Eric Ritter's Role in the Development of Prehistoric Archaeology in Baja California

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Abstract

Beginning in the 1970s and continuing into the twenty-first century, Eric W. Ritter has played a key role in the emergence of more intensive, systematic, sustained, collaborative, and scientific archaeological studies on the Baja California peninsula. He organized and conducted multiseason fieldwork expeditions to several regions within the central part of the peninsula, including the Bahía Concepción area on the south-central Gulf of California coast, Laguna Seca Chapala and Laguna La Guija in the northern interior of the peninsula's central desert, Bahía de los Ángeles and Bahía las Ánimas on the north-central Gulf coast, and the Vizcaíno lagoons on the west coast. More limited studies took place at several other locations as well. Major foci of Ritter's investigations and innovations have included conducting statistical sample surveys; providing typological classifications of artifacts, features, site types, and cultural patterns; refining the peninsula's prehistoric chronology; analyzing archaeological settlement and subsistence systems; and describing and interpreting the peninsula's diverse rock art.

Introduction

For 250 years observers have been commenting on the Baja California peninsula's prehistoric archaeological record (Laylander 2014). In the early to middle twentieth century, those studies began to take on a more extensive and rigorous character in the work of such professional investigators as Malcolm J. Rogers and William C. Massey (Laylander and Bendímez 2013; Laylander 2015). In the later twentieth century, and continuing to the present, archaeological studies have often become more intensive, and interpretations have become less speculative and more scientific on the part of both Mexican and international investigators. In the emergence of this new research paradigm, Eric Ritter has played a premier role.

Career

Eric William Ritter (1944–present**)** grew up primarily in northern and southern California (Figure 1). His father, Dale W. Ritter, a medical doctor, is an avocational archaeologist with a particular interest in rock art. Father and son traveled throughout western North America visiting rock art sites, and they coauthored several archaeological articles. Eric took an archaeology field class under Fritz Riddell at Chico State College during the summer following his graduation from high school. His interest in Baja California archaeology was begun by a visit with his father to rock art sites in the Mulegé area in 1969, during which they encountered noted San Diego Museum of Man archaeologist Emma Lou Davis.

Initially majoring in geology at the University of Arizona, Ritter earned his A.B. degree in anthropology (1966) and subsequently studied at the University of California, Davis, for his M.A. (1968) and Ph.D. (1979) degrees in that discipline. He joined the California staff of the U.S. Bureau of Land Management (BLM) in Redding, California, in 1974, conducting field and laboratory work and writing, editing, and publishing dozens of studies on the prehistoric and historic archaeology of Alta California and the Great Basin. For years he served as liaison between the BLM and Mexico's Instituto Nacional de Antropología e Historia (INAH) concerning issues relating to archaeological and Native American issues along the California-Baja California border. He also carried

Figure 1. Eric W. Ritter in 2016.

out teaching and research responsibilities at several academic institutions, including Shasta College in Redding, branches of the University of California in Davis, Riverside, and Berkeley, and California State University branches in San Diego and Chico. A BLM colleague described him as "a true pioneer and a great contributor to our knowledge of prehistory … both a mentor and a friend to many of us in Cultural Resource Management" (Russ Kaldenberg, personal communication 2017).

Fieldwork in Baja California

The central portions of the Baja California peninsula have been a focus of Ritter's fieldwork for nearly half a century (Figure 2). Table 1 summarizes the areas of Ritter's substantial investigations and his accounts describing those studies.

Ritter's work has been supported by many individuals and institutions over the years. These have included the numerous members of his field crews, the agencies and individuals who contributed funding, local Baja California residents who offered their hospitality and insights, and INAH, which issued permits for the work, as well as family, friends, and professional colleagues. His studies have often taken on a strongly multidisciplinary character, making use of many collaborators' expertise or special skills in various fields (Table 2).

In addition to his studies of the region's prehistoric archaeology, which are the focus of this article, Ritter has taken part in the examination of historic period sites on the peninsula as a subsidiary effort. Such sites have included burials at the Franciscan-Dominican mission of San Fernando Velicatá (Molto et al. 2012), a probable mission period warehouse foundation at Bahía San Luis Gonzaga (Ritter and Aceves 2006; Ritter 2015b), and artifacts discovered near Laguna Guerrero Negro, some of which were associated with the shipwreck of a sixteenth-century Manila galleon (Breiner et al. 1999; Ritter 2004, 2006a, 2014a, 2014b, 2017).

Ritter has encountered both practical advantages and drawbacks to doing prehistoric archaeology in Baja California, as compared with his work in Alta California. Obstacles have sometimes included the language barrier, bureaucratic hurdles, nationalism, lack of funding, and distance. Pluses for working on the peninsula have included the often-pristine nature of the remains, year-round favorable climate, high surface visibility, and fewer constraints arising from private property ownership or ethnic politics (Ritter, personal communication 2017).

Bahía Concepción

Ritter's initial large-scale fieldwork on the peninsula extended along and inland from the shores of Bahía Concepción, on Baja California Sur's Gulf coast (Figure 3). A dozen or more previous investigators had reported archaeological observations in this region, but none had done so in the depth or sustained manner of Ritter's work.

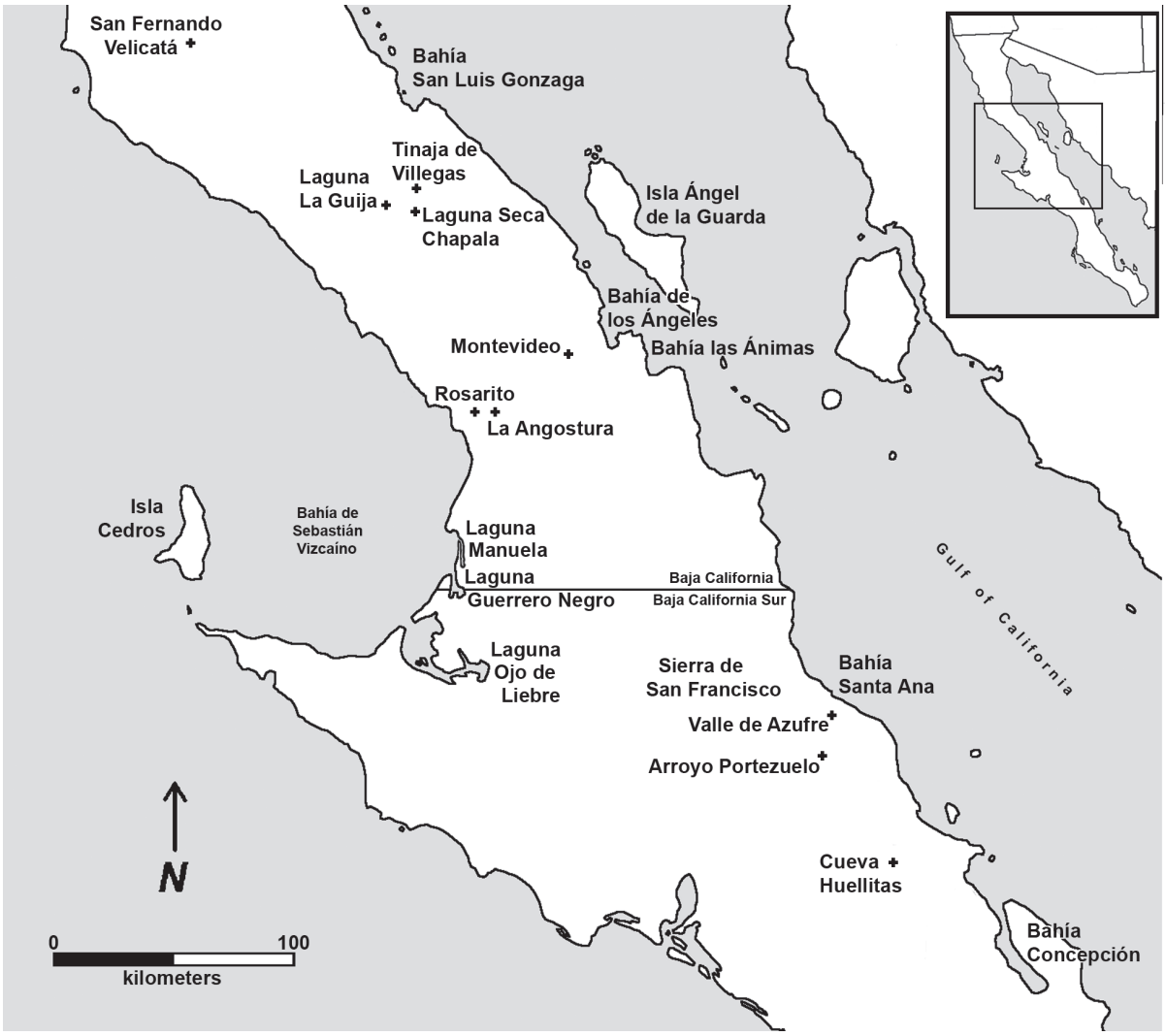

Figure 2. Central Baja California, showing areas of Ritter's investigations.

Four motives prompted his choice of this area: its abundant and relatively undisturbed archaeological remains; its good documentation in ethnohistoric studies; its complex and unusual natural environment; and the logistical challenges of implementing sample survey techniques there (Ritter 1985a:393). His overall objective was to identify "environmental and cultural factors behind the spatial distribution of archaeological sites in the search for variables which might be associated with organizational aspects of cultural systems" (Ritter 1985a:396). The Bahía Concepción investigations were reported in a 608-page doctoral dissertation, as well as in numerous articles that reviewed the general findings or focused on more specific aspects of the region's archaeological record, including rock art, constructed rock features, human burials, a wooden *tabla*, and "spirit sticks."

