Appendix 5.6-C
Addendum Phase II Test Excavations and Determinations of Significance within the Centennial Study Area
ADDENDUM
PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE WITHIN THE CENTENNIAL STUDY AREA, NORTHERN LOS ANGELES COUNTY, CALIFORNIA

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15 April 2007
Management Summary

An addendum study involving Phase II archaeological test excavations and determinations of significance was completed for the Centennial study area, northern Los Angeles County, California. This augmented an earlier similar study completed in 2004. The current project involved the testing of nine prehistoric and one historical sites, along with the evaluation of two additional historical localities. Three of the tested prehistoric sites are bedrock mortar stations (CA-LAN-3199, -3205 and -3209). Four of the tested prehistoric sites are small surface lithic scatters (CA-LAN-3212, -3213, -3225 and -3215). The tested historical site (CA-LAN-3216H) consisted of the remnant debris scatter from a 1949 jet airplane crash. Phase II fieldwork at each of these eight sites resulted in the recovery of all extant archaeological remains at each of these sites, and the complete recording of existing archaeological features. Following CEQA, this has served to provide scientifically consequential from and about each of these sites. Further following CEQA, this has served to satisfactorily and completely mitigate any potential adverse impacts that might result from development in the area of these sites. No additional archaeological work is recommended at these site locations.

Two historical localities, CA-LAN-3219H and Kinsey #1 (CT-64H), were evaluated. Both sites are the remnants of dismantled 1950s exploratory oil pads. They lack integrity and are not considered significant. No additional archaeological work is recommended at these site locations.

One tested prehistoric site (CA-LAN-3206) proved to be a buried midden deposit. This site is significant/unique. It is recommended that it be preserved or that Phase III data recovery be conducted prior to any disturbance. The final tested site (CA-LAN-3201) contains remnants of ritual activities in the form of cupules and petroglyphs, and the site is significant/unique. It is recommended that it be preserved.
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ADDENDUM
PHASE II TEST EXCAVATIONS AND DETERMINATIONS OF SIGNIFICANCE WITHIN THE CENTENNIAL STUDY AREA, NORTHERN LOS ANGELES COUNTY, CALIFORNIA

CHAPTER 1
INTRODUCTION

1.1 Summary and Background to the Project

At the request of BonTerra Consultants, Inc., Phase II archaeological test excavations and determinations of significance were conducted at 10 sites within the Centennial project area, northern Los Angeles County, California (Figure 1). In addition to the testing, a previously noted historical locality within the study area was also recorded and evaluated, along with another historical locality that had been previously recorded as CA-LAN-3219H (CT-9H). This addendum study considered 12 sites overall, in other words. Formal Phase II test excavations were conducted at ten of these, whereas two localities were just recorded/evaluated.

This current project represents an addendum to an earlier Phase II investigation for the same study area in 2003 – 2004 (W&S Consultants 2004). It reflects a change in the proposed project configuration during resource evaluation, initial planning and project design.

As with the previous Phase II study, the addendum project was intended to determine the size, nature and significance of the 10 tested prehistoric and historical cultural resources and to thereby provide baseline data from which an assessment of potential adverse impacts to these resources could be made. These data have been employed to develop final management recommendations for the treatment of these cultural resources, as well as for the two additional historical localities considered during the project.

This study was conducted by W & S Consultants during January – March 2007. David S. Whitley, Ph.D., RPA, and Joseph M. Simon served as principal investigators for the project. Laboratory analyses were
conducted by Tamara K. Whitley, M.A., and D.S. Whitley. This report was prepared by D.S. Whitley and Simon. Kathy Van Meter and Kathy Morgan, representing the Tejon Tribe, served as Native American monitors and liaisons for the project.

The environmental and cultural background to the prehistory and history of the region, including a summary of previous archaeological research conducted in this region, have been provided in the original Phase I survey and the initial Phase II reports (W&S Consultants 2002, 2004). They are not repeated here, and the reader is referred to these documents for details on these subjects. The remainder of this chapter, accordingly, consists of descriptions of the 10 sites considered in this study, followed by a discussion of the recording/evaluation of the two historical localities within the study area. The second chapter describes the field methods used at each of the 10 tested sites, along with summaries of the field results. We then turn to an assessment of the artifact assemblages recovered from each site, and certain of the analytical conclusions derived from the study of the recovered archaeological collections. We conclude with final recommendations for each of the cultural resources considered during this addendum Phase II study.

1.2 Site Descriptions

The Centennial project area is located in northern Los Angeles County, California, immediately north of Quail Lake and Highway 138, approximately one mile east of Interstate 5. This places the study area at the westernmost edge of the Antelope Valley, in open, dissected topography consisting of broad and relatively low E-W trending ridge systems with small intervening drainages. Elevation averages roughly 3400 feet a.s.l.

Introduced grasses currently cover most of the project area, which has been used for many years as range-land. It is uncertain for this reason what the environmental setting may have been prehistorically, and this is almost certain to have changed at various times in the ancient past, with paleoclimatic shifts. We can conjecture that, prior to the introduction of cattle in the 19th century, the project area may have been covered by grasslands with oak scrub at higher elevations on the west.
All of the sites considered during the Phase II study were first discovered during a Phase I survey of the property (W & S Consultants 2002). This previous study covered approximately 14,000 acres and resulted in the recording of 63 sites. Ten of these sites fall within the current study area and were slated for formal Phase II test excavations; one of these is historical (Euro-American) in nature; the remaining 9 sites are prehistoric (Native American). Locations of the sites are shown on Figures 2 and 3. At that time of discovery, the 10 tested sites were described as follows:

**CA-LAN-3199 (CT-6):** This is a very shallow, single bedrock mortar (BRM) on a low grano-diorite boulder. The boulder is located on a low rocky finger-ridge along the west side of Oso Creek, at a bend in the stream, near the canyon mouth (Figure 2). Site size is about 1 m in diameter and the site is in good condition but of unknown age.

**CA-LAN-3201 (CT-10):** This is a small cupule site in large sandstone outcrop at head (W end) of the small broad canyon (Figure 2). The outcrop is southernmost in an E-W trending series of small monoliths. It is on S side of the canyon and consists of 3 boulders, one of which is quite high (circa 20 - 30 feet), and which contains the cupules. The site area is about 10 m in diameter and the site is in good condition but of unknown age. Cupule sites in this region appear to have been used ethnographically in girls’ puberty rituals (Whitley 2000, 2006).

**CA-LAN-3205 (CT-14):** This is a BRM station located on a low sandstone outcrop at the north end of a very wide but short canyon overlooking the aqueduct, near the western end of the study area (Figure 2). Five mortar holes are present; these vary from shallow to moderate (~10 cm) in depth. The site is in good condition and covers an area about 4 x 1 m in size, but is of unknown age.

**CA-LAN-3206 (CT-15):** This is a buried midden deposit at the NW limit of a broad and short canyon near the western side of the property (Figure 2). The midden is buried by about 1 m of colluvium, and is evident in the sidewall of a small but deeply entrenched N-S arroyo. The dark organic deposit is approximately 1 m thick itself, and appears to
cover an area roughly 20 m N-S by 75 m E-W. In addition to the midden soil, a sandstone bowl fragment, primary and secondary basalt flakes, a quartzite biface cobble chopper and fire-cracked rock were observed. The site is in good condition but of unknown age.

**CA-LAN-3209 (CT-18):** This is a large BRM station located on the S edge of a high and broad ridge system, near the western study area boundary (Figure 2). The site is situated on either side of a very small drainage that comprises the headwaters of the arroyo containing buried site CA-LAN-3206, a few hundred feet below; very steep slope and a "water fall" in the (now) dry drainage separate the two sites. At CA-LAN-3209, four sandstone boulders contain BRMs. Boulder #1, on the E side of the arroyo, contains two shallow BRMs. Boulder #2, about 50 m to the S and also on the E arroyo side, has eight BRMs. Boulder #3, due W of #1 and on the W side of the arroyo, has a single shallow BRM. Boulder #4 is a low but large boulder in the channel bottom that contains four BRMs. No surface artifacts or midden deposit were observed at this location but, given the concentration of BRMs, it is possible that they may be present. Current overall site size is estimated at about 75 m in diameter. The site is of unknown age and is in good condition.

**CA-LAN-3212 (CT-26):** This is a low-density cobble quarry/workshop consisting of lithic scatter and associated cobble concentrations. It measures about 30 m E-W by 60 m N-S. We observed a total of about 10 quartzite cobble cores and pieces of angular shatter at this location. The site is located approximately 60 m N of Highway 138 along the northern side of a small knoll, near the southwestern limit of the study area (Figure 2). The age of the site is unknown and it is in good condition.

**CA-LAN-3213 (CT-27):** This is a medium density cobble quarry/workshop consisting of a lithic scatter and associated cobble concentration. It measures about 30 m E-W by 50 m N-S. Artifacts present include angular shatter, cores and cobble tools; these are primarily quartzite with a few igneous cobble tools, and they totaled approximately 30 items. The site is located roughly 250 m N of Highway 138 along the top of a small NW-SE trending ridge-line, near the western
limits of the Centennial study area (Figure 2). Its age is unknown and it is in good condition.

**CA-LAN-3225 (CT-29):** This is a low-density cobble quarry/workshop measuring about 30 m E-W by 150 m N-S. It consists of a lithic scatter and associated cobble concentrations. It contains about 10 specimens total consisting of quartzite cobble cores and angular shatter. The site is located along a narrow N-S trending ridge-line (Figure 3). The site area has been heavily impacted by an MCI underground cable right-of-way which follows the ridge-line through the center of the site. The site's age is unknown.

**CA-LAN-3215 (CT-32):** This site is a large low but density cobble quarry/workshop. It measures roughly 60 m E-W by 450 m N-S and consists of discontinuous lithic scatters and associated cobble concentrations. Quartzite cobble cores, flakes and angular shatter were present, for a total of about 25 archaeological specimens. The site is located about 100 m S of CA-LAN-3201, along a long narrow E-W trending ridge-line (Figure 2). CA-LAN-3215 is in good condition but is of unknown age.

**CA-LAN-3216H (CT-45H):** This site dates from 1949. It represents a jet aircraft crash located at the western boundary of the Centennial study area (Figure 2). The recorded locality measures about 75 m E-W by 175 m N-S, but it appears to be part of a larger debris field that extends westward outside of the study area. Crash debris observed within the study area consists of jet engine turbine blades from two or more compressor stages, a fuel line connector, and assorted aluminum airframe structural fragments.

According to records we have obtained of this crash (Army Air Force 1949), it occurred at 7:55 am on 10 June 1949 and involved two F-86 Sabre jet fighters. These were piloted by Capts. William A. Higgins and Richard E. Barr, both with the 94th Fighter Squadron, 1st Fighter Wing, at March Air Force Base. The pilots flew a two-wing formation on a B-50 bomber intercept-training mission. About two miles E of Gorman they made a high-rear intercept pass and, due to pilot error, suffered a mid-air
collision during their break-away, with the right wing of Higgins' jet hitting the fuselage of Barr's plane and demolishing its jet power unit. Higgins was killed on impact; Barr ejected from his plane and parachuted to the ground, suffering various major injuries.

