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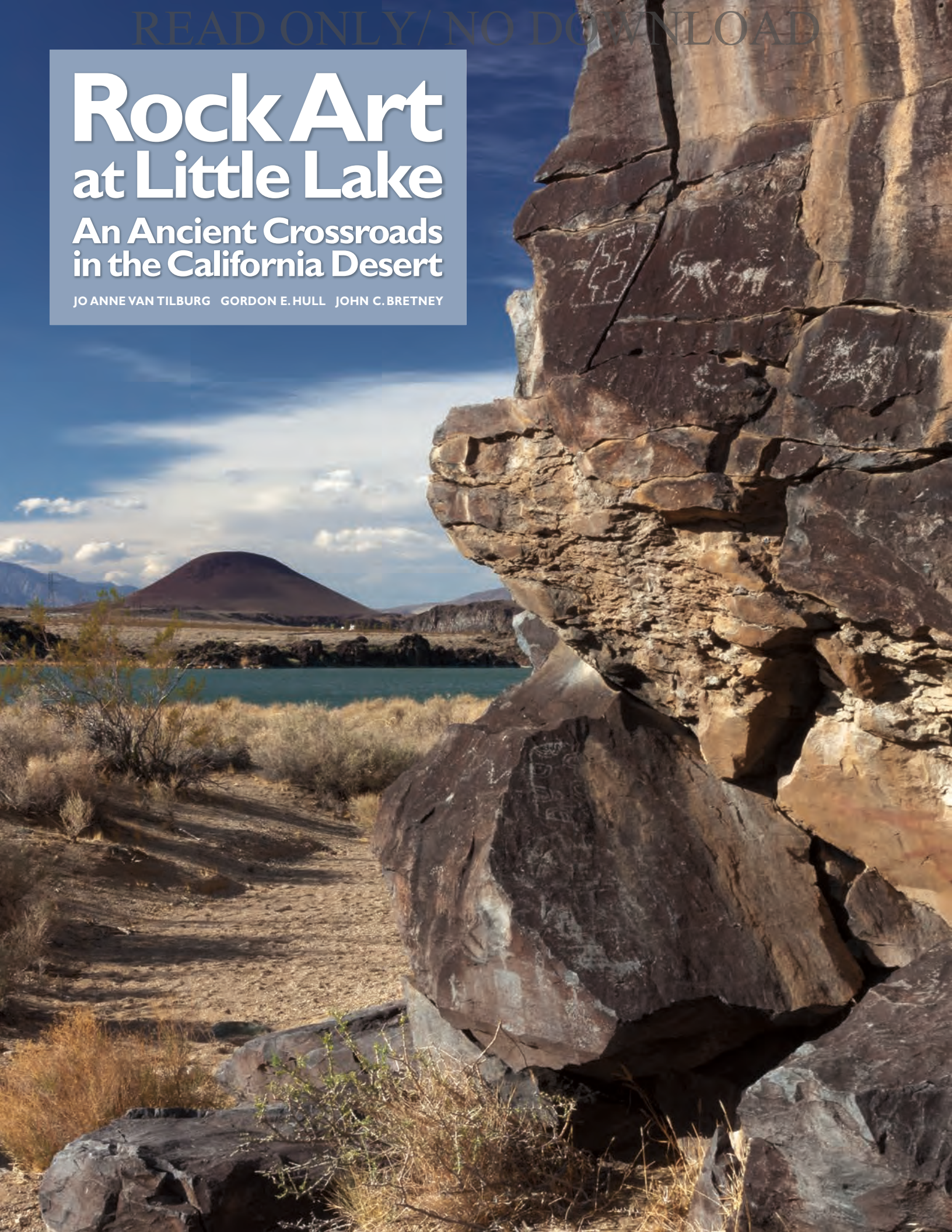
Rock Art at Little Lake

An Ancient Crossroads in the California Desert

JO ANNE VAN TILBURG GORDON E. HULL JOHN C. BRETNEY



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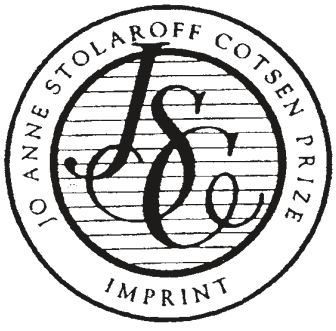

The Jo Anne Stolaroff Cotsen Prize Imprint honors outstanding studies in archaeology to commemorate a special person whose appreciation for scholarship was recognized by all whose lives she touched.

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An Ancient Crossroads in the California Desert

JO ANNE VAN TILBURG

GORDON E. HULL

JOHN C. BRETNEY

WITH

Wendy All, Clarus Backes, Jr., Doug Brotherton,
John Davis, Jelmer W. Eerkens, Judith W. Finger, Allen F. Glazner,
Audrey Kopp, James L. Pearson, Rebekah Miller Reed,
Noel Van Slyke, and H. Bill White

The Cotsen Institute of Archaeology, University of California, Los Angeles

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LLOYD E. COTSEN, former President and CEO of Neutrogena Corporation, has been associated with UCLA for more than three decades as a volunteer and donor. In 1999 Lloyd E. Cotsen's steadfast support for archaeology was acknowledged and honored when the Institute of Archaeology became the Cotsen Institute of Archaeology at UCLA.

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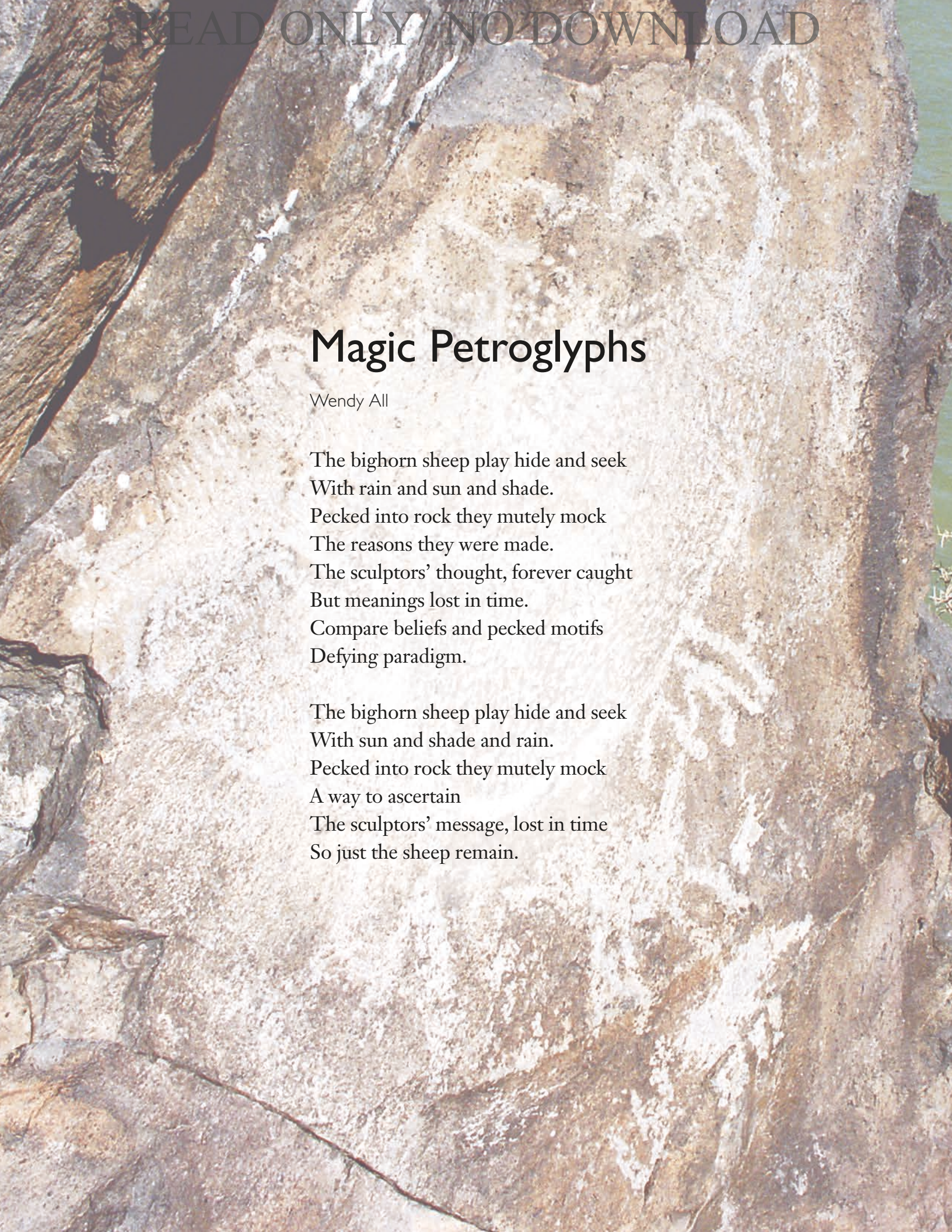

Magic Petroglyphs

Wendy All

The bighorn sheep play hide and seek
With rain and sun and shade.
Pecked into rock they mutely mock
The reasons they were made.
The sculptors' thought, forever caught
But meanings lost in time.
Compare beliefs and pecked motifs
Defying paradigm.

The bighorn sheep play hide and seek
With sun and shade and rain.
Pecked into rock they mutely mock
A way to ascertain
The sculptors' message, lost in time
So just the sheep remain.

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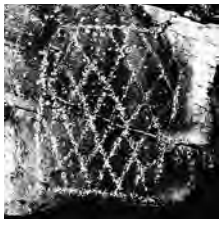

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Foreword

Charles S. Stanish

THIS EXCEPTIONAL VOLUME is the product of more than ten seasons of field work conducted by a talented and award-winning group of researchers assembled by Jo Anne Van Tilburg, director of the UCLA Rock Art Archive since 1997. Rock art studies have witnessed exciting new advances in theoretical approaches and generated many fine empirical reports. It is rare, however, that a book appears in which interpretations of newly recorded data are firmly anchored in a theoretically sophisticated and important manner. *Rock Art at Little Lake*, the first major volume to appear about rock art from the Cotsen Institute of Archaeology Press, is just such a book.

We are very proud of the Rock Art Archive and the work it has done over the decades. The Archive was founded by Clement W. Meighan and C. William Clewlow, Jr., in 1973, with personal support of the legendary UCLA Chancellor Franklin D. Murphy. It was incorporated as a research unit of the then Institute of Archaeology by its founding director, Giorgio Buccellati. The Archive goal was curation and publication of original rock art data. All of the data at the time were drawn from California and Baja California. Van Tilburg's subsequent efforts have added impressive quantities of new and invaluable data, expanding the Archive's curatorial reach and enabling it to continue its leading role in the field.

Ancient artistic motifs carved into rocks are mysterious artifacts of human expression that, too often, are regarded by some as unfathomable or are subjected by others to overly simplified interpretations. This is especially true where indigenous cultures were tragically disrupted, and in some cases destroyed, in the last 500 years. Loss of firsthand eyewitness testimony about the meaning of these symbols has caused a certain marginalization of rock art studies in our profession. However, as Meighan so often pointed out, New World archaeologists are equipped with the background and training needed to record and interpret rock art sites. This book meets the challenge of recording and interpreting rock art within the context of sound archaeological reasoning. It persuasively offers the view of Little Lake as an "oasis" of culture within which California and Great Basin groups interacted to exploit resources, exchange goods, participate in ceremonies, and share beliefs. The authors suggest new interpretations of these ancient symbols and build chronologies for rock art production grounded in data from two important Little Lake Ranch archaeological sites: the famous Prenumic Stahl Site and the later Numic village or encampment known as Pagunda. Together, these sites provide data from at least 6000 B.P. to *c.* 3150 B.P.

The question of ethnic identity in such a multiuse setting is admirably explored in this book. The authors propose that the more recent rock art is related to the Panamint Shoshone, the Kawaiisu, and the Owens Valley Paiute. Rock art symbols evolved or were repeated and replicated over generations, and the creative explanation for some may be wealth transfer to maintain status. The authors go on to offer a regional iconographic sequence.

Another great strength of this book is methodological. We are provided with outstanding field recording and data collection techniques by the team, a thorough set of analyses, a critical assessment of the archaeological evidence, and a solid extrapolation of symbolic meanings inherent in extant Native oral traditions, production methods, and available records of religious and aesthetic values. The editors boldly identify the limitations of their analyses, while offering access to their collected data on file at the Archive, thereby leaving the door wide open for future work.

Van Tilburg's scholarly leadership, coupled with the dedication and creativity of her fellow editors and authors, has created an interdisciplinary collaboration worthy of the challenges inherent in the complex Little Lake Ranch site. The result is an invaluable addition to the canon of archaeological knowledge and a probing analysis of ethnic identity, social significance, and meaning embedded in Little Lake rock art.

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Preface

Jo Anne Van Tilburg

THE SPECIFIC ROCK ART concentration we describe in this volume is demarked by the current property lines of the privately owned Little Lake Ranch, which contains the largest concentration of varied rock art in the entire Rose Valley–Owens Valley area of eastern California. It is second only to that estimated for the Coso Rock Art Landmark, located 25 km east of Little Lake. Significant cultural and historical value can be claimed for the ranch's rock art, but also for Little Lake itself, and preservation of the entire complex should be a priority for all California citizens.

The descriptive term "Little Lake" is widely synonymous with the well-known Stahl Site (CA-INY-182) but is also applied to the adjacent Stahl Site Cave (CA-INY-205) and the Native village area of Pagunda (CA-INY-3826). We retain and use the trinomials given to these archaeological sites; however, we apply the term "Little Lake" only to the lake and its immediate surroundings. We avoid use of the term "site" for anything other than the Stahl Site, Stahl Site Cave, and Pagunda. Instead, we employ the archaeological term "locus" to identify nine individual clusters of rock art within observable, definable, and related zones of geological or geographical discontinuity.

Our field methods included reconnaissance survey, intensive survey, rectified photography, formal and stylistic analyses, scientific testing, museum studies, and a review of the salvage ethnography literature and available archaeological collections. We did not employ remote sensing, geographic information systems (GIS), or excavation.

Basic Rock Art Terminology

Selected rock art terms used throughout are given in the glossary of the International Federation of Rock Art Organizations (IFRAO, http://mc2.vicnet.net.au/home/glossar/web/index.html). While "panel" is an ambiguous and therefore unsatisfactory term, it is widely used in North American rock art studies; thus, we employ it. We arbitrarily define it in the field as an area demarked by edges, facing directions (surface planes), or cracks in the rock face.

We treat each individual rock art element as a design unit and a surface artifact, and each is recorded as an attribute of a given panel localized on the landscape. Elements, in turn, are stratigraphically variable relative to their specific placement on a panel. Bedrock mortars, grinding slicks, and stone rings are all regarded as non-portable surface features of a designated locus. Lithic scatters, pottery sherd scatters, and other manifestations of settlement activity or resource use are similarly treated as objects or surface features.

When objectively recorded and contextually analyzed, rock art elements may be grouped in defined classes or categories and defined as motifs. In turn, motifs are treated as indicators of established aesthetic styles (Schaafsma 1986). At Little Lake Ranch some motifs are valid across media and capable of being linked to ethnic identities. We are familiar with the wide-ranging scholarly debate on style in rock art and recognize that style, like all analytical constructs, is in a sense "imaginary" (Rappaport 1979:50–51). However, we also note that stylistic analysis has a long and honorable tradition in archaeology, art history, and rock art studies. Our analysis, therefore, follows that tradition as established in our area and examines variation *within archaeological context*.

Some recognizable rock art motifs in our area were previously given descriptive names, some of which are long-standing in the literature. Among these terms are "shaman's shirt" and "medicine bag," neither of which is a documented object in Little Lake archaeology nor, for that matter, present in museum collections we examined. "Bear paw" and "paw" are familiar shorthand terms, but the motifs themselves have no realistic resemblance to actual "paws." They are, however, generally regarded as somewhat analogous to basketry motifs given the same name. These and a few other interpretive terms, such as "rain," "rake," "sun," and "shield," are retained but set apart in our motif analysis by quota-

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tion marks. When these terms initially appear in our text, quotation marks are also used; thereafter they are not.

"Zoomorphic" and "anthropomorphic" are categories that mean biomorphic shapes resembling animals or humans, though in fact each may connote a constellation of other or related meanings. We do not employ abbreviations such as PBA (patterned-body anthropomorph) or ASC (altered states of consciousness) in our text as a matter of taste. Occasional use of the word "symbol" conforms to Rappaport (1979:180). "Image" is only used to describe photographs resulting from the recording process and never given to rock art elements, design units, motifs, or categories.

Special Rock Art Terminology

The basic design unit in all Little Lake Ranch rock art is the single straight or curved line. The terms "pattern"—used in scratched rock art (Reed, this volume)—and "ideomorph" (Carvalho 2008; see below) denote meaning levels assigned to basic design units. Pattern analysis is historically rooted in mathematics (geometry), natural science (crystallography), and the anthropology of design (Washburn and Crowe 1988:8). Patterns are composed of one or more lines combined in an orderly sequence (Washburn and Crowe 1988:8). For example, a zigzag or chevron pattern is made up of single slanted lines, opposed and connected. Four stacked and connected diagonal lines create an "hourglass" and so on. Such "splitting" of elements or motifs into design units is historically related to basketry and other craft analysis (James 1972).

Higher-level meaning resides in ideomorphs because *even the simplest of design units has assigned cultural meanings.* For example, in Numic ethnography an isolated or single diagonal line is reliably associated first with gender but also with implements such as arrows, male activities such as hunting, and qualities such as potency or prowess (Bibby 2004). Patterns or groups of diagonal lines in Yokuts face paint unequivocally "stand for" totemic animals or birds and, by extension, are group identity markers. We speculate that these ideomorphs, when duplicated frequently in rock art—Carvalho (2008:46) suggests 20 percent motif redundancy is significant—carry similar meanings into a new context.

In the neuropsychological model of analysis, which grows out of biological theory, these and other ideomorphs are most often categorized as form constants, phosphenes (Hedges 1983:58), and "entoptics." The latter are organically generated during altered states of consciousness or trance (Lewis-Williams and Dowson 1988; 1990; Lewis-Williams 2002). This model is underpinned by the anthropological interpretation of European Upper Paleolithic rock art attributed to shamans and by biological understandings of modern human cognition (Lawson 2003; Helskog 2003). Gilreath (2007:286) summarizes an extension of this model for the Coso area rock art in which Whitley (1992, 1994c, 1998a, 2000a) distinguishes between "natural symbols" (geometric entoptics and phosphenes) and "culturally determined images" having traditional meanings. In both cases Whitley (2004a:29) attributes most rock art production to male shamans. Related research in biology, anthropology, and art conducted since the 1970s strongly suggests, and in some cases has reliably demonstrated, other organic sources of art production (Podoll and Robinson 2008; Sacks 1992). For example, aura-filled migraine headaches, as well as tension and cluster headaches and epilepsy, create visual hallucinations and sensory disturbances that may be expressed by individual sufferers of these afflictions in two-dimensional art (drawing, painting, or relief carving). Distorted concepts of space and time and body image confusion in which appendages or body parts are enlarged or diminished are commonly expressed in three-dimensional art (sculpture).

It is probable that biological and historical variables interact to create or shape some common or similar sociocultural experiences in divergent places over time. However, we avoid the term "entoptic" as it is value-laden in rock art studies, contentious in the literature, and encourages cross-cultural comparisons built upon oversimplified "common cognitive responses to phenomena based on hard-wiring of the human brain" (Finamore 2010:291). We examine the ancient, replicated, duplicated, and innovative iconographic vocabulary shared in our area among the verbal arts, multiple types of ritual, material culture objects, and rock art motifs. We argue that over time this context encouraged and sustained the redundant visualization of that vocabulary. In turn, such redundancy is a priori evidence for multiple production motivations within a wide but related spectrum of belief and behavior.

Reporting Dates

Radiocarbon dating is a radiometric method that uses the naturally occurring radioisotope carbon-14 (^{14}C) to determine the age of carbonaceous materials up to 60,000 years old. Raw (uncalibrated) radiocarbon ages are reported as "radiocarbon years" B.P. (before present) with "present" defined as A.D. 1950. As an example, 1200 B.P. is A.D. 750. It may be written as "rybp", "rcybp" (radiocarbon years before present), or "YBP" (years before present). Calibrated or corrected dates may be many years different from radiocarbon dates, and are written as "cal bp" or as calendar years.

The abbreviations A.D., B.C., and B.P. (sometimes written as AD, BC, or BP) all appear in the literature for our area. We quote dates exactly as we find them in the literature. In our own timelines

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we use B.P., which means rybp unless otherwise indicated. All B.P. dates are approximate and will vary. Finally, we write four digit numbers that are not dates with an inserted comma.

Orthography, Style, and Alternate Names

The essays in this book vary in length and style, but each is written in the unique voice(s) of its author(s). We have tried to conform to our publisher's guidelines, academic conventions, and the established traditions of rock art as a field of study. We have also tried to retain originality and provide clarity. The reader may find repetition in the use of certain information or sources, although we have tried to minimize that where possible.

Inconsistent spellings of some words and entrenched variations of others exist in the literature, as do alternate place-names or designations (see Thomas, Pendleton, and Cappannari 1986:279–280, for synonymy). For example, "Shoshone" and "Shoshoni" or "Koso" and "Coso" are each frequently used. We follow the original source in spelling and usage in all quotations, but prefer "Shoshone" and "Coso" in our own text.

Little Lake is within the tribal territory of the Native people known as the Western (Newe) Shoshone, also known as the Panamint or Coso Shoshone (Kroeber 1925) and self-identified as the Timbisha Shoshone. We follow Garfinkel (1978) and Ritter (1980) in the use of "Panamint Shoshone" (and not "Panamint Shoshoni," as in Aikens 1994:39). We prefer "Owens Valley Paiute" over "Owens Valley (Northern) Paiute." In 1983 the Western Shoshone of Death Valley, Saline Valley, and Panamint Valley—traditionally, this group includes the Little Lake Shoshone—were federally recognized as the Timbisha Shoshone (Tümpisa Shoshoni), and their cultural life has subsequently been centered in Death Valley National Park. *Timbisha* apparently derives from the Shoshone term for rock (Underwood 2006:183).

Numic is a linguistic branch of Uto-Aztecan, the pronunciation of which is not Nümic—as it is most often heard—but rather "Numic, with the 'u' as in nut" (Thomas 1994:57). Numic languages are further subdivided as Western, Central, and Southern Numic and have varying degrees of dialect diversity (Miller 1986:99). The linguistic picture for the immediate Little Lake area includes blurred dialect differences, somewhat indistinct linguistic boundaries, and areas of bilingualism and intermarriage (Miller 1986:100). Briefly, however, the Panamint Shoshone spoke Panamint, a branch of Central Numic. The Owens Valley Paiute spoke dialects of Mono which, "along with Northern Paiute," comprise Western Numic (Liljeblad and Fowler 1986:412). The Kawaiisu (*Nïwi*) language is either a dialect of Southern Numic or a separate language (Zigmond 1986:398, 410), but is generally considered to be Southern Numic (Miller 1986:99). Words from Numic languages vary considerably when transcribed into English texts, and the use of diacritical markings has evolved. Any non-English word in our text is italicized when it first appears and thereafter it is not. This is in accordance with our publisher's guidelines.

We follow Underwood (2006:182), who distinguishes between Mountain Kawaiisu and Desert Kawaiisu and argues convincingly for their overlapping use of resource territories. Underwood (2006:182) also says that the Desert Kawaiisu were known as the *Magunuwu*, a name meaning "people of the point," with the "point" probably being Telescope Peak (called *Mugudoya*), the highest point in Death Valley National Park.

"Coso Range," "Coso Style," "Coso Tradition," and "Coso petroglyph area" are all given as designations for the major rock art concentration near Little Lake Ranch. We follow Gilreath (1999), who builds on the work of Grant, Baird, and Pringle (1968), to define Horse Canyon, Petroglyph Canyon, Sheep Canyon, and Renegade Canyon on the North Range of the Naval Air Weapons Station (NAWS), China Lake, California, as the "Coso Rock Art Landmark" or "Coso Landmark." The NAWS area contains 16,000 identified archaeological sites (Kaldenberg 2010:1), and the Coso Rock Art Landmark is linked archaeologically to the Prenumic and Numic and attributed ethnographically to the Panamint (Coso) Shoshone (Gilreath 1999; Hedges 2002; Whitley 2003:95, note 4). Portions of the "core" Coso area are also attributed to the Kawaiisu (Garfinkel and Williams 2010).

"Indian" and "Amerindian" are words we have avoided wherever possible (*indio* appears in Spanish-language texts). "Native Californian" and "Native American" are used in recent literature, as is "Native" or "Native peoples." All of these terms should be taken to mean aboriginal (early) but not necessarily indigenous (original to a place). By the same token, "Anglo" is usually understood as non-Hispanic but also may mean non-Native. In historic Owens Valley literature, non-Native peoples are usually referred to as "whites," "Americans," or "Euro-Americans." Native peoples who worked with anthropologists are called "informants" in the older academic literature; the term "consultant" is preferred today.

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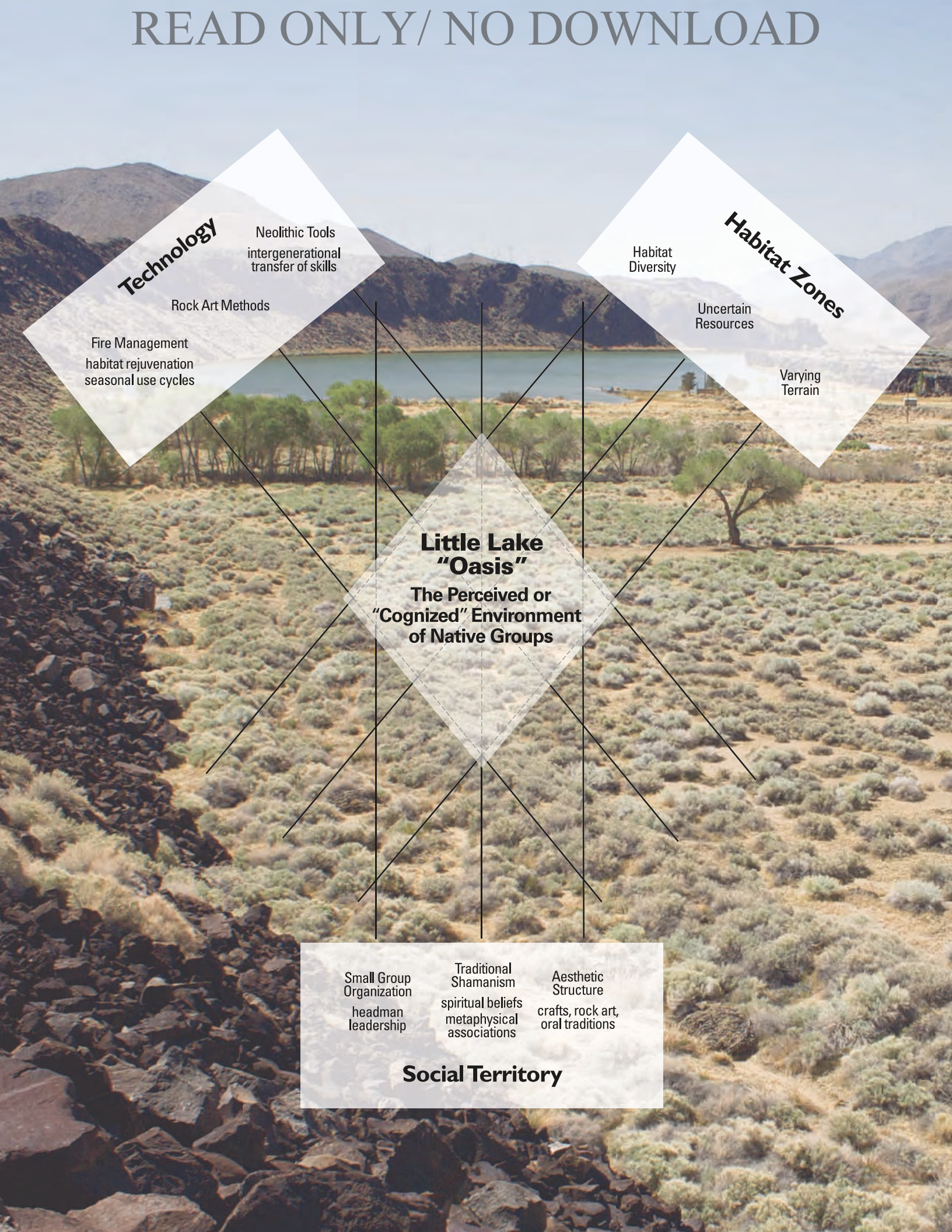

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Introduction

Jo Anne Van Tilburg

It wouldn't be any fun if the solution to every problem were obvious.
Isabel Kelly 1932

THIS IS A BOOK ABOUT ROCK ART on the Little Lake Ranch in the Rose Valley, Inyo County, California. In it we present a summary of our regional survey, inventory, and analysis of 4,901 rock art instances of production within a study area containing three archaeological sites of great significance to the region as a whole. The archaeological sites are a complex of individual entities, and the rock art is recorded as nine subsets or clusters (loci) in proximity to the sites, to one another, and within natural environment zones centered on Little Lake itself. We amplified our study by integrating into our analysis selected objects held by major public institutions and in private archaeological collections.

We approached our data with rigor adequate to its complexity and the site's conservation imperative, and present our findings in a format allowing evaluation, confirmation, or refutation by others. We regard rock art symbols as authentic artifacts of human behavior and consider rock art production a significant activity producing cultural resources of social value. We began, therefore, with two basic research questions: What motivated such behavior? What was the purpose and time frame of the activity?

Figure I.1
Hypothesized interaction between Native technology, social behavior or territory, and Little Lake Ranch habitat zones to create the "cognized" environment.
Adapted from Butzer 1982.

Organization of Our Book

This volume is the product of 10 years of seasonal, weekend-long field forays to Little Lake Ranch by the University of California, Los Angeles (UCLA) Rock Art Archive interdisciplinary research team—about one month total in the field. Our research paradigm is predicated upon our ability to tease out of the cumulative data a connective web of associations, and our major objective is to transcend traditional barriers between rock art and archaeology. We contend that the best way to understand rock art at Little Lake Ranch—or, for that matter, anywhere—is to build a data matrix that incorporates as many of the intricacies of cultural and material context as possible.

Section One is entitled "Vistas" and contains two chapters meant to establish a sense of place. In Chapter 1 Allen F. Glazner describes Little Lake in the context of the area's unique geological and hydrographic history. In Chapter 2 we state our "oasis concept" in which we suggest the interaction between society, rock art symbols, nature, and natural resources. Our temporal baseline is the associated time frame provided by the Little Lake radiocarbon and obsidian hydration chronology outlined by Pearson (1995).

In Section Two, "Visionaries," we present the heart of our research. A summary statistical description and stylistic analysis of the Little Lake Ranch Rock Art Complex is given in Chapter 3. We describe the occurrence, concentration, distribution, and formal variation of pecked and painted motifs within a formal analysis grounded in previous research. We treat defined motifs as discrete from amorphous elements or random pecking, and we separately analyze rock art patterns produced by scratching. The following four chapters build on that baseline to examine discrete data subsets: the atlatl or spearthrower motif (Bretney); scratched patterns (Reed); the desert bighorn sheep motif (Van Slyke and White); and painted rock art (Van Tilburg and Backes). In Chapter 8 (Van Tilburg), we offer a preliminary consideration of Little Lake Ranch rock art and ancient aesthetics.

Section Three is entitled "Vernacular." In Chapter 9 Jim Pearson, one of the co-owners of Little Lake Ranch, sketches the local history of the area and gives an overview of the role the ranch has played in rock art preservation. From about the middle of the nineteenth century, mountain men, miners, freighters, soldiers, *bandidos*, collectors, writers, painters, and naturalists all entered the Rose and Owens valleys. These newcomers—commonly called "Euro-Americans"—confronted and ultimately

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subjugated by force the Numic peoples who lived, hunted, and gathered throughout the arid landscape and especially along the shorelines of Little Lake and other life-giving lakes and marshes (Crum 2001). Judith W. Finger (Chapter 10) takes up the further description of these Native peoples through her ethnographic and historical focus on Paiute and Panamint Shoshone basketry from the Little Lake area, and compares some design elements to rock art motifs. In Chapter 11 we detail our recovery of one of the few known intact Owens Valley Brownware pots and integrate it into the regional pottery study conducted by Jelmer W. Eerkens. We describe pottery manufacturing techniques and design vocabulary, aspects of which we relate to scratched rock art production.

Research Approach

The Great Basin archaeological community has produced a rich and vibrant literature that is invaluable to our study. The Desert Archaic model originated by Jennings (1986) and the settlement pattern studies and chronological clarifications contributed by D. H. Thomas (1983) are seminal works. Recent evidence confirms a pre-Clovis presence in North America at least 15,500 years ago (Waters et al. 2011), although research in the Coso region provides a contested local rock art chronology (Gilreath and Hildebrandt 2008:7-9).

Rock art production at Little Lake Ranch is bracketed within a time frame possibly beginning from 11,000 years to at least 6,000 years before the present and reaching to 1872. This vast Prenumic to Numic spectrum contains an impressive complexity of regional technological, economic, social, political, and religious practices. We address our data within a Little Lake Ranch Rock Art Complex interpretive matrix that strives to be inclusive (Figure I.1). We synthesize our evidence using what Kirch and Green (2001:42) call the "triangulation method." It is based upon a classic metaphor in which diachronic and synchronic evidence drawn from multiple fields is brought together to create mutually reinforcing and mutually constraining constituent arguments. If these "diverse evidential strands all converge," they support a given hypothesis because it is implausible that *all* of the various *independent* strands of evidence are in error (Kirch and Green 2001:44, citing Wylie 1992:28; Lewis-Williams 2002:102, citing Wylie 1989).

Our research strategy is broadly referred to as "holistic" or "contextual archaeology." It was established as an outgrowth of anthropology (Butzer 1982; Hodder 1987:5; Kirch and Green 2001; Rappaport 1971, 1979) and has informed some recent rock art research (Chippendale and Nash 2004; Quinlan 2007). Our research questions include the following: Can those rock art motifs that have cermonial value be isolated from those that do not? In other words, can the collective self be isolated from the individual self in rock art? Can gender, age, or ethnic identity be inferred by analyzing selected motifs in other crafts or media that are comparable to rock art elements? Our responses to those questions are informed but preliminary and open to discussion.

Schaafsma (1986:217) notes that style in rock art may be defined as "a related visual complex with specific formal attributes and with given cultural, spatial and temporal dimensions." By her definition, we assert that the Little Lake Ranch Rock Art Complex constitutes a style area embedded in or related to Great Basin rock art yet discrete from Coso rock art. Ethnographically documented cultural groups sharing a common resource territory, subsistence system, and ideology "have preferential ways of arranging design elements" repeatedly on a wide variety of crafts including pottery, basketry, and portable objects (Washburn and Crowe 1988:24). We define the Little Lake Ranch rock art aesthetic through our exploration of such "preferential ways."

Sources: Some Cautionary Notes

The best-known early written descriptions of Owens Valley Paiute life were made by Captain J.W. Davidson and date to 1859 (Wilke and Lawton 1976). A basic text for the Owens Valley was written by a pioneer journalist and historian known as W. A. "Bill" Chalfant (1868–1943; 1933). The Paiute individuals with whom Chalfant had contact were among the resettled Native groups of Bishop and Lone Pine.

Salvage ethnography in California began under the direction of Alfred E. Kroeber (1876–1960) who spearheaded the effort from his post at the University of California, Berkeley (1901–1946). In the 1920s American anthropology students and professionals were dispatched to the Owens Valley. By that time, "the pathetic battles had all been fought, the diseases had run their course, the major villages had been abandoned, and native lifeways existed only in the memories of the few aged individuals born long before the first white settlement was built in Owens Valley" (Bettinger 1991:463; Cook 1976:481, 501–504).

During two six-week visits to the Owens Valley and Mono Lake area in 1927 and 1928, anthropologist Julian H. Steward (1902–1972; 1933b:234) salvaged a wealth of Owens Valley Paiute data basic to all subsequent studies (Clemmer, Myers, and Rudden 1999; Liljeblad and Fowler 1986:433). In 1938, Steward continued his work among the Western Shoshone (Thomas, Pendleton, and Cappannari 1986:274–275). Recent scholarship suggests that professional bias may have shaped some of Steward's data. For example, he came to believe that Native hunter-gatherers were largely reactive in the natural environment. Omer C. Stewart (1908–1991), in

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contrast, showed that they had a direct influence on nature through deliberate alteration and management of the environment, especially by the use of fire but also by pruning and seeding plants (Lewis 2009:18).

In the 1950s Julian Steward served as a witness for the U.S. Department of Justice against the Northern Paiute claim of traditional ownership of the Owens Valley. O. C. Stewart, A. L. Kroeber, and Robert F. Heizer supported the claim. When confronted with his own map showing the boundary between the two groups, Julian Steward's "response was that he had changed his mind" (Lewis 2009:20). Steward's bias may have been that he "liked the romance of Indian lore, but didn't care much for the Indians" (Lewis 2009:19–20).

Julian Steward worked with 11 Owens Valley Paiute men and two women, as well as two Shoshone men and one woman. The average age of the Paiute male consultants was 56, although this number is skewed somewhat by the presence of one man (Jack Stewart) whose age is given as 100 (Steward 1933b:348, Plates 8e, f; Liljeblad and Fowler 1986:419, Figure 3). Some information came to Steward second- or even third-hand. Tom Stone, for example, was the source of information about girls' puberty ceremonies which, presumably, came from his wife Lena (Steward 1933b:234, 341, Plate 1c). Ed Lewis provided a brief statement about Paiute rock art at Fish Springs (Steward 1933b:335, 341, Plate 1d).

It is a truism in all parts of the world that nearly all early ethnographic consultants were male (Ellen 1984:120–128). This is a type of bias reflective of the mores of the times in which most ethnographic data were collected. It is also due to the reticence of the women themselves, many of whom were sensitive to the social emphasis given to male activities. Two important Native consultants for Julian H. Steward were George Hanson and George Gregory.

A very interesting "polygon" of ethnographic contact spans three generations and entwines these men with anthropologist Julian Steward and an ethnographer named Mark Kerr. It begins with George Hanson (Figure I.2), also known as Panamint George or Indian George, a venerable elder who famously witnessed the arrival of some of the Forty-niners and was a Panamint Shoshone head man. The next link in the chain is George Gregory (Figure I.3) who was from Indian Gardens south of Darwin. George and his family were raised as Shoshone, although they were in close contact with Paiute people, customs, and mythology all of their lives (Irwin 1980: iii).

George Hanson's son married George Gregory's daughter, and in addition to being consultants to Julian Steward, both knew Owens Valley resident Mark Kerr (1883–1950; Kerr 1979) who collaborated on a valuable ethnography with a Shoshone woman named Esther Checo. The interactions between and among all of these individuals within such a small community over many years created an intricate, overlapping exchange and interchange of information. Oral histories ebbed and flowed, and information was naturally shared, repeated, enriched, and influenced in ways that are not, to date, fully understood (Bettinger 1980:305–306).

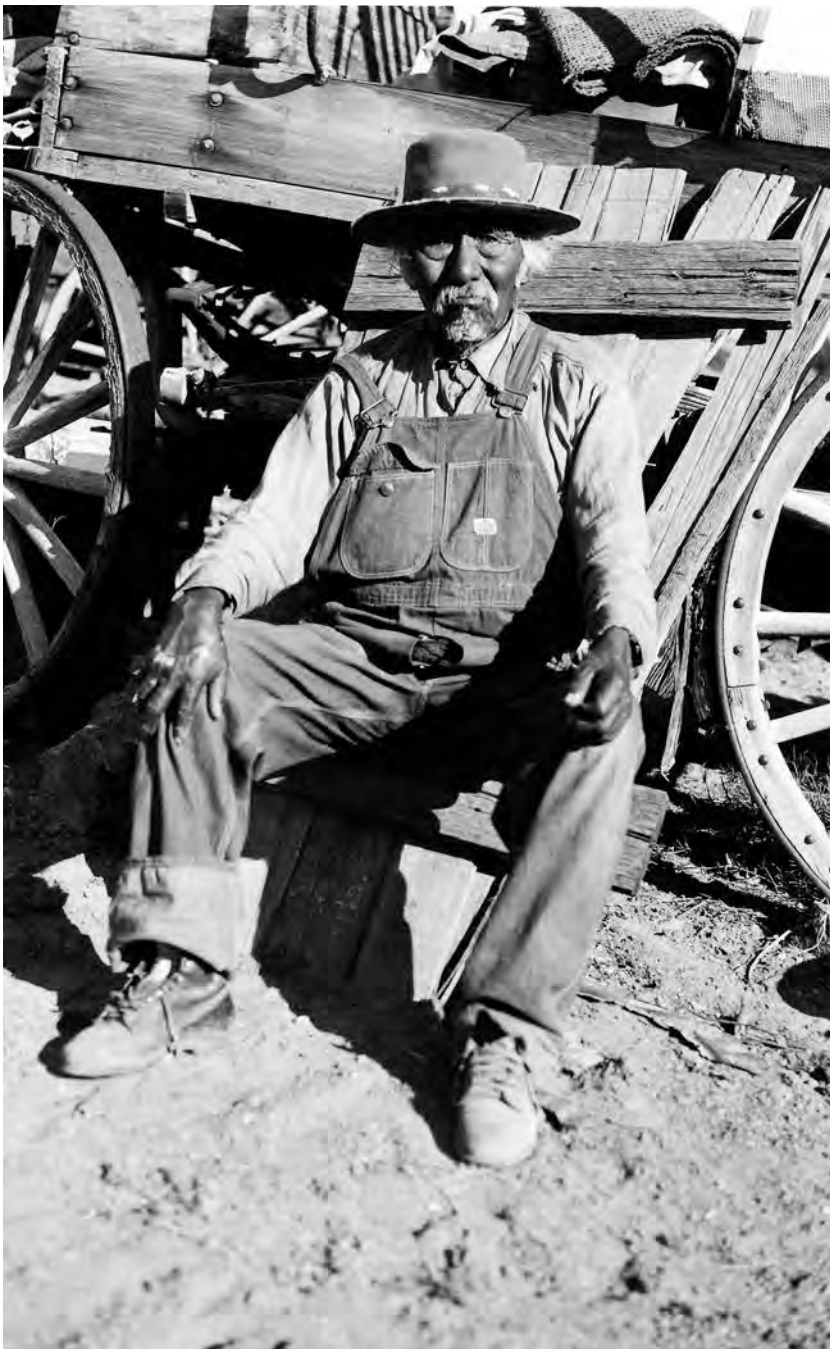

Figure I.2

George Hanson/Hansen (b. 1841), ethnographic consultant to anthropologist Julian H. Steward, 1936 (Boyles 1940). Photo by Mark Kerr.

County of Inyo, Eastern California Museum.

When Mark Harrington (1957) excavated at the Stahl Site, he was visited there by Buster Hanson, one of George Hanson's adult descendants. An "old man" who "claimed to be more than 80 years old" was with him. He had been born near Little Lake and lived there until he was about 15 years old and then moved to Darwin. It is possible that Harrington is describ-

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ing George Gregory. If so, the ethnographic reach of Panamint George Hanson and George Gregory through Buster Hanson extends to Mark Harrington and Little Lake Ranch rock art.

Our comprehensive rock art research paradigm regards the maker of rock art through the same lens as it does the traditional teller of tales, the weaver of intricate basketry, or the singer of songs. That is, as bearers, keepers, and manipulators of concise but nonetheless complex and evolving histories—including aesthetic vocabularies of shape, form, color, texture, sound, and light—to express, transmit, amplify, and preserve adaptive and vibrant Native culture over time.

Levels of Rock Art Meaning

Art in all cultures relies upon metaphor and attaches it to objects, costumes, or symbols. Metaphorical and symbolic uses of objects are, in fact, the *essence of ritual*. Discerning the *presence* of metaphor within a motif or series of motifs can be framed as an objective research task. Inferring the *content* of metaphor, on the other hand, is almost always subjective and nearly impossible to verify. Rock art motifs are meaningful "only through their associations, which they acquire through being associated with or opposed to one another in all sorts of *contexts*" (Wagner 1981:37). A context, in turn, is a conventional or interrelated part of an unlimited larger environment, situation, or experience. Any motif is capable of being "involved in many cultural contexts" (Wagner 1981:38).

In our work at the UCLA Rock Art Archive, we have found it useful to follow the three-tiered model of meaning developed by Rappaport (1979, 1999:70–74, 392–395). In his scheme, lower-order (Level 1) meaning is grounded in objective, even semantic, distinctions. It is accessible and most often attained in taxonomies. Rock art motif analysis is the tool we used to discover lower-order meaning in Little Lake Ranch rock art.

Middle-order (Level 2) meaning is discoverable when analysis uncovers more subjective but nonetheless formal "similarities hidden beneath the surfaces of apparently distinctive phenomena," and when those similarities can somehow be measured or otherwise shown to be significant (Rappaport 1999:71). A good example of middle-order meaning is scratched pattern recognition (Reed, this volume). Another is the quantification and explanation of the formal differences in conventionalized bighorn sheep body forms and atlatl motif types (Van Slyke and White, this volume; Bretney, this volume). In contrast to taxonomy in lower-order meaning, pattern recognition in middle-order meaning can be coupled with good ethnographic data to arrive at an analysis which may suggest metaphor.

Higher-order (Level 3) meaning is the holy grail of interpretive analysis. It is grounded in identity or unity with something or someone beyond the self, and is experiential. It is encountered in ritual, expressed as art, and almost universally described as "mystical" or "spiritual." Higher-order meaning *can be discovered only through direct participation yielding a solid grasp of the culture's internal relational framework*. Therefore, nearly all higher-order meanings attached to rock art motifs in our area today are conjectural.

Summary of Our Findings

Context and Chronology

In light of the pre-Clovis findings noted above, it possible that hunter-gatherers were present in western North America *c.* 20,000 years ago (Whitley 1998d:45). We did not attempt direct dating of Little Lake Ranch rock art, but instead made use of the temporal framework provided by three directly associated archaeological sites of major regional importance. They are the Stahl Site (CA-INY-182), Stahl Site Cave (CA-INY-205), and Pagunda (CA-INY-3826).

Prenumic Stahl Site use reaches back to the Lake Mojave period (11,000–*c.* 6000 B.P.) and is a benchmark of the Little Lake period (6000–3150 B.P.; Byrd and Reddy 2004; Garfinkel 2007:117–118; Harrington 1957; Jenkins and Warren 1984; Meighan 1981b; Pearson 1995; Steward 1937, 1938; Warren and Crabtree 1986:184–187).We assume that some rock art production co-occurred with this initial Prenumic presence; this is indicated by at least one time-marker motif: the atlatl. We follow Byrd and Reddy (2004), Pearson (1995), and Yohe (1992), who show the occupation of Pagunda to be from the late Newberry (3100–1350 B.P.) and Haiwee (1350–650 B.P.) periods. Therefore, we assume Numic rock art production at Little Lake Ranch from *c.* 1000 B.P. (Kaestle and Smith 2001; Madsen and Rhode 1994). A few Prenumic and Numic objects in museum and archaeological collections have stylistic resemblances to rock art motifs and, as such, may be time-markers (Meighan 1981c:81).

Concentrations and Sequence

The largest concentration of the oldest (Prenumic) rock art is at Atlatl Cliff, which is spatially related to the Stahl Site and its early dates. We suggest a preliminary stylistic sequence for the atlatl element based on objectively evaluated levels of patination. Scratched rock art patterns are concentrated at Pottery Slope, which is adjacent to Atlatl Cliff. In sharp contrast, the *surviving* painted rock art is all related to the lake. A wide range of other rock art elements nearer Pagunda has subjectively evaluated levels of patination suggesting varying time depth. Archaeologically documented activities conducted at Pagunda include food resource procurement, preparation, and consumption; building of shelters;

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crafts production; and tool making. Native people were present near Stahl Site Cave in 1872, and some elements there may be from that time period. However, Stahl Site Cave elements are not factored into our analysis due to heavy disturbance of the cave and alteration of the rock art. One interesting historic element—a scratched representation of a steam locomotive—is recorded. Modern graffiti at Little Lake Ranch is scant.

Terrain

A significant amount of rock art research for our area is conducted in isolation from geography and archaeology, although that trend is changing. Single-site analyses such as ours are usually not cross-referenced to other rock art sites and hardly ever to non–rock art archaeological sites, making controlled comparisons difficult. In contrast, we use the concept of terrain—as distinct from landscape—to focus our attention on rock art distribution patterns. We show nine discrete clusters of rock art and discuss them as they relate to the three sites given above and, as well, to geology, habitat zones, and available resources. Little Lake Ranch is literally on the cusp between the Great Basin and the Mojave Desert, and we explore its rock art within the context of this geography.

Landscape

We accept the hypothesized values embedded in the concept of "operational" and "cognized" environment articulated by Rappaport (1979), and apply these terms to explore the social realization of the Little Lake landscape as a meaningful place. We tried to tease out of the available data some insight into the attitudes, ideas, and ideals held by the Native peoples who not only foraged and lived along the lakeshore but, over centuries, nearly encircled the lake in rock art. For Numic peoples, Little Lake itself was—and perhaps still is—a place of strong metaphysical associations, and we suggest that at least some of the rock art nearest the lake was inspired by such associations. In turn, the resultant concentration of rock art enhanced the lake's inherent qualities or value. In this regard, we follow Dissanayake (1988:95) who notes that her concept of making something or someplace "special" is distinguished from simply "marking" it because doing so shapes and embellishes "reality (or experience) so that it appears additionally or alternatively real." In her construct, the action of "making special" is deliberate.

Classic and Iconic Representations

Conventionalized motifs—those that are "classic" or "iconic"—all have a powerful ability to "stand for" or denote something other than themselves (Wagner 1981:42). A classic rock art motif is recognizable in two ways: by the presence of standardized attributes representing consistent characteristics and, secondly, by frequent occurrence within a defined area or culture. Such a classic motif is *presumed* to have meaning. In contrast, an iconic motif or icon actually *signifies* meaning "by virtue of sharing a property with that which it represents" (Hodder 1987:3). The purpose of icons is clear: they are meant to focus attention and encourage participation in ritual or performance (Renfrew 1994).

Representational or "realistic" figurative elements, when conventionalized, become hyper-realistic and may then enter the classic or iconic realm. Recent research revisits the thesis of a bighorn sheep "cult" marked by its own iconic motif and correlated with an increase in rock art production and, as well, with archaeological evidence of a dramatic decline in the bighorn sheep population (Garfinkel, Young, and Yohe 2010; Grant, Baird, and Pringle 1968).

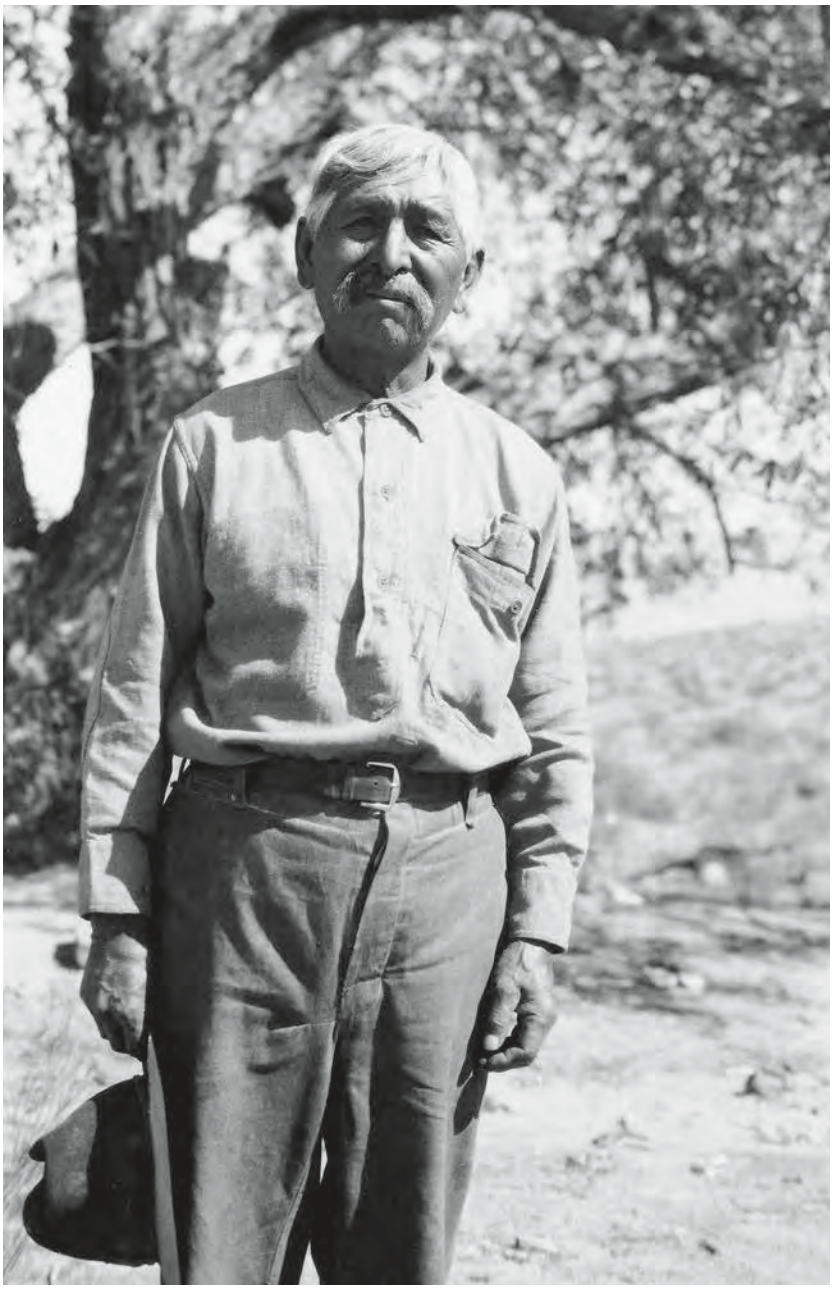

Figure I.3

George Gregory, consultant to Julian H. Steward and member of George Hanson's family, 1936.

County of Inyo, Eastern California Museum.

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The bighorn sheep motifs at Little Lake Ranch are considered within this context.

Ethnic and Personal Identity

During ethnographic time Pagunda was a major Panamint Shoshone semipermanent encampment referred to as a "village" or "hamlet" (Steward 1937, 1938; Thomas, Pendleton, and Cappanneri 1986:264, Figure 1a). Territorial boundaries throughout the area, if not completely flexible, were permeable, and other Numic groups frequented the Little Lake area from *c*. 1000 A.D., including the Owens Valley Paiute, the Kawaiisu, and the Tübatulabal.

There is good ethnographic documentation of decipherable, if overlapping, ethnic identity markers in body art among California groups and interwoven in basketry design among the Panamint Shoshone, the Kawaiisu, and the Tübatulabal. In basketry, for example, ticking (multiple vertical lines) and enclosed bands of designs were common, while the vertical or diagonal orientation of lines or stacks of similar motifs is a demonstrable aesthetic preference of the Panamint Shoshone. The preferred direction of the spiral in weaving is different for the Owens Valley Paiute than it is for the other groups.

Depictions of spiritually important beings followed certain rules. Rattlesnake, for example, was usually depicted by zigzags or chains of diamonds arrayed vertically by the Owens Valley Paiute and horizontally by the Panamint Shoshone, the Kawaiisu, the Tübatulabal and, among the California groups, by the Yokuts. Hidden personal identity markers, including the so-called menstrual marks, were often interwoven with basketry designs. We conducted several relationship tests on these and other motifs. Our tests were inconclusive because our samples in several of the motif categories were small, but the potential of such analysis remains. The painted rock art at Little Lake Ranch was originally recognized by Campbell Grant as containing hints of the Yokuts style—probably via the Kawaiisu and Tübatulabal—and we agree with this early opinion.

Trade, Exchange, and Interconnectivity

Ancient Great Basin trade networks for nonperishable items, including shell and obsidian, are well documented (Hughes and Bennyhoff 1986). Fowler (2009:85) reconstructed what she calls "the mental and physical world of travel" using ethnographic data for trails in the territory of the Las Vegas Southern Paiute and Chemehuevi. Sutton (1981:124) discussed north–south interconnectivity between the valleys of the Western Mojave and suggested the existence of "gateway communities" between valleys. Trans-Sierra linkage through trade, particularly of Coso Sugarloaf-quarried obsidian but also of marine shell (*Olivella* sp. and *Haliotis* sp.), is established. We are drawn to the concept of a "gateway" between the Indian Wells Valley and the Rose Valley, and view Little Lake itself as a crossroads of Native Great Basin and California cultures.

Rock Art, Crafts, and Gender

The concentration of rock art at Little Lake Ranch is second only to that of the nearby Coso Rock Art Landmark and, therefore, constitutes a priori evidence of the regional importance of the lake and its environment. Scratched rock art is predominantly associated with one locus: Pottery Slope. A cached Owens Valley Brownware pot and a stone *mano*, or grinding tool, were both found at Pottery Slope during our fieldwork. The links between those objects and the female gender are undeniable, and we extend the relationship to include scratched rock art patterns and pottery surface decoration. We assert that at least some Little Lake Ranch rock art was made by girls and/or women.

Social Relations and Leadership

We briefly explore the well-trodden ground of social power vis-à-vis shamans. We note the changing ways in which shamans were perceived by ethnographers, how those perceptions impacted the inferences drawn in the field, and what such a situation means to rock art interpretation today. We note the relative transience of leadership status within Numic communities and explore the levels of ritual responsibility accorded leaders and shamans (Clemmer 1989). We reason that shamans, not all of whom were male, made some, but not all, rock art and that they did so in social and ceremonial contexts primarily but not exclusively centered on curing and healing. We conclude that there were multiple social goals for rock art production.

Wealth Transmission and Rock Art

Hunter-gatherer groups in our area were not relentlessly egalitarian and forms of material wealth existed. The potential for success in a range of activities, from hunting to crafts production, was created and sustained by the inter-generational transfer of specialized knowledge and skills. We explore the idea that some rock art elements commemorate success for the purpose of accruing and transferring its associated value (status) as wealth to the next generation. In this discussion we draw upon the recent work of Bowles, Smith, and Mulder (2010) and their notion of "embodied" success in hunter-gatherer societies.

Competition, Conflict, and Cooperation

Steward (1938) mapped—but, as noted above, later downplayed or denied—territorial boundaries for our area, and somewhat higher social organizational levels than he detected are more recently conjectured (Clemmer, Myers, and Rudden 1999). With the exception of cultivated plots among the Owens Valley

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Paiute, however, no claims of property exclusivity or ownership are documented. Seasonal variation and overlap in resource exploitation by mobile foraging Numic groups in the larger Little Lake area was described by Steward (1938:254) as "sparse and erratic" with "no competition" for plant food. Yet names of resources traditionally attached to some Numic groups as identity markers are believed to refer to land use and thus to resource claims. Vital water resources were shared, especially those thought to have healing properties as well as those in the vicinity of camps such as Pagunda (Steward 1938:74, 81, 253). While fringe areas interfacing with non-Numic groups were conflicted during ethnographic time (Sutton 1994), virtually nothing is known of organized warfare that does not involve Euro-Americans. In terms of Little Lake Ranch rock art, we see little purposeful destruction. There is scant evidence of scratching to obliterate underlying pecked motifs, only a slight amount of superimposition, few "exotic" elements, some modification, and little vandalism.

