Excavation at a Petroglyph Boulder: Canyon Trail Park, CA-CCO-152

Kathy O'Brien, Donna Gillette, and Roger Kelly

Excavation in a rock-art context has received little consideration. A boulder in a sandy playground in Canyon Trail Park in El Cerrito, Contra Costa County, containing abstract elements including PCNs, cupules, and grooves, provided an opportunity for such a study. The city has accepted a proposal to renovate the site from a sandy playground to a Native American Interpretive Park. In preparation for the implementation, Cal State University, Hayward, Anthropology Department and the Bay Area Rock Art Research Association (BARARA) collaborated on an excavation/recording field school to further investigate and document the cultural prehistory of the site.

CA-CCO-152 is a rock art site located in Canyon Trail Park, a city park in the East Bay city of El Cerrito in the San Francisco Bay Area (Figure 1). Pilling and Meighan first recorded the site on October 26, 1949. Squire filed an Archaeological Feature Record on October 30, 1949, detailing the rock art features on the chlorite schist boulder (which he misidentified as steatite). The most prominent features on the boulder are cupules and pecked curvilinear nucleated petroglyphs (PCNs).

The goals of the project were to recover (1) data pertaining to the rock art elements on the boulder and map the surface; (2) any artifacts related to prehistoric or historic (modern) human activity at the site; and (3) natural materials such as shell, charcoal, or plant remains from occupation levels associated with human modification of the boulder – to date the cultural activities at the site. The team hoped to encounter artifacts such as stone tools, projectile points, charcoal or fire-altered rocks, bones, shells of clams or other shellfish, and plant remains. Recording a detailed stratigraphy of the soil at the site was included in the plans, to aid in both interpreting the site and planning future preservations and conservation activities. Results of fieldwork toward these goals are discussed below.

The project was to provide previously unavailable data about both the boulder and its surroundings. Excavations on the eastern side of the boulder determined that the petroglyphs extend well below modern ground level to a depth of at least 40 cm, and perhaps deeper.

Figure 1: Archaeological sites in the immediate San Francisco Bay Area. Location of Canyon Trail Park, CA-CCo-152, indicated by arrow (from Moratto 1984).

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PROJECT BACKGROUND

Natural Setting

CA-CCO-152 is located at an elevation of approximately 200 feet in the East Bay Hills, overlooking San Francisco Bay, Angel Island, and the Golden Gate. The boulder where the petroglyph elements occur is now located in a playground, which was constructed during 1966-67 after a local resident, Stella Anderson, brought the cultural significance of the boulder to the attention of the city council (Berkeley Gazette, June 24, 1953). The site was altered during construction of the playground. An area around the boulder was leveled and sand brought in to create a play area. This environment has resulted in considerable damage to the features on the boulder due to abrasion of the sand and children playing on it (Daniels 1999).

The area immediately around the playground is covered with non-native ivy. Coast live oaks (*Quercus agrifolia*) grow on the slope south of the boulder. Redwoods (*Sequoia sempervirens*), although native to the region, were planted when the park was established. Little remains of the environment that existed when the petroglyph elements were placed on the boulder. One aspect of the site still largely intact is the magnificent view it affords of the Bay. Researches have noted the probable link between sites chosen by ancient people for petroglyphs, particularly the PCN style noted on this boulder, and the natural features of the locale, including the view-shed (Fentress 1999; Miller 1977).

The site is within the Baxter Creek watershed, and recent attempts to rejuvenate the Pacific chorus frog (*Pseudacris regilla*) population have met with considerable success. The park is now home to the largest known breeding population of the species (Jim McKissock, personal communication, 2004) in the East Bay. This work has restored the small pond located within a few meters of the boulder. Native flora has been reintroduced to the pond area, and the long-term goal is to replace the non-native ivy on the northern and western slopes with native flora.

The slope to the southeast of the boulder is a natural terrain undisturbed by modern development. Native flora including soaproot (*Chlorogalum pomeridianum*), grasses, and edible roots (*Brodiaea*) continue to flourish in this location. The density of the soaproot exceeds that normally encountered and could indicate that the hillside was tended by the indigenous population to encourage growth of this important plant (Jim McKissock, personal communication, 2004). Research indicates that indigenous peoples protected resources and promoted production of desired flora (Levy 1978:491; Margolin 1978:49; Moratto 1984:3).

The pipevine swallowtail butterfly (*Battus philenor*), a rare species, has been observed on the hillside. During the caterpillar stage, this species consumes the leaves of the Dutchman's or California pipeline (*Aristolochia californica*), a native climbing vine found on the natural slope (Jim McKissock, personal communication, 2004). The preservation of the existing natural slope and the restoration of further non-native flora on the remainder of the slope would protect the habitat of these two species and further enhance the location as the site of an interpretive center for the study of local flora, fauna, and early human habitation.

The area around the park consists of neighborhoods constructed from the late 1940s to the 1970s. A steep, paved trail leads east, up the canyon, to the remainder of the park, which lies along Gatto Street. Access to the lower portion of the park where the boulder is located is along a residential street (Conlon Ave) and is marked by a weathered sign set back from the street. Benches are available, but no picnicking or barbequing facilities are situated near the boulder. Present usage of the lower park consists mainly of people passing by, walking their dogs or simply going for a stroll along the paved trail. The play area is largely in disuse, and the equipment is old.

