# *Taller de San José: A Prehistoric Quarry Near San José del Cabo, Baja California Sur, Mexico*

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#### Abstract

Archaeological survey at Taller de San José, Baja California Sur, Mexico was initiated in July and August of 1999, to obtain more comprehensive settlement data for the San José River drainage. The fieldwork produced evidence of an ancient andesite quarry; data analyzed at the study site reflect a limited range of activities associated with lithic procurement and tool processing. The artifact assemblage comprises abundant nodules of grey andesite, one massive stationary boulder-core or anvil, core rejects, hammerstones, and copious debitage. The available data suggest that Taller de San José was visited sporadically by foraging parties or task groups, collecting reduced cores and primary flakes that were rendered into tools and utilized elsewhere.

## Introduction

In the past three decades, the San José River basin has emerged as one of the fastest growing regions of Baja California Sur. Although this vast area, which covers roughly 1,240 square kilometers, is the setting of rapid population growth, its archaeological record and research potential, have, until fairly recently, remained largely overlooked by professional analysts. Only a small fraction of the San José River drainage has been formally surveyed and relatively few sites have been scientifically studied. Fast-paced economic development presents significant challenges to those individuals and institutions who work to preserve the heritage resources of Baja California (Bendímez Patterson 2006). It's safe to say that escalating regional development threatens to destroy archaeological remains that lie in the way of economic prosperity.

Taller de San José was discovered in 1997 by L. Mark Raab, working in conjunction with the Proyecto Registro de Yacimientos de Fósiles y Sitios Arqueológicos de La Cuenca Buena Vista-San José del Cabo, Baja California Sur. Background material on the nature of the site has proven to be of lasting value. The field archaeology survey crew observed a great quantity of artifactual materials related to quarrying and raw-lithic processing. On the basis of visible geological data, which included the ubiquitous outcropping bedrock and poor soil development as observed in road cuts, arroyos, and erosion channels, the cultural deposits at Taller de San José seemed to be shallow in depth or limited to a surface component. Judging from these initial observations, it was decided that future research at Taller de San José would incorporate a program of mapping and surface collecting.

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To digress, the goal of the ambitious Proyecto Registro de Yacimientos de Fósiles y Sitios Arqueológicos de La Cuenca Buena Vista-San José del Cabo, Baja California Sur was to identify and inventory all paleontological and prehistoric archaeological sites within the San José River basin. Recognizing that Baja California Sur's fragile assets of heritage resources are threatened with extinction, Alfonso Rosales-López, Luis Herrera Gil, Fermín Reygadas Dahl, and Gerardo González Barba (2003), working under a permit issued by Mexico's Insituto Nacional de Antropología e Historia (INAH), formulated a long-term strategy to locate, evaluate, manage, and protect the archaeological and paleontological sites that comprise the study zone. As previously mentioned, Taller de San José was identified in the initial phases of this effort, representing one of numerous prehistoric archaeological sites inventoried by this bi-national team of INAH-directed investigators. The thoroughness of their effort provided a firm data base for other researchers, including myself, to work upon. Subsequently, in the summer of 1999, the author was permitted by the INAH to revisit and to undertake a complete survey of the Taller de San José quarry.

Taller de San José was selected for an archaeological reconnaissance for a variety of reasons, not the least of which being that this territory has long been bypassed by archaeologists who have instead concentrated on coastal sites, perhaps because they are threatened with imminent destruction, resulting from development. The specific objectives of the Taller de San José investigation were: (1) Prospection or the search and identification of surface archaeological materials; (2) Detailed description of all data observed in the field; (3) Detection of site structure based on the distribution of visible surface artifacts; (4) Determination of the range of lithic resources used; and (5) Broadening our awareness of the resource acquisition strategies in a region that is nearly unknown in an archaeological sense.

Surface survey and systematic collection at Taller de San José revealed ample evidence of ancient quarry-use, including concentrations of debitage, core rejects, hammerstones, and one massive stationary boulder-core or anvil. No finished chipped-stone tools or biface thinning flakes were observed; likewise, the study site lacked evidence of food processing or food consumption. Nevertheless, certain relevant comments regarding prehistoric lithic acquisition and tool production can be made. Thus, the goal of this paper is to discuss the Taller de San José artifact assemblage from the perspective of resource procurement and reduction strategies within mobile societies. It is assumed that individuals or foraging groups came here to collect andesite macroflakes, transporting them elsewhere for either immediate use or further reduction. Several lines of evidence support this contention: (1) The site offers an abundance of accessible andesite; (2) Signs of quarrying activity are indicated by flake scars omnipresent on outcrops and nodules; (3) The artifact assemblage lacks preform blanks, failed artifacts, finished tools, and thinning flakes; (4) The archaeological record provides evidence of primary flake reduction (e.g., anvil stones, percussors, core rejects, and debitage); and (5) An isolated biface tool, resembling the Taller de San José andesite, was identified roughly 6 kilometers north-northwest of the guarry in a stand of Pitahaya Dulce (Lemaireocereus thurberi) and maguey (Agave capensis and Agave aurea) (Raab, personal communication 1997).

