

# SOME PERSPECTIVES ON UPLAND SETTLEMENT PATTERNS OF THE CENTRAL DIABLO RANGE OF CALIFORNIA

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## ABSTRACT

Three archaeological surveys sponsored by the California Department of Forestry and Fire Protection (CDF) in the upland regions of the central Diablo Ranges have resulted in the finding of extensive prehistoric cultural deposits. Artifacts recorded at these sites reveal that the upland valleys and drainages of the central Diablo Ranges were intensively occupied during the period defined as the Pacheco Complex by Olsen and Payen (1969). This complex spans a period of time from ca. 2600 B.C. to A.D. 300. Upland settlement as viewed from the perspective of the surveys presented here indicates that Pacheco complex residential sites focused on both hard seed and acorn economies as well as the hunting of large mammals. These sites characteristically contain an abundance of milling tools, robust projectile points, human burials, cupule rock art, shell ornaments, and other artifact types. Artifacts representative of the Late Period (or Gonzaga and Panoche complexes) are nearly absent. It is proposed that a shift in settlement strategies occurred, with later populations relying more on resources at lower elevations, and that the Pacheco Complex continued later than A.D. 300.

## INTRODUCTION

In the year 1774 Fray Pedro Font, while accompanying the Anza expedition, crossed the Diablo Range and wrote:

All this country which we crossed this day and the next is very broken, and is the haunt of many bears, judging from the tracks we saw.

Although seen from the outside this range appears to be bare on all sides and without trees, yet in the center it is very tangled and full of brush, pines, live oaks, oaks, spruce, and other trees. [Bolton 1933:415-417]

Font's description of the Diablo Range still applies today. Despite a rather desolate appearance the interior is well watered and supports a diverse ecological system. The Diablo Range is a composite of numerous ridge systems that extend from Mt. Diablo to the north, then south approximately 140 miles to Coalinga. The eastern slopes of the

range form the rim of the west side of the San Joaquin Valley, and the western slopes parallel the Salinas River Valley. The Gabilan Range, which is a part of the Diablo Range formation, has been incorporated into this study as it is only marginally separated from the larger Diablo system by the San Benito River. The term "upland" as used in this study differentiates the terrains within the range from the lower foothills, which appear as low lying hills grading up from the lower valley floors. This paper is concerned primarily with the central and southern extent of the Diablo Range.

The upland regions of the Diablo Range have often been perceived as a marginal area of prehistoric settlement (Kroeber 1925:476; Wallace 1978:462). This image has largely been perpetuated by a lack of ethnohistoric data and by meager archaeological investigations that have typically focused on the less productive portions of the range (i.e., steep slopes and ridge crests). However, upon closer examination of the terrain and natu-

ral resources of the region it seems likely that the area would have been, at some time, an important feature of the San Joaquin Valley and Central Coastal Native American subsistence economies. Fortunately, an opportunity to verify the potential of the area was realized when the California Department of Forestry and Fire Protection (CDF) requested an archaeological reconnaissance for 3 separate projects in the uplands of the Central Diablo Range (Figure 1).

These 3 archaeological surveys were conducted in 1989 as part of a CDF vegetation management program, which was implemented to assist landowners in their efforts to reduce the ever-encroaching chaparral. The frequently dense chamise thickets promote the possibility of wildfires and inhibit the growth of browse for livestock. The CDF manages the controlled burning of the thickets, and must consider the effects on cultural resources resulting from the establishment of fire roads, helicopter landing pads, water bars, and the use of heavy mechanized equipment.

The first survey was conducted on a 5,800 acre cattle ranch owned by Mr. and Mrs. Otis Carney. The Carney ranch is located approximately 20 miles southeast of Pinnacles National Monument. The second survey included a ranch administered by the Andresen family of Pacheco Land and Cattle Company, consisting of nearly 6,000 acres. The Andresen ranch is located just north of Highway 152 at Pacheco Pass. The third project required a quick review of a small land parcel at the headwaters of Chalon Creek in La Gloria Valley. This area is just north of Pinnacles National Monument.

The 2 larger surveys described in this paper ultimately led to a friendship between the landowners and myself, and allowed for continued visitations to the parcels long after the initial report of findings was submitted to CDF. Our friendship continues to this day and we will undoubtedly learn more about the region as time goes by.

In addition, Linda Hylkema, Regional Archaeologist for the Bureau of Land Management's Hollister Office, administers

nearly a half million acres of land in the Diablo Range. Her familiarity with the region and the landowners has led us to review numerous private collections from the upland region of the Central Diablo Range and accumulate information on artifact types and site distributions.

After completing the 3 surveys and subsequent examination of artifacts in private collections, I have reached the conclusion that the upland region of the Central Diablo Range was intensively used and occupied during the temporal period identified by Olsen and Payen (1969) as the Pacheco Complex. Further, it is my contention that the upland area of the Central Diablo Range was not a cultural crossroad (or backwater as many have assumed) but was a discrete socio-economic region (Pacheco Complex) that eventually went through transitions that saw the uplands used less intensively in favor of lower elevation habitats (Gonzaga and Panoche Complexes).

Olsen and Payen (1969) proposed that the Pacheco Complex dated to approximately 4,600 to 1,600 years B.P. The complex, divided into 2 components (Pacheco A and Pacheco B), was proposed on the basis of variations in artifact types observed from the excavation of a number of sites along the low-lying eastern foothills of the Diablo Range. The artifact assemblage includes large notched and stemmed points and knives, both hard seed and acorn milling equipment, perforated stone disks and pendants, *Olivella* sp. split-punched beads, and frequent association of the above with human burials and cupule rock art.

Researchers have postulated that prehistoric ethnolinguistic group migrations and population expansions account for the stylistic diversity in the artifact assemblages. It has been proposed that the Diablo Range was a sort of hump that groups traversed over and settled around (Kroeber 1925:478). Linguists and ethnographers have reasoned that the Diablo Range became a divisive topographic feature separating similar, yet individually distinct cultural interaction spheres.

Archaeologists have postulated that ob-

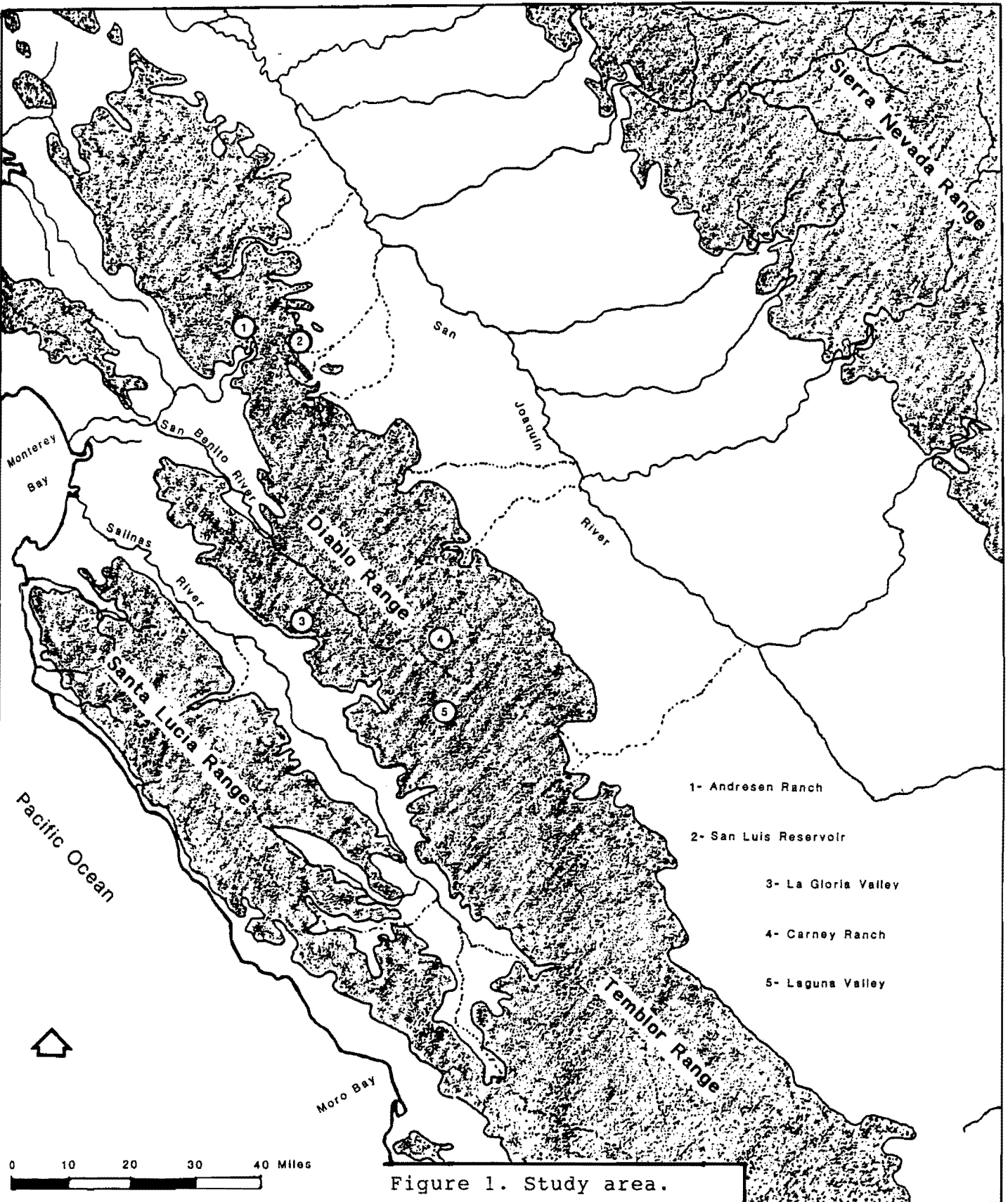


Figure 1. Study area.