According to a Highway Patrol officer's witness account, the collision and resulting explosion occurred at high altitude about three miles E of where the planes crashed, with plane parts and a parachute drifting NW to the ground. A sketch map made at the time of the accident investigation suggests that the recorded site area represents the SE extreme of the spread of plane parts resulting from the crash.

The F-86 Sabre, made by North American Aviation, was the second generation U.S. Air Force jet fighter and both it and its predecessor (the F-80, made by Lockheed) were developed immediately after World War II; the F-86 was the first swept-wing fighter. According to Lt. Col. E.D. Whitley, USAF, Ret. (personal communication, 2002), who was a Command Pilot during this period, March AFB had the first F-80 Wing and one of the first F-86 Wings in the country. By 1949 the F-86 was in operational status, but had only been so for a short period. This site, thus, represents an early incident in the use of this aircraft and likewise in the development and use of jet fighter technology.

The eleven archaeological sites tested during the current study, in summary, consist of two historical sites, both of which are mid-twentieth century in age; and nine prehistoric sites. With two exceptions these last resources appeared to be either lithic scatters associated with natural cobble deposits and were thought to represent small quarry/workshops, or bedrock mortar stations. The exceptions include a cupule site, likely used for rituals, and a buried midden deposit, thought to represent a small village. In all cases the ages of the prehistoric sites were unknown.

1.3 Recording and Evaluation of CA-LAN-3219H (CT-9H) and Kinsey #1 (CT-64H)

Two recent historical sites are present within the current study area, one of which was previously recorded and the other of which was recorded (for reasons discussed below) during this project. Both sites were evaluated as part of the addendum Phase II fieldwork.
Historical site CA-LAN-3219H (CT-9H) is a previously recorded oil-drilling pad and work area located about 200 m W of the mouth of Oso Canyon, in E-W tributary canyon mouth (Figure 3). The site is on the N side of the canyon and on the N side of E-W dirt road, and just W of low N-S ridge.

Artifacts noted on the site at the time of discovery included a low density surface scatter of fire-bricks, one sanitary seal can, one screw-top glass condiment bottle, miscellaneous sheet metal, wire nails, metal pipe, wooden beams, a large metal conical threaded bolt, wire cable, three asphalt concentrations, a small concrete foundation, and a capped 2 inch metal stand-pipe. The fire brick is embossed with LAP CO over three stars. Also present was a low dirt berm running E from the artifact scatter to a low N-S ridge, creating a small catch-basin. The site area was about 150 m E-W by 50 m N-S, and the site was in poor condition.

CA-LAN-3219H dates from 1953 - 1954, the period of oil exploration on La Liebre Ranch. This was restricted to the drilling of about a half-dozen test wells. These were shallow wells (approximately 1200 - 2400 feet) drilled in search of over-thrust oil pools. Bedrock proved to be shallow in this area, however, eliminating any commercial potential, and the wells were all abandoned as non-producers (Jeff Warren, Tejon Ranch Company, personal communication, 2002). No commercial oil production ever occurred within La Liebre Ranch, as a result, and this location was capped and abandoned.

Re-examination of the site during the 2007 fieldwork found the conditions essentially identical to those seen in 2002, although the graded earth berm had deteriorated somewhat due to erosion. Systematic examination of the surface artifacts revealed that all are post-World War II in age and thus, from the perspective of historical resources, are not temporally diagnostic; this is in accord with the known age of the site, circa 1954. Although CA-LAN-3219H meets the minimum age requirements for a historical resource, it lacks integrity. Furthermore, as an archaeological site, it lacks the potential for contributing to our understanding of California history; that is, although the history of California oil exploration and production is itself an important topic, the few remaining features and artifacts at this site cannot themselves amplify our knowledge of this aspect of the state’s economic history. CA-LAN-3219H therefore is not considered unique or significant, and its recording has served to
adequately mitigate any potential adverse impacts that might result from development at this location.

Another culturally modified locality was noted during the original Phase I survey (W&S Consultants 2002) that, at the time of the survey, exhibited minimal remains and, more importantly, did not then meet the minimum age requirements to qualify as an archaeological site. Hence it was not recorded as a site at that time. This is a second oil drill pad. According to the California Division of Oil and Gas records, this is the Kinsey #1 well that was operated by Alexander N. Campbell. It was drilled to a depth of 3756 feet in September 1956 and plugged and abandoned, due to the absence of oil or gas. As is clear, this locality meets the minimum age requirements in 2007 and was, accordingly, recorded and evaluated during the current project as site Kinsey #1/CT-64H. The site record for this locality is included as Appendix A of this addendum report.

The site is located on the S side of a high ridge that overlooks the N shore of Quail Lake near its western end. Kinsey #1 consists of a rectangular graded and disturbed area that is approximately 42 m E-W by 22 m N-S. This forms a depressed sump created by a cut-bank along its northern long dimension and a small berm along the south, formed from the graded soil removed from the interior of the sump area. The maximum depth of the drilling sump is about 1.5 m, with the depth from ground level varying due to the slope of the surrounding undisturbed surface.

A capped well-casing is located in the W-central portion of the sump and a very low density scatter of mostly metal debris is also present. This includes 1" wire cable, a sheet metal panel, mesh screening, a ring-bearing, a few galvanized bolts and a 55 gallon drum. Non-metal artifacts include fragments of milled lumber, a 2" rubber hose, a rubber gasket and three cement concentrations, resulting from abandoned and hardened sacks of cement.

Although Kinsey #1 now meets the minimum age requirements for a historical resource, it lacks integrity. Furthermore, as an archaeological site, it does not have any potential for contributing to our understanding of California history. It is not considered unique or significant, and its recording has served to adequately mitigate any potential adverse impacts that might result from development at this location.
CHAPTER 2
FIELD METHODS

2.1 Introduction

Phase II archaeological fieldwork at the 10 study sites was intended to establish the nature and significance of each cultural resource, and to thereby provide baseline data from which a determination of the ultimate disposition of these cultural resources could be made. This required the collection of a representative sample of artifacts and archaeological indicators from each of these cultural resources, the establishment of the vertical and horizontal boundaries of each cultural deposit, and an analysis of the recovered artifact assemblage from these archaeological localities.

Procedures followed in the collection of data useful for establishing the nature and significance of the sites included mapping, surface collecting of artifacts lying on the ground surface, mapping of surface features, and test excavation of pits to establish the presence or absence of a subsurface archaeological deposit, as well as to characterize such a deposit if found to be present on the sites considered in this study. Though these procedures were systematized so that the recovered data would be comparable between each site, as well as with the previous Phase II investigation within the Centennial study area (W&S Consultants 2004), the magnitude of effort varied somewhat between the 10 sites, reflecting the field conditions specific to each locale. We discuss each of these field methods below, with details on the level of effort expended at each site provided in the subsequent chapter.

2.2 Surface Collection

In order to determine the maximum areal extent of each site, the initial field procedure was to locate, map and collect all surface remains present on the ground surface. In order to identify all such remains, the general area of each site was walked by crew-members. Identified artifacts and archaeological indicators were then marked with flagging tape. Surface remains found within an area of approximately 3 meters-square in size (i.e., within a circle with a one-meter radius) were treated as discrete artifact associations and collected as clusters. WAAS-corrected GPS and
surveyor's chain were subsequently used to map all remains or clusters of remains, which were numbered and collected by these provenience points.

2.3 Test Excavations

Employing a procedure used at all sites tested during this Phase II project, the number and location of the test pits placed on each site were predicated on an evaluation of localized geomorphological conditions found to be immediately present. Specifically, recognizing that subsurface archaeological remains could only be expected in areas where depositional processes contributed to the accumulation of soils, and that areas of active degradation would not only lack subsurface deposits but would also most likely contain surface finds (if found to be present) out of original context, test pits were placed in areas where the probability of deposition was deemed highest on each site, and subsequently located to delineate any such discovered deposits. In general, depositional areas include: toe-slopes and foots of hills; swales; and areas where active rodent activity or vegetative vigor indicate soil accumulation and depth. Conversely, areas of day-lighting bedrock and erosional ridges, hilltops and slopes were conceded only a minimal amount of testing, because of the limited likelihood that they could accumulate buried archaeological remains.

Excavation units dug on each site were designated numerically. All were 1x1 m in size. Each unit was dug with pick, shovel and trowel in arbitrary 10 centimeter spits or levels. Spoils from each level were screened through one-eighth inch mesh. All artifacts and archaeological indicators were collected and bagged by unit level. Excavation in the initial units excavated on each site or geomorphological context was continued for 20 cm beyond the apparent termination of the cultural deposit, in order to obtain a clear indication of the soils stratigraphy present. Subsequent to stratigraphic definition and profiling, excavation was continued through two culturally sterile levels (i.e., 20 centimeters), or until sterile parent soil or decomposing bedrock was encountered.

Special conditions existed at site CA-LAN-3206 (CT-15), requiring additional procedures and these warrant description. As noted above, this site consists of a buried midden deposit observed in the cut-bank of an arroyo. We originally assumed that the site could be satisfactorily tested
using backhoe-dug windows that extended through the culturally sterile topsoil to the dark organic cultural midden below, allowing for the hand excavation of the cultural deposit following the procedures described above. Based on the evidence from the arroyo cut-bank, the cultural deposit was believed to be approximately 1 m below the existing ground surface. But an initial evaluation using a soil auger probe quickly demonstrated that, within only 15 linear meters N-S across the assumed site area, the depth of the midden below modern ground surface plummeted from 80 cm at the N to fully 3.1 m depth at the S.

The implications of this circumstance are significant in terms of our testing procedure. Per existing CAL-OSHA requirements for subsurface excavations, use of a backhoe would have either required the excavation of windows so large that they would have resulted in the destruction and removal of portions of the midden deposit itself, in order to step the sidewalks of the work area to meet health and safety requirements; or testing would have required the use of 4 - 5 m long metal shoring walls and hydraulic braces, within a 1x1 m work-space. As is clear, neither of these options was satisfactory from the perspective of responsible testing of the resource, or feasible field investigations.