Ritter's field investigations involved both systematic and intuitive surface surveys, combined with very limited amounts of excavation. The study area extended from the shores of Bahía Concepción inland

Table 1. Areas of Ritter's Significant Prehistoric Field Projects in Baja California.

Region	Periods of Fieldwork	Ritter's Publications and Reports
Major Field Projects		
Bahía Concepción	1968–1973, 1977, 1982–1983, 1985	Ritter 1971, 1974a, 1974b, 1977a, 1979a, 1979c, 1980, 1981, 1984, 1985a, 1986, 1992, 1994a, 2001, 2006b, 2013; Ritter and Schulz 1975; Rector and Ritter 1978; Ritter et al. 1979, 1982, 1989, 2011
Laguna Seca Chapala / Laguna La Guija	1971–1972, 1977, 1980–1981	Ritter 1976, 1991a; Ritter et al. 1978, 1984; Ritter and Aceves 2006
Vizcaíno Lagoons	1979, 1982, 1986, 1997–2005	Ritter and Payen 1992; Ritter and Burcell 1998; Ritter 1999, 2001, 2002a, 2002b, 2003, 2006c, 2009b, 2011, 2012, 2015a; Breiner et al. 1999; Ritter and Aceves 2006
Bahía de los Ángeles	1988, 1993–1997	Ritter 1994b, 1995b, 1997, 1998a, 2001, 2006d, 2008, 2009c; Ritter et al. 1994, 1995, 2011; Bowen et al. 2005; Ritter and Aceves 2006
Other Substantial Investigations		
San José de Magdalena	1972, 1977	Ritter et al. 1979
Arroyo Portezuelo	1991	Ritter 1991c
Sierra de San Francisco	1990–1991	Ritter 1993
La Angostura	2002	Ritter and Aceves 2006; Ritter 2010; Ritter et al. 2011
Bahía San Luis Gonzaga	2005, 2011	Ritter and Aceves 2006
Tinaja de Villegas	2011	Ritter and Correa-Ritter 2013

Table 2. Special Analytical Expertise Used in Ritter's Baja California Projects.

Specialty	Collaborators
Obsidian chemistry and hydration	Paul D. Bouey, Tim Carpenter, Thomas Jackson, Jerome H. King, M. Steven Shackley, Lisa Swillinger
Human remains	Robin M. Cordero, Jerome H. King, J. Eldon Molto, Peter D. Schulz, P. Willey
Faunal remains	Susan Arter, Helen Clough Castillo, Alan Garfinkel, Kenneth W. Gobalet, David Schuldies, Kathleen D. Tyree, Stephen L. Williams
Floral remains	Raleign Lyda, Susan Smith
Pigments	Alan Watchman
Textiles	Jeanette Schulz

to the crest of the adjacent mountains. For sampling and analytical purposes, the area was divided into five zones: littoral, bajada, interior montane and canyon, highland, and ecotone zones. In the initial work, 25 1 km^2 quadrats were systematically and intensively surveyed by an archaeological team that walked transects spaced at 50 m intervals. This was supplemented by additional intuitive or purposive inventory work.

One hundred seventeen sites were recorded in the systematic inventory, while an additional 50 sites were documented in the nonsystematic investigations. Site types included flaked lithic scatters, both with and without milling and other cultural remains; shell mounds and shell scatters; rock shelters, variously with or without midden, milling, rock art, human remains, and other cultural remains; rock art sites; trails; constructed rock features; and lithic quarries. Reported

Figure 3. Bahía Concepción and the Tordillo basin.

artifacts included projectile points and bifaces; other flaked stone tools; cores; milling tools; anvils and hammer stones; stone tubes; wooden, shell, and bone artifacts; and textiles. Features documented during the studies included petroglyphs and pictographs, human burials, numerous rock rings, cleared circles, talus depressions, rock walls, and cairns.

Laguna Seca Chapala and Laguna La Guija

Concurrently with Ritter's more extensive work in the Bahía Concepción area, he and his field associates carried out surface studies in the northern interior of the peninsula's central desert. These investigations focused on the two dry lake basins of Laguna Seca Chapala and Laguna La Guija. Investigations at Laguna Seca Chapala were originally intended for inclusion in his dissertation, but that scope was ultimately narrowed to Bahía Concepción.

Laguna Seca Chapala had long attracted archaeological interest because of its possible association with very early prehistoric sites. Like the better-known dry lake basins in Alta California's Mojave Desert, Laguna Seca Chapala appeared to offer a setting that had received archaeological deposits mainly during cooler, wetter periods, producing a record that was less confused by the palimpsest effect of overlaid materials from subsequent drier times. William C. Massey (1947, 1966a) proposed that the lakeside sites represented an early "Chapala culture," or "Chapala industry," that was comparable in age and character to the San Dieguito or Lake Mojave assemblages in Alta California. In a more intensive study, geographer Brigham Arnold (1957, 1984) asserted that the lake's earliest assemblage belonged to the early Wisconsin glacial phase, dating far back into the late Pleistocene epoch. Rogers (1966) and E. L. Davis (1968) also supported a relatively early dating for the lake and its human settlement, based on the sites' assemblage characteristics.

Ritter's own work at Laguna Seca Chapala in 1971–1972 involved the documentation of 10 "cultural material concentrations," including sites with residential debris, quarry workshops, and "possible hunting/special use locations" (Ritter and Aceves 2006:68). He used his observations of geological stratigraphy and surface archaeological finds within their physiographic contexts to focus on the question of chronology. In addition to a single radiocarbon sample based on soil carbonates taken from a purely geological context, he recovered more than 100 bifaces, scraping planes, cores, and flakes. Additional surface observations included projectile points assigned to the Lake Mojave, Pinto, and Cottonwood

series; milling tools; marine shell, apparently derived from both Pacific coast and Gulf sources; a shell pendant; a quartz crystal; a hearth-like feature; and a boulder alignment.

Ritter stressed that further studies were needed to resolve the issues of Laguna Seca Chapala's chronology and the character of its prehistoric occupations. His interpretations favored Holocene rather than Pleistocene dates for the lake's sites, and this has been generally supported by subsequent research, including Loren Davis's (2003, 2006) more detailed geoarchaeological investigations in the basin and the excavations by Ruth Gruhn and Alan Bryan (2009) at an early Holocene rock shelter.

Laguna La Guija is another dry lake basin, located 10 km northwest of Laguna Seca Chapala (Figure 4). The basin's "virtually undisturbed" archaeology (Ritter et al. 1984:17) was the subject of more intensive investigations by Ritter and his crew. Three to four surveyors were spaced at intervals of 50 m to 75 m to walk transects around the playa's edges and extending out 100 m onto the playa, as well as transects crossing the playa and investigating "adjoining ridges, flow escarpments, canyons, and benches" (Ritter et al. 1984:18). The study was a non-collecting survey, but rough sketches of significant artifacts were made in the field.

Thirty-two sites were documented on or near the margin of Laguna La Guija's playa. They were

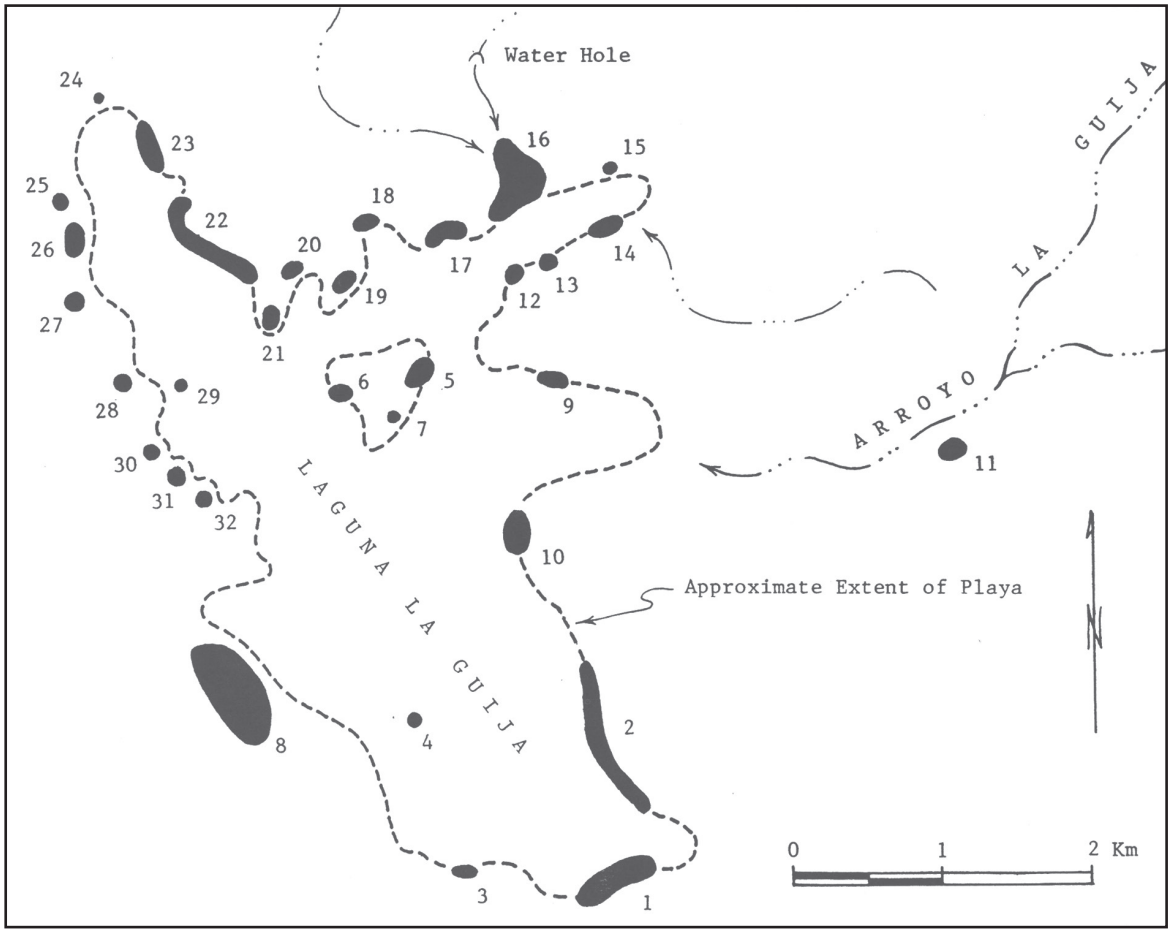

Figure 4. Laguna La Guija.

classified into eight site types: 12 multipurpose sites (also termed "base camps"); five milling stations; three roasting sites; three quarries; three lithic scatters/workshops; two combination roasting/milling sites; two isolated tools; and two "problematical sites." Artifact types included large and small projectile points, bifaces, drills, scrapers, manos, slab metates, an anvil, cores, and flakes, as well as marine shells that had probably been used as tools. Features included midden deposits, milling surfaces on boulders, house rings, inhabited rock shelters, thermal features (concentrations of burnt rock, roasting areas, or ovens), cairns, lithic quarries, and cobble platforms.