Although quarries have been identified in Baja California Sur (Fujita 2003; Kowta 1968; Massey 1955) and Baja California Norte (Shackley, Hyland, and de la Luz Gutiérrez 1996), to my knowledge, Taller de San José represents the first andesite quarry to be recorded in the southernmost Cape Region (Toohey 2000). It is hoped that data generated by this study will add to a more complete picture of prehistoric quarrying behavior, including resource procurement, and linkages between resource areas and end-use sites.

# Site Description and Geological Setting

Taller de San José is located south of the modern community of Santa Catarina on the up-sloping east side of the Valle de Santiago through which the San José River flows southward (Fig. 1). San José Viejo is located on the west side of the river and the Los Cabos International Airport lies to the northwest. The archaeological site is located at approximately 100 meters above sea level on the west flank of the granitic Sierra de San José (Hammond 1954:47). Taller de San José is situated on the southern margin of the major igneous La Trinidad complex, which was assigned an age of Late Cretaceous-Early Tertiary, based on radiometric dating (Martínez-Gutiérrez and Sethi 1997:143). The La Trinidad complex consists mainly of three major lithologic units: granite, granodiorite, and rhyolite (Martínez-Gutiérrez and Sethi 1997:143). Likewise, the study site overlooks the fossil-rich Refugio or Salada Formation to the north and east (Martínez-Gutiérrez and Sethi 1997:153).

The ancient Taller de San José quarry is about 400 meters E-W by 200 meters N-S, covering approximately 2.35 hectares (Fig. 2). The site is bounded on its north and south by west-flowing intermittent streams, and on the west by a dirt road and modern housing. The east edge of the site extends gently up-slope; significantly, the western half of Taller de San José is dominated by large boulders and vertical outcropping of andesite and







granite, some of which exhibit percussion scars, resulting from free-hand hard-hammer testing and reduction activities.

## Fieldwork

Fieldwork at the Taller de San José was conducted in the summer of 1999 by the author and a crew of students from California State University Northridge (CSUN) and the Universidad Autónoma de Baja California Sur (UABCS) (Toohey 2000). Owing to time and monetary constraints, the team adhered to a series of on-site data collecting and processing guidelines that were outlined by Beck and Jones (1994). This cost-effective approach would not only reduce our need for laboratory time, but it would also obviate any need for significant storage space at the facilities of Centro INAH, La Paz, Baja California Sur.

and the eighth encompassed a cultural feature (Fig. 3). In order to increase the provenience control and accuracy of the surface data, each SDCU was divided into four, one square meter sub-units; the sub-units were assigned alpha-numeric designations in a clockwise fashion, starting with A1 and ending with H4 (Table 1).
The field crew treated each 1 by 1 meter sub-unit as a separate collection station sertion that

A series of eight, two square meter Surface Data

site; seven were chosen in a systematic fashion

Collection Units (SDCUs) were located across the

unit as a separate collection station, sorting the materials into general classes of flakes, cores, hammerstones and tested cobbles (referring to large specimens displaying only one or two flake scars). It is likely that skilled knappers tested the physical properties of the stone (e.g., hardness and texture) by removing one or two flakes. Aggregate debitage, including flakes and angular shatter, was tabulated



for each data collection unit. Concentrations of debitage were analyzed using flake frequency, maximum dimension, and weight as primary data categories. Flake aggregate analysis, also known as mass analysis, considers group characteristics of an archaeological assemblage, such as the size distribution of flake debris as measured on an interval scale. The sheer density of flakes, debitage, and detritus at Taller de San José warranted the implementation of this effective analytical