served variations in artifact types and associations represent changing socio-political relationships. It has been proposed that the Pacheco Complex expresses an intrusion of coastal populations from the Monterey Bay area (Mikkelsen and Hildebrandt 1990; Olsen and Payen 1969).

Given this scenario perhaps the most intriguing questions are: What is the antiquity of upland Diablo Range settlement? At what time and for what reasons was settlement of the upland areas abandoned in favor of the lowlands? In more recent times, did the uplands continue to be important enough for resource extraction but not to the extent that they supported sedentary settlement during the Late Period? What social and/or environmental factors could account for a proposed shift in settlement? Certainly these questions and others will be addressed in time. For now, I will focus on establishing the fact that during the period defined as the Pacheco Complex the uplands were intensively occupied by semi-sedentary groups who have left an artifact assemblage very similar to that found within coastal contexts of the time and identical to finds made along the eastern Diablo foothills near San Luis Reservoir.

## ARCHAEOLOGICAL CONTEXT

During the 1960s and 1970s, several large water projects involving the construction of reservoirs along the eastern foothills of the Diablo Range resulted in a series of archaeological investigations (Nissley 1975; Olsen 1972; Olsen and Payen 1968, 1969; Pritchard 1966, 1968, 1970, 1983). Of these pioneering studies the work at San Luis reservoir and Little Panoche Valley (Olsen and Payen 1968, 1969) made the most progress towards establishing temporal sequences based on observed trends in the artifact assemblages. Olsen and Payen's hypothetical sequences still serve as the foundation for comparative research for projects throughout the Diablo Range, the western San Joaquin Valley, and portions of the Monterey Bay area (Breschini et al. 1983; Mikkelsen and Hildebrandt 1990; Hildebrandt and Mikkelsen 1991; Hylkema 1989a, 1991; Werner 1984).

The chronological sequences developed by Olsen and Payen (1969) and Olsen (1972) consist of 4 archaeological complexes. The earliest is the Positas Complex, followed by the Pacheco, Gonzaga, and Panoche complexes.

The Positas Complex is proposed to have spanned from approximately 5,200 to 4,600 years B.P., and is represented by the basal component at MER-94. This component includes perforated flat cobbles ("doughnut stones"), perforated pebble pendants, milling slabs, handstones, mortars, short pestles, flake scrapers, small scrapper planes, and spire-topped *Olivella* sp. beads. It was proposed that the assemblage resembled south coastal traditions rather than a San Joaquin Valley assemblage. Olsen and Payen (1969:41) noted that the Positas Complex was only vaguely defined.

The Pacheco Complex was best represented in the assemblage recovered from MER-94 and is divided into 2 phases (Pacheco A and Pacheco B), ranging from 4,600 to 1,600 years B.P. Olsen and Payen noted that the older Pacheco B was tentatively identified by shell artifact types and large leaf shaped points. The shell artifacts consist of thick rectangular *Olivella* sp. beads and angular *Haliotis* sp. pendants. Mikkelsen and Hildebrandt (1990:12) comment that these are all known early period indicators, which implies that the Pacheco B Complex may be older than presumed. The Pacheco A Complex, best represented at MER-94, has also been identified somewhat at MER-27 (Nissley 1975).

The Pacheco A Complex, estimated to date between 3,600 and 1,600 B.P., contained a greater range of attributes. At MER-94 these attributes included flexed burials with associated *Olivella* sp. spire-ground, modified saddle, saucer, and split-drilled beads, and clam shell disk beads. In addition, jade and slate rings, flat pebble pendants, mortars, short cylindrical pestles, milling slabs, handstones, and a variety of large projectile points were present. Bone artifacts included bird bone whistles, awls, perforated canine teeth, spatula grass cutters, and other spatulate tools. Olsen and Payen believed that several earthen

features, approximately 10 to 12 feet in diameter and semi-circular in shape, represented house floors.

The similarity of projectile point forms from MER-94 and those found in the Monterey Bay area (large notched and stemmed points) and lack of extended burials, led Olsen and Payen (1969) to propose that coastal people had intruded into the western San Joaquin Valley during the Pacheco A Complex times. Coeval sites of the Central Valley generally exhibit a pattern of extended burials.

The subsequent Gonzaga Complex dating from 1,600 to 1,000 B.P. is represented at sites MER-3, MER-14, and sparsely at MER-94, MER-56, and MER-27. A greater emphasis on bead use is noted in association with extended burials. *Olivella* sp. bead types included spire-ground, thin rectangles, split-punched, oval, and other subtypes. *Haliotis* sp. pendants were typically rounded, projectile points were few, and polished stone ornaments were present as were a variety of bone artifacts such as scapula saws, whistles, awls, etc. Milling stones continued to include slabs and handstones, but larger mortars are noted along with longer shaped cylindrical pestles. House sizes were seen as increasing, ranging from 20 to 30 feet in diameter.

The Panoche Complex represented the protohistoric period (200 to 400 B.P.), and was identified at numerous sites in the western San Joaquin Valley/Diablo Range foothills. These sites included FRE-128, FRE-129, MER-3, MER-94, MER-130, and MER-119. The Panoche Complex contained diagnostic artifact types such as clamshell disk beads, *Olivella* sp. lipped, edge-ground, and rough disk beads, steatite disk beads, steatite ear spools, conical pipes, incised bird bone whistles, and a wide variety of other bone tool types. Projectile points were of the desert side-notched type with a local variant, Panoche side-notched, characterized by steep-sided triangular forms having nearly circular notch openings and a slightly concave base. Mortars and pestles dominated over milling slabs and handstones. Structures included large semi-subterranean circular assembly houses and smaller circular

houses that were typically 30 to 50 feet in diameter. Cremation of flexed burials was a common feature.

Hildebrandt and Mikkelsen (1991:32-33) summarize the above cultural patterns as follows:

...each major temporal period seemed to reflect occupations by different populations with divergent cultural/geographic affinities. The Positas Complex, although poorly represented, showed relationships to the south coast while the Pacheco Complex was thought to possibly represent intrusion of peoples from the Monterey Bay area. Most conspicuous of all was the Gonzaga Complex with its extended burials similar to the delta, followed by the protohistoric Panoche Complex, no doubt representing the ethnographically recorded Yokuts.

Recently, research conducted along the coast of San Mateo, Santa Cruz, and Monterey counties has generated dated artifact assemblages with which Diablo Range assemblages can be compared (Dietz et al. 1988; Jones et al. 1989; Jones and Hylkema 1988; Hylkema 1991). Point types described in the following sections will be identified according to terminology developed from these studies. Table 1 presents measurements of selected points from the surveys described below.

## RESULTS FROM THE SURVEYS

This section describes the surveyed parcels and findings made within them. Survey reports were prepared and submitted to CDF with copies forwarded to the California Archaeological Inventory Northwest Regional Information Center at Sonoma State University (Hylkema 1989a, 1989b, 1989c).