As a result, an alternative approach to subsurface testing was developed for CA-LAN-3206, in consultation with the Tejon Tribe. This involved a combination of the hand excavation of three 1x1 m units, placed towards the northern end of the site where the midden deposit was (relatively speaking) minimally buried, combined with the use of a series of 4 m deep soil auger probes, to determine the southern and eastern limits of the deposit. Given the dark, organically enriched nature of this deposit, in contrast to the overlying light sandy colluvium, the presence or absence of midden was easy to determine.
CHAPTER 3
FIELD RESULTS

3.1 Introduction

Using the procedures outlined above, Phase II fieldwork at the 10 study sites resulted in the collection of a relatively small quantity of archaeological remains, reflecting the small size of these sites. In the next chapter we discuss the recovered archaeological remains from each site in detail. Prior to considering the artifact collections in specific terms, however, below we present a summary of the field results in a more general sense, particularly with reference to the size of the surface manifestations of each site, the presence/absence of subsurface remains, the nature of the soils present, and what these features imply about each of these cultural resources. Figures 4-20 provide the lay-out of the units and features and the distribution of the surface remains recovered from sites.

3.2 Site CA-LAN-3199 (CT-6)

As noted above, site CA-LAN-3206 consisted of a shallow, single bedrock mortar (BRM) on a low grano-diorite boulder. Fieldwork at this site involved mapping, surface collection and the excavation of two test pits.

No surface artifacts were observed at the site at the original time of recording, and none were found during the Phase II test.

The BRM and grano-diorite boulder outcrop were mapped (Figure 4). The boulder was flush to the ground and measured approximately one meter N-S by one meter E-W, although it was somewhat peanut shaped in plan view. The BRM is centrally located on the boulder, and it measured 15 cm wide by 3 cm deep. The BRM thus represents a minimal amount of plant processing, rather than a history of intensive grinding.

Two 1x1 m test pits were also excavated on the site. These were placed on a small flat that was immediately SW of the BRM boulder, and was the most likely location (from a geomorphological perspective) for a subsurface deposit. Unit #1 was placed five meters SW of the boulder and Unit #2 in line another five meters SW.
Both units were dug to ancient sterile alluvium (C Horizon, or parent material), which was encountered at about 20 cm depth. The top 20 cm (topsoil of A Horizon) in each unit were equivalent. This consisted of silty sand that was Munsell Dark Yellowish Brown (10YR4/4) in color. All excavations were culturally sterile, indicating that no subsurface deposit is present at CA-LAN-3206.

Site CA-LAN-3206 then is an isolated BRM or plant processing station that has no associated artifacts nor archaeological deposit. Although it clearly was not intensively used, its age cannot be determined from the existing evidence.

3.3 CA-LAN-3201 (CT-10)

Site CA-LAN-3201 is a sandstone rock outcrop with an alcove that contains a series of ground cups, or cupules (Figures 5 and 6). These were produced during ritual activities, most likely girls’ puberty initiations (Whitley 2000, 2006).

The cupules are in a small W-facing alcove in this high boulder, about 8 feet above ground (Figure 7). The cupules are on the N wall of this alcove and average about 2 cm in diameter and about 2 cm deep. Twelve (originally thought to be 11) cupules are present. These consist of two closely spaced and parallel lines of four cups each; with a single cupule placed roughly equidistantly below and approximately in vertical line with the westernmost of the two above lines of cups; and then a fourth parallel line of three cups below. That is, there are four approximately parallel horizontal lines of cups, with four, four, one and three cupules each, moving from top to bottom. The top three lines are aligned vertically, whereas the bottom line is off-placed and roughly centered relative to the longer four-cup lines above.

Evaluation and recording of this feature was difficult because the sandstone alcove surface is highly weathered. It has experienced wind erosion, case hardening of the rock surface, and in some cases subsequent spalling of the case hardened surface (most likely due to salt crystal growth below the case hardened surface layer, resulting from natural seasonal moisture movements in and out of the rock). Case
hardening was particularly evident in the westernmost cupules themselves (i.e., the cupules closest to the alcove opening), which appear almost lipped as a result.

Nonetheless, three finely engraved lines were also noted, in addition to the cupules. These are all vertical. One is positioned within the lowest line of cupules and is approximately 10 cm in length. The other two incised lines are both about three times as long although, again, weathering makes the visibility of the lines and the exact determination of their length very difficult. These last longer two lines are located slightly east and below the concentration of cupules.

Fieldwork at the site included surface collection, mapping and the excavation of four 1x1 m test pits. No surface artifacts, per se, were observed on the site at the time of original recording (W&S Consultants 2002). A broken white quartz cobble was found on the ground immediately below the cupules at that time (W&S Consultants 2002), however. Broken white quartz is commonly found at rock art sites, as a kind of ritual offering (Whitley et al. 1999), and this example was possibly left at CA-LAN-3201 for that reason. Alternatively, quartz also occurs naturally in the area and the presence of this cobble may have been coincidental. Regardless, it was not present at the time of the Phase II fieldwork, most likely as a result of cattle activity on and around the site. No other surface artifacts were found during the fieldwork.

Four excavation units were placed around the outcrop (Figure 7). These were placed at cardinal points in a cruciform pattern, about 15 m from the outcrop. This outward spacing was necessary because bedrock is exposed on the groundsurface immediately surrounding the outcrop proper. Indeed, bedrock is exposed on the groundsurface on a number of spots on the landform (a small broad ridge) containing the site and outcrop, suggesting minimal soil depth in the site area, and minimal likelihood for a subsurface deposit; i.e., the area of CA-LAN-3201 is a deflational/erosional rather than depositional area.

The excavation units proved that this last supposition was correct. Topsoil (A Horizon) was in each case only about 10 cm deep, overlying sandstone bedrock (C Horizon or parent material). The soils in each unit were identical: silty sand containing gravel and cobbles that was Munsell
Pale Brown (10YR6/3) in color. No archaeological remains were found in any of the four excavation units.

Site CA-LAN-3201 proved to lack a subsurface deposit and any associated artifacts, instead consisting solely of a panel of 12 cupules and three linear petroglyphs (incised lines). These are found within an outcrop that is about 20 m in diameter. The age of the site is unknown but it appears to have resulted from ritual activity.

3.4 CA-LAN-3205 (CT-14)

This site, located on a low sandstone outcrop at the north end of a very wide but short canyon overlooking the aqueduct, near the western end of the study area, is a small BRM station. Fieldwork at this site involved mapping, surface collection and the excavation of three 1x1 m test units.

No surface artifacts had been observed on the site when originally discovered, and none could be found during the Phase II test. Mapping of the sandstone bedrock outcrop containing the BRMs resulted in the recording of seven mortar holes falling within an exposed outcrop measuring a maximum of four meters E-W by slightly less than two meters N-S, but the boulder was again somewhat peanut shaped in plan (Figure 8).

The BRM holes were moderately sized, as follows:

- #1 - 10 cm wide by 3 cm deep
- #2 - 15 cm wide by 5 cm deep
- #3 - 12 cm wide by 6 cm deep
- #4 - 12 cm wide by 6 cm deep
- #5 - 10 cm wide by 5 cm deep
- #6 - 15 cm wide by 8 cm deep
- #7 - 10 cm wide by 5 cm deep

The number and size of these mortars suggest a moderate degree of plant processing at this location.

Three 1x1 m test pits were excavated in N-S linear array that stretched down the slight slope below (S of) the BRMs and the larger sandstone
outcrop that backed it to the N. Unit #1, at the N end of the array, was 10 m S of the BRMs while Units #2 and #3 were successively an additional 20 m further S. Soils in each unit were equivalent. Topsoil (A Horizon) was about 10 cm thick and consisted of silty sand that was Munsell Brown (10YR5/3) in color. The C Horizon was immediately below, thereby illustrating the A/C soil horizon relationship that is common in southern California. In this case the parent material was ancient alluvium. All soils were culturally sterile, indicating that CA-LAN-3205 lacks a subsurface archaeological deposit.

The age of the site is unknown but it is located only 215 m E of CA-LAN-3206. It was likely used in conjunction with the occupation of that small habitation (below), serving as an ancillary plant processing station.

3.5 CA-LAN-3206 (CT-15)

As noted above, CA-LAN-3206 was a buried midden deposit discovered in the cut-bank of an arroyo on the western side of the study area, located at the inter-face between the slopes of the upland heights to the north, and the relatively flat and open rift zone to the south. Due to the unusual conditions at the site, testing involved a combination of 1x1 m test pits, and a series of 4 m deep soil augers, because of the buried depth of the cultural deposit and its restricted size.

When originally discovered in 2002, a small number of artifacts were noted that had fallen out of the eroding edge of the midden into the arroyo. These could not be relocated at the time of the Phase II study and presumably had washed away in the interim. Because the site was buried, no surface artifacts were of course otherwise present.

Three 1x1 test pits were hand excavated at the N end of the site area, near to steep slope that defined the effective northern limit of the deposit (Figure 9). (Slope also restricted the deposit from extending westwards beyond the arroyo, hence boundary definition involved the identification of the southern and eastern dimensions of the site.) Because the limited work area on the site prevented the use of a backhoe, the crews had to pick and shovel by hand through the sterile overburden to reach the underlying cultural deposit. The results of the excavation are as follows:
Unit #1: This was the southernmost of our test pits, near to the arroyo on the west. Culturally sterile topsoil (A Horizon) in this unit extended from the ground surface to about 60 cm depth (Figure 10). This consisted of sandy alluvium with a platy structure (i.e., water deposited sediment) that contained numerous krotovinas and fine rootlets. This was Munsell Very Pale Brown (10YR7/4) in color.

An abrupt contact, indicating discontinuity in soil development, separated the A Horizon from the underlying A1 Horizon, the midden deposit. This extended from about 60 cm depth to approximately 140 cm. It consisted of silty sand that was massive and structureless and contained extensive bioturbation and a few fine roots. Notably, the bioturbation in the A and A1 Horizons appeared to primarily represent distinct events, with few of the krotovinas in the upper A Horizon extending into the A1 below. The midden was Munsell Very Dark Grayish Brown (10YR3/2). It contained a low density of archaeological materials, primarily debitage and faunal remains with very few formal artifacts. It also contained occasional sandstone clasts (small cobbles), which were absent in the overlying alluvium.

A gradual contact separated the A1 from the underlying C1 Horizon (culturally sterile parent material). This was an oxidized sandy alluvium with extensive bioturbation and was Munsell Yellowish Brown (10YR5/4). At 150 cm a C2 Horizon was encountered. This was oxidized sandy alluvium that was Munsell Light Yellowish Brown (10YR6/4) in color.

Unit #1, in summary, revealed a midden deposit that was 80 cm thick which contained a low density of archaeological remains.

Unit #2: The second test pit was placed 5 m due N of Unit #1 and thus also on the W side of the site, near the arroyo. Unit #2 was close to the steep slope that backs the site to the north and thus near a high spot on the site.

Predictably, given this last fact, the burial of the midden deposit was much thinner than seen in Unit #1. The topsoil (A Horizon) was only about 3 cm thick at this location (Figure 11). It was otherwise equivalent to the A Horizon in Unit #1 although, given this minimal depth, it lacked the same degree of bioturbation. The underlying A1 Horizon or midden
deposit, under an abrupt contact, extended from about 3 to 90 cm depth below modern groundsurface. It again was equivalent in all respects to the A1 soils in Unit #1 although it exhibited a greater degree of animal disturbance. This last circumstance is almost certainly a function of its proximity to the modern groundsurface; hence it has been exposed to both ancient (i.e., when the midden first formed) and more recent (i.e., subsequent to fluvial capping) bioturbation. A C1 Horizon (parent material) was present below a gradual contact, extending from 90 to 120 depth, below which a C2 Horizon occurred. The C1 and C2 Horizons were again fully equivalent to those found in Unit #1.