#### Table 1: Artifact Frequencies.

| SDCU   | Subunit | Flakes | Cores | Hammers | Shatter | Test<br>Cobbles |  |
|--------|---------|--------|-------|---------|---------|-----------------|--|
| А      | A1      | 150    | 0     | 0       | 12      | 0               |  |
| А      | A2      | 291    | 4     | 1       | 17      | 1               |  |
| А      | A3      | 246    | 3     | 1       | 15      | 0               |  |
| А      | A3      | 265    | 0     | 0       | 9       | 0               |  |
| В      | B1      | 88     | 0     | 1       | 15      | 2               |  |
| В      | B2      | 97     | 0     | 0       | 19      | 1               |  |
| В      | B3      | 44     | 0     | 0       | 16      | 0               |  |
| В      | B4      | 46     | 1     | 0       | 5       | 0               |  |
| С      | C1      | 0      | 1     | 0       | 1       | 0               |  |
| С      | C2      | 0      | 0     | 0       | 0       | 0               |  |
| С      | C3      | 0      | 0     | 0       | 0       | 0               |  |
| С      | C4      | 1      | 0     | 0       | 0       | 0               |  |
| D      | D1      | 0      | 0     | 0       | 0       | 0               |  |
| D      | D2      | 0      | 0     | 0       | 0       | 0               |  |
| D      | D3      | 0      | 0     | 0       | 0       | 0               |  |
| D      | D4      | 1      | 0     | 0       | 0       | 0               |  |
| Е      | E1      | 5      | 0     | 0       | 0       | 0               |  |
| Е      | E2      | 3      | 0     | 0       | 0       | 0               |  |
| Е      | E3      | 13     | 0     | 0       | 0       | 0               |  |
| Е      | E4      | 7      | 0     | 0       | 0       | 0               |  |
| F      | F1      | 37     | 0     | 0       | 10      | 2               |  |
| F      | F2      | 7      | 0     | 0       | 0       | 0               |  |
| F      | F3      | 12     | 0     | 0       | 0       | 0               |  |
| F      | F4      | 20     | 1     | 0       | 4       | 3               |  |
| G      | G1      | 1      | 0     | 0       | 0       | 0               |  |
| G      | G2      | 1      | 0     | 0       | 0       | 0               |  |
| G      | G3      | 4      | 0     | 0       | 0       | 0               |  |
| G      | G4      | 1      | 0     | 0       | 0       | 0               |  |
| Н      | H1      | 4      | 0     | 0       | 1       | 0               |  |
| Н      | H2      | 2      | 0     | 0       | 0       | 0               |  |
| Н      | H3      | 6      | 0     | 0       | 0       | 0               |  |
| Н      | H4      | 12     | 0     | 0       | 0       | 0               |  |
| Total: |         | 1364   | 10    | 3       | 124     | 9               |  |

technique of flake analysis (Ahler 1989; Andrefsky 2001; Stahle and Dunn 1982). The debitage class was further refined by the presence (e.g., cortical) or absence (e.g., non-cortical) of cortex. Within each of these two flake categories, all debitage was

size-sorted, using laminated size-graded stencils (size grades were: <1 cm; 1- <2 cm; 2- <3 cm; 3-<4 cm; 4- <5 cm; 5- <10 cm; 10- <15 cm; 15- <20 cm; 20- <25 cm; and  $\geq$ 25 cm). Each size-grade for cortical and non-cortical groups was weighed

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in the aggregate, utilizing a hanging scale and a portable, battery powered electronic scale (cf. Beck and Jones [1994] for a variation of data collection methods). It is noted that stone tools dominate the artifact assemblages of most hunter-gatherer sites, and sundry lithic studies–descriptive, analytical, and geochemical–have become key analytical components in modern archaeological research. In many instances, debitage analyses, the study of the by-products of tool-making, have become as informative, behaviorally, as are studies of stone tool artifacts (Andrefsky, ed. 2001).

#### **Raw Materials**

Four raw materials comprise the Taller de San José lithic assemblage: andesite, granite, white quartz, and porphyry; however, andesite and granite predominate. Two flakes, one quartz and one porphyry, were tabulated. The dominant material, a grey-green andesite, erodes from the loose soil matrix as nodules of less than 40 centimeters maximum dimension. In addition to the loose nodules, a small andesite outcrop was observed near SDCU A. This material was characterized as andesite, utilizing texture, grain size, and color as criteria. Andesite is defined as an aphanitic igneous rock that is relatively fine grained, fractures conchoidally, and also includes a small number of phenocrysts in its matrix, making it porphyritic (Andrefsky 1998:46; Odell 2004:16). Although surface exposures of coarse-grained granite occur over much of Taller de San José, this material was only utilized along the site's northern edge; here we observed a large granitic boulder, approximately 90 centimeters in diameter, exhibiting large flake scars (Fig. 4, SDCU B). The survey team observed additional boulders in this area with flake scars.