The Vizcaíno Lagoons

Large but shallow marine embayments line the eastern shore of Bahía de Sebastián Vizcaíno on Baja California's west coast (Figure 5). The "Three Sisters" lagoons include, from north to south and in increasing size, Laguna Manuela, Laguna Guerrero Negro, and Laguna Ojo de Liebre (also known as Scammon's Lagoon). The first and third lagoons fall respectively within the states of Baja California and Baja California Sur, while Laguna Guerrero Negro is bisected by the boundary between the two states.

The Vizcaíno lagoons were nearly virgin territory for professional archaeology when Ritter began his investigations there in the late 1970s. Oceanographer Carl L. Hubbs and his associates (1962) had noted the presence of extensive but shallow shell midden deposits. Nonprofessional collecting had also occurred, and Ritter was able to analyze some of the materials that were held in local private collections.

At Laguna Ojo de Liebre, the reported fieldwork was limited to three single-day "recreational visits" in 1979, 1982, and 1986, and the work was described as cursory. Nonetheless, formal and informal transects were walked, quantitative data on lithic material types and technology were collected, and artifact sketches were drawn from surface observations of "a light scatter of flaked stone tools and knapping debris" (Ritter and Payen 1992:252). A new Guerrero Negro projectile point series was proposed.

Ritter directed more extensive and intensive investigations along the shorelines of the northern two Vizcaíno lagoons, Laguna Guerrero Negro and Laguna Manuela. This work began with a joint effort by the University of California, Berkeley, and INAH in 1997. In contrast to much of Ritter's work elsewhere, the

Figure 5. Surface collection at Laguna Guerrero Negro site LGN-1.

Vizcaíno lagoons surveys did not involve statistically randomized sampling. The fieldwork included

> systematic inventory at ca. 30-m intervals of five rectangular blocks following the ancient and modern shorelines…. These blocks were spaced out at variable intervals for over 20 km along the eastern shore, generally following known or expected locations of prehistoric coastal use. These blocks are 2 km or less in length and about 0.5 km wide [Ritter 2002a:61–62].

The field crews also made informal examinations of additional areas. The survey program and previous studies identified 54 sites, or "distinct concentrations or clusters of cultural debris … largely surface or near-surface clusters of thousands to millions of shellfish remains, numerous fish and other animal bones, crab carapace parts, artifacts and other cultural debris" (Ritter and Aceves 2006:71).

Surface collections and limited amounts of excavation (usually in the forms of either shallow 2 m square units or circular scrapes) were made to recover representative artifacts and ecofacts. Artifacts identified included milling tools, abraders, ground volcanic stone tubes, hammer stones, projectile points, bifaces, core and flake edge tools, cores and lithic debitage, and bone and shell artifacts.

Bahía de los Ángeles

The deep indentations of the Gulf of California's coast at Bahía de los Ángeles and nearby Bahía las Ánimas to the south, as well as adjacent areas in the peninsula's interior, were another major focus of Ritter's research after 1988 (Figure 6). The focus was originally suggested by INAH's Julia Bendímez Patterson and served as a natural sequel to the work down the coast at Bahía Concepción.

Several archaeological investigators had preceded Ritter in this area. One was the nineteenth-century English naturalist and collector Edward Palmer, who recovered archaeological materials from a burial rock shelter near the bay in 1887 (Massey and Osborne 1961). Hubbs and his colleagues collected and dated radiocarbon samples from the area (Hubbs et al. 1960, 1962, 1965). E. L. Davis (1968) documented several sites at Bahía de los Ángeles. In an INAH project, Bendímez, Miguel Agustín Téllez Duarte, and Jorge Serrano reported on limited excavations at a site within the local community of Bahía de los Ángeles (Bendímez et al. 1993). Later studies that were associated with Ritter's programs were reported in Master's

Figure 6. Recording El Chiste shell mound (UC-BC-18) at Bahía de los Ángeles.

theses by Jerome King (1997) and Patricia Aceves Calderón (2005).

Ritter made an "informal and rudimentary" archaeological reconnaissance at Bahía las Ánimas in 1988. This was followed during 1993–1997 by a cooperative program between the University of California and INAH that included sampling surveys and small-scale excavations, documenting 74 archaeological sites in the vicinity of the two bays. The investigations by Ritter and his associates involved "systematic random inventory of 0.5-by-0.5 km blocks of about one-third of [Bahía de los Ángeles] shorelines, along with intuitive examinations of most of the shoreline of Bahía Las Ánimas and areas within several kilometers of the coast" (Ritter and Aceves 2006:72). Twenty-five sites were documented in the statistical sample, while intuitive inventory work identified another 38 sites. Common site types included coastal shell middens, sites with clearings and piled rock enclosures, residential rock shelters, manufacturing sites (basalt and quartz quarries and workshops), and burial sites, together with less frequent rock cairns, trails, rock art sites, and possible storage caves. Artifacts included lithic cores and flakes, core tools, retouched flakes, bifaces, projectile points, manos and metates, and flaked shell tools.

To the west of Bahía de los Ángeles, the Montevideo rock art site was also a focus of research interest. Ritter's testing of the shallow cultural deposit at that site recovered "domestic refuse, obsidian debitage and a biface from the Isla Ángel de la Guarda source" (Ritter and Aceves 2006:76).

Other Locations

Ritter has carried out or collaborated in more limited investigations at additional locations within the central portions of the Baja California peninsula. Those studies have most frequently focused on rock art sites, but they have also addressed other types of archaeological remains.

In the mountains west of San José de Magdalena, north of Bahía Concepción, Ritter conducted brief reconnaissances in 1972 and 1977. These resulted in the recording of five rock shelter sites with flaked lithic and ground stone artifacts as well as faunal remains and cobble rings. One of the sites, Cueva Huellitas, contained zoomorphic, footprint, and geometrical pictographs.

The Arroyo Portezuelo site lies in the Tres Vírgenes area northeast of San Ignacio. Work there included recording a petroglyph panel with complex curvilinear motifs, observing ground stone and flaked lithic tools at a nearby rock shelter, and chemically analyzing obsidian, which presumably came from the (then unknown) Valle de Azufre source (Ritter 1991c).

Two short visits in 1990 and 1991 were made to two rock art sites in the southern Sierra de San Francisco (Ritter 1993). A site near Rancho San Francisco de la Sierra was relatively small, and its six petroglyph panels and 14 motifs were drawn. The site at Rancho Santa Ana was much more extensive, with an estimated 300 petroglyph panels. At the latter site, 155 panels containing more than 355 motifs were drawn and photographed. Despite their location within the Great Mural zone, almost all the petroglyphs at these sites were abstract or geometric.

La Angostura, a rock art site near Rosarito on the peninsula's western slope, was investigated through a program of survey, excavations in two rock shelters, and rock art documentation. A 1.0-x-0.7 km block was intensively surveyed in transects spaced at 25 m intervals. Detailed documentation of the pictographs and petroglyphs identified 354 motifs on 72 distinct panels. The excavated rock shelter deposits indicated that occupations had occurred "at least in the late Archaic,

likely extending into the [late prehistoric] Comondú period" (Ritter and Aceves 2006:76).

At Bahía San Luis Gonzaga on the Gulf coast, about 120 km north of Bahía de los Ángeles, Ritter began "informal coastal observations … of approximately nine locations spaced irregularly along the bay's shore and the principal island" (Ritter and Aceves 2006:72). He noted contrasts with the settings and the sites that were found at Bahía de los Ángeles.

Ritter and his wife, Elisa Correa-Ritter, reported on the Tinaja de Villegas petroglyph site (also known as Piedra Blanca) and associated sites in an arroyo north of Laguna Seca Chapala. An unpublished study of the area had previously been made in 1973 by avocational archaeologists Velma Pontoni and her associates. Ritter, Correa-Ritter, and their team were only able to spend a few hours in their investigations, which they characterized as "brief and incomplete" (Ritter and Correa-Ritter 2013:179). Nonetheless, they identified 34 rock art panels with 227 distinguishable "motifs," or complexes of elements. They photographed, sketched, or measured some of the panels and documented the frequencies by panel of motifs and petroglyph forms such as rubbed or pecked elements, grooves, and cupules. According to the investigators, "the deeply engraved circular and cupule and grooved/incised line motif complex is very unusual if not unique to the corpus of sites identified so far in the peninsula" (Ritter and Correa-Ritter 2013:188). Artifacts, marine shell, and *tinajas* (natural water tanks) that were possibly associated with the site but lay at some distance away form it were also noted.

