

# Defining the Paleopeninsular tradition in Baja California prehistory

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## Abstract

Archaeological and paleoenvironmental records from the Baja California peninsula show a significant difference in cultural patterns before ca. 7000 B.P. Many of these differences can be explained as the result of prehistoric human groups solving problems and exploiting opportunities in their environmental contexts that were different than those in the middle and late Holocene periods. Given this situation, interpreting early (pre-7000 B.P.) peninsular prehistory in terms of ethnohistoric information has significant limitations. Instead of adopting a direct historical approach to the interpretation of early cultural patterns, we argue that the archaeology of Baja California's late Pleistocene-early Holocene period reflects a non-analogous cultural context worthy of formal differentiation. In this paper, we describe two concepts related to the peninsula's early prehistory: Paleopeninsular period and Paleopeninsular tradition. Conceptualization of Baja California's early prehistory in this way allows for the development and application of methods and theoretical perspectives that better allow us to explain differences in the region's late Pleistocene-early Holocene archaeological record.

## Introduction

Archaeologists traditionally distinguish the prehistory of the Baja California peninsula as significantly different from neighboring mainland Mexico, the American southwest, and Alta California. Although the writings of earlier archaeologists underscore some of the unique elements of the region's past (e.g., Arnold 1957, 1984; Aschmann 1952, 1959, 1966; Davis 1968, 1971; Diguët 1895, 1905; Massey 1947, 1949, 1955, 1961a, 1961b, 1966a, 1966b; Massey and Osborne 1961; Rogers 1966; ten Kate 1884), we have only recently begun to see a broader focus on the concept of a peninsular prehistory (Laylander and Moore 2006). One hallmark of this peninsular prehistory is the presence of a rich ethnohistoric documentary record provided mainly by the eighteenth-century writings of Jesuit and Dominican clergy. This record provides a great deal of direct and indirect information on the lifeways of native Baja Californians and is arguably superior in detail and historical breadth to similar writings from its surrounding regions.

Perhaps because archaeologists have this historical resource at their disposal, we have not seen more interest in elucidating the paleoenvironmental context of prehistoric peninsular foragers, nor has there been much admission that the ethnographic record might offer little utility for those times and places where cultural-ecological conditions were unlike the late Holocene period. In addition to a general lack of appreciation that global environmental systems have undergone

significant change through time and that peninsular environments must also have changed significantly from the past to now, we lack a meaningful basis for conceptualizing the nature of past environmental conditions and their change at human scales of space and time. Instead, many archaeologists may have the impression that regional climatic, geomorphic, and biotic systems have not varied to any significant degree throughout prehistory. Knowing the paleoenvironmental history of Baja California is critical, given the close relationship peninsular native groups held with their environments.

By conceptualizing the paleoenvironmental context as static, unchanging and effectively identical to ethnohistoric conditions (which are arguably modern conditions), it might be difficult to convince some that anything but a direct historical approach is needed to interpret Baja California's archaeological past. Perhaps more importantly, by failing to elucidate and integrate information about the peninsula's paleoenvironmental context we can only misunderstand the relationships between past cultural systems and behaviors and environmental attributes. Moreover, in the absence of a contextual perspective on Baja California prehistory, we are not able to ask questions relating to the nature of human-environmental relationships through time, nor can we apply more robust theoretical approaches that consider the particular role of the environment as the source of opportunities and constraints in the lives of foraging peoples.

A tragic reality is that for the majority of the peninsula (south of Ensenada and San Felipe), no indigenous peninsular peoples survive as identifiable social groups. Their descendants are certainly included in the modern populations, but cultural heritage and native traditional knowledge are no longer identifiable south of the still vibrant Paipai, Kiliwa, Cocopa, and Kumeyaay peoples of the northern extremity of the region. This lack of ethnographic research potential has also resulted in an overly homogeneous view of peninsular peoples as well as their particular patterns of ecological and social interaction. Many of the most valuable ethnographic sources have not been translated into English and have limited distribution even in the original Spanish, and as a result, are underutilized by American scholars in the region, and sometimes not accessible to Mexican archaeologists.