#### Artifact Identification

Artifacts noted within the data collection units included hammerstones, cores, an anvil stone, debitage, representing the detached pieces of stone that were discarded during the reduction process, and angular shatter (Table 1). Shatter is defined as the residual lithic material that is produced when flakes are removed. Shatter often exhibits



Fig. 4. View is towards southeast of Surface Collection Unit B. One of several granitic boulders at Taller de San José, exhibiting deep flake scars. Note extensive lithic litter in foreground. The ten-centimeter scale arrow is facing north. Photo taken by Jason Toohey.

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Fig. 5. Oblong Hammerstone.

sharp edges and an angular morphology, lacking flake characteristics, such as feather terminations or a bulb of percussion (Whittaker 1994). Two hammerstone or percussor forms were recorded, one elongated and another discoidal (Fig. 5 and Fig. 6). The disc-shaped hammerstone is smaller than the elongated variant and displays battering along its entire lateral edge, resulting from shaping and lithic reduction activities. As well, several elongated hammers of varying lengths, manufactured from gray-green andesite, were observed at Taller de San José. Typically one end of the elongated percussor exhibits battering. No finished bifacially flaked tools were observed.



Fig. 6. Discoidal Hammerstones.

The study assemblage also comprises multidirectional (amorphous) and unidirectional (platform) cores (Fig. 7 and Fig. 8). Following the guidelines set forth by Andrefsky (1994, 1998), we assigned a numerical score to each core, which is formulated by multiplying the specimen's Maximum Linear Dimension (MLD) by its weight (in grams). This method creates comparable data sets among diverse core morphologies. Data for all recovered cores are presented in Table 2.

Also, modern pottery sherds, representing recent intrusive trash from Santa Catarina households, were observed at SDCUs B, F, and H.



Fig. 7. Multidirectional Core: SDCU A3.

#### Chronology

Little can be said concerning the precise age of Taller de San José. The Taller de San José artifact assemblage comprises non-diagnostic generic flakes, expended cores, and chunks of andesite and granite. Likewise, simple tools such as core rejects and hammerstones cannot be assigned to any particular time period. The artifact assemblage lacks diagnostic specimens that can be cross-dated with other sites or known regional sequences. However, Late Period (ca. AD 1000 and 1700 AD), radiocarbon age determinations from adjacent communities and the absence of Historic debris, such as leather, metal, glazed ceramics, or glass suggest that Taller de San José was utilized between AD 1000 and 1700 AD (Carmean and Molto 1991; Stewart, Molto, and Reimer 1998). The pottery sherds observed in SDCUs B, F, and H are less than 20 years old.

In the future, considerable attention should be put on addressing the issue of chronology. While it is assumed that Taller de San José was utilized during the Late Period, it is plausible to suggest that small,



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| Unit | Number | Specimens | Specimen<br>number    | Length | Width                | Weight (gms) | Flake<br>scars | Core<br>type | Score   |
|------|--------|-----------|-----------------------|--------|----------------------|--------------|----------------|--------------|---------|
| A2   | 4      | 1         | 25.5                  | 11     | 4050                 | 7            | P (5%)         | М            | 103,275 |
|      |        | 2         | 19                    | 14     | 3500                 | 6            | P (40%)        | М            | 66,500  |
|      |        | 3         | 15.5                  | 12     | 1400                 | 14           | A              | М            | 21,700  |
|      |        | 4         | 17.5                  | 16     | 2350                 | 11           | P (5%)         | М            | 41,125  |
| A3   | 3      | 1         | 18                    | 11.5   | 1400                 | 4            | Р              | М            | 25,200  |
|      |        | 2         | 17                    | 15     | 3700                 | 16           | P (5%)         | М            | 62,900  |
|      |        | 3         | 17                    | 14.5   | 1650                 | 7            | A              | М            | 28,050  |
| B4   | 1      | 1         | large granite<br>core |        |                      |              |                |              |         |
| C1   | 1      | 1         | 9                     | 7      | 600                  | 10           | P (2%)         | U            | 5,400   |
| F4   | 1      | 1         | 21                    | 16     | 4650                 | 27           | A              | М            | 97,650  |
|      | 10     |           |                       |        | 23,300 (mean= 2,330) |              |                |              |         |