Theoretical Contexts

In addition to new field strategies, Ritter imported or developed interpretive concerns that were new in Baja California archaeology. Approaches to the peninsula's prehistory prior to Ritter's work, including the nineteenth-century investigations of Herman ten Kate and Léon Diguet and the early- to middle-twentieth-century studies of Georges Engerrand, Malcolm Rogers, Paul Kirchhoff, and William Massey, can be characterized as culture-historical in approach. The basic interpretive units were cultures and periods, and the researchers' explanations for cultural change tended to focus strongly on migration and cultural diffusion. However, in the 1960s, while Ritter was pursuing his university studies, the "New Archaeology," or "Processual Archaeology," shifted much professional attention toward different approaches to the past, more strongly emphasizing sociocultural complexity, environmental relationships, and internally generated cultural evolution. Although Ritter did not entirely break with the culture-historical paradigm, he was responsible to a considerable degree for introducing the new alternative approach into Baja California archaeology.

Basic to Ritter's strategy was what he variously termed "ecological anthropology," "social ecology," "behavioral ecology," or "cultural ecology" (Ritter 1984:393; Ritter and Aceves 2006:71). The ultimate aim was "eventually building informative, explanatory models regarding such important topics as cultural adaptive processes and social evolution or stasis" (Ritter and Payen 1992:251). This was supplemented by a post-processual "cognitive" approach to rock art and burials (Ritter 1998a:11). Ritter characterized one of his studies as being approached "with a rationalistic, multifaceted, synergistic focus following behavioral/evolutionary/processual tenets merged with cognitive/post-processualist views" (Ritter 2010:150).

More recently, "landscape archaeology" has focused on the socioeconomic and ideological implications of the spatial distributions of archaeological remains and the differences in their natural and cultural settings. Regions are considered holistically, rather than focusing narrowly on individual sites (cf. Ritter 2001:75). For the northern portion of central Baja California, Ritter and Patricia Aceves Calderón (2006) used a

landscape perspective to examine prehistoric land use on the peninsula's east and west coasts, in its interior basins and mountains, and along the predominantly east-west travel routes that linked those areas. Spatial and temporal changes or continuities in the resources offered by this landscape figure prominently in this interpretation of its prehistory.

In one summing up of his anthropological objectives, Ritter wrote:

> While the passing of decades has served to modify the theoretical focus of these archaeological works, the underlying principles and direction have remained much the same. These include the establishment of a workable culture history; the discovery of variability in human occupation and use across the landscape; the elucidation of ecological relationships with respect to culture and culture changes; and the search for the connectedness of ideology and the social, economic and political underpinnings of past human behavior. The approach is rationalistic and a synthesis of sorts of cultural-ecological, evolutionary and cognitive methods seeking to generate models of hunter-gatherer behavior [Ritter 2001:55].

Classifying Artifacts and Features

To report his archaeological finds, Ritter applied a variety of techniques, including verbal description, photography, line drawings, and numerical measurements. In moving beyond the documentation of individual artifacts or features, he had to address the problem of classification. To a large extent he adopted the preexisting categories for artifacts, features, and cultural patterns that had been developed outside the peninsula, in Alta California and the western U.S., as well as ones used within the peninsula by Rogers, Massey, E. L. Davis, and others. In some instances, he faced a thornier issue in either adapting previous classes or supplementing them with new ones.

Ritter applied typologies or descriptive categories to a variety of classes of artifacts including bifaces, flaked lithic edge tools, milling tools, stone tubes, shell artifacts, and textiles, as well as features including rock structures and rock art motifs. The issues of typology have been particularly pertinent to two data sets: projectile points and rock art styles.

Projectile Point Types

The classification of projectile points has long called for special attention due to these artifacts' potential implications concerning chronology and patterns of interregional interaction. Archaeologists in Baja California have employed at least three distinct approaches to the problem: keyed attribute classification, numerical taxonomy, and intuitive typology. Schemes for keyed attribute classification of projectile points were proposed by Massey (1966b) and Laylander (2010) but have generally received relatively little attention or use. Ritter employed both numerical taxonomy and intuitive typology, and in the Vizcaíno lagoons project, he in part applied a modified version of David Hurst Thomas's (1981) attribute key for Great Basin points.

In his dissertation Ritter experimented with the use of statistical analysis to sort the morphological variability of projectile points. About two dozen metrical and non-metrical attributes were recorded for a sample of 90 points from Bahía Concepción sites (excluding small triangular side-notched or serrated points, as well as points lacking modified stems). A dendrogram grouped the points statistically into seven clusters as well as into sub-clusters. However, Ritter intuitively assessed several of the clusters as not being meaningful. He concluded that "it seems clear this computerized technique as used here is not very helpful" (Ritter 1979a:173). Subsequently, Kelli Carmean (1994) used cluster analysis on a combination of metric and

nominal variables to suggest a classification for projectile points recovered in Baja California Sur by Massey.

Classification based on intuitively recognized, named types has been widely employed by archaeologists, including in Baja California by Rogers, Massey, and E. L. Davis, and this has been the approach most frequently adopted by Ritter. Two sorts of projectile point types that were used by Ritter can be distinguished: type designations that were initially proposed elsewhere, in Alta California, the Great Basin, and the American Southwest, and extended to include Baja California specimens, and new types that Ritter designated in Baja California.

Ritter regarded the extension of type designations from outside Baja California to specimens in the central peninsula as problematic, at least in some cases. He applied the term "Clovis point" without needing any qualification. However, point designations of Lake Mojave, Silver Lake, Pinto, and Elko seemed to require some hedging. At Laguna Seca Chapala, Ritter (1991a:18) noted the presence of projectile points "similar to" the Lake Mojave and Silver Lake styles, but he also observed that there was some doubt concerning their typological identity with the original forms in Alta California. "Pinto-like" and "Elko-like" have usually been his preferred terms for those Middle Holocene forms (e.g., Ritter and Aceves 2006:66).

Continuities or discontinuities in the geographical distributions of particular projectile point forms were seen as key issues in their classification, or at least in their designation: "spatially there appears to be a geographic continuity between Baja California and the Great Basin and Southwest with regard to Elko or Elko-like projectile point distribution … the designation of Elko is applied provisionally to some of the points in this sample" from the Vizcaíno lagoons sites (Ritter and Burcell 1998:33). "It is recognized that these Laguna Guerrero Negro/Laguna Manuela points are Elko-like, but also in some cases San Pedro-like … and Pinto-like…. It is still possible that some or all may be distinct types to the peninsula" (Ritter and Burcell 1998:43).

Ritter proposed six additional point types or series that were specific to Baja California (Table 3). In these innovations, he followed precedents set by Massey (1966b; Massey and Osborne 1961) in the latter's designation of Loreto and La Paz forms. While Ritter's newly designated point forms were not necessarily morphologically unique to the peninsula, he evidently considered any connections with other portion of western North America to be tenuous enough to justify the new names. This produced some ambiguities. Notably, the small, triangular Comondú series points seem to be morphologically indistinguishable from Cottonwood triangular, Desert Side-notched, and Dos Cabezas serrated forms in southern Alta California. At Laguna Seca Chapala and Laguna La Guija, Ritter and Aceves (2006:68) themselves labelled such points as Cottonwood and Desert Side-notched, and some other researchers have extended those designations to artifacts from throughout central Baja California (e.g., Serafín 1995).

Several subsequent investigators have followed the lead of Massey and Ritter in proposing new projectile point types in Baja California. These have included Matthew Des Lauriers' (2005) Huamalgüeño type; Rubén García's (2013) La Jolla type; Érika Moranchel's (2014) El Arco, El Zacateco, Roma, and Vallecito types; and Antonio Porcayo's (2014) San Felipe type.

Problems are apparent with the system of intuitive typology implemented by Ritter and others. In the absence of attribute keys, there is no assurance that different researchers will arrive at the same type assignments. As more of the peninsula is explored archaeologically, apparent geographical discontinuities may disappear. Fitting points into simple type categories may hinder the recognition and testing of

Table 3. Baja California Projectile Point Series and Types Proposed by Ritter.

Designation	Description	Defining Location	Period	Published References
Comondú series	Small; triangular; sometimes side-notched or serrated	Throughout central Baja California	Late	Ritter 1979a, 1985a, 2001, 2002a, 2003, 2006b, 2006c, 2006d, 2011, 2012, 2013; Ritter and Burcell 1998
Guajademí split-stem type	Small; corner-notched; concave base	Bahía Concepción	Late	Ritter 1979a, 1979c, 1980, 1985a, 2001, 2002a, 2003, 2006b, 2006c, 2011, 2012; Ritter and Burcell 1998
Zacatecas type	Medium-sized to large; straight sides; broad, straight stem	Bahía Concepción	Middle	Ritter 1979a, 1979c, 1980, 1985a, 2001, 2006b, 2012, 2013
Guerrero Negro series	Large or small; triangular; concave or straight base; possible harpoon tips	Vizcaíno lagoons	Late	Ritter and Payen 1992; Ritter and Burcell 1998; Ritter 2002a, 2003, 2006c, 2011, 2012, 2015a
Manuela contracting-stem type	Small to medium-sized; contracting stem	Vizcaíno lagoons	Late	Ritter 2003, 2006c, 2011, 2012
Vizcaíno type	Large; corner-notched; concave base	Vizcaíno lagoons	–	Ritter 2006c, 2011, 2012

genuine patterns of morphological, geographical, and chronological variation.

Rock Art Styles

Using style designations to characterize and interpret rock art has posed issues similar to those for projectile points. Recognizing intra-peninsular and extra-peninsular links for these features or the absence of such links has been particularly challenging.