Archaeological Research

The investigation of CCO-152 is only the second known excavation at a Bay Area rock art site, and the findings must be viewed within the broader context of San Francisco Bay Area prehistory. Archaeological survey and excavation in the immediate vicinity of Canyon Trail Park is extremely limited. Although the site was reported in 1949, it has only recently been mentioned in the literature. Hotz-Steenhoven (1986) discussed the petroglyphs and reported that a neighbor recalls a midden upstream, but it was no longer in existence when she visited the site and was not recorded at the Northwest Information Center at Sonoma State University. Fentress (1992) mentions the boulder as a rock art site and corrects the lithography from steatite to chlorite schist. Gillette (1998) includes CA-CCO-152 in her survey of PCN sites. Daniels (1999) completed an extensive survey of the petroglyph elements on the boulder and reports that there are at least 188 cupules, 11 PCNs, and eight bedrock mortars. Thus, it is only within the last two decades that the site has received recognition as part of an important and little-understood rock art tradition in central California and beyond.

Schist, reported variously as green or blue, is abundant in Wildcat Canyon. Heizer and Treganza (1944:338), citing Loud (1924), report that "near the mouth of Wildcat Canyon in the stream bed are greenstone schist boulders, some of them very large. Nearby shellmounds in the vicinity of Richmond and Berkeley yield numerous artifacts made of this material, and there seems little doubt that the Wildcat Canyon float material was the source." Loud (1924: 336-337) postulated, "the larger Stege mound was a manufacturing site for implements of greenstone schist. It is probable that the inhabitants got their material from the mouth of Wildcat cañon, three miles distant…"

A cultural connection between the habitations at the nearby mounds (the Stege mounds are only two miles from CA-CCO-152) and the markings on the boulder is accepted by many researchers. Daniels (1999) speculates on the ritual or sacred nature of the site, although the connection between the local inhabitants encountered by the first Europeans in the region and petroglyph sites is not documented for the immediate Bay Area. Farther north, ethnographic accounts of Pomo baby-rock rituals were recorded into the twentieth century (Loeb 1926; Barrett 1952).

Ethnographic Research

Records kept by the Spanish and ethnographic accounts gathered in the nineteenth and twentieth centuries allow archaeologists to reconstruct with some certainty the areas in which various languages were spoken in Central California at the time of contact. A map drawn from this data (Figure 2A) indicates that CA-CCO-152 was in territory occupied by speakers of Costanoan (Ohlone), but that contact with Coast Miwok, Bay Miwok and Patwin speakers would not have been difficult.

We know from both archaeological and ethnographic data (Fagan 2003, Kroeber 1925, Levy 1978, among others) that native peoples' social and political structure was organized around what archaeologists refer to as a triblet, an independent organization that rarely exceeded a few hundred persons. Each triblet had distinct territory and resources, and the people moved from one resource location to the next in seasonal cycles to exploit the abundant resources of the Bay Area. CA-CCO-152 lies within a region that was occupied at the time of Spanish contact by people speaking languages in the Penutian family. The region stretching from Point Sur to the San Francisco Bay Area was home to about 10,000 people who spoke eight to 12 related languages and were organized into triblets of about 250 people. The Huchiun occupied an area in the East Bay along San Francisco and San Pablo bays from the cities of San Pablo and Richmond extending south to North Oakland, perhaps encompassing Emeryville, and east through the East Bay Hills (Figure 2B). Their territory abutted that of the Bay Miwok, another group speaking languages in the Penutian family. Unfortunately, there are no known direct descendents of the Huchiun triblet, but an increasing number of descendents trace their connections to several of the other Costanoan/Ohlone tribelets, as well as the Bay Miwok.

What, if any, cultural affiliation these native peoples have with the petroglyph boulder has not been established. There are no ethnographic accounts of the Costanoan (Ohlone) creating cupules or PCNs. The fact that the boulder was located within Huchiun territory at the time of European arrival does not demonstrate that the Huchiun created the markings. The cupules and PCNs could be the work of ancient peoples for whom we have no ethnographic evidence.

Rock Art

Although rock art recording in North America began in the nineteenth century, rock art research in central California is a relatively new area of investigation. Clewlow (1978:620), in an article for the Handbook of North American Indians, *Volume 8, California*, noted that "no rock art data are on record for Alameda,…Marin, [19 counties are listed]" and includes Contra Costa among four counties which "have so few sites that they are not amenable to stylistic discussion." This situation has been altered radically in the subsequent two decades. The following paragraph summarizes these developments – though it does not present an exhaustive summary of rock art research in the Bay Area.