Unit #2 contained a small quantity of archaeological materials in the A1 Horizon midden soils, primarily debitage and faunal remains. Note that these were concentrated below 40 cm depth, even though the organically enriched midden was present from 3 cm downwards. (That is, with the exception of the organic soil enrichment itself—a product of the admixture of ash and charcoal from human occupation while the soil developed—the upper ~35 cm of the midden were otherwise effectively culturally sterile.) The explanation for this circumstance lies in two facts. The first is the overall paucity of material culture on the site as a whole: even though the midden soils are clearly the by-product of human occupation, the occupants of the site had a very small material cultural assemblage. Second, and perhaps more importantly, the concentration of the resulting artifactual remains in the lower levels of the midden soils reflects the normal process of downward percolation of heavier and coarser clasts (in this case artifacts). This downward movement ultimately results in stone lines and other pedogenic features, which are sometimes misinterpreted as cultural lens by archaeologists but instead are simply the function of normal soil processes (Frink 2007). Further, that this downward movement was pronounced in Unit #2, relative to the distribution of remains in nearby Unit #1, can be explained by the greater proximity of the A1 Horizon to the groundsurface. While the topsoil horizon effectively sealed-off the midden in the Unit #1 area from soil transforming processes, at Unit #2 the midden fell within the so-called pedogenic front of the soil; that is, the area of standard and active pedogenic processes, hence both greater bioturbation and more downward movement of artifacts.
The midden deposit in Unit #2, in summary, was almost 90 cm thick but was somewhat more disturbed by animal and pedogenic processes than Unit #1.

**Unit #3**: The third and final test pit dug on CA-LAN-3206 was located north and east of Unit #2, again alongside the slope break to the north side of the site. The soils and soil contacts observed in this pit were fully equivalent to those described for Units #1 and #2 above, although the locations of the contacts and the thicknesses of the soil horizons varied somewhat (Figure 12). The A Horizon topsoil, which was culturally sterile, extended to about 10 cm depth. The underlying A1 midden went from 10 to 110 cm depth, and thus was fully a meter thick. The gradual contact with the C1 contact occurred at 110 cm; C2 was encountered at 120 cm.

Two intact cultural features were encountered in Unit #3 however. Feature #1 (Figure 13) was encountered between 70 - 80 cm depth. This consisted of a hearth area consisting of a concentration of ash, charcoal and fire-affected rocks, in the SE corner of the pit, along with a second concentration, at the same depth, of five fire-affected sandstone cobbles. The hearth covered an area about 30 x 35 cm in size though it extended into the S and E sidewalls of the pit. Only the portion within the unit proper was excavated. The burnt sandstone cobbles were found in the SW corner of the unit. This "caim" most likely represents a pile of camp-stones; i.e., stones that are heated and used for stone boiling in hide bags, or that were placed in a fire in order to absorb heat and then radiate it off, after the fuel is burned (serving in this sense as a kind of heat-sink and radiator).

A concentration of about 40 gm of charcoal was recovered from the Feature #1 hearth. A split of this sample has been submitted to Beta Analytic, Inc., for AMS radiocarbon dating. When available, this will provide a chronometric age for the site.

Feature #2 was found at 90 - 100 cm depth, in the NW corner of Unit #3 (Figure 14). It consists of a second concentration of five fire-affected sandstone cobbles. This extended into the N and E sidewalls of the unit but only the portion of the feature within the pit was excavated. No charcoal could be recovered from this feature.
Again, although organically enriched midden soil extended from 10 cm below modern ground surface, archaeological materials concentrated below 50 cm, similar to the circumstance in Unit #2, and for the same pedogenic reasons. Note further that the presence of intact cultural features at depth (below 70 cm) in the midden is understandable in terms of the soil processes noted above. That is, these features are intact because they lie below the pedogenic front of the profile, or because the soil organizing processes of this pedogenic front have not yet been strong enough to displace and disturb these features.

Unit #3, in summary, contained a midden deposit that was one meter thick and which contained a low density of cultural materials. The presence of two intact features in this unit points to the integrity of the archaeological deposit as a whole.

In addition to the excavation of the test pits, six soil auger probes were placed on the site in order to determine the presence/absence and (if present) the depth of the midden deposit, and to identify its eastern margin (Figure 9). These were placed in two off-set N-S rows, with Augers #1 - #4 placed down the approximate center of the site, and Augers #5 – 6 placed 10 m E.

The central N-S row had Auger #1 at the top (N end) and Auger #2 at the extreme S end, with Auger #3 and #4 intermediate to these first two probes. (The numbering of the augers reflects the order in which they were dug rather than their location.) Figure 15 provides the soil-depth profile resulting from this first auger transect. The top of the midden soil was encountered at 80 cm depth in Auger #1. Note that this auger was placed 5 m E of Unit #3 where the midden was only 10 cm deep. This indicates that the depth of the midden plunges rapidly from W to E.

Auger #3 was placed 10 m S of Auger #1. The midden here was 1.6 m deep, indicating that the archaeological deposit also dips to the S. Auger #4 was placed 5 m S of Auger #3. The top of the midden at this location was fully 3.1 m below the existing ground surface. This reflects a downward change in slope from the Auger #1 to #3 slope projection. Auger #2, finally, was located 5 m S of Auger #4. This southernmost auger was excavated to 4 m depth, which represents the end of the Auger #3 to #4 slope projection. No midden was encountered in this last probe. Channel gravels were hit in the last meter of the probe, indicating
that it was beyond the southern site limits. Given the limits imposed by steep slope to the N of Auger #1, the N-S dimensions of CA-LAN-3206 can then be calculated at about 25 m, with the southern site edge apparently limited by a (now buried) stream channel.

Augers #5 and #6 were placed 10 m E of the first row. Both were taken to sandstone bedrock, encountered at 2.1 m in Auger #5 and 1.5 m in Auger #6. Neither contained midden deposit although channel gravels were present in both. This second auger transect, in other words, was E of the limits of the site. Its eastern boundary, again, appears to have been limited by a (now buried) stream channel. The maximum E-W dimensions of CA-LAN-3206 can then be calculated to about 25 m E-W.

The geomorphic and soils evidence revealed by the combination of test excavations and soil auger probes warrants comment, in order to highlight the inferred depositional history of the site. As seems now clear, the site appears to have originally sat on a small interfluve created by ancient channels on its E and W sides, with the E channel presumably tributary to the larger channel on the W. At some point a catastrophic flood event occurred that buried the site and the then-existing channels; hence the current alluvium topsoil that has buried the site, to a depth of 3.1 m at the site's southern end. It also caused the abandonment of the site. This event also effectively sealed the E channel. Subsequent (much more recent) continued flow and downcutting in the W channel has re-opened this watercourse and exposed a portion of the site deposit.

When this catastrophic event occurred is currently unknown, although the radiocarbon date, once obtained, will provide a general temporal frame of reference. (Notably, no temporal diagnostics were found during the test excavations.) Somewhat speculatively, however, we can suggest that the amount of rainfall required for this flood may more likely have fallen during the terminal Archaic, prior to the start of the drying trend that accompanied the Medieval Climatic Anomaly around AD 800 (cf. Whitley et al. 2007).

Site CA-LAN-3206, in summary, is small, buried midden deposit. It averages about 1 m in thickness but is only about 25 x 25 m in overall size.
3.6 CA-LAN-3209 (CT-18)

This site is a relatively large BRM station located on both sides of the drainage that also runs along the W side of CA-LAN-3206, about 250 m NW of the habitation site. Four sandstone boulders contain BRMs at this location. Boulder #1, on the E side of the arroyo, contains two shallow BRMs. Boulder #2, about 50 m to the S and also on the E arroyo side, had eight shallow BRMs. Boulder #3, due W of #1 and on the W side of the arroyo, has a single shallow BRM. Boulder #4 is a low but large boulder in the channel bottom; it contains four BRMs.

No surface artifacts or midden deposit were observed at this location at the time of original discovery, and no surface artifacts could be located during the Phase II test. The BRMs themselves were recorded however (Figure 16). The mortars at Boulder #1 measured as follows:

#1 - 10 cm wide by 3 cm deep  
#2 - 20 cm wide by 4 cm deep

Boulder #2 had the largest concentration of mortars. These were relatively wide although, on average, fairly shallow. Their dimensions are as follows:

#1 - 15 cm wide by 5 cm deep  
#2 - 10 cm wide by 4 cm deep  
#3 - 15 cm wide by 10 cm deep  
#4 - 15 cm wide by 4 cm deep  
#5 - 12 cm wide by 5 cm deep  
#6 - 10 cm wide by 3 cm deep  
#7 - 10 cm wide by 2 cm deep  
#8 - 12 cm wide by 3 cm deep

The single mortar on Boulder #3 had the following dimensions:

#1 - 10 cm wide by 6 cm deep

Finally, the Boulder #4 examples were:

#1 - 8 cm wide by 10 cm deep  
#2 - 15 cm wide by 10 cm deep
#3 - 12 cm wide by 10 cm deep  
#4 - 8 cm wide by 6 cm deep

There were thus a total of 15 BRMs on the site.

Three 1x1 m test pits were excavated at CA-LAN-3209. These were placed around Boulder #2, which had the largest concentration of BRMs and was also positioned with the greatest potential for the accumulation of a subsurface archaeological deposit.

Unit #1 was placed on the NE side of this sandstone boulder. Soils consisted of silty sand that was Munsell Pale Brown (10YR6/3). These extended to decomposing bedrock, which was encountered at about 20 cm depth. All soils in this unit were culturally sterile.

Unit #2 was placed immediately S of the boulder and Unit #3 was positioned slightly to the SE. The soils in Unit #2 and #3 were fully equivalent to those in Unit #1, with decomposing bedrock appearing in each case at about 20 cm depth. Again, these units were culturally sterile, indicating that no subsurface archaeological deposit is present at this site.

Site CA-LAN-3209 appears to have exclusively served as a plant processing station. Overall site size is about 75 m in diameter. Its age is unknown although it seems likely that it was used by the inhabitants of CA-LAN-3206, which is located about 250 m downstream from this BRM station.