Ancient Aesthetics and Belief

There are hints of ceremonial or ritual behavior embedded in the archaeological objects from the Stahl Site and Pagunda excavations, and it is plausible that some rock art—perhaps most of it—was produced by individuals in the context of belief but not necessarily during ceremony. Shamanism and, specifically, vision quest activity is a probable explanation for rock art in the Painted Cave (Locus 3). We recognize the insights gained in rock art studies through applied biological theory and cognitive neuroscience (Lewis-Williams 2002; Renfrew and Scarre 1998; Whitley 1998a), but the question arises: if a biochemical process is the causal explanation or genesis of a given design unit, to what extent are culturally embedded values the impetus for assembling design units into motifs, and how do motifs evolve into icons? Clearly, if visual images are "just patterns of light," they cannot have "innate or self-evident associations" (Wagner 1981:41). Our current data simply *do not allow* us to assume that biochemical correlates of certain basic rock art design units are without doubt their cultural raison d'être.

A Rare Opportunity

Through my work as an advisor to the UCLA Rock Art Archive since 1980 and as volunteer director since 1997, the Cotsen Institute of Archaeology has given me the opportunity to integrate my research interest in three-dimensional, figurative stone sculpture—specifically, the incomparable monolithic statues (*moai*) of Easter Island—with two-dimensional carvings and paintings. On first glance, Easter Island and Little Lake have little in common, and the questions their respective societies raise about human behavior seem to be far removed from one another. The founding culture of Easter Island is a Polynesian chiefdom; in contrast, the transient Prenumic and Numic hunters and foragers of the Little Lake area formed loosely organized small groups or bands seasonally on the move within a large territory. Yet both Little Lake and Easter Island are oases; one is landlocked in the California desert, and the other is anchored alone in the remote Pacific.

Campbell Grant, a research pioneer and early contributor to the Rock Art Archive, believed that the Coso Rock Art Landmark—not unlike Easter Island—was "an island of specialized art tradition" that "apparently developed in almost complete isolation" (Grant, Baird, and Pringle 1968:115). He believed that the Coso Rock Art Landmark was a sacred destination and that most of the rock art there was the product of ceremonial activity centered on the procurement of large game animals. We explore this inspired idea—as well as expansions on it and dissenting views about it—in our discussion of art and aesthetics.

The puzzle of florescing human creativity in marginal, evolving environments exists on islands and in deserts and the research questions thus raised are compelling. They include such issues as choices made in aesthetic expression, religious adaptation, economic survival with limited resources and in evolving climates, and continuity in the face of devastating incursions by outsiders. Art and archaeology are not intrinsically incompatible; art and science are not really poles apart. Our modest goal is to answer only those questions that our limited data can address.

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Field and Archive Methods

Gordon E. Hull

THE ROCK ART ARCHIVE of the Cotsen Institute of Archaeology at UCLA was established in 1977 by the late professor of anthropology Clement W. Meighan and by C. W. Clewlow, Jr., then chief archaeologist of the (since renamed) UCLA Institute of Archaeology (Van Tilburg 1997). The founding purpose of the Archive was modest, and the major goal was to act as a repository for duplicate rock art site records and site reports. Over the years that purpose has evolved. Additional materials have been generated by Archive field teams or collected from donors. These include published and unpublished manuscripts; correspondence and original field notes; books and book galleys; videos, audiotapes and films; tracings on plastic and fabric; and a vast number of original photographic slides, prints, and negatives. To preserve this material for posterity and to maximize its research value and potential, the Archive now digitizes all visual and some paper records. An all-volunteer staff aided by UCLA graphics arts and design students, supervised by this author, performs these tasks.

Figure F.1
Gordon E. Hull reviewing downloaded digital photographs during the 2002 field season.

In 1997 volunteer teams drawn largely from various UCLA Extension Division classes in Rock Art Analysis taught previously by Meighan and, at the time, by Jo Anne Van Tilburg, began to generate a body of original data at Little Lake Ranch, a protected, self-contained site on private property in Inyo County, California. Their initial work provided photographic evidence that the rock art was subject to varying degrees of damage due to earthquake, plant growth, wind, sun, and water, as well as some minor vandalism. It was also clear that, because of the varying microenvironments in which the rock art is found and the differing states of rock art panel preservation conditions, a variety of recording techniques would be required. It was decided to record the rock art at Little Lake Ranch by using a myriad of different tools, among which were digital and film cameras, laptop computers, tracing and sketching materials, and GPS (global positioning system) and EDM (electronic distance measurer) survey and mapping equipment.

Data Collection

The primary means of recording rock art worldwide are essentially the same. The basic methods most frequently or traditionally cited are photography and drawing (Apostolides 1975; Hedges 1999:191–201). According to Hedges (1999:191) "the primary record of rock art should be full photographic coverage." We concur, and at the UCLA Rock Art Archive photography is the method of choice and the digital camera is the preferred device. The basic rationale is that digital image capture allows for immediate downloading into a laptop computer where images can be viewed in the field for accuracy, quality, and

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Figure F.2
Rock Art Archive volunteers gathered for a briefing prior to going into the field at Little Lake Ranch.

visibility (Figure F.1). In addition, digital image storage, especially with a large database such as that collected at Little Lake Ranch, is economical. We use slide and negative photography as a backup recording method. Paper recording forms are essential in order to match the image numbers to the panel numbers assigned in the field.

We used reflector/shade devices as needed to provide adequate light or shade for accurate viewing of a panel or element. Tripods are required to photograph some individual elements or panels or to generate panoramas of loci or sites. From time to time, a ladder or specialized rock climbing equipment is required to reach rock art elements. We used laptop computers to store the digital photographs in named or numbered files. Sufficient battery power enables the processing of one full day of images in a single computer. Multiple computers are sometimes used in the field to expand data collecting, image review, and filing potential. When images are to be observed on the laptop screen in the field, a computer workstation consisting of a tent, a table, and a chair is minimally required. The shade provided by the tent is needed to keep the computer cool and to allow the screen to be visible despite bright sunlight.

When photography is not possible due to light and positional conditions, or if additional details are desired, rock art panels are drawn. Sketchpads, clipboards and graph paper, appropriate pencils and pens, and cord to make a grid layout are needed for sketching panels. If tracing is thought to be necessary, it can be performed on those petroglyphs capable of withstanding the requisite pressure applied by the recorder. Plastic film, masking or other types of tape, and permanent markers are some of the additional tools required for tracing.

As the Little Lake Ranch rock art recording project grew and developed, the scope of the research project also expanded. The entire crew, with the exception of the UCLA graphics arts and design students working regularly at the Archive, was made up of volunteers drawn, as noted, from UCLA Extension Division classes or, in some cases, from the Friends of Archaeology support group at the Cotsen Institute. The volunteers brought with them a myriad of valuable skills. Those with an engineering background performed mapping tasks; others, some of whom were professional artists, illustrators, or photographers, sketched, photographed, or traced panels (Figure F.2). Some recorders scrambled up and around steep rock faces to locate new rock art panels; others recorded photographic data on field forms, held the reflectors as needed, or helped with the mapping. On several occasions at Locus 7, rock climbers rappelled down cliffsides to photograph otherwise unreachable rock art panels (Figure 5.2). This author manned the computer workstation and reviewed and organized each day's image collection.

Field Methods

The first field tasks were to locate and identify panels and determine locus boundaries and a rough estimate of the size of the site. Nine loci and three areas with preassigned site numbers were identified. Following that, other specific tasks could be carried

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Figure F.3

John Bretney shading a rock art panel while Alana Perlin photographs and Bill White records data.

out more or less simultaneously. When the geographic parameters of a particular locus were determined, a crew assembled at the locus with a set of colored flags and masking tape and then dispersed to locate rock art panels on slopes or cliffs at various altitudes commensurate with their climbing skills, marking with a flag each newly discovered rock art panel. When the team leader decided that all the panels had been located, a removable tape strip was attached adjacent to each panel. On each tape, a unique identification number was written, consisting of a locus identifier and panel number assigned in consecutive order.

A two-person team is required to accurately photograph a rock art panel. First, an "up" arrow with a centimeter scale, a color scale and a removable tape on which the panel number is written must be positioned adjacent to or on the panel (but not on the rock art). As the photographer captures the image of the panel, the recorder notes the panel number and the film or camera sequence number on the recording sheet. Any comments regarding the photograph, equipment performance, or the panel are written next to the panel number. For example, often the rock surface appears to the eye to have a brownish tinge to it, but the camera's preview screen shows that the digital camera has picked up a more bluish hue owing to the lighting conditions. This discrepancy is noted on the recording sheet. In some cases, a photo of the rock surface itself may also be taken to act as a color control reference. The purpose is to minimize the laboratory editing time needed for the photograph. The recorder or, in some cases, a third team member positions the reflector for additional light or shade as the photograph is taken (Figure F.3).

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Occasionally situations arise that make it very difficult to photograph a panel. The trouble may be poor lighting or too much direct sunlight. Sometimes finding a proper angle or getting close enough to the panel to take an adequate photograph can be a problem. A heavily repatinated panel can obscure the rock art, making it impossible to properly photograph. In such cases, a scaled sketch is an alternate way of recording (Figure F.4). Another method is to produce a tracing of the panel, as described above. A plastic sheet is laid over the panel and held in place by removable tape. Using a felt-tipped pen, a crew member traces the panel, carefully simulating the original rock art production methods of stippling, striking, or scratching (Figure F.5).

Mapping the Location of the Rock Art Panels

Panel locations at a rock art site must be mapped, not only to assist future researchers in relocating the panels, but also to allow for the association of sketches, tracings, and photographs with each panel at the site. Mapping also establishes relationships between the rock art and ethnographic and natural features; this allows conclusions to be drawn regarding the association of data with cultural material and landscape.

The methods and tools used to map the rock art panels at Atlatl Cliff, Pottery Slope, Locus 7, and the Locus 8 (Picnic Area) were not all the same, but our goal in each area was to provide unique geographical locators for each petroglyph panel. Our basic tool kit—compass, inclinometer, and measurement tape—was enhanced by laser ranging survey equipment and differential GPS. A datum point within the line of sight of a group of panels was mapped in Universal Transverse Mercator (UTM) units. The easting and northing distances in meters from the datum point to each panel, as well as the panel's height in meters above the datum point, were computed from the measured magnetic spherical coordinates. These coordinates consisted of azimuth, altitude, and distance obtained using the compass, the inclinometer, and the laser ranger (Hull 1998). A typical mapping team consisted of an observer a recorder, and a flag person. The flag person held a Trimble R8 GPS Rover at the center of the panel and communicated the panel identifier to the recorder. The observer related the spherical coordinate data to the recorder who then wrote down this data adjacent to the panel identifier. The easting distance (X), northing distance (Y), and height (Z), along with the associated panel identifier, were input into a Microsoft Excel© spreadsheet format. The X and Y data were plotted and the resultant map was annotated using Adobe® Illustrator®. The map was then converted into a digital image using Adobe© Photoshop®.

Data Recovery and Archive Methods

All of the original data collected at Little Lake Ranch (that is, all photographic images and corresponding recording sheets, mapping data, sketches, and tracings) were collated and organized by locus and then stored under archival-safe standards for further processing. When all of the location, description, and motif categories (classes) and subcategories were entered into the database, the data were recorded onto compact disks to permanently store the entire data set. Once all the collected rock art panel data were brought back to the Archive, the process of organizing and analyzing it began. The following paragraphs explain how non-digital information is digitized and then stored with digital images under the control of a database management software program. Also described is how panels are analyzed in order to assign rock art to defined motif categories.

Figure F.4

Wendy All drawing a panel with a grid to achieve correct scaling, Locus 3.

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Photographic images of panels can take one of two forms: either as digital images stored in the field on the laptop or as 35 mm slides and negatives. With the help of the associated recording sheet entry data, the finished image is assigned an identifier that includes the type of image, a three-digit sequence number, the locus number, and the panel number (for example: D2346078, where D indicates a digital image; 234 is a sequence number; 6 represents Locus 6, and 078 is the panel number). In this way, multiple images of the same panel all have unique identifications. Slides and negatives are scanned using a high-resolution scanner. We assigned an identifier to each newly created digital image as before, with S (slide) or N (negative) used as the leading character. The images are stored in the computer organized by site, locus, and panel number ready for the next step.

Once the images are stored, a graphic arts student trained in the use of Adobe® Photoshop®, the Archive's preferred photo-editing program, is assigned to evaluate each image. The student looks for quality problems caused by overexposure or underexposure, color imbalances, or inaccurate focus. The editing work to be done must ensure that the rock art elements are visible but must not introduce extraneous information. It is Archive policy, when at all possible, that the student performing the editing is the person who took the original field photograph. In any case, the student must refer to the corresponding recording sheet to note any procedural problems. In general digital images require less editing than slides since digital images with major problems are eliminated in the field. As a result only 10 to 15 minutes at most are typically needed to correct an individual digital image. On the other hand, slides may require up to an hour of editing.

Mapping data recorded in the spreadsheet program Microsoft Excel© are processed to obtain X, Y, and Z coordinates relative to a datum point at a particular locus. These geographic data points are plotted and annotated with panel numbers using Adobe® Illustrator®. The completed map is converted to an Adobe® Photoshop® file that is further edited for proper size and clarity. This file is then placed in the database at the beginning of an image set for a given locus or site. The maps are then converted to the final forms presented in this volume as illustrations.

A digital photograph of each sketch and every tracing is taken under studio conditions in the Archive lab. Minor editing in Adobe® Photoshop® may be required to make the resultant images as clear as possible. Each original or edited image is then annotated with its locus number, location, panel number, date or field season, and the name of the person(s) generating the sketch or tracing.

Finally, all of the images, whether digital or scanned, are entered into Extensis™ Portfolio™, a database management program which has performed this function extremely well and to established Archive standards. The images associated with a panel are grouped by site number and locus number and stored in order by panel number in one of the Archive's master computers. The Extensis™ Portfolio™ database is the Little Lake Ranch Master Rock Art Research Database, and discrete subsets of it were used to complete analyses of scratched rock art (Reed, this volume) and the bighorn sheep motif (Van Slyke and White, this volume). The Archive database is written onto CDs and DVDs for backup purposes; a guide to the Little Lake Ranch digital and paper files stored at the Archive is provided as an appendix to this volume.

Data Analyses

We analyzed every numbered panel in the Archive motif database, the goal being to identify each individual rock art element and assign it to one of the discrete motif categories. Eight major motif categories are defined based upon a preliminary subjective evaluation of our own data corpus and an objective evaluation of previous stylistic analyses conducted by several rock art researchers for the eastern California, Nevada, and the Great Basin area (Garfinkel 2007; Grant, Baird, and Pringle 1968; Heizer and Clewlow 1973). Motif categories are: angular/linear, anthropomorphic, atlatl, curvilinear, zoomorphic, and amorphous or random pecking. The presence of scratching and graffiti are noted separately. Each motif category is further divided into subcategories or variants. All elements are assigned to one of eight general categories. Some elements are then assigned to subcategories. Unassigned elements are kept in the general categories which are then reported as if they were subcategories.

Data analyses were ongoing for many months and were conducted in the Rock Art Archive by two teams of two researchers each. Objective and subjective evaluation and discussion were essential aspects of the process. Interaction on specific element variations and other analysis issues took place between team members and often with others on Archive staff or in the Little Lake Research Group. When agreement was reached by the analysis team, design motif category identifications assigned to a specific panel were entered into each image's associated Extensis™ Portfolio™ text block. When two or more images were available for a single panel, one image was selected as the primary data source or prime image, and so designated in the text block. This eliminated duplicate design motif category entries and double counting. Field notes were entered to describe element counts, the presence of paint either by itself or over/under a petroglyph, rock type, rock surface description, the presence of a milling feature, such as a grinding slick or bedrock mortar, on or directly

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related to a panel, and the presence of superimposition, repatination, graffiti, and scratching. The above data fields associated with panels were combined with selected data fields from the State of California Archaeological Site Record form. These fields were defined in the Extensis™ Portfolio™ database and are associated with each locus. Included, for example, are fields for quad map location, presence of lithic scatter, presence of a habitation site, site area and elevation, and presence of weathering.

Supplementary Research

Robert F. Heizer Special Collection

The Robert F. Heizer (n.d.) collection of rock art images, site records, field notes, correspondence, and other original and duplicate materials was accessioned by the Archive in 1979, when it was donated by the late Mrs. Robert F. Heizer via C. William Clewlow, Jr. The materials were presented to the Rock Art Archive without any type of catalog or other organizational record, and languished for years in unlabeled boxes. A dedicated research and editing effort was accomplished by Rock Art Archive volunteer Sonia Gottesman (2009) who organized, compiled, edited, cross-referenced, and filed these materials in a searchable computer database. This accomplishment was invaluable to our research and contributed substantially to our Little Lake Ranch rock art documentation effort.

Museum Studies

Another component of our research was a study of objects, documentation, and other data held by various government institutions and agencies as well as private collectors in California. Our objective was to locate objects not described in any of the literature as well as to search out and verify some of those that were published. The goal was to establish the archaeological context for the rock art recorded at Little Lake Ranch. The Little Lake Research Group project members and volunteer staff conducted this documentation.

Our first review was at the Autry National Center of the American West, where the substantial collections of the Harrington (1957) Little Lake excavations are stored. This work was augmented by reviews of documents and objects at the Braun Library, Autry National Center, Los Angeles; the Fowler Museum of Cultural History, University of California, Los Angeles; the Eastern California Museum, Independence, California; California State Parks, Sacramento; Maturango Museum, Ridgecrest, California; the National Museum of the American Indian and the National Museum of Natural History, Smithsonian Institution; the Phoebe A. Hearst Museum of Archaeology and Anthropology, University of California, Berkeley; the San Bernardino County Museum, Redlands, California; the Huntington Library, San Marino, California; and the University of California, Davis. Photographs of selected objects and the paper files that support them are stored in the Rock Art Archive as part of the Little Lake database. The ethnographic basketry database contains images and descriptions of 175 baskets from the various Native groups in our study area. A motif analysis of the basketry using an expanded visual definition key was conducted, and those data were recorded on separate spreadsheets filed with the images.

Figure F.5
Ron Tallakson tracing a rock art panel, Locus 8.

Archaeological Collections

In addition to the Harrington (1957) Little Lake collections noted above, we examined other archaeological collections, including those made by Schroth (1994) during her subsequent excavations at the Stahl Site; Gumerman (n.d. [1991–1993]) during his

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Figure F.6

Atlatl Cliff, Group 1, Panel 17:

(a) photographed when the boulder surface was intact.

(b) cracked by a seismic event, 2005.

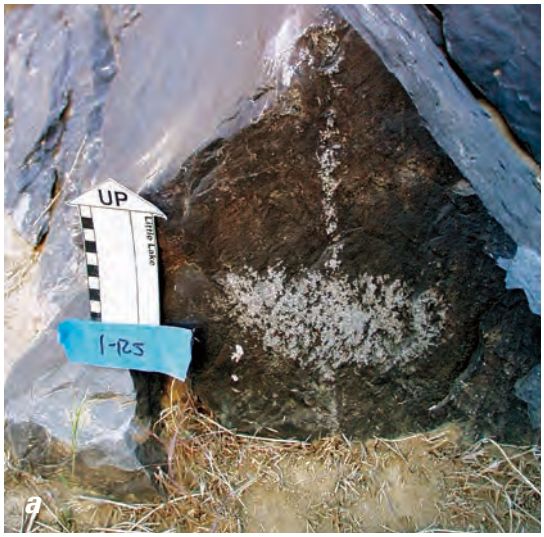

Figure F.7

Atlatl Cliff, Group 1, Panel 125A:

(a) before a flash flood, 2002.

(b) after a flash flood, 2005.

excavations at Pagunda near Locus 1; and Pearson (1995) at Stahl Site Cave. Various Little Lake Ranch on-site managers made surface collections over the years during which we did our fieldwork, and we photographed some of them. All of these data are filed as described above.

Condition Reports

We have not systematically studied the changes in environmental or conservation quality that are evident in some of our images. However, when the images for some of the rock art panels or elements are ordered chronologically, we have a 10-year visual record, and it is theoretically possible to note some conservation issues as they may have developed over time. We also have a visual record of rock art boulders that moved or cracked due to seismic action (Figures F.6a, b). Damage and loss due to scouring by water actually took place during the course of our fieldwork (Figures F.7a, b). Historic images contain information about visitor use and access over the years (Figure F.8), and museum collections document changes made from one situation to another by human action. For example, evidence of an attempt to remove a rock containing a panel of significant rock art from the site is documented by a museum collection photograph (Figure F.9) showing the original location of the rock, while our photograph shows its current location (Figure F.10). Due to lost context, we have not included the rock art elements on this boulder in our data base.

Conclusion

The records of our comprehensive rock art recording project at Little Lake Ranch are held by the Rock Art Archive at the Cotsen Institute of Archaeology at UCLA. Digital files include more than 3,000 rock art images of 1,228 panels and 4,239

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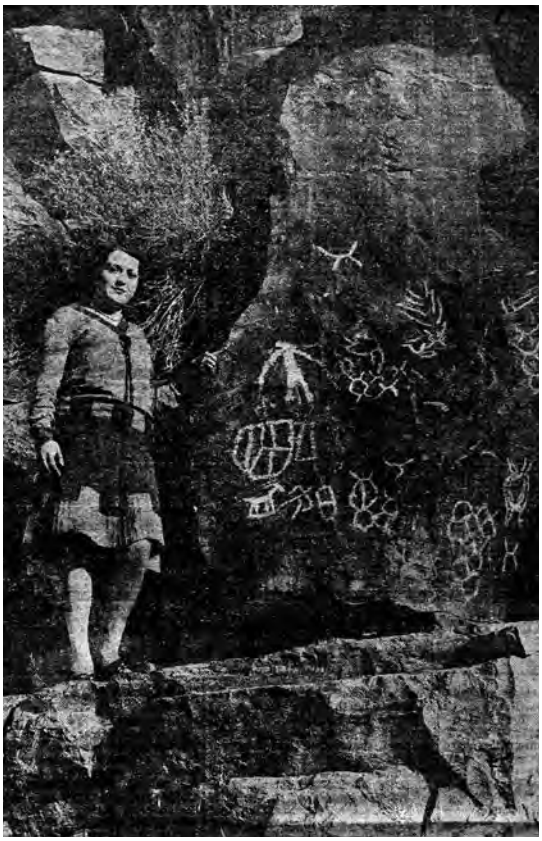

elements, along with an associated database catalog. Contents of the catalog are referenced as thumbnail images and full-size previews with associated text. Analog files further include written records such as field notes, maps, sketches, correspondence, research manuscripts, and tracings as well as 35 mm slides and photographic prints and negatives. All of these files contain some attached metadata. For example, the original motif analysis was noted on the field tracings prior to being entered into the database catalog. The various research documents and collection images produced as part of our museum studies project are also on file. All materials are available in the Archive to scholars for research purposes. The Little Lake Ranch data collected, analyzed, and curated by the UCLA Rock Art Archive was inventoried by Deidre Whitmore, who compiled the guide to their contents.

Figure F.8 *far left*

Newspaper photograph, 1929, of Locus 7, Panel 23, and visiting tourist.

Monterey Park Progress, 1929.

Figure F.9 *above*

Locus 9, Panel 1, at its original location at the base of the rockfall near Pottery Slope, 1948.

Braun Research Library Collection, Autry National Center, Los Angeles: P.21737.
Photograph by B. E. McCown.

Figure F.10 *near left*

Locus 9, Panel 1, at its new location, 2009.

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Acknowledgments

PREPARING THIS MANUSCRIPT has been an arduous but fascinating task. The arduous part was our effort to become familiar with the rich literature dealing with the topic of rock art in our study area, and to amplify that with literature in geology, ecology, and related scientific fields. The fascinating part has been working with our Rock Art Archive colleagues. Special recognition is due to Gordon E. Hull, who created and monitored our digital database, supervised and inspired dozens of students, and supported our research queries. John C. Bretney has never allowed the pace of this project to flag. He has led countless teams into the desert, climbed cliffs, and built campfires way beyond the call of duty, and then returned to the Archive to compare notes, crunch numbers, and plot diagrams. Gathering together for long weekends in the spring or fall for over ten years, our talented group of volunteers gave of their time, energy, and expertise. We sought and found thousands of rock art panels high on cliffsides, scattered like fallen leaves over slopes of tumbled boulders, and hidden in rock shelters. Fieldwork tasks ranged from tedious to challenging and even dangerous, but they were never unrewarding, and the camaraderie and genuine good natures of everyone involved contributed to our success. Nonetheless, we freely acknowledge that we have not captured *every* rock art motif at Little Lake Ranch. At best, we have recorded approximately 80 to 85 percent of them. In the words of Rock Art Archive co-founder Clement W. Meighan on nearly everything, "more work needs to be done."

When the adventure of fieldwork gave way to the obligation of deeper research the team was pared down to a core of tenacious, opinionated individuals who formed our Little Lake Research Group and who are all given here as contributors. It is not easy to write a book alone; it is even harder to write one as a group—but we seem to have done it. Our readers, of course, will judge the quality of our effort.

Reports of our meetings were forwarded by John Bretney to Rebekah Miller Reed, who worked on her chapter at her Texas home, and to far-flung former team members who maintained an interest and critiqued our work. Audrey Kopp took on the thankless task of meticulously editing the bibliography, notes, and layouts. She made sure we had the most up-to-date ARARA publications and read and reread every chapter. Noel Van Slyke brought an eagle eye and a blue pencil to our sometimes windy text, and Ed Schoch edited the final tables and scientific terms and measurements. Bill White and Wendy All contributed their formidable artistry in the field and in design support to Doug Brotherton, our talented book designer. Doug, who like John Bretney is a member of the California Archaeological Site Stewardship Program, pointed us toward Don Christensen's important work. John Davis designed and produced the motif analysis chart and drafted many of the figure captions. UCLA students Deidre Whitmore and Amanda Spradling managed the image files and created some illustrations; Whitmore prepared the guide to our Little Lake database. Özge Gençay Üstün and Jessica Butler assisted in sampling pigments. Bernice Belous donated photographs from the Mark R. Harrington Little Lake expedition.

The Cotsen Institute of Archaeology community, and especially its director, Charles Stanish, have been steadfast in support of the Archive and our project. The Cotsen Institute Publications Department staff has been an efficient and helpful resource. Rock Art Archive manuscript and image databases were our bedrock sources for comparative research and site visits. We also located archaeological field collections and created a museum objects database in order to construct an aesthetic framework for a comparative study of symbols across media categories. We began with the substantial Mark R. Harrington collections at the Autry National Center of the

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Figure A.1

Rock Art Archive researchers and supporters, Little Lake Ranch, 2004.

American West, Southwest Museum of the American Indian. These, and collections from unpublished excavations at Pagunda by George "Wolf" Gumerman IV in 1991–1993, were valuable. Adella "Dee" Schroth shared the collections she made during her 1994 Stahl Site excavations; her materials are held by the San Bernardino County Museum (SBCM). Wendy All, John C. Bretney, and Audrey Kopp assisted with the review of the SBCM collections. We reviewed Jim Pearson's collections and records from the Stahl Site Cave now curated by the Fowler Museum. Bill Bramlette, great-grandson of the colorful builder of the Little Lake Hotel, and his family also have a personal archive.

We were not so lucky with other collections. Mark Q. Sutton, Marty Rosen, Dennis Gallegos, Scott Mattingly, and Stan Berryman all aided in what turned out to be a futile effort to locate collections from the unpublished 1975 Cerro Coso Community College excavations by Berryman with Emma Lou Davis. A. K. "Sandy" Rogers and Chris Coleman, respectively, reported that there are no Davis Little Lake collections at the Maturango Museum (MM) or at the Natural History Museum, Los Angeles County (NHM).

Photographs of the baskets and other museum objects were taken by Alice Hom who also created the digital files. Judith W. Finger assisted her at the Phoebe A. Hearst Museum of Anthropology (PAHMA). Jo Anne Van Tilburg conducted the basketry design motif analysis. Audrey Kopp assisted at the ANC; Gordon and Laura Hull reviewed collections at UC Davis; pigment samples from the Mark R. Harrington Little Lake collection at ANC were chosen by Jo Anne Van Tilburg with Clarus Backes, Jr.; Bill White conducted historic research at The Huntington Library.

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Participants in our project fall into several groups: students in the UCLA Extension Division; work-study students at the Rock Art Archive; Archive volunteer staff; members of Jo Anne Van Tilburg's Easter Island Statue Project team; professional archaeologists, geologists, surveyors, and conservators who volunteered on an occasional basis. The list of participants is long, and several people fulfilled more than one role. It is inevitable that we may have forgotten someone. If so, we apologize in advance.

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Abbreviations

AMS	Accelerator Mass Spectrometer
ANC	Autry National Center of the American West, Southwest Museum of the American Indian (including Braun Research Library)
CASSP	California Archaeological Site Stewardship Program
CDFG	California Department of Fish and Game
CRM	Cultural Resources Management
CSM	California State Museum Resource Center, California Department of Parks and Recreation
ECM	Eastern California Museum, County of Inyo
FM	Fowler Museum of Cultural History, University of California, Los Angeles
HML	The Huntington Library, Art Collections, and Botanical Gardens
LA-ICP-MS	Laser ablation inductively coupled plasma mass spectrometry
MM	Maturango Museum
NAWS	Naval Air Weapons Station, China Lake, California
NHMLA	Natural History Museum of Los Angeles County
NMAI	National Museum of the American Indian, Smithsonian Institution
NMNH	National Museum of Natural History, Smithsonian Institution
PAHMA	Phoebe A. Hearst Museum of Anthropology and the Regents of the University of California
RAA	Rock Art Archive, The Cotsen Institute of Archaeology, University of California, Los Angeles
SBCM	San Bernardino County Museum
SDMoM	San Diego Museum of Man
UCAS	University of California Archaeological Survey
XRF	X-ray fluorescence

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SECTION ONE

VISTAS

Vistas

1 LITTLE LAKE GEOLOGY

2 LITTLE LAKE ENVIRONMENT AND ARCHAEOLOGY

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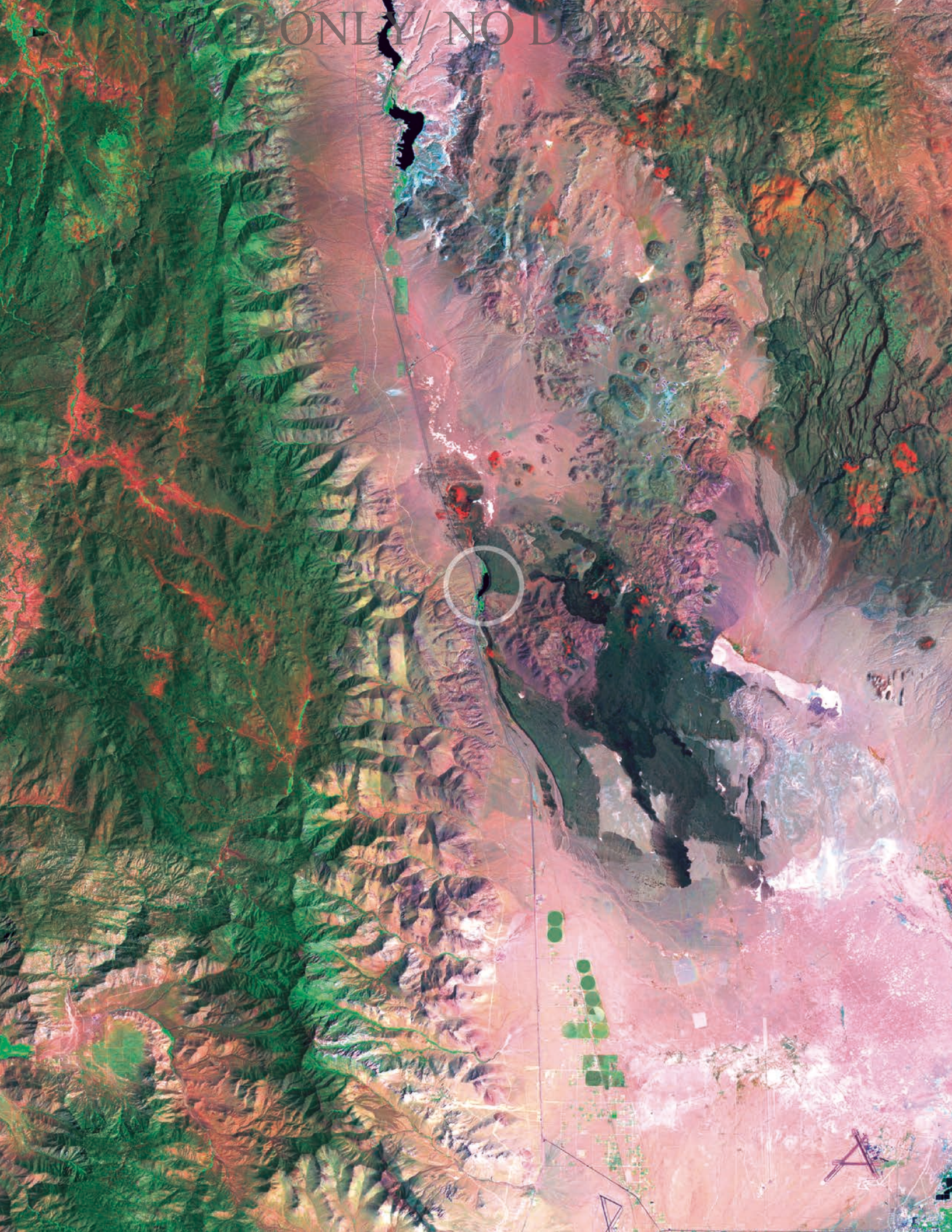

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Chapter 1

Little Lake Geology

Allen F. Glazner

Deserts in California can be defined as a conspiracy of extremes.
Bruce M. Pavlik 2008

THE LITTLE LAKE RANCH ROCK ART COMPLEX is uniquely located in eastern California and is situated at the only place where the Sierra Nevada range touches the mountains to the east (Figure 1.1). The long history of human occupation of the site stems from one factor—water. Even in today's dry climate, and with much of the flow of the Owens River channeled into the Los Angeles aqueduct, there is water year-round in the spring-fed lake. Water, of course, is the vital resource that supported the development of Native culture within the Owens Valley, and in this introductory chapter we describe the geological and seismic setting of Little Lake Ranch rock art.

Figure 1.1

Landsat image with Little Lake Ranch circled at center.

Courtesy of A. F. Glazner.

Rocks of Little Lake and Vicinity

Little Lake lies at the western edge of the Basin and Range province and along the southwestern flank of the Coso Range, which consists of lava flows and other volcanic deposits that mantle a much older bedrock complex. The bedrock complex comprises Jurassic and Cretaceous granitic rocks that are approximately 165 and 100 million years old, respectively.

Lava flows near Little Lake are of two types: basalt and rhyolite (Figure 1.2). Basalt is dark lava; fresh surfaces are dark gray, but weathered surfaces are varnished dark brown to black. It is these surfaces—commonly called "desert varnish"—that were pecked through to create petroglyphs at Little Lake Ranch. Basalt lava is rich in magnesium and iron and poor in silicon and potassium. The mineral grains in basalt are generally too small to see with the naked eye, but most basalt flows have at least some visible grains of olivine (deep green, sometimes weathered rusty red), plagioclase (white to light gray), or pyroxene (dark green to black). Basalt flows in the Coso Range had very low viscosity, flowing downhill in some cases more than 20 km from their vents. Volcanic gases emitted during eruption near such cinder cones as Red Hill inflated the basalt magma to a porous foam that cooled into red and black scoria, commonly called "volcanic cinders" (Figure 1.3).

Figure 1.2

Basalt lava flows rim the spring-fed water of Little Lake.

Rhyolite is much lighter in color than basalt, generally pink to pale tan, rich in silicon and potas-

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Figure 1.3 *above*

The Red Hill cinder cone north of Little Lake Ranch.

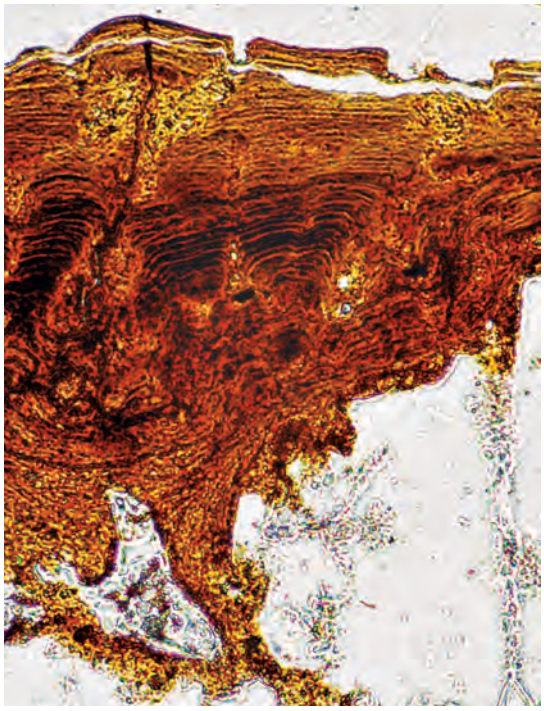

Figure 1.4 *far right*

Fossil Falls carved in the thick flow disgorged from the Little Lake lava vent.

Figure 1.5 *right*

Photomicrograph of an ultra-thin section of desert varnish.

sium and poor in magnesium and iron. Silicon-rich magmas have much higher viscosities than silicon-poor ones, so rhyolite magma piles up around vents rather than flowing long distances, as does basalt. This results in steep-sided domes. The rhyolite sometimes erupted explosively, forming pumice, another type of volcanic foam that was blown into the air and deposited around the domes.

The ages of lavas around the Little Lake Ranch rock art site are known from potassium-argon (K-Ar) dating, although all such dates are subject to up to 25 percent or more uncertainty because young rocks are difficult to date by this method (Duffield and Bacon 1981). The oldest lavas in the area are about two million years old. They form low basalt hills located a few kilometers northeast of nearby Red Hill, which is too young to date by K-Ar methods but is probably 10,000 to 20,000 years old. The small basalt vents about 5 km southeast of the lake are about one million years old, and the long lava flow that

issued from the vent about 2 km south of the lake erupted about 400,000 years ago. The lava flow that makes up the high eastern backdrop of Little Lake erupted from a vent a few kilometers west of Volcano Peak—also called the Little Lake vent—and is about 140,000 years old.

Sugarloaf, the rhyolite dome just 10 km north of Volcano Peak, was a major source of Coso obsidian for the ancient peoples of the area. It is about 81,000 years old, and pumice from this vent partially buried the Little Lake vent. Both Volcano Peak and Sugarloaf erupted about 40,000 years ago. The lava that makes up the ridge on the west side of Little Lake and the small buttes leading north from there to scenic Fossil Falls came from Red Hill (Figure 1.4). Lava from the Red Hill vent flowed across the northwestern edge of the Little Lake flow and across the course of the Owens River, but the falls themselves are carved in the underlying massive, thick flows from the Little Lake vent. These two lavas are visually easy to distinguish. Basalt from Red Hill is full of gas bubbles and relatively rich in crystals of olivine, plagioclase, and pyroxene; basalt from the Little Lake vent has fewer gas bubbles, fewer visible crystals, and lacks crystals of pyroxene.

Substrate for Rock Art: Varnished Basalt

Inhabitants of the Little Lake area made rock art on both Little Lake vent and Red Hill lava flows. Boulders and cliffs at Atlatl Cliff and Locus 7 are from Little Lake lava, whereas Locus 4 and Locus 8 (the picnic area) are made up of Red Hill lava. Although these are different lavas, they are both homogeneous, fine-grained, and easily varnished, making them an excellent substrate for rock art.

Petroglyphs at Little Lake Ranch are located

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Figure 1.6
Atlatl Cliff, Group 1, Panel 2: bright petroglyph.

entirely on desert-varnished basalt. Desert varnish is a dark coating that rocks may develop if they are chemically stable and not subject to frequent precipitation, surface water flow, sandblasting, or recurrent fracturing. Not all rocks can develop desert varnish; limestone and other carbonate rocks dissolve in rainwater even if it is infrequent, and do not take up varnish, although silty layers within carbonate rocks will. Coarse-grained rocks such as granite can be varnished but may not produce a smooth surface suitable for rock art. The basaltic lava flows at Little Lake meet the criteria for good varnish: they are chemically stable, physically stable, dry, and fine-grained.

Desert varnish owes its color to manganese (Mn). Varnish is typically about 30 percent manganese and iron oxides, with the remainder largely silicon (Si), aluminum (Al), magnesium (Mg), potassium (K), and calcium (Ca) oxides. This is far more manganese than is present in most terrestrial rocks, and it is likely concentrated by bacteria. Much of the mass of desert varnish consists of fine clay particles brought in by the wind. Under the microscope desert varnish typically shows a fine-scale layering in which individual layers are a few micrometers thick (Figure 1.5). This layering may contain a paleoclimate record. While many attempts have been made to decipher such records, all results to date are, at best, ambiguous (Dragovich 2000; Liu and Broecker 2000).

Even casual inspection of the petroglyphs at Little Lake Ranch shows that many represent several generations, ranging from fresh, bright elements that look as if they were made yesterday to much dimmer or darker ones on which once freshly pecked surfaces have been largely revarnished (Bretney, this volume; Figures 1.6, 1.7). Apparent variations in desert varnish are often present on the same panel. Time undoubtedly plays a role in how much revarnishing has occurred, but calibrating this time scale has proven difficult. A study of varnish thickness on surfaces of known age showed little correlation between surface age and varnish thickness, probably owing to variations in microclimate (Liu and Broecker 2000). Varnish grows at rates of less than 1 to 40 µm per thousand years and rarely exceeds 200 µm in thickness regardless of age. This is a discouraging result for researchers interested in using varnish development as a rock art production chronometer.

Figure 1.7
Atlatl Cliff, Group 1, Panel 62: dim petroglyph showing the effect of revarnishing.

A Brief Geologic History

The lavas at Little Lake are but one of the latest manifestations of the long and eventful geologic history of eastern California (Baldridge 2004). A billion

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years ago, eastern California was in the center of a supercontinent known as Rodinia. About 800 million years ago, Rodinia broke up and eastern California was left behind at what geologists call a "passive continental margin." The geologic setting then looked very much like the eastern seaboard of the United States does today.

The shallow marine passive margin that was left behind in eastern California received sediments for several hundred million years, producing thick sequences of limestone, sandstone, and shale. These make up many of the Basin and Range mountain ranges as well as the Inyo and White Mountains to the north of Little Lake. This quiet sedimentation was interrupted about 200 million years ago when subduction began off the west coast, producing a chain of volcanoes like the present-day Andes that stretched along the length of western North America. Granite and related rocks such as granodiorite formed beneath these volcanoes. Erosion has stripped off the overlying volcanic cover, and now such rocks make up most of the bedrock of the Coso Range and Sierra Nevada. Metamorphosed bits of the older sedimentary sequence are found here and there within the granites, but they are uncommon.

Subduction of oceanic plates under western North America has apparently been continuous from about 200 million years ago, although today it is only occurring north of Cape Mendocino in northern California. At the latitude of Little Lake, subduction stopped about 15 million years ago when the Pacific plate came in contact with the North American plate. The Pacific plate is moving to the northwest relative to North America, and today most of this motion continues along the San Andreas Fault. California west of the San Andreas fault, including Los Angeles and Monterey, is sliding northwest relative to North America at about 35 mm per year, and much of the rest of California is being captured by this motion as well. Motion of the Sierra Nevada block to the northwest stretches the land to the east to form Basin and Range topography, and causes horizontal sliding on faults that mimic the motion of the San Andreas Fault. This motion was made clear during the 1872 Lone Pine earthquake when land west of the break was lifted up a few meters and moved northward about 5 m at the same time.

At Little Lake bedrock mismatches show that this San Andreas–type right-lateral fault motion (so-called because the ground on each side moves laterally to the right relative to ground on the other side) has been going on for a long time. There are

Earthquakes and Rock Art at Little Lake
The Governor's Historic Preservation Award

Audrey Kopp

An anecdote told to Mark Kerr (Irwin 1980:76–77) in 1936 by well-known Shoshone consultant George Gregory (b. 1860) refers to the massive March 26, 1872 Lone Pine earthquake and describes the shock felt far south at Little Lake. According to George,

> One night while we were asleep the earth began to quake. We got up out of our beds, but could not stand up. When we tried we fell down. The Indians were living at Little Lake in ter kar nee, meaning a cave. They were afraid. They would not go in and sleep in the cave; they stayed up all night and moved away into the hills. They were afraid the rocks might fall down and hurt them. The next day it was dusty and some places on the mountain side were burning. The water in the lake was splashing and making a funny sound.

During our fieldwork at Little Lake Ranch we realized that some precarious rock art areas were in danger of collapse. We noticed that unstable boulders at Atlatl Cliff and Pottery Slope had probably tumbled during previous earthquakes, and thought that some rock art once visible was probably now hidden. Von Werlhof (1965:22) had previously noted this circumstance at Atlatl Cliff. Since he did not see it at adjacent Pottery Slope, however, he inferred that the rock art at Pottery Slope "was placed after earth movement had occurred and is thus taken to be more recent."

We could see how numerous boulders in both areas had moved and sometimes cracked— as a result, we assumed, of seismic activity. At Locus 3, Painted Cave, we noted a partial collapse that took place between our 1997 field season and April 1998. It may have been caused by the earthquake of March 6, 1998. Consequently, our original recording effort became an intensive salvage initiative (Biemiller 2001).

On October 5, 2001, the Rock Art Archive of the Cotsen Institute of Archaeology at UCLA was honored to receive one of the California Governor's Historic Preservation Awards for our work at Little Lake Ranch. These awards are presented annually under the sponsorship of the State Office of Historic Preservation and California State Parks to organizations or public agencies whose contributions demonstrate notable achievements in preserving the heritage of California. Governor Gray Davis declared that

> the Archive has done an exemplary job of recording, preserving, and disseminating information on rock art elements throughout California. Under the direction of Dr. Jo Anne Van Tilburg, this unique, all-volunteer project employs the latest in digital mapping methods. By establishing a new standard in the field of rock art preservation, it has made an invaluable contribution to preserving a part of California's history.

Since receiving the Award, Archive volunteers and students have continued their efforts to salvage and preserve Little Lake rock art through intensive recording. Fieldwork, data analyses, and museum collections research all culminate in this volume.

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several distinctive rock types in the western Coso Range that do not match rocks in the Sierra Nevada immediately to the west but are found about 65 km to the north, near Independence (Kylander-Clark et al. 2005). These include distinctive 102 million years old granite, the Independence dike swarm (steep sheets of black basaltic rock that intruded vertical fractures in the older bedrock, several of which can be seen near U.S. Highway 395 around the old settlement of Little Lake), and the Golden Bear dike. The latter is a particularly distinctive, 20 m thick granite dike that runs west across the Coso Range toward Haiwee Reservoir and then reappears 65 km to the north in the foothills west of Independence. Then it continues to the west, across the high range crest, to die out in the headwaters of the Kern River.

Historic Seismicity and Rock Art

Lying in the southwest corner of the Basin and Range province and adjacent to an active volcanic area, the Little Lake region is shaken regularly by earthquakes. Little Lake Ranch lies about 150 km from the San Andreas fault near Wrightwood, 60 km from the Garlock fault near Randsburg, and only a few kilometers from the frontal fault of the Sierra Nevada. All are important faults capable of producing significant ground shaking in the area. Other lesser-known but significant faults crisscross eastern California, including several in the Mojave Desert, the White Wolf fault south of Bakersfield, and several that bound the Argus, Panamint, and Black ranges to the east.

The Coso Range is cut by active faults on both sides of the geothermal region, but many smaller, unmapped ones cut both bedrock and alluvium. Displacement on these faults of both east–west stretching and right-lateral shear has produced a large number of small earthquakes that show up as the Coso Range swarm. This dense north–south belt of small earthquakes and faults starts a few kilometers northeast of Little Lake and runs northward along the western side of the range for about 10 km (F. Monastero, personal communication 2006). Although the earthquakes generated by this fault zone are typically too small to be felt, the proximity of the fault zone to Little Lake means that larger events could produce considerable local shaking. An obvious consequence could be movement of some rock art boulders at, for example, Atlatl Cliff and Pottery Slope.

The Ridgecrest and Durwood Meadows earthquake swarms are also significant zones of seismicity in the Little Lake area (Figure 1.8). Moderate earthquakes related to deformation, geothermal phenomena, and perhaps magma movements occur regularly. In 1995–1998, a period of time encompassing the first Rock Art Archive field season at Little Lake Ranch, the area north of Ridgecrest and east of Little Lake was shaken by five shallow earthquakes ranging in magnitude from 5.0 to 5.8 on the Richter scale (Bhattacharyya and Lees 2002). The first event, on August 17th, 1995, had a magnitude of 5.4 and caused surface cracking along the Airport Lake fault which runs northwest from Ridgecrest toward Little Lake. This was followed on September 20th, 1995 by a magnitude 5.8 event located 2 km southeast of the first. Approximately 5,000 aftershocks were recorded after these events. The Coso Range has an unusually complete seismic network, so small events are recorded that might be missed elsewhere. On November 27th, 1996, a 5.3 event struck the central Coso Range, about 30 km northeast of Little Lake, and on March 6th and 7th, 1998, magnitude 5.2 and 5.0 earthquakes struck the same area.

Of the earthquakes in Table 1.1, the most damaging at Little Lake would surely have been the Lone Pine earthquake of 1872

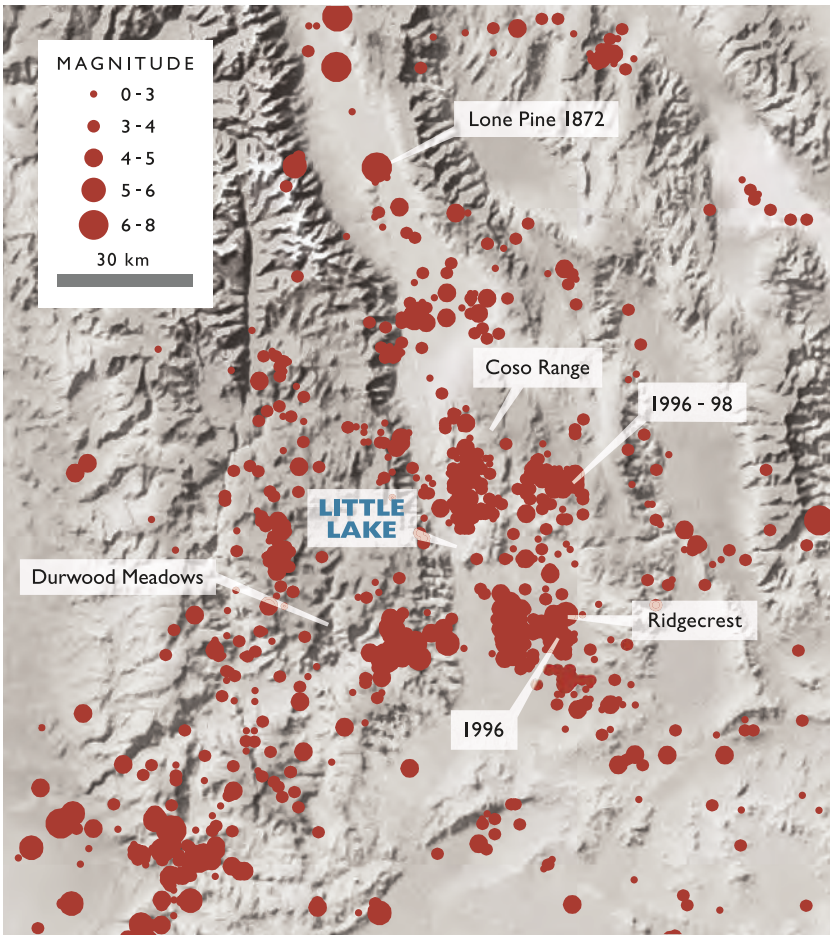

Figure 1.8

Earthquake swarms impacting the Little Lake Ranch area.

Table 1.1 Significant historic earthquakes near Little Lake.

YEAR	EPICENTER	MAGNITUDE
1812	Wrightwood	~7.5
1857	Fort Tejon	~7.9
1872	Lone Pine	~7.5
1946	Walker Pass	6
1947	Manix	6.5
1952	Kern County	7.5
1983	Durwood Meadows	4.9 (swarm)
1992	Landers	7.3
1999	Hector Mine	7.1
1995–1998	North of Ridgecrest	5.0, 5.2, 5.3, 5.4, 5.8

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(Stover and Coffman 1993). Although there were no seismometers around at that time, the earthquake is estimated to have had a magnitude around 7.5, comparable to the 1906 San Francisco earthquake. Significant shaking occurred as far away as San Diego, San Francisco, and Red Bluff. In Lone Pine 52 of 59 houses built mostly of adobe or stone were destroyed, and 27 people were killed, nearly 10 percent of the local population. The fault ruptured from the current site of Haiwee Reservoir, just 25 km from Little Lake, to Big Pine, a distance of about 115 km. The maximum measured fault displacement, 7 m, occurred west of Lone Pine, and this fault scarp is easily visible today (Sharp and Glazner 1997).

The Lone Pine earthquake had an estimated Mercalli intensity of about VIII at Little Lake (Stover and Coffman 1993). Intensity is a measure of the ground-surface shaking in a given area; magnitude is a measure of the total energy released by the event. Intensity VIII is defined as follows (Bolt 1999):

> Damage slight in specially designed structures; considerable in ordinary substantial buildings with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving cars disturbed.

It is clear from this description that the shaking must have been quite strong at Little Lake, and many rocks must have fallen from the cliffs and talus piles, including in the vicinity of Atlatl Cliff and Pottery Slope.

Water and Climate Change

Pluvial vs. Non-pluvial Periods

Although the area around Little Lake is quite dry now, with an average yearly rainfall of about 8.6 cm (Western Regional Climate Center 2007), it has been significantly wetter and cooler several times in the past. Such times were known as pluvial periods. Pluvial periods brought increased precipitation along with widespread glaciation to the mountains, and large lakes—known as pluvial lakes—to many valleys. These ancient lakes are commonly distinguished from their now dry remnants, playas such as Searles Lake, by putting "Lake" before the name, as in Lake Searles.

A chain of basins was once occupied by a series of large lakes during the last glacial cycle (Figure 1.9). Runoff from precipitation and glacial melting fed the ancestral Owens River, which flowed into the then much larger Lake Owens, overflowed the lake basin in the gap currently occupied by Haiwee Reservoir, flowed across Rose Valley and around Red Hill, and cut a gorge into the Red Hill and Little Lake basalt flows to produce a roaring waterfall at Fossil Falls (Sharp and Glazner 1993). The river then flowed across the present site of Little Lake, into Indian Wells Valley and thence into Lake China, whence it overflowed into Lake Searles. Lake Searles periodically overflowed into Lake Panamint. During times of exceptional precipitation, Lake Panamint overflowed into Lake Manly in Death Valley, the final resting place for waters from three major river systems: the Owens, Amargosa, and Mojave.

This chain of lakes was not always full. How far the water made it depended upon precipitation; sometimes Lake Owens was the last lake in the chain, sometimes Searles, and sometimes Panamint. Water levels fluctuated with the glacial cycles, which were modulated in a complex way by small changes in the Earth's orbital parameters (Zachos et al. 2001). These changes involve superposed cycles with durations of about 100,000, 41,000, and 23,000 years, producing complicated variations in the amount of sunlight hitting the Northern Hemisphere. The 100,000-year cycle is dominant, and major glacial cycles tend to occur on this time scale. The last interglacial or warm period peaked about 120,000 years ago, when sea level was several meters higher than today owing to melting of glaciers and thermal expansion of the oceans.

Ancestral Owens River and Little Lake

The ancestral Owens River flowed past Little Lake only when Lake Owens was overflowing, contrary to the common assumption that Fossil Falls dried up when Los Angeles began water diversions. The river was diverted from a bedrock channel several kilometers east of Little Lake to its present course when a lava flow filled the old channel (Duffield and Smith 1978). This occurred sometime before the 400,000-year-old eruption of the long flow south of Little Lake. After the old channel was filled, the river found a new course to the west. The new river course was then filled and re-excavated twice, as lavas from the Little Lake vent and Red Hill flowed down the channel.

Sedimentary layers obtained from a deep core drilled in Owens Lake reveal climatic changes over the past 800,000 years (Smith, Bischoff and Bradbury 1997). Changes in fossil assemblages, mineralogy, oxygen isotope ratios, magnetic properties, and other indices show that between 810,000 and 450,000 years ago, Lake Owens was fresh, several meters deep, and overflowing to Indian Wells Valley. From 450,000 to 5,000 years ago, the lake was deeper and alternated between fresh (spilling over) and saline (closed) states. Since 5,000 years ago, the lake has been shallow and saline, finally drying up between 1921 and 1931 owing to water diversions. Lake depth depended not

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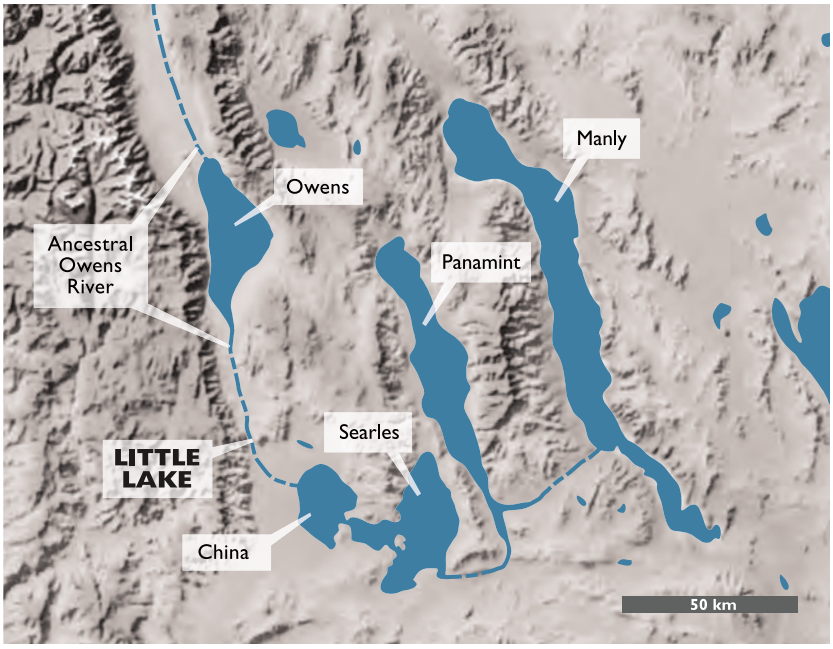
only on precipitation and temperature, but on the amount of sediment delivered to the lake by erosion, and the amount of space made for the sediment and water by tectonic subsidence of the lake's floor.

The more recent record of Lake Owens can be read from shorelines, fossils, and other paleoclimatic indicators, and calibrated with radiocarbon dating (Bacon et al. 2006). A simplified reconstruction of lake level for the last 27,000 years is shown in Figure 1.10. Around 27,000 years ago, during the last big advance of glacial ice during the Pleistocene, Lake Owens stood at about 1,160 m and overflowed to the south across a sill located near the Haiwee Reservoir dam. The lake was last this high about 20,000 years ago. Lake level then plunged as the climate dried and piñon-juniper woodlands were replaced by sagebrush (Koehler and Anderson 1995). Lake Owens last overflowed across a lower sill at 1,145 m—the level of the Haiwee Reservoir surface today—about 15,000 years ago. Although the lake level continued to fluctuate after that time, the water was saline, and the ancestral Owens River, south of the lake, ceased to exist. This period around 15,000 years ago marked the last time that a river flowed over Fossil Falls.