Ritter distinguished two major "rock art zones" in the areas of his fieldwork: Northern Baja California Abstract, extending as far south as Bahía de los Ángeles, and Great Murals, from Bahía de los Ángeles south to beyond Bahía Concepción (e.g., Ritter 1991b, 1995a). For him, as for most observers, recognition of the central sierras' large anthropomorphic and zoomorphic paintings as the Great Murals style (Crosby 1975; cf. "Cochimí Representational" in Grant 1974) has been unproblematic, although Ritter suggested that a preferable name might be "Comondú Representational" (Ritter et al. 1982, 1989:60). For the areas near Bahía Concepción, the label of "South-Central Gulf Coast substyle" was suggested, encompassing petroglyphs as well as Great Murals paintings (Ritter 1986:167: Ritter et al. 1989:65). Nonetheless, issues may arise concerning smaller representational images that are found in areas peripheral to the Great Murals' homeland in the central sierra.

The category of Northern Baja California Abstract has been less clear with respect to both its range of forms within the peninsula and its wider relationships (Ritter et al. 2011) (Figure 7). Northern Baja California Abstract replaced Cochimí Abstract as a designation because of the latter's unproven implications concerning the artists' ethnolinguistic identity or identities (Ritter and Correa-Ritter 2013:187).

Ritter suggested that "some of the abstract-geometric rock art of the north peninsula may have relationships with Great Basin and southwestern styles of Archaic times" (Ritter and Aceves 2006:75). Some of the problems and complications in applying style classifications were highlighted in Ritter and Correa-Ritter's discussion of the Tinaja de Villegas petroglyph site:

> The relationship of this general style, tradition or motif complex with the Western Archaic Tradition …, Western Archaic Geocentric Tradition …, or as a variant of the

Figure 7. Pictograph Panel 48 at La Angostura being documented by Linda Baxter.

> California Tradition … is unclear.... [There are] clear complex abstract or geometric representations that fall within the Western Archaic and/or Northern Baja California Abstract styles or traditions.… [There is] a vague resemblance of some of the deep circular and cupule patterns with a style in Alta California designated the Pecked Curvilinear Nucleate.… [It] would appear that the site contains not just one style of presentation but rather several or a number of motif or style complexes, including perhaps the Far Western Pit-and-Groove Tradition.… Overall, the lack of rigidity in north peninsula style classifications makes it difficult, if at all warranted, to assign style categories to this site and perhaps on a broader level to rock art in the north peninsula [Ritter and Correa-Ritter 2013:187–188].

Hinting at his own reservations about the use of such categories, Ritter (1991b:25) observed that "the concept of style or motif complex, while useful, must be examined in the light of group interaction, idiosyncratic representation, functional variation displayed through variable presentations, and temporally overlapping or even multiple cultural use of the same location."

Culture History: Chronology, Identities, and Change

Challenges in elucidating the culture history of Baja California have included establishing a firm, detailed chronological framework, distinguishing cultural identities among the peninsula's prehistoric inhabitants, and detecting long-term patterns of cultural change or stability.

Dating Methods

The clues to regional chronology available to Ritter have been limited, although they are more numerous than those possessed by his predecessors. Evidence has come from radiocarbon dating, obsidian hydration, artifact patination, diagnostic artifact types, and landform settings, among other sources.

Radiocarbon dating has held pride of place in the development of the region's prehistoric chronology. Hundreds of radiocarbon dates for culturally relevant contexts on the peninsula have been reported. Ritter himself collected and reported a small number of radiocarbon measurements (Ritter 1979a, 1997, 2002b, 2008, 2009c, 2010, 2012; Ritter and Schulz 1975; Ritter and Payen 1992; Ritter and Burcell 1998; Ritter

et al. 1995, 2011) and made use of additional dates gathered by others. However, his use of the technique has been relatively modest compared to more extensive dating programs undertaken by his predecessor Carl Hubbs and by his contemporary colleagues Justin Hyland, Harumi Fujita, and Matthew Des Lauriers.

Obsidian hydration studies were first introduced into Baja California archaeology by Clement Meighan (1978), but their most extensive subsequent use has been by Ritter (1979a, 1985a, 1994b, 1995b, 1997, 1998a, 1999, 2002b, 2006c, 2006d, 2008, 2009b, 2009c, 2010, 2011, 2012, 2015a; Ritter and Schulz 1975). Ritter's chronological interpretations of the measurements have generally been impressionistic and expressed in terms of relative ages rather than formal ages expressed in absolute years. With very little data from Baja California at hand, Meighan (1978) suggested a hydration calibration formula based on experiences elsewhere in western North America: $Y = 280\ H$, where Y is the age of the artifact's surface in calendar years before the present and H is the hydration thickness measured in microns. For measurements on unsourced obsidian specimens from Bahía Concepción sites, Ritter (1979a) suggested possible rates of $Y = 300\ H$ and $Y = 500\ H$. An alternative nonlinear rate of $Y = 322\ H^{1.5}$ has also been proposed, based on Ritter's data (Laylander 1987:435–436). Effective use of obsidian hydration for regional chronology building in Baja California remains largely unrealized.

Projectile point types have been the key elements in Ritter's assignments of Baja California sites to general time periods (e.g., Ritter 1979a:400–405). Possible Lake Mojave and Silver Lake points were taken to be diagnostic of the Paleo-Indian period. Within the Archaic period at Bahía Concepción, the Concepción tradition included Pinto, San Pedro, Zacatecas, and perhaps Elko-like points, while the subsequent Coyote tradition included La Paz, Gypsum, Loreto, and Elko-like points. The final prehistoric Comondú culture included Comondú and Guajademí forms. The chronological values assigned to the point forms were evidently derived, at least in part, from better-dated sequences that had been reported elsewhere in western North America.

Other artifact and feature types were also recognized as having limited chronological ranges. However, otherwise-dated site contexts seemed to have provided the ages for the types, rather than the types being used to date the sites.

Dating prehistoric rock art has posed particular challenges. In addition to evidence from associated cultural deposits, Ritter invoked relative or absolute surface alterations (patina, varnish, weathering, erosion) of petroglyph and pictograph elements and the portrayal of chronologically diagnostic artifacts (atlatls or bows and arrows). With Bryan C. Gordon, he implemented a novel approach based on radiocarbon dating of the microstratigraphy of excavated pictograph spalls and splatters at the foot of rock art panels (Ritter et al. 2011).

Culture-Historical Identities

The initial archaeological work in a region has commonly included recognizing named culture-historical units, which have variously been treated as cultures, complexes, patterns, industries, stages, periods, or some ambiguous mixture of the above. The prehistory of Baja California has been characterized in such terms, notably by Rogers (1939, 1945, 1966) and Massey (1947, 1961, 1966a). While Ritter made little or no use of Rogers's San Dieguito and La Jolla units, he fully adopted Massey's concept of the late prehistoric Comondú culture in the central peninsula.

Ritter employed a scheme of three or four periods for the prehistory of central Baja California, with some minor variations in chronology and terminology (Figure 8). The units included a possible Early

Man period dating from the terminal Pleistocene and/or the early Holocene, the Paleo-Indian period, the Archaic period, and the Comondú culture or period. At Bahía Concepción, the Archaic period was subdivided into two or three chronological sections: the earlier Concepción tradition, the later Coyote tradition, and a possible occupational hiatus between the two. Within the late Archaic and Comondú periods, a geographical division was recognized at Bahía Concepción between a Littoral focus on the coast and a Highland focus in the interior. Similarly, at the Vizcaíno lagoons, a late period Guerrero Negro maritime focus was distinguished (Ritter and Aceves 2006:71).

Patterns of Prehistoric Change

The timing and character of the peninsula's earliest occupations have been a major research concern for archaeologists, addressed previously by Rogers and Arnold, among others, and more recently by the ongoing investigations of Des Lauriers on Isla Cedros and Fujita in the Cape region. Ritter considered this issue at Laguna Seca Chapala. He obtained a radiocarbon date of 14,610 ± 270 BP on soil carbonates from a non-cultural geological context. However, he noted the problems with this type of dating and observed that it "gives us an order of magnitude only, i.e. late Pleistocene-early Holocene" (Ritter 1976:42).

Artifacts recovered or observed at sites in the Laguna Seca Chapala basin included more than 40 large elongate and ovate bifaces that were considered characteristic of the elongate-biface assemblage identified by Arnold (1957) as Laguna Seca Chapala's earliest, Pleistocene-age assemblage. Other possibly early artifact types included large convex planes, small scraper planes, anvils, bifaces, broad end scrapers, pointed planes, red pigment, burins, and side scrapers (Ritter 1991a:18). Ritter found that the associations between geological contexts and assemblage characteristics