The first survey was conducted on the 5,800 acre Carney ranch which is located northwest of Hernandez Reservoir and east of Route 25 near the headwaters of the San Benito River. The ranch headquarters is situated in a wide, oak tree-covered upland valley at the junction of several streams. Of

**Table 1**  
**ATTRIBUTES OF PACHECO COMPLEX POINTS FROM**  
**DIABLO RANGE SITES**

Fig.	Site	Cat.	ML	MW	MT	NW	BW	SL	DSA	PSA	WT.
2A	SCL-680	SC-	109.6+	59.5	10.0	26.5	22.5	13.4	180/178	85/92	61.5
3A	SBN-C-271	LVW-B	68.1+	33.7	9.8	14.2		3.5+	183/182	88/87	22.3
3B	SBN-156	SC-A	111.0+	34.0	13.0	24.0		12.2+	220/145	85/70	51.0
3C	SBN-13	LVE-A	54.5+	40.0+	13.7	22.1			160/		26.8
4A	SBN-13	LVE-B	37.5+	14.4+	8.5	9.1+		17.4+	182/	88/	3.6
4B	SBN-156	SC-J	50.0	33.0	9.5	22.0		19.0	173/173	80/80	11.3
4C	SBN-C-271	LVW-F	57.8+	31.7	9.0	17.8		15.3	163/163	93/93	14.1
4D	SBN-C-271	LVW-A	48.2+	26.7	9.8	10.4		14.3	180/155	79/77	10.6
4E	SBN-C-271	LVW-C	34.7+	38.6	10.0	21.0		16.1+	180/180	84/82	10.8
4F	SBN-156	SC-S	43.0+	30.0	9.0	14.0		14.0+	/154	82/82	9.6
4G	SBN-C-271	LVW-D	48.5	39.0	9.5	16.4		14.3	180/165	75/75	13.5
4H	SBN-C-271	LVW-E	30.7+	25.3	8.0	11.4		6.8+	165/185	85/88	4.9
5A	SBN-13	LVE-D	78.2	35.0	18.9	28.0		36.7	255/255	80/80	44.9
5B	SBN-156	SC-F	34.0+	20.5+	9.0	13.5		17.5	240/245	80/80	6.1
5C	SBN-13	LVE-E	39.0+	28.9+	7.5	22.0		21.8	245/246		5.7
5D	SBN-156	SC-I	47.5+	31.5	10.0	19.0		13.0+	250/250	65/65	13.3
5E	SBN-156	SC-N	41.0+	31.5	11.0	23.0		24.4	200/203	75/75	11.2
6A	SBN-156	SC-C	41.0+	54.0+	13.5						30.6
6B	SBN-156	SC-D	86.5	39.0	13.5						48.4
6C	SBN-156	SC-B	22.0+	20.5	8.5	12.5	18.0	14.5	180/185	130/130	3.4
6D	SBN-156	SC-E	51.5	30.0	11.0	17.0	22.0	18.2	183/187	102/102	12.7
6E	SBN-156	SC-K	20.0+	24.0+	10.0	16.0	20.0+	11.0+	218/220	98/98	4.7
7A	SBN-156	SC-Q	57.0+	43.5	11.0	19.0	22.0	18.0	145/145	110/110	22.2
7B	FRE-1345	SC-A	35.0+	34.6	11.7	19.4	23.2	21.3	215/210	110/110	11.9
7C	SBN-183	SC-A	34.0	24.5	6.5	14.0	12.5	13.0	178/175	90/90	
7D	SBN-13	LVE-C	28.0+	31.6	10.4	20.0	18.3	12.6			18.3
7E	SBN-156	SC-M	53.0+	33.0	10.0	18.0	15.5	17.0			14.2
7F	SBN-156	SC-P	23.0+	25.5	11.0	16.0	15.0	12.0			5.7

Measurements in mm.; Weight in grams; PSA and DSA in degrees; += Incomplete Measurement; ML= Max. Length; MW= Max. Width; MT= Max. Thickness; NW= Neck Width; BW= Basal Width; SL= Stem Length; DSA= Distal Shoulder Angle; PSA= Proximal Shoulder Angle.

these streams James Creek is the largest. Elevations range from 4,000 feet at Rock Spring Peak to 1,700 feet along the San Benito River flood plain. The historic buildings of the ranch headquarters were established on a low knoll that is covered by an extensive Franciscan chert debitage scatter. The landowner pointed out several bowl mortars and handstones that came from this site (SBN-155), and mentioned that numerous human burials were present. This site was not examined further after completing the survey records because the goal of the survey was to investigate areas selected for vegetation management.

While surveying stream terraces within an upland canyon above the ranch headquarters a second site was found. This site, SBN-156, exhibited an extensive scatter of good quality Franciscan chert debitage, numerous thermally affected cobbles, and many large projectile points and biface tools (some of which are illustrated in Figures 3A, 4B, 4F, 5B, 5D-5E, 6A-6E, 7A, and 7E-7F). The soil was composed of dark ash, and many bone fragments were observed around the ever present rodent burrows. Typically, bone preservation of any kind is unusual because of the noticeably acidic soils composing the slopes and ridges of the area. A single well-polished jade ornament was found (Figure 8B) as well as a small cylindrically shaped pestle.

Several months later Linda Hylkema and I returned to SBN-156 at the request of the landowners. They were interested in learning more about the local prehistory and emphasized that they and other local ranchers would likely take greater care to protect their archaeological sites once they understood them better. Evidently many of the ranchers had been collecting artifacts from their sites for years and never considered their research potential and the need to protect them. Several ranchers offered to show us their collections in the hope of learning more about them. We accepted the offer and on one occasion observed several hundred projectile points from the local upland valleys. Without exception, the points we saw were identical to those found at SBN-156, and those reported by Olsen and Payen (1969) from MER-94. These con-

sisted of large expanding-stemmed, Rossi square-stemmed, Año Nuevo long-stemmed, large barbed contracting-stemmed, and wide side-notched convex base points. Perhaps even more intriguing was the total lack of Late Period artifact types and obsidian points.

Shortly after this discovery the second of the 3 surveys took place. This one was located at La Gloria Valley, to the northwest of the Carney Ranch just above Pinnacles National Monument. Once again the setting was in an upland habitat, and the average elevation of the valley is 1,900 feet with surrounding ridges rising higher. Chalon Creek originates from this bowl shaped valley, which is a generally level, oak covered grassland that changes abruptly to chaparral at the very toe of the surrounding slopes. The southeastern edge of the valley narrows to a steep stream canyon that descends towards the Pinnacles. At the point where the stream leaves the valley through the canyon an outcrop of serpentine boulders was found exhibiting numerous bedrock mortar holes (SBN-182). A single BRM (SBN-184) was found a little below this. Neither of these 2 sites revealed any diagnostic artifact types; however, a third site did (SBN-183). SBN-183 is a low hump on an otherwise level plain and is shaded by a couple of mature oak trees. Three low lying serpentine boulders on the site exhibit several deep mortar holes along with numerous cupule depressions. The small knoll itself is covered by an extensive scatter of Franciscan chert debitage, and the soil is very ashy. A single well made Rossi square-stemmed point was found adjacent to the BRM boulders (Figure 7C). This point was identical to those found at the Carney ranch and at other Monterey Bay area sites.

The final of the 3 surveys was conducted at the Andresen Ranch along the North Fork of Pacheco Creek in southeastern Santa Clara County. Eight archaeological sites were identified, all of which were known to the landowner who actually deserves credit for pointing them out. The landowner is greatly inclined towards the preservation of these sites and is investigating methods to stabilize and protect them from cattle disturbance and natural erosion. He has been

collecting many of the pestles and handstones from these sites and caching them near their original positions to prevent their theft by hunters who frequent the property. All of these sites were clustered along the creek within a distance of less than 2 miles. These sites include SCL-679, -680, -682, -683, -684, -685, -686, and SCL-687. North Fork Pacheco Creek is fed by numerous springs that originate along the steep slopes and ridges that rise above the stream, creating a canyon that broadens and narrows at points. Oak woodland vegetation is well developed and a wide variety of wildlife was observed where the stream terrace and canyon bottoms broaden. Elevations of the stream terraces within the project area average 600 feet while adjacent ridges rise up to 1,200 feet.

The most striking features of the sites found at the Andresen ranch are the diversity of artifact types and the similarity of the sites to each other. Many of the sites contain human burials as evidenced by the number of bones that the prolific ground squirrel population brings to the surface. Both adult and juvenile human bone elements were noted. All of the sites exhibit extensive scatters of Franciscan chert debitage, cores, flake tools, biface fragments, plano-convex scrapers, drills, and occasional projectile points. The projectile points were probably more abundant than we could see, and I suspect that many of them have been collected from the surface over the years. In addition to these, several sites contained *Olivella* sp. split-punched beads, short and long cylindrically shaped pestles co-occurring with milling slabs and handstones, and cupule rock art distributed on serpentine boulders throughout the stream bed between the sites. There were so many cupule boulders that we were only able to record a few. Many of the boulders had mortar holes on them along with the cupules. Many of the cupule depressions covered both horizontal and vertical surfaces of the boulders and were covered by lichens and moss.