In 1974, Hotz (now Hotz-Steenhoven) and Clewlow published a brief article reporting the first known petroglyphs in Marin County. They reported "a series of 90-95 incisions or scratches of elliptical or oval shape" (Hotz and Clewlow 1974:149), and further speculated that other sites existed in Marin County that had gone unrecognized. In 1977, Miller (now Saltzman) identified no fewer than 68 rocks with petroglyphs in the North Coast Ranges of California. Subsequent research included two master's theses presented to California State University, Hayward (Fentress 1992 and Gillette 1998) that specifically identified CA-CCO-152 as a petroglyph site. Daniels (1999) mapped the boulder, summarized the elements visible above the ground surface, and speculated on social activity at rock art sites in a paper presented at the California Indian Conference in 1999.

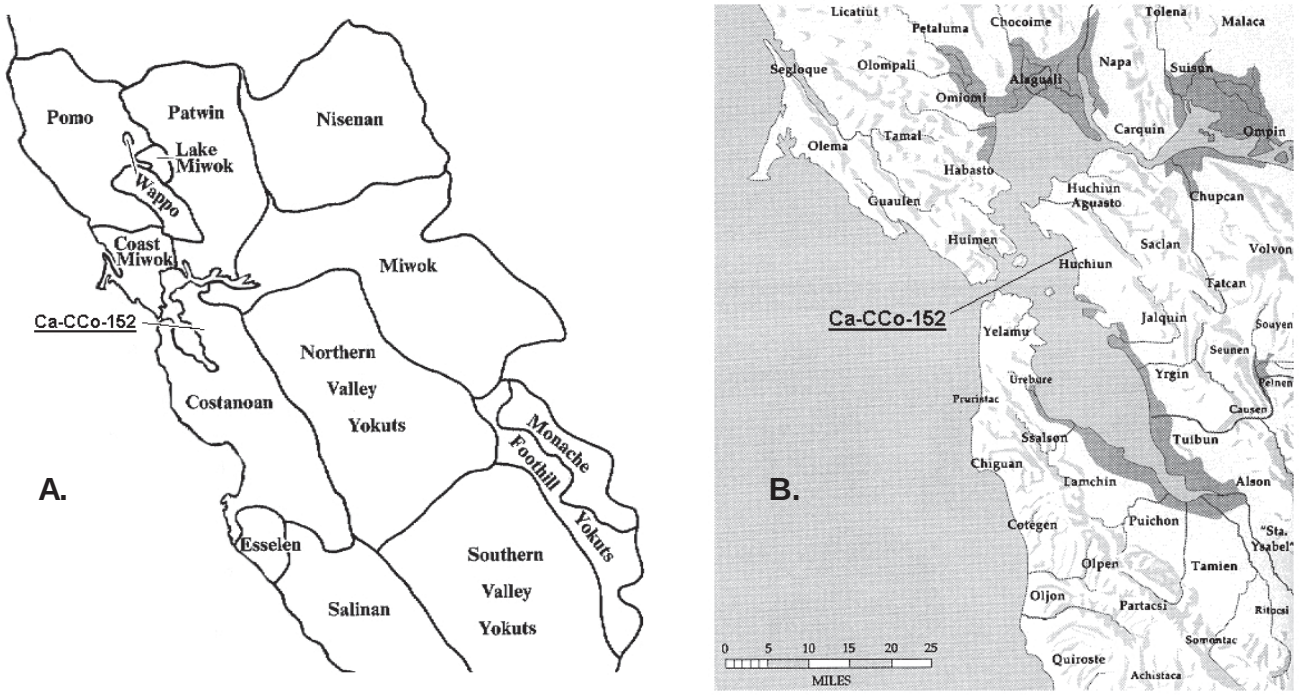


Figure 2: (A) Languages/Tribal areas of the San Francisco Bay Area, and (B) tribelet areas as determined from mission records (from Milliken 1995). Canyon Trail Park, CA-CCo-152, is indicated by the arrow.

Various researchers (Daniels 1999; Fentress 1992; Gillette 1998; Hotz-Steenhoven 1986) have reported on the petroglyph boulder in Canyon Trail Park. All agree that it contains cupules; pecked, curvilinear, nucleated (PCN) elements; and straight grooves. The identification of several of the elements as bedrock mortars (Squire 1949, Fentress1992, and Daniels 1999) seems less certain. Hotz-Steenhoven (1986:181) refers to these elements as "deeply worn conical shapes that seem to be mortars" and "mortar-like holes," indicating some uncertainty. No evidence of food preparation, which would substantiate the use of the holes as mortars, has been found at the site. Other possible uses for the features should be considered.

Heizer and Clewlow (1973) segregated California rock art into five element categories. The 'human' and 'animal' categories were representational, while the 'circle and dot,' 'angular,' and 'curvilinear' categories were assigned to elements that the researchers could not recognize as a representation, however stylized, of a human or animal. Rock art researchers have provided specific names for particular elements. Cupules are small, circular or oval indentations in a rock created by humans (not the result of geological or other environmental factors). Larger depressions used for food preparation are referred to as bedrock mortars (BRMs). As noted by Fentress (1994:70), "the two forms actually represent opposite ends of a size continuum ranging from ca. 2 cm to ca. 20 cm in diameter. At either end of the scale the forms are obviously different; however, in the middle of the range it is often difficult to tell where a cupule ends and a BRM starts." Miller (1977:44) provided the basic definition for pecked curvilinear nucleated (PCN) elements: the basic elements are circles and ovals, which have nuclei, that appear raised. They seldom occur in any discernable pattern. The elements are pecked into the surface of the rock (generally a chlorite schist boulder). The size ranges from 5-15 cm in diameter (exterior measurements), with the nuclei from 2.5-20.5 cm in diameter. The depth of the pecking and the width vary from 0.5-0.6 cm.

