artifacts from thirteen other sites. This work resulted in a corpus of descriptive data indicative of the temporal and functional range of the material cultural remains from this area. Temporally, a continuous inhabitation of probably 3000, or more, years is indicated. Functionally, a wide range of economic activities is indicated. By examining both midden sites, or habitation zones, and the nearby surrounding smaller activity areas, we conclude that this range of activities did not change appreciably over time. Thus, while major shifts in economic activity may have occurred at certain points in time along the coastal area, the change from "millingstone sites" in the early prehistoric period to "hunting camps" during the late prehistoric in the inland area did not involve a major change in subsistence activities. Rather, a localization of activities occurred in late prehistoric times which altered only the material content of the habitation zones, or midden deposits. An examination of site-complexes, as the behavioral spheres of individual population units, suggests that the complete range of economic activities and, generally, the same range of artifact types and materials, were being used from the early prehistoric period until historic times. Leonard has suggested that Millingstone culture adaptational patterns continued in the inland area until circa A.D. 500. Our notion is that this type of adaptation continued until the historic period in the inland area; circa A.D. 500 a change occurred in the culture of the inland area, but this consisted of a sociological change in the spatial distribution of activities, rather than a substantive change in the subsistence economy of the population.

We view site-complexes, then, as the only reasonable unit of analysis in any comprehensive investigation of any archaeological settlement unit in the Conejo Corridor. In other areas of the Chumash territory, comparable population unit remains may not, and need not, have been present. We hypothesize, however, that further research in the inland area will prove this to be the generalized pattern for aboriginal settlements.

The integration of the political and religious subsystems of the Chumash culture, as argued by a number of authors, has been re-emphasized here. Additionally, we argue that the integration of the rather rigidly structured 'antap cult with the political system resulted in a political organization far evolved beyond the tribelet that was common to much of aboriginal California. Rather we see, at least during the historic period, the existence (or emergence) of tribal confederations evolving into chiefdoms, the southern of which was named Lulapin. In that the Chumash have frequently been cited as the hunter and gatherer group with the most sophisticated material culture known, it is not surprising that their political organization was similarly sophisticated. It should be noted, however, that we have not meant to imply that the development of these chiefdoms was necessarily the causal result of the integration of the religious sphere with the political organization. The causal factors in the growth of this aboriginal organizational structure are as yet unidentified, remaining the most interesting question concerning the cultural history of the Chumash.

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