Table 2. Core data.

mobile groups visited this quarry for thousands of years. However, the lack of radiocarbon dates hampers our efforts to establish a precise temporal sequence for the study site. Additional subsurface testing at Taller de San José would address an array of research questions, such as (1) Is there evidence of utilization prior to AD 1000? (2) Is Taller de San José a multi-period and multicomponent site? (3) Did utilization of Taller de San José coincide with the emergence of the Las Palmas Culture? (4) When did utilization of Taller de San José terminate? (5) Did utilization of the andesite quarry continue into the historic period? Although the basic chronological framework for Baja California Sur already exists (Fujita 2006), there are substantial gaps in the regional sequence that can be refined. It is hoped that future excavations will contribute chronometric data, expanding our information about a site and region of great archaeological promise.

#### Discussion

Our results suggest that Taller de San José functioned exclusively as a lithic quarry. Aside from the absence of habitation debris, Taller de San José lacks evidence for the later stages of tool production, such as preformed blanks and failed artifacts. Not a single finished tool was noted during the course of reconnaissance and site mapping, reinforcing our notion that Taller de San José was a special-purpose extraction site. While some quarries do reflect surviving physical evidence of mining and on-site tool processing (e.g., copious amounts of debitage, flakes, angular shatter, and preform blanks [Bamforth 1992; Heizer and Treganza 1944; Hyland 1997; Hyland and de la Luz Gutiérrez 1995:104; Massey 1955:212; Shackley, Hyland, and de la Luz Gutiérrez 1996]), there are numerous examples, including Taller de San José, that contradict this model. Quarries such as Taller de San José exhibit neither finished tools nor evidence of extensive lithic reduction, suggesting that large primary flakes were transported elsewhere for use and/or further modification (Gould, Koster, and Sontz 1971:161).

Andesite is a tough dense rock that is more suited for pestles, manos, metates, hammers, and scrapers than chert or obsidian, which are flaked into drills, knives, and projectile points. Apparently, large flakes were collected at the study site, but for what purpose? Perhaps the Taller de San José andesite flakes were used to fashion wooden artifacts. Lee G. Massey (1972:25) states,

Baja California's Indians, working with simple tools of stone and bone, created noteworthy artifacts of wood... Two distinctive types of wooden artifacts, the tabla and atlatl, mentioned in ethnographic accounts...are certainly among the more spectacular objects ever created by a people who lacked metal tools.

It is conceivable that andesite was used to process wooden implements by chopping, adzing, sawing, planing, slicing, drilling, incising, or whittling (Lewenstein 1991).

Based on historical accounts, Cape peoples possessed a sophisticated sea-faring technology (Des Lauriers 2005). Historic observers reported Indians in tule balsas and log rafts that were propelled by double-bladed paddles, and fishing with wooden harpoons (Heizer and Massey 1953:295-296, 299-300). English privateer G. Shelvocke noted, "...they go out to sea in their bark-logs, which are only composed of five logs of a light wood, made fast to one another by wooden pegs; on these they venture out rowing with a double paddle" (Heizer and Massey 1953:300). Pericú constructed watercraft from corcho (Erythrina flabelliformis) and cedar (Heizer and Massey 1953:300), which grew in the Bosque de Quercus on the high slopes of the Sierra de la Laguna (Reygadas and Velázquez Ramírez 1983:60). It is plausible to suggest that andesite tools, such as those collected from Taller de San José, were used to fell trees or to aid in the construction of wooden artifacts, such as rafts, paddles, and harpoons. As well, andesite picks or chisels could have been used to extract raw materials such as rhyolite from regional mines.

Hyland and de la Luz Gutiérrez (1995:104) identified andesite picks and hammerstones at the *Valle de Azufre* obsidian mine to the north. Systematic survey of the southern Cape region, locating quarries and special-use sites, may shed additional light on this problem. Petrographic and geochemical analyses of lithic samples from neighboring sites will enable us to identify movement strategies of foraging groups and linkages between quarries and end-use sites.

Nevertheless, andesite tools may have functioned within the broader range of subsistence activities (Binford 1979; Gould and Saggers 1985). The use of heavy lithic flake tools has been documented in harvesting and processing the valuable agave plant on the Baja Peninsula and beyond (Moore 2001, 2006; Parsons and Parsons 1990). Heavy flake-tools have been discovered in association with agave stands and roasting pits in northern Baja California (Moore 2001:41). By analogy, it is plausible to suggest that ancient peoples of the Cape Region used andesite flakes to help remove the fibrous spiny leaves from the agave stalk and/or to aid in the preparation of roasting pits.