Site SCL-682 produced a perforated slate ring (Figure 8A) that was identical to types found at MER-94.

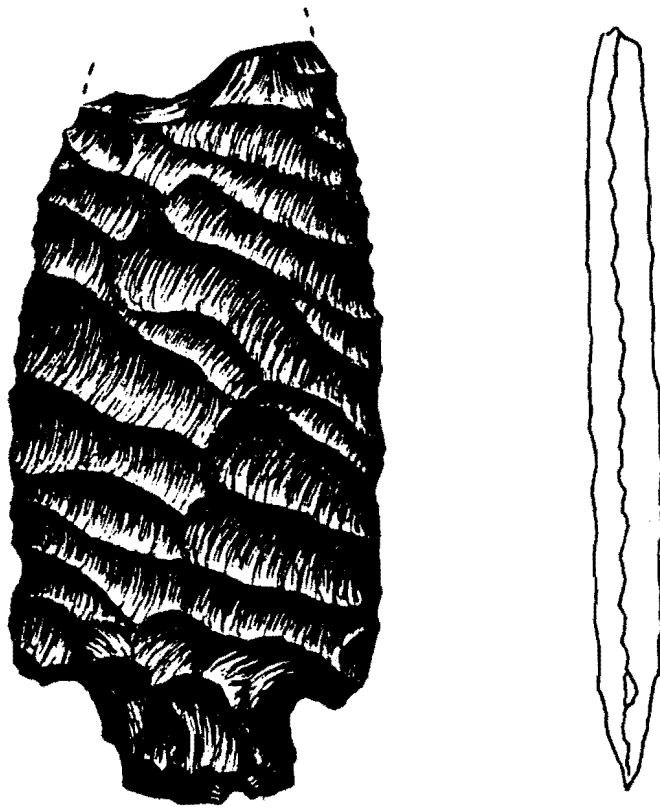
SCL-680, situated at the confluence of a

small stream and North Fork Pacheco Creek, exhibited a large raised mound of dark ashy soil with an extensive scatter of thermally affected cobbles. The landowner has found several small mortars here that, according to his descriptions, must be either tobacco or paint mortars. A large, cylindrical sandstone cobble was found that exhibited 3 grooved rings at intervals around its circumference (Figure 9). This artifact may be similar to the girdled cobbles described by Olsen and Payen (1969) for MER-94. Other artifacts include the same range of flaked stone debris and implements noted at the other sites. Several BRMs, a bi-pitted spherically shaped cobble, and perhaps most intriguing of all, a very large obsidian blade were found. The obsidian blade exhibited a square stem, was very thin in cross section, and had a pattern of long, diagonal flake scars (ribbon flaking) that covered the entire length and width of this wide specimen (Figure 2). This piece was sourced and found to have come from the eastern Sierra Nevada Range (Casa Diablo), and obsidian hydration analyses provided a mean hydration rim reading of 6.7 microns. The mound itself, which is approximately 3 feet above the surrounding terrace, may have developed around a large semi-subterranean structure similar to those described by Olsen and Payen (1969) for the Pacheco Complex at MER-94. Any structural depression that might have once been visible is now filled in, which is not surprising given its potential age and the extensive livestock trampling.

SCL-679 was the largest of the 8 sites. It covered a broad alluvial terrace along the creek with numerous serpentine boulders extending from the site into the stream bed, and across the creek to the opposite side. Many of these boulders exhibited cupule rock art and mortars. The terrace above the stream was covered by flaked stone tools and debris, but no diagnostic point types were found. There were a very large number of milling slabs, handstones and pestles at this site. Bone preservation was good considering the many fragments seen scattered around the rodent burrows.

Further up the stream SCL-683 is situated on a narrow peninsula separating a





A

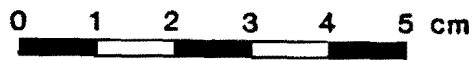


Figure 2. Obsidian blade from CA-SCL-680.

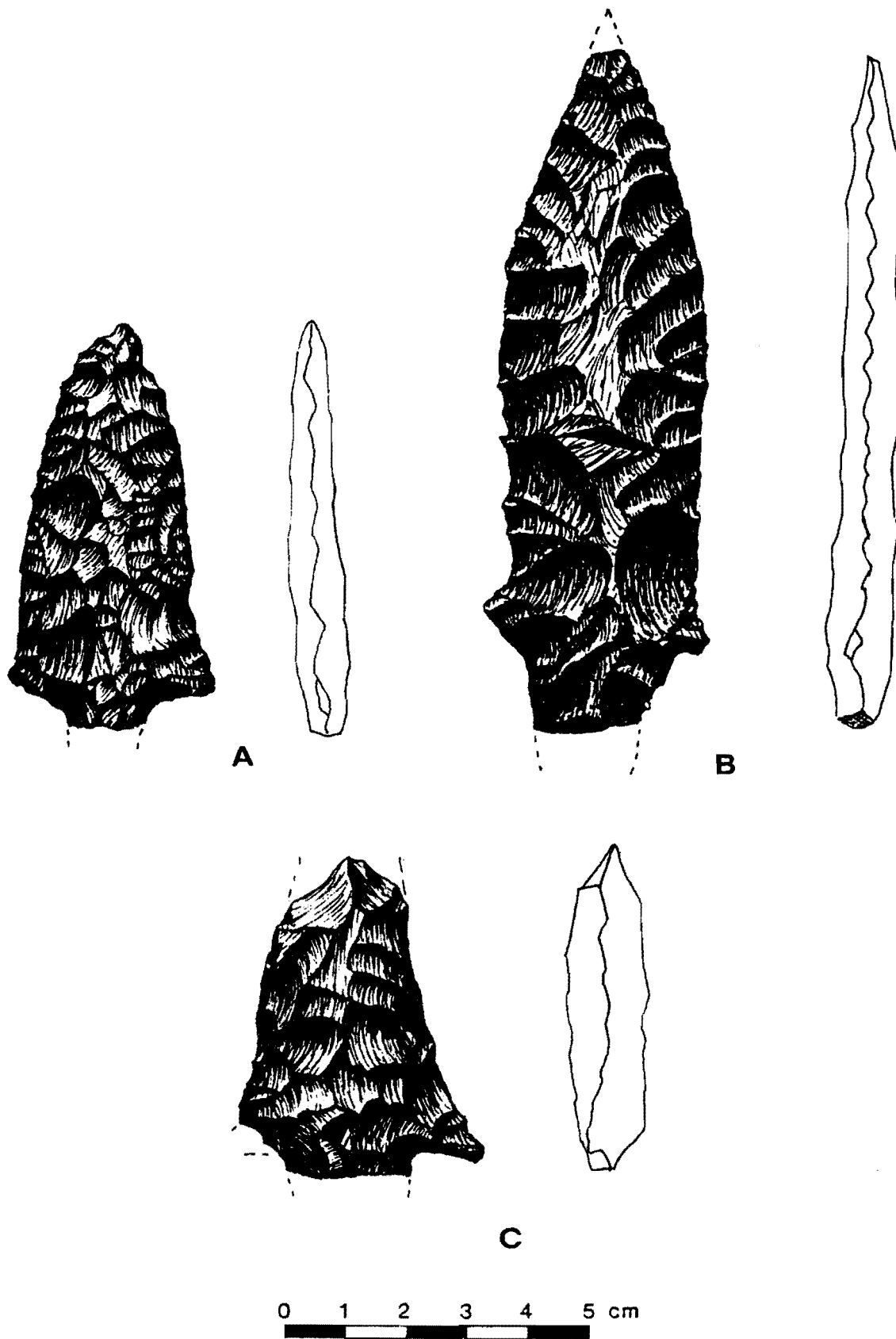


Figure 3. Barbed contracting-stemmed points.