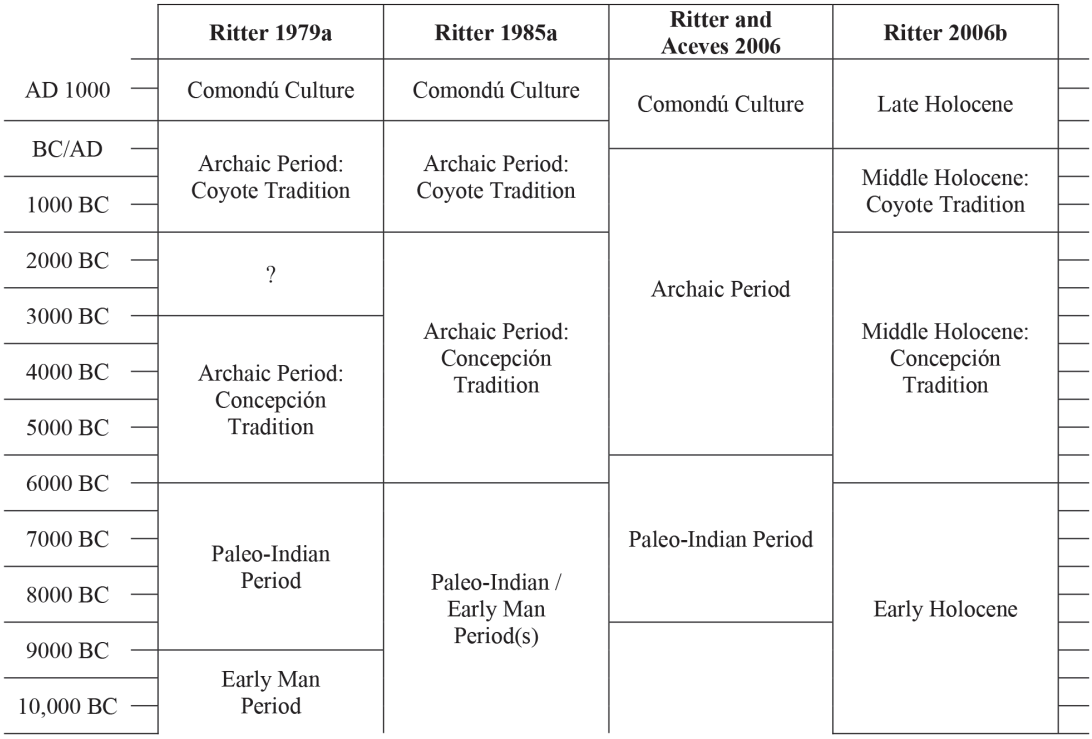

Figure 8. Chronological divisions proposed by Ritter.

were less clear-cut than Arnold had suggested. Observations on relative artifact weathering and patination were also inconclusive because different parts of the assemblages had been subjected to different soil chemistry and degrees of exposure. The issue of the peninsula's earliest inhabitants remained unresolved.

Ritter characterized the "poorly understood" early and middle Holocene periods as a time "when growing, frequently traveling populations practiced generalized hunting, foraging, gathering and fishing" (Ritter 2002c:46). He noted the presence of substantial coastal occupations at Bahía Concepción and Bahía de los Ángeles, but hypothesized that the peninsula's interior had been little used (Ritter 1991a). In the vicinity of Bahía Concepción, in contrast to late prehistoric patterns, Ritter suspected on the basis of the distributions and frequencies of sites and artifacts that

> earlier Archaic and Paleoindian peoples were highly mobile, fewer in numbers, and more oriented to mammalian fauna, easily obtainable shoreline marine foods, and plant fare such as cactus fruits and legumes that were easy to access and process. Relationships between groups were probably not well formalized with ongoing or intermittent north-to-south group migrations and technological diffusion. Settlements probably shifted in pre mid-Holocene times more frequently to take advantage of shifting resources and changing habitats. Economic exchanges were probably increasingly developed and regulated during the early to middle Archaic times [Ritter 2001:61].

These patterns changed during the late period, when land use became more intensive both on the coasts and in the interior. At Laguna La Guija, in contrast to Laguna Seca Chapala, Ritter and his associates (1984:24) found that "most evidence suggests a relatively late use perhaps in the last 1000 years or so." However, "the interior oases are generally long-term (thousands of years) locations of multiple-use and residency…. They were sometimes prehistoric centers of religious/ceremonial behavior" (Ritter and Aceves 2006:87). Rock art in the central peninsula was acknowledged as "going back some 2,800 years or so" (Ritter and Aceves 2006:78).

Activity along the shores of the Vizcaíno lagoons was found to be mostly a late prehistoric phenomenon. Possible explanations for the shift from neglect to substantial use included "intrusive group influence (and disruption), late Holocene environmental change, technological change (harpoon type), bow and arrow introduction, and stress management through ritual and diversification/intensification of diet breadth" (Ritter and Burcell 1998:55). This florescence on the west coast "likely related to interior circumstances such as demographic growth, climatic change, group movement and interactions, resource intensification" (Ritter and Aceves 2006:84).

More generally, central Baja California witnessed "an apparent intensification and diversification in resource use during late prehistory" (Ritter 2001:53). In the Bahía de los Ángeles/Bahía las Ánimas region,

> there seems to have been an increase in population and changes in subsistence strategies with a broadening and intensification of resources exploited such as sea turtles, legumes, root crops and annuals and an increase in storage with a continued or enhanced reliance on exchange networks to buffer negative fluctuations in resource productivity [Ritter and Aceves 2006:86].

For Ritter, culture history, as it was discernible through the archaeological record, was written with a broad brush, encompassing millennia-long periods and largely unidirectional changes toward larger populations, more stable settlements, more intensive

exploitation of the peninsula's diverse landscapes, and greater technological sophistication.

Prehistoric Settlement Systems

Along with the study of rock art, reconstructing the prehistoric settlement systems and archaeological landscapes of Baja California has been one of the central aims of Ritter's investigations. This contrasts with the frequent neglect of wider landscape perspectives by most of his predecessors.

Site Types

Fitting sites into functional categories was a critical step toward creating a picture of prehistoric land use. The categories for archaeological sites that Ritter has used in reporting his survey results have varied somewhat between different studies and publications. Types have included flaked lithic scatters, variously with or without faunal remains, milling, and other features; shell mounds or scatters; lithic quarries and workshops; rock shelters, variously with or without flaked lithics, milling, faunal remains, midden, and mortuary remains; trails; rock art, variously found in rock shelters, on boulders, or on cliffs, with or without associated midden; and other rock features, including walls, cairns, enclosures, and talus depressions. In the recording phase of his work, the site types have been strongly empirical in character rather than interpretive, generally based on the presence or absence of observed attributes rather than either on the sites' inferred functions or on quantitative factors such as the sizes of sites or assemblages. Ritter strongly recommended

> that future workers in Baja California archaeology strive to utilize meaningful and objective site categories in their analysis in order to avoid the pitfalls of totally subjective typologies of sites which cannot be duplicated or compared by other workers [Ritter 1979c:6].

In contrast, when Ritter turned to discussing issues relating to settlement patterns and mobility, he employed such interpretive categories as "major sites," "residential complexes," "long-occupied sites," "seasonal camps," and "temporary residential or activity locations." In most cases, explicit criteria have not been offered for linking the empirical site types to the interpretive functional types, and it is likely that his interpretive assignments have had a strongly subjective element.

Sampling in Surveys

Ritter's site inventory projects at Bahía Concepción, Laguna La Guija, and Bahía de los Ángeles involved statistical sampling of random transects to generate a picture of prehistoric settlement patterns in those areas (Figure 9). This approach was patterned after the work of Ritter's University of California, Davis, colleagues David Hurst Thomas and R. G. Matson in the western U.S., and it inspired Ritter's own subsequent sampling surveys for the BLM in the deserts of southern Alta California. The approach had not been introduced into Baja California archaeology previously, and it has been followed only infrequently there by subsequent investigators (but cf. Hyland 1997; Willis 2009).

A sampling approach potentially served two objectives. One was to generate estimates of the absolute frequencies and densities of sites and of specific site types within the sampled regions (e.g., Ritter 1985a:412, 1998a:13, 2001:57). Such estimates could be used to make interregional comparisons, to evaluate the relative importance of particular activities, and to make demographic estimates, as well as to assist the management of the region's cultural resources. Ritter made relatively little use of this potential. This may have been at least in part because the selected potential statistical sample was sometimes not fully inventoried due to practical constraints on time and access, and therefore the estimates would have been somewhat biased.

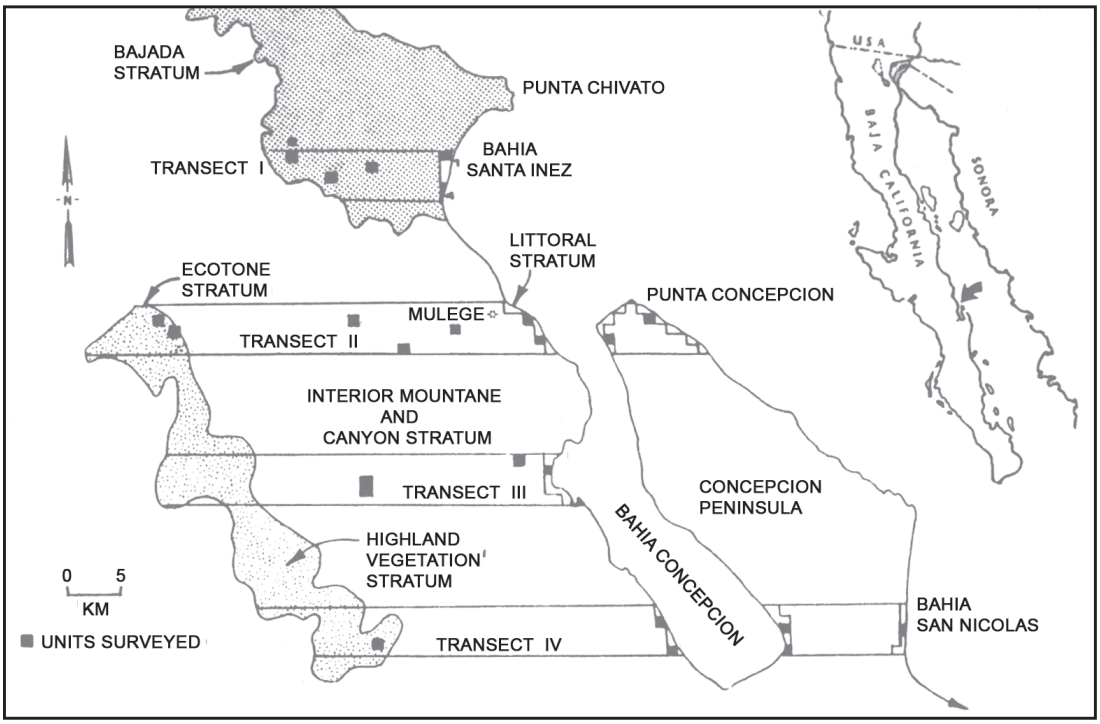

Figure 9. Map of Bahia Concepcion transects. Modified from Ritter (1985:395).