#### Social Organization and Group Mobility

The *Pericú* were the ethnic group that inhabited the Cape Region at the time of Spanish contact (Massey 1966; Mathes 1975). Spanish explorers and clerics used the term *ranchería* to describe Pericú communities, which supported up to 200 people. During much of the year, residents of these *rancherías* or base-camps splintered into mobile subsistence units of no more than a few families, foraging the countryside in search of food, firewood, and raw materials to make tools (Aschmann 1959). Variations of Binford's (1980) Collector Model have been proposed by Carmean (1994) and Reygadas and Velázquez Ramírez (1983:96). During periods of population dispersion, specified activity groups would visit "logistical use sites" (Carmean 1994:45), such as Taller of San José. Groups living in this region and familiar with this territory would come here to collect andesite. Based on the absence of midden, we believe that they spent limited amounts of time here before moving on. Brief visits to Taller de San José for the purpose of collecting andesite would have produced ephemeral evidence of food processing or consumption, which was the case at the study site.

The efficacy of bifacial- and core-tool use among hunting and gathering societies has been discussed by Andrefsky (1998:150). According to analysts working in desert environments, one might expect mobile groups to collect large flakes and blanks from mines or quarries, transporting them elsewhere to be further reduced or shaped (Gould, Koster, and Sontz 1971). This procedure enables foraging groups to collect materials that offer greater usable edge area and the potential to work these materials into lightweight, portable, and multifunctional artifacts (Andrefsky 1998:150). Parry and Kelly (1987) demonstrate a clear link between an increasing reliance on bifacial tools and formalized cores as residential mobility increases. It is my contention that mobile logistical activity groups made brief sojourns to Taller de San José, procuring macroflakes from andesite cobbles and bedrock outcroppings. The presence of core rejects, debitage, and shatter supports this assertion.

While surveying the Cañon de San Dionísio, which lies about 50 kilometers to the north of Taller de San José, Carmean (1994) recorded 92 discrete archaeological sites, exhibiting dozens of artifacts manufactured from chert, red rhyolite, quartz, and a "ubiquitous" gray-green rhyolitic material. Of the sites reported, not one andesite tool was inventoried. However, Carmean (1994) observed a number of cores, resembling Old World Paleolithic pebble axes. Carmean (1994:30) states, Although many of these artifacts have a "chopper" form, they are not standardized, and in most cases very few flakes were removed. Judging by gross edge appearance, most cores from all canyon sites were not utilized, and thus these artifacts appear to be flake-producing cores rather than core tools.

The "chopper" form noted above likely was transported to these logistical use sites as large, un-standardized flake blanks, which derived from quarries like Taller de San José. Future work would be directed to identifying tool-processing and consumption sites in the vicinity of Taller de San José.

#### Conclusions

Taller de San José represents a task-specific locality, focusing on the procurement of andesite. The evidence at hand suggests a repeated, perhaps seasonal utilization of the Taller de San José quarry. During periods of population aggregation and dispersion, small logistical groups visited the quarry to obtain large andesite flakes. Large macroflakes would have been minimally shaped at the quarry, yet put to use as tools at other logistical sites, processing the sweet pitaya cactus or to fashion artifacts made of wood.

It is obvious that the Cape Region of Baja California retains great potential for lithic research. Future work should include the systematic identification of quarries and tool processing loci, including a program of source analyses of field-collected specimens. Thin-sectioning and mineralogical studies may help to trace the movement of people, natural resources, and tools throughout the Cape Region. Microscopic use-wear analysis is another productive course of study. According to Lewenstein (1991:242), "woodworking tools can often be identified after consideration of abrasion along the utilized edge, patterns of microflake scars, striations, and to some extent, tool morphology;" woodworking tools exhibit a distinctive microscopic gloss along the margin(s) (ibid.). Continued survey will identify hitherto unknown lithic quarry sites and production loci, facilitating comparisons between acquisition, reduction, and consumption areas.

The feasibility of a large-scale excavation project for the future at Taller de San José has been made evident by the body of archaeological materials revealed by only a relatively brief surface survey of the site. But if this is to be done, it must be done soon, because every day sees more destruction to this and almost every other site in the southern Cape Region, resulting from looting, tourism, urbanization, and population growth.

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# **References Cited**

Ahler, Stanley A.