Previous researchers noted "PCN-like" circular or oval grooves, horse hoof-print shaped, or similarly described elements in petroglyphs in central California prior to Miller's definition of the style. Julian H. Steward, in his 1929 work, *Petroglyphs of California and Adjoining States*, noted their presence in a number of sites. A site in the southwest corner of Trinity County was identified as having "circles and curves." Another near Willits was described as having "'horse tracks' and Indian signs," while still another near Porter Creek in Sonoma County near Healdsburg was described as having petroglyphs "generally oblong circles or ovals, some of which contain crosses."

Hotz-Steenhoven (1986) noted that many PCNs could be identified from site recordings where the

elements are not mentioned, particularly when photographs of the petroglyphs are included in the site record. She references two Mendicino sites (recorded by Samuel A. Barrett in 1953) where "close examination of Barrett's photographs of the two sites brings to light these oval or circular forms with grooves and cups seemingly superimposed on them" (Hotz-Steenhoven 1986:178). Her visit to the site confirmed the presence of PCNs on the boulders.

The superposition of various petroglyph elements on PCNs is a recurring phenomenon, which leads to the conclusion by various researchers (Gillette 1998, 2003; Miller 1977; Parkman 1993) that PCNs are of considerable antiquity. Nowhere in the research is there a recorded instance of a PCN superimposed on another element such as a cupule, while numerous instances of the reverse position have been reported. However, the Canyon Trail Park boulder does not have cupules superimposed on the PCNs.

Fieldwork Results and Methods

Site Description

In their original recording of CA-CCO-152, Pillings and Meighan (1949) identified four petroglyph rocks. The boulder investigated during this excavation is apparently Feature 1 in the original site report. Feature 2 was located northwest of this boulder (directly between Feature 1 and the intersection of Fern and Cedar Streets), while Features 3 and 4 were located to the west of Cedar Street (but south of the intersection with Fern Street).

Extensive modification has occurred to the site in the modern era, particularly since it was first recorded. The petroglyph boulder is now located in a small children's play area. The site has been leveled and backfilled with sand, and play structures have been installed in poured concrete. No prehistoric artifacts exist on this modified surface area, although local residents frequently encounter artifacts within a one-half-mile radius of the site (Larry Damon, personal communication 2003).

Squire (1949) reported Feature 1 of CCO-152 as measuring "10' 10" [3.3 meters] north-south, 11'6" [3.5 meters] E-W" and "2 to 3 ft. [0.6 to 0.9 meters] above the surface of the ground." Modifications to the site have resulted in a present-day position above the ground of three to four feet, indicating that the ground level has been lowered in recent decades. However, the site report does dispute the claim by a "long-time resident" who reported, "the rock was once almost covered by soil" (Hotz-Steenhoven 1986:182). Local residents told the excavation crew that the boulder was moved from a location up the canyon at the time the park was constructed (Leon McNeeley and Larry Damon, personal communication 2003), an argument not substantiated by either the 1953 Berkeley Gazette article regarding the creation of the park, nor the present condition of the boulder.

Efforts to locate the other three features in the original site report were unsuccessful. Several attempts were made to contact the property owner on Cedar Street where the site sketch indicates Features 3 and 4 are located, but no one answered the door. Donna Gillette (personal communication, 2003) saw at least one of the two features in the mid-1990s in a backyard, which was confirmed in June 2004. The limits of the site for this study were established as the boulder and its immediate surroundings as shown in Figure 3.

The geology of the site is complicated, and only a summary is possible here. Western California is dominated by the San Andreas Fault system, which is the result of the movement between the North America and Pacific plates as the latter moves northwest. The earth in the region—the rocks, minerals, and soils—is

Figure 3: Photograph of Canyon Trail Park with petroglyph boulder at center.

the result of further tectonic forces. The "heterogeneous assemblage of greywacke, shale, altered volcanic rocks, chert, limestone, and peculiar metamorphic rocks" (Bailey et al. 1964:11) is referred to as the Franciscan Assemblage. It is the result of the subduction (movement of a portion of the earth's oceanic crust toward the core which results in increased temperature and pressure) of an ancient oceanic plate and the subsequent movement of the metamorphed materials as the Coastal Ranges thrust upward. CA-CCO-152 lies just west of the Hayward Fault, an active fault extending through the East Bay Hills. The portion of the Franciscan Assemblage to the west of the Hayward Fault is believed to have been formed late in the Cretaceous Period (144 to 65 million years ago) (Bailey et al. 1964).