This poorly focused and overly generalized image of the peninsula is not limited to the native peoples themselves, but extends into the physical environment as well. The geographic nature of the peninsula in fact supports regionally unique environmental zones and ecosystemic structure. For example, the Baja California peninsula is comprised of two coastlines separated by a central chain of rugged mountains. The presence of the cool Pacific Ocean to the west and the subtropical Sea of Cortez to the east produces radically different species profiles and seasonal availability of resources from coast to coast.

Differences in climate create distinct variability in biomes that change largely along the longitudinal axis, including Californian coastal scrub and sierran coniferous forests in the north, California chaparral and Vizcaíno desert in the peninsula's central region, and cactus thorn forests in the south (Brown 1994). While the physical geography of the peninsula has been altered only little since the late Pleistocene (after ca. 15,000 B.P.), concomitant changes in temperature and precipitation through time caused significant change to occur in the operation of specific geomorphic systems (e.g., lakes, rivers, dune fields, aquifers) (Davis 2006a).

Archaeological, geological, and paleobotanical studies clearly show that humans were living in cultural-ecological contexts significantly different from those present during the middle to late Holocene periods. In order to conceptualize the differences between the early and later aspects of Baja California prehistory, we introduce and define two new terms: Paleopeninsular period and Paleopeninsular tradition.

## Conceptualizing the Paleopeninsular period

Baja California looked very different before 7,000 B.P. than it does today. The Sonoran Desert biome and other locally distinct desert ecosystems that typify today's peninsular environment do not appear in Baja California until the early Holocene, when climatic conditions shifted towards warmer annual temperatures and decreased winter precipitation (Arundel 2002; Cole 1986; Lowe and Brown 1994). In the area of Cataviña, which currently supports extensive cacti, succulents, and xeric tree and shrub species indicative of a peninsular Sonoran Desert biome, fossil packrat middens reveal the presence of more mesic juniper and chaparral brush vegetation between ca. 10,000 and 10,200 B.P. (Van Devender 1990:139).

Studies of packrat midden deposits near the Sierra de San Francisco of Baja California Sur also indicate that climate conditions were much cooler and wetter at  $10,219 \pm 160$  B.P. than today (Rhode 2002). On the basis of paleobotanical studies, Rhode (2002) calculates peninsular temperatures were at least 5-6°C colder in the winter and 2°C colder in the summer, and were accompanied by much stronger winter precipitation during the late Pleistocene period.

Pluvial lakes grew and were maintained in key areas of the Baja California peninsula for thousands of years under this cooler, wetter climatic regime. Studies from the Laguna Seca Chapala basin and the San Felipe basin indicate the presence of extensive freshwater lakes from the late Pleistocene period until their disappearance after ca. 7000 B.P. (Davis 2003; Lozana-García et al. 2002). Hydrologically closed basins are commonplace in many parts of the peninsula due to obstructions created by bedrock faulting, the eruption of geologically recent lava flows and tectonic uplift of oceanic beach ridges created during interstadials and interglacial periods.

Under conditions of higher and more effective precipitation than is seen today, we expect that peninsular hydrology was greatly enhanced, resulting in more abundant groundwater for phreatophytic plants populations, a higher frequency of springs, and more pronounced surficial water flow. As in other areas of North America, these pluvial conditions disappeared in the wake of post-glacial changes to the intertropical convergence zone, northward displacement of the Pacific jet stream and onset of more xeric climatic conditions.

Marine conditions were very different during the Paleopeninsular period. Glaciogenically depressed global sea levels rose rapidly throughout the late Pleistocene to early Holocene from an elevation of 55 m below modern sea level at 12,000 B.P. to elevations more closely approximating modern conditions after 8000 B.P. (Fleming et al. 1998). Within this context of rising sea levels, the geometry of coastal landscapes and islands underwent many changes in coastal morphology (e.g., Des Lauriers 2005), producing an ever-changing range of littoral environments, and served to create islands as some landforms, such as Isla Espíritu Santo, were cut off from the peninsula during the terminal Pleistocene.

In concert with marine transgression, coastal river systems were forced to rapidly aggrade the lower portions of their basins to maintain an equilibrated channel gradient with the ocean. As a result, Paleopeninsular-period estuaries and river systems likely supported very unstable and unpredictable ecosystems that only stabilized after the arrival of modern sea level in the middle Holocene (Davis 2006a).