Little is known about the history of Little Lake itself before 5,000 years ago (Clements 1957). The lake lies just upstream of the bedrock gap between the Coso Range and the Sierra Nevada; because this gap was also occupied by lava flows in the recent geologic past, it is likely that Little Lake owes its origin to trapping of southward subsurface flow of groundwater at this bedrock sill. Recharge of the lake is mostly by springs, although overland flow from Little Lake Canyon, which feeds into the ancestral Owens River course north of the lake, occurs during heavy rain or snowmelt. Such flow also deposits sediment at the south end of the lake, creating a natural dam. The lake has been shallow, about a meter or two deep, for the past 5,000 years, sometimes being less a lake than a wetland complex of marshes, meadows, and ponds (Mehringer and Sheppard 1978).



When Lake Owens was overflowing, Little Lake was under an active river.

Conclusion

In this chapter we have seen how Little Lake lies at a geological constriction or corridor that naturally funnels water, lava, and people through and past it. Bedrock sills and alluvial dams bring groundwater to the surface to nourish the lake. Fine-grained, darkly varnished basalt flows surrounding Little Lake provided an excellent surface for the production of rock art. Little Lake Ranch rock art is an important cultural resource that lies in a seismically active area, and the pictographs and petroglyphs are at risk from future earthquakes. Recording the rock art accurately and setting it within the context of the archaeological record is an appropriate method of cultural conservation.

Figure 1.9

Ring of pluvial lakes occupying the Little Lake Ranch area during the last glacial cycle.

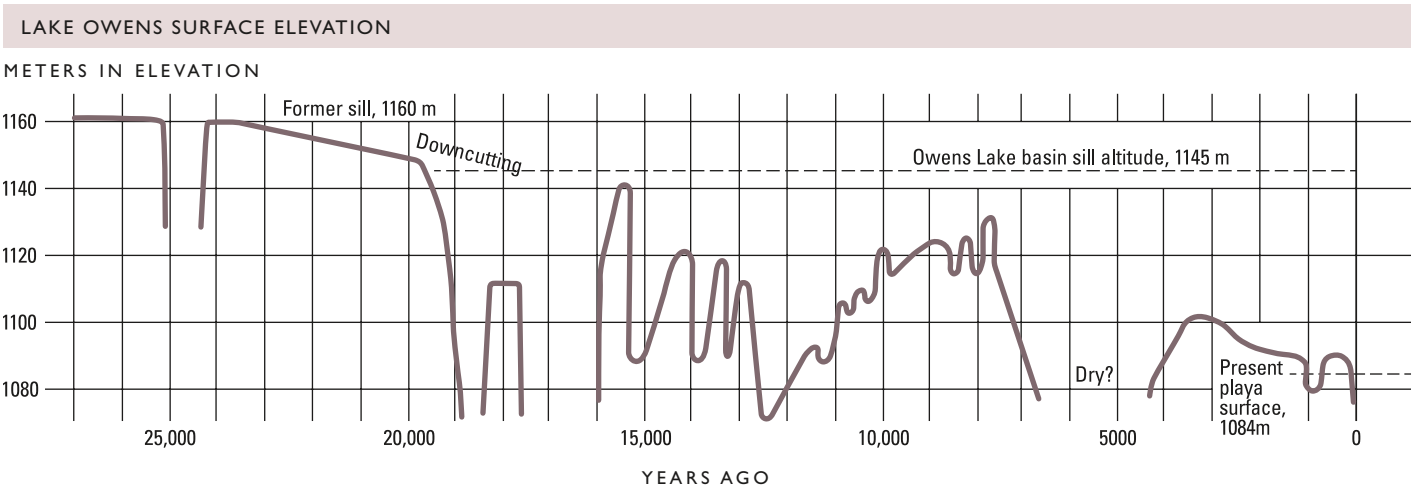


Figure 1.10

Surface elevation of Lake Owens charted over the past 27,000 years.

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Chapter 2

Little Lake Environment and Archaeology

Jo Anne Van Tilburg and John C. Bretney

She began to learn how Indians live off a land upon which more sophisticated races would starve, and how the land itself instructed them.

Mary Austin 1903

Figure 2.1

Desert scrub and riparian habitat zones, Little Lake Ranch .

Figure 2.2

Locus 4, Panel 51: pecked rock art.

CALIFORNIA'S ARID AND SUB-ARID LANDS are considered one large bioregion ecologically divided into three deserts—the Great Basin, the Mojave, and the Colorado—although their boundaries are largely imperceptible to the casual observer (Figure 2.1). Climates vary according to altitude and latitude but are similar in terms of low precipitation, temperature extremes, and food resource uncertainty. Rock art, primarily created by pecking but also made by scratching, incising, or with paint, abounds throughout all three deserts (Figure 2.2).

Archaeologist Emma Lou Davis (1978:3), who worked on sites in the vicinity of Pleistocene Lake China and cooperated in the coring of Little Lake in 1970 and 1974, described the desert there as a "song singing to itself":

> This beautiful place is a country of color and shadow—tiny plants, nocturnal animals, salt flats and gravel windrows inside a rim of volcanic mountains. When day breaks, every mountain stands out clean, every little cloud shines. . . As shadows lengthen, the desert world begins its color transformations: rust, ochre, purple-brown, black and electric blue. And at night, moonshine turns it to sea.

While perhaps not as poetically expressed, our experience of Little Lake is as dramatically felt. We gazed on enchanting vistas through mirages of shimmering heat and, on other occasions, were drenched by raindrops splashing on blue-black basalt during sudden spring storms. We stood, transfixed, as clouds of migrating white pelicans whirled over our heads and then settled on the lake (Figure 2.3). We were entranced by

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Figure 2.3 *left*

Migrating white pelicans *(Pelecanus erythrorhynchos)*, Little Lake Ranch, 2004.

Figure 2.4 *right*

Spring wildflowers, Little Lake Ranch.

fragrant sage and sandy fields of golden spring flowers (Figure 2.4).

As a setting for creating and experiencing rock art, Little Lake and its environment is at once background and inspiration for an associated cultural trajectory that began at least 9000 years B.P. but perhaps as long ago as 13,500 cal bp.[1]

Eco-boundaries, Habitat Zones, Language, and Culture

Little Lake is situated at what biologists call an "ecotone" or borderland between two biotic transition zones—the Mojave Desert and the Great Basin—and encompasses two habitat zones, desert scrub and riparian (also referred to as riparian-lacustrine). The majority of the rock art we recorded is within the riparian zone formed by Little Lake itself, the immediate lakeshore, and associated wet meadows or marshlands.

In Chapter 1, the geological history of Little Lake and its environs was described and the importance of water to the area stated. In this chapter, we sketch the regional landscape and ecology of our study area and describe its three major archaeological sites: the Stahl Site (CA-INY-182), Stahl Site Cave (CA-INY-205), and Pagunda (CA-INY-3826). We note the view of Pagunda as a centralized, semisedentary habitation site and one component of a hypothesized linkage of similar sites in the region (Faull 2007), although the chronology and contemporaneity of such a linkage remain to be demonstrated. In the following chapter, we summarize the rock art we have documented within the boundaries of Little Lake Ranch (formerly, Little Lake Duck Club) in terms of its direct links to geography and its indirect relationships to varied human use of the area. We discuss nine rock art clusters or loci relative to the activities inferred by their direct or peripheral spatial relationships to the known excavated areas of three archaeological sites, and in terms of the various ceremonial opportunities for rock art production suggested by the artifact and ethnohistorical records.

Little Lake Today

Little Lake is located in eastern California's high desert at 914 m above sea level in southwestern Inyo County, and in the Rose Valley about 40 km south of Owens Lake. Rose Valley is at the southern boundary of the Owens Valley, which technically begins just below Haiwee Reservoir. The Sugarloaf quarries are close to Little Lake, and they were the source of obsidian that was widely disseminated through long-distance networks of trade and exchange. Little Lake straddles a natural gap or visible separation between Indian Wells Valley to the south and Rose Valley to the north. Historically, it is regarded as the southern gateway or "natural entrance" to the Owens Valley (Chalfant 1933:201). Just beyond Little Lake and between it and Olancha is the "sinuous and intermittent" transitional eco-boundary between the Great Basin and the Mojave Desert, which is defined on the basis of several characteristics, including elevation, flora, and geomorphology, among others (Pavlik 2008:216).[2]

The name "Inyo" was first applied in 1866 to the newly formed county and to the mountain range lying east of the Owens Valley (Figure 2.5). The etymology of "inyo" was reported in 1860 to mean "dwelling place of a great spirit" (Chalfant 1933:83; Gudde 1962; Sowaal 1985:13–14). Recent linguistic research, however, states that "the name is derived from Panamint *ïnï-yun*, meaning "it's dangerous,"

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although the type of danger referred to is unclear (Bright and McLaughlin 2003:1, 3). Anthropologist J. H. Steward (1933b:325; 1938:80–84) was told by Owens Valley Paiute consultant Andrew Glenn of Lone Pine that *pawo'na* (lake) or *pavutaŋ witü* was the Paiute place name for Little Lake. The Shoshone and the Kawaiisu apparently also had names for the area.

Little Lake itself has existed for at least 5,000 years (Mehringer and Sheppard 1978; Clements 1957; Figure 2.6). It lies in a north–south, eroded basalt gorge in what was once a channel of the pluvial Owens River. It receives its water from natural springs and loses it to seepage and evaporation. There are good indications that some rock art once visible is now under water.[3]

Little Lake has transitioned back and forth from meadow/marsh to a small, pond-like environment over time and relative to larger climatic fluctuations. Sediment cores from the lake illustrate that "while Little Lake has been shallower than present there is no clear evidence that it has been much deeper or fresher during the past 5,000 years" (Mehringer and Sheppard 1978:166). Wetter, moister climate conditions are thought to have produced a stand of large trees at Little Lake that were roughly contemporaneous with the Stahl Site (see below) and associated with what is known as the "Pinto" cultural expression (Harrington 1957:37–40; Lucas 1951:191). Throughout these fluctuations, Little Lake has been a relatively rich biological environment when contrasted with the surrounding aridity.

Cultural Intersections

The Owens Valley of eastern California is known far and wide as Mary Hunter Austin's (1903) "long brown land."[4] Owens Valley Paiute land borders Shoshone land, and Austin described it through the eyes of a Shoshone man who had married a Paiute woman and lived with her people but yearned for his own "miles of sand and rainbow-painted hills" (Hearle 2006:35–36):

> So one comes to the country of the painted hills—old red cones of craters, wasteful beds of mineral earths, hot, acrid springs, and steam jets issuing from a leprous soil. After the hills the black rock, after the craters the spewed lava, ash strewn, of incredible thickness, and full of sharp, winding rifts. There are picture writings carved deep in the face of the cliffs to mark the way for those who do not know it. . . . South the land rises in very blue hills, blue because thickly wooded with ceanothus and manzanita, the haunt of deer and the border of the Shoshones. . . . It is the country of the bighorn, the wapiti, and the wolf, nesting place of buzzards, land of cloud-nourished trees and wild things that live without drink.

Figure 2.5

Historical map of California without Inyo County boundary lines.

Augustus Mitchell, 1865. Courtesy Jo Anne Van Tilburg Collection.

A varied high desert landscape of extremes, the Owens Valley is bounded on the east by the White-Inyo Range and the Coso Range and on the west by the eastern flanks of the Southern Sierra Nevada, John Muir's evocative "range of light." The valley floor itself is only 8 to 19 km wide. Mount Whitney, the highest peak in the contiguous United States, rises over the valley to a height of 4,421 m.

Owens Valley is within the political boundary of California but isolated from the Great Central Valley—formed of the San Joaquin and Sacramento valleys—the populous coastal foothills, and the urban areas of Southern California. No through roads connect the Owens Valley westward for over 241 km of its length. Nonetheless, Owens Valley communities have seen big changes over time, nearly all of which are tied to one precious resource: water. The well-chronicled 1905 scramble for water rights along the Owens River ended with the historic redirection to the Los Angeles basin of the valley's water supply. Pioneer "Stub" Lydston (1870–1957), who lived through those momentous times in Owens Valley, stated the obvious result: "the valley is nothin' like it was in the old days" (Wehrey 2006:38). Sadly,

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while some water has been returned to Owens Lake and some restoration of wetlands has taken place along the Owens River, as we write Little Lake faces serious depletion of its water for planned energy projects.

Like the Owens Valley, the Great Basin to the east is and always has been sparsely populated, and the aboriginal inhabitants of both places have a widespread linguistic and cultural kinship (Madsen and Rhode 1994).[5] Owens Valley, however, had the highest population density of any arid valley system—estimated to have been about one person per square mile, with about 1,000 people living there just prior to Euro-American contact (Liljeblad and Fowler 1986:415, citing Chalfant 1933:120–122). A vast part of the Basin and Range province, the Great Basin is a closed drainage system covering 518,000 km^2 between Salt Lake City, Utah to the east and Reno, Nevada to the west. The Great Basin is a treasure trove of well-preserved evidence of human occupation in dry caves throughout the area (Figure 2.7).

Figure 2.6
View of Little Lake north toward Red Hill.

After Joseph Reddeford Walker traveled through what is now known as Walker Pass in 1834–1835, he may have been the first outsider to lay eyes on the Owens Valley, although there is some speculation that first contact had been made three or four years earlier (Dean et al. 2004:16), perhaps by Spanish explorers or even earlier missionaries.[6] Garfinkel and Williams (2010) describe a Kawaiisu report of the following incident, thought to have preceded the Walker party:

> According to Annie [Spratt], she was told that many years ago her people were camped at the edge of a spring near Grapevine Canyon. Her tribesmen were looking for chuckwallas and there appeared a cloud of dust to the south that attracted their attention. Fearing unfriendly visitors the Natives concealed themselves and continued watching in a hidden position. They identified a long column of "strange warriors mounted on animals with long floppy ears. They rode up and dismounted near the spring. After watering their animals the strangers rode northward toward Little Lake."[7]

According to some, Walker's party saw only "traces of Indians" (Ewers 1959:125). Walker Basin is the "heartland" of Mountain Kawaiisu territory, so it can reasonably be suggested that first contact was made with that Native group (Garfinkel and Williams 2010; Underwood 2006:180).

By 1861 prospectors "were fanning out over the area between Little Lake and Death Valley," and ranchers were settling in the Owens Valley (Underwood 2006:181). These newcomers encountered a hunter-gatherer population who referred to themselves simply as *Numu*, or People. They and their neighbors spoke geographically patterned, variably related but, in general, mutually intelligible Numic languages (Shipley 1978; Figure 2.8) All Numic groups throughout the widespread geography of the Great Basin and eastern California spoke languages generated out of the same Uto-Aztecan root language stock, and language location patterns encode population movements.

Although research is ongoing, Uto-Aztecan is believed to have originated in what is now northern Mexico (Madsen and Rhode 1994). It is thought that Northern Uto-Aztecan arrived in the southern Sierra Nevada-western Mojave Desert area by *c.* 5000 B.P. (Fowler 1972, 1983) or perhaps somewhat later (*c.* 4500–4100 B.P.). By about 3500 B.P., proto-Numic emerged in the vicinity of the western Mojave Desert. Proto-Numic produced three sub-branches, each of which has two Numic languages. The Western sub-branch includes the Owens Valley Paiute and Northern Paiute languages; the Central includes the Panamint Shoshone and the Western Shoshone languages, and the Southern includes the Kawaiisu and Southern Paiute languages. The Owens Valley [Southern] Paiute, the Panamint Shoshone, and the Kawaiisu peoples are all associated with Little Lake.

In the "complex smorgasbord" of ethnolinguistic groupings across California, a separate branch of the parent language tree produced the unique Tübatulabal language. It is "geographically contiguous"

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to the Owens Valley Paiute and Western Shoshone languages (Bettinger 1991:464; Lightfoot and Parrish 2009:7; Liljeblad and Fowler 1986:412, 433). The Tübatulabal were organized into at least three named bands, each led by an elected chief. They exploited a diverse range of resources in an upland or foothill area that ranged from Mount Whitney to the Kern River region, and were part of a widespread trade linkage among the Panamint Shoshone, the Owens Valley Paiute, the Coso, and the Kawaiisu. Tübatulabal speakers intermarried with members of most, if not all, of these groups, and sometimes occupied bilingual villages (Washburn 1987:169).

The nineteenth-century territory of the Owens Valley Paiute consisted of seven named districts, one of which encompassed Owens Lake and reached southward to Olancha and into portions of the Coso Range. On the west, the Owens Valley Paiute territorial and linguistic boundary "is the Sierra Nevada, the watershed between the Sacramento-San Joaquin rivers of California flowing west and those flowing east into Great Basin salt lakes" (Steward 1933b:235). Between the Northern Paiute and the neighboring Western Shoshone "there is a zone as much as 100 miles wide of bilingualism and intermarriage" resulting in "cultural similarity" (Miller 1986:100). Liljeblad and Fowler (1986:412, Figure 1) give zones of joint use not extending south of Olancha and drawn from Steward (1933b), and they note that "the Owens Valley Paiute intermarried and traded with the Yokuts, Miwok, and Tübatulabal."

The Panamint (Timbisha) or Coso (Western) Shoshone, who spoke Panamint (also called Tümpisa), and the Kawaiisu, "the westernmost branch of the Southern Numic division of Uto-Aztecan" (Zigmond 1986:398) held their own lands bordering those of the Paiute and Tübatulabal. The Kawaiisu differentiated from the Chemehuevi-Southern Paiute and moved into the Southern Sierra Nevada relatively recently (*c.* 1000 B.P.) from the western Mojave Desert (Kroeber 1925:80).

According to Steward (1933b:235–236), the Paiute referred to the Shoshone as *tavainua* or "people who lived beyond." The Shoshone differed "in language, somewhat in mythology, and slightly in culture from the Paiute" (Steward 1933b:235–236). The Panamint Shoshone were apparently also distinguishable from the Owens Valley Paiute in terms of social organization and subsistence practices. Byrd and Reddy (2004:17, citing Kroeber 1925) state that Paiute bands

> are characterized by a higher degree of social complexity, and a highly regularized subsistence system that divided up land according to [non-exclusive] band affiliation. Complex trade/exchange networks typified inter-group and intra-group interaction and there appears to have been forms of "currency." Although the bilateral family generated most products, they were organized into larger, communally based political systems.

Figure 2.7

Map showing Great Basin boundaries and selected archaeologically significant dry caves mentioned in the text.

In contrast, the Shoshone were simplified family bands or

> residentially mobile groups where the bilateral family was largely autonomous with respect to economic and political issues. The only community level organization that existed was loosely defined by the fall aggregation of families for joint rabbit drives and ceremonies. Though they commonly used the southern portion of Paiute territory, the Coso-Shoshone did not recognize land or resource tract ownership.

Pearson (1995:92) saw inconsistencies in Steward's data and noted some limitations on the part of his consultants, suggesting that "a word of extreme caution is in order concerning the perceived differences in sociopolitical organization between these two groups." In his opinion, Steward characterized the Panamint Shoshone as vastly inferior to the Owens Valley Paiute, thus doing "the inhabitants of Little Lake an injustice." Thomas, Pendleton, and Cappannari (1986:278–279) also suggest that

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Figure 2.8

Location of Little Lake in relation to California Native culture groups based on language.

Adapted from Pacific Western Traders, 1992.

Steward's data tend to oversimplify social patterns relative to resource procurement among the Western Shoshone:

> Social organization tended toward fluidity, with group composition varying from year to year. Communal activities were generally restricted to the fall, with fairly dispersed settlements for the remainder of the year. Resource structure in such areas fostered somewhat lower population densities, averaging one person for every five to nine square miles.

Largely egalitarian bands in the Great Basin were relatively small social units or clusters formed of nuclear families, but participation in them was also "situational" and based on the "proximity of individual families" to communal activities (Thomas, Pendleton, and Cappannari 1986:276). Sometimes referred to as "dialect tribes," they were not tribes in the traditional sense, nor were their leaders chiefs. Rather, the pattern was one in which male leaders or headmen assumed specific roles "of uncertain scope and duration" that were dependent upon their prowess in certain fields, their powers of persuasion, and the type of activity involved (Steward 1938:247–246, 251).

In Shoshone groups, a headman (*tekwahni*) usually emerged when several families had the opportunity to remain together in one bounded area or place for an extended period of time—as they probably did at Little Lake—and when there was a need for leadership in communal activities, especially hunting. Interaction between groups was usually more intense during these times, and proportional to group size. Authority was in all cases impermanent, not coercive, and not inherited. When bands broke up into smaller groups and families went their own ways—on foraging rounds, for instance—the headman's power basically ended. His reputation for success was what determined his acceptance as headman from one season to another. In historic time, the role of headman was enlarged to that of spokesman, causing Euro-Americans to misperceive the headman as a traditional or hereditary "chief."

The Kawaiisu shared their western border with the Southern Yokuts and their northern with the Tübatulabal, who were active "middlemen" in trade (Zigmond 1986:399). According to Steward's (1938) Kawaiisu consultant Thomas Spratt, the Little Lake village of Pagunda was occupied at times by the Desert Kawaiisu. While their core area was south of Little Lake, the Kawaiisu traded "with the Western Shoshone of Little Lake from whom 'obsidian and salt were procured in return for acorns'" (Wells and Backes 2010:118–119; see also Garfinkel, Schiffman, and McGuire 1979:49; Steward 1938:59; Underwood 2006:180). They ranged widely beyond their core area westward toward the San Joaquin Valley and seasonally crossed the Mojave Desert beyond the Mojave River (Zigmond 1986:399, Figure 1). They shared cultural traits and language with the Southern Paiute, "had shared residence with the Shoshone," and were "undoubtedly influenced by both groups" (Underwood 2006:185).

Population movements outside of our immediate area had an impact on the range of Native groups using Little Lake. For example, Sutton (2010) postulates that in *c.* 3500 B.P. the first of two waves of Penutians moved southward down the San Joaquin Valley, pushing Takic speakers deeper into southern California. The second wave of Penutians may have arrived in the Valley during the last 600 years, resulting in the differentiation of the Valley and Foothill Yokuts groups (Bettinger 1982). Movements of the Yokuts further isolated the Tübatulabal but also facilitated their contact with groups on the eastern side of the Sierra (Driver 1937:94; Kroeber 1925:487–488). Since all of the Numic groups were expanding against their neighbors at that time, the ethnic picture for Little Lake is exceedingly complex (Sutton 1994, 2010).

In sum, it appears that proto-Numic speakers

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were probably in the southern Owens Valley *c*. 3500 B.P. The Tübatulabal were in the Southern Sierra Nevada from *c*. 2000 B.P., and the Numic Kawaiisu followed by 1000 B.P. after differentiating from the Chemehuevi-Southern Paiute. Importantly, however, all of the Numic groups in the Little Lake area and surrounding desert territory of eastern California are "only the area's most recent occupants, followers of a long procession of earlier cultures" (Bettinger 1991:463).

The current evidence supports Numic speakers expanding out of their Mojave Desert–southern Owens Valley homeland into the Great Basin and, by 1350 B.P. (*c*. A.D. 650), beginning to replace established, Prenumic people (Bettinger and Eerkens 1999; Jenkins and Warren 1984:58; Moratto 2007). This replacement is supported by recent studies of ancient mitochondrial DNA evidence (Kaestle and Smith 2001) and further regarded as following the advent of the bow and arrow and changes in food procurement practices, along with changes in crafts and a drop in obsidian-based trade during a period of severe drought and resource stress after *c*. A.D. 890. Known as the medieval climatic anomaly (MCA), this period is usually dated A.D. 970 to 1350.

Little Lake Ecosystem: The Oasis Concept

An oasis is a small, fertile, and refreshing place of refuge existing in isolation and surrounded by aridity. Its key and most vital defining attribute is water, usually furnished by local springs. Oases are always valuable resource areas where groups of people tend to congregate. Key attributes of human interaction at oases in both nomadic herding societies and simple forager societies are the transitory and temporary nature of group occupation and the shared use of resources. Oases are marked by a range of social activities, some of which have a "special purpose" and are archaeologically discernible within larger, communal or familial "aggregation" (Conkey 1980) areas.

Among nomadic herding societies even today, desert oases have long histories as neutral places. Their use is circumscribed by social conventions or intragroup expectations and dominated by concerns of purity and contamination. These concerns are codified in some places as rules of hospitality or religion, and oases in these societies are traditionally catalysts or facilitators of cyclical human contact. Foraging societies, in contrast, lack the multiple food resources provided by herding and tend to spend longer periods of time in a given oasis to exploit available resources. This puts greater stress on oasis resources and may increase intragroup competition.

The Panamint Shoshone, Owens Valley Paiute, and other groups functioned under a fairly strict sexual division of labor. Among the Paiute, communal, gender-based work tasks of several types were directed by an honorary headman (*tuvaijü*; Steward 1933b:247). Most groups staged large gatherings (called *fandangos* after the 1860s) in the spring and fall. These events created social networks and provided ceremonial opportunities for community leaders (Irwin 1980:30). While foraging groups were small and aggregations timed to resource abundance, the cumulative seasonal impact of a number of such groups coming together for communal events in an oasis environment such as Little Lake nonetheless would have been significant.

Water access was available to all, but we know relatively little about traditional use protocol. Nearly all Great Basin peoples made and used specialized basketry containers to carry and store water, and fetching water was women's work (Irwin 1980:15, Figure 12). This suggests that female knowledge of water locales probably constituted a substantial and privileged body of information, although obviously both men and women knew and named many desert springs (Irwin 1980:78). Among the Chemehuevi and the Las Vegas Southern Paiute "locating and remembering water sources within one's own territory was clearly emphasized" (Fowler 2009:103).

Water sources were potent sources of spiritual power for all Numic peoples (Vander 1997). In the Mojave Desert, "trails linked named water sources, many of them permanent springs, but also more ephemeral ones such as smaller sandstone tanks and potholes" (Fowler 2009:92). There is some evidence that the Panamint Shoshone diverted streams for agricultural irrigation in the nineteenth century (Irwin 1980: xi), and the Owens Valley Paiute near Bishop did as well, although the time depth for both practices is vague (Steward 1933b:247). A Shoshone concern for water purity or fear of spooking large prey at water holes may be reflected in the notion that "camping at springs was avoided" (Irwin 1980:38).

To a certain extent, the associated cultural history surrounding Little Lake is embedded in the oasis tradition and in the area's physical, climatic, and biotic characteristics. The geological structures, natural resources, and relative isolation of the lake within the larger aridity that surrounds it sets Little Lake apart, even today, as a sharply contrasting environment. This separate, vulnerable, yet nourishing reality and sense of place was certainly recognizable to Native groups, and the abundant production of rock art at Little Lake may be a partial response to such uniqueness. What did Little Lake offer those who chose to live, even temporarily, nearby?

Little Lake is a critical habitat associated with the Pacific Flyway, where today four to six million birds per year wing their way between summer and winter ranges. The migratory comings and goings of large numbers of colorful waterfowl were certainly observable and known to Natives of Little Lake.

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Figure 2.9

Pintail duck *(Anas acuta)*, a migratory waterfowl having long, black tail feathers.

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The Panamint Shoshone constructed "rush beehive-shaped blinds to hunt ducks" at springs and lakes, including Little Lake, but also to bag bighorn sheep and quail (Thomas, Pendleton, and Cappannari 1986:268). Steward (1933b:255) says that the Owens Valley Paiute concealed themselves in duck blinds to take waterfowl in the early morning. Cane arrows and decoys were often used. Ducks, geese, coot, and grebes are visible in the Little Lake and Owens Lake archaeological records and noted as food in oral traditions (Byrd and Reddy 2004:270, Table 12.1; Irwin 1980:21; Sutton 1989a; Figure 2.9). Duck feathers and down, along with the feathers and down of magpies, eagles, hawks, and other birds, were used in ceremonial dance costumes by Owens Valley Paiute shamans (Steward 1933b).

One of the favorite foods of migrating white pelicans (*Pelecanus erythrorhycnchos*) is the Owens or Tui chub (*Gila bicolor*), an adaptable minnow (*tsoni'ta*) and one of only four fish native to the Owens Valley. Schooling Tui chub were "an abundant, easily harvested resource" for Native peoples and provided "high calories and protein with relatively little effort" (Raymond and Sobel 1990:2; Pister 1991:272). Shoshone elder George Gregory made poison from a plant root and put it in the water at Little Lake. "When the fish eat it they go crazy. It poisons them and they float on top of the water and then the Indians gather them up" (Irwin 1980:27).

Tom Stone, one of Julian Steward's Paiute consultants, described minnow fishing in a lake (Jacknis 2004:316):

> Put a stick in tules to stand on. Stay quietly holding a three-foot line with a hook in a puddle made for minnows. Sing and whistle: "Tsonita, come and take a bite. Never mind your little ones. Throw them away and come and take a bite." This is for amusement, to keep awake.

Unlike Little Lake, the rivers and streams of the Kern River region are fast-running. The Tübatulabal built rock "corrals" and then drove schools of fish into them. The fish were trapped in baskets or netted, and then cured with salt traded from other groups in the Mojave Desert and dried. The flora of Little Lake Ranch and the Owens Valley were altered, disturbed, or destroyed first by the various eco-management practices of Native peoples and then more substantially, after Euro-American contact, by grazing horses and cattle. The major tool of Native management was fire (Stewart 2009). The vegetation visible today in the vicinity of Little Lake is not, therefore, necessarily representative of what was there in the past. Furthermore, the lake itself has changed significantly in modern times. In 1923, for example, a dam was built that converted the spring-fed tule lake existing then into a shallow 200-acre pond.

Some plants within the riparian zone near the lake were exploited by Native foragers for food and medicine as well as for trade or the production of various craft objects (Coville 1892; Harrington 1957:11; Irwin 1980:7–17; Pearson 1995:43–44).[8] Among such plants present today are willow (*Salix* sp.; widely used in Numic basketry); bulrush (*Scirpus robustus*, *S. acutus*, *S. olynei*); cattails (*Typha* sp.), and various annual short-term grasses. According to Anderson (2009:56, Figure 5),

> beating seeds of wildflowers and grasses with a shallow basket into a collection basket for food was just the first in a series of management steps. Afterward areas were burned to reduce plant competition and recycle nutrients; some of the seed was saved and broadcast in the burned area.

Bulbs and tubers found, for example, in the riparian zone nearest Little Lake were dug with a hardwood digging stick. Burning over areas and replanting to increase subsequent yields in these areas were "common practices" throughout the desert west (Anderson 2009:58, Figure 6).

In the desert scrub zone, useful grasses and herbs include wild rye (*Elymus* sp.), sunflower (*Helianthus* sp.), chia (*Salvia columbariae*), ricegrass (*Oryzopsis hymenoides*), and Mormon tea (*Ephedra nevadensis*). Analyses of plant genera recovered from excavations at the Stahl Site (CA-INY-182) and Pagunda (CA-INY-3826) show that plants adapted to both riparian and desert scrub zones were collected but that those from the riparian zone were preferred (Byrd and Reddy 2004:289).[9]

Simms (1985b:172–173) states that, prior to 3500 B.P., subsistence in the Owens Valley was "focused toward the riverine ecological community. After 3500 B.P., a broadening of the diet occurred, and resources from the adjacent desert scrub community became more important." Slab-lined cists or rock-lined and covered cache pits were widely used in desert areas to store food as well as other materials (Christensen, Dickey, and Lee 2002:38, Figures 10,

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11; Harrington 1957:18–21; Wilke and McDonald 1989). Sutton (1989b) notes some food storage in the rafters of structures.

Although no faunal analyses from the earliest Stahl Site excavations are reported, and in spite of the presence of numerous ground-stone objects and a deep midden associated with resource processing, Harrington (1957:11, 23) suggested resource scarcity. Pagunda excavations give a more complete picture for that site of large and small mammals, birds, reptiles, and waterfowl (Porcasi in Byrd and Reddy 2004:270–282). Jackrabbits (especially *Lepus californicus*; Figure 2.10) and rodents (*Neotoma* sp.), as elsewhere, were the chief prey (Irwin 1980:19; Steward 1933a, 1933b:254; Sutton 1989b). Jackrabbits were the focus of communal drives using cordage and large nets as well as controlled fire. Social group organization, leadership, and timing were all required for success.

Reptiles and amphibians are rarely noted as food in Great Basin oral tradition in general (Sutton 1989b:254), although they are abundant at Little Lake Ranch. The unique forms, colors, patterns, and behavioral characteristics of desert juvenile and adult lizards are notable. Lizards present today at Little Lake Ranch include the desert horned lizard (*Phrynosoma platyrhinos*), collared lizard (*Crotaphytus collaris*), western whiptail (*Cnemidophorus tigris*), and the common chuckwalla (*Sauromalus ater*; Figure 2.11). Chuckwallas were a major food for all Great Basin foragers, and a specialized, hooked tool was developed to snag them from under rocks (Wallace 1978c). The western rattlesnake (*Crotalus viridis*) is common on the ranch.

Carnivores including the bobcat (*Lynx rufus*) and coyote (*Canis latrans*) are known in the Little Lake region. Coyote has a dominant role in Numic creation myth and storytelling, and the Owens Valley Paiute were "Coyote's children" (Steward 1933b:235, n. 1). In spite of such obvious mythic importance, the coyote is rarely unambiguously present in any of the region's rock art.

Large prey such as the bighorn sheep (*Ovis canadensis*) and deer—especially the black-tailed deer (*Odocoileus hemionus*)—were highly desirable. Their seasonal presence at Little Lake is presumed, although the direct archaeological evidence is scant. Deer are commonly mentioned in Numic oral tradition (Myers 1997; Sutton 1989b:260; Vander 1997), and a large cache of intricate deer snares made of loops of Native rope is reported by Osborne and Riddell (1978) above Diaz Creek in the Lone Pine area. Steward (1933a, 1933b:253) notes that, among the Owens Valley Paiute,

> The deer drive was communal, directed by the district head man, whole families moving to the hunting country. Women and old men kept camp and cured the meat. Men, stationed 100 yards apart, hunted a large region, advancing with sage bark torches, 3 inches in diameter, 3 feet long, firing brush and closing in to drive deer into a great circle, then shooting them down.

Figure 2.10
Black-tailed jackrabbit *(Lepus californicus)*.
Copyright 2006 James Marvin Phelps.

There was an art to pursuing the elusive bighorn sheep, "the most important artiodactyls in the prehistoric Western Shoshone economy" (Thomas, Pendleton, and Cappannari 1986:267):

> During the summer hunters monitored diurnal movements (daily foraging shifts, trips to water, etc.) to determine those sufficiently predictable to allow interception at a pre-designated spot. Permanent hunting facilities might be constructed to help with ambush, and dogs often assisted in summertime bighorn hunting.

Figure 2.11
Common chuckwalla *(Sauromalus ater)*, female.
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In the winter hunting strategy "shifted toward migration hunting" and a "time of greatest potential return" in bighorn sheep procurement (Thomas, Pendleton, and Cappannari 1986:267). Nearly identical practices are reported for the Surprise Valley Paiute and other Northern and Southern Paiute and Shoshone groups (Kelly 1932; Lewis and Anderson 2009, citing Driver 1937; Stewart 2009).

Bighorn sheep certainly frequented Little Lake in the past and were recently seen on the ranch (Van Slyke and White, this volume). Hunting blinds are documented for desert California, and rock rings on Little Lake Ranch may possibly have served such a purpose (Great Basin Foundation 1979). Von Werlhof (1965) discusses possible game trails near Little Lake, but these are now disturbed or fenced off.

Grant, Baird, and Pringle (1968) offer a classic early study of bighorn sheep and rock art for the Cosos. Matheny, Smith, and Matheny (1997) produced a detailed synopsis of bighorn sheep behavior integrated with archaeological and ethnographic data for Nine Mile Canyon in Utah and then described the canyon's numerous rock art depictions of bighorns within that context. Their analysis of ethnographic and archaeological evidence shows that bighorn sheep were stalked by individuals or hunted by large parties. Animals were surrounded and guided with fire or dogs toward pitfalls or enclosures, or run past groups of hidden or decoy hunters. Bighorn sheep were ambushed on trails near salt licks or water holes, or were attracted by sounds meant to simulate the "thunderous echoes of headlong crashes" of males during rutting season (Matheny, Smith, and Matheny 1997:77).

Early hunters used throwing boards called "atlatls" and stone projectile point-tipped spears or, later, bows and arrows. Both are time markers when depicted in rock art. Hunting disguises, such as sheepskins and a shell-decorated headdress constructed with horns and a partial skull, are documented.

Sheep responded to predation by animals and humans by evolving detection, avoidance, and escape behaviors directly related to terrain choices. "The lives of bighorn sheep are inextricably tied very closely to rough terrain such as rocky cliffs and steep walled canyons" (Matheny, Smith, and Matheny 1997:76). One study showed that fully 99 percent of all bighorn sheep activity occurs within 300 m of cliff escape terrain; escape is consistently more important than visibility and the quality of available forage (Matheny, Smith, and Matheny 1997:75–77). The largely north–south-running, tumbled boulders and basalt cliffs bordering Little Lake are perfect "escape terrain" for bighorn sheep.

Because bighorn sheep pursue a seasonal cycle of movement tied to foraging and breeding behavior, those activities were influential in how hunter-gather societies ordered their seasonal rounds. The bighorn sheep's fall rutting season is consistently timed, and breeding behavior takes place in an uncommon setting in which lambs, ewes, rams, and yearlings are all together in one area. Unlike at other times, the animals are more vulnerable since the chosen area is level, with high-quality forage and good visibility; escape behavior is also hindered by the intensity of rutting activities. The bighorn sheep kills at these times coincided with Native peoples' fall gatherings, which were social and ceremonial occasions centered, perhaps not coincidentally, on increase and fertility. The bighorn sheep were as valuable to Great Basin groups as bison were to Plains Indians, and the animal provided a bounty of meat, bone, hide, and sinew (Matheny, Smith, and Matheny 1997). Its high value as a trophy for modern hunters today is but an echo of its profound economic and spiritual significance to Native groups in the past.

Large mammal remains from excavations at Pagunda include only scant evidence of bighorn sheep, although most of the bone remnants are too small for positive identification (Byrd and Reddy 2004). The best kill and butchering evidence in the Great Basin is from Gatecliff Shelter in Monitor Valley, Central Nevada (Thomas and Mayer 1983). Archaeological evidence for bighorn sheep hunting methods in the Coso Range is similar to that for Nine Mile Canyon (see above) and elsewhere in the Great Basin. Hunting blinds (Grant, Baird, and Pringle 1968) are documented, as are numerous piles of stone used as visual barriers for game drives or as dummy or decoy hunters (Garfinkel 2006:224–226).

The Coso Rock Art Landmark (see below) has a massive number of rock art panels incorporating bighorn sheep motifs. Obsidian hydration dates associated with 43 pecked rock art sites in the Coso Range suggest that the greatest occupational use was

LITTLE LAKE TIMELINE

Figure 2.12

Human presence, evidence of artifacts, and environmental changes from 12,000 years ago to the present.

Timeline References *(opposite page)*

(1) Davis (1982) (2) Pearson (1995) (3) Scroth (1994) (4) Sutton (1994) (5) Bettinger (1976) (6) Gumerman (n.d.) (7) Gilreath and Hildebrandt (2005) (8) McGuire and Hildebrandt (2005) (9) Byers and Broughton (2004) (10) Gilreath (1999) (11) Whitley (2000a) (12) Mehringer and Sheppard (1994) (13) Byrd and Reddy (2004) (14) Harrington (1957)

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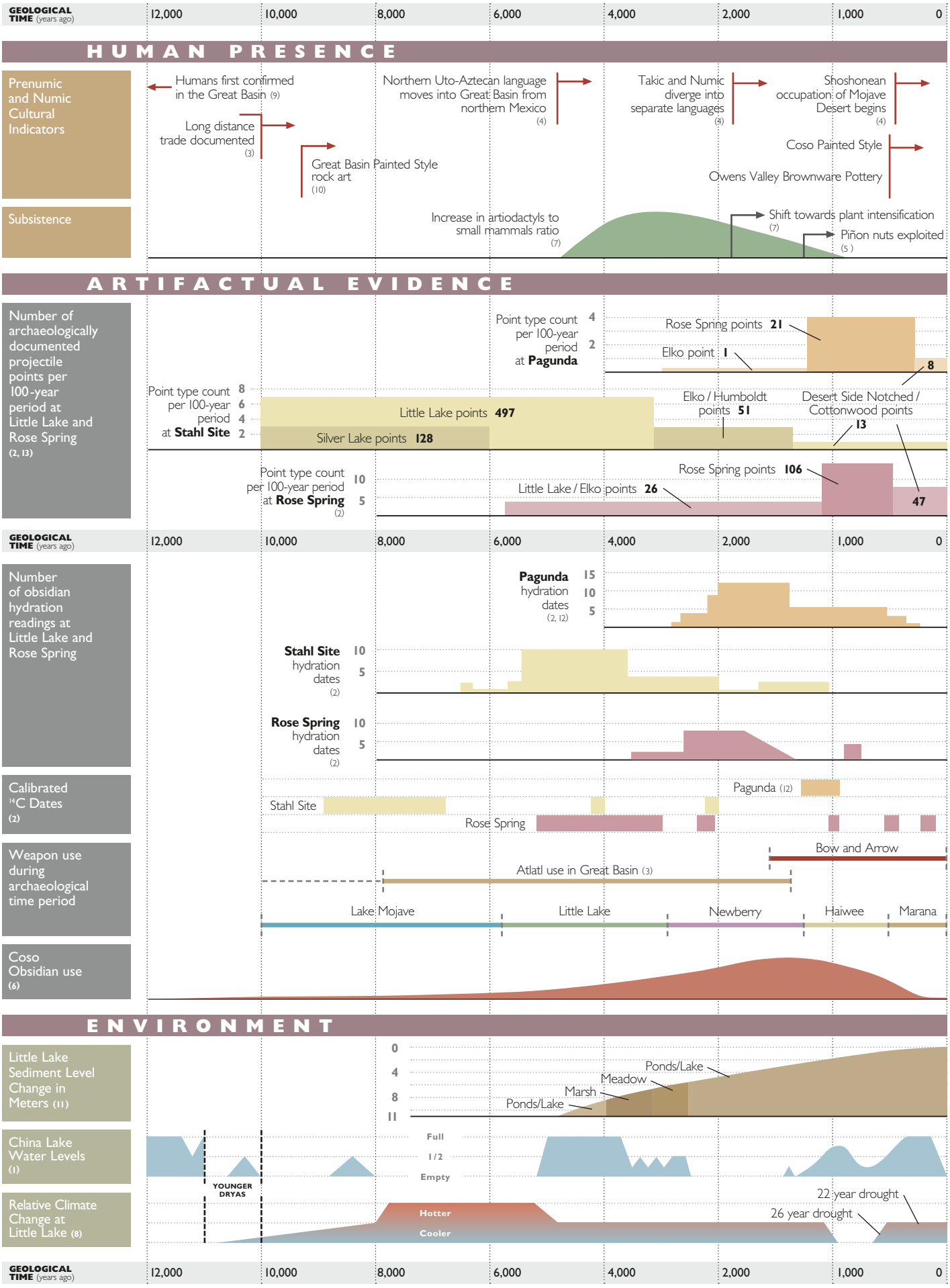

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bighorn sheep hunting and rock art production by Prenumic peoples during the Newberry and Haiwee periods (1000 B.C.–A.D. 1300; Garfinkel 2006:227 for additional sources; Gilreath 1999). A reduction in herd size and depletion caused by over-hunting or "a loss of quality forage and watering holes caused by a protracted series of intense droughts" is thought to have de-emphasized rock art production as it related to increase ritual and subsistence after A.D. 1300 (Garfinkel 2006:227).

Pronghorn antelope were also important game animals for the Native peoples in the Little Lake area. The Panamint Shoshone were often joined by neighboring groups for communal antelope drives. Antelope drives took place around Brown, about 16 km south of Little Lake, and brought the Panamint Shoshone together with the Tübatulabal and the Kawaiisu. The locations of the drives varied, as did the number of animals and people involved. An "antelope shaman or director" who charmed the animals with spiritual power "to capture antelopes' souls through dreams, songs, and other ritual activities" led the effort and insured its success (Thomas, Pendleton, and Cappannari 1986:267).

The Kawaiisu journeyed once a year in July to participate in game drives in Yokuts territory near Bakersfield that included the Chumash and Yokuts (Zigmond 1986:398–399). We have no evidence at Little Lake of perishable stick and cordage snares and nets that may have been used to snag jackrabbits during such communal drives or mud hens along the lakeshore; nor is there evidence of decoys typical of the types found elsewhere in the Great Basin (Janetski 1979; Raymond 1982; Steward 1933b:255).[10]

Enigmatic crescent-shaped stone objects characteristic of prehistoric western sites in proximity to water and supposedly used as "lateral weapon tips for hunting large waterfowl" (Davis 1978:61; Sutton 1989b) are known from China Lake, the Borden Site in Rose Valley, and, more recently, in caves on the Channel Islands. Some from Tulare Lake are said to date from 13,500 to 7000 cal bp. These objects are not documented with certainty in Little Lake Ranch excavations (Christensen, Dickey, and Lee 2002:10, Table 4; Harrington 1957; Wallace 1978a:27, Figure 4). However, we have examined two in the San Bernardino County Museum that are attributed to Little Lake.

Regional Terrain, Climate, and Archaeological Context

Prenumic

While models of prehistory for our study area vary, it seems that people entered the Great Basin by about 11,500 years B.P. (Gilreath 1999:41; Madsen and Rhode 1994; Figure 2.12). At that time, large mammals now extinct roamed cooler grasslands while lakes and streams were full. Hunters stalked through large territories with stone-tipped spears and atlatls to bring down their prey. The harsh climate of the Ice Age prevailed for about 1,000 years during the Younger Dryas period, and then warmer temperatures returned. A condition known as the "Altithermal" prevailed during the Middle Holocene, and the lakes went dry or were replaced by marshlands.

The earliest human use phase throughout the Owens Valley and at Little Lake is "characterized by high mobility: free-ranging groups maintained base camps adjacent to riparian areas and made frequent short-term use of riparian and desert scrub temporary camps" (Burton 1992:26). A range of resources from both habitat zones was exploited. Base camps

Figure 2.13

M. R. Harrington excavations and tent camp at the Stahl Site (CA-INY-182), 1948–1951.

Braun Research Library Collection, Autry National Center, Los Angeles: P.21002.

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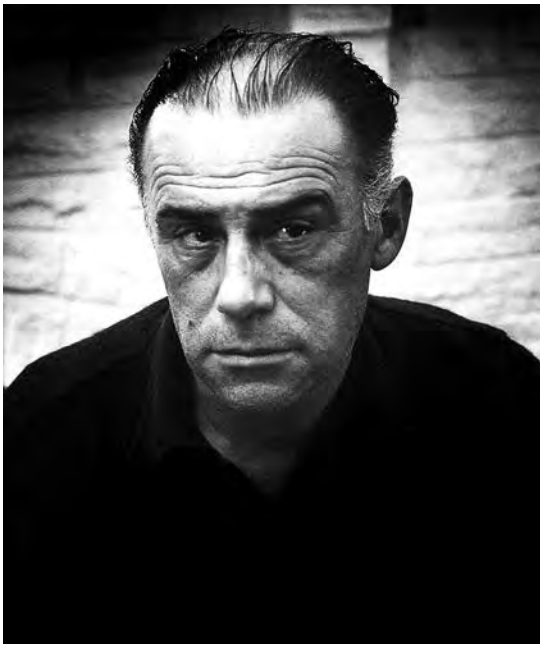

Figure 2.14 *left*

M. R. Harrington during his Stahl Site excavations, 1948–1951.

Photo Gene Daniels. Courtesy UCLA Rock Art Archive Gene Daniels/Beatrice Belous Special Collection.

Figure 2.15 *right*

Willy Stahl, who discovered the Stahl Site Cave.

Photo Gene Daniels. Courtesy UCLA Rock Art Archive Gene Daniels/Beatrice Belous Special Collection.

were later replaced by semipermanent clusters of habitations that were more intensively used.

Prenumic hunters after large game animals probably camped near Little Lake well before 6000 B.P. This supposition is supported by the presence of seven projectile points from the Stahl Site (CA-INY-182) that are indicative of the Lake Mojave point complex (11,000–8000 B.P.; Giambastiani and Bullard 2010:51, 62; Harrington 1957). The beginning of the Little Lake period at Little Lake Ranch is anchored by obsidian hydration dates and five debated radiocarbon dates (Bettinger and Taylor 1974; Pearson 1995:23–24, 73; Schroth 1994).

The evidence of projectile point forms, obsidian hydration dates, and some radiocarbon test results underpins the archaeological context as we strive to place Little Lake Ranch rock art within a temporal continuum and then relate that to the larger regional data. Some rock art elements—especially those representing the atlatl or spear-thrower—are so highly repatinated that they are nearly lost, a condition suggesting relative age (and discussed more fully in the following chapters). While it is quite possible that Little Lake Ranch rock art production began at Atlatl Cliff (CA-INY-389) and coincided with the Mojave point complex evidence (*c.* 11,000–10,000 B.P.; Giambastiani and Bullard 2010:51), we begin our chronology more conservatively with the Little Lake period (Pearson 1995; Sutton et al. 2007).

A Pinto Site at Little Lake: The Stahl Site

The Stahl Site (CA-INY-182) is located on Little Lake Ranch at the lower edge of an alluvial fan flowing out of a canyon 1 km north of Atlatl Cliff and 2 km north of the present lake (Duffield and Smith 1978; Harrington 1957; Figure 2.13). The site is 152.4 m in diameter and was indicated on the surface by extensive obsidian flake scatter and numerous projectile points.

Mark R. Harrington was an archaeologist who served for more than 25 years as curator of the former Southwest Museum of the American Indian (now integrated into the Autry National Center of the American West; Figure 2.14). Its archaeological field program was directed by Harrington and included a wide range of volunteers and students, some of whom, like Charles Rozaire and Ruth D. Simpson (1949), worked at Little Lake and then went on to forge their own careers in archaeology.[11] Harrington explored some of the most important sites in desert California and Nevada in search of Early Man and published extensively at the museum press (Harrington 1933, 1948a, 1948b, 1949, 1950, 1951, 1952, 1953, 1957).

Harrington's (1957:3–5) interest in Little Lake was piqued by Willy Stahl, "an enthusiastic amateur archaeologist" who found the Little Lake site, he told Harrington, when he happened upon some impressive projectile points scattered on the ground (Figure 2.15). Harrington, who understood that artifacts found in such a way usually entered private collections or were otherwise lost to scholarship, rewarded Stahl and encouraged further cooperation by naming the Stahl Site after him. In 1947, Harrington accomplished a reconnaissance of the Little Lake area and then, from 1948 to 1951, conducted seasonal excavations there under the auspices of the Southwest Museum.

Harrington (1957:49–53) recognized that some of the recovered projectile points were very similar to 160 examples extracted from another site complex known as Pinto Basin in California's Joshua Tree National Park (Amsden 1937; Campbell and Amsden 1934; Campbell and Campbell 1935).[12] Eventually, he retrieved and classified nearly 500 Stahl Site artifacts as Pinto points. Subsequent controversy

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Figure 2.16

Pinto projectile point, 23-F-3319-3322, M. R. Harrington Little Lake Collection.

RAA photograph, by permission of the Autry National Center, Southwest Museum, Los Angeles.

was extensive over the diagnostic usefulness of Pinto points. Meighan (1989) reacted to two earlier technical articles (Jenkins 1987; Vaughan and Warren 1987) dealing with "attempts to define a widespread point type in the Great Basin and to provide dating for it." The Stahl Site material was re-evaluated and, in the end, two distinctive variants, with differing antiquity and chronological positions, were recognized (Basgall and Hall 2000; Bettinger and Taylor 1974; Garfinkel 2007:69; Haynes 2004:118; Meighan 1981b; Pearson 1995: 4–7; Sutton et al. 2007; Warren and Crabtree 1986). Harrington and his team excavated at least 11 trenches and an uncounted number of pits to reveal, among other things, what he thought were seven house floors with post holes; burials; a massive collection of obsidian in many manufactured forms; beads, ground-stone objects, projectile points, and ground stone (Figure 2.16). Benjamin Ernest (B. E.) McCown (1892–1959; 1955; Greenwood 1964) is credited by Harrington with the first discovery of house post holes at the Stahl Site (the validity of which was later questioned).

McCown was an inveterate collector who had conducted his own excavations nearly 17 years earlier in four basaltic coves 2.5 km south of Little Lake (Finger, this volume).[13] McCown attributed the basketry and rock art he found there to the Paiute who, he thought, had passed through the area during seasonal foraging. In our view, it is probable that McCown and others before him excavated at Little Lake prior to Harrington's expedition.

Stahl Site Cave

Stahl Site Cave (CA-INY-205; Figure 2.17) is located in a prominent lava outcrop and is technically more of a rock shelter than a cave. However, most of the literature and nearly all of the site records and reports call it Stahl Site Cave, and we retain that name. The cave is directly adjacent to the northwest

Chatting with Charles Rozaire

Jo Anne Van Tilburg

Bernice Belous donated to the Rock Art Archive a collection of photos documenting Mark R. Harrington's (1957) Little Lake excavations in which she participated with Charles Rozaire and others. Taken by Gene Daniels, the pictures are a charming collection of camp life meant to appear as a photo essay in *Boy's Life* magazine. Similar prints are also in the collections of one or two other institutions (Kaldenberg 2005). We exhibited one of the Archive's prints in a recent Fowler Museum of Cultural History exhibition honoring Franklin D. Murphy, an original supporter of the Rock Art Archive.

The distinguished, long-time California archaeologist Charles Rozaire visited us at the Archive with Wendy Teeter, curator of archaeological collections at the Fowler Museum. Together we prodded him to share memories of his fieldwork at Little Lake Ranch. Rozaire told us he was introduced to Harrington by Bernice's husband, Russell E. Belous, an anthropologist who served in Europe during World War II. Rozaire was 21 years old at the time and joined Harrington's Little Lake crew as the proud possessor of two $100 grants, one from UCLA and the other from the State of California. Rozaire said that two items stand out in his memory of Harrington's field camp. He remembers especially the food—it wasn't good—and the team's 1932 Ford pick-up truck. It had a broken speedometer, making it great fun to race across the desert (Figure S.1). Today, the remains of that truck are still rusting away on Little Lake Ranch.

Figure S.1 Racing Mark Harrington's Ford pickup near Little Lake, mid-1950s.

Other members of Harrington's crew were Willy Stahl, Joel Shiner, Georgiana Guthrie, Dean Babcock, Myra Vorkapich, Bernice Belous, Nettie Daniels, and Agnes Bierman. Agnes, who was Dutch, had immigrated with her family to Canada and served in the Canadian Coast Guard during World War II. Agnes enrolled at UCLA in anthropology and studied with George Brainard. She participated in an inventory of California desert sites with Adan Treganza and others from 1947 to 1948. Recently, she revisited another site in the area on which she worked that has since been dubbed "Agnes Bierman Caves" (Wells and Backes 2007). It was Agnes on whom Gene's camera lens most often lingered.

Willy Stahl, for whom Harrington named the Stahl Site, was in his early fifties at the time of the Little Lake excavations. Rozaire remembers him as a man filled with stories who enjoyed drinking (sometimes quite a lot!) and shooting the breeze with the crew. According to Willy, he was doing his own site survey at Little Lake when he found "large points in the Pinto style." He called Harrington to report the find and encouraged him to come up to Little Lake. The rest, as they say, is archaeological history.

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portion of the Stahl Site and has a checkered history of occupational use, disuse, and reuse. By the time Harrington encountered it, the Stahl Site Cave had been extensively plundered.[14] He noted that most of the deposits were Numic, but Pinto and other early-type projectile points were found in the lower excavation levels. In general, the cave was used by Prenumic people and then by Numic people until well after Euro-American contact.

Harrington (1957:76) noted pecked, scratched, and painted rock art in Stahl Site Cave:

> Examination showed a number of crude drawings pecked and scratched into the lava at about eye-level on the rear wall; while at various other places on the walls are traces of red pigment. The figures, representing animals including mountain-sheep and men (one of whom is armed with bow and arrow) are probably of late Shoshone origin . . . although they could have been made by some white man familiar with Indian pictography.

However, Harrington did not record the rock art, and today most of it has deteriorated or appears to have been altered and even vandalized over time. Rock Art Archive documents show one pecked rock art panel with multiple elements on the interior of the cave. The tableau of eleven quadrupeds—ten of which are bighorn sheep—also contains five stick-figure anthropomorphs, two with bow and arrow, and five amorphous elements (Van Slyke and White, this volume).[15]

We recorded three small painted panels near the cave entrance (Van Tilburg and Backes, this volume). Panel 1 is a disconnected series of red painted amorphous elements (Figure 2.18). Panel 2 consists of four parallel vertical lines that are thickened at the top and seem to have been made by applying red paint to the fingertips, placing the fingers on the wall, and then drawing downward (Figure 2.19). Panel 3 is painted connected diamonds. (Figures 2.20a, b). The cave setting and the rock art have been compared stylistically to 18 elements in Sally's Rockshelter in San Bernardino County (CA-SBR-4895; Whitley et al. 1999).

So far as we can determine, no organized rock art recording was accomplished during Harrington's seasons at Little Lake. Some volunteers, visitors, and crew members, however, took photographs, includ-

Figure 2.17
Stahl Site Cave.

Figure 2.18 *left*
Stahl Site Cave, Panel 1: disconnected series of red painted amorphous elements.

Figure 2.19 *right*
Stahl Site Cave, Panel 2: red paint apparently applied by using fingers.

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Figure 2.20

Stahl Site Cave, Panel 3: (*a*) connected diamonds element in red paint. (*b*) detail revealed through digital enhancement.

ing then UCLA student Agnes Bierman, and Les Tremayne, a popular actor and radio personality of the time (d. 2003; Figures 2.21, 2.22).[16] Some of this documentation is on file at the Rock Art Archive.

Site Chronology

Changes in the lake over time are major concerns for understanding rock art at Little Lake, and as we have seen, the lake was tested for coring in 1970 and then cored in 1974 to collect environmental data (Mehringer and Sheppard, 1978:157). "A program of mapping and surface evaluation" of the area "immediately surrounding" Little Lake was planned but not undertaken (Berryman and Berryman 1979:51). A field class led by Mark Q. Sutton for Cerro Coso Community College assisted in excavations undertaken by Stan Berryman within "the first cove area" (our Locus 1; Berryman and Berryman 1979:52; Mark Q. Sutton, personal communication, 2009).[17]

Adella "Dee" Schroth (1994) produced her dissertation on an examination of previous fieldwork and controversies surrounding the chronological ordering of the Pinto point series and Rose Valley obsidian collections. Not certain in 1991 of exactly how many excavations Harrington had actually made at the Stahl Site, Schroth (personal communication, 2009) numbered her trenches 20 to 30 and placed them adjacent to Harrington's. Her work established an activity range of 10,000 to 5000 B.P. for the site through radiocarbon dates, although, as mentioned above, reconsideration of these dates is suggested (Haynes 2004:120; Schroth 1994:314).[18] Schroth's collection is held by the San Bernardino County Museum, and an amusing item in it is one of Harrington's tent stakes, which he may have placed in one of his trenches on purpose to mark it for anyone coming after him (Figure 2.23).