The boulder lies in a steep ravine, probably buried at one time by a meter or two of alluvial deposits, the upper layers of which have been disturbed in recent times. The matrix surrounding the boulder and underlying the 1960s park construction materials is a local dense, dark clayey deposit. Nearness to a flowing stream may have resulted in episodic alluvium layers around the boulder, but no distinguishable layering was apparent. There were very few small, water-worn pebbles or silts, but some of the schist pieces appeared to be rounded by movement. Cristina Castanha, geologist and Ph.D. candidate at the University of California, Berkeley, visited the site on June 7, 2003 and commented that the soil is "almost certainly Clear Lake Clay (but plausibly Cropley Clay) – both vertisols characterized by monmorillonite clays"(personal communication, June 10, 2003). Determining the age of these soils is difficult. Castanha noted that the soils could be several thousand years old if formed from sandstone, or as young as several hundred years if formed from shale. Her comments indicate that she consulted the geologic map for the Richmond Quadrangle (Thomas Dibble 1980) and that "the side of the creek where the boulder is is mapped as Franciscan greenstone, 'commonly altered to soft chloritic material and highly weathered'" (personal communication, 6/10/2003).

As noted, the boulder has been identified as chlorite schist (Fentress 1992:97). Chlorite schist is a metamorphic rock, which began as shale, a sedimentary rock consisting of clay minerals, and was subjected to low- to intermediate-grade metamorphosis (Skinner and Porter 1987:138). Schists are identified by their coarse-grained texture and tendency to foliate into platy fragments. Chlorite is "a family of sheet silicate minerals, containing magnesium, iron, and aluminum, formed under low-temperature and, generally, low-pressure metamorphic conditions. Chlorite is usually green and has one perfect cleavage" (Wahrhaftig 1984).

Fieldwork Strategy and Methods

As noted in the introduction, the fieldwork had three primary goals:

- To recover data pertaining to the rock art elements on the boulder and map the surface. The current location of the boulder within the confines of a playground has contributed to the erosion of the petroglyph elements due to abrasion caused by children with sandy or gritty shoes, hands, etc., playing on the surface of the rock. A detailed recording of the elements would help preserve the data for future research.

- To excavate artifacts related to prehistoric or historic (modern) human activity at the site. It was hoped that such artifacts, if they were encountered, would assist in building an accurate picture of activities at the site. The presence of food remains, evidence of food-preparation or gathering activities, lithics such as projectile points, or other artifacts, would help in placing the site within the prehistory of the Bay Area.

- To recover materials for use in dating the human activities at the site. Dating petroglyph sites continues to be challenging. Any firm association between an artifact that could be dated (for example, a piece of charcoal that could be dated using radiocarbon chemistry) and the creation of petroglyphs would be a significant contribution to knowledge.

A further objective was to gain an understanding of the stratigraphy of the site, particularly as it relates to how the locale has changed in the last 10,000 years. Since initial human occupation of central California presumably occurred within this period, understanding the geological changes during that time will help to assess the site's appeal to the people who made the petroglyphs.

A grid was established around the boulder (Figure 4) and the site and present structure mapped using a plane table, alidade, and stadia rod. The site datum was established in the eastern corner of the playground and the site baseline extended across the playground at a bearing of 80^0 W of magnetic N. A grid was established at 90^0 angles from the baseline. Due to obstructions (concrete, playground equipment), an irregular grid

Figure 4: Diagram of the site overlay on a diagram of the park construction. Datum line is 29 meters (diagram R. Kelly).

with lines perpendicular to the baseline at 5, 8, 11, 14, 14, 17, 24, and 29 meters from the site datum was established. Units were measured off of these lines. Units were not square because it was necessary to extend or contract them around the petroglyph boulder.

The four units encircling the boulder were excavated in 20-cm levels. The soil was remarkably consistent throughout the site. Cement was encountered in units located near the boulder. It was apparently poured during construction of the park and was observed at depths ranging from 2 cm to 16 cm. Some cement was removed to aid in digging, but many slabs were extensive and could not be removed with hand tools. Excavations to a depth of 67 cm indicated no significant variations in the soil (no visible stratigraphic features), and use of an auger gave similar results, although some possible variation was noted at a depth of 150 cm, where the character of the soil changed from dark brown to brown. Rock of unknown composition halted the auger at 180 cm. Thus, no site stratigraphy was established and no occupation levels encountered during the excavations.

Several shovel test units (STUs) were placed on the western portion of the playground to gain an understanding of the extent of the alluvial deposit. The data gained from STUs around the climbing structure indicated that concrete slabs were poured around the supports to a depth of at least 25 cm. The surrounding soil is an undifferentiated, dense sandy clay with little or no organic matter. An STU near the north retaining wall encountered a similar soil matrix. How much of the soil was removed prior to leveling the area and bringing in sand for the playground could not be determined.

Collection procedures utilized ¼ inch screens for excavation units and shovel test units. Excavated materials were difficult to screen due to the clayey nature of the earth, which clumped in clods of various size. Students were given instructions to examine and recover most rocks in the clay mixture. They were monitored as they hand-excavated, shoveled materials to screens, and processed the matrix. Collected materials were placed in bags that were labeled with site, unit, level, date and collector(s). A student was assigned to maintain a field catalog. Each item was briefly examined, dry-brushed and measured for gross size and a brief description entered in the field catalog.