Mass Analysis of Flaking Debris: Studying the Forest Rather than the Tree. In, *Alternative Approaches to Lithic Analysis*, edited by Donald O. Henry and George H. Odell, pp. 85-118. Archaeological Papers of the American Anthropological Association 1, Washington D. C.

Aschmann, Homer

1959 The Central Desert of Baja California: Demography and Ecology. *Ibero-Americana* 42.

Andrefsky, William Jr.

- 1994 Raw Material Availability and the Organization of Technology. *American Antiquity* 59:21-34.
- 1998 *Lithics: Macroscopic Approaches to Analysis.* Cambridge University Press, Cambridge.
- 2001 Emerging Directions in Debitage Analysis.
   In, *Lithic Debitage: Context, Form, Meaning*, edited by William Andrefsky, Jr.,
   2-14. University of Utah Press, Salt Lake
   City.

Bamforth, Douglas B.

 1992 Quarries in Context: A Regional Perspective on Lithic Procurement. In, Stone Tool Procurement, Production, and Distribution in California Prehistory, edited by Jeanne E. Arnold, pp. 131-150. Institute of Archaeology, University of California, Los Angeles.

Beck, Charlotte and George T. Jones

1994 On-Site Artifact Analysis as an Alternative to Collection. *American Antiquity* 59:304-315.

# Bendímez Patterson, J.

2006 Managing Prehistoric Archaeology. In, *The Prehistory of Baja California: Advances in the Archaeology of the Forgotten Peninsula*, edited by Don Laylander and Jerry D. Moore, pp. 196-201. University Press of Florida, Gainesville.

# Binford, Lewis R.

- 1979 Organization and Formation Processes: Looking at Curated Technologies. *Journal* of Anthropological Research 35:255-273.
- 1980 Willow Smoke and Dog's Tails: Hunter-Gatherer Settlement Systems and Archaeological Site Formation. *American Antiquity* 45:4-20.

# Carmean, Kelli

 1994 Archaeological Investigations in the Cape Region's Cañon de San Dionísio. *Pacific Coast Archaeological Society Quarterly* 30 (1):24-51.

Carmean, Kelli, and J. Eldon Molto

 1991 The Las Palmas Burial Tradition of the Cape Region, Baja California Sur: Some New Research Questions. *Pacific Coast Archaeological Society Quarterly* 27 (4):23-38.

Des Lauriers, Matthew R.

2005 The Watercraft of Isla Cedros, Baja California: Variability and Capabilities of Indigenous Seafaring Technology Along the Pacific Coast of North America. *American Antiquity* 70 (2):342-360.

Fujita, Harumi

2003 Informe de la 9a temporada de campo del Proyecto Identificación y Catalogación de los Sitios Arqueológicos del Área del Cabo, B.C.S. Archivo Técnico del Instituto Nacional de Antropología e Historia. México City.

- 2006 The Cape Region. In, *The Prehistory* of Baja California: Advances in the Archaeology of the Forgotten Peninsula, edited by Don Laylander and Jerry D. Moore, pp. 82-98. University Press of Florida, Gainesville.
- Gould, Richard A., Dorothy A. Koster, and Ann H. L. Sontz
- 1971 The Lithic Assemblage of the Western Desert Aborigines of Australia. *American Antiquity* 36(2):149-169.

Gould, Richard A. and Sherry Saggers

 1985 Lithic Procurement in Central Australia: A Closer Look at Binford's Idea of Embeddedness in Archaeology. *American Antiquity* 50(1):117-136.

Hammond, Edwin H.

1954 A Geomorphic Study of the Cape Region of Baja California. *University of California Publications in Geography* 10 (2):45-112.

Heizer, Robert F., and William C. Massey

1953 Aboriginal navigation of the coasts of upper and Baja California. *Bulletin of the Bureau of American Ethnology* 151:285-312.

Heizer, Robert F., and Adan E. Treganza

1944 Mines and Quarries of the Indians of California. *California Journal of Mines and Geology* 40:291-359.

## Hyland, Justin R.

 1997 Image, Land, and Lineage: Hunter-Gatherer Archaeology in Central Baja California, Mexico. Unpublished Ph.D. Dissertation. Department of Anthropology, University of California Berkeley. Hyland, Justin R., and María de la Luz Gutiérrez

 1995 Valle de Azufre: A New Obsidian Source on Central Baja California. *Pacific Coast Archaeological Society Quarterly* 31(1 & 2):103-111.