James L. "Jim" Pearson (1995:2, 4–10) noted that, in spite of the long history of attention focused on the Little Lake vicinity as a whole, human occupation there "remains essentially undated." He set out to rectify that shortcoming and employed obsid-

Figure 2.21 *left*

UCLA (1947–48) anthropology student Agnes (Aggie) Bierman photographing at Locus 7.

Photo Gene Daniels. Courtesy UCLA Rock Art Archive Gene Daniels/Beatrice Belous Special Collection.

Figure 2.22 *right*

Actor Les Tremayne at Atlatl Cliff (CA-INY-389), mid-1950s.

Braun Research Library Collection, Autry National Center, Los Angeles: P.21727.

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Figure 2.23
Tent stake used by M. R. Harrington at Stahl Site excavation.
RAA photograph, by permission of San Bernardino County Museum.

ian hydration methods to create a viable chronological sequence for the area.

Most of the obsidian samples Pearson used in his analyses came from Schroth's excavations, but he augmented that collection with samples from the 1992 season of a UCLA field school directed by George Gumerman IV and a 1994 Occidental College field school directed by Glenn S. Russell. Gumerman excavated south of our Locus 1, and Pearson and the 1994 group excavated three units at the Stahl Site and three in Stahl Site Cave (Pearson 1995:53–55, 106).[19] Pearson further amplified his data with 62 obsidian samples in the Harrington collection previously studied by UCLA archaeologist and Rock Art Archive founder Clement W. Meighan (1981b, 1989). All of the analyses were conducted by Glenn S. Russell, then at the UCLA Obsidian Hydration Laboratory, and Pearson's materials are in the archaeological collections of the Fowler Museum of Cultural History at UCLA.

Table 2.1 Chronological correlation.

GEOLOGICAL TIME (years ago)	EPOCH	ARCHAEOLOGICAL PERIOD	ARCHAEOLOGICAL TIME	CONVENTIONAL TIME
		Marana	650 B.P.– historic	1300 –1850 A.D.
		Haiwee	1350–650 B.P.	600 –1300 A.D.
5000–1000	Late Holocene	Newberry	3150–1350 B.P.	1200 B.C.– 600 A.D.
8000–5000	Late Holocene	Little Lake	6000–3150 B.P.	4050 –1200 B.C.
11,000–8000	Early Holocene	Lake Mojave	pre–6000 B.P.	10,000 – 4050 B.C.

Without going into precise detail better read in the original report, Pearson's chronology takes previous work and chronological debates into consideration, weighs scientific issues of method reliability, reconsiders typological classifications, and then "provides a set of reasonable and relatively accurate dates for the full span of human occupation in the southern Owens Valley" (Garfinkel 2007:58; Rogers 2006a:4, Table 1). More finely tuned and slightly varying frameworks for the larger area are available (Bettinger and Taylor 1974; Gilreath and Hildebrandt 1997; Jenkins and Warren 1984; Sutton et al. 2007), but we follow Pearson's Little Lake site-specific outline.

The localized chronology at Little Lake Ranch is set within the larger Owens Valley regional chronology (Pearson 1995). At Little Lake, we examine rock art production relative to the Mojave point complex and the Little Lake (6000–3150 B.P.), Newberry (3150–1350 B.P.), Haiwee (1350–650 B.P.), Marana (650 B.P.–*c.* A.D. 1700), and Historic periods (*c.* A.D. 1700–1850); Rogers 2006a; Table 2.1). Each period is associated with artifact constellations, changing climatic patterns, fluctuating populations, subsistence stress, and adaptive food procurement practices.

The pre–Little Lake or "early component" of the Stahl Site (Lake Mojave point complex) makes it one of the oldest dated published sites for the region (Bettinger and Taylor 1974; Byrd and Reddy 2004:12–13; Garfinkel 2007:117; Harrington 1952, 1957; Meighan 1981b, 1989; Pearson 1995:5; Schroth 1994; Whitley 1998d:45).[20] Major occupation and most of the cultural activity for the site, however, falls within the Little Lake period (*c.* 6000 B.P.), with a "precipitous" decline at about 3800 B.P. that did not "by any means signal complete abandonment" (Pearson 1995:75). A "considerable amount of activity" lasted into the early Newberry period and then waned. Glass Euro-American trade beads signal Numic use into the Historic period (Arkush 1990:30).[21]

Stahl Site Cave holds at least three cultural horizons and is dated primarily to the Little Lake period, although there was some occupation during

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Figure 2.24

Charmstone, 23-F-3352, recovered by M. R. Harrington at the Stahl Site.

RAA photograph, by permission of the Autry National Center, Southwest Museum, Los Angeles.

Length, 29.3 mm.

the Newberry period. It was minimally or sporadically used during the Haiwee period and then briefly again during the Marana period. The last historic reference to Little Lake cave use—although not specifically to the Stahl Site Cave—was by Panamint Shoshone elder George Gregory, who said "Indians were camping there when the massive Lone Pine earthquake struck in 1872" (Irwin 1980).

Prenumic Behavior Reconstructed

Archaeological data interpretation suggests that Little Lake hunters from at least *c*. 6000 to 3150 B.P. used obsidian to tip spears or atlatl darts. They ranged far and wide in search of large game, sharpening obsidian points in the field and not taking time to replace damaged points until they returned to the Stahl Site. Stone scrapers were used to process the meat and skins of the kills brought back. While the points are found in abundance, there is little evidence of the actual animals killed. At a "bone dump" excavated by Harrington (1957:23), "pieces such as joints large enough to be identified were rare." Women and girls, working alone or as members of small, related groups, collected seeds, bulbs, and other plant food in the immediate area or within a day's round-trip walk. They did not make pottery, but wove baskets.[22]

Prenumic ceremonies or rituals at Little Lake are completely unknown; hypothetical cultural reconstructions are based on recovered artifacts and their probable uses and from inferences drawn from rock art in the Coso Range thought to depict costumes and ceremonies (Garfinkel 2006). There are, however, a few tantalizing hints of spiritual practices in the Stahl Site excavation record. Harrington (1957:68–69, Figure 49) discovered three interesting objects, two of which were complete enough that he interpreted them as "charmstones" (Figure 2.24). The depths at which they were found—71 cm and 90 cm, respectively—were "an indication, if not proof, of age" (Harrington 1957:68).

Similar objects, mostly surface collected or in private collections, are numerous in central California and made of at least 17 distinctive types of source stone (Elsasser and Rhode 1996:33; Kroeber 1939; Wallace 1978b:33, Figure 14).[23] The selected stone may have been quarried as blanks on boulders, leaving "pecked curvilinear nucleated" cupules usually recorded as a type of rock art (Elsasser and Rhode 1996:34, citing, among others, Hotz and Clewlow 1974). If so, it is suggested that "certain rocks may have been the specially recognized right of privileged persons only, following a kind of sumptuary law, with the charmstones coming from this source invested with a special symbolic quality" (Elsasser and Rhode 1996:35). Variants of charmstones may include the so-called boatstone atlatl weights that were attached to darts for both technological and metaphysical significance (Elsasser and Rhode 1996; Grant, Baird, and Pringle 1968).

Harrington (1957: Figure 49; Figures 2.25a, b) also found a flat piece of slate incised with parallel lines on one side and random scratching on the other. Similar objects in other areas of California and the Great Basin are referred to as "incised mobiliary rock art" or portable art (Thomas 1983a). They are usually associated with habitation sites and appear to have been personal talismans regularly worn or used and probably relatively easily replaced when broken (Gilreath 2007:275–276, Figure 18.2). An apparent cache of incised stones was excavated at the Great Basin site known as Gatecliff Shelter in Monitor Valley, Nevada, and reliably dated to between 1260 cal B.C. and A.D. 1300 (Gilreath 2007:276; Thomas 1983a, 1983b). The most common color for incised slate at Little Lake Ranch is gray to greenish.

Harrington (1957:46, Figure 37) also reported

Figure 2.25

(*a*) Slate piece, 23-F-3350, incised with parallel lines.

(*b*) Reverse of slate piece, 23-F-3350, showing random scratching.

RAA photographs, by permission of the Autry National Center, Southwest Museum, Los Angeles.

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Figure 2.26
(*a*) Lithic scatter at Pagunda, near Locus 1. (*b*) Detail of obsidian scatter.

red, white, and yellow pigment at the Stahl Site. He suggested that paint was prepared with the use of pestle-like objects or miniature metates. The paint could have been used for rock art, to decorate body and face, to adorn objects of ceremonial value, or to give ceremonial value to utilitarian objects.

At Gypsum Cave, another dry cave site just east of Las Vegas, Harrington (1933:109–113) found atlatl dart shafts painted in designs that included crosshatching, diagonal lines, diamonds, connected diamonds, and spirals, thus establishing the antiquity of these designs in the Great Basin. Steward (1933b:261, Figure 3) reports that "zigzags and other red designs were painted on the shaft and sometimes on the feathers" of Owens Valley Paiute cane or willow arrows.[24] The same designs occur in both painted and pecked rock art at Little Lake Ranch (Van Tilburg and Backes, this volume). Sutton et al. (2007) suggest that during Gypsum times (*c.* 4000 to 1800 B.P.),

> [t]he western Mojave Desert was relatively warm and dry and human populations based themselves in the southern Sierra Nevada/ Tehachapi Mountains, using the desert on an ephemeral basis. During the wetter and cooler Rose Spring times (ca. 1800 to 1200 B.P.), people moved into the desert on a permanent basis and used the mountains on a seasonal basis. About 1,000 BP, the climate became warmer and drier once again and the settlement/subsistence patterns changed back to the pattern of the Gypsum Complex.

Pagunda: Continuity and Change

As Stahl Site use declined, Little Lake transitioned from a marshy pond to a lake at the beginning of the Newberry period (*c.* 3000 B.P.; Pearson 1995:85). Pagunda (*pawo'nda* or *paa-vonda*; CA-INY-3826) came to the fore at this time, and, according to Steward (1938:92), it was occupied during ethnographic time by "a mixture of Coso Shoshone, Southern Paiute, and Desert Kawaiisu" (Underwood 2006:183). Pagunda is not a single site but an extremely large area "better considered as an agglomeration of sites" (Byrd and Reddy 2004:45). The entire area is disturbed, and the broadly sketched boundary is based on the survival of a surface lithic scatter "on top of an irregular fan-like surface west of Little Lake" (Byrd and Reddy 2004:45; Figures 2.26a, b).

The obsidian hydration evidence and point typology place Pagunda on-site activity from the late Newberry through the Marana periods, with major activity during the early Haiwee period, although not all researchers agree (Byrd and Reddy 2004:245; Pearson 1995:75). For one portion of the area included within the general site boundary, there are seven radiocarbon dates suggesting "a relatively tight range of occupation between 1,100 and 1,400 years ago," or during the "strongly represented" Haiwee period (Byrd and Reddy 2004:185, 245, 251; Gumerman n.d.; Pearson 1995:75).[25]

Through the courtesy of George Gumerman IV, our perusal of his excavated objects and level records allows us to sketch a partial reconstructed outline of an evolving pattern of use, disuse, and reuse at Pagunda. Habitations south of Locus 1 ranged from apparent house floors to temporary shelters, but structural evidence is equivocal. Food preparation took place at hearths; some (but not all) of these are associated with habitations. Two hearths in proximity suggest that a large extended family group clustered together and possibly shared resources (Figure 2.27). Storage areas were set apart from activity areas. The limited number of ground-stone artifacts recovered elsewhere at Pagunda and the "lack of intensive

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Figure 2.27

Locus 6, bedrock mortar cluster.

wear" on the few milling stones recovered indicate local use "with no evidence of planned re-use" (Byrd and Reddy 2004:261). The impression is not of long-term *in situ* residency, and is very different from the pattern exhibited at the Stahl Site during the Little Lake and early Newberry periods.

Remnants of freshwater snails at Pagunda suggest that plant material collected near the lake was removed a short distance to the tableland for processing. A single broken bone awl was retrieved by Harrington (1957:69) from the Stahl Site, and another single but intact bone awl came from Pagunda near Locus 1 (40–50 cm depth; Figure 2.28).[26] The obvious implication in all cases is food processing and basketry production.

Figure 2.28

Bone awl excavated at 40–50 cm depth near Locus 1, Pagunda.

Archaeological field catalog #631, G. Gumerman IV Collection, 1991–1993.

RAA photograph, with permission; actual size.

Pottery, which is not included in early Stahl Site material culture and was a late development in the Owens Valley, was fired at Pagunda in an area that appears to have been discrete from cooking areas; pottery use is evident by extensive surface scatter and excavated remnants of Owens Valley Brownware. Some fragments are decorated with surface striations, incised lines, chevrons, or crescent-shaped fingernail-impressed designs on the rim (Eerkens and Van Tilburg, this volume).

Two stone pendants were collected at Pagunda from relatively deep subsurface locations near Locus 1 (Figures 2.29a, b).[27] Both are made of thin, smooth stone that is distinctively celadon green in color, with visible flakes of sparkling mica. The pendants are perforated at the top for the insertion of a cord. Both have deeply incised parallel lines and fine scratches, placing them within the tradition of "incised mobiliary rock art" discussed above.[28] Similar objects on other sites were in contexts associated with domestic activities, tool making, and rock art (Allen 2006:38; Thomas 1983a).

Mineral pigments and pigment fragments, identified in two cases as "red ochre," were found at Pagunda in subsurface contexts from 20 to 60 cm depth, and a "pigment palette" was retrieved at 13 to 40 cm (Byrd and Reddy 2004:182; Gumerman n.d.). The pigments Harrington (1957) reported for the Stahl Site and the objects from Pagunda establish without doubt that the raw material necessary to produce painted rock art was present at Little Lake throughout most, if not all, of the habitation/use sequence represented by both sites.

Pagunda is attributed during ethnographic time to the Panamint (Coso) Shoshone but, as noted above, it was also home to Owens Valley Paiute and Desert Kawaiisu. The Tübatulabal also used the area at various times (Voegelin 1938:41; Zigmond 1938:637). The Panamint (Coso) Shoshone are linked directly to the site through the name *pagund-unzi* (Byrd and Reddy 2004:145; Garfinkel 2007:41; Steward 1938). Pagunda is one of four seasonally occupied Panamint Shoshone sites within the Little Lake or *Kuhwiji* district (Garfinkel 2007:41; Irwin 1980: xiii). The others are Coso Hot Springs (*Mua^ta*), which apparently had a transient population approximately double that of Pagunda; Cold Spring (*Uyuwumba)*, and Olancha (*Pakwa'si*). The latter vicinity near the south side of Owens Lake is also the location of the southernmost Owens Valley Paiute village known as *pakwazi'natil* (Steward 1938:81).

Sutton's (1981) concept of a "gateway community" facilitating north/south valley-based travel and trade certainly applies to Pagunda. It straddled the connective gap occupied by the Little Lake "oasis"

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between the Indian Wells Valley to the south and the Owens Valley to the north. Two or three Native trails between Little Lake and the El Paso Mountains to the south are documented (Kaldenberg 2005), and another runs up the side of the basalt flow south of Little Lake.

The Owens Valley Paiute and the Panamint Shoshone had well-documented trade ties to each other. The Tübatulabal had early contact with the Spanish at the San Buenaventura Mission, which was established in 1782, and by the early 1800s they and the Panamint Shoshone had horses acquired during raids on Mission San Fernando (Underwood 2006:181). Trade goods included clam disk beads used as money, salt, and rabbit-skin blankets (Hughes and Bennyhoff 1986:242, Table 2). Trade routes for marine shell are apparently ancient in the Owens Valley and Rose Valley, and connect to coastal California and the Channel Islands and as far south as the Gulf of California (Hughes and Bennyhoff 1986).

Trade across conjectured boundaries and over varying distances is evidenced at Pagunda by beads in *Olivella* sp. and *Dentalium* sp. shell, a widely traded item in California (Bennyhoff and Hughes 1987 Byrd and Reddy 2004:183, Figure 8.31; Gumerman n.d.; Heizer 1978:690; Figure 2.30).[29] A pendant identified as made of abalone was retrieved from 50–60 cm (20–24 in.) at Pagunda. Stone beads, including at least one of serpentine, suggest trade northward as far as Mammoth Lakes.

Analyses of lithic assemblages from the Haiwee period of Pagunda reveal that all of the obsidian artifacts were fashioned of Coso obsidian, and, with only a few minor exceptions, virtually all of the obsidian came from nearby quarries known as Coso-West Sugarloaf (Byrd and Reddy 2004:250).[30] In addition, about 79 percent of the flakes analyzed displayed only early-stage reduction rather than finished or near-finished work. Taken together and in the context of the time line for the area, these data reveal two important circumstances. First, the territorial range of people using Pagunda during the Haiwee period may have been reduced in size from previous times. Second, there was a "heavy focus on production rather than use" of stone tools. It is further suggested that Pagunda at that time was "a non-substantial settlement or specialized site" (Byrd and Reddy 2004:256–257). The specialization suggested is the secondary reduction of obsidian (Faull 2007). If this is true, it seems to fit with the minimal use of Pagunda reflected in the obsidian hydration histogram. A similarly minimal level of rock art production may have taken place during that same time frame.

The organizational metaphor for Numic hunter-gatherer lifeways is the circle. The seasonal cycle of natural resource availability was the impetus for the seasonal round of resource exploitation. In turn,

Figure 2.29

(*a*) Intact green schist pendant with incised lines and scratches excavated at 25–30 cm depth near Locus 1, Pagunda.

Archaeological field catalog #1151, G. Gumerman IV Collection, 1991–1993.

(*b*) Broken green schist pendant excavated at 40–50 cm depth near Locus 1, Pagunda.

Archaeological field catalog #885, G. Gumerman IV Collection, 1991–1993.

RAA photographs, with permission; actual size.

Figure 2.30

Beads and shell excavated at Pagunda.

G. Gumerman IV Collection, 1991–1993.

RAA photograph, with permission.

the ceremonial cycles of spring renewal and fall rest were the occasions of social interchange. Steward (1933b:238–239; 1938) described seasonal rounds for the Owens Valley Paiute, which were similar for the Panamint Shoshone. In the spring of each year, families "wintering in mountains moved to valleys," and throughout the summer they headquartered there in "villages," fishing, seed gathering, and roaming in search of other resources. In the fall, "people of large districts assembled at certain villages for a week or so of dancing and gambling and communal rabbit drives." One of these assembly points was certainly Little Lake. During the winter, individual families or small groups of families were more or less sedentary at sheltered, higher elevations and lived on stored food if it was available. If it was not, they wintered at their valley villages.

Historic Population and Traditional Borders

Historic population estimates for the various Native groups in the Little Lake area reflect the "pathetic histories" of Euro-American contact and differ depending upon the source consulted (Leland 1986:608). The regional totals for the Owens Valley Paiute are combined with estimates from the Northern Paiute, Walker River Reservation, and

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Pyramid Lake Reservation to arrive at a total of 800 persons in 1873 (Leland 1986:609,Table 1). Steward (1933b:237) estimated the Paiute population "in and around Owens Valley" to be about 1,000. The Shoshone comprised "only 25 percent of Great Basin Indians" (21,544 total population; Leland 1986:610) in 1873. In 1910, 1,448 Owens Valley Paiute and *only* 10 Panamint Shoshone were listed with the U.S. Bureau of the Census. These totals are extremely significant in terms of the differential survival of ethnographic data.

According to Steward (1933b:236), the traditional Shoshone–Paiute dividing line ran "around the south shore of Owens Lake," thus placing Little Lake within Shoshone territory. During ethnohistoric time, boundaries were poorly defined, show areas of overlap, and probably shifted over time. The Panamint Shoshone territory in which their main sites are located encompassed about 26 to 48 square km per person (Garfinkel 2007:41; Steward 1938). Pagunda itself was home to only 50–60 people in 1870 (Byrd and Reddy 2004:145; Garfinkel 2007:41; Steward 1938:80–84).

The Desert Kawaiisu, known as the *Maguruwu*—but also, somewhat confusingly, as the Panamint—traditionally occupied the southern Panamint Valley and southern Death Valley (Underwood 2006:182). Kawaiisu speakers were part of the Koso (*Pawo'nda*) district that included the Little Lake district (*Kuhwiji*) and the Coso Range, Rose Valley, Olancha, Darwin, Walker Pass to Owens Lake, and part of the far southern Sierra Nevada (Garfinkel and Williams 2010; Steward 1937, 1938; Voegelin 1938).

As we have seen, the Kawaiisu and the Owens Valley Paiute shared with the Panamint Shoshone a "traditional cultural affiliation and environment" and exploited the same resources using similar strategies, tools, and weapons (Lightfoot and Parrish 2009:303, 341; Yohe 1998). All the same, Numic foragers "did not randomly venture into other districts" (Irwin 1980: xiii). Among the Shoshone, individual or group "ownership" of land was unknown until late in time, when disagreements about access to stands of piñon (*tuvá*) located at higher elevations in "pinenut territory" became more contentious.

Members of all of these Numic groups could have visited Little Lake from *c.* 1000 B.P. and within several possible contexts: as guest participants during seasonal gatherings or ceremonies; during longer-term residence dictated by exogamy or marriage to Shoshone who more regularly occupied the area; or as trading partners.[31] Theoretically, opportunities for rock art production were available to members of all of these groups at any of these or other times.

During the early twentieth century, Little Lake and areas southward were primarily frequented by Owens Valley Paiute and Panamint Shoshone. Owens Valley Paiute elder Truman Bruff (1906–1996) was born on the Fort Independence Reservation, and his ancestors were among over 1,000 Natives forcibly removed from Owens Valley to Fort Tejon in 1863. According to Bruff, he and his boyhood friends used to go deer hunting and fishing "clean down to Little Lake" (Wehrey 2006:49).

Settlement Context

Looking northward beyond the immediate Little Lake area to the wider region, we find multiple sites located in the desert scrub environment between Little Lake, Red Hill, and Fossil Falls (Harrington 1952). Sites range from the deep cultural deposits at Fossil Falls to surface lithic scatters, pottery scatters, rock alignments, rock cairns, and milling features between Little Lake and Red Hill.[32] Taken together, the sites reveal an intensive use of the area over an extended period of time and fall into three basic and overlapping use categories: habitation, resource procurement, and raw material processing.

Like the Stahl Site and Stahl Site Cave, three other sites in the immediate region were occupied during the Little Lake and Newberry periods: two in the Rose Valley—Rose Spring (CA-INY-372) and Coso Junction Ranch on Portuguese Bench (CA-INY-2284)—and Lubkin Creek (CA-INY-30) in the southern Owens Valley (Garfinkel 2007; Gold 2005; Pearson 1995). The occupants of all three sites preferred lowland areas with good water sources and subsisted on riparian resources and large game hunting.

Rose Spring, lying about 17 km north of Little Lake, has a deep, stratified history of multiple occupations and use, primarily for obsidian tool production (Lanning 1963; Yohe 1992). Pearson's obsidian hydration dates and a suite of radiocarbon dates pin occupation at Rose Spring to the Little Lake and Newberry periods, as well as to the Marana period (Gilreath and Hildebrandt 1997; Gold 2005:209). The site was occupied during the Haiwee period, but there was an evident decline in "hunting and other cultural activity." Portuguese Bench, Coso Junction Ranch, is a large village site occupied during the Newberry period and "with substantial yet declining activity" during the early Haiwee period (Garfinkel 2007:121). The Lubkin Creek site (CA-INY-30) north of Owens Lake is a Newberry- to early Haiwee-period settlement. The site displays an emphasis on cached tools, and it is suggested that "logistical forays were made to long-distance upland settings to procure resources" (Garfinkel 2007:122).

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Pearson (1995:77–78) points out what he considers an anomaly in the obsidian hydration data for Little Lake, Rose Spring, and Lubkin Creek: a "sharp drop" incident at about 2500 to 2200 B.P., followed by two "sharp rise" incidents at roughly 2200 to 1900 B.P. and then at *c*. 1300 B.P. The drop incident is suggested to mesh with a decrease in annual temperatures caused by a major glacial advance in the Sierra Nevada at 2800 B.P. (Pearson 1995:84), although this is by no means explanatory.

Faull (2006, 2007) speculates that Pagunda, Rose Spring, Portuguese Bench, and another site known as Sage Flat (CA-INY-3812) may be units of an "organized, contemporaneous village system dominating Rose Valley" during the arid middle Haiwee period (Faull 2007:70). During the late Newberry period, residents of the Cottonwood Creek site (CA-INY-3806/H) near Owens Lake specialized in the taking of grebes, while at nearby Ash Creek (CA-INY-1428), grebes were also taken but bighorn sheep procurement was an apparent specialty (Faull 2007:68, Table 1). Rose Valley villages are thought to have "begun in tandem" with the rise of Coso quarrying; the obsidian trade then decreased *c*. 600–1000 B.P. (Gilreath and Hildebrandt 1997:179). Increasing or widespread sedentism is suggested by some researchers to be characteristic of the late Newberry phase (*c*. 2000 B.P.) and associated with control of obsidian quarries (Whitley et al. 1988; Yohe 1992, 1998; Faull 2007).

The Coso Rock Art Landmark Complex

Just 25 km eastward of Little Lake in the Coso Range and within the boundaries of NAWS of China Lake lies "one of the greatest concentrations of rock art in North America" (Hedges 2002:37; Kaldenberg 2010).[33] The word *koso* is thought to mean "steam" in Numic languages (Garfinkel and Williams 2010). Big and Little Petroglyph Canyons National Historic Landmark was created in 1964, and it is one of a handful of archaeological sites nationwide deemed by the National Historic Landmarks Program to be one of "America's Treasures" (Chambers 2000:36).[34] It dominates the Coso Rock Art Landmark complex which, by 1999, comprised nearly 450 archaeological features in ten categories "sharing a distribution that is restricted to the basalt landform" of the area (Gilreath 1999:36; Kaldenberg [2010:1] gives 16,000 sites on NAWS).

The "Coso Representational style tradition" is a term used by Schaafsma (1986:218–219) and, as its name implies, is characteristic and even diagnostic of the area. The cumulative total to date of rock art inventoried within the Coso Rock Art Landmark is 20,000 to 35,000 elements within a corpus thought to exceed 100,000 (Grant, Baird, and Pringle 1968; Gilreath [1999] gives 21,500 elements; see also Gilreath 2007:286–287). Characterized by dynamic elements and dominated by representational motifs—especially anthropomorphs and bighorn sheep—the rock art of the Coso Rock Art Landmark is "contained" in an area approximately 39 × 43 km; moreover "the core sites in the complex" are found in an area only 9 × 11 km in extent (Hedges 2002:37).

Obsidian hydration readings from archaeological sites associated with Coso Rock Art Landmark petroglyphs date the sites, but not necessarily the rock art, to the Little Lake, Newberry, and early Haiwee periods (Garfinkel 2006:226–227; 2007:122, Table 6.3; Gilreath 1999). Their primary temporal range is, thus, roughly coeval with the Stahl Site and overlaps with Pagunda. Gilreath (1999:42) notes that "it is reasonable to expect that the earliest rock art within the Coso Rock Art Landmark was made by the earliest occupants in the Great Basin," on the one hand, and, on the other, suggests that the overwhelming dominance in the corpus of representational elements argues "against the very long chronology for [that] style of rock art unique to the Coso Landmark" (Gilreath 1999:42). In short, she is saying that nonrepresentational elements in the Coso Rock Art Landmark are older than representational ones (see also Gilreath 2007:286–287; Whitley and Dorn 1987).

Conclusion

To summarize, the Stahl Site was initially used during the Lake Mojave period and then occupied from at least the Little Lake period and into the Newberry period. While sites were not abandoned, site use in the region declined during the late Haiwee period, while, in contrast, use increased during the same period at Pagunda. This intensified use at Pagunda and in proximity to Little Lake is not unexpected, as it occurred during a prolonged drought in the Great Basin created by a phenomenon known as the medieval warm period or medieval climatic anomaly. In our view, the pulse of rock art production at Little Lake Ranch roughly coincides with the archaeologically visible trends of local and regional site use briefly explored here.

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SECTION TWO

VISION

Visionaries

3 LITTLE LAKE RANCH ROCK ART COMPLEX

4 ATLATL CLIFF

5 SCRATCHED ROCK ART AT LITTLE LAKE RANCH

6 THE DESERT BIGHORN SHEEP MOTIF

7 PAINTED ROCK ART AND STAHL SITE PIGMENTS

8 ROCK ART, AESTHETICS, AND BELIEF

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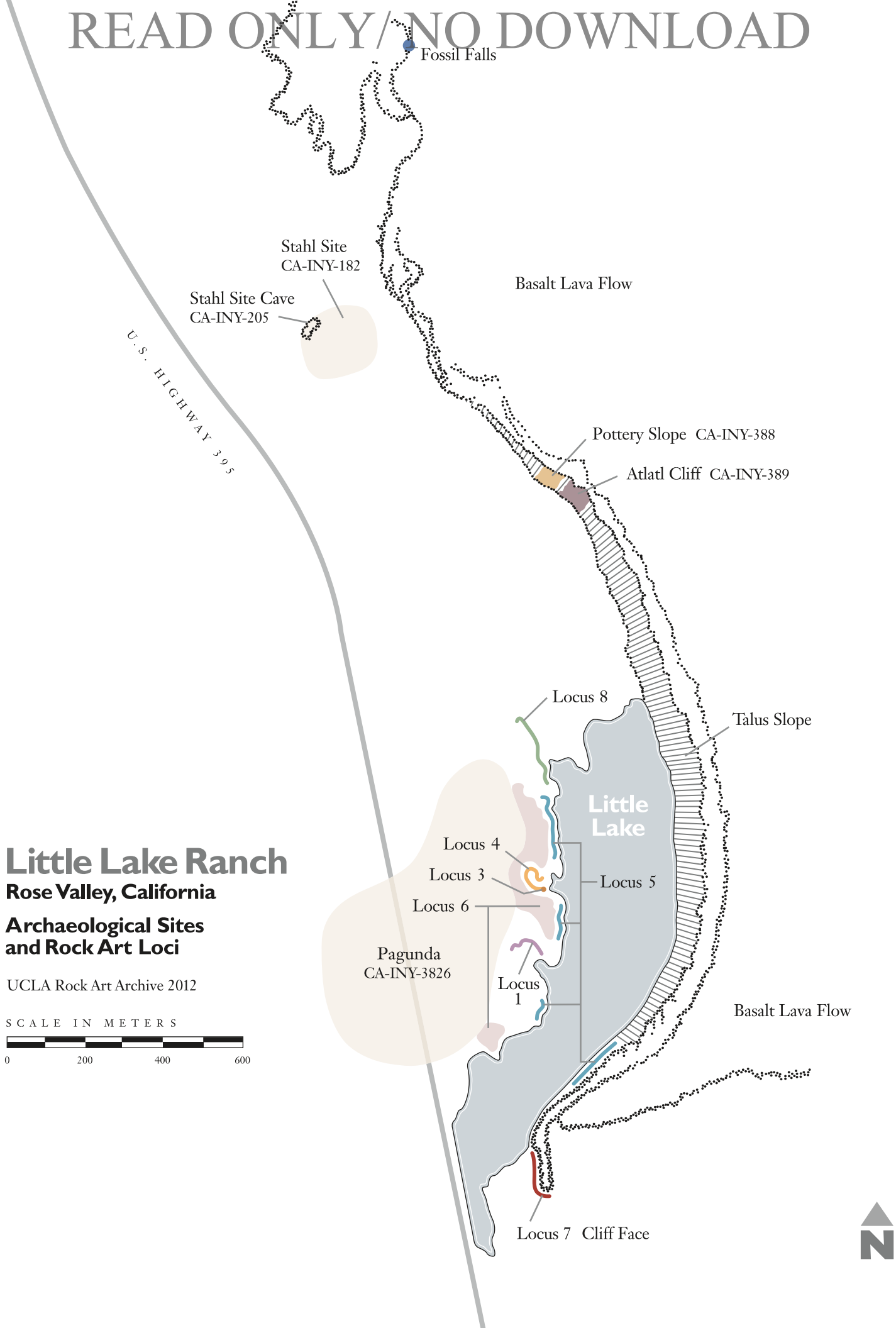

Little Lake Ranch

Rose Valley, California

Archaeological Sites and Rock Art Loci

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Chapter 3

Little Lake Ranch Rock Art Complex

Jo Anne Van Tilburg, John C. Bretney, and Gordon E. Hull

> In every instance . . . it is important that the site be looked at individually before generalizations are made.
>
> *Robert F. Heizer n.d.*

THE ROCK ART OF LITTLE LAKE RANCH is an interrelated complex of nine discrete loci which we link to the situational and chronological contexts of the three major archaeological sites discussed in the previous chapter: the Stahl Site (CA-INY-182), Stahl Site Cave (CA-INY-205), and Pagunda (CA-INY-3826; Figures 3.1, 3.2). Two rock art loci have previously designated trinomials: Pottery Slope (CA-INY-388) and adjacent Atlatl Cliff (CA-INY-389; Heizer and Clewlow 1973; Sonin 1995:42, 299; von Werlhof 1965). While these are the official site designations, in our text we generally use their common names (Table 3.1). We provide here a thumbnail sketch of the seminal rock art studies accomplished prior to the inception of our research. The reader is referred to Schaafsma (1986) and Gilreath (2007) for comprehensive overviews of Great Basin and California rock art; examples from both of these areas are present at Little Lake Ranch.

In Section One we discussed the Little Lake landscape as a unique oasis defined by habitat and resources within which the local adaptation of an ancient and widespread hunter-gatherer tradition took place. We showed that the time line for human presence at Little Lake began before the Little Lake period and reached into Euro-American contact with Numic people. We presume that the predictability and intensity of all human interactions within a bounded, resource-rich area such as Little Lake were proportional to variable group size (Butzer 1982:227; Renfrew 1978).

Figure 3.1

Location of rock art loci and major archaeological sites, Little Lake Ranch.

Figure 3.2

Locus 4, Panel 35: pecked rock art panel near Pagunda.

Here we explore aspects of Little Lake Ranch rock art in the contexts of "social territory" and "sacred geography." The former was described in Chapter 2 and is defined as the terrain that is "drawn upon for resources by any community by virtue of belonging to larger social groupings" (Vita-Finzi 1978:29). "Social territory" is also known as the "operational environment," and it includes natural resources and the technology, skills, and land use rights necessary to exploit them (Butzer 1982:256; Rappaport 1979; Figure I.1, this volume). When art or aesthetic and linguistic resources are added

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to the mix, however, the result is "sacred geography," and perception of the environment changes.

The initial production of rock art at Little Lake was a singular gesture, but the wealth of rock art that increased over time is special to the place. The cumulative presence of rock art on the Little Lake terrain gives reality, "or what is considered to be reality" (Dissanayake 1988:92), a certain uniqueness and value, even mystery or power. The result is that Little Lake takes on a new, more imaginative "cognized" meaning, and the environment as a whole enters "a realm that is different from the everyday" (Dissanayake 1988:95; Rappaport 1979). Rock art expanded, enriched, and enlivened the "social territory" of all of the Native groups that frequented Little Lake, whether or not it was originally or consciously meant to do so.

While Little Lake is certainly special, the larger Owens Valley and the Coso Range—including the Coso Rock Art Landmark—contain numerous examples of ethnogeography that either stand alone or interact with oral traditions to create "sacred geography." Hundreds of geographic terms and localities in Tübatulabal, Panamint Shoshone, Yokuts, and Serrano languages have been compiled for hills, mountains, valleys, canyons, and caves; creeks, springs, and lakes; distinctive or evocative rock formations or rock colors; areas of special winds; and concentrated sources of flora, fauna, or other resources (salt or stone, for example; Garfinkel and Williams 2010). Some terms are associated with spirits and mythical beings or creation and other supernatural events. Caves and rock shelters, including many with painted rock art, are named or known portals into separate realities or spiritual realms (Driver 1937; Zigmond 1986:407). Some trails are considered to be ghost trails, and people traveling on them expect encounters with malevolent or benign spirits (Fowler 2009). The high basalt rock formation that is our Locus 7 is likened by the Panamint Shoshone to a giant rattlesnake (Harrington 1957). A less romantic example of modern American ethnogeography is "Pinto Joe," a natural rock formation (now destroyed) near the Stahl Site that looked like an idealized Native in profile. It was named in jest by Harrington's archaeological crew (Harrington 1957; RAA files; Figure 2.13, this volume).

Table 3.1 Little Lake Ranch rock art loci and site identification concordance.

LOCUS	PREVIOUS DESIGNATION	TRINOMIAL	COMMON NAME
1	Cove A		
2			Reserved locus; North Little Lake Ranch
3	Painted Cave INY-23 Little Lake #1		Painted Cave
4	Cove C		
5			Lakeshore
6			Tableland above Cove C
7	Site 48 Locus 19 Twenty-B		
8	INY-208 INY-210 INY-211		Picnic Area
9			Area in front of Atlatl Cliff
	North Atlatl	CA-INY-388	Pottery Slope
	Atlatl Cliff	CA-INY-389	Atlatl Cliff
	Stahl Site Cave Stahl Cave Stahl Site Rock Shelter Stahl Rock Shelter Stahl Rockshelter	CA-INY-205	Stahl Site Cave
	Stahl Site	CA-INY-182	Stahl Site
	Pagunda	CA-INY-3826	Pagunda

Terminology and Analysis Guidelines

This chapter requires knowledge of a few basic terms that are widely used and generally understood in studies dealing with the anthropology of art (Preface, this volume). All are basic to our specific research, and all have more inherent complexities than are described here. It is enough to know, however, that a rock art "element" is a single form or design unit. We apply the term to pecked and painted design units, but we prefer the term "pattern" for scratched forms. A "motif" is an element that is often used within a given corpus, and therefore we consider it as favored; motifs define a particular style. Motifs may be simple, complex, or compound (composite), but also nonfigurative (abstract) or figurative (representational). Included in the latter case are recognizable objects of material culture as well as animal-like motifs categorized as zoomorphic and human-like motifs grouped as anthropomorphic.

Elements, patterns, and motifs in *all* Native media in our area are constructed of the same basic components or constituent parts, also referred to as "design units": straight and curved lines. Some of these components are, themselves, "ideomorphs." Deceiving in their simplicity, all ideomorphs have the ability to "stand for" something else. Therefore, all ideomorphs are culturally meaningful, although the ability to discern meaning depends upon establishing their full context and understanding their use. For example, a horizontal array of repeated diagonal lines when stitched on a Numic baby cradle hood denotes male gender. Similarly, the zigzag line

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Figure 3.3

Locus 6, Panel 502: curvilinear and anthropomorphic rock art motifs commonly occurring in the Owens Valley.

denotes female gender. Patterns of straight, short or long parallel lines when painted on a man's face stand for particular animals or birds as lineage totems. We conjecture that these patterns may have the same or similar meanings when executed in rock art. Ideomorphs are linked to language and may have hidden or veiled meanings which, in turn, require experience with oral history or ritual for adequate communication and understanding.

In our analysis, basic rock art components, some of which are ideomorphs, are objectively defined. Elements, patterns, and motifs are more subjective. For example, we stipulated that the components of angular/linear elements must be at least 80 percent linear. Also, we stipulated that amorphous elements must be 30 percent or more indeterminate of form. This may sound easy, but we spent many hours defining and refining our motif analysis and visual definition key, and we still regard it as less than perfect. The assignment of every recorded rock art element to a category was carried out by two teams of two researchers each, in order to achieve concordance, if not always validation. Variations in analytical methods are outlined in the chapters that follow.

Antecedents

Early Rock Art Observations in the Owens Valley

As Clewlow (1981:79) noted, "the Great Basin has probably received a greater proportion" of rock art research interest from professional anthropologists than most other areas of the western United States. The trajectory begins with Garrick Mallery's (1831–1894) landmark *Picture-Writing of the American Indians* (1893). Geologist, explorer, and anthropologist Major John Wesley Powell (1834–1902) described it as a major contribution to the field of what was then known as "pictography" (Clewlow 1981, 1998:13; Grant 1983; Schaafsma 1986). Mallery's publication draws from rock art reports he received in a wide-ranging correspondence with colleagues at the Bureau of Ethnology, Smithsonian Institution. One of them was W. J. Hoffman, author of the Owens Valley rock art report in Mallery's volume (Hoffman 1893:56–60). Hoffman's observations were made in 1871 and 1884, and while he does not mention Little Lake, his report is the first for the Owens Valley.

Hoffman was not a novice observer of rock art. His interest was in "gesture language and pictographs" in California and western Nevada and in religion and secret societies among the Ojibwa. Hoffman's petroglyph sample—the term "rock art" was not used, and both pecked and painted elements were called "petroglyphs"—was drawn from the "northern portion of Owens Valley, between the White mountains on the east and the Benton range on the west" (Mallery 1893:56–57).[1] The rock art of Owens Valley was said to be extensive, clustered, and "by no means exhaustively shown" (Mallery 1893:56).[2]

Hoffman (Mallery 1893:60) remarked upon the

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Figure 3.4

Locus 7, Panel 633: motif previously recorded by Steward (1929: Plate 37b; Heizer and Clewlow 1973: Figure 49m).

limited range of motifs and their frequent repetition, and applied stylistic terminology still used today. He attended to variations in line weight, line depth, methods of production (including bas-relief), schematization, and ambiguous or abbreviated symbolic references. He noted that the most common Owens Valley rock art motifs were curvilinear (concentric circles, especially), human and bear footprint elements, and human stick-figures (Figure 3.3). The latter were familiar to Hoffman from other parts of the desert West as "Shoshonean type" (Mallery 1893:58). There is no mention of bighorn sheep, although two elements in Hoffman's sketches unambiguously match our definition of bighorns (Mallery 1893: Plates IVd, IXb).[3]

Hoffman speculated that some petroglyphs in Owens Valley were related to trails, a notion later taken up by Heizer and Baumhoff (1962) and von Werlhof (1965). There is no doubt that some rock art is related to trails in the Mojave Desert (Fowler 2009:87, Figure 5.2), and many trails are related to water sources. Mallery noted that shamanism was the overall religious construct within which most of the Native groups he knew lived their lives. Hoffman concluded that the Paiute people whom he consulted "are unacquainted with the significance of the [rock art elements], and declare that they have no knowledge of the authors" (Mallery 1893:60). Whitley (1998e:143, Table 4) reviewed published ethnographic sources postdating Hoffman. He concluded that information about rock art was often overlooked due to Euro-American cultural and research biases.

Previous Observations of Little Lake Ranch Rock Art

In 1929 anthropologist Julian H. Steward described 130 sites in his *Petroglyphs of California and Adjoining States.* While Mallery coined the word "pictography," Steward (1929:52 n. 1) preferred "petrography." Neither term is used today. Steward (1929:219) defined pictograph and petroglyph by their means of production, but noted that the difference between the two categories "is clearly more than a distinction of mediums and technique."[4] He suggested that "petroglyphs are typical of the eastern part of southern California and pictographs are typical of the west" (Steward 1929:219).

On December 29, 1926, William Lyle Skinner, a mining engineer and sculptor from Lone Pine, wrote to Steward and enclosed 23 rock art photographs taken at Little Lake.[5] Steward was sufficiently impressed to visit Little Lake sometime between 1926 and 1929. Also in 1929, Malcolm Rogers of the San Diego Museum of Man "reported on a site at Little

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Lake, dubbing it M-153" and noting petroglyphs and pictographs, an "obsidian factory," and heavy site disturbance (Kaldenberg 2005:166, Figure 2). In 1931, the Baldwin Expedition (No. 9) led by Clifford Paul Baldwin also noted rock art at Little Lake (Kaldenberg 2005:17, Figure 3).

Most of the photographs and drawings of Little Lake rock art in Steward's report can be matched to elements at Locus 7 (Steward 1929; Figure 3.4) which he designated Site 48 and described as "a lava cliff approximately one hundred feet in height" running along the "eastern shore" of the lake (Steward 1929:78).

> Its western and southern faces are carved with petroglyphs from ground level to over forty feet high in all accessible places. In addition to the petroglyphs there are several faint traces of pictographs. The ground in the vicinity is littered with obsidian fragments, indicating an extensive camp site, and potsherds are reported to have been found there.

Steward built on Hoffman's work and "set forth the classificatory attributes that basically define the areal style to this day" (Clewlow 1998:15). His basic unit of analysis is the individual design element that "corresponds to an ideal type" or motif. In turn, 50 motif categories that are "fairly definite and clear-cut" define four Great Basin style areas later revised (Hedges 1973:14, 19; Heizer and Baumhoff 1962:303; Steward 1929:177, 219–228).[6] Anomalous motifs—which our study defines as "amorphous"—and those deemed aberrant or numerically infrequent are not included in Steward's analysis. We do not apply the term "aberrant" to any motif in our study. Amorphous forms and examples of random pecking are counted and designated as "unclassified" motifs (Figure 3.5).

In 1962 Heizer and Baumhoff (Clewlow 1978) added 31 motif categories to Steward's 50 and described 99 sites in *Prehistoric Rock Art of Nevada and Eastern California*, including three sites at Little Lake (Heizer and Baumhoff 1962:331, Table F-1; Sonin 1995:38). In addition to Steward's Site 48 (Iny-271, our Locus 7), they added Iny-208 and Iny-210, both of which are included in our Locus 8, and counted 93 elements. Heizer and Baumhoff (1962:94; Clewlow 1978) regrouped Great Basin rock art by means of production: pecked, painted, and scratched. Within Great Basin Pecked, they created Great Basin Representational—the hallmark of which is the bighorn sheep—and Great Basin Abstract subcategories. The latter is the dominant style category, and was further subdivided as Curvilinear and Rectilinear variants (Heizer and Baumhoff 1962; Schaafsma 1986:216–217).[7] They also offered a verifiable stylistic analysis and a testable research premise in which they proposed that much of Nevada rock art was created in response to "hunting magic" or "increasing-the-herd rituals as a functional imperative" (Clewlow 1998:14). For eastern California, however, they left "confirmation or denial of our hunting-magic hypothesis to future workers" (Heizer and Baumhoff 1962:330; see also Schaafsma 1986:221).[8]

Von Werlhof (1965:4) suggested that the earliest petroglyphs in the Curvilinear style at Little Lake "were situated along migratory trails." He included Locus 8 in his study and added portions of Locus 5 (the lakeshore), Pottery Slope (CA-INY-388) and Atlatl Cliff (CA-INY-389). He rightly noted that Atlatl Cliff and Pottery Slope are discrete from one another "in style, directional orientation, and technique." He thought production technique included "hammering against a pointed stone placed on the boulder," gouging "with a sharp instrument," scratching "with a very sharp tool," and "rubbing a handstone against the surface of a boulder" (von Werlhof 1965:9, 20–21).[9]

Von Werlhof (1965:10) believed that some elements at Atlatl Cliff represented birds, a supposition Campbell Grant contradicted when he pointed out to Heizer that they were atlatls.[10] For the Stahl Site Cave, von Werlhof (1965:10) opined that "while the occupational features of the site are alleged to be ancient, the petroglyphs are probably much more recent" and "perhaps no more than 1000 years old." He did not report the paint we found at the Stahl Site Cave, but saw "petroglyphs with pigment rubbed into the grooves" and modern initials above the entrance to another cave or rock shelter, which may be in our Locus 2 (von Werlhof 1965:11, Figure 5n).

Figure 3.5

Occurrence of amorphous motifs and random pecking at each locus.

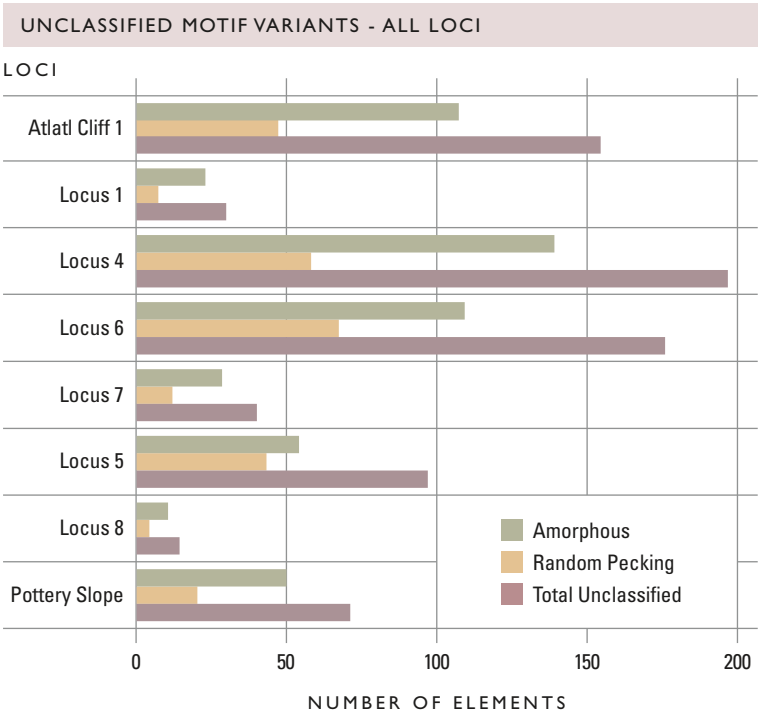

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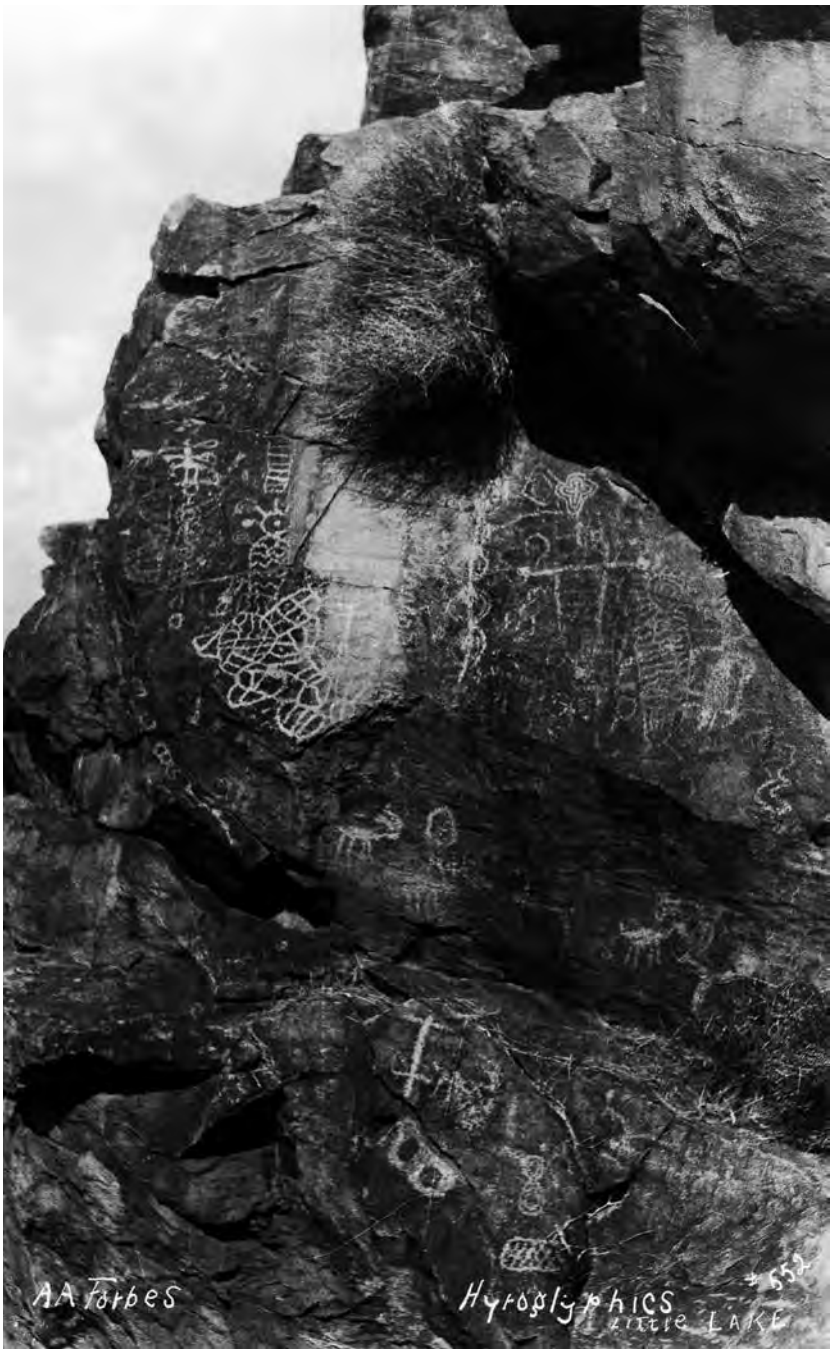
Figure 3.6

Locus 7, Panel 94: rock art motifs previously recorded by Heizer and Clewlow (1973: Figure 49j).

Photo A. A. Forbes. Courtesy UCLA Rock Art Archive, R. F. Heizer Special Collection.



Also in 1965, Campbell Grant filed a Santa Barbara Museum of Natural History survey record for Little Lake Ranch on which he noted painted rock art elements in our Loci 3, 7, and 8 (Little Lake #1, CG Iny-23, RAA UCLA). Grant thought that the paintings were late and that their affinity would be with the Tübatulabal or the Kawaiisu, an opinion with which we concur (see below). He believed that the polychrome panel at Locus 3 was unique for the region and that "no investigator at Little Lake has previously noted the color sites." D.W. Ritter's unpublished field notes[11] from the same period describe notable motifs at Little Lake Ranch and point out the differences between rock art at Atlatl Cliff and that nearer the lake:

> The petroglyphs at Little Lake differ from north to south; those at the north end [Atlatl Cliff] show older ones with superimposition of more recent ones. These have no zoomorphic forms other than footprints. They are more curvilinear with concentric circles and numerous ball and hook [atlatl] forms. Those at the south end [near the lake] show more rectilinear forms, zoomorphs, more color added, less patination and less superimposition. Crosshatching of fine incised lines [was] always superimposed on older petroglyphs at both the south and north.

In 1968 Campbell Grant, James Baird, and J. Kenneth Pringle published a ground-breaking work, *Rock Drawings of the Coso Range*.[12] For the first time, a portion of the profuse collection of rock art in what is now known as the Coso Rock Art Landmark near Little Lake Ranch was described and analyzed. Key elements in their analysis were bighorn sheep, atlatls, and anthropmorphs. Schaafsma (1986:218) subsequently coined the phrase "Coso Representational style tradition" and placed it at 1000 B.C. to A.D. 1000.

New research in California and Great Basin rock art was directed or inspired by Robert F. Heizer (1915–1979) throughout the next decade. Heizer and Clewlow (1973) described 400 sites in *Prehistoric Rock Art of California* (see also Marshall 1977:80–81), including seven at Little Lake (Figure 3.6). They noted the presence of paint and included sketches of Locus 7 elements and Stahl Site Cave rock art that are its best early documentation. In 1977 Clement W. Meighan and C. William Clewlow, Jr., based in part on the enthusiasm created by this important research, established the Rock Art Archive at UCLA (Clewlow 1998:14; Meighan 1981a, 1981b; Van Tilburg and Meighan 1981). Clewlow was later instrumental in acquiring Heizer's files for the Rock Art Archive.

In 1972 Stanley R. Berryman and Judy A. Berryman noted the need for "a program of mapping and surface evaluation" at Little Lake Ranch (Chapter 2, this volume). They coined the useful term "Little Lake Complex" which we adopt as the Little Lake Ranch Rock Art Complex. They correctly pointed out that pecked rock art predominated over painted designs. They described "one definite occurrence" of a pit-and-groove petroglyph and suggested that future work might focus upon "defining land-use patterns and relating these to known geological changes" (Berryman and Berryman 1979:59).

In 1979 a reconnaissance-level cultural resources inventory of 346 acres comprising the Little Lake Wildlife Area was made for the California Department of Fish and Game (CDFG) by the Great Basin Foundation. It pinpointed the locations of 23 sites, including several rock art concentrations, bedrock

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mortars, milling slicks, lithic and pottery scatters, and rock rings. It noted excavations and stressed the cultural significance of the entire area (Great Basin Foundation 1979):

> The study of the cultural resources present within the Little Lake Wildlife Area has revealed the presence of a series of highly significant archaeological entities. A pattern of sites from Little Lake south to Indian Wells Springs is being revealed. As was indicated by Julian Steward, this area was a major route access used by peoples of various upland areas to exploit lowland resources. These sites further appear to be a part of a pattern of land usage comprising the Owens River Channel and its associated basaltic ridge system. Taken as a whole, the entire site complex revealed within the Lower Little Lake region should be considered extremely important both as indicating seasonal movements as well as the type of environment being exploited.

Whitley (1998e:114, Tables 1, 2) compared element counts from Grant, Baird, and Pringle (1968) with 408 elements at Locus 7 and incorporated them into a shamanic paradigm framed within the neuropsychological model (Lewis-Williams and Dowson 1988; Whitley 1992, 1998c; Gilreath and Hildebrandt 2008 for critique). Thus, between 1929 and 1998, some 1,000 rock art elements were documented at Little Lake Ranch. That number is deceiving, however, in that there is significant duplication and overlap in all of the previous inventories which deal primarily with the more obvious elements. No systematic inventory of the rock art was attempted or accomplished at Little Lake Ranch prior to ours.

Available Chronological Guidelines

Great Basin Stylistic Chronology

Heizer and Baumhoff (1962) suggested a conjectural chronological scheme for their Great Basin style categories. They suggested that, within their pecked category, the curvilinear subcategory was the oldest (100 cal B.C.–cal A.D. 1500; Gilreath 2007:286-287; Dorn 1998), while rectilinear and representational overlapped within the same general time frame (cal A.D. 1–1500). Great Basin Scratched was thought to date from *c.* A.D. 750 to the historic period, and Great Basin Painted from A.D. 1000 to the historic period. Schaafsma (1980) opined that the Great Basin Abstract style appeared in the Southwest about 1000 B.C. and continued there until about A.D. 1500 (Schneider and Jackson 2006:173).

Heizer and Baumhoff's (1962) temporal divisions, unfortunately, are too finely drawn for the weak data analyses underpinning them. Grant (1968) clearly recognized this shortcoming and created a less rigid stylistic progression from naturalistic through stylized to abstract and assigned them to a rough chronology from *c.* 1000 B.C. to 1000 A.D. A problem with both approaches is that neither acknowledged nor took into account the broader or more regional iconographic contexts. This compartmentalization of rock art as a form of expression discrete from all other media was then, and often still is, an unfortunate artifact of domain confusion: simply put, rock art does not fall neatly into archaeology, anthropology, or even art history. This creates scientific discomfort and requires a broader manner of approaching the data in order to tease out stylistic linkages across media.

In our work at Little Lake Ranch we took a more comprehensive, integrated approach to our data. We employed aspects of previously acknowledged motif categories but did not confine those selected categories to previous chronologies. Neither did we automatically assign them, or any trajectory of development we discerned in them, to previously suggested time frames.

Great Basin Scratched and Great Basin Painted were assigned by Heizer and Baumhoff (1962) to arbitrary time frames. Many of their stylistic categories are still viable for our corpus of rock art, including the incorporation of recognizable objects and historic references as time markers. Scratched designs were thought then, and still are by some, to be linked to Numic replacement of Prenumic peoples in our area *c.* A.D. 1200–1300 (Bettinger and Baumhoff 1982). As we shall see, however, this specific hypothesis is not supported at Little Lake Ranch.