The second benefit from sampling was to remove or minimize the bias in the site settings and the types of sites that intuitive inventories would have discovered. The range of site types that Ritter was able to document is one indication of the success of this approach. Another is the range of ecological settings within which sites were found and the negative evidence acquired concerning settings in which sites were rare or absent.

Environment, Mobility, and Interaction

In seeking to interpret prehistoric archaeological landscapes, Ritter gave particular attention to the statistically supported associations of sites in general and specific site types with environmental variables. Most of the available archaeological and environmental information was taken to refer to the late prehistoric period, although at least around Bahía Concepción he suggested that "generally constant patterns of settlement and subsistence prevailed … from contact back 3000 to 5000 years" (Ritter 1985a:416). Significant correlations were found between the locations of sites and the peninsula's various landforms, its water resources, and its historic vegetation communities.

Baja California's Gulf and Pacific coastlines with their perennial access to marine fish and shellfish were geographic factors of obvious significance to settlement patterns. At Bahía Concepción and Bahía de los Ángeles, the settings appeared to have been sufficiently rich to support communities on a year-round basis. Estuaries, protected shorelines, and areas with diverse substrates and therefore diverse marine fauna were particularly attractive. Other stretches of coastline were also exploited, but apparently on a less sustained, merely seasonal basis. Suggested examples of this intermittent use in central Baja California were the shores of the Vizcaíno lagoons and Bahía San Luis Gonzaga, which were investigated by Ritter,

and Bahía Santa Ana, between Bahía Concepción and Bahía de los Ángeles, which was sampled in surveys by Justin Hyland and María de la Luz Gutiérrez (Hyland 1997; Gutiérrez and Hyland 2002). The most critical variable distinguishing the two coastal strategies seemed to have been the perennial availability of sufficient fresh water near some coastal areas but not at others.

Water was also a key factor in inland settlement. The presence or absence of springs, *tinajas*, and substantial if intermittent drainages helped shape the archaeological landscape. In some inland basins, ephemeral lakes offered important opportunities. During the early Holocene, according to Ritter's interpretation, Laguna Seca Chapala's shorelines were seasonally occupied at short-lived camps by small groups of hunter-gatherers, perhaps consisting of several extended families who were only infrequently in contact with anyone outside their own group (Ritter 1991a). At nearby Laguna La Guija, a similar pattern during the late prehistoric period was also thought to reflect seasonal use associated with transient lake stands, although there was also a nearby *tinaja*.

The seasonal availability of specific nonmarine food resources also helped to shape prehistoric settlement strategies. For example, around Bahía de los Ángeles, the spring and summer ripening of cactus fruits, leguminous seeds, agave, and spurge (*Cnidoscolus palmeri*) roots was inferred to have drawn people to interior sites where these plants as well as water resources were present (Ritter 1998a:37).

Persistent puzzles for Ritter's interpretations include the relationships between coastal and inland settlements, which varied both between different parts of the peninsula and through time. Were sites in the two settings occupied during different seasons by the same groups, or by separate but closely related communities, or perhaps by culturally distinct, potentially even hostile communities?

On the Gulf coast it was unclear "whether interior and coastal folks were one and the same" (Ritter and Aceves 2006:84). Initially, near Bahía Concepción, differences in the animals that were depicted in the rock art of upland areas (deer) and coastal areas (marine animals) seemed to suggest that separate groups had likely occupied the two areas (Ritter 1974a). However, Carol Rector and Ritter subsequently found that the distributions of turtle and fish motifs at coastal and inland sites contradicted the hypothesis of separate coastal and inland distributions (Rector and Ritter 1978; Rector 1981). A reinterpretation suggested a fission-fusion model with "macro-band-like" groups living either on the coast or at highland oases during the summer and fall but splintering and dispersing into task groups during the winter and spring (Ritter 1985a:413). Coastal settlement predominated, with "about one-half or more of the people … oriented and living for most (if not all) of the year within several kilometers of the coast" (Ritter 1985a:415).

Ritter's working model for late prehistoric settlement around Bahía de los Ángeles and Bahía Las Ánimas hypothesized

> single and limited multiple family units dispersing and congregating over the greater Bahía de los Ángeles region depending on food resource trends and availability, although major water centers/villages may have been used year-round by a portion of the population [Ritter 1998a:37].

Again,

> some groups may have practiced a fusion-fission model, with fragmentation into smaller groups in the winter/spring when seasonal water sources were available. In this model, population aggregations occurred as they did at the time of contact during late spring or summer … at special centers. These

> would include oases in the mountains where ripening cactus fruits, for instance, became available. There appears to have been a coast-interior interaction sphere where, for instance, marine resources and obsidian could be exchanged for agave products [Ritter and Aceves 2006:86].

In contrast to this pattern, at Bahía San Luis Gonzaga the archaeological evidence

> tentatively suggests at least late prehistoric marine exploitation with an interior-coast group movement and far less habitation on any multi-month basis, mostly due to water shortages and near-shore impoverishment of food resources like agave, cactus fruits, legumes…. The apparent absence of deep shell mounds at least hints at such a proposition [Ritter and Aceves 2006:86].

The Vizcaíno lagoon sites on the west coast reflected an "interaction network of central highlands to coast mobility based on focused coastal food-based resource exploitation" (Ritter and Burcell 1998:55), representing multifamily, task-group, or individual use that apparently lasted only days or weeks (Ritter 2002c:49). North-south differences in archaeological residues among the lagoon sites were attributed not only to differences in local geomorphology, ecology, and perhaps settlement chronology but also to north-south contrasts in the portions of the peninsula's central sierras from which the sites' seasonal occupants were presumed to have traveled, specifically the relatively rich Sierra de San Francisco in the south, associated with Laguna Guerrero Negro, and resource-poorer uplands such as the Sierra de San Borja in the north, associated with Laguna Manuela (Ritter and Aceves 2006:71).

Long-distance connections among prehistoric communities, whether they took place through extended travel or through chains of more limited down-the-line contacts, were seen as having occurred primarily along east-west axes rather than on north-south axes (Ritter 2001:60, 63, 2006b:113; Ritter and Aceves 2006:88). However, this interpretation may have been at least in part a product of the limited kinds of archaeological evidence that are available concerning such connections. These primarily consisted of marine shell and bone, beach cobbles, and obsidian. Marine resources are easily recognized as exotic at inland sites, and they have generally been presumed to come from the nearest coastal locations to the east or west; in most cases, north-south movement of shell would be difficult to recognize because the shellfish species in question are not highly localized along the peninsula's coasts. Baja California's known obsidian sources all lie at or near the Gulf coast (cf. Panich et al. 2012), resulting in a predictable east-to-west diffusion of obsidian. However, chemical sourcing has also revealed patterns in which at least some obsidian traveled substantial distances north or south from its geological sources (e.g., Ritter 2001:62).

Meanings and Motives in Rock Art

Baja California's abundant, diverse, and sometimes spectacular pictographs and petroglyphs were the original attraction for Ritter's investigations, and they have continued to be one of his major research foci. His work in this field coincided with a florescence of interest in peninsular rock art that emerged during the decades following Erle Stanley Gardner and Clement W. Meighan's well-publicized 1962 investigations of the central sierras' Great Murals. The reasons for rock art's creation and the meanings its images held for their creators have been popular, persistent, but still far-from-resolved issues in Baja California archaeology. According to Ritter, "one of the keys to rock art research today is to examine the motives and ideas of the makers within a scientific testing method—to the extent that the data will allow" (Ritter 1991c:3). What was offered were "some 'best fit' proposals based on a rationalistic approach" (Ritter and Correa-Ritter

2013:189). The declared intention of "scientific testing" has not always been shared by Ritter's contemporary investigators, and it may be open to debate whether it has been fully realized in Ritter's own work.

Several types of evidence suggested clues as to the rock art's meanings and its creators' motivations. One type was provided by the identification of directly representational forms, such as humans, animals, atlatls, vulvas, and phosphene images. However, recognition of the things that were being represented has not always been straightforward. A second set of clues came from the contexts of the rock art, for instance its association with or remoteness from habitation bases or its occurrence near *tinajas* or along travel routes. A third set, of which Ritter has made abundant use, consisted of the interpretations proffered by other rock art investigators, often in other regions and on other continents, variously rooted in ethnographic evidence, physiological or psychological phenomena, or purely intuitive speculations.

The contexts of the central peninsula's rock art varied significantly, complicating the interpretation of its functions. Rock art sites were thought to have been "symbolically charged and integrated with larger systems of land use"; they "were generally places of high religious/spiritual importance to past peoples in their use and recognition of the greater cultural landscape … places aesthetically and symbolically infused … power spots" (Ritter and Aceves 2006:75, 78, 88). For instance, the Arroyo Portezuelo petroglyphs were not public, not associated with a main village (Ritter 1991c:9). The Tinaja de Villegas sites appeared to be located away from habitation areas: "this could be a place of specialized ritual involving shamans and individuals on a spiritual quest" (Ritter and Correa-Ritter 2013:194). The sites were "extraordinary" places, "likely spiritual and sanctified by the Indians who made them and those who later visited or passed by" (Ritter and Correa-Ritter 2013:195–196).

However, the evidence concerning rock art's relation with more mundane activities was found to be ambiguous. The association of habitation refuse with paintings has been found to be "not uncommon in the central peninsula" (Ritter et al. 1979). "Modest to extensive midden deposits" in association with various rock art sites were noted (Ritter and Aceves 2006:76). At Cueva Huellitas "the cultural remains suggest limited occupation and subsistence activities of a family or two. Such a pattern does not seem congruous with the rock art normally assigned by researchers to ceremonial-religious locations" (Ritter et al. 1979:33). "There is clear evidence at larger [rock art] sites of extended use, judging from the sheer number of figures, variations in weathering and design, and re-painting and over painting" (Ritter and Aceves 2006:78).