Extinct Rancholabrean megafauna, including horse (*Equus caballus*), bison (*Bison antiquus*), camel (*Camelops hesternus*), llama (*Hemiauchenia macrocephala*) and mammoth (*Mammuthus columbii*), may have been present during the first half of the Paleopeninsular period. Discoveries of megafauna remains from the Laguna Seca Chapala (Arnold 1957) and Laguna La Guija pluvial lake basins (Ritter et al. 1978) suggest the Paleopeninsular period supported ancient

ecosystems seen elsewhere in the North American far west.

Among the faunal remains recovered from the deposit at the Cerro Pedregoso site on Isla Cedros were numerous fragments of sea turtle carapace and bone (cf. *Carretta carretta*). This notable presence in the assemblage is not duplicated from any later excavated deposits and has not been noted on the surface of any of the 70 additional recorded sites on the island. While sea turtles are still occasionally observed in the waters around Cedros, they are not common and prefer the shallow waters in and around the extensive lagoons of the adjacent mainland. According to both the ethnozoology of the Seri of Sonora (Felger and Moser 1973) and modern biological research, large stands of seagrass (*Zostera marina*) are the preferred feeding habitat for sea turtles in peninsular waters.

Lower sea level would have increased the size of such sea grass stands, especially in the narrow shelf regions around Cedros, which are now at too great a depth to support the fields of *Zostera* that they would have during the Pleistocene-Holocene transition. Further support for this paleoenvironmental inference is provided by the recovery of clumps of clearly identifiable *Zostera* in the PAIC-44 deposit from all but the uppermost levels. A great deal of change occurred in the terrestrial floral communities during this time of transition, with all of the concomitant changes in the ability of the landscape to support particular species of animals. It seems that the same may have been true for the marine plant life, not because of changing temperatures, but due to highly localized effects of marine transgression and coastal geomorphology. Undoubtedly, as further paleoenvironmental data become available for the peninsula, additional insights into the dynamic, fluctuating stage of opportunities and challenges faced by Paleopeninsular people will emerge.

### **Defining the Paleopeninsular tradition**

Following Willey and Phillips (1958:37), “an archaeological tradition is a (primarily) temporal continuity represented by persistent configurations in single technologies or other systems of related forms.” Our choice to introduce the term Paleopeninsular indicates attention placed on an areal focus that is limited to the Baja California peninsula proper. Thus, the term Paleopeninsular tradition (PPT) includes a select set of technological, subsistence economy and settlement patterns that are combined to form a particular archaeological configuration during a particular time period. In the sections to follow, we will clarify the archaeological manifestation of the Paleopeninsular tradition through discussion of cultural patterns from selected early archaeological sites in Baja California.

We define the PPT from the results of a relatively small number of archaeological excavations in Baja California and Baja California Sur. Information from the Abrigo Parédon, Cueva de La Escorpiones (Gruhn and Bryan 2001), Cerro Pedregoso (Des Lauriers 2005), J69E (Davis 2006b, 2007) and Covacha Babisuri (Fujita 2006) sites form the basis for defining various aspects of the tradition. Data from excavated sites are compared against survey information compiled from dozens of reported and as-yet-unreported surficial sites throughout the peninsula (e.g., Arnold 1957; Ritter 1976; Ritter et al. 1978, 1984).

Discrete archaeological components from the Abrigo Parédon, Cueva de La Escorpiones, Cerro Pedregoso, J69E, and Covacha Babisuri sites are associated radiocarbon dates ranging from 8300 to 10,745 <sup>14</sup>C B.P. and perhaps even as early as 11,380 <sup>14</sup>C B.P., based on a shell date obtained from the surface of J69E (Davis 2007; Fujita and Poyatos 1998). On this basis, the PPT is the oldest defined tradition on the coast of the Californias.

## Characteristics of the Paleopeninsular tradition

Defining a tradition should not be done purely for its own sake. Rather, the definition should be useful, allowing for recognition and appreciation of the cultural and chronological relationships between one pattern and another. With the inherent difficulty of applying the direct historical approach to such remote time periods, we must select carefully the perspective from which we construct this definition.