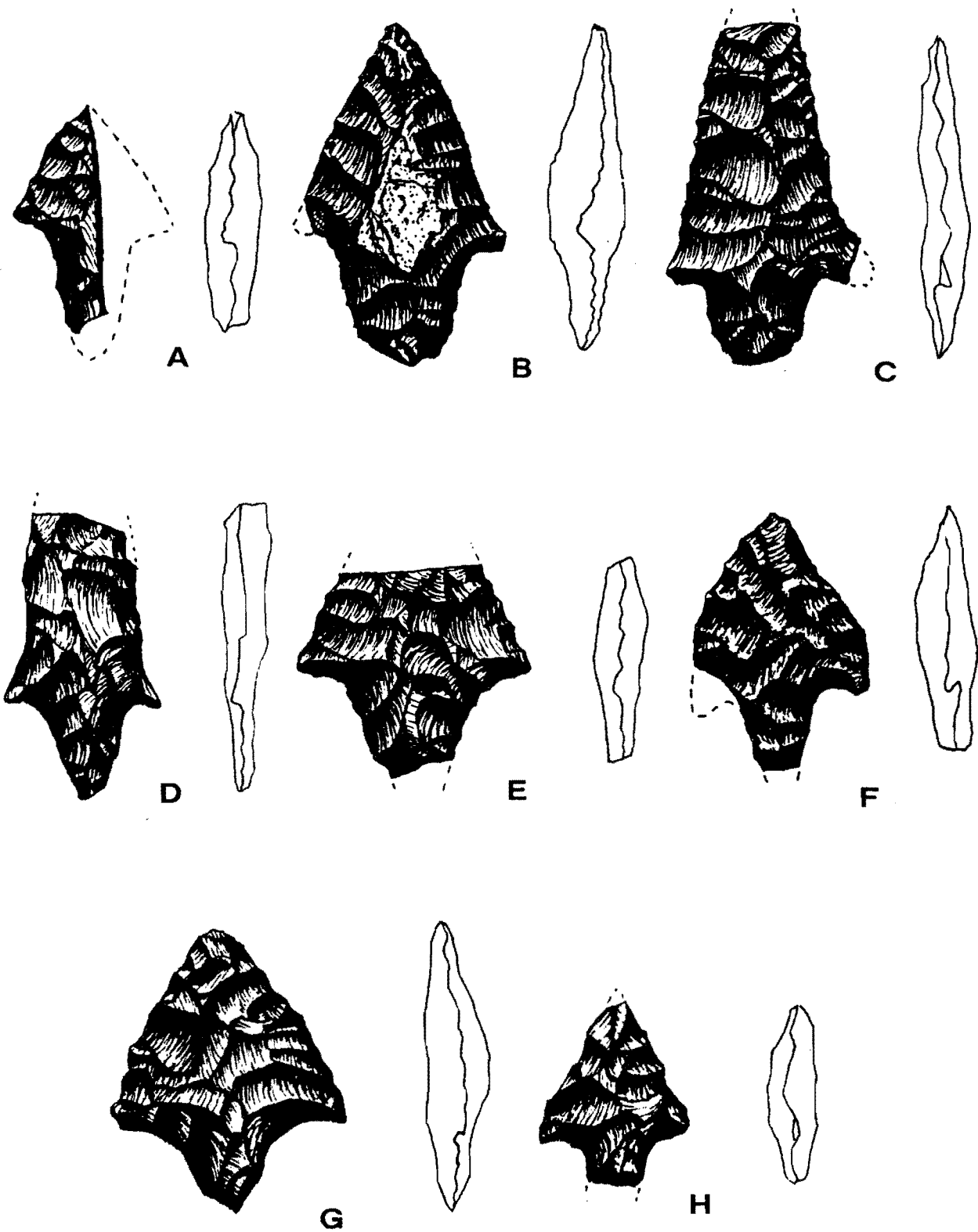


Figure 4. Barbed contracting-stemmed points.

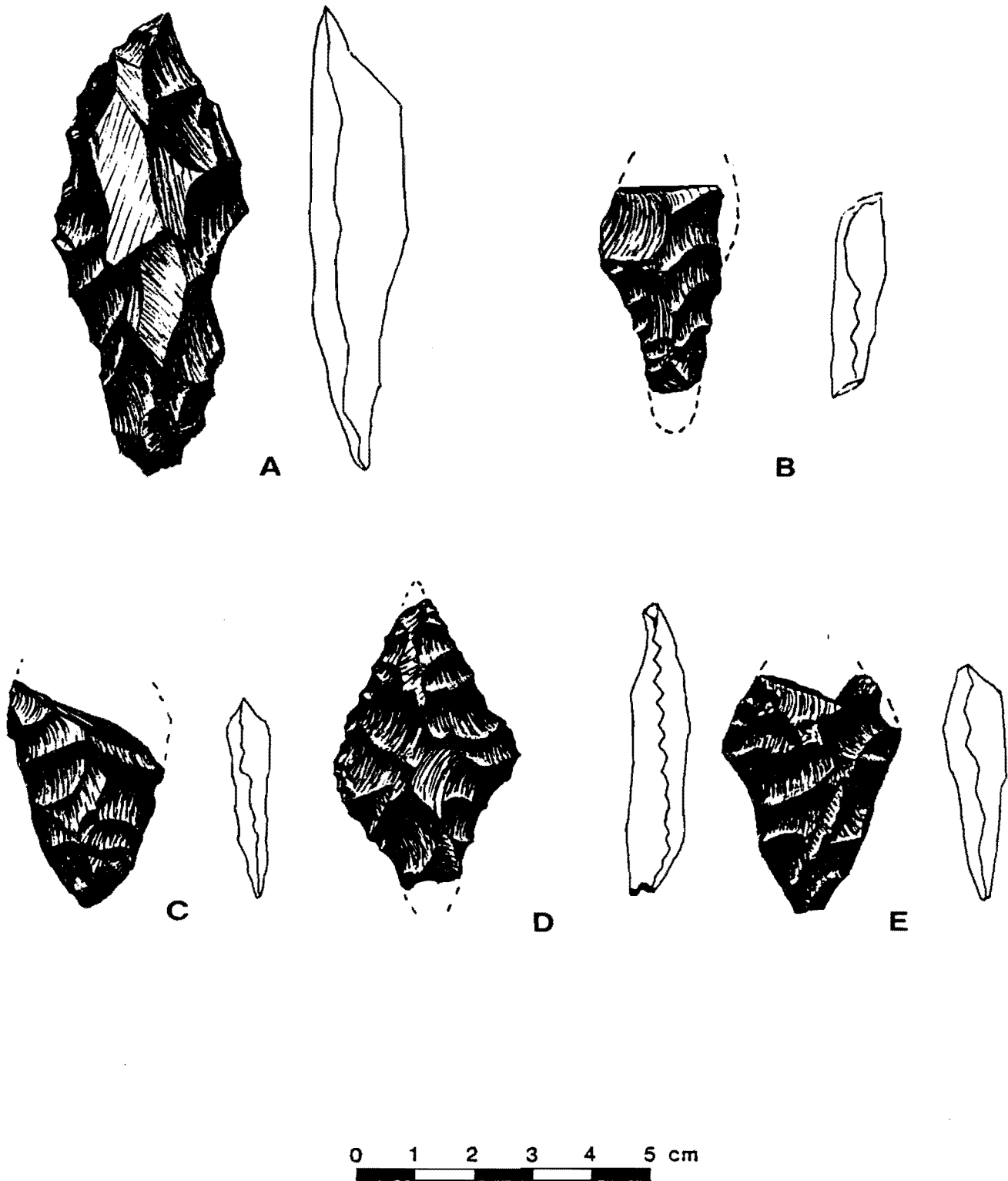


Figure 5. Ano Nuevo long-stemmed points.