# Kowta, Makoto

1968 An Archaeological Survey in the Region of La Paz Bay, Baja California, and Problems of Guaicurian Prehistory. A Preliminary Report to the National Science Foundation, Grant No. GS-1565, Washington D.C.

# Lewenstein, Suzanne M.

 1991 Woodworking Tools at Cerros. In, Maya Stone Tools: Selected Papers from the Second Maya Lithic Conference, edited by Thomas R. Hester and Harry J. Shafer. Monographs in World Archaeology 1:239-249. Prehistory Press, Madison, Wisconsin.

Martínez-Gutiérrez, Genaro, and Parvinder S. Sethi

1997 Miocene-Pleistocene Sediments Within the San José del Cabo Basin, Baja California Sur, Mexico. In, *Pliocene Carbonates* and Related Facies Flanking the Gulf of California, Baja California, Mexico, edited by Markes E. Johnson and Jorge Ledesma-Vázquez, pp. 141-166. Special Paper 318. The Geological Society of America, Inc. Boulder, Colorado.

Massey, Lee G.

 1972 Tabla and Atlatl: Two Unusual Wooden Artifacts from Baja California. *Pacific Coast Archaeological Society Quarterly* 8 (1):25-34.

Massey, William C.

1955 Culture History in the Cape Region of Baja California Sur, Mexico. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Berkeley. 1966 Archaeology and Ethnohistory of Lower California. In, *Handbook of Middle American Indians* 4, Gordon F. Eckholm and Gordon R. Willey (eds.), pp. 38-58. University of Texas Press, Austin.

Mathes, W. Michael

1975 Some new observations relative to the indigenous inhabitants of La Paz, Baja California Sur. *Journal of California Anthropology* 2:180-182.

Moore, Jerry D.

- 2001 Extensive Prehistoric Settlement Systems in Northern Baja California Archaeological Data and Theoretical Implications from the San Quintín El Rosario Region. *Pacific Coast Archaeological Society Quarterly* 37 (4):30-52.
- 2006 The San Quintin-El Rosario Region In, *The Prehistory of Baja California:Advances in the Archaeology of the Forgotten Peninsula*, edited by Don Laylander and Jerry D. Moore, pp.179-195. University Press of Florida, Gainesville.

Odell, George H.

2004 *Lithic Analysis*. Kluwer Academic/Plenum, New York.

Parry, William J. and Robert L. Kelly

1987 Expedient Core Technology and Sedentism. In, *The Organization of Core Technology*, edited by Jay K. Johnson and Carol A. Morrow, pp. 285-304. Westview Press, Boulder.

Parsons, Jeffrey R., and Mary H. Parsons

1990 Maguey Utilization in Highland Central Mexico: An Archaeological Ethnography. Anthropological Papers: Museum of Anthropology, University of Michigan No. 82. Ann Arbor.

- Reygadas Dahl, Fermín, and Guillermo Velázquez Ramírez
- 1983 El Grupo Pericú de Baja California. Ciudad de los Niños, La Paz.
- Rosales-López, Alfonso, Luis Herrera Gil, Fermín Reygadas Dahl, and Gerardo González Barba
- 2003 Informe de Campo del Proyecto Registro de Yacimientos de Fosiles y Sitios Arqueológicos de La Cuenca Buena Vista-San José del Cabo, Baja California Sur. INAH, México.
- Shackley, M. Steven, Justin R. Hyland and María de la Luz Gutiérrez
- 1996 Mass Production and Procurement at Valle del Azufre: A Unique Archaeological Obsidian Source in Baja California Sur. *American Antiquity* 61(4):718-731.

Stahle, David W. and James E. Dunn

1982 An Analysis and Application of the Size Distribution of Waste Flakes from the Manufacture of Bifacial Tools, *World Archaeology* 14:84-97.

- Stewart, Joe D., J. Eldon Molto, and Paula J. Reimer
- 1998 The Chronology of Las Palmas Culture: New Radiocarbon Dates on Non-human Terrestrial Materials from William Massey's Cave Burial Sites. *Pacific Coast Archaeological Society Quarterly* 34(4):1-19.

Toohey, Jason L.

2000 Lithic Acquisition in Hunter-Gatherer Societies: A Case Study from Baja California Sur. Unpublished Masters Thesis. Department of Anthropology, California State University, Northridge.

Whittaker, John C.

1994 *Flintknapping: Making and Understanding Stone Tools*. University of Texas Press, Austin.