The utility of approaches emphasizing the interaction between culture and the environment for interpreting cultural patterns among hunting and gathering societies is well established, especially when moderated by a jaundiced eye for biologically deterministic models. By drawing together the characteristics of material culture, settlement pattern, available evidence for economic foci and interaction with the ancient environment, we hope to provide a more useful context for research into the earliest phases of indigenous history in Baja California. At the same time, this will allow Baja Californianists to more effectively engage broader dialogues on the peopling of the New World, and the origins of the earliest regional cultural patterns in North America. For many years, this has been hampered by the need to explicitly identify patterns on the peninsula with those found elsewhere.

As a result, the uniqueness of Baja Californian patterns has not been fully appreciated nor examined in sufficient detail. We define the Paleopeninsular tradition on the basis of the following attributes seen from a limited set of archaeological sites in Baja California and Baja California Sur that bear late Pleistocene to early Holocene-age cultural components. In the sections that follow, we describe the technological, economic and settlement elements of the Paleopeninsular tradition.

## Toolkit organization and composition

Technologically, the PPT includes a generalized set of diverse, highly flexible (*sensu* Bleed 1986; Nelson 1991) tools that can be reproduced from virtually any raw material source of at least marginal quality. Fundamentally, the PPT technological system was based on the production of elegantly simple tools made through the minimal modification of flakes struck from unidirectional, multidirectional, bifacial, and centripetal cores.

PPT foragers placed a high premium on the manufacture of the full range of tool types from locally available tool stones, including cryptocrystalline silicates, fine-grained metavolcanic and metasedimentary materials, and microcrystalline rocks such as orthoquartzite, quartzite, rhyolite, and other igneous lithologies, often resulting in variable reduction trajectories that probably reflect technological constraints imposed by the qualities and morphologies of different raw material types (e.g., centripetal cores are common in areas where raw materials appear in rounded to subrounded cobble form; bifacial cores are seen in areas with tabular dike rock). While the presence of well-manufactured bifaces characterizes the assemblages of both interior and coastal deposits belonging to this tradition, bifaces were not the primary unit of production in most cases. In short, the PPT does not include a true “bifacial” industry that is predicated on the creation and reduction of large bifaces as seen in the Llano-Plano traditions.

Instead, the PPT toolkit was built on a technological foundation of core reduction and flake production. In this manner, macroflakes that were generated from the reduction of lithic cores were subsequently manufactured into a variety of flake tools, stemmed and foliate bifaces, hafted knives and unifaces. The presence of steep-edged, elongate uniface retouched tools (StEURTs), which bear striking resemblance to Paleolithic limaces, may be a signature element and limited only to

PPT assemblages. Modified flakes and flake tools seem more commonplace in coastal regions, possibly due to the proximity to lower-quality raw materials or because of different functional requirements for stone tools (e.g., flake tools used to manufacture organic tools). The presence of centripetal cores, possibly representing the pursuit of a Levallois-like core reduction strategy (cf. Muto 1976), also appears to be part of this tradition. Although seen in the PPT, centripetal core reduction continued on into the Holocene long after other aspects of the lithic toolkit changed.

Coastal PPT assemblages include shell and coral tools, which occur with notable frequency, indicating their consistent role in the technological system. Percussive preparation of unifacial and bifacial edges on robust bivalve shells also indicates a flexible application of lithic tool production techniques into the organic realm. On Isla Espíritu Santo, early PPT components include trimmed and worked central spires of large gastropod shells that may have served as awls or even as pressure flakers. Numerous coral tools were found at J69E and appear to have functioned as tools for abrading, drilling, polishing and otherwise shaping bone and shell items for a lesser-known organic toolkit, which may have formed the basis for the earliest fishing technologies in Baja California and even the New World.

Very few tools or projectile points exhibit evidence of being made from remnants of larger items, as is more common with Llano-Plano traditions. Instead, PPT lithic tools appear to be “made to order” for immediate or anticipated tasks. The density of bifaces broken in production at some of these early sites indicates intensive stone working, with little scavenging or recycling of tool fragments. That the PPT technology was based on a range of raw lithic materials in various forms and qualities may have been purposefully integrated in order to maintain technological efficiency in parallel with local material availability.