3.7 CA-LAN-3212 (CT-26)

This site was recorded as a probable quarry/workshop associated with a quartzite cobble outcrop, located on a low narrow ridge near the SW limits of the study area. Surface collection resulted in the identification, mapping and collection of seven archaeological specimens (Figure 17). These were all quartzite and they were primarily the product of primary lithic assaying and quarrying activities. These were distributed over an area that was 40 m N-S by 10 m E-W.
Four 1x1 m test pits were excavated on the site. These were placed in a linear array along the crest of the ridge, spaced at 10 m apart. Unit #1, the northernmost, had gravelly sand topsoil (A Horizon) to 10 cm depth. This was Munsell Pale Brown (10YR6/3). The C Horizon (parent material) was ancient alluvium. The soils in Units #2, #3 and #4 were equivalent to those in the first pit. All soils in all four pits were culturally sterile, indicating that CA-LAN-3212 lacks a subsurface archaeological deposit.

The age of site CA-LAN-3212 is unknown. It appears to have been a surficial quarry/workshop that covered an area of 40 x 10 m in size.

3.8 CA-LAN-3213 (CT-27)

This site too was recorded as a probable quarry/workshop associated with a quartzite cobble outcrop. It was also located near the western limits of the Centennial study area, on a low ridge. Surface collection and mapping at this site resulted in the identification of 12 archaeological specimens (Figure 18), five of which consisted of a concentration of pieces from a single assayed cobble. All specimens from the site were quartzite and all were assay/quarry-related. They were found in an area that was 30 m E-W by 10 m N-S, with the long-axis following the trend of the landform.

Four 1x1 m pits were excavated on the site. These were placed in a E-W linear array along the spine of the ridge and were spaced at 10 m intervals. Unit #1, at the W end of the site, had gravelly sand topsoil (A Horizon) that was Munsell Pale Brown (10YR6/3), to about 10 cm in depth. Ancient alluvium (C Horizon) was encountered below. Soils in the other three units were fully equivalent. All soils were culturally sterile, indicating that CA-LAN-3213 lacks a subsurface archaeological deposit.

The age of site CA-LAN-3213 is unknown. It appears to have been a surficial quarry/workshop. It covered an area that was 30 x 10 m in size.

3.9 CA-LAN-3225 (CT-29)

This site was recorded as a probable quarry/workshop associated with a quartzite cobble outcrop, located on a long N-S trending ridgeline overlooking the E end of Quail Lake. Mapping and surface collection
resulted in the identification of five archaeological specimens (Figure 19). These were found within an area measuring 55 m N-S by 20 m E-W. Four of the specimens were quartzite; the fifth was andesite, a lithic material that also occurs within the local alluvial cobble deposits. All specimens are assay/quarry related.

Five 1x1 m test pits were excavated at CA-LAN-3225. These again were placed in a linear array that ran approximately N-S along the spine of the ridge, with the pits spaced at ten meter intervals. Unit #1, at the S end, had soils consisting of gravelly sand for topsoil (A Horizon). This was Munsell Pale Brown (10YR6/3) in color. It was a maximum of 10 cm deep and it was underlain by a C Horizon (parent material) that was ancient alluvium. Fully equivalent soils were found in each of the four additional pits. All soils were culturally sterile, indicating that CA-LAN-3225 lacks a subsurface archaeological deposit.

The age of site CA-LAN-3225 is unknown but it appears to have served as a quarry/workshop. It covered an area that was 55 by 20 m in size.

3.11 CA-LAN-3215 (CT-32)

This site was recorded as a quarry/workshop associated with quartzite cobbles on a low but long E-W trending ridge, about 100 m S of CA-LAN-3201, the cupule site. Surface collection and mapping resulted in the identification of 15 archaeological specimens, found in 12 concentrations (Figure 20). These fell within an area measuring 390 m E-W by 65 m N-S. With the exception of one basalt flake and one andesite core, these were all quartzite. They consisted of quarry/assay debris and core/cobble tools.

Eight 1x1 m pits were excavated on the site. These were placed in a linear array that followed the E-W spine of the ridge and were spaced at 50 m apart. Unit #1, at the E end of the site, had gravelly sand topsoil (A Horizon). Like the other quarry/workshop sites associated with quartzite outcrops, this was Munsell Pale Brown (10YR6/3) in color and it was about 10 cm deep. Ancient alluvium (C Horizon or parent material) was encountered below that depth. Soils in the other seven units were fully equivalent. All soils on the site were culturally sterile, indicating that site CA-LAN-3215 lacks a subsurface archaeological deposit.
Although the age of CA-LAN-3215 is unknown, it served as an assay/quarry workshop. It was 390 by 65 m in size.

3.12 CA-LAN-3216H (CT-45H)

This site is a portion of a debris scatter resulting from a 1949 US Army Air Force jet crash. According to investigation records from the original incident (US Army Air Force 1949), the primary debris field was NW of the study area, on an adjacent property. Following US military policy, almost all of the crash remnants were collected for analysis at that time, with the overlooked artifacts representing small and generally non-diagnostic fragments that were missed during the official investigation.

We identified and collected portions of seven jet turbine blades, a fuel line connector and 20 miscellaneous airframe structural fragments. These are all of the extant remnants of the crash within the study area. Note that we did not map these individually because, as part of an air-fall scatter, individual locations have no significance. All of the specimens were collected in an area measuring 200 by 100 m in size, however. Note further that this solely represents that portion of the debris scatter within the study area.
CHAPTER 4
ARTIFACT ASSEMBLAGES

4.0 Introduction

Although the general patterns of artifact distributions, enumerated in the previous chapter, provide important information relative to the size and nature of the archaeological sites considered in this Phase II study, proper determination of the significance and scientific importance of these resources can only be obtained with a more intensive analysis of the recovered artifact assemblages. Accordingly, in this chapter we consider these assemblages in some analytical detail, and what they imply about each of the sites as well as aspects of the prehistory of the region. We begin by detailing the laboratory procedures followed in the processing and curation of the recovered remains. Subsequently we outline the taxonomic system employed to categorize and classify each site's collection. This is followed by a typological summary of the artifacts and archaeological indicators recovered from each site. Finally, we consider the scientific importance of these remains in slightly larger comparative terms. This places them in a regional perspective, and informs an understanding of their probable functions and chronological positions.

4.1 Laboratory Procedures

Following the completion of the Phase II fieldwork, the recovered artifact assemblages were taken to the W & S Consultants' laboratory for washing, processing and analysis. After each specimen was washed and labeled, metrical and typological analyses were performed. We provide measurements and weights for the various artifacts and archaeological indicators in the respective site catalogs (Table 1) included in this report.

The prehistoric artifacts recovered from the current Phase II investigations were categorized following the procedures and typology outlined in the previous Phase II report for the study area (W&S Consultants 2004), in order to ensure full comparability between the reported assemblages. The reader is referred to that document for details on these procedures.
4.2 Artifact Assemblage: CA-LAN-3199 (CT-6)

This site proved to consist of an isolated bedrock mortar station. No artifacts were found on the surface of the site nor was a subsurface archaeological deposit present at this location. Given the fact that bedrock mortar use only became common in southern California in the last approximate 4000 years, this site is Middle Period or later in age. This particular location was clearly only used sporadically or occasionally, by a single individual.

4.3 Artifact Assemblage: CA-LAN-3201 (CT-10)

Site CA-LAN-3201 was found to consist entirely of a sandstone outcrop containing a panel of ground cupules and engraved linear petroglyphs. It did not otherwise contain any surface artifacts nor was a subsurface archaeological deposit associated with this site. Its age is unknown although its use probably occurred as a ritual activity in conjunction with the occupation of a nearby village. One such village (CA-LAN-3203, CT-12, outside of the project area) is located about 750 m E of CA-LAN-3201.

4.4 Artifact Assemblage: CA-LAN-3205 (CT-14)

CA-LAN-3205 is a bedrock mortar station containing seven holes, located a short distance from site CA-LAN-3206. No surface artifacts or subsurface deposit were present at CA-LAN-3205. The site is Middle Period or later in age.

4.5 Artifact Assemblage: CA-LAN-3206 (CT-15)

Site CA-LAN-3206 consisted of a relatively small, buried midden deposit. Three test pits were excavated within this deposit and a total of 244 archaeological specimens were recovered (Table 1). These consisted of five formal lithic artifacts (worked stone tools); 48 pieces of debitage (waste lithics); one ornament fragment; one bone artifact; two charcoal samples; and 198 fragments of animal bones (faunal remains).
The formal lithic artifacts include three flake tools and two lithic cores. The flake tools consist of a biface and two unifacially flaked artifacts. The first of these (#3206-10) is made of quartzite and is a Stage 2 biface; that is, it is an intermediate stage of production that includes some edge regularization, yielding a symmetrical outline in plan, but without lateral thinning or edge finishing. The result is a relatively thick bifacial tool and, while it may have been used in some tasks, is not yet really suited for cutting or sawing. Its presence suggests instead that some tool manufacturing occurred on site.

The remaining two flake tools are both unifaces (#3206-17 and -39). Both are crypto-crystallate. Both are also high-backed in the sense of having edge or working angles approaching 90 degrees. The implication of this last fact is probable use planing or scraping hard, resistant materials, such as wood or bone. One of these also has a convex working edge, indicating use to create a concave surface.

The remaining two formal artifacts are irregular or multi-platform cores. The first of these is felsite (#3206-31), which is a locally available but inferior tool stone. This specimen appears to have been assayed (i.e., had a few flakes removed to determine whether it is a usable cobble) but not systematically flaked. The second core (#3206-35) is quartzite. It has been heavily flaked. One edge has also been ground, although why is uncertain.

A total of 48 pieces of lithic debitage were recovered. By order of frequency these included crypto-crystallates (31 or 65% of the debitage total); metavolcanics (7 or 15%); quartzite (4 or 8%); felsite (4 or 8%); and obsidian (2 or 4%). The crypto-crystallates include jasper, from desert sources, and chert and chalcedony from the Transverse Ranges. The metavolcanics are primarily basalt but include some rhyolite, likely from the Antelope Valley. Felsite and quartzite are locally available in alluvial cobble deposits whereas the two small obsidian specimens are almost certainly from the Coso source, north of Ridgecrest.

The most common classes of debitage are as follows: angular shatter (17 or 35%); tertiary flakes (14 or 29%); secondary flakes (13 or 27%); and primary flakes (4 or 8%). This is a slightly unusual class distribution, as large proportions of angular shatter usually are associated with significant quantities of primary flakes, with both resulting from primary lithic
reduction. The high relative number of angular shatter specimens in this case appears to have been skewed by crypto-crystallates, contributing 13 of the 17 total. Note that no primary flakes of this material were found on the site. The high proportions of angular shatter then appear to reflect intrinsic characteristics of crypto-crystallates; specifically the natural occurrence in the region of this material in thin veins, and the tendency of this material to sometimes fracture into angular pieces.

More typical then is the large relative numbers of secondary and tertiary flakes (27 total or 56%). Large proportions of these two debitage classes are common at village/habitation sites, where final tool finishing and maintenance activities occur.

The sum of the evidence with respect to lithic artifacts and debitage is then the conclusion that standard village activities occurred at CA-LAN-3206 and that, while this involved a range of tasks, no particular specialization is evident. The data instead suggest generalized tool manufacture and use.