Associated Dates and Historic References

Admittedly, obsidian hydration as a stand-alone dating method in our area is "far from a precise technique" (Jenkins and Warren 1984:58; Mark Q. Sutton, personal communication, 2010). Yet petroglyph sites associated with obsidian hydration dates in the Coso Range suggest that at least some rock art production took place between 4000 and 1000 B.P. (Middle Archaic; Hildebrandt and McGuire 2002). Ritual intensification of rock art production may be linked to changes in subsistence strategies and to peak production of Coso obsidian (Gilreath 1999; Hildebrandt and McGuire 2002; McGuire and Hildebrandt 2005). Weaponry depictions—including bows and arrows used from *c.* A.D. 600 or later in our area—provide some associations capable of building a chronological event sequence (Garfinkel and Pringle 2004; Garfinkel, Young, and Yohe 2010).

Direct Dating of Rock Art Elements

Dates for a suite of 60 rock art elements within our region and in categories described as "geometric" and "representational" are drawn from cation-ratio

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Table 3.2 Little Lake Ranch rock art loci variable situation analysis.

ROCK ART LOCUS	HABITAT ZONE	LANDSCAPE SITUATION	LOCALE TYPE	ACTIVITY LEVEL	SITE PROXIMITY	REMARKS
1	Riparian	Lakeside cove		Multiple	Pagunda	Excavation context
2						Reserved locus; north Little Lake Ranch
3	Riparian	Rock Shelter	Special Purpose	Limited; rock art dominant	Pagunda	Earthquake altered
4	Riparian	Lakeside cove		Multiple	Pagunda	
5	Riparian	Lakeshore		Limited; rock art dominant		Sediment level change; information loss
6	Desert scrub	Basalt tableland		Multiple	Pagunda	Disturbed surface context
7	Desert scrub	Cliff face	Aggregate	Limited; rock art dominant		
8	Intermediate	Mixed	Mixed	Multiple		Partial altered context
9	Desert scrub	Basalt slope		Limited; rock art dominant		Disturbed, moved from base of Atlatl Cliff
Pottery Slope	Desert scrub	Basalt slope		Limited; rock art dominant	Stahl Site	Seasonal cache area
Atlatl Cliff	Desert scrub	Basalt slope	Aggregate	Limited; rock art dominant	Stahl Site	Sediment level change; information loss; disturbed context
Stahl Site Cave	Desert scrub	Cave		Multiple	Stahl Site	Disturbed context; altered rock art

and desert varnish micro-lamination methods (Dorn 1983, 1991, 1998; Whitley and Dorn 1984, 1987, 1988; Sharp and Glazner 1997). The methods employed and their results are controversial, and a review of the literature on this contested topic is beyond the scope of this volume (but see Gilreath 2007). Suffice it to say that the projected time frame for rock art in the Coso Rock Art Landmark and some related sites is rather large, and reaches from Late Pleistocene to Historic, with both endpoints of that spectrum debated. Assessments of the available data and their applicability to Little Lake Ranch are difficult to make, since the specific rock art elements or categories of elements from which dates were secured are neither fully described nor contextualized. One element at Atlatl Cliff on Little Lake Ranch was employed in direct dating efforts and is discussed by Bretney (Chapter 4, this volume). Calibration revisions are ongoing (Whitley and Dorn 2010).

In summary, there is widespread agreement that rock art was produced by the earliest humans in our area. The stylistic progression from abstract curvilinear and rectilinear or angular/linear forms to more representational elements is also generally accepted, although the link between variability and time is debated. Extant pictographs are thought to be no more than 1,000 years old. Scratched rock art is a late development and paint applied to petroglyphs is "not common anywhere" (Gilreath 2007:287).

Little Lake Ranch Rock Art Characteristics

Our inventory was conducted in the context of previous rock art research described above. It is amplified by information we have been able to piece together from other, less than comprehensive surface surveys and unpublished excavations as well as accessible public and private collections. In the discussion that follows we describe the rock art in terms of its variable situations, technical qualities, formal variations, and stylistic attributes. We explore its iconographic content in terms of clustering, visibility, and accessibility. We summarize the rock art in each individual locus and frame the corpus within the context of the temporal trajectories of the directly related archaeological sites described in Chapter 2.

Variable Situations

Little Lake Ranch on the east side of Highway 395 consisted of 1,200 acres in 1989 (485.6 ha; Pearson, this volume). We recorded and analyzed the rock art within those boundaries from just south of the lake itself northward to Atlatl Cliff. Some scant rock art on the west side of the highway (Great Basin Foun-

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dation 1979) and other elements just south of the southernmost boundary were previously recorded (Byrd and Reddy 2004). We also photographed but did not record a few painted and pecked panels between Atlatl Cliff and Fossil Falls (Locus 2). The major rock art concentrations are analyzed here relative to variable geographical and geological situations (Table 3.2) and vis-à-vis cultural and temporal indicators established by published excavations at our key archaeological sites. The value of this location model approach is stated by Schaafsma (1985:261):

> The spatial context in which rock art occurs has definite functional implications. It is a basic assumption that rock art will be located in a patterned way in relationship to both the landscape and other cultural remains, as it is integrated with a variety of specific activities that are in themselves presumed to be nonrandom.

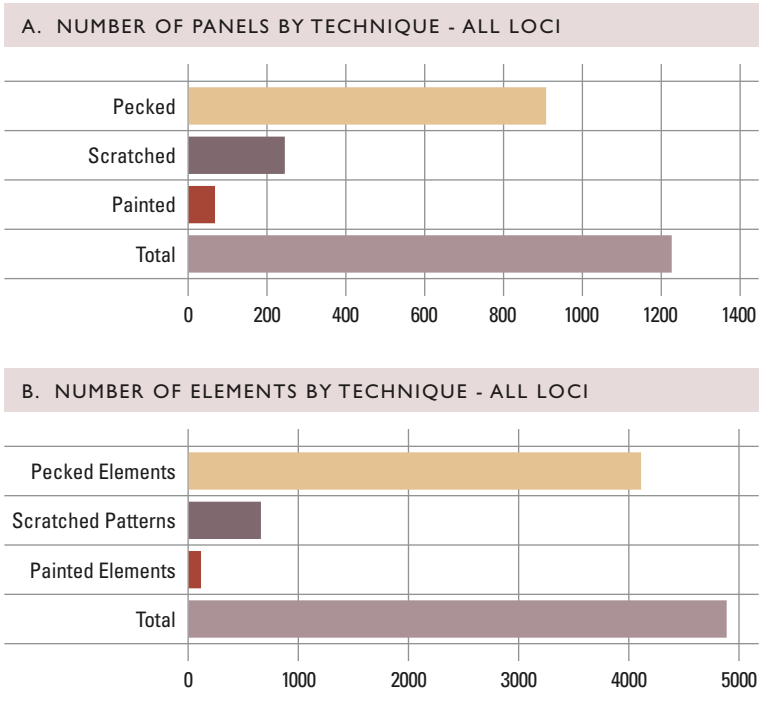
We defined eight distinct but not fully discrete and occasionally overlapping rock art clusters or loci, all of which are within 3 km of each other.[13] Their landscape situations include the immediate lakeshore and three major lakeside coves, a cave (Locus 3), basalt tableland, the face of a cliff, and basalt walls and slopes. Amazingly, the instability of tumbled boulders at Atlatl Cliff and Pottery Slope and daunting elevations at Locus 7 did not prevent extensive rock art production. Locus 8 has a few hidden or partially hidden locales created by tumbled boulders or slabs, but they are not equivalent to the Locus 3 rock shelter or to Stahl Site Cave. There are two substantial buffer zones without rock art: the largest separates Atlatl Cliff near the Stahl Site from Locus 8, and a smaller zone lies between Atlatl Cliff and Pottery Slope. The lake itself is surrounded and set apart by rock art that directly borders it (Locus 5).

Schaafsma (1985:262) notes that "location models provide clues as to whether rock art sites were intended for public or private use." Although we do not disagree with this specific point, we abandoned the concept of "public" and "private" functions in favor of an analysis including geological variation, habitat zone, and proximity to two activity areas: the Stahl Site and Pagunda. The site boundary for Pagunda, which we define as an agglomeration of features rather than a single site, was originally drawn as a broad swath encompassing everything from Locus 1 to Locus 8. Rock art clusters are arrayed relative to this boundary but also to the lake itself. We borrow the term "aggregation" (Butzer 1982:227; Conkey 1980) to describe these locales and "multiple" and "limited" to delineate the various activity levels within them, including habitation, tool production, craft production, and food processing. The discrete area of Locus 3 (Painted Cave) is without doubt a "special purpose" area.

Locus size, proximity to the lake, and distinctive landscape features are other aspects of our location model. Pottery Slope and Atlatl Cliff are the most distant loci from the lake. They are adjacent to each other on a slope in the desert scrub habitat zone. Locus 1 and Locus 6 are closest to the main habitat and activity concentration of Pagunda, and Loci 3, 4, and 5 are nearby. Locus 5 is the largest in terms of length, and Locus 6 is the largest in terms of area. Locus 7 has the greatest number of elements (999). It is a discrete area concentrated on a cliff face that forms the distinctive "head" of the serpentine lava flow that borders the lake. The name "Rattlesnake" is widely applied to the formation by locals and is sourced to the Panamint Shoshone (Figure 8.1, this volume).

Production Methods and Tools

A total of 1,228 panels have 4,112 pecked rock art elements, some of which occasionally included abrading (Figures 3.7a, b).[14] Only 67 panels at four loci are painted or have painted elements on pecked panels; three additional painted panels are problematic. The total recorded Little Lake Ranch element count, including 127 painted elements, is 4,239. An additional 662 instances were recorded of a third production method—scratching. As noted above, the Great Basin Scratched style was defined by Heizer and Baumhoff (1962:94) who believed it was neither frequently occurring nor widely distributed. Subsequent research has shown that, in fact, scratched rock art occurs widely within and beyond the Great Basin (Ritter 1994).



Figures 3.7a, b

Total number of *panels* and *elements* by production technique - all loci.

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Schaafsma (1986:217) says that "petroglyphs in the Great Basin Scratched style were made by a sharp rock that inscribed lines in a single stroke." At Little Lake Ranch, however, scratched rock art was sometimes made by repeated strokes. The patterns were made with some sort of thin, sharp tool (Reed, this volume), but the precise tool is not known. Expedient options include obsidian gravers or retouched flakes similar to many documented in excavations (Byrd and Reddy 2004:241, Figure 11.10). Scratched rock art at Little Lake Ranch also falls into specific design patterns having a nonrandom distribution. Element forms are overwhelmingly angular/linear, nonrepresentational, and partially dictated by mode of production.

The types of percussion stone tools used to produce pecked rock art are mostly conjectural, and it is not known if they were handheld or hafted. Byrd and Reddy (2004:182, Figure 8.30) retrieved a complete basalt hammerstone from 40–50 cm depth at Pagunda. It had a culturally battered edge that we suggest could have been used to peck rock art. We were unable to determine the types of tools used by examining the pecked stone surfaces of multiple rock art panels with only the naked eye (*contra* von Werlhof 1965:20–21). In 2001, therefore, we examined selected scratched and pecked elements in Loci 7 and 8 with the aid of a Keyence© field adapted digital HD microscope. The results were inconclusive as to the types of tool used.

In contrast, visual examination as well as both visible light and infrared photography clearly reveal that paint was applied with a fine-pointed instrument of some sort to create thin, even lines and also with the fingers (Van Tilburg and Backes, this volume; Figures 3.8a, b). In Locus 8, a straightedge was used to refine the outline of a complex painted element, and at Atlatl Cliff a straightedge was used on an incised design. Using a stick to paint designs on baskets was a common Owens Valley Paiute practice. A painted element in Locus 8 was stamped (Figures 3.9a, b).

The best-documented on-site objects associated with paint production are a "miniature metate, probably for paint" from 33 cm (13 in.) depth in "an uncontaminated Pinto" level at the Stahl Site (Harrington 1957:46, Figure 37) and a "pigment pallet [*sic*]" with red paint found at Pagunda and securely dated to A.D. 1300–1400 (Byrd and Reddy 2004:141; Figure 3.10). These objects establish the broad temporal spectrum of paint use in the vicinity of Little Lake, and we reasonably assume painted rock art production throughout this time frame. No other tools identified in any of the collections examined to date can be unequivocally linked to rock art production, although it is probable that further museum research will yield new data on such objects.

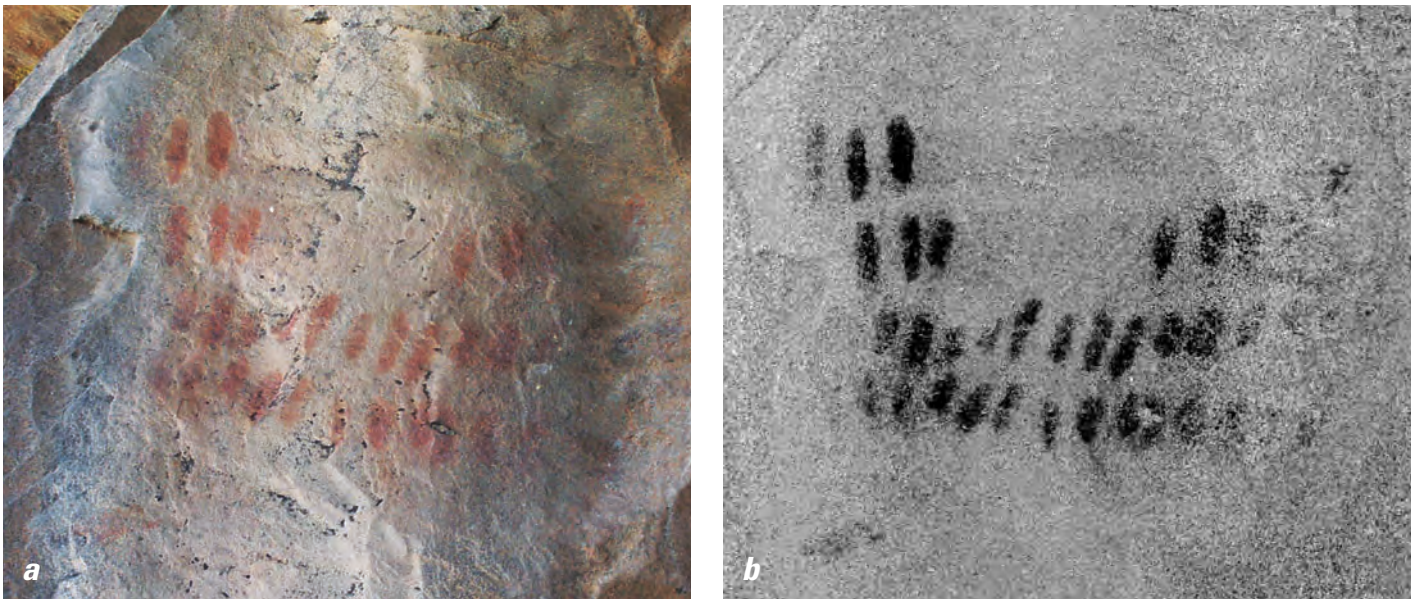

Figure 3.8
(a) Locus 7, Panel 40: red paint applied by fingers.
(b) Panel 40 in a digitally enhanced photograph.

Levels of Activity

We characterize the various rock art loci as either limited or multiple activity areas and distinguish two categories of rock art activity: that which is capable of being stylistically analyzed and that which is unclassified. Within the latter category are 779 combined instances of random pecking and amorphous elements—those that have shape but lack form and do not fit in any known motif category. Random pecking is not overtly destructive, although in some cases it overlaps other pecked or painted elements. Its function is unknown, but it may relate to individual or group identity, renewal of religious meaning, or retention of cultural value. Amorphous and random pecking constitutes a reliable measure of rock art activity *beyond that which produced recognizable elements*.

Taken together, we have recorded a total of

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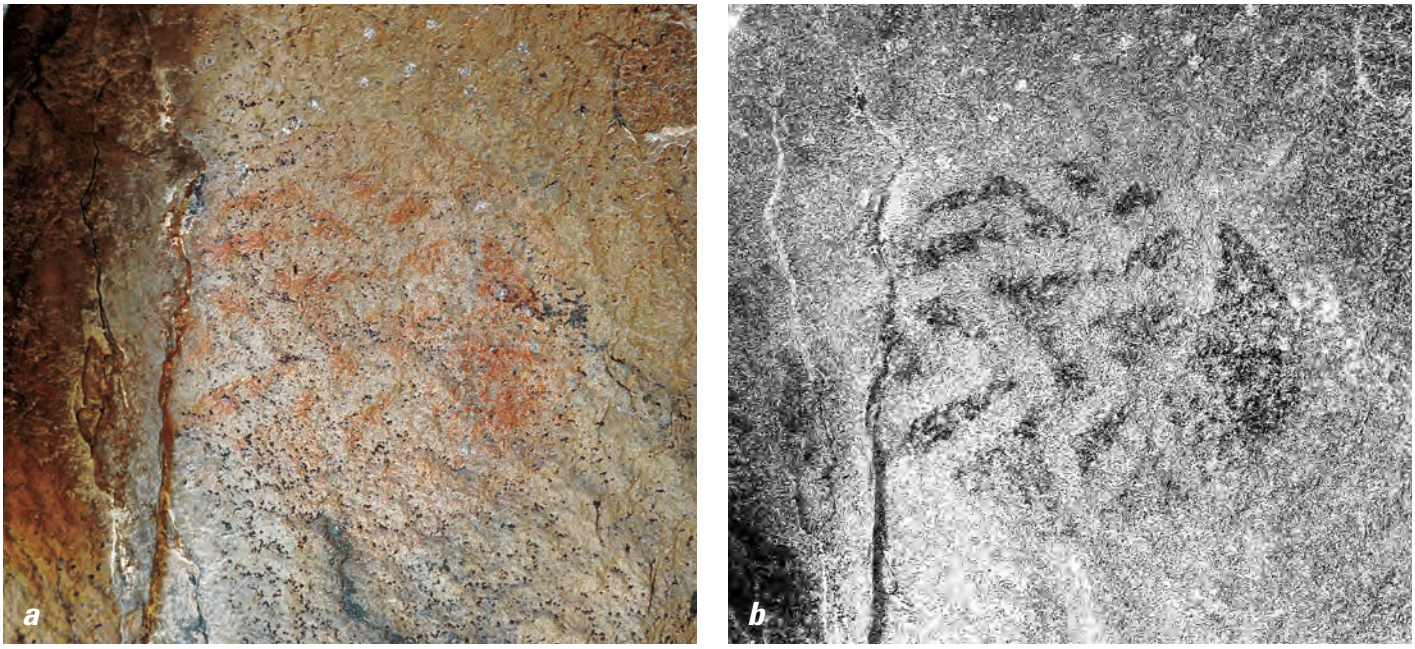

Figure 3.9

(a) Locus 8, Panel 93: red painted element (b) the same painted element appears stamped in a digitally enhanced photograph.

4,901 instances of rock art production activity in a corpus we estimate to contain at least 6,000 elements. That is, we have documented 4,112 pecked elements (including unclassified), 127 painted elements, and 662 scratched patterns.[15] Three observations of value emerge. First, Little Lake Ranch has at least *five times more* elements than any other individual site in the Owens Valley. Second, it has *less than one-quarter* and perhaps only 6 percent of the estimated total for the nearby Coso Rock Art Landmark (Gilreath 1999:37). Finally, if we presume 50 seasonal residents at Pagunda—of which we assume one person in ten produced some type of rock art per season—the entire Little Lake Ranch corpus could have been created in less than 1,000 years.

Patination and Temporal Associations

Surface patination (desert varnish) on Owens Valley petroglyphs was first noted by Hoffman (Mallery 1893:57, 60–61):

> The external surface of all the bowlders [sic], as well as the surface of thevest figures, is a glistening brownish black, due, possibly to the presence of iron. The color of a freshly broken surface becomes lighter in tint as depth is attained, until at about one-half or three-fourths of an inch from the surface the rock is chocolate brown. How long it would take the freshly broken surface of this variety of rock to become thoroughly oxidized and blackened it is impossible even to conjecture, taking into consideration the physical conditions of the region and the almost entire absence of rainfall.

Desert varnish is a brown to black coating on exposed rock surfaces that is made up of "clay and iron and manganese oxides, a host of trace elements, and nearly always some organic material" (Schaafsma 1986:219; Sharp and Glazner 1997:121). Varnish forms "after a rock surface is stabilized, no longer subject to frequent fracturing, rapid disintegration, wear by running water, or sandblasting" (Sharp and Glazner 1997:121). The chemical processes and deposition rates that lock desert varnish on rocks are dependent upon varying environmental factors within geographical areas.

Dorn (1991) devised a complex and potentially very useful procedure for measuring the time-dependent leaching of potassium and calcium from varnish relative to much-less-soluble titanium. However, according to Sharp and Glazner (1997:126), results are as yet "inconsistent and the subject of considerable criticism. The method is still used for dates greater than 40,000 years, but without high confidence." As Dorn (1998:71, 79) points out, factors other than time influence the creation of varnish, although there is a "general perception" that "darker and more complete varnishes are older" than those that are "lighter

Figure 3.10

Pigment palette (A.D. 1300-1400; 494-69), excavated at Pagunda, near Locus 1, by G. Gumerman IV, 1991–1993.

RAA photograph, by permission of University of California, Davis.

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and more patchy." Sharp and Glazner (1997:127) agree that differences in the "darkness of varnish on the same type of rock in the same environment provide a good indication of relative age."

Petroglyphs at Little Lake Ranch were made by pecking or scraping desert varnish from rock surfaces to reveal the underlying, lighter rock. Berryman and Berryman (1979:59) observed "multigenerations" of patination in the light and dark strata of Little Lake Ranch rock art. On the basis of these opinions, we regard visually determined variation in patination levels as probable indicators of relative age (Bretney, this volume). Some of the most heavily patinated elements are located at Atlatl Cliff, which is related spatially to the Stahl Site and, therefore, is presumed to have a roughly similar chronology. Bretney (this volume) describes his systematic measurements there of relative stone surface brightness on atlatl elements and the chronological inferences he draws from them.

On the other hand, the current temporal range for occupation or use of Pagunda establishes a Prenumic to Numic framework. Patination levels for the associated pecked rock art are highly variable, as one would expect. Patination on Little Lake Ranch pecked rock art as a whole ranges from heavy (as at Atlatl Cliff) to essentially unpatinated, and most of the apparently fresh and bright examples of both pecking and paint are at Locus 7.

Loci Identification and Analysis Considerations

Nine rock art loci are identified, of which Locus 2 is reserved for further documentation of pecked and painted elements we located and photographed on the northernmost portion of Little Lake Ranch and between the Stahl Site and Fossil Falls. The rock art at Atlatl Cliff was originally recorded in three groups. Groups 1 and 2 were first defined as discrete areas on the slope but were later combined. Group 3 (Locus 9) is adjacent to Atlatl Cliff at the bottom of the slope and between it and Pottery Slope. It consists of seven pecked panels and 25 elements, of which 10 are atlatls. Another boulder—also at the bottom of the slope—consists of one panel and 62 elements, of which most are curvilinear and seven are unclassified. It was not factored into our analysis because its original location is not known (Hull, this volume).

Figure 3.11
Locus 6, Panel 10: single anthropomorphic pecked element.

Panel Variation: Size, Scale, and Single Elements

Identifiable pecked rock art elements (4,112 examples) are located on 1,228 panels arbitrarily defined in the field based on rock edges, faces, and cracks. Panels vary in size, and elements vary in number and scale. Panel 51 in Locus 4 and Panel 301 in Locus 5 are the largest panels. There are 477 panels (about 38 percent of the total) scattered throughout all of the various loci with only one element on each (Figure 3.11). At Locus 7, some small pecked elements are placed in such a way as to be nearly impossible to see unless one is above and looking down on the upper surfaces of individual rocks. Whether this is marginalized activity or some sort of exclusivity is not clear. The single largest pecked elements in terms of area are in Locus 8 and categorized as "paws." The largest pecked element in terms of length is Panel 1-93 at Atlatl Cliff. The smallest painted panel is only 9 × 5 cm and is made up of dots or smears; the two largest painted panels contain multiple elements and are 159 × 82 cm and 120 × 92 cm.

Panel Variation: Elevation Relative to Production Methods

The rock art at Pottery Slope is arrayed in a narrow band along the same mid-elevation, and even though rock art is located at the highest recorded elevation on Atlatl Cliff, climbing the steeper face of Locus 7 is more difficult. An analysis of element types and production methods for the 10 panels located at the highest elevations relative to the lowest recorded element or baseline was carried out for three loci: Pottery Slope and Atlatl Cliff, both on a basalt slope, and the cliff face of Locus 7. The *only* production method involved at the highest elevations in all areas is pecking—no paint or scratched elements were recorded. In following chapters, we suggest that women and/or girls produced at least some painted and scratched rock art, perhaps linking their effort, however tentatively, with more accessible terrain.

The highest panel at Pottery Slope is a curvilinear element (Panel 212) located at 29.4 m above the lowest or baseline element. A bighorn sheep

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Figure 3.12
Locus 7, Panel 56: paint deliberately applied on or between pecked lines.

element (Panel 110) is similarly located at 25.8 m. At Atlatl Cliff, the highest element is a single curved line (Panel 2-22) at 36.4 m. A complete atlatl (Panel 1-704) is at 25.8 m. At Locus 7 an incomplete atlatl (Panel 125) is located at 14.7 m.

Superimposition: Renewal and Reuse

Superimposition of one rock art element upon another is often useful in the creation of a hypothetical chronological order of production (Grant, Baird, and Pringle 1968). At Little Lake, however, superimposition is neither extensive—we have only 170 examples—nor patterned in terms of distribution or motif selection. Superimposed scratching is sometimes interpreted as evidence of intent to obliterate or enhance rock art and is addressed by Reed (this volume). The application of paint to pecked or scratched rock art is controlled and deliberate. At Little Lake Ranch, only a few pecked and scratched elements have red paint daubed on or over them apparently indiscriminately; others have red paint deliberately applied to an element by outlining or painting over or between pecked lines (Figure 3.12). These painted petroglyphs are distinctive in revealing what is apparently a specific intent to incorporate the underlying pecked element into a larger meaning or activity. A few painted elements have random pecking on or near them on the same panel.

Characteristic Patterns: Redundancy and Symbolic Content

The consideration of style in rock art has prompted many meticulous studies of common motif forms. Some motifs have meanings that can be analyzed and verbalized and may be cross-culturally valid (Hatcher 1974:17). Characteristic design choices and patterns of distribution, along with production methods, are aspects of style that emerge when a substantial, controlled rock art sample such as the one we have at Little Lake Ranch is considered within a relatively well-understood regional matrix across media (Turpin 2001; Quinlan 2007).

For pecked and painted rock art, the element was the basic unit of our analysis. In the case of scratched rock art, the analysis was carried out on the component level (Reed, this volume). We follow Hedges (2002:34), who notes that the cumulative Great Basin rock art record and the element inventories of Steward (1929), Heizer and Baumhoff (1962), and Heizer and Clewlow (1973), each briefly summarized above, all establish a "widespread and ancient rock art tradition that underlies a wide variety of rock art styles throughout the American west." Known as the Western Archaic, its hallmark or defining element is "the digitate anthropomorph, a motif which remains relatively constant against a changing background of different styles" (Hedges 2002:34; Figure 3.13).

Our motifs are a direct response to our particular corpus of rock art, and they were designated as categories (classes) with subcategories after an evaluation of previous work and following an initial field inventory. Constructed from a defined vocabulary of redundant straight and curved lines, all motifs evidence three structural variants: simple (the majority), complex (126 total examples), or compound (composite) forms. Compound elements are extremely rare; they are made up of two or more

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Figure 3.13

Locus 7, Panel 550: digitate anthropomorphic element.

defined representational elements that are conjoined to create a unified element that, in turn, is capable of being categorized. An occasional compound element can reasonably be interpreted as transformational; that is, a dynamic process is suggested within which one element is so completely united with another that both are transformed into a unique, new element (Figure 3.14). Recurring, preferred motifs are raised to the level of symbols when they are "visible manifestation of invisible concepts or knowledge" (Kaeppler 2008:120). Following Kaeppler (2008:58–59), rock art

> is not something separable from the rest of life operating in separate categories, but part of social action and interaction. Individual understandings of aesthetics are part of a larger understanding shared by a group of people who hold certain ideas in common as part of a belief system or culture.

Our motif catalog consists of eight categories or classes (Figure 3.15). Three of our eight categories are neither formal nor stylistic, yet they are artifacts of human behavior: scratching (a production method but also a series of categorized patterns); amorphous and random pecking, which are filed as unclassified; and graffiti. The remaining five categories are the principal components of our analysis: angular/linear (also known as "rectilinear") and curvilinear are "abstract" or schematic; zoomorphic (animal-like), the atlatl (a material object), and anthropomorphic (human-like) are often described as realistic. At seven loci, the curvilinear and angular/linear categories have greater than 20 percent redundancy (to a maximum of 44 percent curvilinear at Locus 6). These abstract categories are subdivided into nine and 15 subcategories or variants, respectively. Each contains very large numbers of examples: a total of 1,023 in the angular/linear category (25 percent) and

(continued on page 55)

Figure 3.14

Locus 6, Panel 157: compound quadruped element possibly depicting transformation.

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LITTLE LAKE ROCK ART MOTIF CLASSES

Figure 3.15
Matrix of rock art motif classes.

1. Angular/Linear

1a Single line

1b Multiple lines

1c Zigzag line

1d Crosshatch or grid

1e Connected vertical lines ("rain" or "rake")

1f Y-form

1g Connected diamonds

1h V-form

1i Multi-arm figure

2. Zoomorphic

2a Snake

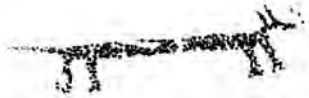
2b Lizard

2c "Paw"

2d Bighorn sheep

2e Deer or antelope

2f Canine or dog



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3. Material Object: Atlatl

3a Incomplete

3b-1 Single hook

3b-2 Single loop

3b-3 Double hook

3b-4 Double loop

3b-5 Hook, loop

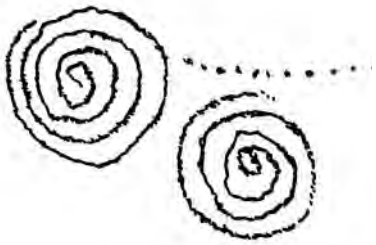
3b-6 Ring with hook

4. Curvilinear

4a Single circle

4b Circle with line

4f Spiral (left or right)



4j Wavy line

4m Circle or oval with interior or exterior design elements ("shield")

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4c Circles with line (dumbbell)

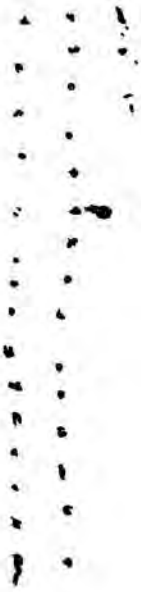
4d Concentric circles (2 or more)

4e Connected circles (clustered)

4g Bisected circle

4h Dots (filled circles)

4i Row of dots (three or more)



4k Curvilinear matrix

4l Open curve (hook or staff)

4n Circle with 4 or more radiating lines ("sun")

4o U-form

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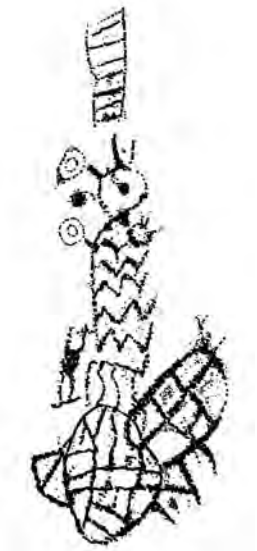
5. Anthropomorphic

5a Body-patterned anthropomorph

5a-1 Head/face



5a-2 Conjoined human/animal

5a-3 Conjoined human/object

5b Non-body-patterned anthropomorph

5c Hand

Representing Rock Art Design Elements: Visual Key Illustrations

John Davis

In order to visually illustrate the full range of rock art elements included in the formal motif classification, I first reviewed the Rock Art Archive Little Lake Ranch database for characteristic examples of each variant within each motif class. These images were digital photographic files of the rock art and, in some cases, archived digital photographs of field tracings.

Working from this culled set of photographic images, each variant was traced directly from the computer screen using bond paper and a Sanford 314 pencil. These tracings, in turn, were stippled in India ink with Faber Castell Pitt artist pens, and the underlying graphite tracing was erased. The stippling technique attempted to convey both the intensity and density of the original pecking. None of the visual key illustrations was produced in the field, but my experience of California rock art sites in general, and my familiarity with Little Lake Ranch rock art gained in the spring of 2008, in particular, informed my understanding of the photographic record.

The resultant black-and-white, stippled representations presented in the Motif Analysis Visual Definition Key are reductions and simplifications of the rock art elements depicted in the digital photographs. The intent throughout was to remain faithful to the originals without losing detail through over-schematization or by veering into the territory of caricature or hieroglyphic gloss.

A further level of editorial reduction occurred when the illustrations were arranged on the page. In some cases, clarity required that individual elements be excised from their surrounding petroglyphic context. In other instances, the orientation of a given element was shifted slightly to retain graphic clarity on the page. No images have been reversed, nor have their predominant horizontal or vertical orientation been altered. The pecking density is reflected on the page and the scale varies.

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1,568 in the curvilinear (38 percent) (Figure 3.16). The anthropomorphic category contains 148 pecked examples. Exclusive of Stahl Site Cave, there are no painted anthropomorphs. Of the pecked anthropomorphs, 88 are unequivocal and in two main categories: solid body and stick body. Of the total sample, 43 percent have digits on hands and/or feet (Figure 3.17). These "digitate" anthropomorphs occur in all loci except Locus 3 (Painted Cave).

Approximately 20 percent of the total anthropomorphic sample is highly individualized. Of these, some hold objects or are splayed, while a few are incorporated into other motifs. A few have a dynamic posture or display what appears to be movement. None of the anthropomorphs has eyes, two have male genitalia, and one incorporates a natural feature of the rock surface to suggest female gender. Only five fit the description of patterned-body anthropomorphs characteristic of the Coso Rock Art Landmark. Of the latter, only two are unequivocal.

In the zoomorphic category we have 434 examples in seven subcategories or variants. Of these, mammals occur in the greatest number, and bighorn sheep—a defining attribute of the Coso Rock Art Landmark corpus—are the most numerous.[16] Other zoomorphic categories are extremely small and include deer, apparent canines, and unidentifiable quadrupeds. Elements categorized as snake or lizard range from realistic to schematic (Figure 3.18). In the case of lizard, we employ Whitley's (1982b) definition to distinguish between it and a possible anthropomorph with male genitalia.

We see rather quickly that the so-called abstract angular/linear and curvilinear motifs, some specific examples of which we argue are ideomorphs with culturally identifiable meanings, make up an impressive 63 percent of the Little Lake Ranch pecked motif inventory. These same categories are considered diagnostic of the Great Basin rock art style (Clewlow 1973).

In sharp contrast, "representational" motifs—including especially the bighorn sheep—account for an equally impressive 65 percent of the available Coso Rock Art Landmark sample thought to date from 2000–1500 B.C. to A.D. 1300 (Garfinkel and Pringle 2004:11; Gilreath 1999). This is roughly the same time period during which activity at Pagunda was declining or minimal. It is evident that *there is a clear proportionate difference in rock art motif types* present at Little Lake Ranch and those in the Coso Rock Art Landmark. We interpret this as evidence of functional disparity for the two areas.

Ideomorphic Scratched Patterns

Scratched patterns are described and categorized separately from pecked or painted elements (Reed, this volume). There are 248 panels with scratching; of these, 65 percent are located at Pottery Slope.

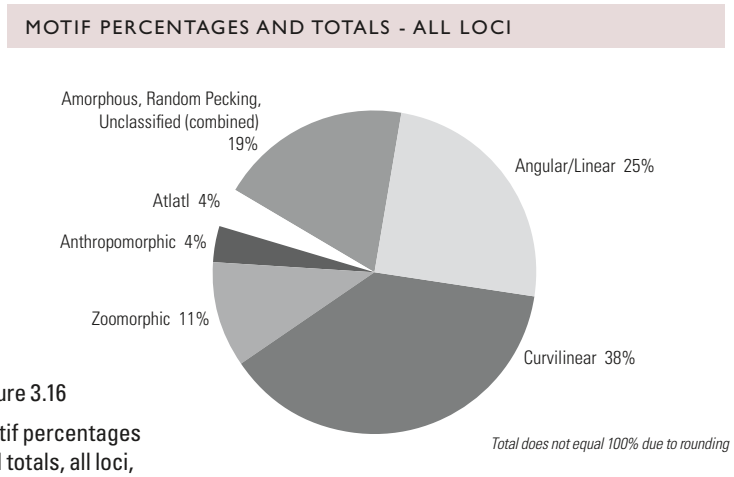
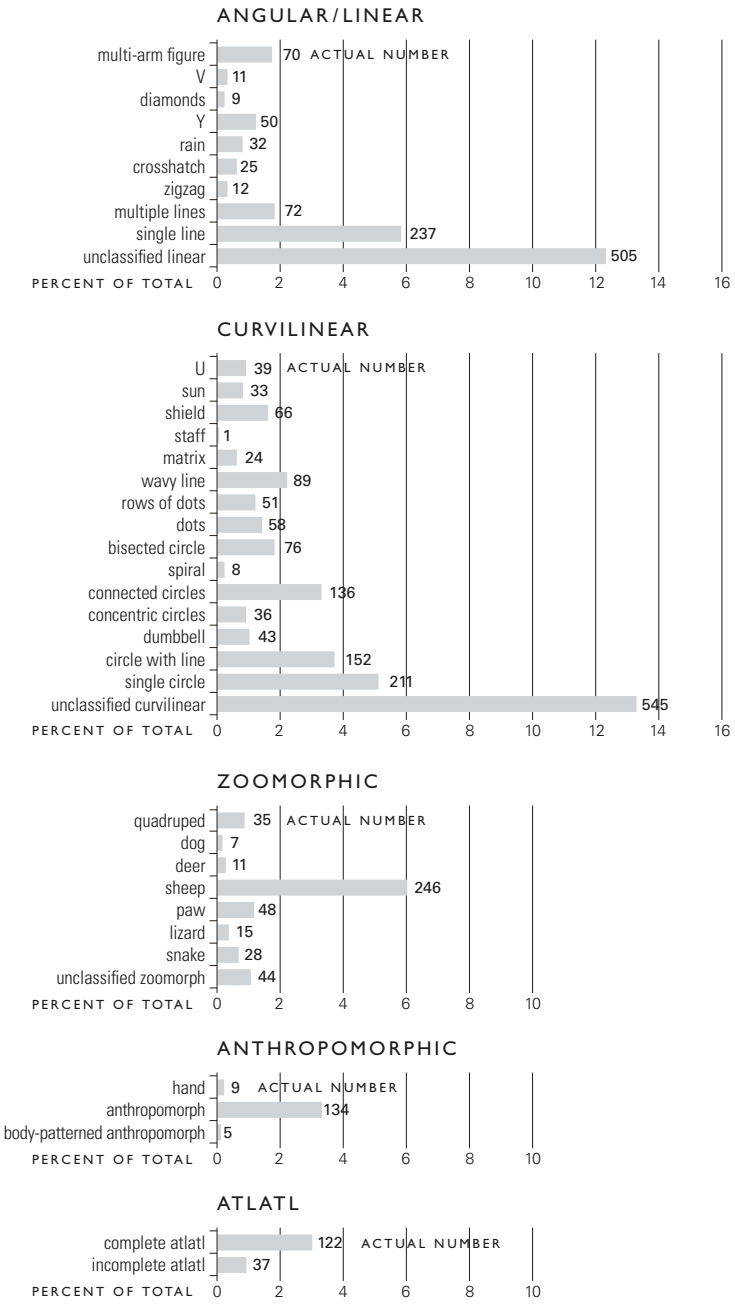


Figure 3.16

Motif percentages and totals, all loci, Little Lake Ranch.



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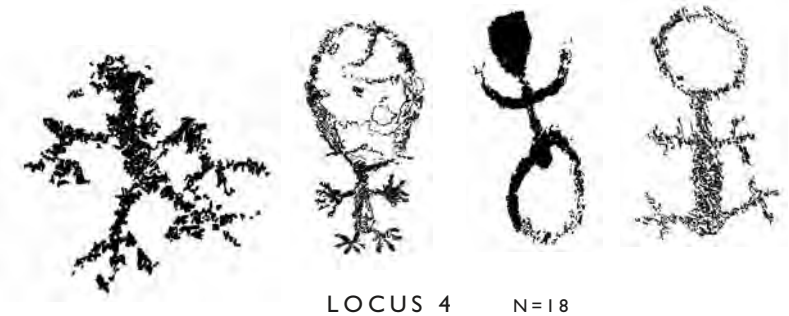
LITTLE LAKE ANTHROPMORPHIC ELEMENTS

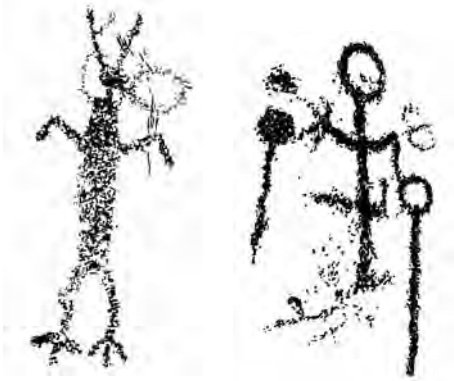
Figure 3.17

Selected anthropomorphic elements grouped by loci.

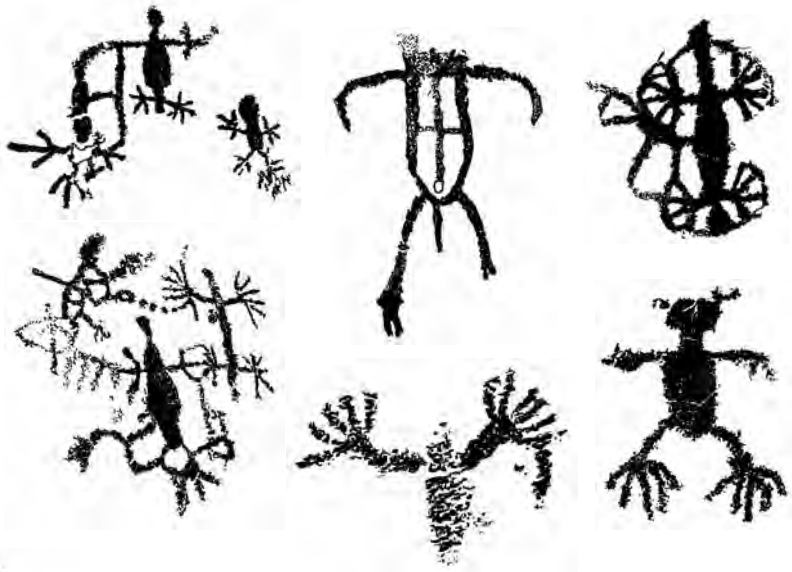
LOCUS 1 N=11



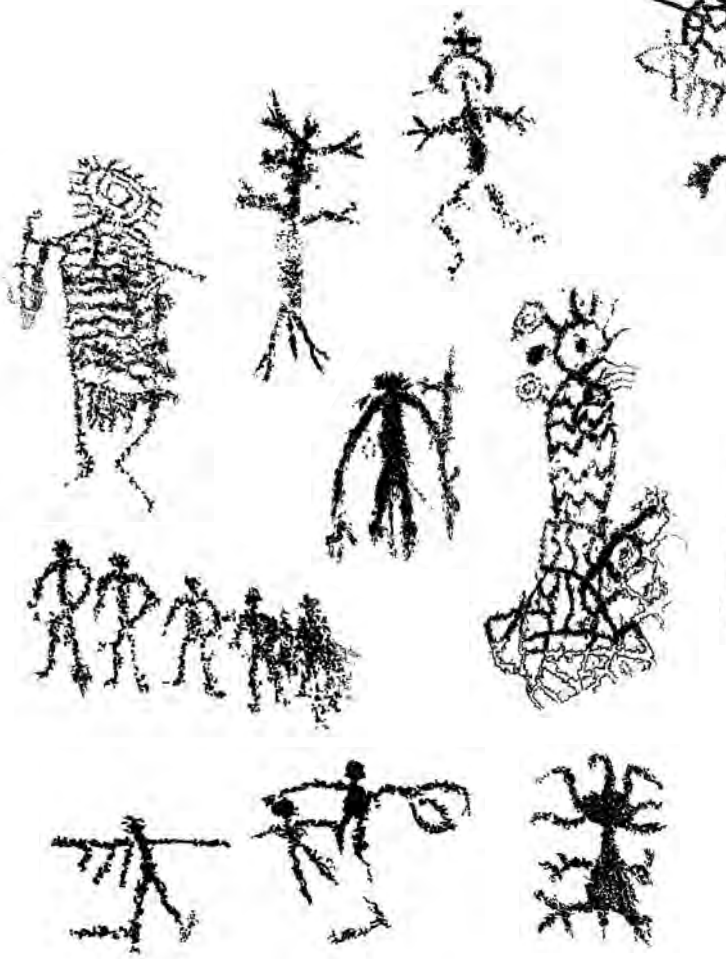
LOCUS 4 N=18



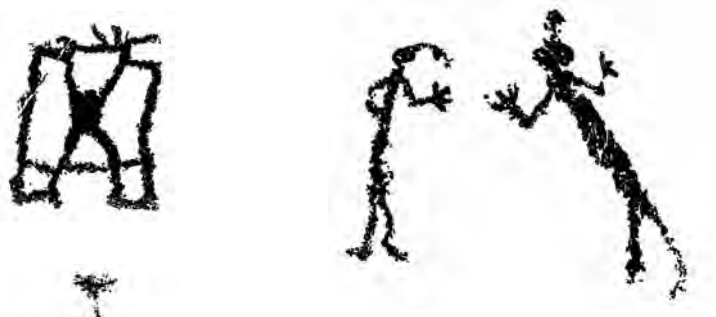
ATLATL CLIFF N=11



LOCUS 5 N=23



LOCUS 7 N=50



LOCUS 8 N=9

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There are only two instances in which one scratched pattern is alone on a given panel (once in Locus 5 and once at Pottery Slope). There are 27 instances of association on the same panel with a figurative or realistic pecked element (zoomorph or anthropomorph), and most of these are at Locus 7 and Pottery Slope—the former having the largest total number of rock art elements and the latter the largest number of scratched patterns. In only 17 cases are the patterns associated with either pecked bighorn sheep or atlatl, both of which we consider to be iconic (see below). *None* of the defined scratched patterns is unequivocally incorporated as such into a figurative image to produce a "patterned-body" sheep or anthropomorph.

Scratched patterns fit the definition of natural or organic entoptic elements defined as "luminous images generated by the optical system when affected by mind-altering drugs" or other factors such as fatigue or water deprivation (Gilreath 2007:286). "Phosphenes" or "form constants" (Hedges 1983:58) are elements formed "when the eyeballs are pressed" (Gilreath 2007:286). Both are the basis of the neuropsychological model of rock art interpretation originally conceptualized for Upper Paleolithic rock art (Lewis-Williams and Dowson 1988) but also applied to the Coso area (Whitley 1994c, 1998a). Basic entoptics are grids, sets of parallel lines, zigzag lines, nested curves or arcs, dots or flecks, and filigrees created by thin meandering lines (Hedges 1983, 1992, 2001; Lewis-Williams 2002; Lewis-Williams and Dowson 1988; Quinlan 2000a: Figure 1; Whitley 1998c, 1998d, 1998e:112, Figure 7-1). Within the context of the cultural associations of our area, and no matter how they are initiated, generated, or produced, we consider crosshatch (grid), diagonal lines, zigzags, crescents or arcs, circles, and spirals to be ideomorphic. In all of these, the basic design component or unit is a single line. Lines combine in orderly sequences (Washburn and Crowe 1988:8) to create patterns with discoverable cultural meanings (Chapter 8, this volume).

At Little Lake Ranch 41 percent of the scratched patterns—irrespective of the definition of entoptic—are ideomorphic. The most numerous is grid or crosshatch at 28 percent. The others are diagonal lines, which are unequivocally and widely representative of the male gender within ethnographic Native groups, and zigzag lines (Gayton 1930, 1948), which similarly represent the female gender (Bibby 2004; Fowler and Dawson 1986). Crescents, circles, dots, and spirals are associated with personal and group identity in ethnographically documented body art (Gayton 1948:20, Figure 4; Steward 1933b). Significantly, *each and every one of the patterns*, whether categorized as entoptic or ideomorphic, is comprised of nothing more than the smallest, most basic curvilinear or angular/linear components or constituent parts of all rock art elements at Little Lake Ranch. Furthermore, all of these components are contained within *all constructed design elements in all Numic media and*, *as well*, *cross-culturally* (Hatcher 1974:41, emphasis added). In short, the entoptic definition alone cannot and does not link our recorded motifs and patterns to shamanic ritual behavior.

Perception: Color and Form

There are myriad links between the natural world and personal and group expression in hunter-gatherer societies. Differences in shape, color, posture, and behavior of animals and birds influence a range of aesthetic choices made by hunter-gatherer societies. For example, gender-specific body art and costumes are sometimes drawn from observations of dichromatic variation (two color phases in the same species as found, for example, with lizards) or dimorphic differences (sex-linked coloration in the same species, as, for example, different colored feathers in waterfowl). Aggressive or defensive postures assumed by diurnal or nocturnal lizards, among other creatures, may be mimicked in dance or ritual.

Visual perception, like pattern production, is grounded in physiology but also shaped by internalized cultural values. The human brain has a wide range of specialized abilities to perceive, analyze, store, retrieve, and elaborate upon primary visual

Figure 3.18
Locus 1, Panel 154: zoomorphic lizard element.

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Figure 3.19
Locus 8, Panel 16: classic bighorn sheep pecked element.

data. The skills to do so are both genetic and learned. Psychic unity or common cognitive responses based on the so-called hard-wiring of the human brain cannot explain all rock art production, although it is probable that a certain potential for some cross-cultural homogeneity in all visual imagery exists. However, commonalities in visual forms are often anchored in common natural environments or similar cultural experiences.

The physiological bases of form and color perception are essentially the same for all humans. Linear form is perceived first, then movement, then color—especially when it is linked to static linear forms. Cultural conventions and available natural materials influence basic color choices. Shades perceived on the light–dark scale and textures on the glossy–matte scale are also culturally dictated.

The names given to structural forms are central to understanding meaning in many Native crafts but, unfortunately, are largely unknown for rock art motifs. For example, a single straight line at a diagonal depicted in body paint may be called a "vine" by one group or an "arrow" by another. The "arrow," however, may be a metaphorical reference to penis and, beyond that, to virility. A simple zigzag entwined in a basket may be termed "waves on a lake" by a man or "mountain peaks" by a woman. In the end, choosing precisely how to visually represent an idea, concept, belief, relationship, event, or perceptual experience is *inextricably linked to a dynamic network of language, cultural memories, values, and aesthetics*.

Briefly Noted: Condition

The rock art at Little Lake Ranch is well protected by limited access to visitors and good stewardship by the property owners. Nonetheless, our visual records document some vandalism. There is some gunshot damage. Many rock art panels have weathered significantly over time. This weathering pattern could be roughly determined for individual panels by simply chronologically ordering the images of them now in the Rock Art Archive's motif database, a task we have not attempted. Some boulders at Atlatl Cliff are clearly documented as moved or cracked by seismic action, and in a few cases motifs have been scoured away by water during the course of our fieldwork. Other panels are partially covered by sand inflow to a level of 10–20 cm over ten years. Pecked rock art at the Stahl Site Cave has been altered and vandalized; hence, it has not figured in our general motif analysis. The conservation imperative for the site as a whole is at least partially addressed by our inventory, but continued record searches to locate and file historic images that further document the panels are

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necessary. The lichens on a boulder we dubbed the "guardian rock" in Locus 4 are the most destructive in the entire corpus, and some effort at removal should be attempted.

A Final Point

Our motif categories are reflective of our research interests, but they are also objective, anchored in previous work, consistently applied to a large element sample, and visually defined by real, not idealized, elements. Nonetheless, we acknowledge that our methodology and inferences are only one research direction and that our data provide other analytical opportunities. We realize that "representational" elements often consist of ambiguous attributes possessed by "real" beings yet have, in fact, a variety of "unreal" or layered meanings that embody or suggest many possible interpretations, some of which are metaphorical. Therefore, we consider "representational" as a visual description of, or reference to, *a recognizable being or object* in the "operational" environment.

In terms of production methods and style, Whitley (2000a) outlines a paradigm in which he assigns California rock art "to five broadly defined traditions, each with a series of variants" (Hedges 2002:36). Whitley's (2000a) Great Basin Tradition includes a "Great Basin Engraved" variant. We agree with Bednarik (2006:257–259) who maintains that "engraving" refers to "an abrasive action, using a burin or graver" and as such is an inappropriate term. For this and other reasons we choose to retain preexisting terminology as, in our view, it has an established history of use and overall is sufficiently descriptive (Heizer and Baumhoff 1962; Heizer and Clewlow 1973).

Angular/linear and curvilinear motifs are characteristic of Great Basin rock art. The "digitate anthropomorph" is said to be diagnostic of Great Basin style, although other elements also are sometimes given that distinction. This includes, for example, the "outlined cross," the "hourglass," and, especially for the northern Owens Valley, the abstract vulva form. All of these designs, and others that are seemingly ubiquitous in the Great Basin corpus, are present at Little Lake Ranch.

We define two motifs in our study as "classic" forms in the region: the bighorn sheep with a D-shaped body and the complete atlatl (Figures 3.19, 3.20). We do not employ classic to mean intrinsic quality or value of the element itself, although value is inferred and quality is often evident. Instead, our classic elements are made up of clearly described attributes and conform to an apparent aesthetic canon that is inseparable from style. Classic elements are recognized and frequent; the Coso D-shaped body bighorn sheep, for example, is diagnostic for the Coso Rock Art Landmark.

While it may be argued that all bighorns and atlatls are conventionalized to a certain extent, they are definitely not all standardized. "Iconic" elements are shapes that provide enough visual information to recognize classic forms or to grasp inherent concepts or metaphorical meaning. The shape may be part of an object or recognized as resembling or referring to that object. For example, a disembodied set of horns may reference the bighorn sheep as an animal; a vertical line curved at the top and appearing to be a staff may reference an incomplete atlatl; or a zigzag line may reference a snake or a mountain range. Iconicity often incorporates intentional visual ambiguity, and information encoded in iconic elements is intrinsic, layered, specific to the group involved, and understandable *only within the context of that group's known or well-documented belief system* (Rappaport 1979:90–91).

Figure 3.20

Atlatl Cliff, Group 2, Panel 17: unpatinated classic atlatl element.

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Figure 3.21
Overview of Locus 1.

Rock Art Loci Described

Locus 1

Locus 1 is one of four coves or inlets in the riparian zone on the west shore of Little Lake (Figure 3.21). It is formed by basalt walls and boulders encompassing a meadow at the southern end of an almost continuous stretch of petroglyphs beginning in Locus 8. In the past, the floor of the Locus 1 meadow would have been lower and the rocks that ring the cove would have created a more distinctive boundary. The eastern edge of the meadow probably extended farther out into the present lake.

Locus 1 is a multiple activity area. Grinding slicks for seed processing are present in the cove, which could have been easily entered when the water was low to collect plants, seeds, and bulbs at the productive eco-boundary between the water and the meadow. In addition, thousands of obsidian flakes are scattered extensively over the entire area. Berryman and Berryman (1979:52), in describing their excavations at Locus 1, note that

> although only a total of four units were excavated within the first cove, more than 3,000 lithic items, dominated by small secondary and trimming flakes, were recovered. Materials from the test units indicated . . . a Late Archaic/Shoshonean occupation.[17]

Because of the proximity of Locus 1 to Pagunda, and in light of the fact that desert varnish is only slightly evident on the rock art, some of the rock art production certainly occurred when Pagunda was most active.

We have inventoried 125 panels on the northwest and northern edges of Locus 1, of which 66 (53 percent) have only one element. This suggests a high level of one-time or individualized rock art production. There are 283 pecked rock art elements, of which 97 fall within the unclassified category. There is no paint at Locus 1. The highest density of rock art is located toward the more accessible northwest area. Panels continue along the northern edge of the cove on boulders near the cliff walls. No rock art was located on the southern side of the cove where the basalt cliffs are highest.

Among the principal components, curvilinear motifs predominate (33 percent) and angular/linear elements are common (23 percent; Figure 3.22). Unclassified elements account for 34 percent of the total for this locus. There are only a few large, multi-element panels at Locus 1. Panel 158 is the largest with 12 elements. Panel 18 has 11 elements, while the remaining large panels all have fewer than 10 elements each. Although there are some distinctive

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and well-made elements, most are incomplete, lightly pecked or scratched, and highly schematic. Panel 1-18 contains a very well-made double bisected circle (Figure 3.23), an element sometimes thought of as a "trail marker."[18] The lines and curves that make up the design are thick, complete, and have clean edges. On the same panel, however, there are four more bisected circles of significantly lesser quality.

Locus 1 has 11 anthropomorphs (4 percent), of which three are "digitate" in the Western Archaic tradition. One relatively small panel contains a multi-arm figure. The base panel does not have a dark coat of desert varnish and appears to have had most of the patination removed by abrasion *before* the element was created. This stone surface is difficult and time-consuming to carve, yet the element demonstrates skill and suggests patience in its creation. It is unclear why this surface was selected over others nearby that are more suitable.

In general, the rock art at Locus 1 is individualistic and of uneven quality, neither skillful nor complex, and not overly diverse. Locus 1 is also somewhat unique in its combination of angular/linear element types, which other loci lack in the same numbers or percentages. Opportunities for making rock art in Locus 1 may have overlapped with other activities such as plant, seed, or bulb gathering and processing and lithic tool production.

Figure 3.23

Locus 1, Panel 18: double bisected circle.

MOTIF PERCENTAGES AND TOTALS - LOCUS 1

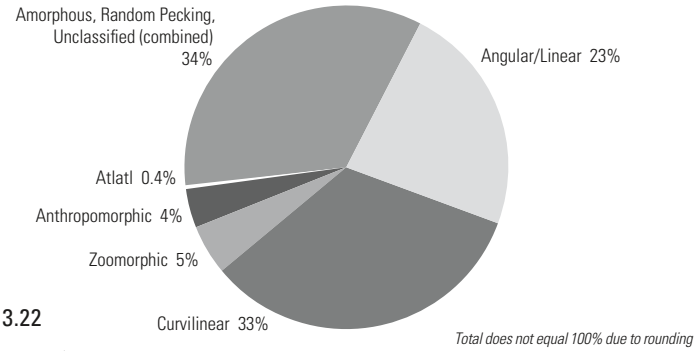

Figure 3.22

Motif percentages and totals, Locus 1.