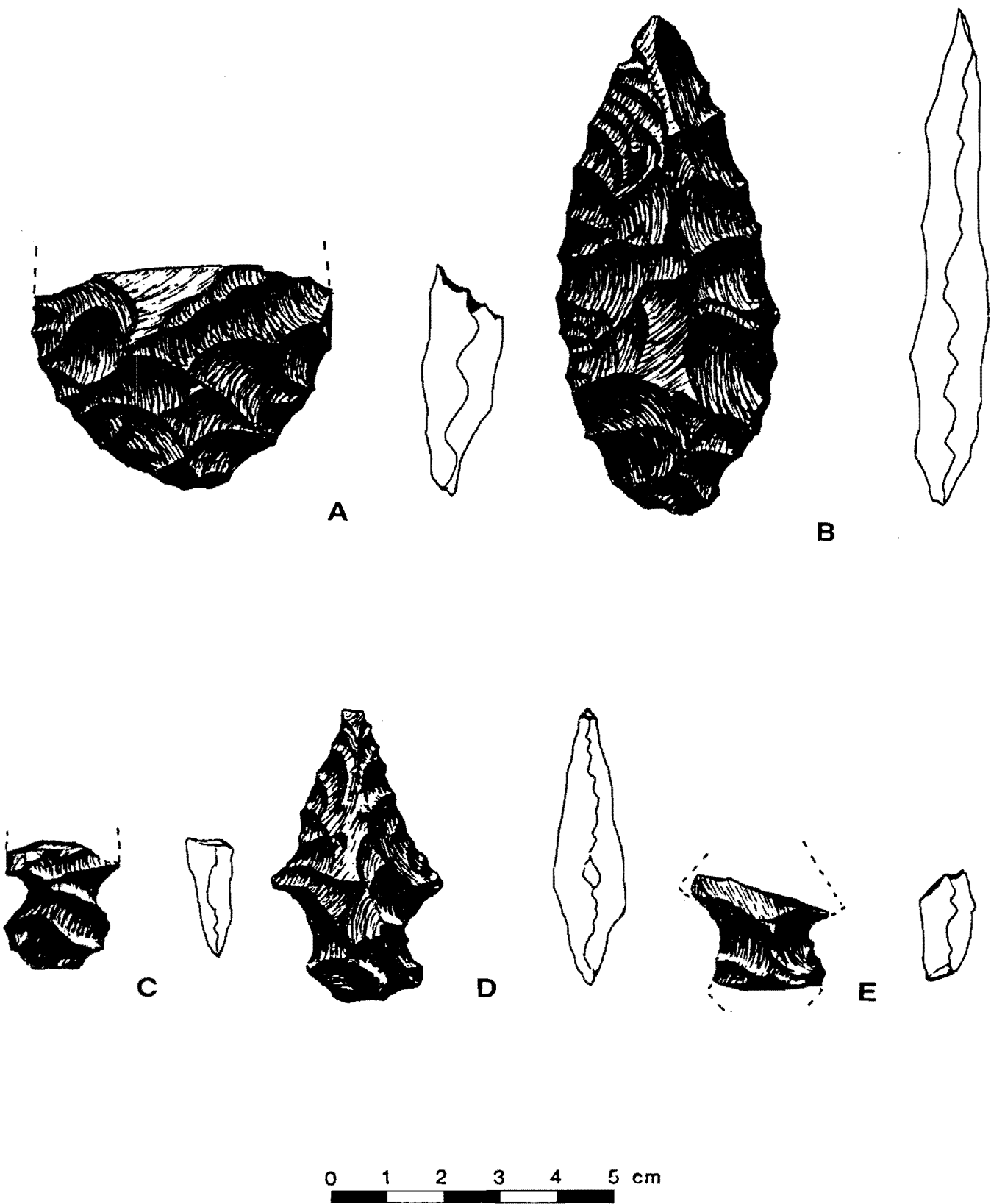


Figure 6. Leaf shaped bifaces and wide side-notched points.

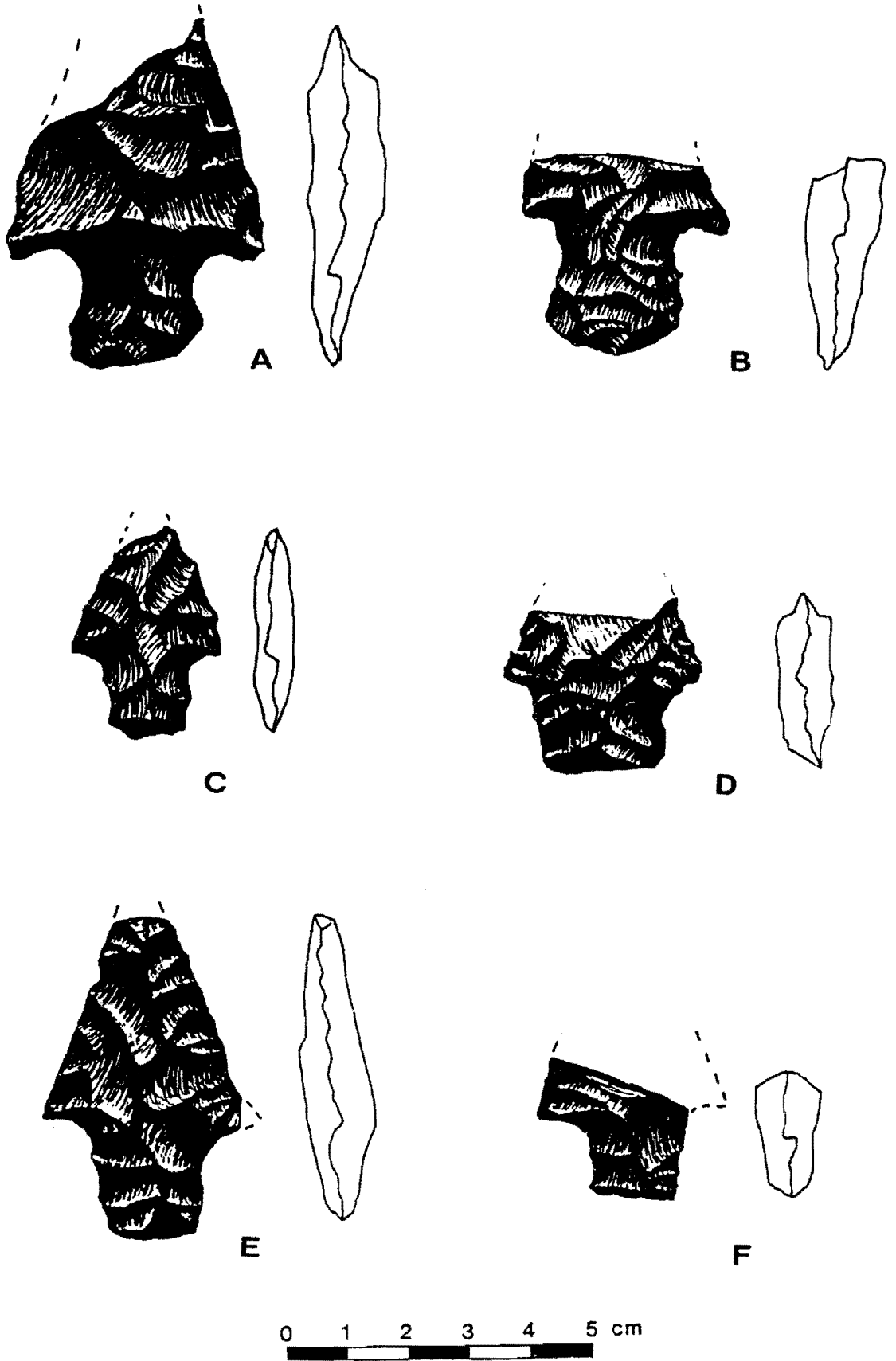
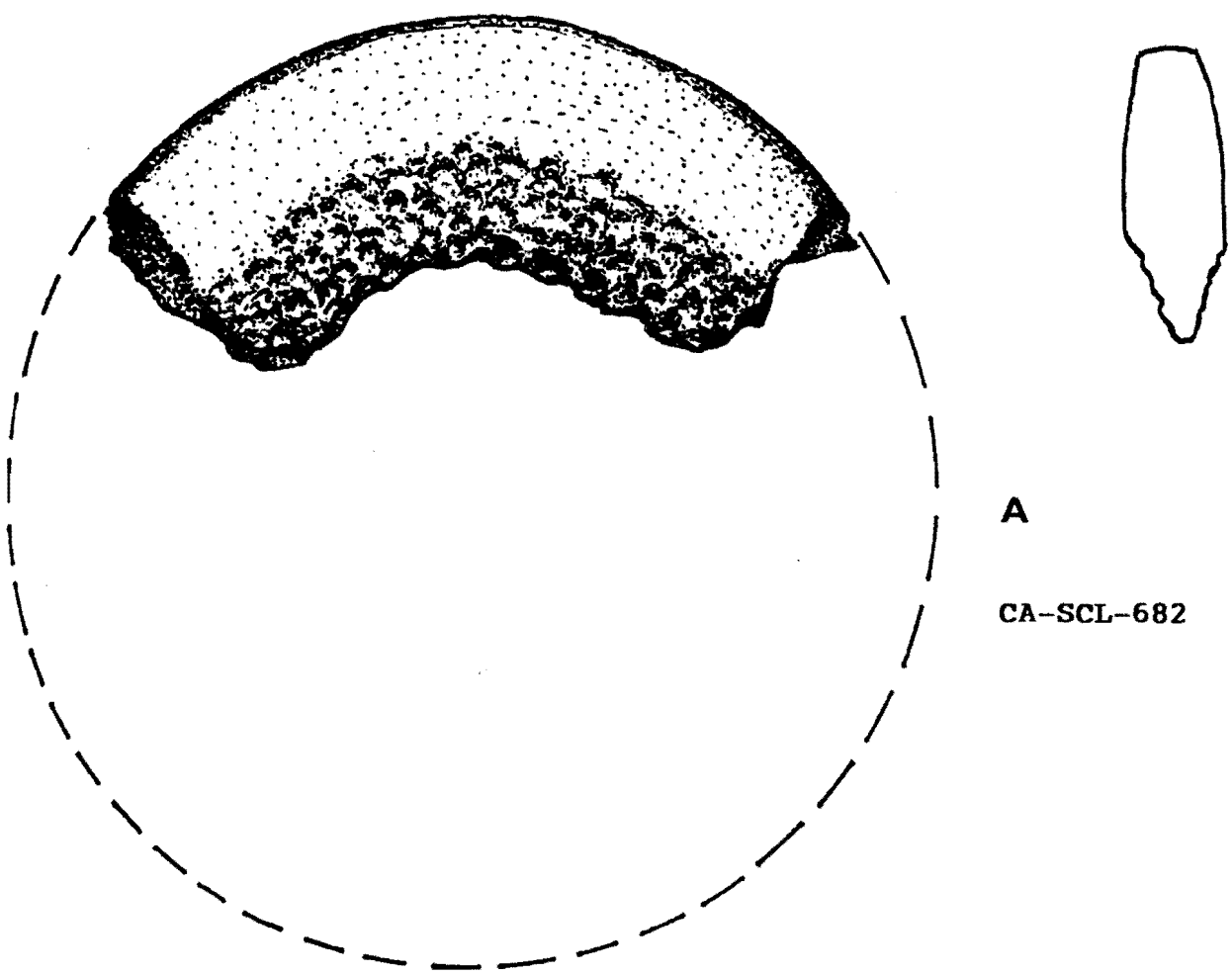
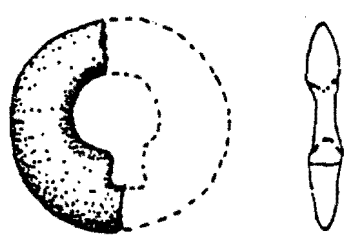
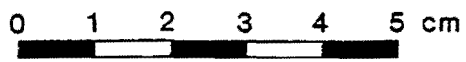