In addition to lithics, the artifact assemblage from CA-LAN-3206 included a single worked bone artifact (#3206-29). This is the distal end of a bone awl, made from the cannon bone of a large mammal (most likely a deer or antelope). Bone awls were primarily used for making coiled baskets, another activity commonly conducted at villages.

The final formal artifact from the site is a fragment of a small pendant. This is made of steatite, most likely from the nearby Sierra Pelona talc-schist source, near Agua Dulce. The pendant appears to have originally been rectangular in shape. The recovered fragment includes the biconically-drilled proximal end.

Faunal remains proved to be typical of animal bone found at archaeological sites in the region in the sense of consisting of a range of large, medium and small animal sizes, all of which are heavily rendered into fragments, most likely for marrow extraction. The result is an assemblage of 192 fragments, none of which are identifiable as to species or skeletal part, beyond the observation that most are shaft fragments. Large mammal bones (deer size) predominated when the assemblage is considered either by count or weight, with 111 fragments weighing 61.8 grams. This represents 58% of the count and 85% of the total weight of
the faunal remains. No clearly identifiable medium sized mammal bones were present, although a significant quantity of medium-small (i.e., not large but otherwise indeterminate) specimens were tabulated: 50 by count, weighing 5.9 grams. This is 26% of the fauna by number and 8% of the total weight. Small sized mammal bones per se included 29 by count, weighing 3.7 grams. This is 15% of the count and 5% of the weight total. Two possible bird bones were also identified, weighing 1.0 grams total.

A series of implications and conclusions results from the faunal assemblage. First, there is no certain evidence for specialization in animal procurement, with large (almost certainly deer) to small (pack-rat size) mammal bone present. Many of the fragments that we classified as medium-small may be jack-rabbit although, given the fragmentary nature of the specimens, this is impossible to determine with certainty. The implication regardless of this last possibility is a wide range of hunting and collection tactics. Second, there are a number of examples of heavily calcined bone of all mammal sizes, indicating with some certainty that these specimens are cultural rather than natural in origin. Third, the large majority of the large mammal bone consists of long-bone shaft fragments. Although there are a few exceptions (a vertebral and a rib fragment specifically), this indicates that hunting appears to have been wide-ranging with primary butchering occurring off-site, and only the "best" cuts of meat (i.e., those with the highest meat to bone ratio) transported back to the habitation. Again, these are patterns that are common in regional sites (e.g., W&S Consultants 2005).

The final artifact class recovered from the site is charcoal, two specimens of which were recovered. One of these was collected from the hearth encountered in Feature #1 in Unit #3, at 70 – 80 cm depth. This sample was transported to the lab, cleaned and submitted to Beta Analytic, Inc., for AMS radiocarbon dating. The second (#3206-27) is a large fragment of charred wood recovered in the 60 – 70 cm level of Unit #2. This was collected but not dated because its origin is ambiguous: it was not found in an intact feature and may then just represent a remnant of a wild-fire that crossed the site.

As the above makes clear, no temporally diagnostic artifacts were recovered from CA-LAN-3206. A chronometric age for the site will be available once the analysis of the AMS radiocarbon sample is completed.
Two other factors, however, provide some indication of site age. First, a bowl fragment eroding out of the arroyo cut-bank was noted when the site was first discovered. These artifacts are typically 4000 years or less in age in this portion of southern California. Based on the (original) presence of this artifact on the site, CA-LAN-3206 most likely dates to the Middle Period or later. Second, the site soil is still highly organically enriched. Although it has been capped, and this may have helped preserve the organic component, organics nonetheless typically leach out of a soil over time, due to water movement. This fact too promotes the conclusion that the site is less than 4000 years in age, although exactly how many years younger cannot be estimated at this time.

With the exception of the bowl fragment, absent from the recovered assemblage is any additional evidence for plant processing. This absence most likely results due to the proximity of two plant-processing sites nearby, CA-LAN-3205 and -3209. Given that mortars and pestles first became common in the region in the last 4000 years, this circumstance too further supports the conclusion that the site is less than 4000 years old. (That is, it is implausible that the site would entirely lack any connection to plant processing, given the life-ways of southern California prehistoric and ethnographic peoples. In light of this last fact, manos and/or metates would be expected on an older site, or on a habitation site that otherwise lacked any other kinds of evidence for plant processing. This absence at CA-LAN-3206 can be explained by the proximity of the site to two bedrock mortar stations, thereby implying that, while this specific evidence for plant processing is not immediately on-site, it is sufficiently nearby as to warrant consideration in the discussion of this habitation site.)

The site in general terms served as a small habitation. The artifact assemblage reflects fairly generalized subsistence practices and a relatively unspecialized technology. Although the lithic materials present reflect trade with distant sources, including Mojave Desert jasper and obsidian, lithics in general are limited in number. Tool stone in other words was not a common commodity, and appears to have been used carefully on the site.
4.6 Artifact Assemblage: CA-LAN-3209 (CT-18)

Site CA-LAN-3209 consisted of four boulders containing a total of 15 bedrock mortars. The site is again located in the same general area as CA-LAN-3206, and was most likely used in conjunction with the occupation of that habitation site. Although the age of CA-LA-3209 is unknown, bedrock mortars themselves were only used for the last approximate 4000 years, making this site Middle Period or later in age. Note further that this is the largest bedrock mortar site in the study area. It thus received the most intensive, and potentially the longest, use. Whether it as used by multiple individuals at one time or by single individuals over a very long time period is unknown, although the first possibility seems most likely.

4.7 Artifact Assemblage: CA-LAN-3212 (CT-26)

This site proved to be a small surface lithic scatter. The artifact assemblage mapped and collected at CA-LAN-3212 was entirely locally available quartzite, and was limited to seven pieces ofdebitage. It included one irregular/multiplatform core; three primary flakes; a fourth large (chopper-size) primary flake with unifacial edge-wear; and two pieces of angular shatter.

Site CA-LAN-3212 is associated with a natural outcrop of Eocene alluvial polygenetic cobbles. These include quartzite. Given the nature of the assemblage, especially the presence of a core, primary flakes and angular shatter, the site clearly was a quarry/workshop. But note that the presence of the large unifacially-used primary flake indicates that more than just quarrying and assaying alone occurred on site. Instead primary lithic reduction appears to have been undertaken in conjunction with other activities, perhaps plant gathering of some kind. The age of CA-LAN-3212 is unknown.

4.8 Artifact Assemblage: CA-LAN-3213 (CT-27)

Site CA-LEN-3213 is another surface lithic scatter. The assemblage from this site totaled 12 specimens, found in eight concentrations or proveniences. All of these again are quartzite and, as at the previous
site, this location too contains a natural Eocene deposit of polygenetic alluvial cobbles, which includes quartzite.

The artifact assemblage from CA-LAN-3213 included six irregular/multiplatform cobbles cores; three primary flakes; and three pieces of angular shatter. The numbers of cores relative to flakes and shatter, and the absence of secondary or tertiary flakes, are important facts relative to determining the lithic reduction trajectory at this site. Clearly the intent was the production of primary flakes that were transported off site for subsequent reduction elsewhere.

The age of this site is unknown. It appears to have resulted from non-intensive use, perhaps a single site visit.

4.9 Artifact Assemblage: CA-LAN-3225 (CT-29)

As with the two previous sites, CA-LAN-3225 was recorded as a surface lithic scatter associated with a natural deposit of polygenetic Eocene cobbles. Five specimens were recovered from this site. Three of these were irregular/multiplatform cores, all of quartzite. A quartzite primary flake was also recovered. The fifth specimen was a piece of andesite (metavolcanic) angular shatter.

As this small assemblage makes clear, CA-LAN-3225 was a non-intensively used quarry/workshop resulting from the presence of the natural cobble tool stone source at this location. Primary flakes again appear to have been the emphasis in production, with subsequent reduction completed elsewhere. The age of the site is unknown and, again, its creation may have been the result of a single visit and use, or alternatively very sporadic use associated with other activities on the landscape.

4.10 Artifact Assemblage: CA-LAN-3215 (CT-32)

A total of 15 archaeological specimens was recovered from CA-LAN-3215 (Figure 20), which again consists of a surface lithic scatter associated with a natural outcrop of Eocene cobbles. All but two of these specimens are quartzite. The exceptions are both metavolcanics: an andesite
irregular/multiplatform core, and a large basalt primary flake. This last specimen is a decortification flake. Its presence, in the absence of other basalt remnants, suggests that it was assay debris and that its source (a basalt core) was transported off site for further lithic reduction elsewhere.

In contrast to the other surface lithic scatters tested during this project, the CA-LAN-3215 assemblage contained four core/cobble complex tools. These include two unflaked cobble hammerstones, a core scraper plan, and a high-backed spoke-shave likewise made from a used core (i.e., this has a working edge that is concavely-shaped, but the artifact is otherwise similar to a scraper plane). The logical use for the hammerstones is lithic reduction on the site. Scraper planes, in contrast, were at least sometimes (if not primarily or perhaps exclusively) used for agave reduction (Salls 1985). The large high-backed spoke-shave is idiosyncratic/unique in our knowledge, but clearly reflects an unidentified specialized use.

The remaining archaeological specimens found on site, all made of quartzite, include four irregular/multiplatform cores, four pieces of angular shatter, and one primary flake.

The function of CA-LAN-3215 clearly varies slightly from the other three surface lithic scatters. Given the overall paucity of archaeological specimens along with the absence of a subsurface archaeological deposit, the site does not appear to have served as a camp or habitation. On the other hand its artifact assemblage is more diverse than those seen at the three other quarry/workshops. Perhaps the most likely explanation for this circumstance involves not function per se but intensity of site use. As we noted previously (W&S Consultants 2004), these sites in general terms appear to represent sporadic and non-intensive lithic exploitation; logically this would have occurred in conjunction with other activities on the landscape, such as plant food gathering. In this light CA-LAN-3215 appears to have been more frequently visited and used, hence resulting in a slightly larger and more diverse artifact assemblage. The age of this site is however unknown.
4.11 Artifact Assemblage: CA-LAN-3216H (CT-45H)

The artifact assemblage recovered from CA-LAN-3216H, a 1949 F-86 jet wreck debris field, was understandably restricted to fragmentary airplane parts, and these were all found on the ground surface. As noted above, military protocol required the collection of all remnants of the wreck during the investigation of the crash, which occurred immediately after the accident. Combined with the fact that the majority of the debris field fell outside of the study area, according to the records of the investigation, the remains identified in the study area were essentially small, non-diagnostic fragments that were overlooked in 1949—perhaps because they were near the farthest limits of the debris scatter.

Nonetheless, surface collection resulted in the recovery of 28 metal plane fragments. These include a bronze fuel line connector with attached metal safety wire. The connector is marked "UG - 21/U AMPHENOL 82-13". We also collected seven portions of jet turbine blades, and 20 miscellaneous structural parts made of aluminum. A number of these specimens are heavily distorted due to impact; one is deeply scored, presumably as a result of the original plane-on-plane impact.