Apart from the retention and extensive maintenance of a few formal lithic tools such as the StEURT and bifaces, PPT technological curation appears to have been very limited. Instead, the ability to replicate the PPT toolkit from a range of lithic materials types of varying qualities, as found in different parts of the peninsula, may not have required the creation and use of a curated toolkit. Regardless of the fact that the PPT is associated with a famously stony peninsular environment, the reasons why hunter-gatherers practice technological curation is only partly related to the spatial distribution of requisite raw materials. Continental interior Paleoindians continued to manufacture their technology with transportability, curation and conservation of stone in mind even at major raw material source locations because they were anticipating spending significant parts of the year away from their principal material source locales (e.g., Stanford 2005). No such anticipation is evident in the form of technological curation at Paleopeninsular sites, nor did the widespread distribution of many toolstone sources throughout the peninsula ultimately require this kind of forethought. This geological situation supports an entirely different approach to working stone, allows the development of an entirely different relationship with technology and probably enabled Paleopeninsular peoples to pursue different strategies for interacting with various parts of the regional environment (cf. Kelly 1983).

### **Subsistence economy and settlement patterns**

Faunal remains from PPT components attest to a broad subsistence economy. Terrestrial sites such as Abrigo Parédon in the Laguna Seca Chapala basin reveal early exploitation of rabbits, hares, rodents, artiodactyls, and unidentified bird species. Excavations at site J69E on Isla Espíritu Santo produced hundreds of bones, mainly from marine animals, including sea lion and dolphin, whereas a small proportion appear to represent birds and terrestrial animals such as deer. Analysis

of thousands of marine shells revealed the exploitation of 21 gastropod species and 25 bivalve species. The PPT component at Cerro Pedregoso indicates use of Pacific pinnipeds, sea turtles, a wide range of bony and cartilaginous fishes and mollusk species.

While paleobotanical work is pending, the occupants at Cerro Pedregoso were also transporting significant quantities of seagrass (*Zostera marina*) to the site, which would have been at least 2 km from the coast at the time, indicating intentional transport rather than incidental presence. While terrestrial plants were certainly important in the Paleopeninsular diet, the possibility exists that aquatic plants (both marine and pluvial) were emphasized over upland flora.

Given preliminary data regarding the settlement patterns of PPT groups, PPT settlements appear to have been placed in proximity to the most reliable sources of water in any given area. Early occupants of the Laguna Seca Chapala basin probably used the Abrigo Paredon site because of its close proximity to the paleo-lake Chapala (Davis 2003). Despite the fact that J69E on Isla Espíritu Santo clearly shows marine use, the site was established more than 1 km away from the Sea of Cortez during the time it was occupied, due to the presence of several large *tinajas* that assumably held fresh water during the Paleopeninsular period (Fujita and Poyatos 1998). Given the more mesic conditions of the PPT period, these would not have been the only water sources, but the most consistent and reliable ones.

The pattern observed on Isla Cedros consistently displays this emphasis on water sources, despite the abundance of water sources that remain abundant today, despite much more xeric conditions. The early island sites are found adjacent to larger spring complexes, back from the current coastline by at least 2-3 km, and elevated above the surrounding terrain. This contrasts markedly with all later patterns, which appear to have been influenced by different sets of opportunities and challenges, perhaps resulting from dramatic ecological change following the Early Holocene.

## Conclusions

In this paper, we present two new terms, Paleopeninsular period and Paleopeninsular tradition. The former designates a temporal aspect of Baja California's paleoenvironmental past, which offered different, often non-analogous contextual elements for early foragers. The latter term represents a unifying concept that encompasses the archaeological patterns unique to this time. We require these conceptual distinctions because PPT peoples lived in a different version of the peninsula's environment that dramatically changed during the early Holocene, giving way to the rise of xeric ecosystems readily associated with the cultural ecological context of the ethnohistoric contact period.

Although it cannot be denied that the rich historic texts that describe various aspects of the cultural systems and behaviors of peninsular natives provide a useful comparative benchmark for the archaeological past in general, our growing appreciation of how much the peninsula has changed through time forces us to realize that texts cannot be expected to offer relevant interpretations of human actions in all times, places, and contexts. Ultimately, our intention behind the introduction of this archaeological model is to help frame the methodologies and theoretical approaches most relevant to the study of the earliest Baja Californians.

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