Figure 7. Expanding-stemmed and Rossi Square-stemmed points.



A

CA-SCL-682



B

CA-SBN-156

Figure 8. Steatite disk and jade pendant.

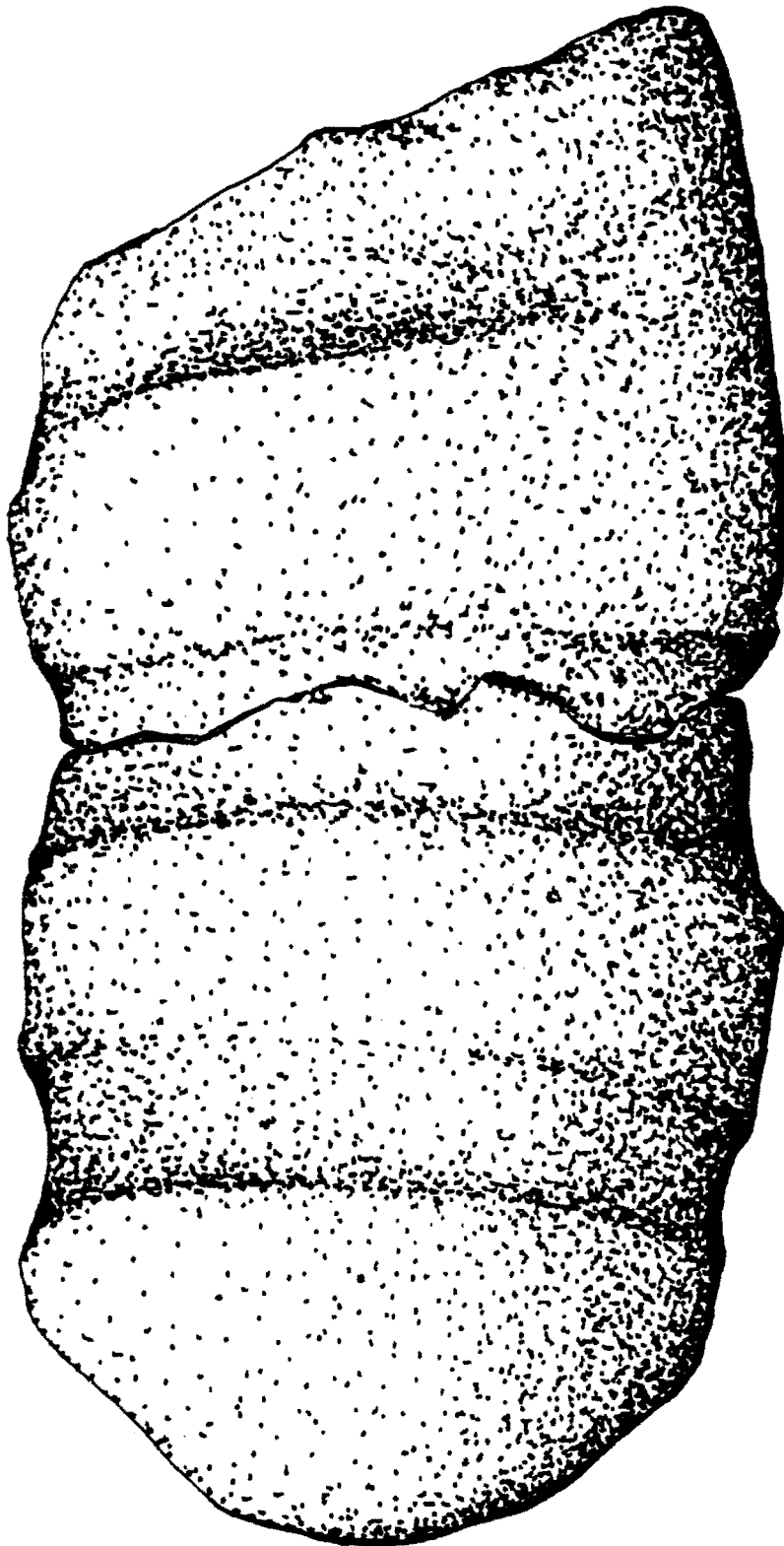


Figure 9. Girdled Cobble from CA-SCL-680.



small drainage and North Fork Pacheco Creek. The site was elevated above the streams and may have been left at this height after the streams cut their channels deeply around it. Several human bone elements were observed eroding out of the slope of the site and numerous *Olivella* sp. split-punched beads were seen here as well. Half of a large bowl mortar was found and there was a low serpentine boulder with several mortar holes on it. A small leaf-shaped point preform was found and may actually have been a cutting tool instead of a projectile point.

The other remaining sites did not produce any surface diagnostic artifact types but shared the pattern of Franciscan chert debitage scatters, cupule rock art, and BRMs.

Overall, the 8 sites described for this survey appear to reflect related occupations and, given the diversity of artifact types, the presence of human remains, and cupule rock art, resemble semi-sedentary habitations. It should also be mentioned that I have reviewed sites farther up North Fork Pacheco Creek in Henry Coe State Park and observed a continuation of the pattern seen at the Andresen Ranch. Parkman (1986) briefly discussed these sites in an article on cupule rock art.

In addition to the investigations conducted by myself, another large ranch was surveyed just south of the Carney ranch (Werner 1984). A survey was conducted of portions of the 25,000 acre John Eade ranch. The survey covered approximately 150 acres and was centered around Laguna Valley which is in the vicinity of Hernandez Reservoir. The average elevation of Laguna Valley ranges from 3,600 to 4,000 feet. A total of 8 sites was recorded, some of which had been identified years earlier. Of these sites, 2 were noted as exhibiting very large well developed middens (SBN-13, Laguna Valley East and SBN-C-271, Laguna Valley West). Numerous flaked stone artifacts were collected from the surface of these sites and described in the report. The report also mentions that artifact collectors have been looting these sites for many years. Quite a number of the flaked stone artifacts collect-

ed from these sites were loaned to the Bureau of Land Management for their review and I have measured and illustrated the diagnostic points from the collection (cf. Table 1, and Figures 3A, 3C, 4A, 4C-4E, 4G-4H, 5A, 5C, and 7D). These sites produced a large number of heavy biface tools, many of which may be pre-forms for large projectile points. All of these are made of Franciscan chert with one exception being a long rounded biface made of basalt. Several of these bifacial knapped cobbles appear to have crushed edges indicating that they may have been used as hand axes or choppers. Most of the other sites consisted of BRMs and lithic scatters.

## PACHECO COMPLEX CHRONOLOGY

Olsen and Payen (1969:41) have commented that the Pacheco Complex was defined only on the basis of typological relationships. Since that time research along the Central California coast has provided dated assemblages with which to compare and refine Olsen and Payen's temporal scheme. Diagnostic artifact types used as temporal markers consist primarily of projectile points and shell beads.