As the broken, twisted and distorted condition of these specimens illustrates, the in-air collision and subsequent crash were clearly catastrophic. Indeed, in light of the condition of these specimens, it is surprising that even one pilot survived the collision.

4.12 Interpretive Concerns

We next turn to the interpretation of the nine prehistoric archaeological sites examined during this test excavation project. Although chronological placement has proven difficult for all of these sites, their functional implications are more straightforward. Four types of sites are included in the study sample, and it is useful to discuss the sites in these terms. These site-types are villages, with one example; bedrock mortar stations, three of which were present; lithic scatters, four of which occurred; and a single ritual locale.
Village Site

Site CA-LAN-3206 (CT-15) is a buried midden deposit containing a wide range of artifacts and archaeological specimens, even though these are present in (seemingly) relatively low density in the deposit. It also contains intact subsurface features (rock piles and a hearth) and clearly represents a habitation or small village. Although the age of the site will only be determined once the radiocarbon analysis has been completed, it is clearly less than 4000 years old.

As noted above, a total of 244 archaeological specimens was recovered from three 1x1 m test pits. This represents 81 specimens per unit of excavation, a figure that can be used as a measure of intensity of occupation. Comparable figures from a representative range of other small villages on the Tejon Ranch are as follows (W&S Consultants 2005):

CA-KER-127: 2660 specimens in 12 units, or 221/pit
CA-KER-265: 308 specimens in 10 units, or 31/pit
CA-KER-4011: 120 specimens in 4 units, or 30/pit
CA-KER-6706: 128 specimens in 12 units, or 11/pit

As these figures illustrate, the artifact yield and hence intensity of occupation at CA-LAN-3206 were relatively high in comparison to nearby sites. Granted, CA-LAN-3206 contains an archaeological deposit that is deeper than these other sites, thereby inflating its figures. Yet even if the specimens per pit figure is halved to account for this difference in depth of deposit, the result is still an artifact yield that falls above the average (approximately 30 specimens per unit of excavation) for local sites. Occupational intensity in other words was high at CA-LAN-3206 relative to local tendencies.

CA-KER-6706 is particularly useful for comparisons with CA-LAN-3206, because it is located in the southern portion of Oso Canyon, a short distance outside of the Centennial study area. It is thus the closest test excavated village in the region. As is immediately apparent, the intensity of occupation at CA-LAN-3206 is significantly higher than at CA-KER-6706.

A comparison of the artifact assemblage from CA-LAN-3206 with the assemblage from CA-KER-6706 also provides useful additional information.
on the range of functional specialization in local villages. The artifact assemblage from CA-LAN-3206 can be summarized quantitatively as follows:

Formal artifacts: ~3%
Debitage: ~20%
Faunal remains: ~79%

(Note that these figures are rounded-up and hence do not total 100.) The assemblage from CA-KER-6706, in contrast, had the following components:

Formal artifacts: ~8%
Debitage: ~34%
Faunal remains: ~59%

The implications of this comparison are straightforward. The first and most important is that adaptive and functional variation existed in local villages, even among those that are located just a few miles apart and that were likely part of the same settlement system. Second, the higher proportions of formal tools at CA-KER-6706 is probably at least in part a result of the greater amount of lithic work that occurred at the site, as indicated by its higher percentage of debitage. That is, the production of formal tools was a more important activity at this site, hence their greater numbers. Third, and perhaps most importantly however, is the difference in faunal remains at the two sites. Mammal protein, obtained either through large game hunting or small game capture, was clearly more significant at CA-LAN-3206 than at CA-KER-6706.

Whether these distinctions resulted from differences in the age of the two sites or instead are due to slightly different environmental settings is at this point still undetermined. Yet it is worth noting that CA-LAN-3206 is located essentially at the interface of the wooded uplands with the open grassy expanses of the rift zone (leading to the Antelope Valley). This may have been a more favorable environment for acquiring animal protein, especially small mammals like hares.

Regardless, the test excavation of CA-LAN-3206 demonstrates that significant variation exists even in local village deposits. This fact
emphasizes the complexity of the prehistoric settlement system in this region.

**Bedrock Mortar Stations**

Three sites consisted exclusively of bedrock mortar stations: CA-LAN-3199 (CT-6), -3205 (CT-14) and -3209 (CT-18). The numbers of mortar holes on these sites ranged from one, to seven, to 14, respectively. In all cases these are likely to have resulted from the processing of acorns, a dietary staple in Native California. The range of size variation (as measured by number of BRMs per site) suggests that the nature of acorn processing varied. In some cases processing occurred by single individuals (e.g., at CA-LAN-3199), but the majority of the processing was conducted by small groups of women, as suggested by the sizes of the other two sites.

Both CA-LAN-3205 and -3209 (CT-18) are located close to CA-LAN-3206, the village site. Their primary use was most likely a result of the occupation of this village and their ages probably correspond primarily to the time during which the village was inhabited. Further, their proximity to the village explains the absence of any plant processing tools in the site deposit: plant processing was likely very important to the site's occupants even though there is no direct evidence of this activity on the site itself.

Perhaps the most significant implication of these three BRM sites is the simple fact that they demonstrate the exploitation of acorns in the study area. Absent these sites, this aspect of the seasonal round would be invisible, yet they clearly demonstrate that it was an important component of subsistence practices.

**Lithic Scatters**

Four tested sites proved to be surface lithic scatters: CA-LAN-3212 (CT-26), -3213 (CT-27), -3225 (CT-29) and -3215 (CT-32). These four sites share a series of traits, among themselves and with the sites previously tested within the Centennial study area (W&S Consultants 2004). These
traits are important to their interpretation and, while discussed previously, warrant review here.

The sites first are all located in essentially identical environmental contexts: low rolling hills/broad ridges supported by ancient Eocene alluvial deposits. For this last reason, all of the sites have equivalent soils. This fact is important in three respects. These soils contain lag deposits of polygenetic cobbles. Included in these cobbles are quartzite, quartz and andesite, all of which are usable for stone tool manufacture. Further, because they all have the same soils and are similar with regard to aspect and elevation, they almost certainly have always had the same plant cover. And because of their equivalent geomorphological contexts, there was no apparent mechanism for subsurface archaeological deposits to develop on any of the sites. Phase II testing proved this last supposition correct and all of the sites are exclusively surface lithic scatters.

Second, the sites are all very small. In this case artifact assemblage sizes range from five to 14 specimens. Seen overall (i.e., including the lithic scatters tested during the previous project within the study area; see W&S Consultants 2004) the size range is from only 3 archaeological specimens to a maximum of 20. These are small numbers of archaeological specimens, by kind of comparison.

The implication here is the following: all of these sites are ephemeral (in the sense of very lightly used) activity areas. Some in fact may represent single prehistoric uses. In this sense these lithic scatters clearly reflect activities conducted by small dispersed groups, probably single family units or foraging parties, related to the occupation of larger villages located somewhere in the general region, and probably the result of passing through this particular area. The sites were in this sense not so much destinations targeted for resource exploitation but instead areas with resources that were exploited incidentally, while passing through.

Certain aspects of the function of these sites, third, are clear; others are still somewhat ambiguous. In all cases the association of the sites with the polygenetic cobble lenses is important: these specific lithic contexts clearly were of potential use and therefore interest to prehistoric peoples. The prehistoric use of these cobbles outcrops is also clear: they served as quarry/workshops, where quartzite in particular was obtained.
That said, the nature of the lithic exploitation and subsequent production also warrants discussion. Artifact types/classes directly attributable to quarrying include debitage (primary flakes and shatter specifically), cores and (at least some) hammerstones. Those attributable to true workshop activities, where stone tools are produced or at least roughed-out, are slightly different. These would also include significant quantities of secondary (and perhaps tertiary flakes), pre-forms and wasters. In general terms the first but not second group of lithic remains is present at the sites. These sites then served as quarries but strictly not as workshops in any systematic or intensive sense.

This last point raises the question of subsequent lithic production, using the quarried stone. This is a question that must be answered on negative evidence, and negative evidence is often inconclusive. It is notable, however, that few flakes of any kind are really present on the site; more common is angular shatter. This suggests that the acquisition of primary flakes, not their reduction to worked artifacts, was the primary lithic activity at these sites. The intention of quarry production at these sites appears to have been primary quartzite flakes that could subsequently be further refined or used, as-is without modification, with these flakes carried off for use at other locations.

Not all of the sites, nor all of the recovered artifacts, can be attributed to quarrying, however. A few of the sites had a small but significant number of other types of core/cobble complex tools, invariably hammerstones, choppers and scraper planes, and some of these types of tools were occasionally present even on the smaller sites that were predominantly quarry-related. Importantly, there is nothing that suggests that the production of these core-cobble complex tools occurred on these sites. Note further that hammerstones may have been used for lithic quarrying and for plant pulping and thus the numbers of plant-related artifacts on the sites may be greater than it would initially seem.

The mix of the two functional kinds of tools on the sites instead suggests that casual quarrying activities occurred alongside wide ranging but potentially fairly specialized plant processing. The exploitation of the locally available cobbles was in this sense opportunistic whereas the plant exploitation, requiring a heavier reliance on true formal (worked) tools, may have been the primary emphasis of the prehistoric activities in the study area. The nature of this plant exploitation is uncertain, for a
number of reasons. The tools are largely unspecialized, although there is a general correlation between scraper planes and agave processing (Salls 1985). Similarly, environmental and vegetative changes make the nature of the prehistoric environment uncertain, limiting in some respects our ability to infer from environment to potential subsistence practices. And no direct subsistence remains have been preserved on these sites.

On the other hand, the complete absence of groundstone artifacts makes it quite clear that certain types of plant resources were not targeted during the use of these sites. These include seeds, nuts and acorns which, normally, were prehistoric subsistence staples.

The only reasonable interpretation that we then can provide, given these evidential constraints, is based on the demonstrated even if not invariant association of scraper planes and agave exploitation; that is, specialized agave exploitation may have been an emphasis in the use of this particular area and the creation of these sites. This certainly is plausible given the location of the sites essentially on the edge of the Mojave Desert; that is, it is at least plausible that the study area would have supported stands of agave prehistorically. At this point this is however somewhat speculative. One potential test implication of this hypothesis, however, would be the presence of agave roasting pits in and around local village sites.

This last issue raises the final topic concerning these prehistoric sites: chronology. As we have emphasized in each case above, none of the sites contained temporally diagnostic artifacts of any kind, nor any kinds of material (such as charcoal or obsidian) that can be chronometrically dated. The result is that their chronological placement remains entirely uncertain. Logically, these small sites may have been associated with larger villages and habitations located somewhere in the general vicinity, including possibly CA-LAN-3206. But at this point—and until new dating techniques are invented appropriate for the kinds of materials and contexts at these sites—the hypothesis that these sites date to sometime during the last 4000 years is the best that can be offered, general though it may be.
Ritual Site

A single site, CA-LAN-3201 (CT-10), proved to consist of cupules and petroglyphs placed in an alcove on a prominent sandstone outcrop. Following a widespread far western North American pattern, these most likely resulted from ritual activities (Whitley 2000, 2006).