At the conclusion of the fieldwork, Roger Kelly examined the assemblage. Each provenience bag was sorted by lithology and size seriation followed by visual examination. Procedures included close inspection with 10x and 20x hand-lenses under strong illumination to reveal markings that could possibly be the result of cultural modification.

Findings

Significant progress was made toward project goals. BARARA members, and Christine Gralapp in particular, painstakingly mapped the cultural markings on the boulder, including those revealed below the modern ground surface. Numerous photos, both 35mm and digital, were taken and remain in the BARARA archives for future researchers to access. The archaeology students collected nearly 800 items from the excavated soils. Most of these items (over 90%) were unmodified or natural rocks, but over a dozen have wear marks differing from the rest of the assemblage. Artifacts from the historic/modern era (glass, plastic, and metal), which are most likely from the decades the site served as a playground, were also collected. Unfortunately, the association of the items collected with the petroglyphs on the boulder is unlikely. The identification of the soil as an alluvial deposit, along with the presence of cultural markings below the modern ground surface, leads to the conclusion that items located within the excavated soils could not have been at the site when native people created the markings. Excavations did not reveal any charcoal or other material that could be dated, so the team was not able to determine a date for the petroglyphs (not even a relative date can be postulated at this time). No complete or fragmentary tools of stone, bone, antler, or other material were recovered.

Details of the findings are in the following two sections of this report.

Petroglyph Boulder

Daniels (1999) completed a thorough examination of the cultural markings on the boulder; thus, the dimensions and depth of each marking were not recorded for the present study. Gralapp, BARARA member and a skilled medical illustrator, prepared the drawings in Figure 5. While the drawings serve to illustrate the features currently visible on the boulder, consistent measuring of dimensions and depth over time are the only certain means of monitoring the effects of erosion and other detrimental forces on the petroglyphs.

As mentioned above, cultural markings below the present ground surface were found only on the east side of the boulder. As indicated by the line in Figure 5B, 26 cupules were uncovered in the excavation. If the soil is alluvial deposit, then it seems likely that the markings have been buried for centuries, if not millennia. Dating the alluvial deposit by would provide the most recent possible date for the cultural markings, because they predate the soil deposition.

Artifact Assemblage

In total, 776 items were catalogued from the excavation units and the shovel test units. No obsidian, charcoal, invertebrate shell (fresh or marine), bone, or fire-cracked rock were observed in any unit. Approximately 50 historic/modern artifacts—glass, nails, plastic, concrete, ceramic, and a marble—were recovered. These items are not associated with prehistoric use of the site and were not analyzed in detail. The remainder of the assemblage is lithic (rocks) and will be discussed in greater depth.

Lithics

Almost all of the lithic material—over 700 items—are schist, probably actinolite schist, which is defined as fine- to medium-grained, 'green,' and well foliated (that is, with flat or wavy parallel planes which separate along lamellar or tabular joints), containing visible mica and chlorite flakes. Actinolite is a mineral that gives the dark green hue to the metamorphic schist. Glaucophane is another mineral found in schists but it is very fine-grained, rarely foliated, and of blue or violet hues. There were also several Franciscan mudstone items—metamorphized sandstones—that are commonly associated with schist sources.

The assemblage of schist pieces is composed of two major types: small to very large, blocky, angular, and irregular natural pieces, sometimes with reddish/orange inclusions; and flattish, tabular, thin, and often triangular or polygonal small pieces. Many pieces reflected mica when handled and appeared to be flakes naturally split from larger pieces. However, 16 of the small, tabular pieces appear to be modified in a manner not observed for the other flakes. This group of pieces appeared to have been subjected to a grinding/rubbing motion, leaving the edges a lighter, contrasting color, usually along convex-curved edges. Several modified pieces are similar in appearance (at least as discernible from the photographs in the report) to the worked pieces reported by Fentress (1999) and illustrated in his Plates 3 a and b, 4 a and c, and 6 a, b, and c. The units, depths, and dimensions of the flakes identified as possibly worked or modified appear in Table 1.

The identification of the stones as possibly having been modified raises interesting issues for interpretation of excavation results. If the stones have been modified, and further research with the aid of a lithics expert is necessary to confirm this, then the question arises, who used these tools and when? A

Table 1: Data for possibly "modified" rocks. NA - Data not available or not recorded.