Comparative analysis of recently dated coastal assemblages shows that Olsen and Payen's chronological placement of the Pacheco Complex is generally correct. However, it appears that the complex may have originated earlier and continued later in time than has been proposed. Further, it is possible that the earlier Positas Complex may represent the same socio-economic system as the Pacheco Complex with minor variations in artifact forms. Further definition must await better radiocarbon dated assemblages.

As discussed earlier, many of the point types recovered from the Diablo Range are similar to coastal point forms. As yet only 2 distinctive point forms have been typed for the Monterey Bay area and given temporal meaning. These 2 include the Año Nuevo Long-stemmed and Rossi Square-stemmed (Jones and Hylkema 1988).

The Año Nuevo Long-stemmed type is

characterized by a long tapering stem with the maximum width position greater than 45% of the maximum length, from the end of the base to the tip. Most extend more than 50 mm. in length. Bases are either convex or pointed. This point type was first noted by Gerow (1968), and several were found in direct association with a human burial in San Mateo County (SMA-77). Charcoal from the burial produced a radiocarbon date of  $2,950 \pm 350$  B.P. Many additional specimens have been generated from other coastal sites. They are prevalent in components dated to between 2,800 and 1,000 B.P., are often found in components dated between 4,000 to 2,800 B.P., and are within the time frame of the Pacheco Complex. This point type has a wide distribution throughout Central California coastal sites (Hylkema 1991:94). Año Nuevo Long-stemmed points have been found in the uplands of the Diablo Range (see Figures 4A-4E). Extensive reworking of the blade is common; therefore, the length measurements of these points show considerable variation.

The Rossi Square-stemmed point type is typically large, with an excurvate to triangular shaped blade and a short stem which is square or slightly expanding. Bases are usually flat although some have rounded, partly convex shapes. As with the Año Nuevo Long-stemmed type, extensive reworking of the blade is not unusual which creates a range of lengths. This type often occurs with the Año Nuevo Long-stemmed type. These points have been found in direct association with human burials at several sites on the Monterey peninsula with dates ranging from  $3,270 \pm 90$  to  $4,080 \pm 100$  B.P., and fall within Pacheco Complex times. The Rossi Square-stemmed type is very common to the Diablo Range and several have been illustrated (see Figures 6C-6F).

The barbed contracting-stemmed points found in the Diablo Range are very common to south coastal archaeological sites and extend as far north as San Mateo County, but in smaller numbers (Hylkema 1991:97). Chronological relationships of this point form still need further definition; however, they do co-occur with the Año Nuevo Long-stemmed and Rossi Square-stemmed types

and must be contemporaneous. This point form ranges in size as do the previously described types but, with minor variations, appears to be the dominant point type of the Diablo Range. This type grades into the form described as Little Pico Creek points which are common to coastal sites from Monterey Bay southwards to the Santa Barbara Channel (Jones et al. 1989). Barbed contracting-stemmed forms appear to be coeval with the Pacheco Complex, and several have been illustrated for this paper (see Figures 3A-3C and 4A-4H).

The large expanding-stemmed and wide side-notched forms are more difficult to assign to any given temporal period. Nonetheless, they are not known to occur at dated coastal sites that are more recent than 1,000 years B.P., and their association with better dated point types and forms within the Diablo Range places them within the Pacheco Complex. Two expanding-stemmed points are illustrated in Figures 7A and 7B, while 3 specimens of the wide side-notched form are illustrated in Figures 6C-6E.

Several large leaf shaped chert points were described by Olsen and Payen (1969), and these types were found at MER-94. These were assigned to the earlier Pacheco B Complex but have been found in the uplands in association with other points dated to the Pacheco A Complex. I feel that this form is part of the overall Pacheco Complex and I recognize Mikkelsen and Hildebrandt's (1990:12) comment that they are known Early Period indicators in the Central Valley. These large points have also been found at many sites within the Monterey Bay area and central coast in potentially early contexts (Jones et al. 1989). One of these has been illustrated for this paper (see Figure 6B).

The single large obsidian blade found at SCL-680, from the Casa Diablo obsidian source, yielded a hydration rim reading of 6.7 microns. Researchers in the Monterey Bay area have tentatively correlated obsidian readings to calendrical dates, taking into account several influencing variables such as moisture and temperature (Dietz et al. 1988). Given the proposed range of readings and dates, a 6.7 micron rim reading

from Casa Diablo obsidian corresponds to a date of approximately 4,200 years, and is thus within the Pacheco Complex temporal framework. The diagonal ribbon flaking which covered both opposing blade surfaces is a well-known trait associated with Early Period assemblages of the Central Valley.

Many of the *Olivella* sp. bead types described by Olsen and Payen (1969) have been reevaluated since that time and the existing typological system and temporal settings for them (Gifford 1947) have been revised by Bennyhoff and Hughes (1987). Mikkelsen and Hildebrandt (1990:24) addressed this situation and noted that, given a more recent understanding of the bead types, the Pacheco Complex may continue later in time to approximately 1,000 years B.P. *Olivella* sp. beads attributed to the Pacheco Complex include types L, F3a/F3b, C2, and G2 Bennyhoff and Hughes (1987).

If the Pacheco Complex does indeed continue as late as 1,000 B.P. then it parallels chronological observations for the Monterey Bay area (Jones and Hylkema 1988; Hylkema 1991).

## DISCUSSION

As mentioned earlier, artifact assemblages observed during the surveys and those observed in private collections correlate to Olsen and Payen's (1969) proposed Pacheco Complex. They placed this complex in a temporal setting that ranges from 4,600 to 1,600 B.P. and hypothesized that there was a great deal of similarity with sites from around the Monterey Bay area. This concept was primarily based upon the projectile point forms found at MER-94.

While it is clear that projectile points described in this paper are noted for coastal sites from San Luis Obispo County north to San Mateo County, it is also clear that interior Diablo Range sites frequently reflect the same terrestrial hunting technology. It may well be that the coast and Diablo Range were part of the same socio-economic system, and there was nothing intrusive about the coastal people. Further, it is just as likely that the interior Diablo Range people de-

veloped their economy earlier in time and it spread towards the coast.

The large Rossi square-stemmed, expanding-stemmed, barbed contracting-stemmed, Año Nuevo long-stemmed, and large side-notched points are too big to have functioned as dart tips. Their typically thick, wide necks and stems imply a hafting method that utilized heavy poles for shafts. The only game large enough to warrant such heavy hunting tools were elk and bear. The smaller notched points (not to be confused with Panoche side-notched) and some of the smaller barbed contracting stemmed points were probably dart tips for throwing spears, or atlatls. These may have been used to hunt game smaller than elk and bear, possibly deer and antelope.

The co-occurrence of hard seed milling tools along with acorn processing tools observed in the upland sites corresponds with findings regarding economic pursuits described at coastal sites (Hylkema 1991). The frequency of milling tools in the upland Diablo Range sites suggests an intensive economic focus on acorns during Pacheco Complex times. The association of a well developed hunting technology along with intensive acorn processing presents an interesting relationship that may reflect a pattern of seasonal elk migration to the uplands at a time coinciding with the ripening of acorns. Elk herds, dispersed among the tule marshes of the San Joaquin Valley and Salinas River Valley, likely congregated seasonally in the uplands to browse on shoots and forbs available around the springs, streams, and occasional upland marshes. During the fall when acorns cover the ground below the oak trees both elk and people probably converged. No doubt the elk were also after the acorns and the numerous canyon bottoms provided excellent passages for prehistoric game drives. This pattern of seasonal elk migration and human exploitation was probably repeated all over the coast ranges and accounts for the similarities between the coastal assemblages and the Diablo Range assemblages during Pacheco Complex times.

In order to confirm the above propositions future investigations of the area should try to isolate single component as-

semblages, generate radiocarbon dates, and conduct thorough analysis of recovered faunal remains. I predict that the Pacheco Complex may be older than Olsen and Payen thought and the Positas Complex may actually be part of the same pattern seen in the Pacheco Complex.

Contrary to the belief that the uplands were desolate and lacked well developed prehistoric settlement sites, the presence of numerous human burials and the wide diversity of artifact types indicates that the uplands were intensively settled during Pacheco Complex times. The socio-economic focus of settlement within the uplands developed around big game hunting and the processing of storable vegetal foods. The limited number of late period sites reflects a less intensive reliance upon the uplands during the succeeding Gonzaga and Panoche Complex times.

Ironically, it is likely that there were more people living in the uplands of the Diablo Range thousands of years ago than there are today in modern times.

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