> There are very apparent special, long-term spiritual/religious locations both at and away from residential bases, locations of special landscape features such as low cliffs and rock shelters often with vistas. These inland areas and their use may correspond with groups congregating during times of plenty, as with the ripening of cactus fruits and legumes, and various annual seed harvests [Ritter and Aceves 2006:88].

Ritter has contributed to the long-standing debate over the rock art's meaning in many of his articles. Table 4 lists a wide range of interpretations, not necessarily mutually exclusive, that Ritter mentioned but did not necessarily endorse. He has been more ready than some other observers to confess uncertainty as to the rock art's meanings and motivations.

Various supernatural and more mundane explanations for the motives behind Baja California's rock art have competed but sometimes also overlapped or meshed in investigators' accounts. The earliest regional synthesis of information and interpretation for the peninsula's rock art came from the pen of a French naturalist,

Léon Diguet (1899). Diguet described the art as "decorative," placed for effective viewing in locations used for habitation or group meetings. Subsequent investigators, including Ritter, have usually favored supernatural motives for the creations, downplaying more mundane explanations. However, Ritter raised the possibility that rock art was used for trail markers or for the assertion of ownership over water sources (Ritter and Correa-Ritter 2013:190). One notable exception to the neglect of non-supernatural motivations in subsequent interpretations has been the suggestion frequently made since the mid-1980s that some images at Baja California sites were used as solstice and/or equinox calendrical markers (e.g., Cover and Moore 1986; Hedges 1986; Moore 1986; Ewing and Robin 1987; Robin and Ewing 1989; Ewing 1990, 1995; Jones 1990; Rubio i Mora 2013; Viñas i Vallverdú 2013). Ritter acknowledged such suggestions without himself making any specific archaeoastronomical claims.

Hunting magic and warfare were favored explanations in many early studies, but their popularity has waned in subsequent decades. Ritter's first Baja

Table 4. Explanations of Central Baja California Rock Art.

Explanation	Discussed or Noted by Ritter
Hunting magic	Ritter 1971, 1974a, 1979a, 1986, 1991c, 1993, 1994a, 2006b, 2010; Rector and Ritter 1978; Ritter et al. 1979, 1982; Ritter and Correa-Ritter 2013
Warfare	Ritter 1979a, 2006b, 2010
Human fertility	Ritter et al. 1982; Ritter 1993, 1994a, 2006b, 2010; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Availability of resources	Ritter et al. 1979, 1982, 1989; Ritter 1985a, 1992, 1993, 2010, 2012; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Maintenance of the social order	Ritter 1986, 1992, 2010; Ritter et al. 1989; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Curing	Ritter and Correa-Ritter 2013
Personal initiation and instruction	Ritter et al. 1989; Ritter 2006b, 2008, 2010, 2012, 2013; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Representation of death and rebirth	Ritter and Aceves 2006; Ritter 2010; Ritter and Correa-Ritter 2013
Mortuary ceremonialism	Ritter et al. 1982, 1989; Ritter 2006b, 2010; Ritter and Correa-Ritter 2013
Shamanic activity	Ritter 1979a, 1986, 1991b, 1992, 1993, 1994a, 1995a, 2006b, 2008, 2009c, 2010, 2012, 2013; Ritter et al. 1982, 1989; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Vision questing	Ritter 1991c, 2010; Ritter and Correa-Ritter 2013
Altered states of consciousness	Ritter 1991c, 1993, 1994a, 1995a, 2008, 2010; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Visions, dreams	Ritter 2006b, 2010; Ritter and Aceves 2006
Representation of myths	Ritter et al. 1979, 1982, 1989; Ritter and Aceves 2006; Ritter 1992, 2010
Ancestor veneration	Ritter 2006b, 2008, 2010; Ritter and Correa-Ritter 2013
Aesthetic satisfaction	Ritter et al. 1979; Ritter and Aceves 2006; Ritter 2010; Ritter and Correa-Ritter 2013
Ownership marking	Ritter 1986, 2010; Ritter et al. 1989; Ritter and Correa-Ritter 2013
Trail marking and trail shrines	Ritter 1991c; Ritter and Correa-Ritter 2013
Calendrical markers, astronomy	Ritter 1993, 2010; Ritter and Aceves 2006; Ritter and Correa-Ritter 2013
Terrain maps	Ritter 1991c
Talleys	Ritter et al. 1982, 1989; Ritter 1992

California publication was a review of Meighan's (1969) study of Great Murals sites in the Sierra de San Francisco (Ritter 1971). In that review Ritter made use of his own experiences at the San Borjitas site and elsewhere in the Bahía Concepción area. In this initial foray into interpreting the region's rock art, he accepted as "probably correct" Meighan's interpretation of the animal images as "a form of hunting magic" (Ritter 1971:46). Ritter's next publication, "Prehistoric Hunting Patterns Inferred from Rock Art in Central Baja California," supported the same interpretation:

> The manufacture of animal figures can best be interpreted as conforming to sympathetic magic of the hunt, i.e., the drawing controls the animal represented, to insure good hunting or to satisfy the spirit of the slain animal and invite increased luck in the hunt and continued fertility of the animal [Ritter 1974a:16].

However, support for the hunting hypothesis was undermined in a rare empirical, statistical testing of the interpretation. Rector and Ritter analyzed the distribution of rock art at 23 sites in the Bahía Concepción area (Rector and Ritter 1978; Ritter et al. 1979; Rector 1981). Those studies showed that, contrary to Ritter's initial impression, the proportional representation of marine fauna such as sea turtles and fish was not significantly greater at coastal sites than at inland ones. This seemed to negate at least any immediate association between the production of rock art and procurement activities (but cf. Ritter 1992).

In subsequent studies, Ritter's approach to explaining the rock art has been notably eclectic:

> Scholarly interpretations rely primarily on content, cultural and environmental association, location and visibility, ethnographic analogy and principles of human perception under altered states of consciousness, the so-called neuropsychological approach of Lewis-Williams and Dowson (1988)…. While there is an aesthetic aspect to the art, at least from a Eurocentric perspective and likely from a Native American outlook as well, the rock art found in the central peninsula likely cannot be ascribed to a singular meaning or purpose. Much of the literature … for the regional sites places the rock art within the ritual/sacred realm, proposed as associated with visions and dreams, mythology and mythic beings, human and resource fertility, death and rebirth, creation, initiation, shamanism, solstice and equinox celebrations, continuance of societal order and group maintenance. Some of the locations are more secretive than others, and specific places may be associated with given lineages or clans [Ritter and Aceves 2006:78].

What we can offer here are some "best fit" proposals based on a rationalistic approach that meshes the image presentations, cultural and environmental context, regional and broader ethnographic information, principles of human cognition, psychology and artistic expression, and a comparative approach based on rigorous studies of rock art elsewhere in the peninsula and beyond. Among the themes explored herein, and themes not necessarily mutually exclusive, are relationships of the rock art to a cultural landscape, curing, shamanism or dream/trance-state imaging, puberty and mortuary ceremonialism, hunting magic and art for life's sake [Ritter and Correa-Ritter 2013:189–190].

> [Ritter] has noted the cultural and environmental differences that could have affected rock art imaging and the relationship of the art to shamanic-related vision questing and

> image production, to ritual events related to life's crises such as uncertainty in food acquisition, water storage, intra- and inter-cultural relations, and to related stresses funneled through the group's religious formulators. Ritter (1993:99) states that "the symbolism and its patterning, and site environmental context and cultural associations, point toward an interplay of human fertility, food acquisition, and water availability" [Ritter and Correa-Ritter 2013:195].

One explanation that is notably absent from Ritter's listings, as well as most other investigators' interpretations, is "prestige" or "conspicuous consumption." An important motivation behind the production of rock art may have been to gain prestige for an individual or a group by demonstrating the ability to assemble the material resources, skills, and labor to produce rock art, without the end product necessarily having any supernatural or other practical implications. This social function is perhaps especially plausible in the case of the difficult-to-create, large Great Mural paintings on the high walls and ceilings of rock shelters. Analogous motivations linked to prestige are obvious in historical and modern artistic activity.

Conclusions

Eric Ritter's contributions to the development of prehistoric archaeology in Baja California have been varied, including innovations in scope, methods, and interpretation. Many of those contributions have consisted of transferring to the peninsula the methods and insights that were being employed by contemporary archaeologists in other regions, particularly in Alta California, but enriched by Ritter's own experience and insights.

His investigations' geographical scope was only matched by the less intensive but wide-ranging earlier regional studies of Diguet, Rogers, and Massey. The length of Ritter's commitment to intensive work on the peninsula was not equaled by any of his predecessors, and it has yet to be overtaken by his contemporaries.

Methodologically, Ritter's greatest local contribution has been in the methods of survey he introduced. The archaeological surveys of Ritter's predecessors in Baja California had been essentially "judgmental" or "intuitive," focusing on locations that were known to contain sites or that were judged likely to do so. Ritter's systematic sampling reduced potentially important biases in the picture of regional prehistoric activity.

Interpretively, Ritter's main contributions have concerned settlement systems and rock art. Ritter cannot be said to have solved the enigma of the meanings and motives underlying Baja California's rock art. However, he did suggest the multitude of explanations that could potentially be applicable, and he at least hinted at the use of scientific rather than purely personal, intuitive strategies to move toward more convincing explanations.

Ritter's extensive contributions have marked a stage of maturation in Baja California archaeology. In his prolific writings, the study has moved beyond basic culture-historical considerations to the systematic acquisition and evaluation of evidence bearing on the interpretation of prehistoric lifeways and idea systems.

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