No.	Unit	Depth*	Weight (gm)	Length (cm)	Width (cm)	Thickness (cm)	Comment
1	7	NA	59.1	3.9	3.5	2.6	
2	3	20-40	10.0	2.9	2.3	1.1	
3	3	20-40	22.6	6.3	3.8	0.8	
4	3	20-40	72.6	7.4	4.9	1.6	
5	1	NA	5.9	3.8	1.1	0.9	
6	2	0-35	9.0	3.0	1.6	1.1	
7	7	0-20	8.2	3.9	2.7	0.6	Now two pieces.
8	4	0-20	32.0	4.6	3.1	2.3	
9	4	0-20	38.2	4.5	2.7	2.1	
10	4	40+	21.7	7.7	3.2	0.6	
11	STU 2	0-20	12.4	3.6	2.1	1.2	
12	5&6	0-67	14.3	5.2	2.2	1.0	
13	NA	NA	2.8	3.2	1.4	0.5	
14	2	20-40	1292.7	23	7	4.0	5 cm of wear along convex edge
15	2&7	0-30	19.6	7.0	2.7	1.3	
16	2&7	0-20	5.3	3.2	1.3	0.8	

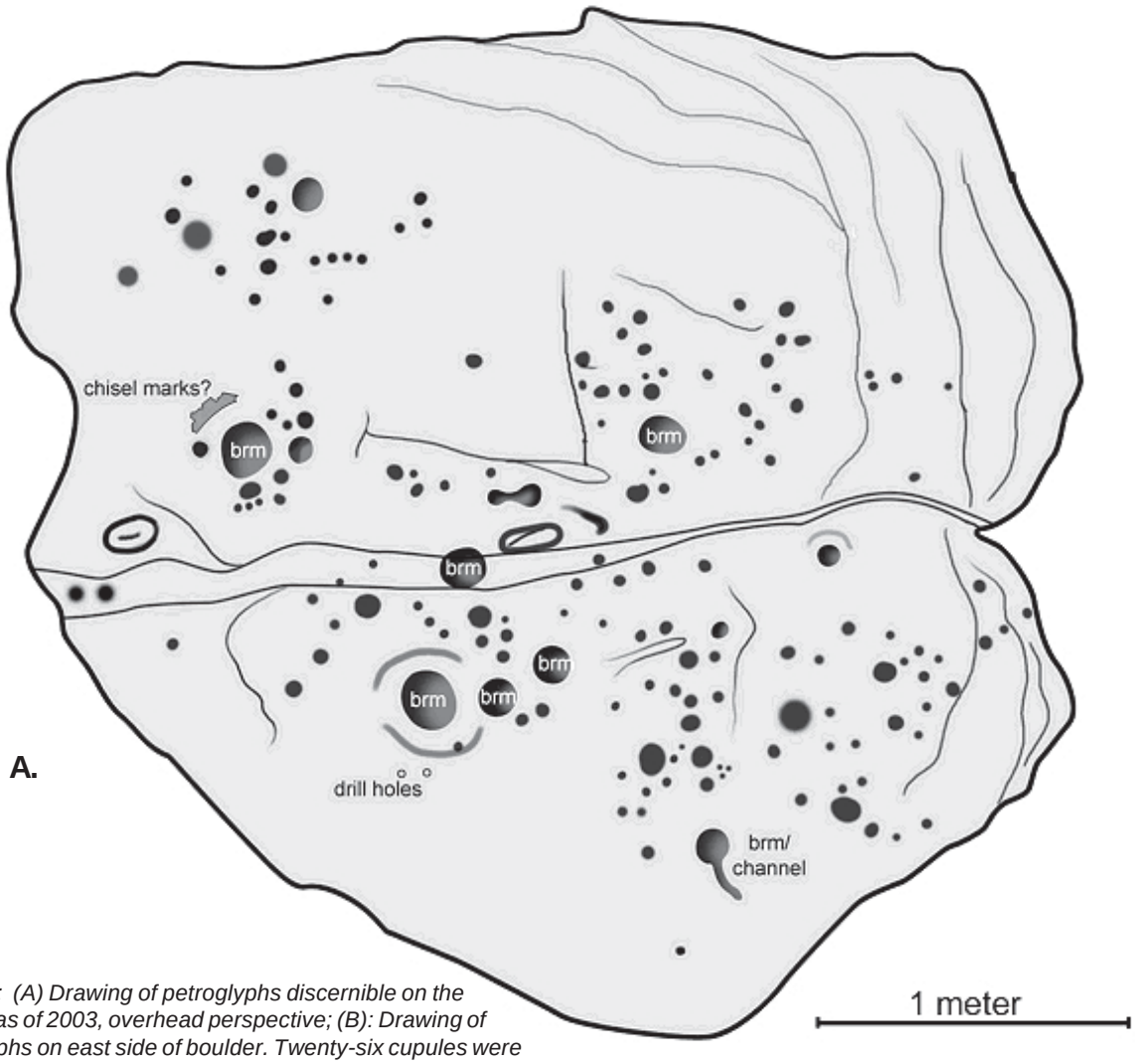
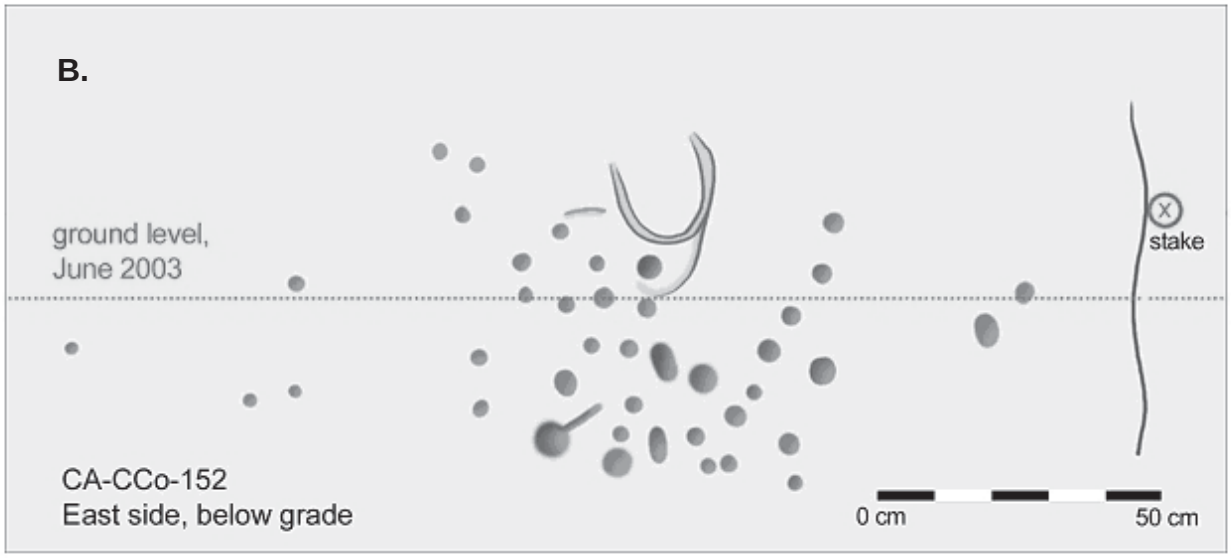