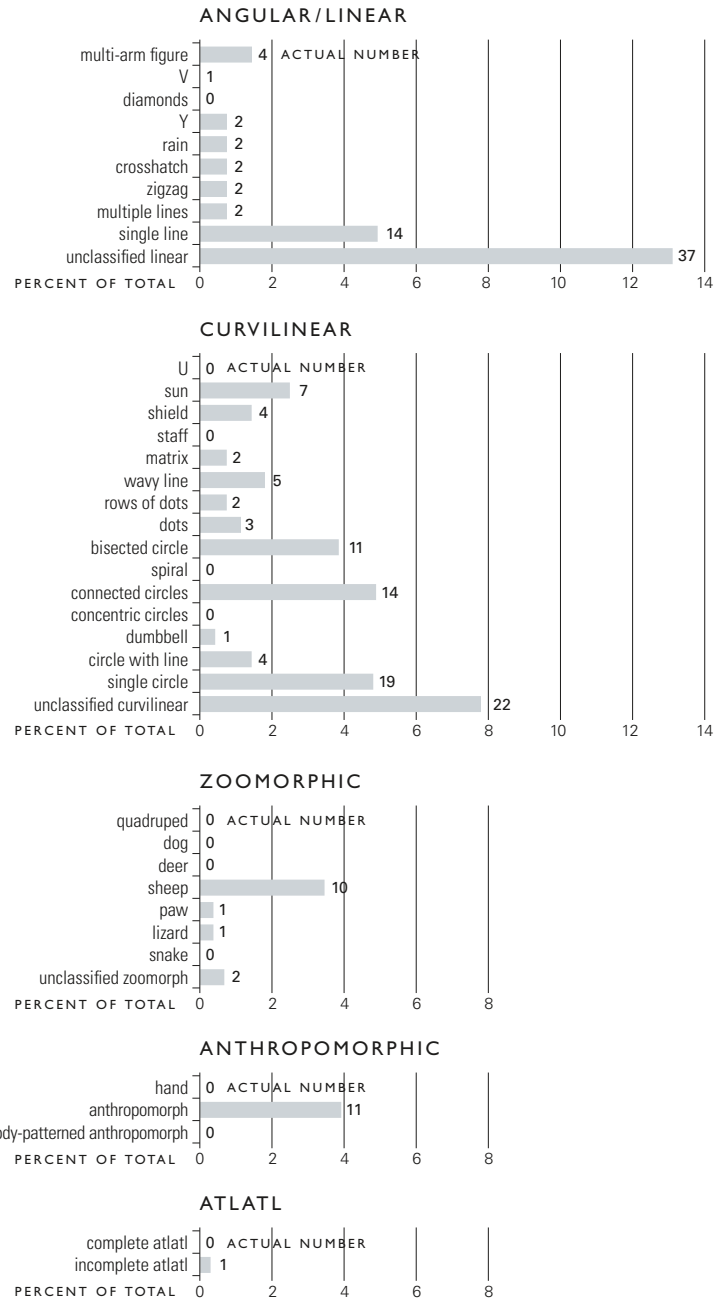

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Figure 3.24
Locus 3, Panel 9: "guardian rock" in front of Painted Cave.

Locus 2

This locus lies between the Stahl Site and Fossil Falls at what was, in 2007, the northern boundary of Little Lake Ranch. A photographic reconnaissance in that year located a small number of largely unpatinated pecked elements and some signs of paint. Only the bighorn sheep elements are included in our analysis (Van Slyke and White, this volume).

Locus 3 Painted Cave

Locus 3 is locally known as Painted Cave. It is a "special purpose" (Conkey 1980) rock shelter commanding one side of the entrance to a lakeside cove designated Locus 4. The cave is raised significantly above the average waterline of the cove's interior marsh. It is 2.1 m high and 1.5 m deep, with a 3 to 4.5 m opening. The present configuration of the opening was created by seismic action during the duration of our field project.

A large boulder forms part of the floor of the shelter (Figure 3.24). It was dubbed the "guardian rock" because of its prominent placement in front of the rock shelter and its command of the cove entrance from the lake. The boulder is covered on three sides with complex, largely curvilinear petroglyphs, many of which are connected. Some of the rock art is obscured by thick sheets of lichens, suggesting the passage of a relatively long period of time. One small painted element is on the east face of the boulder (Figure 3.25).

Inside Painted Cave there are 18 elements in red, white, and black arrayed on eight panels (Figure 3.26). Panels 2, 3, and 6 are so faded that the paint on them is only discernible with the use of special photographic techniques. One element on Panel 4,

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one on Panel 5, and another on Panel 1 are painted in red and outlined with solid white lines. Line width varies, and the outlines have bled or are less distinct than the red interior portions of the design. The Panel 1 element is formed of long, parallel, curved lines and has strong commonalities with another at Opal Mountain in the Mojave Desert, as well as with designs on ethnographically collected basketry elements executed in the same colors (Christensen 1999:99, Figure 4).

Chemical analyses reveal that one element on Panel 1 was painted with two different red and two different white pigments, perhaps but not necessarily by different people at different times. In either case, the element was enhanced or refreshed, and no apparent attempt was made to obliterate or destroy it. Possible goals of refreshing the rock art include association with the group or person who created the original motifs, and retention, renewal, or revival of their symbolic meanings. Such reworking of symbols is evident in both the painted and pecked rock art of Little Lake Ranch and suggests continuity in social group and ritual purpose. A more complete discussion of Locus 3 appears in Van Tilburg and Backes (this volume).

Figure 3.25

Locus 3, Panel 14: pecked element with red paint applied, east face of "guardian rock."

Figure 3.26

Locus 3, Painted Cave: overview of polychrome and monochrome elements.

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Figure 3.27

Overview of Locus 4.

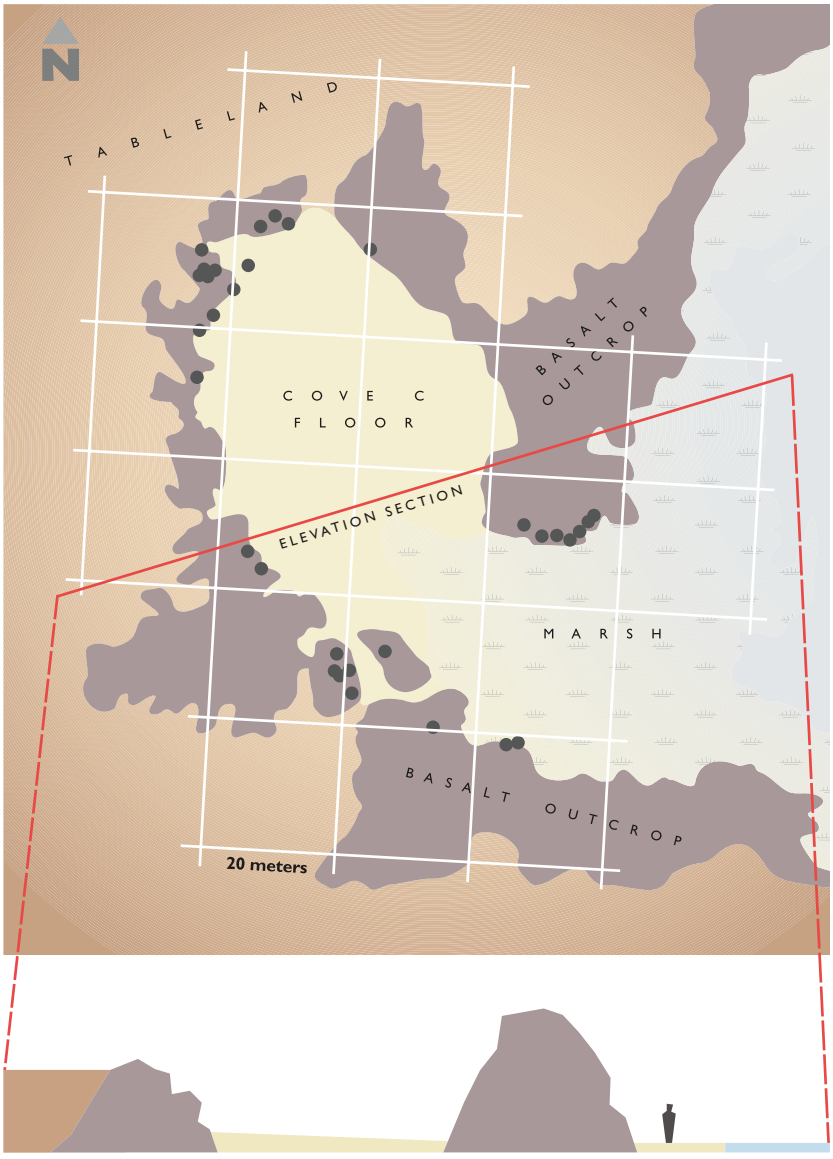

Figure 3.28

Plan of mapped panels with elevation section, Locus 4.

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Figure 3.29
Overview of Locus 4 panel cluster, across from Painted Cave (Locus 3).

Locus 4

Locus 4 is a cove on the western periphery of Little Lake between Locus 1 and Locus 8 (Figures 3.27, 3.28). It runs nearly north–south and then curves east at the south end to merge with the lake where the water invades the grassland and reeds. The springs that feed the lake are located near here, and basalt walls that make up part of the cove extend eastward from the rock shelter to form part of the western boundary of the lake. In area, the cove is about 65 m measured along the north–south axis and 30 m wide. Locus 3 marks the terminus of the petroglyph concentration on the south side of the cove, and opposite the cave and its "guardian rock" is a cluster of 27 rock art panels marking the cove entrance to and from the lake (Figure 3.29).

The interior of the cove today is an indiscriminate mixture of grass and cattails watered by runoff and seepage from the lake. When the lake was lower, the walls of the cove would have been relatively higher, thus creating more of an enclosure than at present. Interestingly, the cove has a distinctive ability to produce echoes. Possible connections between echoes and other naturally occurring sounds "and the supernatural belief that a rock surface can act as a permeable veil that separates the outer world from a spirit world within the rock" are areas of contemporary rock art research interest (Waller 2002:53).

Locus 4, like Locus 1, is a multiple activity area. The highest observed (but not counted) concentration of both large and small obsidian flakes in the Little Lake area is at the western entrance to this cove. Obsidian flakes are also numerous around the edge of the cove near the walls. Like Locus 1, Locus 4 was certainly a tool production area, and the reduction of obsidian nodules into bifaces was a dominant aspect of the activity (Garfinkel et al. 2004:87–88). Food preparation, as evidenced by bedrock mortars and a grinding slick at the western edge of the locus, also took place.

There are 92 rock art panels in Locus 4, of which 43 contain only one element each (approximately 47 percent of the total for this locus). The total pecked element count is 293, including 40 in the unclassified category. In general, most elements are neither complex nor schematic, and appear complete. There is also a wide range of visible repatination. Many of

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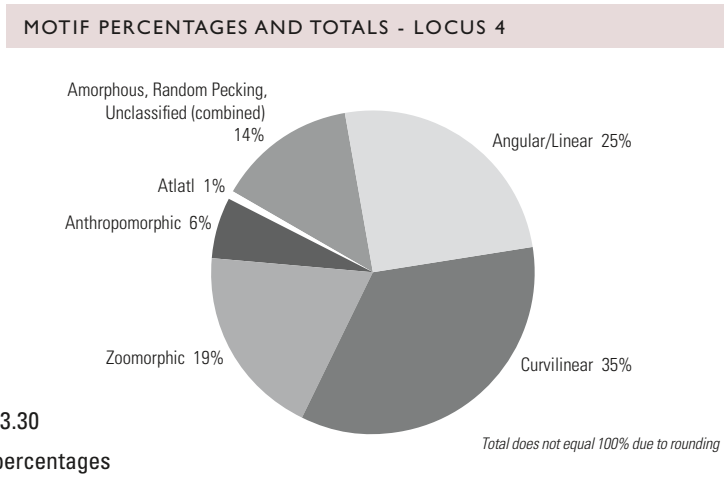
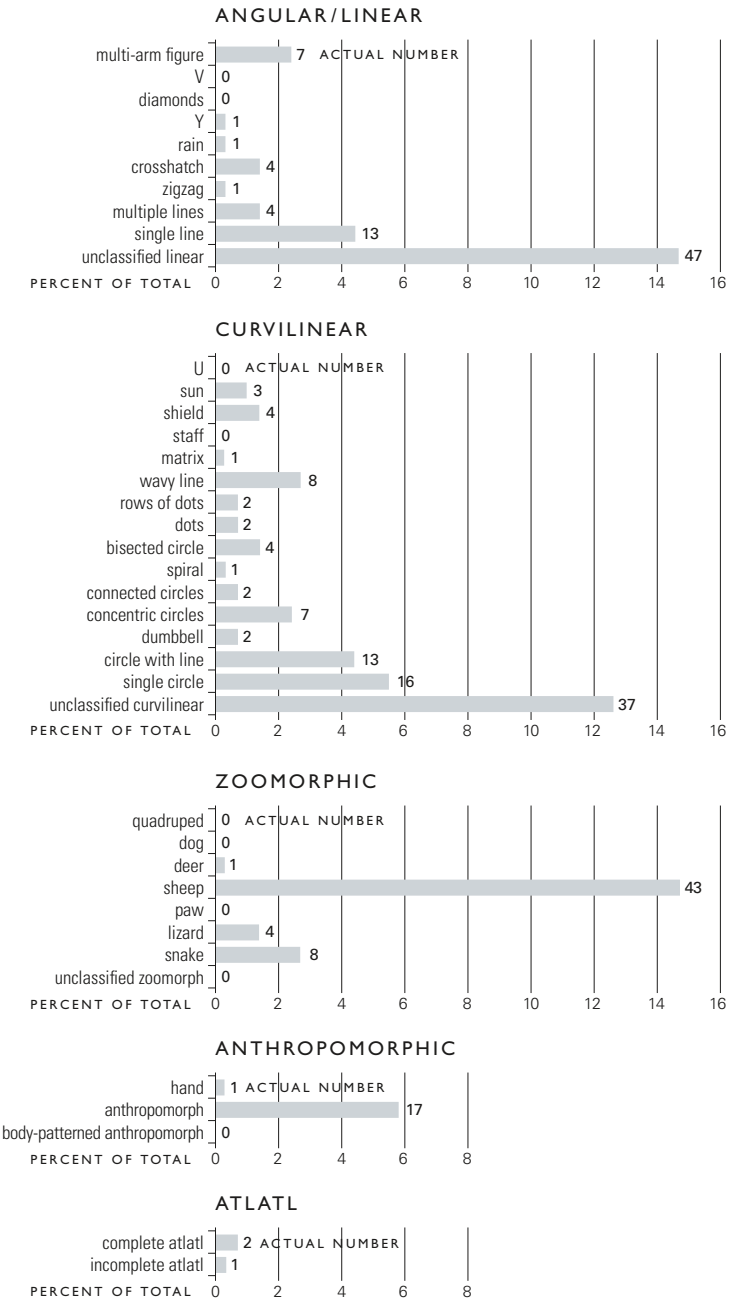


Figure 3.30

Motif percentages and totals, Locus 4.



the panels with dark varnish have well-made elements with thick, completely pecked lines and clean edges. Moving away from the lake on the southwest edge of the cove is a continuous line of panels with elements varying in contrast from bright to dark, with some so heavily repatinated that recording was extremely difficult.

The less well-patinated, brighter pecked elements are located throughout the perimeter of the cove. Curvilinear motifs predominate (35 percent; Figure 3.30). Angular/linear motifs (74 examples; 25 percent) lack significant patination and range from simple box-like structures to complex designs, some of which are unique to Locus 4. The largest cluster of linear designs is located at the northern entrance to the cove, where the elements tend to be rectangular outlines with internal linear or curved designs.

Locus 4 contains Panel 51, the largest and most complex panel at Little Lake Ranch (Figure 3.31). Panel 51 is situated midway along the west–southwest wall of the cove and in a central and very visible, accessible location. The left center side of the panel contains a large number of repatinated elements, and cracks in the rock face provide natural surrounds within which bighorn sheep, snakes, unidentified zoomorphs, anthropomorphs, and geometric designs are placed. A highly unusual element has projectile points emanating from it and is surrounded by 19 bighorn sheep (Figure 3.32).[19] In an analysis of projectile point depictions, Garfinkel and Pringle (2004: Table 2) argued that two Little Lake Ranch representations are within the broad Great Basin point category of "corner-notched." A symbolic dimension to similar Coso Rock Art Landmark elements was originally suggested as related to the Numic practice of multiple projectile point funerary offerings "during the juncture of the late Newberry and early Haiwee periods" (Garfinkel and Pringle 2004:10). These assessments have been recently revised, and it is now suggested that the projectile point petroglyphs date more to the Newberry than to the Haiwee period and are Elko or Humboldt series rather than Rose Spring or Eastgate (Alan Garfinkel, personal communication, 2010).

In summary, Locus 4 is a multiple activity area with unusual natural attributes and is further enhanced by a painted cave unique to Little Lake Ranch. Judging by the varying levels of surface patination, Locus 4 has a long history of rock art production. Some of the more repatinated elements may be in the same general age range as others at Atlatl Cliff, although the motifs in the two areas have little in common. Nearly 50 percent of the recorded elements appear as single elements on a given panel, *suggesting a high incidence of individual or one-time production activity*. (Van Slyke and White, this volume).

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Figure 3.31

Overview of Locus 4, Panel 51: a large, complex panel with numerous unpatinated elements.

Figure 3.32

Locus 4, Panel 51, with apparent projectile points *(upper left)* and numerous bighorn sheep.

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Figure 3.33
Overview of eastern section, Locus 5, the lakeshore.

Locus 5 Lakeshore

Locus 5 is an extensive, rock art–dominant activity area consisting of four discrete clusters of elements situated on both the east and west lakeshores (Figure 3.33). It includes the boulders and walls that directly face the west side of the lake on both sides of Locus 1 and between Locus 5 and Locus 8. The main concentration of rock art is on the east side of the lake on a steep portion of the slope just north of Locus 7. Overall, there are 54 panels and 358 pecked elements in Locus 5, of which 30 are unclassified. All of the largest panels are distinctive, contain numerous elements, and are highly visible—although access to some is difficult. Locus 5 is also notable for its diversity of rock art placement, a high degree of element variation, and variable patination levels suggesting apparent differences in the ages of petroglyphs on the same panel and between different panels. Curvilinear motifs predominate (44 percent of the total), and unclassified motifs are only 8 percent of the total (Figure 3.34).

Clustering of panels and numerous multi-element panels are features of Locus 5 (Figure 3.35). Panels 301 and 302 contain 63 elements on a freestanding boulder. Panel 305 has 23 elements

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on a high rock outcropping overlooking the west side of the lake. Panel 310 has 45 elements and is midway between Locus 1 and the southern end of the lake. Another major cluster of rock art consists of 19 panels on adjacent vertical basalt walls facing the lake just north of Locus 4. Panels 201 and 203 have a combined total of 59 elements, including bighorn sheep and complex curvilinear and angular/linear designs. Most have only light patination.

Locus 5 has only 23 anthropomorphic elements (6 percent of the total for this locus), nearly all of which are well made with complex appendages and some of which are unique. Anthropomorphic elements with bodies completely pecked are placed in the center or near-center of several panels. Some lack legs and have straight, linear bodies or a lower torso that is wider than the "shoulder" area. The heads sit on short necks, and have no facial features. The largest number of anthropomorphs (14 examples) fall into the "digitate" category diagnostic of the Western Archaic tradition. One anthropomorphic element has short arms with three digits at the end of each arm in a trident-like pattern, noted also on a lizard figure in the same locus (Figure 3.36). The repeated use of three-digit appendages on anthropomorphs in Locus 5 is sufficiently consistent to suggest either guided replication or the presence of a stylistic convention.

On Panel 201 there is a group of three anthropomorphic elements. The left element is centered on a centrally placed, irregular hole in the rock, with three lines connected to the opening, suggesting female gender (Figure 3.37). O'Connor (2002:197) notes that "the most obvious sexual manifestation" among petroglyphs at the Nampaweap site in the Arizona Strip is the "incorporation of vesicles in the basalt in the genital area of spraddle-legged anthropomorphs." The Nampaweap site is associated with fall piñon nut gathering, and explicitly sexual references in the natural landscape and rock art are thought to connote fertility or fecundity.

At the southeast corner of the lake, just north of Locus 7, is another cluster of Locus 5 rock art. A lizard element has a head connected to an oval body with the forward legs in an arc. This element mimics anthropomorphic elements at the northwestern part of the lake but, following Whitley (1982a), it is the shape of the arms and the length of the tail, more than the shape of the body, that distinguishes this as a lizard. A thick tail and globular body shape suggest the depiction of a chuckwalla (*Sauromalus ater* [previously *obesus*]).

There are only 15 elements categorized as lizard in our database. Even with such a small sample, we evaluated the attributes of fore and hind legs and number and length of digits to see if it was possible to distinguish which of the three species reported for Little Lake Ranch might be depicted. Most of the

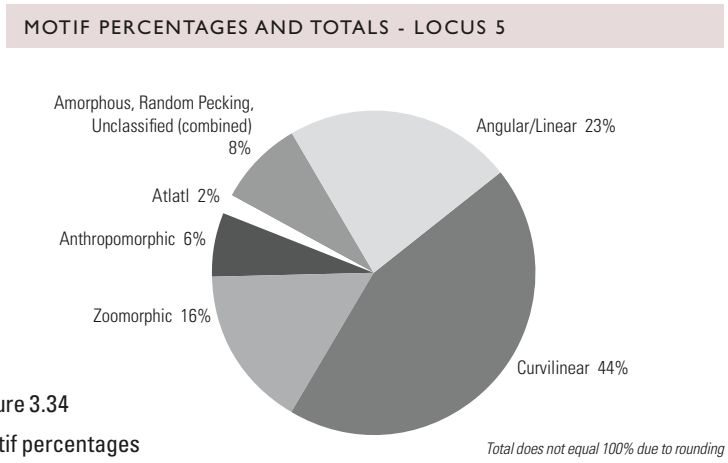

Figure 3.34

Motif percentages and totals, Locus 5.

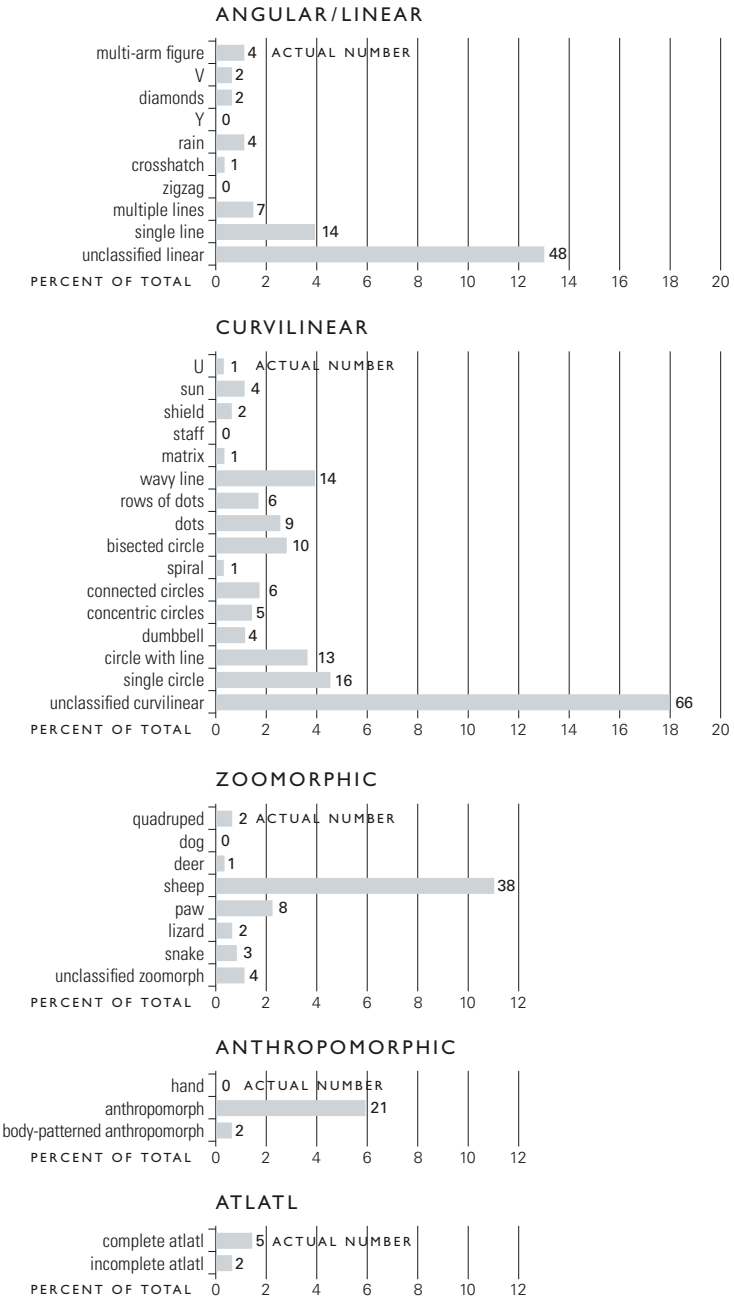

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Figure 3.35
Locus 5, Panel 310: overview of multi-element panel.

examples recorded lacked digits and, in general, the lizards were highly individualized.

A small rock fall or slope that starts at the lake's edge and extends up to within 2 m of the top of the basalt walls creates an alcove-like area with 16 rock art panels. The number of elements varies from one to six per panel and includes 21 of 44 motif subcategories. Bighorn sheep are the main motif, with 13 present on seven panels and many of them unusual. Between Locus 4 and Locus 1 on a rock wall about 6 m high, there is an element widely referred to as a patterned-body anthropomorph, one of only five recorded at Little Lake Ranch (Figure 3.38).

In sum, Locus 5 rock art sets discrete portions of the lake apart from the land. It exemplifies the diversity of rock art at Little Lake Ranch, and its most distinguishing characteristic is the predominance of large panels with numerous motifs placed in highly visible locations. Visibility of large panels is a characteristic that Locus 5 shares with the Coso Rock Art Landmark and the monumental Grapevine Style of eastern California along the Colorado River (Christensen and Dickey 2001:191). Many panels in Locus 5 appear to have been created when the lake was at least 2 m lower, perhaps around 1000 B.P.

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Figure 3.36

Locus 5, Panel 312: lizard with trident-like attribute.

Figure 3.37 *above right*

Locus 5, Panel 203: anthropomorphic element *(left)* suggesting female gender; apparent projectile point *(upper center)* with anthropomorphic attributes.

Figure 3.38 *right*

Locus 5, Panel 510: patterned-body anthropomorph *(center left)*.

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Figure 3.39 *top*

View northwest toward Red Hill from Locus 6.

Figure 3.41 *above*

Locus 6, Panel 375: panel with only one element.

Figure 3.42 *right*

Locus 6, Panel 127: panel with four or fewer elements.

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Locus 6

Locus 6 is situated on "a low-level volcanic tableland" that "rises slightly from north to south along its 600 foot [180 m] length" (von Werlhof 1965:10; Figure 3.39). It begins just south of Locus 8 and continues above the lakeshore coves on the eastern edge of Pagunda. Another 230 m south of the terminus of Locus 1, near the lake's edge, is a group of panels also included in Locus 6. At 160 m east–west by 730 m in the north–south direction, Locus 6 is the largest in area at Little Lake Ranch. It is a multiple activity area with a direct spatial relationship between rock art and domestic activity indicated by bedrock mortars, the largest of which is 17 cm in diameter and 17 cm deep. Bedrock mortars are recognized as typically late and dating roughly to the last 1,000 years. The rock art follows the geography in that the density of both rocks and petroglyphs decreases with distance from the lake. A certain amount of individual selection is evident in that unused surfaces were preferred over adding elements to existing panels. The rocks selected for petroglyphs are usually between 0.5 to 2 m long. Most of the elements have only slight patination.

We conducted a reconnaissance survey only, and the resultant inventory contains 248 panels and 773 pecked elements, of which 176 are unclassified (Figure 3.40). We believe we have accounted for an estimated 80 percent of the probable total for the locus. Eighty-seven panels (35 percent of the total for this locus) contain only one element, and 83 percent of the panels contain four or fewer elements (Figures 3.41, 3.42). The two largest panels have 16 elements each.

Curvilinear motifs represent fully 40 percent of the total at Locus 6, with angular/linear (25 percent) and unclassified (23 percent) being other large categories (Figure 3.40). There are a few unique elements and a distinct lack of "representational" elements other than bighorn sheep (in the southern portion of the locus).

In the southern section of Locus 6, the rock art is largely on an outcropping of lava in an area measuring 60 m × 30 m. The petroglyphs there are newer, with little or no desert varnish. There is also a greater concentration of bighorn sheep elements here than anywhere else in Locus 6. Taken as a whole, there is a high level of individualization, a minimum amount of patination, and wide variation in the quality of the pecking.

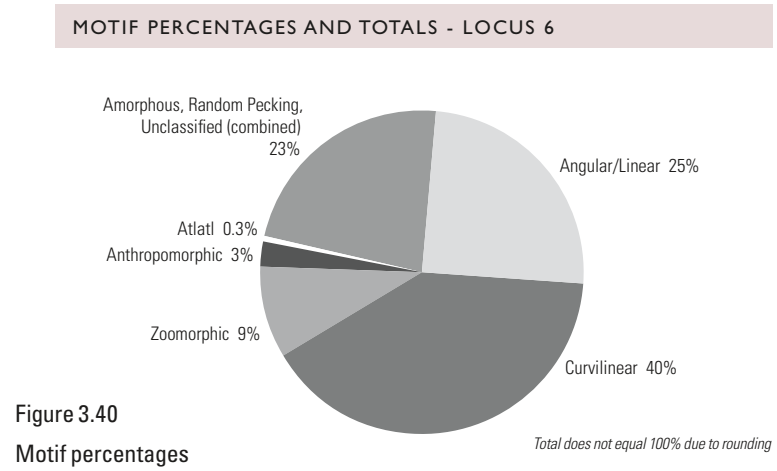

Figure 3.40
Motif percentages and totals, Locus 6.

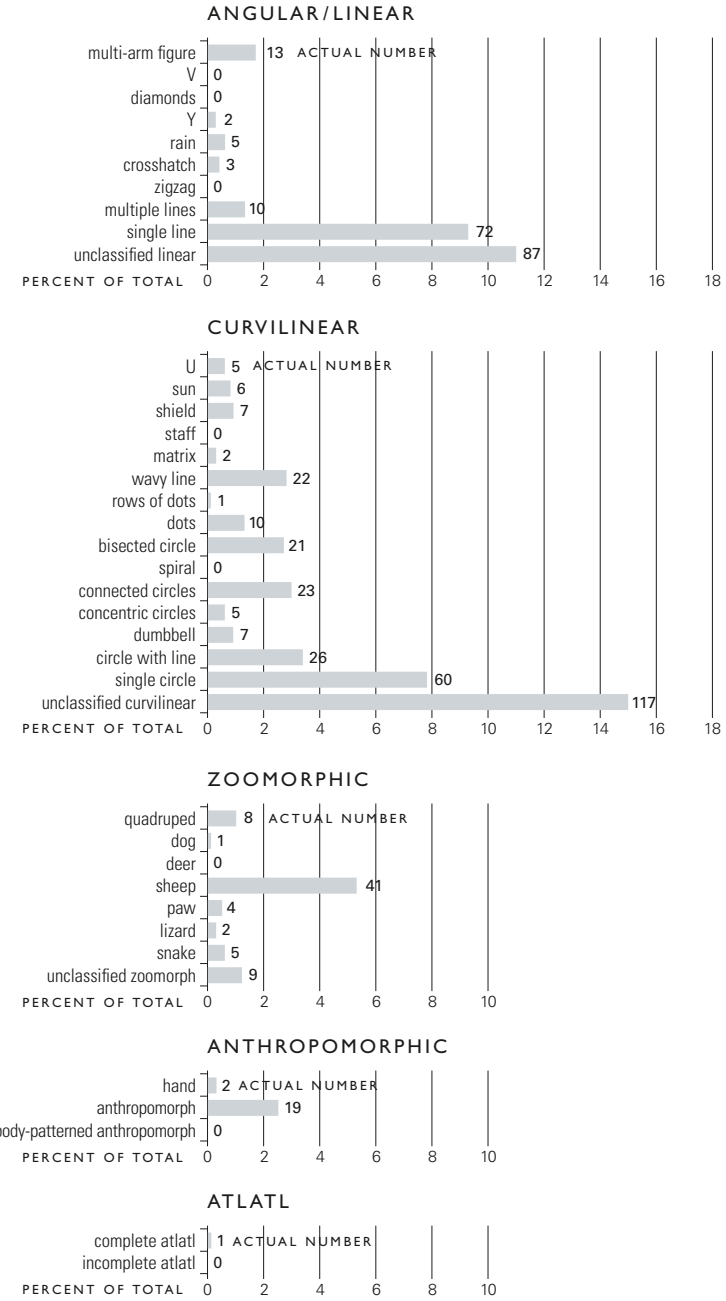

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Figure 3.43
Stitched panaorama of Locus 7.

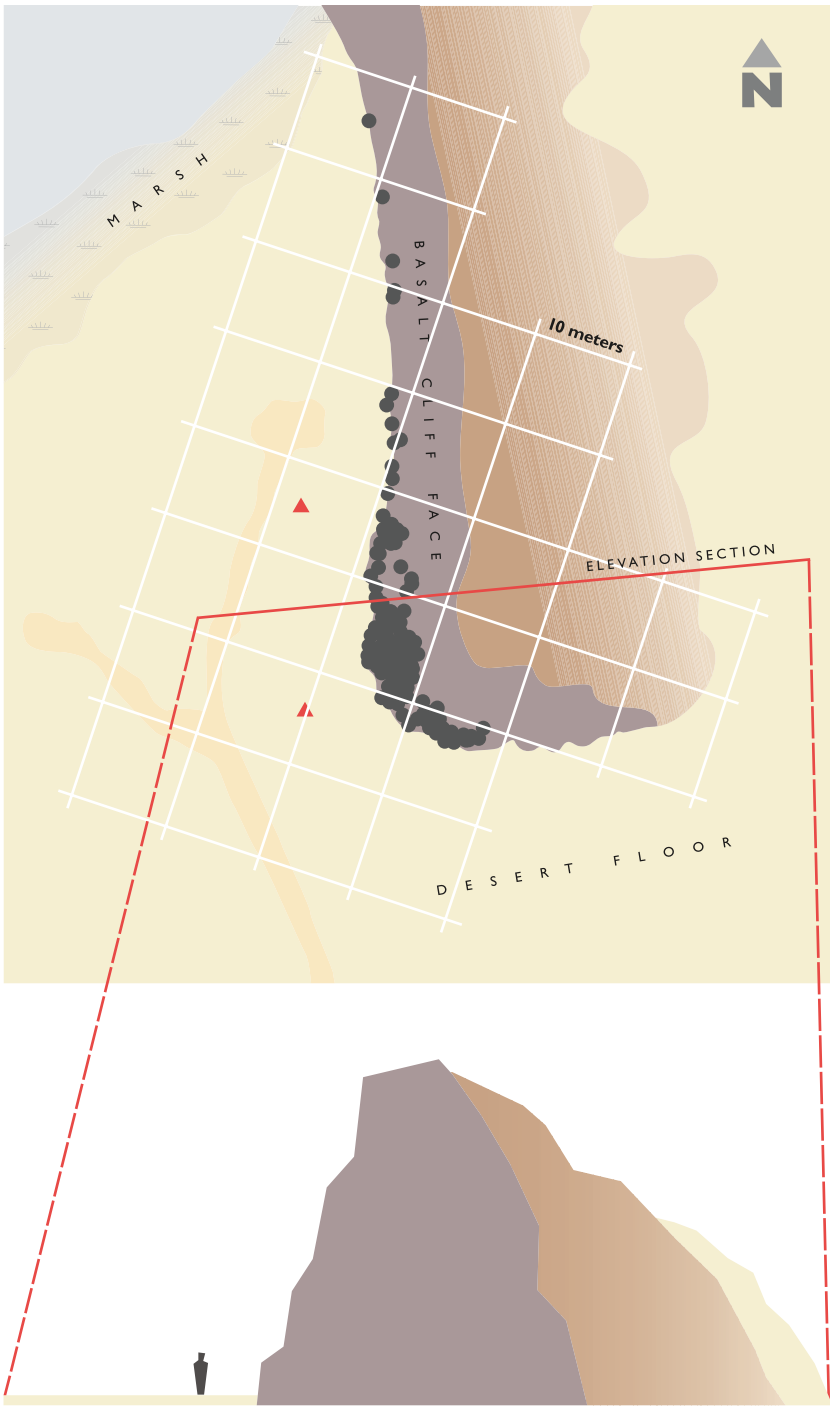

Figure 3.44

Plan of mapped panels with elevation section, Locus 7.

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Locus 7

Locus 7, as noted above, is the terminus of a north–south-tending lava ridge at the southeastern edge of Little Lake that has a distinctive and well-recognized serpentine shape, made even more dramatic by its columnar basalt form (Figures 3.43, 3.44). Apparently Buster Hanson, the son of Indian George Hanson of the Panamint Shoshone, told Harrington (1953, 1957) that the ridge was known as Rattlesnake or The Rattlesnake (Kaldenberg 2005). It is about 500 m in length and about 40 m wide at its southern tip, which is the widest part of the ridge, and rises about 25 m above the valley floor. Three or more stone rings are reported to be situated on top of the ridge (Great Basin Foundation 1979), although we relocated only one.

The west-facing side of the ridge is significantly steeper and more difficult to access than the eastern side, yet it is there that nearly all of the rock art is placed. Much of Locus 7, especially the south side, consists of relatively flat-faced basaltic rocks with varying surface smoothness. The west side consists largely of small basalt walls. An overall reddish color is widely present, with sections that are streaked or stained red-orange, whitish, or black.

Locus 7, like Locus 5, is a rock art–dominant activity area, and it also has the most extensive corpus of rock art on Little Lake Ranch (Figure 3.45). We have inventoried and mapped 311 panels containing 999 elements, of which 197 (nearly 20 percent) are unclassified. Of these, 127 panels have only one element each.

The most common elements at Locus 7 are within the Great Basin Abstract style: 300 angular/linear examples (30 percent of the total for this locus) and 346 curvilinear examples (35 percent of the total; Figures 3.46, 3.47). The remaining categories include bighorn sheep; shield (Figure 3.48), and anthropomorphs (50 examples). Of the latter, 14 examples are stick figures and 11 are "digitate." The remaining anthropomorphs are highly individualized and vary in scale. Some complex panels continue over more than one face of the same rock and include both representational and nonrepresentational motifs (Figure 3.49).

There is little reason to doubt that the serpentine configuration of the Locus 7 landform was noticed and valued by groups other than the Panamint Shoshone. To the Owens Valley Paiute and, indeed, to most desert peoples, the rattlesnake was a powerful cultural presence. The powers inherent in the serpent varied and were called upon or used for

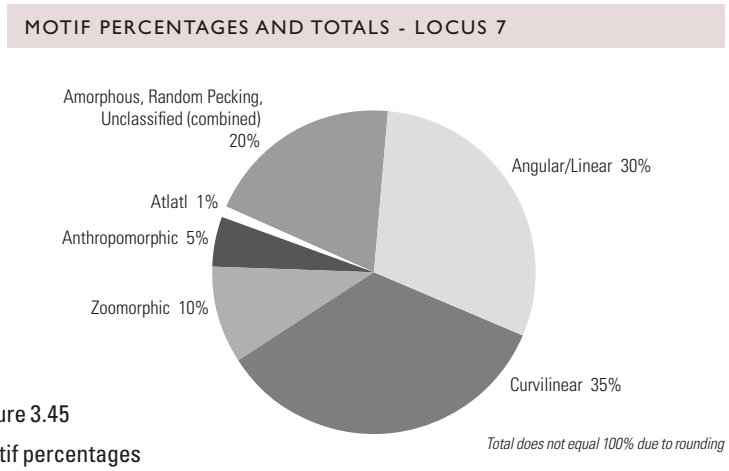

Figure 3.45
Motif percentages and totals, Locus 7.

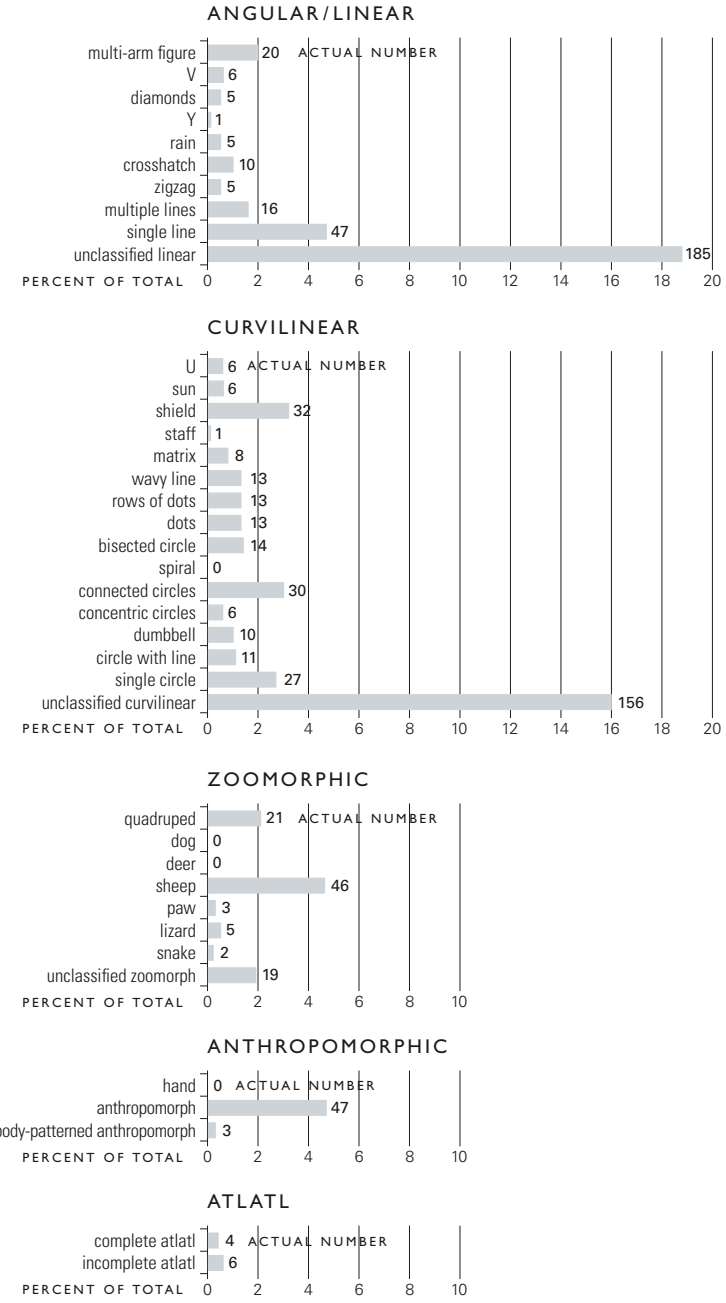

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Figure 3.46

Locus 7, including panel 577: complex angular/linear elements.

Figure 3.47

Locus 7, Panel 555: curvilinear elements.

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Figure 3.48
Locus 7, Panel 88: curvilinear element sometimes described as a shield.

different ends (Steward 1933a:308–309). In Kawaiisu, *togowa/togowi* means rattlesnake(s), and a spiritual being said to be a "supernatural Great Snake" is known as *tugubaziitibit*. This being is commemorated in several natural landforms in the surrounding area (Garfinkel and Williams 2010). *Tugu-baziitï-bï* is reported to be a class of Kawaiisu Great Serpents or Snakes that are red and associated with rain (Zigmond 1972; 1977:76–77; Garfinkel and Williams 2010, citing Bibby 2004). In the Great Basin as a whole, snakes are also associated with the color black and the underworld, where their role is often characterized as guardian of the water and water sources (Franklin and Bunte 1996; Goss 1972; Miller 1983; Myers 1997).

Given the nature of the Locus 7 landform and the documented iconographic significance of rattlesnakes among many Native groups, we expected to locate a place name for the formation and to find a quantity of reptile elements in Locus 7 rock art. However, we have not discovered a place-name to date, and there are only 96 zoomorphs at Locus 7, of which only three are realistic or figurative snakes and five are lizards. Furthermore, wavy lines, zigzag lines, and diamonds or chains of diamonds—all widely accepted as iconic references to snakes—are also rare at Locus 7. In short, and somewhat surprisingly, the serpentine nature of the cliff did not inspire the creation of a disproportionate number of reptilian rock art elements.

The open, visible, and even commanding location of Locus 7 and the flat ground in front of the cliff would appear to facilitate activities in which groups of people might congregate. Unlike other loci, Locus 7 has few surface lithics—although that may be a function of the seasonal stream conditions in the sandy wash in front of the cliff.

While most of the rock art elements are placed low or within an easy climb, the elevation of the cliff face raises the potential challenge level of rock art production. Panel 125 is at the highest level we recorded: 14.7 m above the desert floor. Like Atlatl Cliff—the area with the next largest concentration of rock art on Little Lake Ranch—Locus 7 has many seemingly desirable and more accessible rock faces that were not used for rock art. It also has many small elements tucked away near the top of the cliff that are not visible to anyone not actually on the cliff. Furthermore, Locus 7 and Atatl Cliff are notable for the motifs they lack as much as for those that are present.

In particular, Atlatl Cliff has an abundance of atlatl representations and none of bighorn sheep. Locus 7, in contrast, has an abundance of bighorn sheep elements and only four atlatl elements, none of which is directly associated with bighorn sheep elements. If one of the functions of rock art was to

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Figure 3.49

Locus 7, Panel 587: detail showing element extending over multiple faces of the same rock.

enhance hunting success, it is surprising and counterintuitive that the primary weapon, an atlatl, is rarely associated with the most desirable prey.

One indication of the possible special function or use of Locus 7 is the presence of the vast majority of extant painted rock art documented for Little Lake Ranch. In all, fully 77 percent of the painted rock art is found in Locus 7. It appears either as single elements on individual panels or as co-occurring elements on panels also having pecked elements. There is no question that Locus 7 was unequivocally preferred for the production of painted rock art.

In our view, the function of Locus 7 rock art was different from that found in the more secluded lakeside coves and certainly not the same as that of the rock shelter (Locus 3). Very few of the petroglyphs at Locus 7 have any desert varnish on them at all, indicating the relatively recent use of the locus compared with, for example, Atlatl Cliff. In the same manner, nearly all of the painted panels are on vertical surfaces and exposed to the weather, yet they remain relatively bright.

It should also be noted that Locus 7 is the most frequently mentioned in the historic record. For example, a news cutting from a 1929 issue of the Monterey Park (California) *Progress* is in the Robert F. Heizer Special Collection at the Rock Art Archive. It shows a young woman posing on a stone shelf in front of Panel 23. Some modern-looking elements at Locus 7 and a few instances of vandalism can reasonably be attributed to locals or visitors at any time since the late 1800s.

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Figure 3.50 Overview of Locus 8.

Locus 8

Locus 8 is a multiple activity area including obsidian scatter and several grinding slicks. It is located at the northwest corner of the current lake and is a transitional area linking the lakeshore and its riparian habitat with the larger, arid, desert scrub flatland (Figures 3.50, 3.51). It is open to the east but sheltered by a basalt wall beginning at a cove near the lakeshore and running for 150 m along the entire western edge of the lake. Nearer the lake are niches and shallow rock shelters. Rock art is placed on the wall and on large boulders that are in proximity to the edge of the lava flow. The surrounding area is heavily modified and includes the barbecue and camping area established more than a generation ago—hence the descriptive name Picnic Area.

Locus 8 is the *only* locus at Little Lake that has distinct spatial clustering of specific motifs. It also has the largest and most iconic Coso-style bighorn sheep element recorded at Little Lake Ranch (Van Slyke and White, this volume). The rock art in the northern and central area is easily visible but not made in such a way as to call attention to the individual elements. In the southern portion, the character of the rock art changes and the elements are more noticeable.

Four panels with a total of eight painted rock art elements are located within 7 m of each other at the southern end of Locus 8. All of the paint is on vertical surfaces exposed to the weather and cannot be very old. The painted motifs have more in common with Locus 3 (Painted Cave) rock art than they do with that at Locus 7, which is generally more angular/linear in form.

To the west of the main petroglyph area is a discrete concentration of small, unpatinated zoomorphic and anthropomorphic elements that are similar to one another (Panels 68 to 74). In the center region the basalt did not fracture cleanly, and there are multiple areas with gas bubbles. There are also many

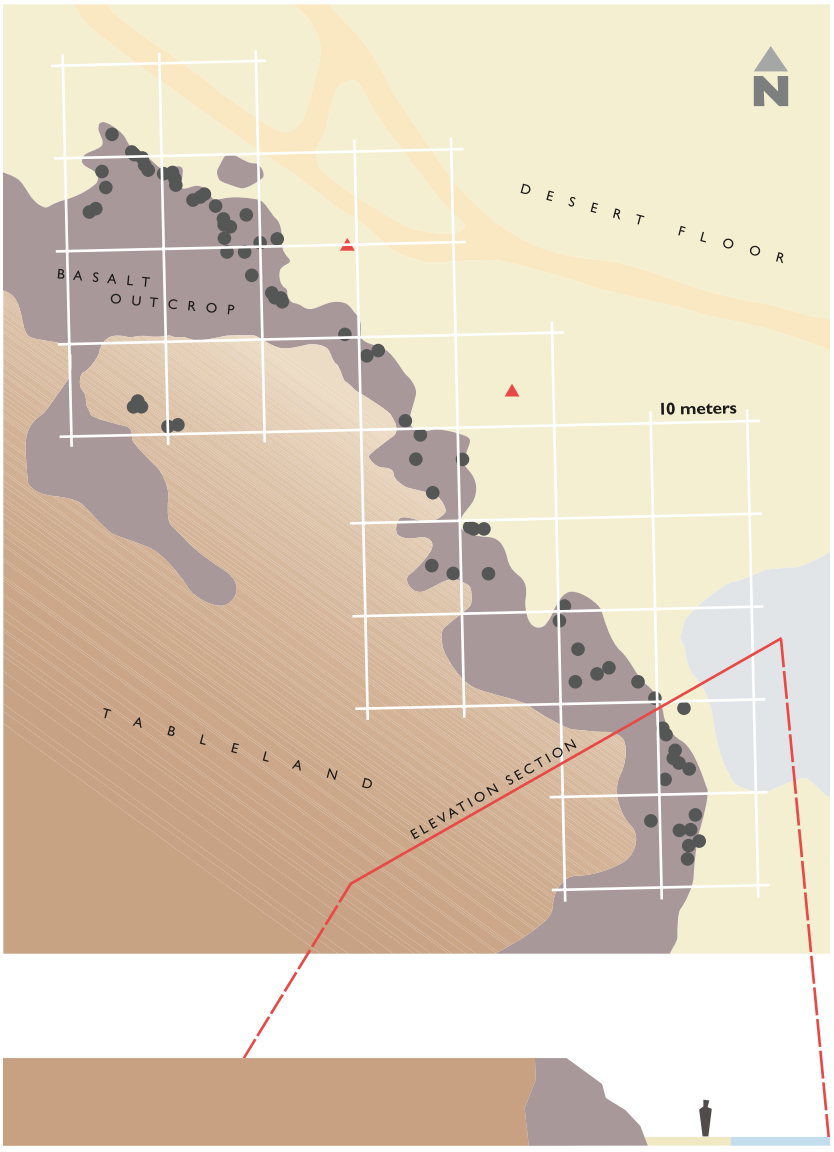

Figure 3.51

Plan of mapped panels and elevation section, Locus 8.

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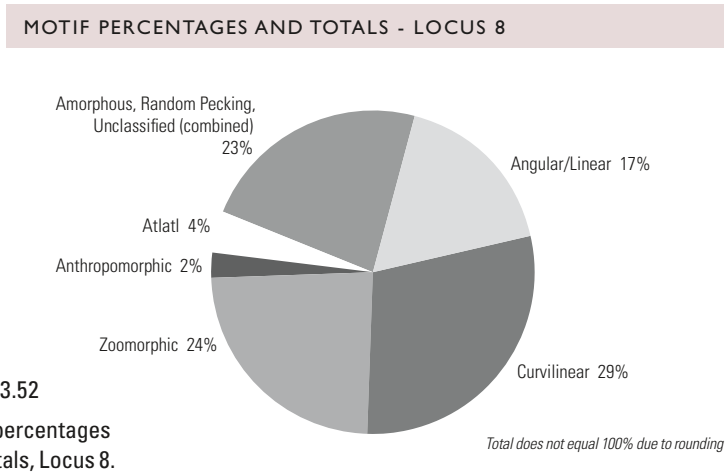
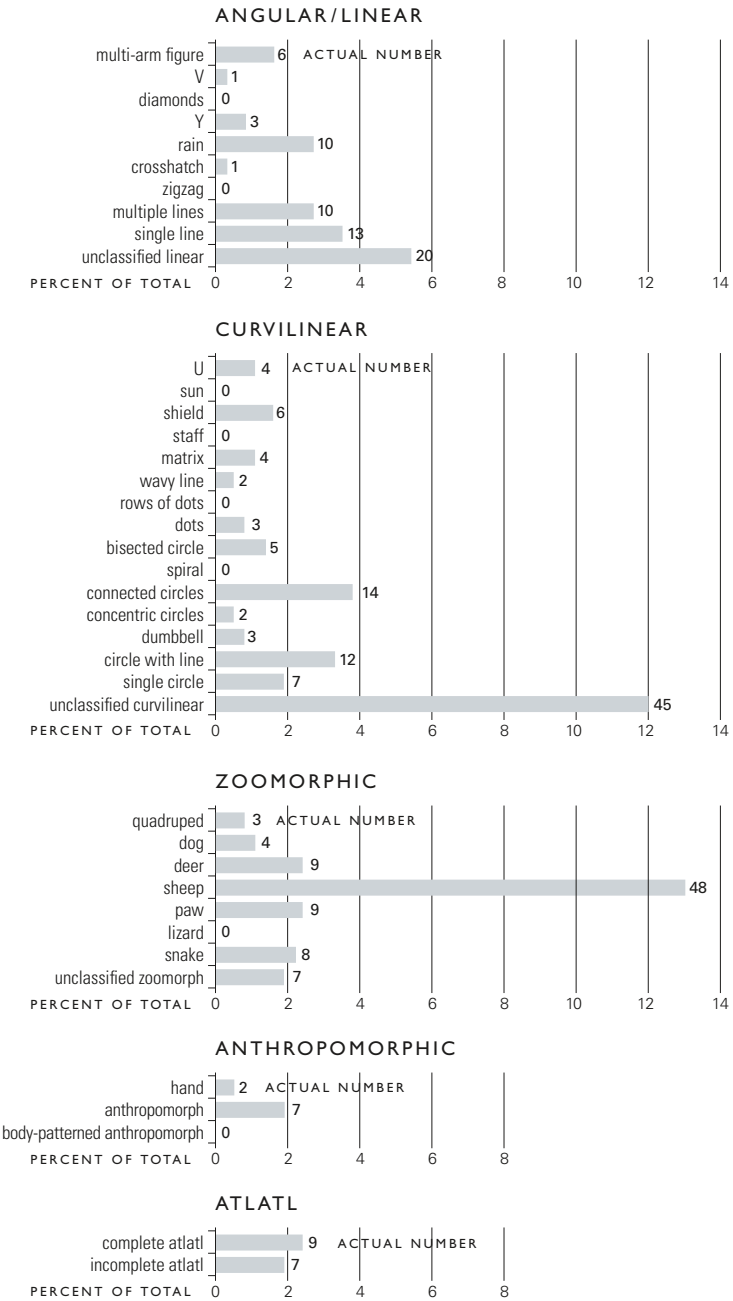


Figure 3.52
Motif percentages and totals, Locus 8.



large boulders close to the wall. The rock art in this central area is less frequent, bighorn sheep elements are almost completely absent, and simpler, sometimes schematic elements are more common.

The basalt walls become more vertical toward the south and the boulders are smaller. Bighorn sheep, anthropomorphs, and angular/linear designs appear toward the north, while angular/linear elements, "paws," and atlatl motifs appear toward the south. It is here that the pictographs were created, along with some of the larger, more complex pecked panels.

There are 97 panels with 368 pecked elements, of which 84 are unclassified (23 percent; Figure 3.52). Angular/linear, curvilinear, and unclassifiable motifs are more than double (69 percent of the total for this locus) the percent of representational motifs. The largest representational category is zoomorphic (24 percent of the total; Figure 3.53), with the most numerous of these being bighorn sheep. The "paws" motifs are not realistic by any definition and cannot be said to be "tracks." There are seven anthropomorphic elements and only two hands. There are more atlatl elements in Locus 8 than in any other area except Atlatl Cliff (16 examples), with most of them concentrated on two adjacent panels, one of which is heavily patinated.

The most striking attribute of Locus 8, in addition to the presence of so many zoomorphs, is the large number of bighorn sheep elements (48 examples). Most occur toward the northern portion of Locus 8, while a small group is clustered to the west of the basalt wall on panels 20 m from the main linear array of panels.

Most of the seven documented anthropomorphs are simple stick-figures lacking design attributes. A single cluster of seven panels (Panels 68 to 74), with a total of 29 elements, has two unusually long and thin anthropomorphic elements with round heads and lines emanating from or connected to their heads.

Panel 81 has the largest number of elements (36 examples). It is situated on a boulder at the southern end of Locus 8 where today the lake meets the basalt wall. The panel's horizontal surface has heavy patination on all elements and the largest concentration of atlatl motifs outside of Atlatl Cliff (Figure 3.54). Panel 81 is not closely related stylistically to any of the other panels in Locus 8 but is similar to some in Locus 5 and at Atlatl Cliff.

Panel 64 is located 10 m north and 4 m above Panel 81 (Figure 3.55). It is vertical and the elements are moderately patinated. Below is a ledge less than half a meter in width and halfway up the cliff face on which a person could stand and create the elements now visible on Panel 64. The panel is dominated by three large, nearly connected "paw" elements. The "paws" are oriented so that the "claws" are pointed up and extensively pecked.