Ethnographic information on cupule production in south-central California and the western Great Basin is brief and rare, yet all of it is consistent in suggesting that cupules were created during girls’ puberty initiations. The first such evidence was published by Smith and Lerch (1984:7) who, citing a Kawaiisu consultant, state that cupules were said to be associated with young girls’ fertility. Note in this regard that the Kawaiisu occupied portions of the Tehachapi Mountains, thus near-to the location of CA-LAN-3201. Smith and Lee (2002:209), second, cite a 1904 manuscript by J.W. Hudson who “observed cupule production being part of fertility rites” among the Owens Valley Paiute, thereby suggesting that the practice extended into the western Great Basin. This conclusion is supported by statements independently and recently obtained from Southern Paiute consultants in southern Nevada, who associated a cupule site with girls’ puberty (Zedeño and Hamm 2001).

These three brief comments are augmented by a fourth more detailed and recent description of girls’ puberty initiations at the Rocky Hill site outside of Exeter, in Tulare County (Whitley 2006). Rocky Hill is a major historical Wukchumni Yokuts village that is unusual because it contains numerous different pictograph panels which are found in small individual caves on a steep but very rocky grano-diorite slope. Typically villages have one or just a few associated painted rockshelters or caves; the dozens at Rocky Hill may reflect the fact that it is considered the second oldest place in the Wukchumni universe (after the creation place at Bell Bluff, which has been destroyed), and thus is thought particularly sacred. Regardless of cause for this concentration of pictographs, however, it is clear that the site experienced a level of ritual activity that is essentially unmatched elsewhere in the Yokuts realm.

The cupule rock, which is called “Moon Turn,” is located at the foot of the rocky slope, within or immediately adjacent to the village midden deposit. It is close to a “pounding rock” (bedrock mortar), a fact that was considered important because the pounding rocks were used by women
and the symbolism of the cupules reflected this central female activity. The initiates were first isolated in a small rockshelter for a few days with family members (probably mothers or aunts) and perhaps a shaman. This shelter is about 20 meters north of the cupule rock and bears traces of pigment on its wall, suggesting that it may have once had pictographs and that these may have played some role in the girls’ initiation. After this period of isolation, the girls came to the cupule rock and, using a small ritual pestle, proceeded to briefly grind within each of the existing cups. This is said to not only symbolically duplicate the plant grinding that is the central woman’s task, but also to connect each young girl to all the previous women in the tribe who have conducted the initiation.

The existing ethnographic record includes very little information on the puberty initiations for young Yokuts girls, but what does exist provides general agreement with this account. For example, it was said that “girls followed the moon” (Gayton 1948:104), referring to the way in which they gauged their menstrual cycle. This appears to be reflected in the name given to the cupule rock. Likewise a period of ritual isolation was widespread in Native California, and is documented for the Yokuts (ibid.; Driver 1937:97).

The limited ethnographic information from south-central California and the western Great Basin may also be augmented by information from southwestern California; that is, from the area of the Takic speaking peoples, to the south of the Centennial study area. According to information collected from a Luiseño consultant about 1953 by Parker:

In a nearby wash on the undersurface of a boulder was a cluster of round peckings in the boulder about the size of a silver dollar. I was told by the Indians who lived here that these were a kind of score card with each peck representing an initiate of the ceremony. They neglected to state whether the round markers were for the boys or the girls. (Parker 1965:31-32, cited in Minor 1975:16)

Minor (1975:16) further notes DuBois’ (1908:92, 95, 115) mention of ringing stones as accompaniment for a song during the boys’ and girls’ initiations, suggesting that these ringing stones may also be cupules and thus that they were created by pounding (see contrasting view by True and Baumhoff 1981), an idea elaborated by Parkman (1993). Although
this last author's primary concern is the possible association of cupules with rain-making, following Baumhoff (1981) he suggests that cupules may represent a kind of archaic sub-strate of Hokan culture, given that Hokan speakers are believed to have once inhabited all or much of California.

The ethnographic information on this cupule making tradition is, thus, scant and, in some senses, confusing. First, even though quite cursory, there are consistent suggestions linking cupules with girls' puberty initiations. Second, on a symbolic level these references are also consistent with the symbolism of cupule-making in adjacent parts of north-central California, although the specific functions and rituals varied (see Whitley 2000). Third, the distribution of cupules in California extends into the Takic region, where there is also an ethnographic reference associating them with puberty rites. While this supports the origin of cupules in girls' puberty initiations in general terms, it is hard to know how to reconcile it with the much better documented Takic pictograph tradition (e.g., see discussion in True and Baumhoff 1981; Whitley 2006).

With reference to the last issue, True and Baumhoff (1981) favor the idea that cupules in Takic country pre-date the movement of this language branch into southwestern California. While this may be true for some or many of the cupules, Minor's (1975) contention for an archaeological association with proto-historic if not historical villages for at least some of the cupules is convincing evidence that certain of them are quite late dating. Equally to the point, there is increasing archaeological evidence that the Takic moved into southwestern California much earlier than the AD 500 datum that Kroeber (and following him Baumhoff) originally hypothesized, probably as early as 1500 BC, making it much harder to attribute all of the cupules to an earlier and historically extinct ethnolinguistic group in this region.

These issues aside, a series of other points about cupules need be made. At least one Yokuts site has painted cupules (red with white borders), suggesting that some rock painting may also have occurred during the girls' initiations in south-central California. Village sites with massive concentrations of cupules are known in Tataviam territory along the Santa Clara River Valley in northern Los Angeles County. These are found in the Agua Dulce - Acton region, and thus are relatively close to the Centennial
study area. This concentration of sites implies either an intensity of ritual activity that differs from what is archaeological visible elsewhere. Importantly, however, some of these Tataviam cupule sites contain simple geometric petroglyphs on the same panels as the ground cups, thereby providing a parallel with the circumstance at CA-LAN-3206.

The existing evidence, in other words, is consistent in supporting the interpretation that these cupules and geometric petroglyphs resulted from girls' initiatory rites. As such, CA-LAN-3206 represents a religious locality.
CHAPTER 5
CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary and Conclusions

Test excavations and determinations of site significance were conducted at ten archaeological sites within the Centennial project area, Los Angeles County, California. This involved mapping, the surface collecting of ground surface artifacts and archaeological indicators, and the hand excavation of test pits on each site, along with laboratory processing, cataloging and analyses of the recovered artifact collections.

The one historical (Euro-American) site, CA-LAN-3216H (CT-45H), represents the partial remnants of a 1949 US Army Air Force jet crash, with the air-fall debris scatter primarily falling outside of the study area (US Army Air Force 1949). The remnants observed and collected from the ground surface are miscellaneous small fragments that were overlooked when the crash remnants were recovered during the original 1949 investigation.

The nine prehistoric (Native American) sites include three plant processing stations consisting of bedrock mortar (BRM) stations. These sites are CA-LAN-3199 (CT-6), -3205 (CT-14) and -3209 (CT-18). None of these sites had any associated artifacts or subsurface archaeological deposits.

Four of the prehistoric sites are quarry/workshops associated with natural outcrops of quartzite cobbles: CA-LAN-3212 (CT-26), -3213 (CT-27), 3225 (CT-29) and -3215 (CT-32). These four sites were also entirely surface manifestations; i.e., they lacked subsurface archaeological deposits. The numbers of archaeological specimens present at these sites ranged from five to 14. As these figures emphasize, the sites ranged from extremely small to very small in size, and they all can be characterized as sparse lithic scatters.

One site, CA-LAN-3206 (CT-15), consists of a small (25 x 25 m in size) habitation site (midden deposit). This is buried by topsoil. The archaeological deposit itself is approximately one meter thick, and it was
found to contain subsurface features (a hearth and two rock cairns), illustrating the intact nature of the midden deposit.

The final tested prehistoric site, CA-LAN-3201 (CT-10), is a rock outcrop containing 12 cupules (ground cups) and three linear petroglyphs (rock engravings). No subsurface archaeological deposit or surface artifacts were otherwise associated with this rock art panel. It is believed to have resulted from ritual activities, probably girls’ puberty initiations. The outcrop falls in an area about 15 by 15 meters in size.

No temporally diagnostic artifacts were present on any of these sites and, for this reason, their ages are currently undetermined.

In addition to these ten sites, two historical localities were also recorded/evaluated: CA-LAN-3219H (CT-9H) and Kinsey #1 (CT-64H). These consist of two oil drill pads, dating between 1954 and 1956.

5.2 Final Recommendations

Phase II test excavations and determinations of significance have resulted in the recovery of all extant archaeological specimens at sites CA-LAN-3212 (CT-26), -3213 (CT-27), -3225 (CT-29) and -3215 (CT-32), each of which is a sparse surface lithic scatter. These same procedures have also resulted in the recovery of all extant remains within the study area at CA-LAN-3216H (CT-45H), a 1949 jet crash debris scatter. Further, Phase II fieldwork has resulted in the complete recording and documentation of sites CA-LAN-3199 (CT-6), -3205 (CT-14) and -3209 (CT-18), which are bedrock mortar stations that lack associated artifacts or archaeological deposits. In each case this has resulted in the collection of scientifically consequential from and about these cultural resources. Following CEQA, this has served to completely and adequately mitigate any potential adverse impacts to these sites that might result from development. No further archaeological work is recommended for these eight sites.
have the potential to result in adverse impacts to significant historical resources and no further consideration of these localities is recommended.

Two prehistoric archaeological sites were determined significant/unique. CA-LAN-3206 (CT-15) is a buried habitation site (midden deposit). It has the potential to provide information about regional prehistory, and may contain remains of ritual origin. Site CA-LAN-3201 (CT-10) is a cupule/petroglyph panel in an isolated rock outcrop. The site originated in prehistoric rituals, and it has religious significance to contemporary Native American peoples. Development within the area of either of these two sites, therefore, has the potential to result in adverse impacts to significant/unique cultural resources. Following CEQA, we recommend that these impacts be mitigated by site avoidance and preservation. If this is not feasible, we recommend Phase III data recovery.

5.3 Additional recommendations

It is recommended that an archaeological monitored be present for topsoil grading and removals at the prehistoric archaeological sites, to identify, record and evaluate any additional archaeological remains that might be uncovered during such activities.
6.0
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7.0 TABLES

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1 - Artifact catalog, 2007 Phase II test excavations

2 - Debitage, CA-LAN-3206

3 - Faunal remains, CA-LAN-3206

Please note: These locations are confidential and therefore not included in the public document.