Figure 5: (A) Drawing of petroglyphs discernible on the boulder as of 2003, overhead perspective; (B): Drawing of petroglyphs on east side of boulder. Twenty-six cupules were uncovered below ground level (drawings by C. Gralapp).



better understanding of the alluvial deposit is necessary to clarify the deposition of the soil and thus the relationship of the items recovered from it to the boulder. These questions, and others, are being addressed in continuing research at the site.

CONCLUSIONS

The presence of cupules and PCNs on the exposed surface of the boulder indicates that the site is of ritual importance to native people. The investigation at CA-CCO-152 (Canyon Trail Park) demonstrates that the cultural markings continue below present ground level to a depth in excess of 40 cm. Further research is necessary to determine where the ground surface was (at what depth) when the elements were placed on the boulder. The determination of a date for the placement of the cupules and PCNs is not possible from the data collected during June 2003. The proposed antiquity of the PCNs does not preclude several periods of use and reuse of the boulder by people inhabiting the Bay Area over many centuries. The origin of the site with regard to both time and ethnographic data remains an unanswered question. Comparison of newly revealed elements to those on the exposed surface of the boulder is not possible due to the erosion above the present ground surface.

In conclusion, native people visited the site for religious and spiritual purposes. The boulder must be considered within the natural and cultural landscape. The imposing views of Angel Island, Mt. Tamalpias, and the Golden Gate no doubt attracted people to the site. The large number of markings on the boulder clearly indicates that CA-CCO-152 was well known and revered by the native people of the Bay Area.

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Acknowledgments

This report presents the archaeological investigations conducted at CA-CCO-152 in May and June of 2003. Leigh Marymor, Co-Chairperson of the Bay Area Rock Art Research Association (BARARA), served as the catalyst for the excavation and the Plan for Conservation and Protection of the Canyon Trail Petroglyph Rock and its Environment*. The excavation took place with the cooperation of many people and groups. The Anthropology Department at California State University, Hayward (CSUH), with BARARA, conducted the work under the auspices of the City of El Cerrito, California. Roger Kelly, Adjunct Professor at CSUH and instructor for the field-methods course, was the site lead. The CSUH team included Chimalpahin Arce, Kathleen Bencik, Lori Clanton, Carmen Cuellar, Katherine Fox, Ivah Gentilini, Jason Hahn, Ruben Jimenez, Abrahm Jones, Marianne Klinkowski, Elizabeth Moore, Laura Pellaton, Heidi Schmitt, Jami Shaw, Pauline Stahl, Lucretia Whitener and Kathy O'Brien (Department of Anthropology graduate student assistant); while the BARARA group included Donna Gillette, Christine Gralapp, Leigh Marymor, Richard Swartz, Paul Freeman, Teresa Saltzman, Rentia Ouzman, Arthur Monroe, and others. The Friends of Baxter Creek also played an ongoing role supporting both the research and conservation of the petroglyph boulder.*

The location of the excavation in a city park provided a high level of visibility to the work and encouraged neighborhood involvement. The excavation team provided a table with general information on archaeology as well as site-specific information, an especially appropriate activity given that May is California Archaeology Month. The local press provided coverage, and neighbors stopped by to provide history of the area. Many people offered their assistance, and several were put to work on the spot, including youngsters. Attempts were made to notify the local Native community, but members were unable to attend the excavation. Prof. Beverly Ortiz (CSUH) visited the site and provided a brief lecture on the Costanoan (Ohlone) to the students from CSUH.

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