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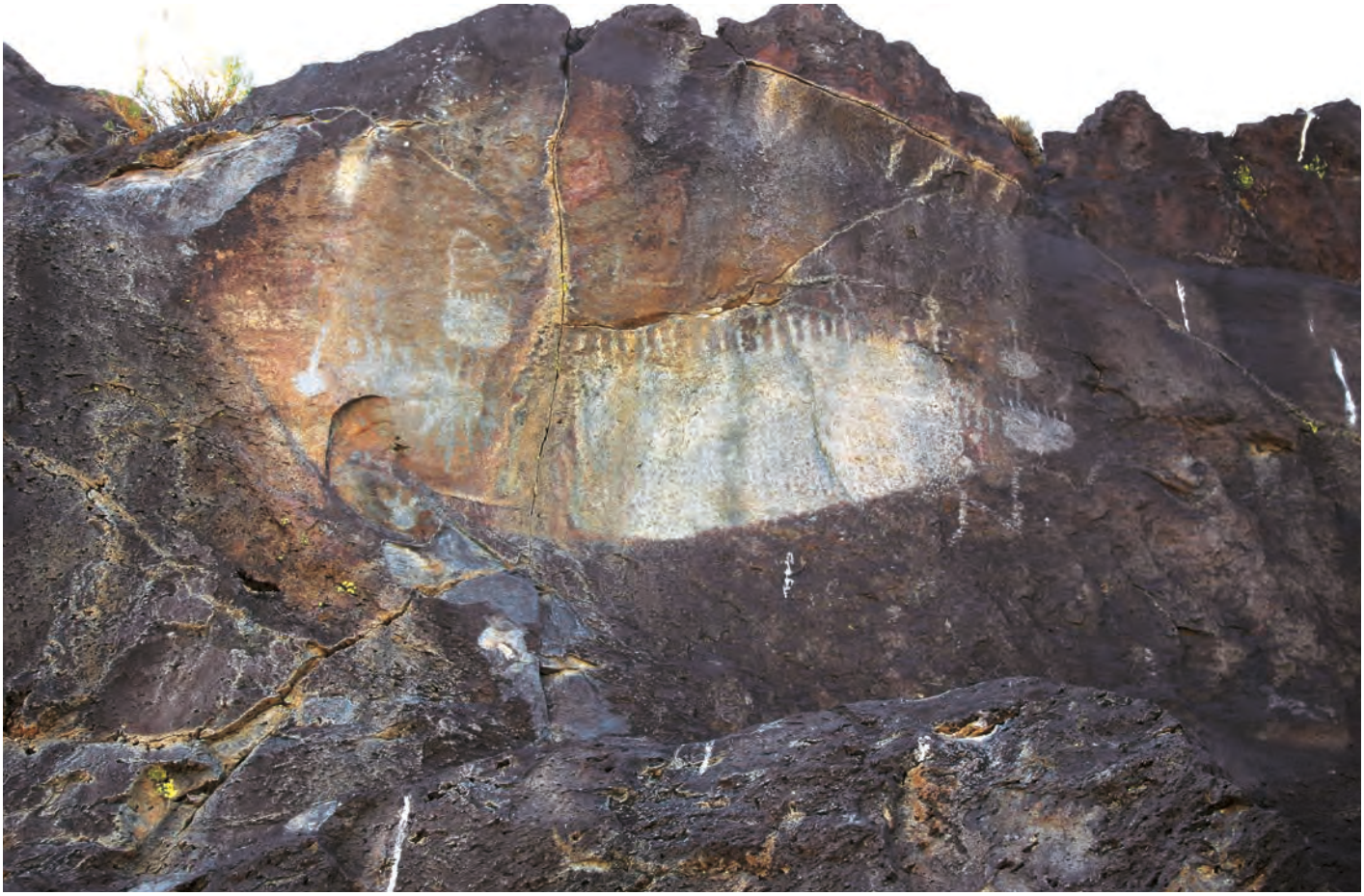

Figure 3.53 *top left*

Locus 8, Panel 73A: two similar zoomorphic elements.

Figure 3.54 *top right*

Locus 8, Panel 81: the largest concentration of atlatl elements outside of Atlatl Cliff.

Figure 3.55

Locus 8, Panel 64: large "paw" elements accessible from the ledge below.

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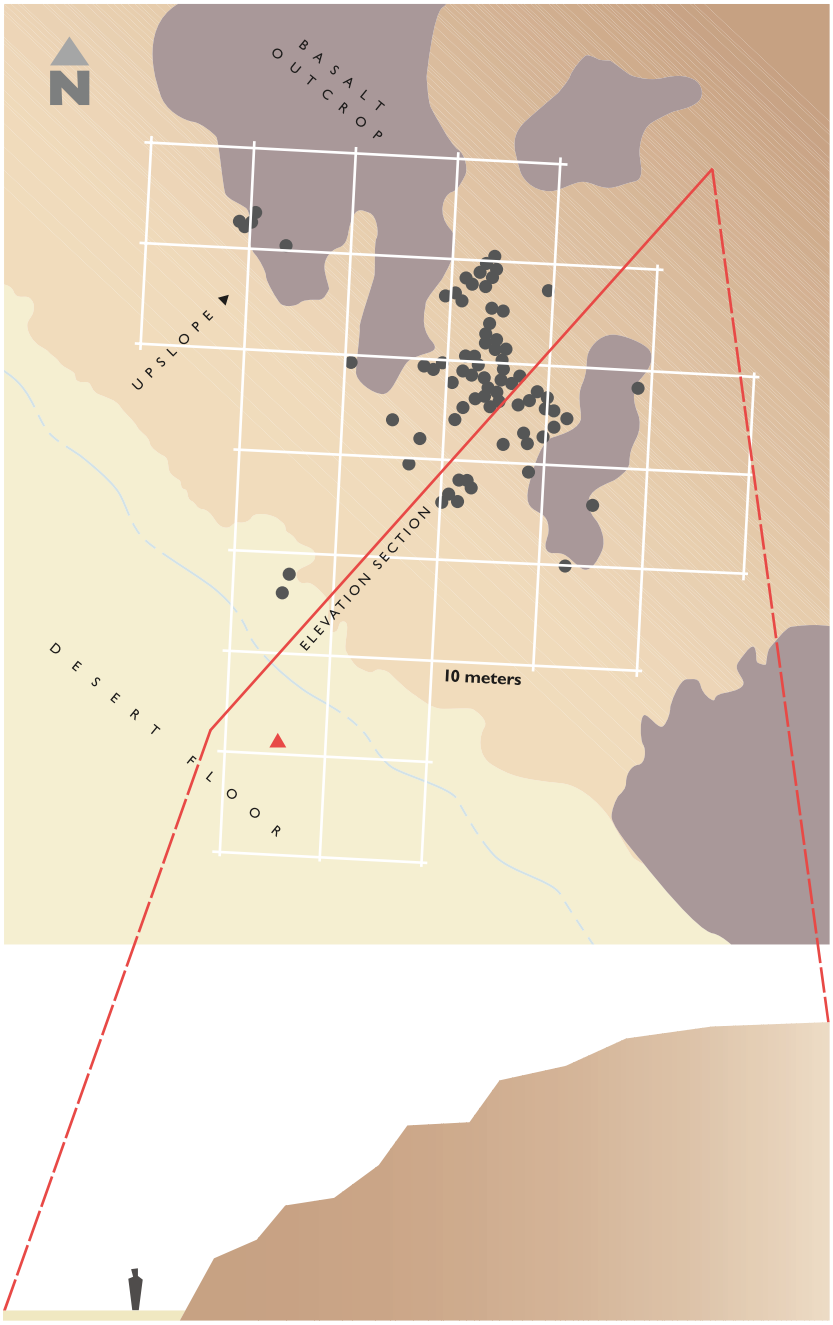
Figure 3.56

Overview of Pottery Slope.

Figure 3.57

Mapped panels and elevation section, Pottery Slope.



Pottery Slope

Pottery Slope is located on the basalt slope just north of Atlatl Cliff (Figures 3.56, 3.57), which is 1 km north of Little Lake proper. The slope is situated on a roughly north–south wash that is part of the pluvial Owens River. During wet years, an intermittent stream fed by runoff from the Southern Sierra Nevada flows along the base of the slope and disappears under it at Atlatl Cliff. Pottery Slope was named by Ron Tallakson, a member of the Rock Art Archive field crew, when an intact Owens Valley Brownware pot was retrieved from the area (Eerkens and Van Tilburg, this volume). A broken pestle was found in this same area, suggesting that women, the likely users of both objects, had access to Pottery Slope and its corpus of rock art.

Most of the pecked rock art is located in a narrow horizontal band 12 m upslope and in an alcove 15 m wide between two large basalt outcroppings. North of the main body of rock art are three panels visible from ground level, the most prominent element of which is connected circles. Nearly all of the petroglyphs are on small rock outcroppings or on a few freestanding boulders at the southern edge of the locus.

Between Pottery Slope and Atlatl Cliff is a small draw about 30 m wide filled with heavy brush and rocks less than 1 m in diameter. The area is essentially impassable today, and it is easier to climb up or down the slope than to cross the draw when going from one locus to the other. The result is a natural boundary between the two loci, although the antiquity of this situation is not known.

Atlatl Cliff and Pottery Slope were treated as discrete clusters by earlier researchers, and we continue that practice (von Werlhof 1965). In addi-

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tion to the physical separation created by the draw, the rock art elements and their placement in the two loci are not the same. The rock art at Atlatl Cliff is on relatively flat faces of tumbled and piled boulders, while at Pottery Slope it is largely on basalt walls or embedded boulders. There is also a difference in elevation of the panels relative to the desert floor, with Pottery Slope panels actually starting at an elevation comparable to where the panels at Atlatl Cliff end. Finally, the motif and element distributions for the two loci are significantly different.

There is a total of 393 pecked elements on 108 panels at Pottery Slope, of which 70 elements are unclassified (18 percent; Figure 3.58). Pottery Slope is roughly in the middle of the eight loci in terms of panel numbers, and 38 panels have one element only (31 percent of the total for this locus).

The profuse occurrence of scratching at Pottery Slope is described by Reed (this volume). Of 108 panels in her analysis, Reed counts 70 of them (65 percent) as having scratching, *more than double the number found at any other locus*.[20] All of the scratched rock art at Little Lake Ranch falls within one of three related groups or patterns, and all of those groups or patterns appear at Pottery Slope. Moreover, as we have noted, fully 87 percent of the scratched patterns are simply the basic components or constituent parts of elements.

The pecked motifs at Pottery Slope are varied but generally simple or schematic (Figure 3.59). As at adjacent Atlatl Cliff, curvilinear motifs predominate (50 percent of the total for this locus). There are 93 angular/linear elements. Present in significant quantities in the curvilinear category are single circles, circle and line, "dumbbells," connected circles, and individual dots. Either missing or in very low numbers are: concentric circles, spirals, bisected circles, rows of dots, curvilinear matrix, shield and sun elements. The angular/linear group is represented by single lines and multi-arm figures, but most of the other motifs in this category are in very low numbers or absent. There are 27 zoomorphs and only 5 anthropomorphs.

In short, Pottery Slope has an abundance of scratched patterns as well as substantial amounts of some categories of curvilinear elements. The density of rock art increases with elevation, an unusual characteristic compared with Locus 7 and other desert locales (Christensen 1994:36–41; Turner 1994:57). A large group of pecked elements—about one-third of the total—has little or no desert varnish. A second, smaller group exhibits a moderate amount of desert varnish, indicating at least two relatively recent "generations" or "episodes" of rock art production (as compared with Atlatl Cliff). There does not appear to be any significant difference in motif distribution between the older and more recent panels at Pottery Slope. Both contain a few well-made elements, and

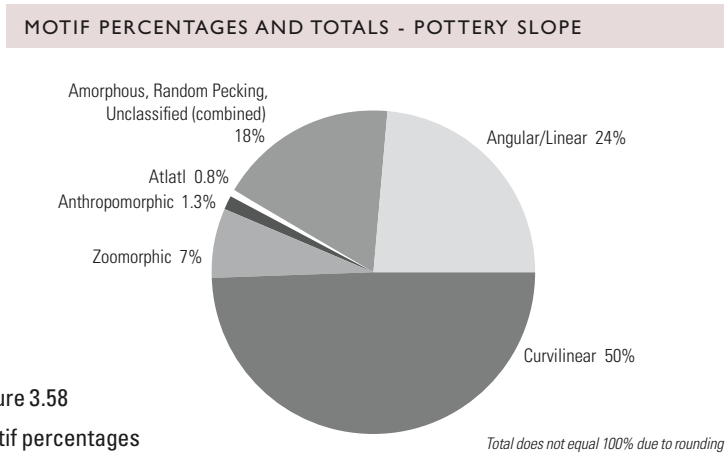

Figure 3.58
Motif percentages and totals, Pottery Slope.

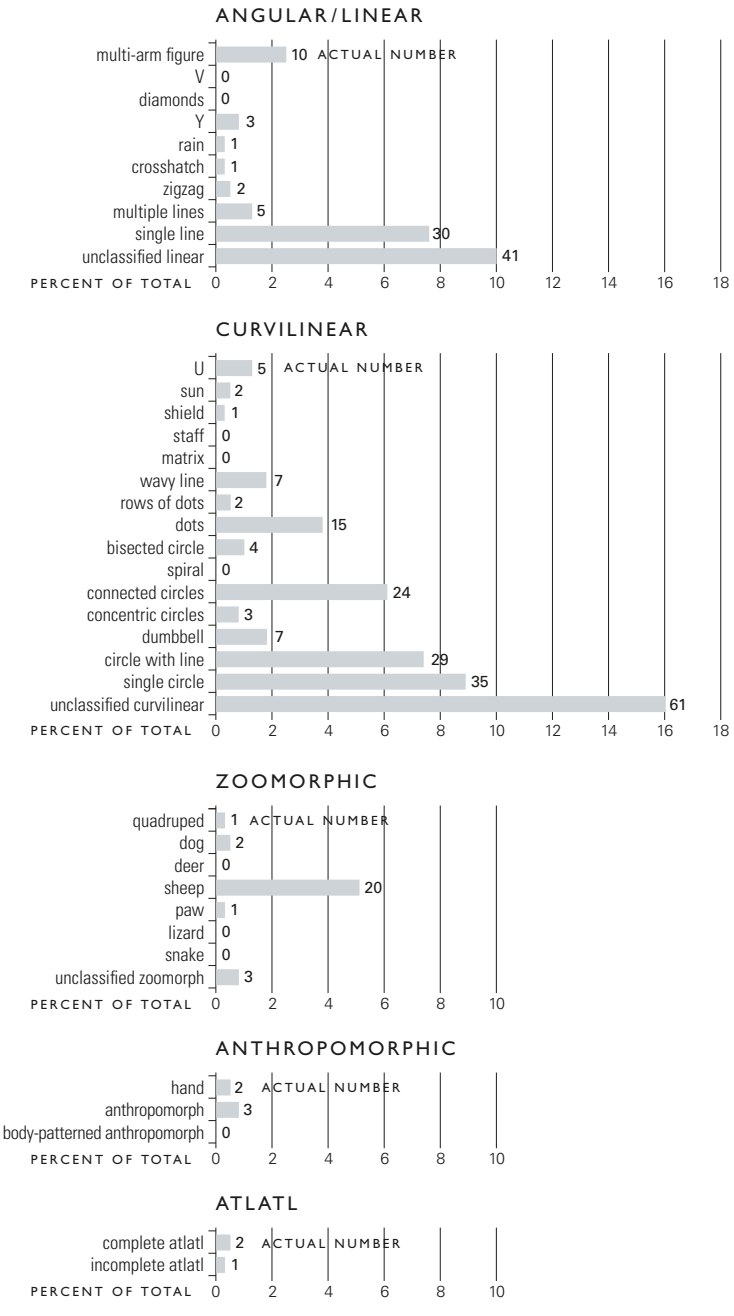

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Figure 3.59

Pottery Slope, Panel 140, showing unpatinated, schematic elements and scratching.

some continuity in the design vocabulary is evident.

In terms of intrasite comparisons, Pottery Slope appears to present a distinct preference for abstract motifs, while Locus 4, Locus 5, and Atlatl Cliff do not. As noted by Reed (this volume), the geographic locations of Pottery Slope and Locus 7 at the north and south ends, respectively, of the lake and their relative isolation from other loci may be relevant to understanding the abundance of scratched rock art in both areas.

A site known as Metate Hill in Hualapai Valley near Kingman, Arizona (Schneider and Jackson 2006: Figure 5) offers an interesting comparison with Pottery Slope. It is a low hill of vesicular basalt outcrops and tumbled boulders and a major *metate* production area with a profuse array of pecked rock art. The rock art has apparently not been cataloged; however, the motifs are largely Great Basin Abstract. They include variants of the same curvilinear and angular/linear motifs found at Pottery Slope: concentric circles, wavy lines, meanders, grids, and "rakes," among others (Schneider and Jackson 2006:173). In addition to rock art and metate production, "people evidently gathered and processed traditional subsistence items at Metate Hill" (Schneider and Jackson 2006:173). Metate Hill and Pottery Slope, therefore, are geographically and geologically similar sites linked directly to Great Basin rock art motifs and to specific objects used by women in food preparation.

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Figure 3.60
Overview of Atlatl Cliff.

Figure 3.61
Mapped panels and elevation section, Atlatl Cliff.

Atlatl Cliff

Atlatl Cliff is on the same basalt slope as Pottery Slope and also in proximity to the Stahl Site and Stahl Site Cave at a distance from the lake and within the desert scrub habitat zone (Figures 3.60, 3.61). The slope itself is part of the 6-km-long basalt flow with a strikingly serpentine form that borders the lake and ends at Locus 7. Atlatl Cliff is nearly 80 m wide at the base and rises at a 45-degree angle to more than 30 m above the desert floor. The cliff provides shelter in all seasons for chuckwallas and rattlesnakes, both of which we have seen during fieldwork, and probably other snakes and lizards as well.

The boulders that make up Atlatl Cliff are generally large and vary between 1 m and 3 m in diameter. Most of the basalt naturally fractured along a plane surface, resulting in many nearly flat stone faces ideal for the placement of rock art. The rock surface colors are not uniform, and individual rocks variably retain heat until late in the day. In one specific location we noted that cool air emerges from the spaces between the rocks at the base of the cliff. These combinations of landscape form, desirable petroglyph manufacturing surfaces, and noteworthy physical characteristics undoubtedly were known to ancient peoples, and may have lent significance to such places.

Three groups of Atlatl Cliff rock art were combined to reveal 193 panels and 645 elements, of

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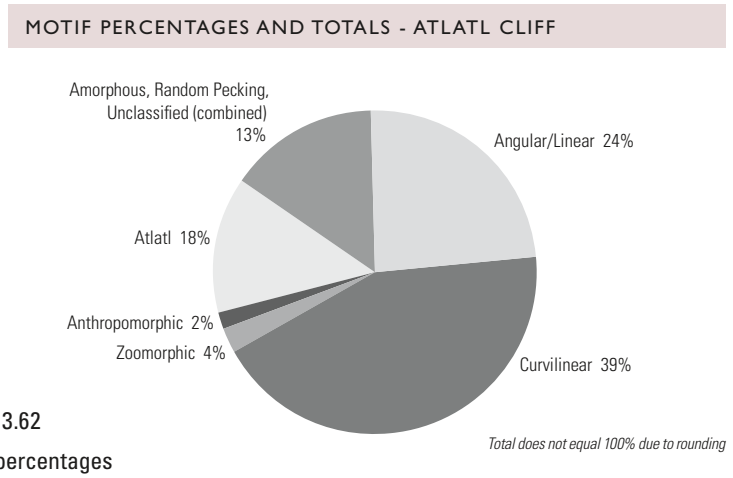
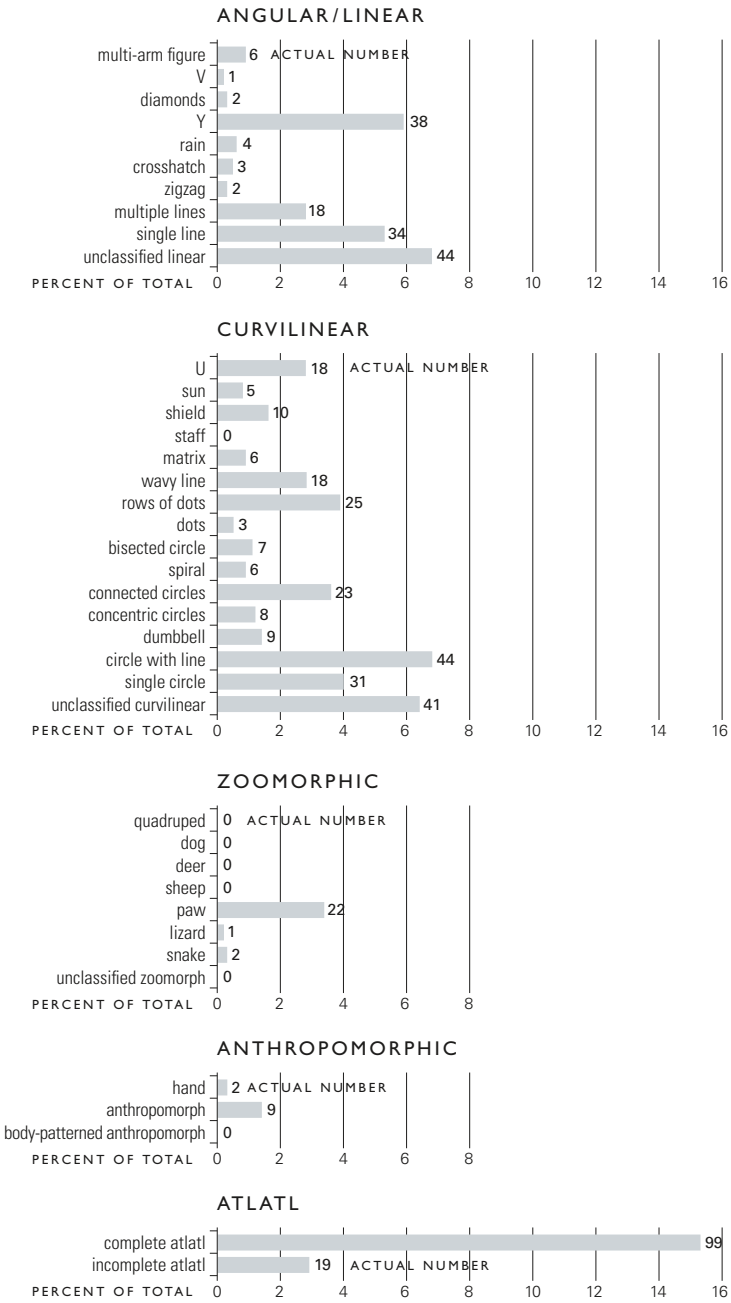


Figure 3.62

Motif percentages and totals, Atlatl Cliff.



which 85 are unclassified (13 percent). Seventy-two panels (37 percent) contain only one element. Atlatl elements are the most numerous of all categories with 118 examples (Figure 3.62). Ninety-nine atlatl elements fit the definition of a complete atlatl described in the following chapter (Figure 3.63, 3.64). The Y-form is most often interpreted as an atlatl "dart" (Grant, Baird, and Pringle 1968), although there are other options (Chapter 8, this volume). It occurs far more frequently at Atlatl Cliff than it does anywhere else on Little Lake Ranch. Nonetheless, and in spite of the name Atlatl Cliff, the curvilinear motif category is predominant (39 percent of the total; Figure 3.65).

The atlatl is a clearly defined and dated object of Great Basin material culture. It was replaced as a functional object by the bow and arrow in our area by *c.* A.D. 650, although new studies suggest that this transition was earlier, *c.* A.D. 200–300 (Yohe 1992, 1998, 2000; Yohe and Sutton 1999, 2000). This event is thought to coincide roughly with the eventual depletion of large game animals. As noted, Atlatl Cliff is named for the abundance of atlatl depictions, but it is also significant for the rock art elements it lacks: there are *no* depictions of bighorn sheep, deer, or any other quadrupeds. This disassociation of weapon and prey may be the most significant feature of Atlatl Cliff rock art.

Bretney (this volume) describes a strong formal design consistency in the depiction of the atlatl over time. There is also a strong, nearly exclusive linkage between the atlatl element and Atlatl Cliff. We infer an iconic meaning for the atlatl motif and a long, interwoven, and nearly exclusive relationship between it and Atlatl Cliff. Attempts to date or seriate elements at Atlatl Cliff are also described in the following chapter.

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Figure 3.63 *top left*

Atlatl Cliff, Group 1, Panel 3: single atlatl element.

Figure 3.64 *above*

Atlatl Cliff, Group 2, Panel 11: group of atlatl elements.

Figure 3.65 *left*

Atlatl Cliff, Group 1, Panel 57: curvilinear elements.

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The Little Lake Variant of the Great Basin style

The main research issue we faced was how to organize a large body of symbols having a high degree of diversity into a schema guided only by a few available principles of form and content. We agree with Schaafsma (1986:217) who argues in her discussion of Great Basin rock art that style is "a related visual complex with specific formal attributes and with given cultural, spatial and temporal dimensions." The Little Lake Ranch Rock Art Complex has formal attributes that are tied to its "oasis" location, and linked to defined cultural parameters through demonstrable archaeological associations. As such, the corpus is justly termed the Little Lake variant of the Great Basin style.

Ethnographically documented cultural groups sharing a common resource territory, subsistence system, and ideology "have preferential ways of arranging design elements" repeatedly on a wide variety of crafts including pottery, basketry, and other portable objects (Washburn and Crowe 1988:24). Such "preferential ways" reveal an overall aesthetic discernible in Little Lake Ranch rock art.

In order to "make sense" of our data, we sought patterned relationships as nonrandom features and defined them as: presence, absence, preference, and dominance (in terms of numbers or percentages). From these, we infer predominance (in terms of influence). The result is a preliminary definition of a culturally meaningful point of view—an inherent Little Lake Ranch rock art aesthetic that is potentially *a more valuable research concept than rock art style alone*.

First, the *presence* of digitate anthropomorphs links the pecked corpus to an underlying Western Archaic rock art tradition. Note, however, that some of these Little Lake elements are unpatinated. Second, our data clearly establish the *predominance* of nonfigurative curvilinear and, to a somewhat lesser extent, angular/linear pecked motifs. This describes a *preference* that also broadly defines Great Basin style. These recognizable and quantified characteristics are not surprising, but they were not assumed at the inception of this research.

Third, there is the complete *absence* of figurative or representational elements in painted rock art; the *presence* of ideomorphs in angular/linear rock art of all production types; the *dominance* of the bighorn sheep in the zoomorph category and, within that, the strong *preference* for the oval body variant rather than the classic D-shaped body that is a hallmark of Coso rock art (Van Slyke and White, this volume). The consistent form and spatial *concentration* of the atlatl motif, as well as its associations—and lack of them—establish its iconic status. The implication is that the atlatl is a sign that shares a property or properties of the object that it symbolizes and therefore has a widely understood meaning.

Fourth, there is an apparent *avoidance* of placing ideomorphic elements in association with figurative elements. Fifth, there is a near-complete *absence* of figurative elements having obvious historic content and the similar absence of anthropomorphic elements with obvious sexual characteristics. In short, these characteristics establish a recognizable Little Lake Ranch rock art aesthetic within the Great Basin tradition.

Inferences and Implications

Time, Content, and Function

In our attempt to place Little Lake Ranch in an intrasite archaeological context, we have shown that Loci 1, 4, 6, and 8 are multiple activity areas. Locus 3, Locus 7, and Atlatl Cliff are limited activity areas with rock art production dominant. Atlatl Cliff has integrity as a discrete area, suggesting functional exclusivity from at least the Little Lake period and probably earlier.

We infer temporal overlap from 6000 to 3150 B.P. between pecked rock art at Atlatl Cliff and the major occupation of the Stahl Site and early use of Stahl Site Cave. The Prenumic beliefs and practices associated with Atlatl Cliff rock art are not known, but the symbolic emphasis on the atlatl suggests several possible social references: male virility as a principle of initiation; the acquisition and display of hunting skills as principles of status; the attainment of leadership as a measure of prowess, and identity.

In contrast, rock art in Locus 1 and Locus 6 is associated with the known parameters of Pagunda, thus allowing a plausible linkage to that village site. Based on the obsidian histograms (Byrd and Reddy 2004; Pearson 1995), we infer two major periods of rock art production for these loci. The first begins about 2300 B.P. during the Newberry period, after use of the Stahl Site wanes and at about the time of a dramatic increase in Pagunda use. It continues through 1900 B.P. and encompasses the apex of site use to 1350 B.P. and then declines by about half. The second period of rock art production—indicated by a large number of unpatinated pecked elements and most of the painted rock art—is during the Haiwee period and coinciding with a "sharp increase" in Pagunda site use (Pearson 1995).

There is no doubt that Little Lake was used by more than one ethnic group, and a need to link ethnic identity to the landscape in Loci 1 and 6 may have motivated some rock art production there. Some of the rock art at those loci—the angular/linear elements, in particular—underscores the strong possibility that discrete Numic corporate identity or kinship is being referenced.

Locus 3 is a painted rock shelter that is a spatial-

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ly separate, special-purpose area that may be plausibly associated with shaman or shaman acolyte vision-seeking or similar ritual activities. The paintings there are the product of more than one individual or of one individual who used the shelter more than once (Van Tilburg and Backes, this volume). Some of the pigments are linked to the same sources used by Stahl Site residents, but this does not necessarily place the elements within that time frame. However, there is a probable connection between painted rock art production and the presence in documented archaeological contexts of white pigment, red paint, and painting paraphernalia from the pre–Little Lake period at the Stahl Site through the occupation of Pagunda. The antiquity of painted rock art at Little Lake Ranch may be, therefore, greater than previously assumed for the Great Basin (Heizer and Baumhoff 1962). Nearly all painted elements are concentrated at Locus 7, where most of them have roots in the Great Basin Painted style (although, as noted above, stylistic distinctions on the basis of technique are sometimes questioned; Schaafsma 1986:217). There are no recognizable historical references in painted rock art exclusive of the Stahl Site Cave, where, as noted, the rock art has been altered.

The highly visible nature of Locus 7, the Panamint Shoshone reference to it as the Rattlesnake, and the expanse of flat ground in front of the cliff all suggest Numic community significance and, perhaps, communal gatherings. While most of the rock art is relatively accessible, a significant portion of it presents a distinct climbing challenge, suggesting the involvement of youngsters or healthy and fit adults. The use of Locus 7 may have been initiated or expanded during the latter portion of the Newberry period and into the Haiwee period. There is little reason to doubt that rock art was made by Native people until at least 1872.

Cultural Affiliations

Overall, the inescapable implication is that rock art at Little Lake Ranch was made by adults or young people of both genders, alone and in groups, often in sight of the community and its multiple, mundane activities but also sometimes hidden from it. If we agree that rock art production is a form of social communication, then most of it was sanctioned by society, whereas some hidden or separate elements suggest exclusive or, perhaps, marginalized activity. We have constructed a Little Lake Ranch iconographic events sequence from the available evidence and in the context of regional events and material culture (Figure 3.66).

We conclude, first, that the inception of Little Lake Ranch pecked rock art production dates to the Little Lake period; we also suggest that it is likely to have reached back to the pre–Little Lake period at Atlatl Cliff. Second, rock art production in the vicinity of the lake may have coincided with the trajectory of Pagunda site use and thus reached an intensive level from *c.* 2200 B.P. to *c.* 1350 B.P. The climate at that time was evolving to neopluvial. Third, it is logical that a florescence of rock art production could have coincided with a sharp increase in Pagunda activity suggested by Pearson (1995) for the Marana period. Most of the painted rock art, some of the more recent elements at Atlatl Cliff, and most of the scratched rock art at Pottery Slope may well have been produced during that time frame. Because the Panamint Shoshone are directly linked to Pagunda, they are, by extension, associated with the least patinated (latest) rock art elements at Loci 1 and 6. The Kawaiisu are more peripherally associated with Pagunda, and the Owens Valley Paiute are known to have occasionally used the area during historic times. As noted above, we concur with the early observation of Campbell Grant: it is probable that the Kawaiisu and perhaps the Tübatulabal created at least some of the painted rock art at Loci 3, 7, and 8. We also discern aesthetic influences of the Yokuts groups in the more elaborate outlined and curvilinear painted motifs. Two of the painted rock art production techniques and one of the resultant painted motifs are distinctly similar to, if not precisely the same as, those recorded in the east Mojave.

Finally, despite the relative proximity of Little Lake Ranch to the Coso Rock Art Landmark—which, although contested, appears to date largely to the late Newberry and Haiwee periods—the terrain and resource history in the two areas are not the same, and *there is a lack of significant correlation in rock art motif preferences*. Little Lake is often lumped with Coso Range petroglyph sites in rock art literature. Our data interpretation reveals Little Lake Ranch rock art to be similar to, but discrete from, that of the Coso Rock Art Landmark. This may be due, in part, to the environmental uniqueness and antiquity of human presence in the two areas and, at Little Lake Ranch, to the social interaction of California and Great Basin Native groups.

Conclusions

Located in the midst of a desert threaded with the resource use patterns and trade routes of several related peoples, Little Lake offered a semipermanent retreat in an inviting and sustaining environment. Just as a range of subsistence activities was pursued in the area, we suggest multiple motivations for rock art production. The growing presence of rock art over time encouraged its continued production. The result was a configured landscape encoded with the rich variety of rock art one would expect at such a diverse crossroads.

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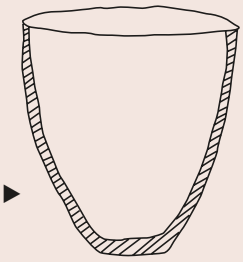
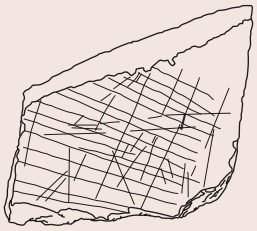
Figure 3.66 Conjectural Sequence of Little Lake Iconographic Development within Regional Context

ARCHAEOLOGICAL TIME PERIODS	LITTLE LAKE EVENT SEQUENCE	LITTLE LAKE ARTIFACTS ICONOGRAPHIC MARKERS
HISTORIC		 Little Lake ▶ cached pot
1872	George Gregory at a Little Lake cave during Lone Pine earthquake	
1863	Hobart and Reed store at Little Lake	
1860	50-60 Panamint Shoshone/Kawaiisu resident at Pagunda site	
MARANA 650 B.P. – A.D. 1850	Stahl Site Cave use minimal Pagunda use moderate	▲ Scratched rock art patterns
	Little Ice Age Climatic Conditions	
	Pagunda use sharp increase	
HAIWEE 1350 – 650 B.P.	800 B.P. 1350 – 900 B.P. Pagunda use sharp drop	Red paint palette Incised pendants ▶
NEWBERRY 3150 – 1350 B.P.	Neopluvial Climatic Conditions Pagunda use minimal	
1400 B.P.	Pagunda use decline	
1600 B.P.	Pagunda use apex	 ▲ Incised plaques
1900 B.P.	Pagunda use dramatic increase	
2200 – 1900 B.P.		
2300 B.P.	Pagunda use onset	
2500 – 2200 B.P.		
LITTLE LAKE 6000 – 3150 B.P.	Stahl Site use decline Altithermal climatic conditions	Charmstones ▶ Graver; used for scratching Cobble; red paint Pestle; white paint
	Stahl Site and Stahl Site Cave occupaion and use	
PRE-LITTLE LAKE >6000 B.P.	Stahl Site and Stahl Site Cave initial use	Scoria metates; white paint White pigment

Sources: Byrd and Reddy 2004; Clewlow, Jr. 1978; Garfinkel 2007:Table 4:4; Gilreath and Hildebrandt 2008; Grant, Baird, and Pringle 1968; Gumerman n.d.[1991-1993]; Harrington 1933: 111-113;

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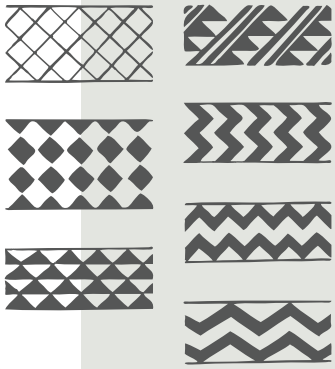
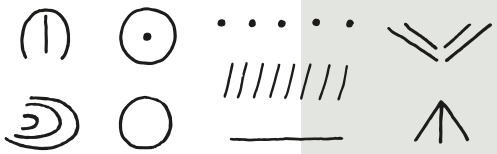
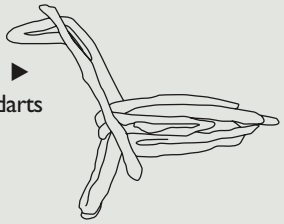
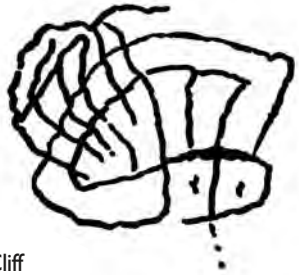
LITTLE LAKE ROCK ART PRODUCTION CONTINUUM	REGIONAL ICONOGRAPHIC EVENT SEQUENCE
▲ Painted rock art Paint on petroglyphs	Incised stones (endpoint 1890s)  ▲ Numic basketry patterns
Peak production Locus 7 rock art Production Locus 6 rock art 	Gatecliff Shelter painted rock art: Rectilinear motifs Curvilinear motifs Representational motifs
Initial rock art production Loci 1 and 8 Expanded rock art production Loci 4 and 5 	Newberry Cave Twig figurines ▶ Painted atlatl darts  ▲ Gatecliff Shelter Incised stones Scratched and pecked rock art
Scratched rock art Initial rock art production Locus 6 	Gypsum Cave painted atlatl darts
 Inception of pecked rock art production at Atlatl Cliff	Mobiliary or portable carved, incised, or painted art

Heizer and Baumhoff 1962; Heizer and Clewlow, Jr.1973; Hildebrandt and McGuire 2002; Justice 2002: 130, 153, 381; Pavlik 2008; Pearson 1995; Ritter 1980, Fig. 4; Rogers 2006a, b: Table 1; Tuohy 1986.

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Chapter 4

Atlatl Cliff

John C. Bretney

> Early sites are sometimes marked by portrayal of objects known to have gone out of use at a particular time, such as spear-throwers.
>
> *Clement W. Meighan 1981*

IN THE PREVIOUS CHAPTER WE ESTABLISHED the location of Atlatl Cliff (CA-INY-389) relative to the Stahl Site and Stahl Site Cave in the desert scrub habitat zone at Little Lake Ranch. We noted its position as adjacent to Pottery Slope but separated from it by a draw about 30 m wide (Figure 4.1). We recorded 193 rock art panels at Atlatl Cliff, of which 72 (36 percent) contain only one element. There are a total of 645 pecked elements, of which 85 are unclassified. Of the 645 pecked elements, 99 (15 percent) consist of a vertical line with a hook or loop at the top and bottom and an oval or circular form in the center or near-center of the vertical line (Figure 4.2).

Dale W. Ritter (Grant 1978b:6) was the first published researcher to suggest that this motif depicted the atlatl or dart thrower, a hunting implement widely used throughout the ancient Great Basin *c.* 8000 to *c.* 500 B.P. (Grant, Baird and Pringle 1968). We concur with Ritter's interpretation—as have other researchers—with the caveats expressed below. The atlatl was abandoned in favor of the bow and arrow in our area sometime after 1500 B.P. (Fagan 1995:277). We assume that the depiction of most of the atlatls in Little Lake Ranch rock art coincided with the object's actual use in the area. In this chapter, we describe our stylistic analysis of the atlatl motif, its distribution and spatial relationships to other motifs at Atlatl Cliff, and discuss its suggested seriation or chronological ordering and possible symbolic meaning.

Figure 4.1 *below*

Talus slope, locally known as Atlatl Cliff (CA-INY-389), looking east.

Figure 4.2 *left*

Atlatl Cliff, Group 2, Panel 20, showing heavily repatinated atlatl element.

The Atlatl: Form, Function, and Symbolism

The word "atlatl" is from the Nahuatl (*ahtlatl*; *atla*, to throw). It describes an ancient device (sometimes called a "throwing board") used to gain leverage for the purpose of achieving greater velocity in throwing a wooden spear or dart (Figure 4.3). We follow Justice (2002) who draws upon the seminal archaeological literature for the area to provide an overview of atlatl technology, function, and use in the Great Basin (Heizer and Elsasser 1953; Heizer and Hester 1974; Hester, Mildner, and Spencer 1974; Webb 1957).

Pliable thongs were commonly used to fashion single or double gripping loops on the distal end of the atlatl main shaft.

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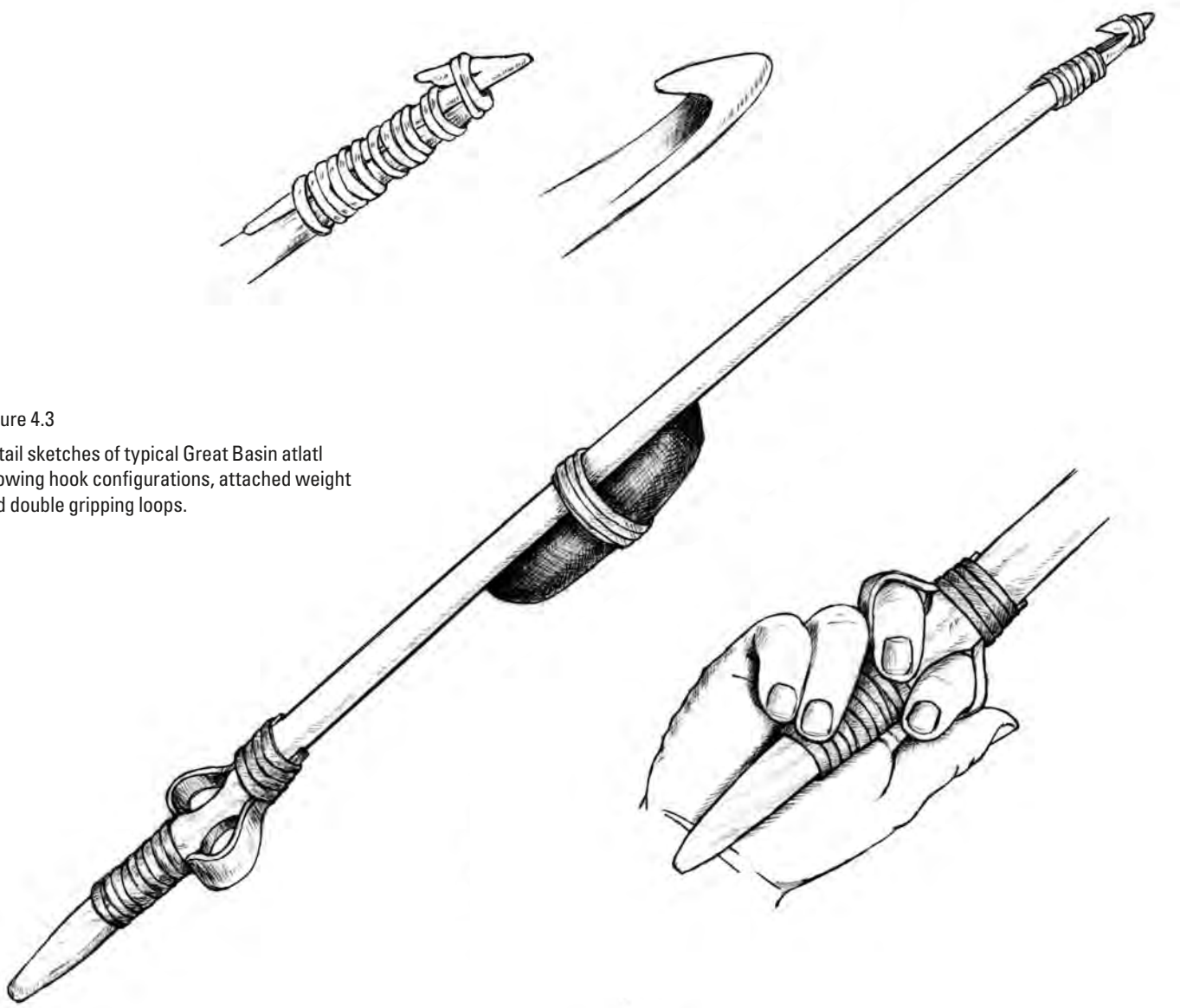

Figure 4.3

Detail sketches of typical Great Basin atlatl showing hook configurations, attached weight and double gripping loops.

Hooks (often called "spurs") were either integral to the proximal end of the main shaft or attached to it and made of wood or antler. At Squaw Creek (CA-SHA-475) in Shasta County, a detachable spur was carved of greenish-gray stone and stained with red ochre (Sundahl and Henn 1993: Figure 4). The spur accommodated the butt end of the dart and held it in place during a throw. Projectile points attached to the darts were made of various types of stone or volcanic glass.

Atlatl dart foreshafts and main shafts have been found at Hidden Cave, Humboldt Cave, Lovelock Cave, and Kramer Cave in Nevada (Elston 1986; Justice 2002:36–38). At Newberry Cave, approximately 100 miles from Little Lake, 1,066 willow, cane, and elderberry atlatl darts were found (Davis and Smith 1981). Six of them had V-shaped notches on their proximal ends. Also found in the cave were nine main shafts with socket ends and eleven spurs that were bound to the main shaft for connecting to a dart.

If a dart foreshaft with a V-shaped notch in the distal end is represented in exaggerated form in rock art, it might look like a horizontal or vertical Y. At Atlatl Cliff, 98 percent of the Y-forms are in a *vertical* position. These Y elements range in size from 10 to 34 cm long. Some panels include both the Y and atlatls, but most do not (Figure 4.4).

Both motifs are concentrated at Atlatl Cliff, with three times more of them present there than at all of the other eight loci combined, and with more than ten times as many there as at any other individual locus. These two elements, therefore, are clearly related to each other and geographically connected to Atlatl Cliff.

Another aspect of atlatl form is the ground, or ground and polished, stone objects used as weights that were often attached to the midpoint of the dart shaft on the top (and elsewhere as well; see below) by sinew and sometimes augmented with pitch. Weights

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are a technological innovation used with the more flexible atlatls to add mass or to "tune" the atlatl and may have produced greater acceleration of the dart. It is highly probable, however, that there were "aesthetic and ceremonial reasons for attaching stones to the atlatl shaft as well as for the type of material selected" for the weight itself (Justice 2002:45). Weights that are exaggerated in size may have functioned as "charmstones, enhancing the power of the weapon" (Grant, Baird, and Pringle 1968; Schaafsma 1986:221). Elsasser and Rhode (1996) agree with Grant, Baird, and Pringle (1968) that the certain weights described as "boatstones"—and presumably other atlatl weight shapes as well—were there primarily for metaphysical purposes and "to ensure a successful hunt."

At Hogup Cave in northwest Utah, one complete atlatl 56.5 cm long and three fragmentary specimens were collected. The complete atlatl "has an integral hook carved into the very end with a longitudinal groove that has decorative lines burned in around it and down to the weight" and a rectangular "boatstone" made of "greenish slate or shale" (Justice 2002:45).

Atlatls were ingenious tools used in the dangerous and challenging hunting of large and prestigious game. The atlatl, as well as most of its component parts, would have had real and symbolic significance to the ancient hunters who used them. In fact, painted and incised designs on ancient dart shafts elsewhere in the Great Basin (Davis and Smith 1981:50, Figure 18; Elston 1986:140, Figure 6; Harrington 1933; Justice 2002:38; Warren and Crabtree 1986:190, Figure 5), some of which echo rock art motifs, are prima facie evidence of such symbolic value. The atlatl efficiently aimed and propelled the dart, extended the hunter's range, and increased his prowess. The weights varied in form and included oval and sub-rectangular (sometimes flattened on one side) "boatstones." Nearly all of the weights depicted on Little Lake Ranch rock art motifs are oval or round (Figure 4.5).

Figure 4.4

Atlatl Cliff, Group 2, Panel 9, with vertical Y elements of differing size.

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Figure 4.5

Atlatl Cliff, Group 1, Panel 56: atlatl motifs in variant categories on one panel.

Figure 4.6

Atlatl Cliff, Group 1, Panel 73: complete atlatl element.

Analysis of the Atlatl Rock Art Motif

During our initial field survey, we determined that the atlatl motif fell largely into two formal groups: complete and incomplete. The complete atlatl consists of either a vertical central line with at least one hook or loop at either end of the line, and a circle or oval (the weight) in the center or a vertical central line with a hook or loop at both ends (Figure 4.6). The number of elements that meet this definition for Little Lake as a whole is 122, and, as noted above, 99 of them are at Atlatl Cliff alone. Atlatl elements in the complete category are further divided into the following five variants: single hook, single loop, double hook, double loop, and hook and loop.The incomplete atlatl motif has some, but not all, of the characteristics of the complete atlatl, but it appears unfinished or poorly made and is sometimes partially destroyed or damaged. The cumulative count for incomplete atlatls at all Little Lake Ranch loci is 37; at Atlatl Cliff it is 19.

Simple bisected circles have been occasionally identified in the literature as incomplete atlatls, but we do not consider them as such.[1] We define bisected

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circles as a variant of the curvilinear category, specifically as "a circle with a line extending beyond both edges of the circle." By this definition, we have 76 examples of bisected circles for all loci.

Spatial Analysis

An initial spatial analysis of the atlatl design motif was undertaken at Atlatl Cliff (Figure 4.7). The mapped locations of 69 panels on which atlatl motifs were present were compared with the locations of 124 panels on which they were absent. There is no significant clustering pattern evident between the atlatl group and the total panel distribution. In addition, there is no obvious clustering of panels having a percentage of motifs greater than 5 percent of the total. The obvious conclusion is that there is no apparent preference for the placement of the atlatl motif and, by extension, no apparent spatial restriction on that placement.

Panel Orientation and Facing Direction

We next examined the orientation, or facing direction, of a selected group of 82 rock art panels on the cliff face (Figure 4.8).[2] Of these, 46 panels included atlatls and 36 did not. The panels were divided into groups, starting at north (0 degrees) to northeast (45 degrees), northeast to east (90 degrees), and so on. An emphasis on the south to southwest orientation was revealed, with about an equal number of panels in the south to southeast and southwest to west orientations. Almost none of the rock art panels faces

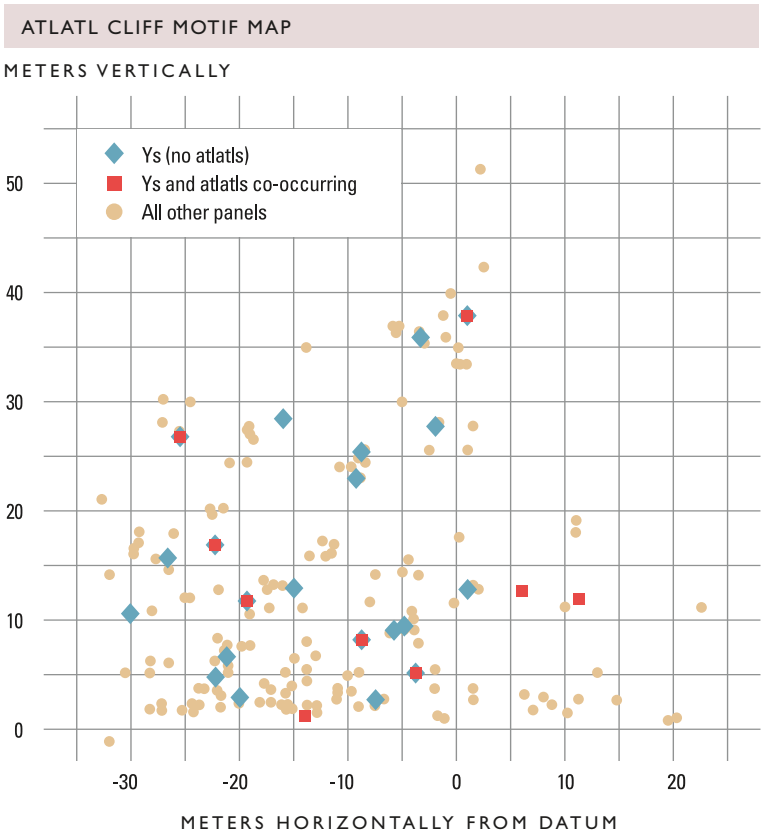

Figure 4.7

Spatial and situational relationships of the atlatl and Y motifs at Atlatl Cliff.

"Typical" Great Basin Elements: A Rough Count Comparison

John C. Bretney

Five major element categories have traditionally determined rock art style areas in California (Clewlow 1978:620). Of these, Angular (angular/linear) and Curvilinear categories are principal components of our Little Lake Ranch analysis. As is characteristic of the Great Basin style, angular/linear elements predominate at Atlatl Cliff and Locus 7, and curvilinear elements are common in both loci (Van Tilburg, Bretney, and Hull, this volume). Atlatl Cliff and Locus 7 have a physical resemblance to each other but are very different in terms of their rock art. In an effort to understand this difference, we looked at five motif subcategories also regarded as "typical" of the Great Basin petroglyph style: atlatl (complete and incomplete); the Y-form; circle and line; anthropomorphic, and zoomorphic (Grant, Baird, and Pringle 1968; Hedges 2002; Heizer and Baumhoff 1962; Heizer and Clewlow 1973; and Whitley 1982b).

Atlatl Cliff has a total of 645 pecked elements, of which 175 (27 percent of the total) fall into typical Great Basin subcategories. Locus 7 has 999 pecked elements, of which 237 (24 percent of the total) are also within these subcategories. Zoomorphic elements (10 percent of the total) are numerous. The large number of atlatls (118 examples; 18 percent of the total) at Atlatl Cliff makes it unique for Little Lake Ranch.

Lagomarsino, Nevada, is the type site for the Great Basin rock art style, and the recorded element count there is 429 (Baumhoff, Heizer, and Elsasser 1958). In 1998 and 1999 the Rock Art Archive team counted 265 typical Great Basin elements at Steam Well (Sonin 1995:145), a site only 75 miles south of Little Lake Ranch. In sharp contrast, Atlatl Cliff and Locus 7 *alone* contain about 1.5 times the total number of typical Great Basin elements present at Lagomarsino and Steam Well combined. Atlatl Cliff and Locus 7, therefore, are within the Great Basin style group tradition. However, there are significant numbers of non-Great Basin motifs in these and other Little Lake Ranch loci. This points to diverse influences and requires further study.

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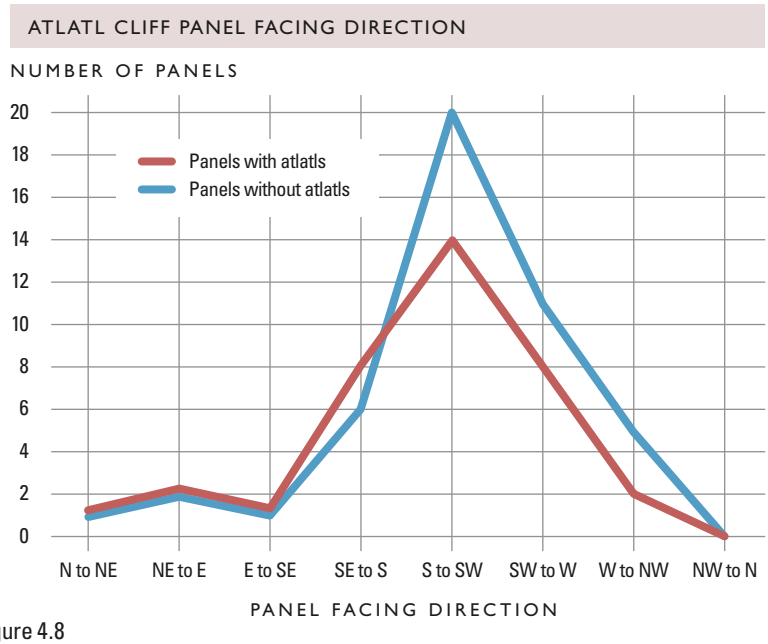

Figure 4.8

Orientation (facing direction) of Atlatl Cliff panels based on compass direction.

Figure 4.9

Atlatl Cliff, Group 1, Panel 9 has four atlatl petroglyphs with top and bottom hooks facing left.

north, indicating a *clear preference in panel orientation*, which may suggest a desire to have the rock art face in the general direction of Little Lake. Assuming the lake is a natural place for game to congregate, one interpretation of the facing data is that they provide support for von Werlhof's observation that "the glyphs were oriented toward the passing animals" (Schaafsma 1986:221).

Atlatl Motif and Facing Direction

Fully 88 percent of the atlatl rock art elements have at least one hook, and the majority contain a double hook. Six percent of the elements have loops only. In addition to determining the facing direction of the panels, we also looked at the facing direction of the atlatl hooks.[3] The results were dramatic. Of the 51 atlatls with hooks at the tops of the central lines, 49 face to the left and only 2 face to the right (Figure 4.9). For those atlatls with a hook on the bottom of the design, 42 out of 43 hooks face to the left. This left-facing direction of the atlatl elements is *in direct opposition* to the right-facing direction of Little Lake Ranch bighorn sheep elements (Van Slyke and White, this volume). The reason for this presentation is not known, but it is an unambiguous distinction that we consider neither random nor accidental.

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Panel Tilt Angle

Atlatl Cliff boulder surfaces display a variety of angles, from horizontal to more than 90 degrees in tilt (Figure 4.10). We measured the tilt of the same 82 boulders used in the orientation study above. A panel tilt of 0 degrees was defined as a horizontal panel; a vertical panel was defined as having a 90 degree tilt. Approximately 6 percent of the panels have a greater than 90 degree tilt. Fully 57 percent of the panels are tilted between 60 and 90 degrees, suggesting that vertical and near-vertical surfaces were preferred. These surfaces are also the most visible to anyone passing or present at ground level.

Time Investment

All but one of the atlatl elements in the above group—50 examples—have weights on the vertical central line. Of these, 45 (90 percent) are completely and densely pecked (Figure 4.11). This effort is time consuming when compared with that invested in the simple round or oval lines indicating weights that are present on the remaining 5 percent.[4] Our interpretation is that those elements displaying uniformity of left-facing direction and having the added presence of a densely pecked central weight probably have a uniform or related meaning or significance, and that the high degree of production effort required is *a matter of deliberate choice suggesting symbolic value*.

Chronological Ordering of Atlatl Cliff Panels

There is currently no conclusive method of dating petroglyphs. The most secure dates are available from dated archaeological sites that include rock art as a feature (Woody 1996:37–39). However, as we have seen above, the atlatl is a very specific object of material culture which can be used to bracket an equally specific rock art production time period.

Stylistic analysis as a method of developing chronology has a long history in the Great Basin (Hedges 2002; Heizer and Baumhoff 1962; Heizer and Clewlow 1973; Schaafsma 1986; Steward 1929). Heizer and Baumhoff (1962) developed a rock art style sequence for Nevada and eastern California in which the Pit and Groove style came first, followed by Curvilinear Abstract, Representational, and Rectilinear Abstract. Concluding styles were said to be the Great Basin Painted and Great Basin Scratched styles. Research since that seminal work has refined definitions, but due to the expansive time span, the sizable area, and stylistic overlap, the established Great Basin rock art sequence still provides only a general outline (Schaafsma 1980, 1986). Relative patination and analyses of superimposition are often combined with stylistic analysis and archaeological context to propose chronologies (Schaafsma 1986:219).

As stated in Chapter 3, the patination of rock

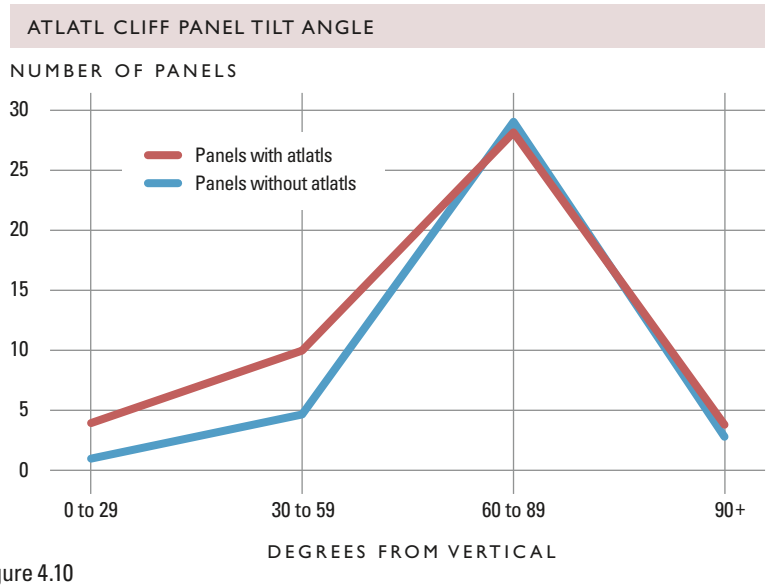

Figure 4.10

Atlatl Cliff: panel tilt angles demonstrate a preference for vertical rock faces.

Figure 4.11

Atlatl Cliff, Group 1, Panel 10: atlatl petroglyph with densely pecked center weight.

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Figure 4.12

(*a*) Atlatl Cliff, Group 2, Panel 12: heavily repatinated petroglyphs.

(*b*) Atlatl Cliff, Group 2, Panel 19: heavily repatinated petroglyphs.

art elements in the Owens Valley was first noted by Mallery (1893). Castleton and Madsen (1981:163) pointed out that petroglyph age can be judged on the basis of patination or revarnishing of the stone surface. Turner (1963:14) showed that 900 to 1,200 years was necessary in the Glen Canyon region to form a blue-black patina such as is commonly seen at Little Lake Ranch.[5]

In our efforts to determine a chronological sequence for the atlatl element at Little Lake Ranch, we turned to the recent, sometimes controversial literature dealing with dating through the reformation of desert varnish on rock art elements (Dorn 1998; Dorn et al. 1986; Dorn 1983; Dorn and Oberlander 1982; Francis, Loendorf, and Dorn 1993). Some technical issues related to this promising method have been widely discussed (Bierman, Gillespie, and Kuehner 1991; Reneau and Raymond 1991). For example, careful techniques are required to prevent damage or contamination of samples, and scanning electron microscopy and energy dispersive X-ray analyses are costly. Most importantly, however, it is clear that the "major premises of cation-ratio dating—a constant initial ratio of (Ca + K):Ti in varnish and the progressive leaching of Ca and K—are not supported by available data from Cima varnish" (Reneau, Raymond, and Harrington 1992; Glazner, this volume).[6]

Degrees of petroglyph revarnishing at Atlatl Cliff are visible to the naked eye, and we judge "darker and more complete varnishes" to be, in general, "older than lighter and more patchy rock varnish" (Dorn 1998:70). We initially estimated that about 18 percent of the petroglyph panels at Little Lake Ranch as a whole were completely revarnished, and thought that many more had less, but still significant amounts, of revarnishing. Our working hypothesis from the beginning, based on this visual data alone,

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was that most of the oldest Little Lake Ranch petroglyphs are located at Atlatl Cliff (Figures 4.12a, b).

In 2004 we experimented with a MICRO-FLASH 200d spectrophotometer to determine if, in fact, the revarnishing we saw visually could be measured and quantified (Figure 4.13). Made by Datacolor International, the spectrophotometer was lent to the project by Edward Shaffer of Vanslager Associates, Inc. It operates on the principle that, when light interacts with any object, including a petroglyph, the observer will see that light as it is modified by the object's color. A white object, for example, will reflect most of the light that falls on it without modifying the colors that make up the light beam. A gray surface reflects less light than a white surface but does not change the light's color. An international standard has been established to compare results between different observers and lighting conditions (Miller and Walker 1989). We used the instrument to measure the brightness of selected individual atlatl petroglyphs and rock surfaces. The research goal was to employ the resultant readings to order the petroglyphs in a roughly chronological sequence.

The atlatls measured in this manner were divided into two groups of what we judged visually to be potentially older and newer elements (Figure 4.14). One group, consisting of panels with little or no difference in the color of desert varnish deposited on the petroglyphs, is considered to be relatively older. The other group is made up of panels that are whiter and brighter than the base basalt color of a freshly broken boulder and is deemed to be relatively newer.

We thus arrived at a rough chronological order for the atlatl motifs (Figure 4.15). The forms of all of the atlatls are similar through time, although some with more patination (and so presumably older) have longer shafts and oval weights. These attributes are less common on the lighter, newer atlatl elements. We then plotted the suggested age of each atlatl versus its elevation location on the cliff face. The results suggest that the older panels are primarily located within the lowest 15 m of the cliff. The newer panels show a more uniform distribution slightly higher on the cliff (the lower 30 m level).

One other point should be made. Studies of Little Lake bottom sediment show that the lake basin levels rose by 11.2 m over the past 5,000 years (Mehringer and Sheppard 1978:154). During our fieldwork between 2000 and 2005, we found that 15 cm of dirt and sand had been deposited to partially bury Panel 1-125 at Atlatl Cliff. In light of this, it is possible that the clusters of older atlatl elements that we see today located on the lower part of the cliff were once relatively higher on the cliff face. At that location, the most distinct of the atlatl elements when they were first created—those with densely pecked weights—would have been the most visible.

Figure 4.13

John Bretney taking, and Gaby Franke recording, the photometric measure of luminous intensity of selected petroglyphs at Atlatl Cliff.

Figure 4.14

Distribution of darker and brighter atlatl elements versus Atlatl Cliff elevation.

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CHRONOLOGICAL ORDERING OF SELECTED ELEMENTS AT ATLATL CLIFF

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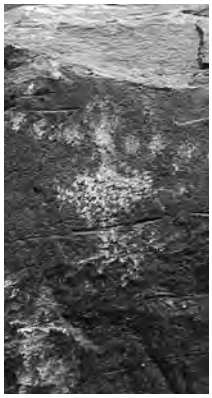
n = 29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n = 30

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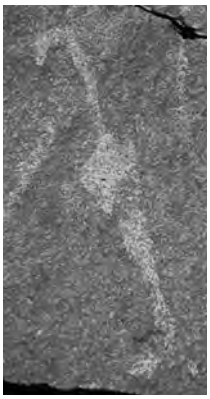
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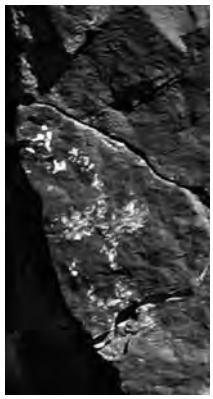
n = 32

n = 33

n = 34

n = 34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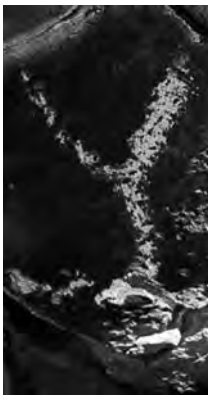
n = 39

n = 40

n = 44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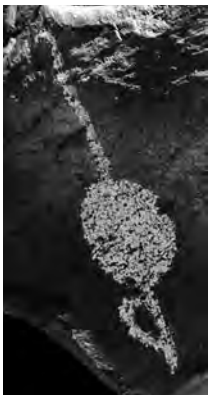
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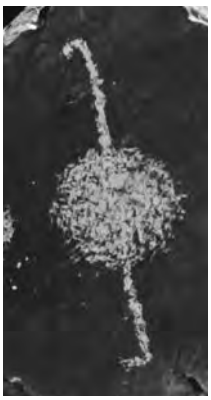
n = 50


n = 51

n = 56

n = 56

Figure 4.15

Rough chronological order of selected Atlatl Cliff elements based on the recorded measure of luminous intensity. Photographic brightness and instrument readings do not always *appear* to correlate.

n = Luminance Value

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Other Motifs at Atlatl Cliff

Zoomorphic, including large prey such as bighorn sheep and deer, is a rock art motif category with obvious links to the depiction of a hunting weapon. However, there is an almost complete lack of zoomorphic elements at Atlatl Cliff. Perhaps significantly, the bighorn sheep motif *is completely absent*.

The only zoomorphic motif represented in significant numbers at Atlatl Cliff is what is often referred to as a "paw" or "bear paw" (Figure 4.16). These elements cluster in groups at Atlatl Cliff, with 40 percent of the panels containing two or more. Ten panels have a total of 22 paw elements (Panel 2-14 alone has nine).[7] Many show a significant amount of desert varnish.

The typical paw element consists of a single, largely straight and horizontal line connected to a pendant curved line. Multiple vertical single lines or "claws" are usually connected to and above the straight line. The paw motifs at Atlatl Cliff do not have a precise or anatomically correct visual relationship to an actual bear paw. The element and its variants are probably symbolic or esoteric references to something else, possibly including the conceptual or abstract power that the bear represents.

The anthropomorphic motif category contains the so-called patterned-body anthropomorphs and hands. There are no patterned-bodied anthropomorphs and only two hand motifs at Atlatl Cliff. Furthermore, Atlatl Cliff has the lowest percentage (1 percent) of anthropomorphic elements of any of the Little Lake Ranch loci, with only nine panels having a combined total of eleven anthropomorphic elements. Many of the anthropomorphic elements have little or no revarnishing and appear relatively recent.

Most of the anthropomorphic elements are small, and the panels on which they are located are scattered (Hull, this volume). One in the near-center of a panel has an "antenna" coming out of its head, arms with no hands, and legs with three toes (Figures 4.17a, b). This same panel also contains the largest number of elements on a single panel at Atlatl Cliff, including an older, barely visible curvilinear meander pecked over with two anthropomorphs and other curvilinear motifs. The varying levels of repatination on the individual elements suggest that they were made at different times and over many years.

The curvilinear motif category contains elements made up of curves, circles, or dots. Motifs also include the U (18 elements), rows of dots (25 elements), "dumbbells" (9 elements), spirals (6 elements), and circle with line (44 elements). All of these are more numerous at Atlatl Cliff than they are at any of the other Little Lake Ranch loci. This large grouping of curvilinear, paw, Y, and atlatl motifs combines to make Atlatl Cliff distinctive among the other loci at Little Lake.

Figure 4.16

Atlatl Cliff, Group 2, Panel 8: two paw motifs and two horizontal atlatl elements.

A staff or crook-shaped element that may represent an item of material culture is present in very small numbers at Atlatl Cliff but not found at any of the other loci. It is a straight line with a hook at the top and is similar to one version of the tool widely used to harvest pinecones during the collection of piñon nuts.[8] Any one of several similar objects used in food gathering, collecting, or preparation may be referenced by this motif.[9]

A Test Case

If the Y-form represents the atlatl dart, then we might logically expect it to have a situational relationship to the atlatl motif. In fact it does, and 48 of the 50 Y-forms recorded for Little Lake Ranch as a whole are found at Atlatl Cliff. To test the existence of a possible conceptual relationship, we reviewed another characteristic shared by the two motifs: position. Ninety percent of the atlatls and 98 percent of the Y-forms are in vertical positions. This is counterintuitive in that, in use, one would see both objects in a horizontal position. At Tortoise Mountain near Black Canyon, for example, a very realistically depicted atlatl is in the expected horizontal position

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Figure 4.17
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(*a*) Atlatl Cliff, Group 1, Panel 44 contains the largest number of elements recorded in the loci, including an anthropomorph with an "antenna" and toes.

(*b*) Atlatl Cliff, Group 1, Panel 44: detail of anthropomorph.

(Figure 4.18). At Atlatl Cliff, we regard this attribute as significant, although its conceptual meaning or relationship is unclear.

Summary and Conclusion

Atlatl Cliff is a discrete rock art locus spatially related to the Stahl Site and, by extension, its time frame. It is aptly named for its concentration of rock art elements depicting the atlatl, an ancient hunting implement. Eighty-one percent of the complete atlatl motifs recorded for Little Lake Ranch are located at Atlatl Cliff, and the production of most of the individual elements required considerable time, energy, and attention to sometimes intricate detail. Given the amount of revarnishing on the atlatl elements—53 percent of them have heavy amounts of desert varnish—the atlatl motif has a long history at this locus that can be related to the time frame for the Stahl Site.

Ninety percent of the recorded atlatl motifs demonstrate a high level of formal consistency. The majority include hooks on both the top and bottom of the vertical line, and nearly all of the hooks turn toward the left. Thus, a near-standardized design template is clearly present over a long period of time.

Based on the numbers of atlatl examples documented, their general concentration at Atlatl Cliff, formal similarities, the levels of repatination present on many elements, and the evident amount of production time and effort required, we conclude that the atlatl was an iconic symbol. We follow Klassen (1998:44–45), who notes that "iconic images can be defined as static, frontal, symmetrical, non-interactive motifs found alone or in small juxtaposed groups. . . . they do not represent a specific time, place, or event but rather evoke the eternal presence of the spirit world." We suggest that individual atlatl elements were power symbols, possibly created in the context of ritual, and may have emphasized the authority of an individual leader over a specific kin group, band, or other associated group.

The Y-form and the complete atlatl motif occur in large numbers at this one locus. If the Y-form represents the notched dart or spear foreshaft, then the two motifs are obviously conceptually intertwined.

Our data on panel tilt and orientation reveal that the majority of the rock art panels described here were positioned to face in the general direction of the lake. Rock surfaces may have been selected to allow

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certain motifs to be seen from the ground or from the lower parts of the cliff, and were probably meant to be a visible part of the area's public cultural life.

The distribution of the more heavily repatinated atlatl panels in the lower 15 m of Atlatl Cliff and the estimated increase of sediment deposits in the lake basin tell us that the desert floor in front of Atlatl Cliff may have risen in the past 5,000 years. It is also likely that some rock art panels are buried by sand. Some rocks on the slope show indications of damage or movement caused by seismic action. What we are seeing at this locus, therefore, is a dynamic process of rock art creation—probably into historic time—as well as a probable and ongoing series of natural changes in the visibility of rock art.

Traditional hunting magic is the use of the supernatural to increase the chance of killing an animal during a hunt or increasing the fertility of animals being hunted. Previous investigators have suggested that the atlatl was a component of hunting magic (Grant, Baird and Pringle 1968:55, 113). While the atlatl is an obvious hunting weapon, other motifs thought to be associated with hunting magic, such as bighorn sheep, deer, or other large mammals, are either not present or not significant at Atlatl Cliff. Nor are anthropomorphic elements depicted in hunting scenes such as one finds at the Coso Rock Art Landmark. Paw elements, however, make Atlatl Cliff unique. They are not realistic depictions of any animal's footprint and are too symmetrical in shape and have too many "toes" or "claws." These motifs, especially because of their large scale, visible position, and high degree of labor investment, deserve further analysis.

Atlatl Cliff rock art falls within the broadly defined Great Basin tradition. The locus was used over a lengthy time period, probably beginning before or during the Little Lake period. Highly visible, nearly standardized rock art motifs such as the atlatl and Y-form are preferentially associated with each other and with Atlatl Cliff. They may have expressed individual authority or status or served to reinforce group order and underline aspects of ancient beliefs.

Figure 4 .18

Horizontal atlatl, Tortoise Mountain, Black Mountain Wilderness Area.

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Chapter 5

Scratched Rock Art at Little Lake Ranch

Rebekah Miller Reed

Patterning in human behavior lies at the heart of cultural systems.
Dorothy K. Washburn and Donald W. Crowe 1988

FROM OUR VERY FIRST TRIP TO LITTLE LAKE RANCH, members of the UCLA Rock Art Archive recording teams noticed that panels would occasionally contain marks apparently scratched onto the surface in the form of parallel lines, grids, and curves (Figure 5.1). As surveying progressed, it became obvious that scratching was not an anomaly and needed to be considered.

This chapter describes the methods undertaken to conduct a motif analysis of scratching at Little Lake Ranch. The goals were to determine the design attributes or discern the patterns of the scratched elements, and then to examine their distribution and context on the site. Next, the associations of the scratched patterns with pecked motifs and their spatial and other relationships on individual rock art panels were analyzed. Finally, a comparison was made between the motif types and distribution patterns of both scratched and pecked rock art. While this is primarily a descriptive analysis, interpretations of similar data at other sites are mentioned.

Figure 5.1
Locus 7, Panel 569: typical scratched rock surface.

Analysis

Nineteen compact disks containing high-resolution photographs of a sample of 995 rock art panels at Little Lake Ranch, as well as sketches, tracings, maps, and other data collected by the Archive field teams from 1997 to 2007, were used in this study. Each panel had been previously analyzed by two teams of researchers, and each pecked or painted element had been assigned to one of the motif categories or subcategories (Hull, this volume). When scratching was present on a panel, it was noted in the image caption. Our method required that each image, whether scratching was noted in the caption or not, be enlarged and surveyed for instances of scratching. Once found, the location of the scratched pattern was pinpointed by dividing the panel into nine sections, three across and three down. A sketch of the scratching was made, and the motif classification and location of other elements on the same panel were tabulated. It was soon discovered that the scratching took on a limited number of patterns, so sketching became unnecessary and descriptive information could be recorded on a worksheet in a fashion similar to the tabulation of the pecked elements. After documentation of one locus was complete, an on-site field test at Little Lake Ranch was performed to assess the accuracy of the information gleaned from the photographs. A sampling of panels was relocated and viewed at different times of day to assess whether the photographic record accurately documented the rock art. It was found to be reliable, so the project continued, using the established methodology.

Location and Distribution

We analyzed 248 scratched rock art panels at Little Lake Ranch (Table 5.1). They are

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Table 5.1 Number of analyzed rock art panels at each locus compared with the number and percentage of panels with scratching.

LOCUS	NUMBER OF PANELS	NUMBER OF SCRATCHED PANELS	PERCENTAGE OF PANELS WITH SCRATCHING
Locus 1	127	31	24
Locus 4	89	17	19
Locus 5	53	20	38
Locus 7	328	79	24
Locus 8	94	7	7
Atlatl Cliff	175	17	10
Stahl Site	21	7	33
Pottery Slope	108	70	65
TOTALS	995	248	25

Figure 5.2

Photographer and rock climber Beau States at Locus 7.

distributed throughout all eight of this study's loci and include panels that contain scratching only as well as those with both scratching and pecking.[1] The number of scratched panels at each of the loci ranges from 7 to 79. Due to the great variation in the number of rock art panels at each locus (panels with pecking only, scratching only, or both pecking and scratching), it is advantageous to discuss the site-wide distribution of scratched panels in terms of percentages. Percentages throughout this chapter are rounded to the nearest whole number.

Pottery Slope stands out immediately with scratching on 65 percent of its panels. Atlatl Cliff and Locus 8 have the smallest percentages of scratched panels, with 10 percent and 7 percent, respectively.

Horizontal and Vertical Distribution within Loci

Four rock art loci were chosen for distribution analysis: Atlatl Cliff (CA-INY-389), Locus 8, Pottery Slope (CA-INY-388), and Locus 7. Maps comparing the geographic coordinates of scratched panels to pecked or painted panels without scratching were examined. The topography of three of the loci—Atlatl Cliff, Pottery Slope, and Locus 7—makes rock climbing necessary to access many of the panels, some of which were very difficult to locate (Figure 5.2). Comparison of the geographic coordinates and elevation data of the scratched panels to panels without scratching in these loci revealed an even horizontal and vertical distribution of scratched panels. There is no discernible clustering or other spatial distinction between scratched panels and those without scratching.

Style: Scratched Patterns

There are 662 instances of scratching at Little Lake Ranch (Table 5.2). All of it is nonrandom and was categorized into one of 14 recognizable patterns plus an "other" category (3 percent of the total; Figure 5.3). We consider a pattern to be a repeated, recognizable form that, when noted in pecked elements, is referred to as a "motif." Most of the patterns are simple or schematic and correspond to a formalized conception. As such, they are considered to be symbolic. Only three ("fan," "ladder," and "sun") appear to be naturalistic.

Primary Group

The Primary Group includes six patterns which appear at all eight of the loci and comprises a full 85 percent of the scratching at Little Lake Ranch. The single exception is that horizontal lines do not appear at the Stahl Site but, due to the low panel count at that locus and the ubiquity of horizontal lines at Little Lake Ranch as a whole, it has been included in this group.[2] The Primary Group includes the follow-

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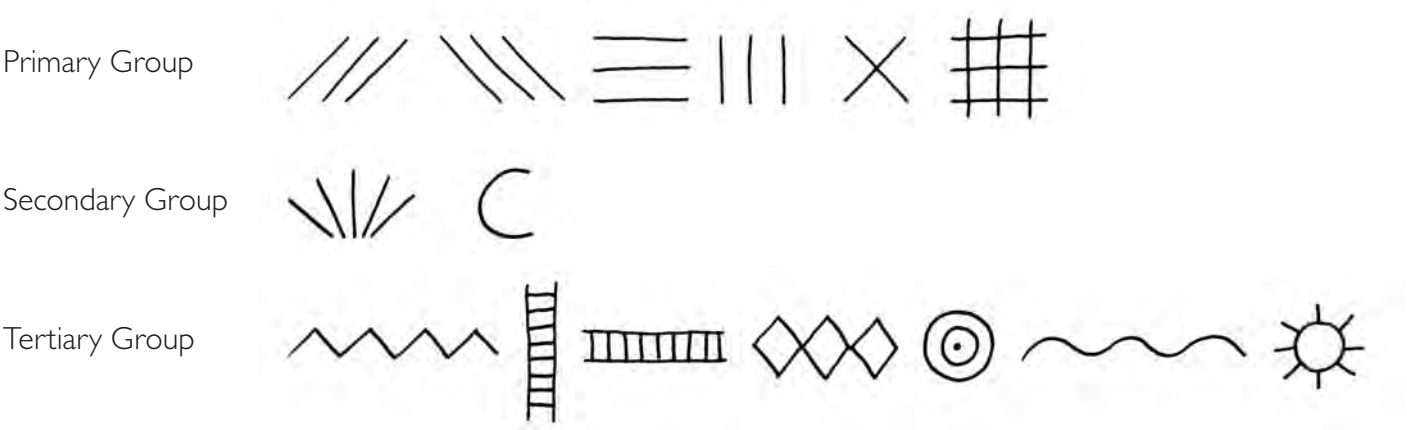
Table 5.2 Number of scratched element patterns at each of the eight loci.

	PRIMARY GROUP						SECONDARY GROUP		TERTIARY GROUP							
LOCUS	DIAGONAL TO LEFT	DIAGONAL TO RIGHT	HORIZONTAL LINES	VERTICAL LINES	X	GRID OR CROSSHATCH	"FAN"	CURVED LINE(S)	ZIGZAG	"LADDER"	CONNECTED DIAMONDS	CONCENTRIC CIRCLES	WAVY LINE	"SUN"	OTHER	**TOTAL** NUMBER OF SCRATCHED ELEMENTS
Locus 1	8	8	10	12	2	15	1									56
Locus 4	9	8	2	2	1	5										27
Locus 5	16	6	5	11	1	30	2	7	1						5	84
Locus 7	44	18	11	41	11	42	5	7	3	1		2			9	194
Locus 8	4	2	1	1	2	5										15
Atlatl Cliff	6	3	1	5	2	6		2						1		26
Stahl Site	1	2		3	3	2	1									12
Pottery Slope	35	21	19	29	15	78	3	12	8	3	3	6	2	7	7	248
TOTALS	123	68	49	104	37	183	12	28	12	4	3	8	2	8	21	662

Figure 5.3 Categories of scratched patterns, Little Lake Ranch. Compare to Ritter 2004: 25-26, Table 2, Figure 5.



ing patterns: diagonal lines to the left, diagonal lines to the right, horizontal lines, vertical lines, X, and grid or crosshatch.

Secondary Group

The Secondary Group is composed of two patterns, "fan" and curved line(s), and makes up only 6 percent of the scratching at Little Lake Ranch. The "fan" pattern appears at five loci and curved line(s) at four.

Tertiary Group

Just 9 percent of the total scratching at Little Lake Ranch falls within the following categories: zigzag, "ladder," connected diamonds, concentric circles, wavy line, rayed circle ("sun"), and other. These categories only occur within four loci. In Table 5.2 the category designated "other" includes "feather," circle, multi-arm figure, random scratching, diamond grid, spiral, "rain," and the letter forms V, H, L, T, Y, and S. All of these letter forms are scratched at various orientations and well incorporated into the rock art. They do not appear to be graffiti.

Number and Distribution of Elements in Each Scratched Pattern

Although scratched patterns often appear overlapping or adjacent to other scratched patterns, if each instance of a defined pattern is counted as an individual "element," then the number of such elements at each locus can be calculated and compared in a way similar to the analysis of pecked elements. The majority of elements at each of the loci are within

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Figure 5.4

Locus 7, Panel 544: variants of scratched patterns overlap within and beyond pecked motif borders.

the Primary Group. Even at Pottery Slope, which has the largest number of Secondary and Tertiary Group elements, the Primary Group comprises 79 percent of its scratched elements (197 out of 248 elements).

Pottery Slope and Locus 7, the loci that form the northern and southern boundaries of the lake area, have the most diverse scratching. Ritter's (1994:55) evaluation of the Massacre Bench site in northwest Nevada revealed a similar geographic correlation with Secondary and Tertiary patterns (see also Taylor and Keyser 2003:13). He found "higher proportionate numbers of ladder, rake, and feather designs and curvilinear motifs at the southern sites where several very complex panels are found." Our similar finding of clustering of these patterns might suggest a geographical significance to the placement of these elements at Little Lake Ranch.

In addition to this diversity, Pottery Slope and Locus 7 also contain significantly higher concentrations of scratched elements than the other loci (248 and 194 elements, respectively, as compared with the next highest concentration of 84 scratched elements at Locus 5). If Pottery Slope has female gender associations—as suggested by Eerkens and Van Tilburg (this volume)—then similar associations for Locus 7 could be expected. While no associated artifacts have been discovered to support this assertion, a look at the *pecked* elements at that locus reveals that it contains the largest concentration of multiple lines, zigzags, diamonds, and crosshatch. Fowler and Dawson (1986:710–724) suggest that some of these patterns are similar to designs found in basketry, seed beaters, and cradleboards, and that some are gender associative.

Relationships between Scratched and Pecked Motifs

The positional relationship of scratched elements "paired" with pecked elements — that is, scratched elements that are overlapping or adjacent to pecked elements — was documented at five of the loci. "Adjacent" was subjectively defined as "in the immediate vicinity of." The position of the scratched element was noted as above, below, right, and/or left of the pecked element. In many instances, a scratched element fell into more than one category, such as above and to the right. No positional relationship stood out as favored or disfavored.

Overlapping, or its absence, was also noted at these loci. Some 57 percent of the scratched elements overlap pecked motifs in some manner. However, the degree of overlap varies greatly—from scratching that overlaps and extends beyond the borders of a pecked motif, to partial overlapping with a single scratched line (Figure 5.4). The number of overlapping scratched elements within the five loci also varies, ranging between 26 and 60 percent. Based on these cumulative observations, while overlapping suggests a relationship between the scratched patterns and pecked elements on a particular panel, the nature of that relationship is not apparent at Little Lake Ranch.

Stylistic Relationship

Of the 662 scratched patterns recorded, only 46 (7 percent) appear on panels with scratching only (Figure 5.5). Therefore, a very large number—616 (93 percent)—are on panels that also contain pecked elements. As noted above, the position of scratched patterns in relation to pecked elements does not provide definitive answers as to the nature of the relationship (if any) between the two forms of rock

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art production. Therefore, analysis was performed to determine if there is a stylistic relationship.

Forty-four motif variants are represented in our pecked motif analysis. Combining the angular/linear, zoomorphic, atlatl, curvilinear, anthropomorphic, and amorphous categories of pecked elements with the 15 scratched pattern categories above, there are 660 possible element pairings. For example, a pecked element within the single line variant of the angular/linear category may be paired with a "diagonal to the left" scratched pattern. Because some of the scratched elements are paired with more than one pecked element, the total number of pairings at Little Lake Ranch is 901.

The pairing that occurs most often is the amorphous pecked motif with grid or crosshatch scratched pattern. It appears 54 times, or 6 percent of the total pairings at Little Lake Ranch (Figures 5.6a, b). Amorphous pecking is a formless mark which accounts for 13 percent of the total pecking on Little Lake Ranch but appears in 17 percent of the pairings. Comparatively, curvilinear elements comprise 13 percent of all pecked motifs but appear in only 7 percent of the pairings.

The grid or crosshatch scratched pattern, which makes up 28 percent of scratching, is used in 33 percent of the pairings (Table 5.3). This is not surprising because the percentage of times a specific scratched motif is paired roughly parallels the overall appearance of that motif at Little Lake Ranch.

Combining the pecked components and scratched elements into their larger groups reveals a strong preference for Primary Group scratched patterns and angular/linear, curvilinear, and amorphous pecked motifs (Table 5.4).

Ritter (1994:58) had very similar findings. He calculated that more than 40 percent of scratching at the Pistone and Massacre Bench sites occurred with curvilinear abstract designs (compare with our 39 percent); 20 percent occurred with rectilinear motifs (compare with our 21 percent angular/linear); and nearly 25 percent at Pistone and 12 percent at Massacre Bench occurred with general pecking, a category similar to our random pecking (compare with Little Lake Ranch 17 percent).

As to the scratched elements at Little Lake Ranch, 87 percent of the pairings occur with Primary Group scratched elements, only 5 percent with Secondary Group, and 8 percent with Tertiary Group. This pattern roughly parallels that of the total number of scratched elements at the site.

When the pecked motifs are further combined into the even larger categories of nonrepresentational, or stylized (angular/linear, curvilinear, and amorphous), and representational (zoomorphic, atlatl, and anthropomorphic), some 92 percent of the scratched pattern pairings occur with nonrepresentational pecked elements. Only 8 percent of the pairings oc-

Figure 5.5 *left*

Pottery Slope, Panel 175, with scratching only.

Figure 5.6 *below*

(*a*) Atlatl Cliff, Group 1, Panel 80: dominant pairing of an amorphous pecked motif with a grid or crosshatch scratched pattern.

(*b*) Pottery Slope, Panel 157: pairing of an amorphous pecked motif with a scratched grid or crosshatch.

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Table 5.3 Percentage of instances each scratched pattern appears compared with the percentage of instances it is paired.

	DIAGONAL TO LEFT	DIAGONAL TO RIGHT	HORIZONTAL LINES	VERTICAL LINES	X	GRID OR CROSSHATCH	"FAN"	CURVED LINE(S)	ZIGZAG	"LADDER"	CONNECTED DIAMONDS	CONCENTRIC CIRCLES	WAVY LINE	"SUN"	OTHER
Percent of times each pattern appears at Little Lake	19	10	7	16	6	28	2	4	2	1	<1	1	<1	1	3
Percent of times each pattern is paired at Little Lake	19	9	6	16	5	33	2	4	2	1	<1	1	<1	1	3

Table 5.4 Percentage of pairings of pecked motifs with each of the three scratching groups.

			SCRATCHING			
			PRIMARY	SECONDARY	TERTIARY	TOTALS
PECKING	Nonrepresentational	Angular/linear	19	1	1	21
		Curvilinear	33	2	4	39
		Amorphous (no shape; includes random pecking)	28	1	3	32
	Representational	Zoomorphic	5	1	0	6
		Atlatl	1	<1	0	1
		Anthropomorphic	1	<1	<1	1
		TOTALS	87	5	8	100

cur with representational pecked motifs, as compared with representational elements comprising 18 percent of the overall pecking at Little Lake Ranch.

There are only three instances in which the naturalistic scratched motifs ("fan," "ladder," and "sun") are paired with a representational pecked motif. All are comprised of a scratched fan paired with a pecked sheep, occurring once at Stahl Site Cave and twice at Locus 7.

Purposeful Relationship

Obliteration One variation of a scratched pattern deserves special note. A panel or portion of a panel may at first appear to be completely covered in multidirectional lines. Magnified photographs show, however, that the scratched lines are not drawn randomly. Instead, they are multiple overlapping grids drawn at different angles (Figure 5.7).[3]

Only 24 such panels are found at Little Lake Ranch, and they are located at only three of the eight loci: Pottery Slope, Locus 5, and Locus 7. There are 53 recorded pairings between these overlapping grids and pecked elements. Fully 96 percent of these pairings are formed with nonrepresentational pecked motifs of little *apparent* meaning (Table 5.5).

It has been suggested that scratching was Numic and meant "to obliterate the earlier, or Pre-Numic [pecked] designs" (Bettinger and Baumhoff 1982:494; Schaafsma 1986:217). If obliteration is defined as an act that destroys something or makes it undecipherable, then overlapping grids are good tools for doing so. However, overlapping grids are inconsistently placed in relation to pecking and are relatively scarce (only 5 percent of the total of scratched elements).

If obliteration is defined as scratching in any pattern that overlaps pecking regardless of the degree of overlap, the evidence for obliteration is boosted slightly in that 57 percent of the scratched elements at five loci overlap pecking to some degree. However, inconsistency in the manner of such placement, the nonrepresentational nature of the majority of pecked elements being overlapped, and the fact that 7 percent of the scratched panels at Little Lake contain no pecking at all, suggest that obliteration was probably not the primary motivation for scratching at Little Lake Ranch.[4]

Enhancement Another proposed motivation for scratching is enhancement—when scratching in some way modifies or adds in a recognizable manner to a pecked element "to reinforce the element features" (Stoney 1994:33, 39). This type of scratch-

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Figure 5.7

Pottery Slope, Panel 107: multiple overlapping grids drawn at different angles.

ing is relatively easy to detect, yet there are only 16 scratched panels, or 6 percent of the total, on which elements appear to have been enhanced (Figures 5.8a, b).

Enhancement scratching accounts for just 3 percent of the 901 pairings discussed above. Only 10 pecked motif categories, nine of which are nonrepresentational, have enhancement scratching. Amorphous pecking occurs in about a third of pairings in general but in only 19 percent of enhancement pairings. The single representational pecked motif enhanced by scratching is a bighorn sheep located at Locus 5.

Although the pattern of the scratching is somewhat dictated by the form of the pecked motif being enhanced, diagonal to the left and vertical lines appear most often in enhancement scratching (27 percent and 35 percent, respectively).

It is hard to dispute that some relationship must exist between a pecked element and scratching that is wholly within it or appears to enhance it by tracing

Table 5.5 Percentage of pairings of pecked motifs with scratched overlapping grids (obliteration).

			SCRATCHING
			OVERLAPPING GRIDS (%)
PECKING	Nonrepresentational	Angular/linear	17
		Curvilinear	47
		Amorphous (no shape; includes random pecking)	32
	Representational	Zoomorphic	4
		Atlatl	0
		Anthropomorphic	0

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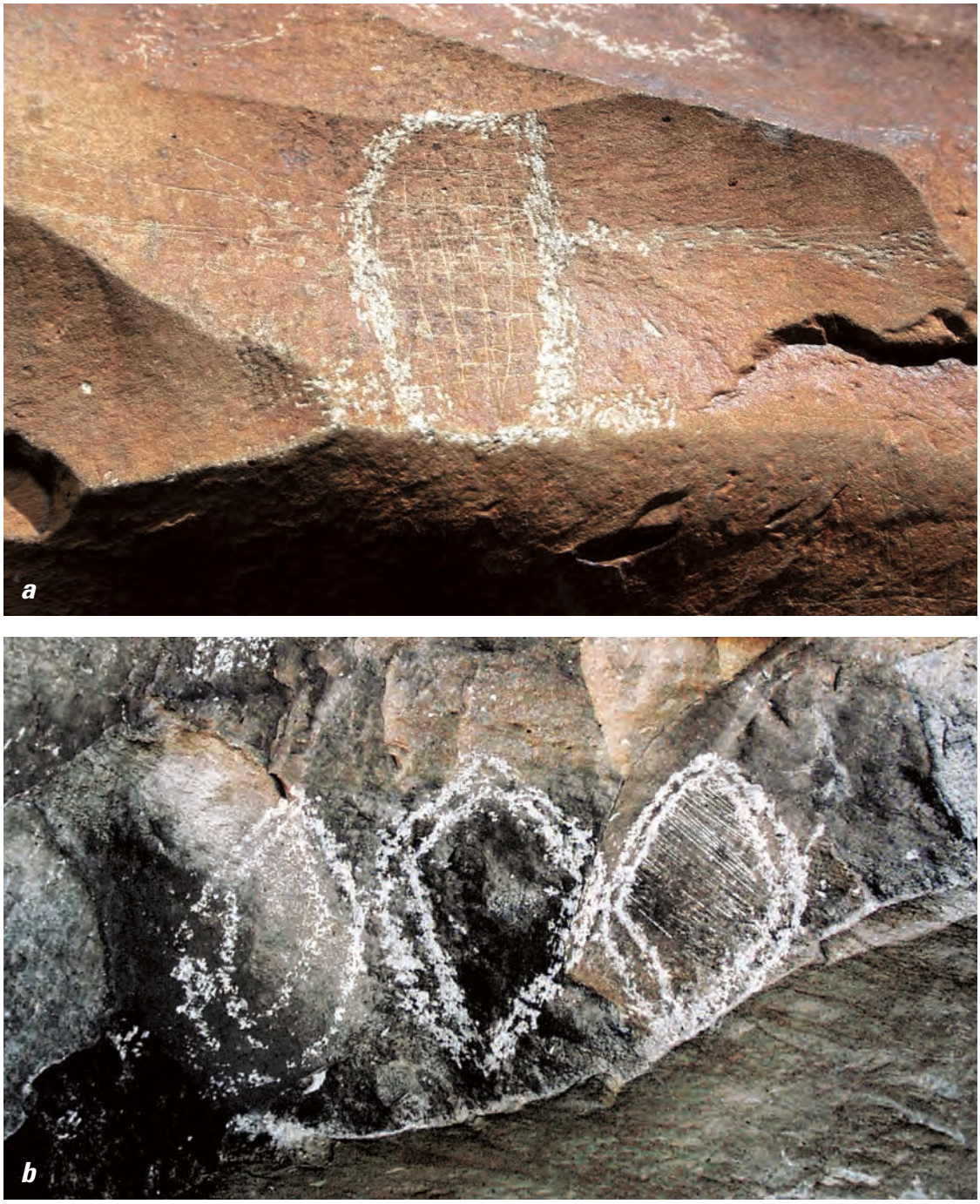

Figure 5.8
Enhancement by scratching:
(*a*) Pottery Slope, Panel 157.
(*b*) Locus 7, Panel 646.

over or encircling it. Therefore, while enhancement is rare and cannot be considered the primary motivation for scratching production at Little Lake Ranch—and the rationale for the selection of motifs to be enhanced is not obvious—it appears to be significant.

Temporal Placement Relationship

As mentioned above, overlapping of scratched patterns and pecked motifs is present on some of the panels. The *precise* layering of these patterns is key to understanding the order in which the rock art was made. Gilreath and Hildebrandt (2008:12) used macroscopic field observations on 163 panels in the Pinyon Uplands and concluded "[t]he majority of the panels with superposition have scratching over pecked designs." They observed that "scratches are evident over and extend beyond the dimensions of the pecked designs," which would not be the case if the "dense potmarks [*sic*]" of the pecked designs had been produced over the "shallow, thin (hair) lines" of the scratching. They report that they "never observed pecking over scratched elements" and conclude that the scratching was therefore produced after the pecked elements.[5]

At the Roaring Rapids site in Arizona, however, LaForge (2006:459) noted, "One rock has grids, parallel lines and random scratches, both under and over the pecked elements." On another rock, there is

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Figure 5.9
Pottery Slope, Panel 179: Tertiary Group scratched pattern.

"a complex group of scratched elements associated with pecked elements . . . with differential patination suggesti[ng] an accretion of the elements over time."

Unfortunately, at Little Lake, even with magnified photographs, it was impossible to *definitively* state in every case whether scratching appears primarily over (on top of) or under pecked elements in those instances in which these two forms overlap. While further on-site investigation may make it possible to determine the superimposition sequence, examination of a number of scratched panels during the field test proved inconclusive. Even using a photographer's loupe with 10× magnification, researchers disagreed on placement. It should be noted, however, that there appeared to be instances in which scratching was below pecked elements as well as instances in which it was above them, as in the "enhanced" elements discussed above.

Ritter (2006:470) mentions similar difficulties in determining the order of superimposition at the Massacre Bench site in Nevada. "Despite the use of a 10× hand lens, a study of scratched and pecked superimposition sequences is often ambiguous or obscure. In over one-half of the cases, superimposition sequences could not be determined." He goes on to state, however, that "where one could feel reasonably certain of the sequence, there are three times as many cases of scratching over pecking . . . as opposed to the opposite situation."

Therefore, further investigation is needed to determine whether any or all of the scratched patterns at Little Lake Ranch were produced before, after, or contemporaneously with their associated pecked elements.

Comparison of Scratched and Pecked Motifs

There are 14 motifs in scratching and pecking that can be compared directly. Among the Primary Group scratched patterns, grid or crosshatch can be directly compared with the crosshatch pecked motif. All of the remaining Primary Group scratched patterns can be considered subsets of the multiple lines pecked motif and were therefore lumped together for analysis.

In the Secondary Group of scratched patterns, the curved line(s) scratched pattern is comparable to the curvilinear pecked motif. "Fan," however, cannot be compared because none is present in the pecking.

Among the Tertiary Group of scratched patterns, which includes the other category, the following scratched patterns have corresponding pecked motifs: zigzag, connected diamonds, concen-

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Table 5.6 Distribution of scratched patterns in the subset used for comparison with pecked elements.

	SCRATCHED PATTERNS														
LOCUS	MULTIPLE LINES	CROSSHATCH	CURVED LINE(S)	ZIGZAG	CONNECTED DIAMONDS	CONCENTRIC CIRCLES	WAVY LINE	"SUN"	"RAIN"	Y	V	MULTI-ARM	CIRCLE	SPIRAL	TOTALS
Locus 1	40	15													55
Locus 4	22	5													27
Locus 5	39	30	7	1									3		80
Locus 7	125	42	7	3		2			2	1	1				183
Locus 8	10	5													15
Atlatl Cliff	17	6	2					1							26
Pottery Slope	119	78	12	8	3	6	2	7				1	2	1	239
TOTALS	372	181	28	12	3	8	2	8	2	1	1	1	5	1	625
	Primary 553		Secondary 28	Tertiary 44											

Table 5.7 Distribution of pecked elements in the subset used for comparison with scratching.

	PECKED ELEMENTS														
LOCUS	MULTIPLE LINES	CROSSHATCH	CURVED LINE(S)	ZIGZAG	CONNECTED DIAMONDS	CONCENTRIC CIRCLES	WAVY LINE	"SUN"	"RAIN"	Y	V	MULTI-ARM	CIRCLE	SPIRAL	TOTALS
Locus 1	2	2	22	1		1	5	7	2	2	1	4	19		68
Locus 4	4	4	42	1		7	8	3	1	1		7	17	1	96
Locus 5	7	1	65		2	4	14	4	4		2	4	16	1	124
Locus 7	24	10	156	6	5	6	13	6	5	1	6	19	26		283
Locus 8	10	5													15
Atlatl Cliff	18	3	41	2	2	7	19	5	6	40	2	4	31	6	186
Pottery Slope	5	1	60	2		2	7	2	1	3		10	36		129
TOTALS	71	22	431	12	9	29	68	27	29	50	12	54	151	8	973
	Primary 93		Secondary 431	Tertiary 449											

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tric circles, wavy line, "sun," "rain," Y, V, multi-arm figure, single circle, and spiral (Figure 5.9).

Importantly, no representational pecked motifs could be included in this analysis since *none* exists in scratching. Other pecked motifs that do not appear in scratching and were therefore not comparable include three linear categories, 10 curvilinear categories, and amorphous and random pecking.

This study analyzed 625 scratched patterns within the 662 recorded instances of scratching (Tables 5.6, 5.7). These patterns matched 14 of the Little Lake Ranch motif subcategories and thus could be compared with 973 pecked elements in the same subcategories. While this represents only 24 percent of the total number of pecked elements, fully 94 percent of the instances of scratching is included. Loci 1, 4, 5, 7, and 8, Atlatl Cliff, and Pottery Slope were used in the analysis.

Since the Tertiary Group contains both linear and curvilinear patterns, the elements were then regrouped out of the larger *scratched* pattern categories and into the larger *pecked* element categories. Here it became clear that while *the vast majority* of scratching is angular/linear (fully 92 percent), the majority of pecking is curvilinear (73 percent).

Conclusion

Scratched panels occur in uneven distribution at Little Lake Ranch. Analysis of 662 instances of scratching on 248 rock art panels demonstrates that an overwhelming 93 percent of the scratching occurs on panels that also contain pecked elements. This is a significant positive relationship in the two forms of expression. The behavioral explanation for this relationship is not known.

Scratching was analyzed stylistically in much the same manner as pecked elements. It was categorized into 14 defined and recurring patterns plus one other category, thus forming three basic groups. Analyses of the pairings of these scratched patterns with the pecked motif subcategories reveal that grid or crosshatch is the scratched pattern most often paired with pecked motifs. Some 92 percent of pairings are with nonrepresentational pecked motifs. Scratched patterns are seldom associated with the atlatl or with motifs commonly regarded as representational (Figure 5.10).

The locations of scratched and pecked motifs throughout Little Lake Ranch reveal some variation in distribution and concentration that may be attributable to locus use in the past. However, there is no discernible consistent positional relationship between scratched and pecked motifs placed on the same panel or in the same locus.

The placement of scratching over or under pecked motifs was difficult to discern. However, it seems apparent that scratching is not consistently placed over specific types of pecked motifs and cannot be definitively said to have been made in an effort to obliterate them. On the other hand, some scratching may have been meant to enhance a few pecked elements.

Figure 5.10

Scratched patterns associated with unpatinated "digitate anthropomorph" motif.

Scratched rock art, when compared with both pecking and painting, has a unique quality that cannot be quantified: it is elusive. It simply cannot be seen at different times of day, during various times of the year, or with a minor change in vantage point. While scratching does emerge under some changing light conditions or when the rock face is wet, it is extremely difficult to relocate scratched panels, even when placed on low level, well-worn paths. It is nearly impossible to locate on cliff faces.[6] This elusiveness suggests that scratched rock art was not a product of highly visible, public or communal ceremony. More likely, it was solitary and self-referential.

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Chapter 6

The Desert Bighorn Sheep Motif

Noel Van Slyke and H. Bill White

Yet also we keep the seasons of the sheep . . .
Gordon Grant 1968

WE HAVE FOUND 288 DESERT BIGHORN SHEEP or mountain sheep (*Ovis canadensis*) petroglyph elements at Little Lake Ranch, of which 239 are included in the UCLA Rock Art Archive database (Figure 6.1).[1] The sheep elements are unevenly distributed among the Little Lake Ranch loci. They appear frequently at some loci and infrequently at others. There are none at Atlatl Cliff (CA-INY-389). The bighorn sheep rock art motif is ubiquitous in the nearby Coso Rock Art Landmark—25 km to the east—and is considered to be a diagnostic element of the Coso Representational style within the Great Basin Tradition (Schaafsma 1986:218). Thus, the bighorn sheep motif is very widespread and important. Our research interest in the symbol requires a basic understanding of the animal, its behavior, occurrence, distribution, and history in our area of study (Figure 6.2).

Figure 6.1

Locus 6, Panel 7: classic Coso bighorn sheep motif dominates a panel with multiple bighorn motifs.

Figure 6.2

Bighorn sheep *(Ovis canadensis)* with tail-down posture.

Copyright John D. Wehausen, Ph.D.

Bighorn sheep "have been present throughout the far west for at least the last 25,000 years" (Whitley 1998b:13) and present in the Mojave Desert "from the Pleistocene into the present" (Whitley, Simon, and Dorn 1999:23). However, their distribution at the time of the arrival of Euro-American settlers, ranchers, and miners is difficult to precisely determine because early records are scant. Game wardens, for example, were not present in the Owens Valley before 1911, and National Forest Service annual reports do not list bighorn sheep population sightings until 1921. Significant reduction of bighorn sheep populations in the Eastern Sierra began in 1849 with the influx of miners. Wehausen (1988:97), for example, reports mountain sheep meat listed on a late 1890s Bodie café menu. Bodie was then a thriving mining town in the northern part of the Owens Valley. Beginning in 1861, ranching became widespread in the Owens Valley area, reducing the bighorn sheep grazing land in the Sierra Nevada and thus further diminishing the bighorn sheep population.

Bighorn sheep usually occur in "disjunct pockets where habitat characteristics are suitable" (Wehausen 1988:97). The mountain ranges surrounding the Owens Valley, "including the entire White Mountains and the Sierra Nevada from Olancha to Yosemite," probably supported 20 historic bighorn populations, of which only seven survived into the 1980s (Wehausen 1988:103; personal communication 2010). Populations were documented in the Olancha area and in Cartago Canyon, at the south end of the Owens Valley, and in the Coso Mountains. Several bighorn sheep were seen on

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Figure 6.3
Bighorn rams at Little Lake Ranch, 2006.

Little Lake Ranch as recently as 2006 (Figure 6.3).

In an inventory of prehistoric archaeological sites in southern California desert environments, Ritter and Coombs (1990:35) point out that "hunting activities generally have left a poor archaeological record." Nonetheless, the evidence suggests that there is a correlation between bighorn sheep ranges and water sources such as Little Lake (Ritter and Coombs 1990:35). Garfinkel (2006:223–225) reviewed archaeological evidence for prehistoric bighorn sheep hunting in the Coso Range. His research demonstrates that the maximum hunting emphasis was during the Newberry period, with a special focus between 3500 and 1000 cal B.P. There was a gradual de-emphasis of sheep hunting during the Haiwee period and then a significant decrease after 650 cal B.P. (Garfinkel 2006:227, 229 Table 1; Gilreath and Hildebrandt 2008:16–17).

As we discuss in more detail below, this maximum bighorn sheep hunting emphasis in the Coso Range coincides very well with our Little Lake Ranch rock art production event sequence relative to the Stahl Site occupation north of Little Lake and the establishment of the Pagunda village site just west of the lake. An occupational shift from the north end of the lake to the southwest end may be partly responsible for an increase of rock art production at loci 1, 6, 7 and 8. Our data, described and interpreted below, suggest a florescence of bighorn sheep element production at Little Lake Ranch during the Newberry period.

Our Research Aim

Researchers have studied the style, chronology, and symbolic function of the bighorn sheep element in the Great Basin area, including at Little Lake and in the Coso Range, for more than 60 years. These studies have produced various interpretive assertions about the purpose and function of Great Basin rock art in general, and of the sheep elements in

Figure 6.4
Locus 4, Panel 51: Little Lake bighorn sheep motifs are indicated by characteristic curved horns.

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particular. In keeping with this tradition, we decided to perform a formal analysis of the bighorn sheep elements. In doing so, we approached our data in a statistical manner similar to that undertaken for the analysis of Little Lake Ranch scratched rock art (Reed, this volume).

While similar body forms are depicted in most sheep and deer or elk petroglyphs, the only unambiguous characteristic shared only by bighorn sheep and the rock art elements thought to depict them is curved horns (Figure 6.4). Thus, we confined our analysis only to those elements with curved horns, and excluded quadrupeds having either straight horns (21 elements) or no horns (23 elements; Figure 6.5). Our analysis was conducted on our database of 288 sheep elements as well as on a comparative database applying exactly the same criteria to 589 bighorn sheep elements found at nearby, well-documented sites in the Coso Rock Art Landmark and at two El Paso Mountains sites about 30 km south of the Coso Rock Art Landmark. Thus, our combined database contains 877 bighorn sheep elements.

Although there are variations in the interpretations of meaning attached to the bighorn sheep motif, there are two structurally related, non-competing hypotheses in the literature: one is called "hunting magic" and the other is broadly referred to as "shamanism" (Gilreath and Hildebrandt 2008:1). The hunting magic hypothesis argues that the bighorn sheep motif is somewhat individualistic and was often produced near game trails and hunting blinds. The general purpose of the motif is to ensure successful hunting of big game (Garfinkel 2006; Heizer and Baumhoff 1962; Nissen 1982; Schaafsma 1986:220). The shamanism hypothesis, on the other hand, is broader and relates directly to the neuropsychological model of interpretation. This theory asserts that most, if not all, rock art, including the bighorn sheep motif, was produced as part of vision quests by individual male shamans seeking power to produce rain or to heal (Garfinkel 2006; Whitley 1998b, 1998c, 1998e).

It is difficult or impossible to use the relatively recent ethnographic record to discern meaning regarding either of these models, especially because some of the bighorn sheep elements may be several thousand years old (Hedges 2001; Whitley 2003). Entering into that debate in any meaningful way is beyond the scope of this paper. We follow Christensen and Dickey (2004:203) and choose not to "force rock art to conform" to our own or others' "preconceived framework such as hunting magic." Instead, our main goal is to evaluate the bighorn sheep motifs in our Little Lake Ranch database and then to compare the results with our secondary database of sheep elements collected elsewhere in the region by ourselves and others. Then we determine, so far as we can, if either the hunting magic or shamanism hypothesis is more valid than the other *in the context of Little Lake Ranch archaeology*. Our analysis of the bighorn sheep elements at Little Lake Ranch follows the key shown in Figure 6.6.

Figure 6.5

Locus 8, Panel 74b: deer and other quadruped elements lacking curved horns.

The questions we pose here are:

- Where are the bighorn sheep elements found at Little Lake Ranch?
- What are the defining characteristics or attributes of the elements?
- How are they similar to or different from one another?
- How are they similar to or different from bighorn sheep elements elsewhere in the area?
- Is one or the other of the hypotheses stated above better supported by our data?

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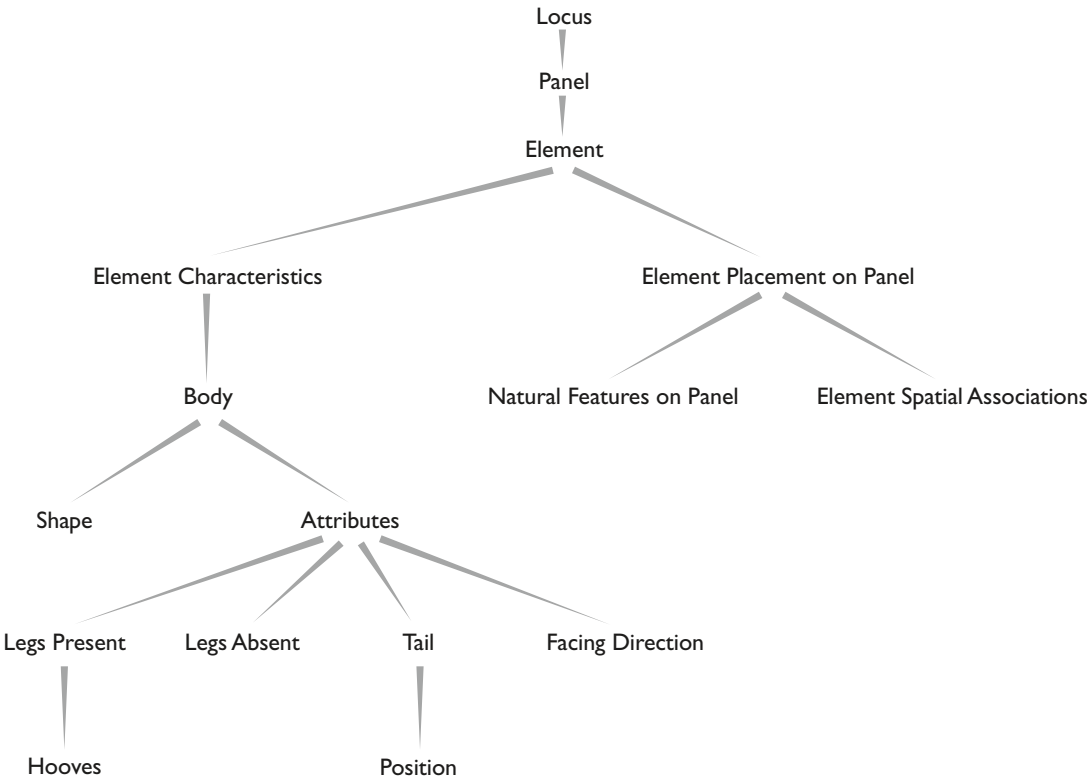

Figure 6.6
Diagrammatic key to our bighorn sheep motif analysis.

Antecedents to Our Study

The baseline rock art data for the formal analysis of the bighorn sheep element in the Coso Rock Art Landmark area is that of Grant, Baird, and Pringle (1968). Here is how Whitley (1998e:113) describes their work:

> The first, and still the most thorough study, was completed by Campbell Grant, Jim Baird, and Ken Pringle and ably reported in their book Rock Drawings of the Coso Range. Grant, Baird, and Pringle attempted to tally all the petroglyphs at the major (and many of the minor) sites in the Coso Range. This was a daunting task that literally took years of weekend work, and it was the first systematic study of Mojave Desert rock art. One of the important results was the tabulation of motifs present at many of the Coso sites. This tabulation is our best and most reliable record of the contents of, and range of variation in, the Coso petroglyphs.

Most analyses of Eastern Sierra and Great Basin rock art, including our Little Lake Ranch sheep element analysis, have depended upon the data collected and conclusions drawn in this pioneering work (Younkin 1998). We employed their data and followed their procedure for the Coso Rock Art Landmark.[2] In order to conduct a comparative analysis of the bighorn sheep elements at Little Lake Ranch with the much larger database in the Coso Rock Art Landmark, our first step was to determine the element occurrence and distribution within the Little Lake Ranch study area.

Bighorn Sheep Element Occurrence at Little Lake Ranch

As noted above, our primary database is the digitized set of collated and edited rock art images collected by UCLA field teams at Little Lake Ranch during weekend field trips from 1997 to 2009 (Hull, this volume). This primary database consists of photos,

Table 6.1
Occurrence of bighorn sheep elements at Little Lake Ranch.

LOCUS	NUMBER OF PANELS WITH BIGHORNS	NUMBER OF BIGHORN ELEMENTS
Locus 1	5	7
Locus 2	1	2
Locus 4	18	41
Locus 5	26	55
Locus 6	27	59
Locus 7	35	58
Locus 8	13	41
Pottery Slope	9	15
Stahl Site Cave	1	10
Atlatl Cliff	0	0
Total	135	288

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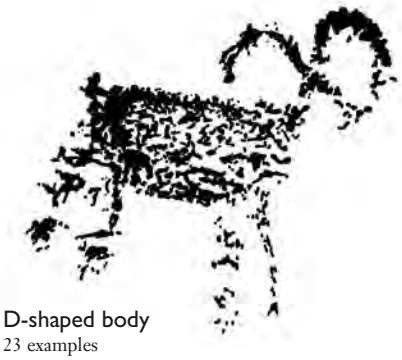
Figure 6.7

Bighorn sheep variant body forms for 288 elements.

Oval-shaped body
173 examples

Locus	1	4	5	6	7	8	PS	SS
n =	4	38	34	15	36	31	7	8

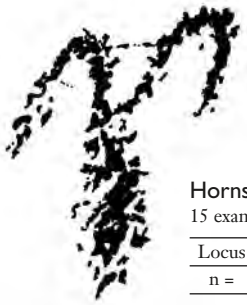


D-shaped body
23 examples

Locus	1	4	5	6	7	8	SS
n =	1	1	3	1	8	8	1

Crescent-shaped body
12 examples

Locus	1	5	7	8	PS	SS
n =	2	1	5	2	1	1



Horns
15 examples

Locus	5	6	7	PS
n =	5	1	4	5

Rectangular-shaped body
2 examples

Locus	4
n =	2

Linear body shape
12 examples

Locus	5	7	PS
n =	3	7	1

Circular body shape
6 examples

Locus	5	7
n =	5	1

drawings, and tracings of identified and numbered rock art panels in discrete loci. Rock art elements were reviewed by two teams of two researchers each, all of whom had participated in the field recording. Each element was assigned to one of the motif subcategories. The bighorn sheep element is a variant of the animal/zoomorph category and, as noted above, was defined by the presence of the animal's unique curved horns.

Images containing bighorn sheep elements were pulled from the primary database and filed as a subset. Sheep elements are present on only 135 panels, which is 11 percent of the total panels at Little Lake Ranch.[3] Sixty-five percent of the panels with sheep on them and 60 percent of the individual sheep elements are located at just three of the nine loci. Curiously, there are *no* sheep elements at Atlatl Cliff (Table 6.1).

Bighorn Sheep Element Characteristics

We further refined the bighorn sheep analysis to five formal subcategories:

- body form (seven variants)
- facing direction (five variants)
- presence, absence, and number of legs (eight variants)
- presence, absence, and number of hooves (four variants)
- position of the animal's tail.

To establish the degree of element similarity or difference, we printed the best available color images of each of the 288 bighorn sheep elements and

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categorized them according to body form (Figure 6.7). We expanded the most numerous body-form subcategory—the oval form—into five variations. Our resultant body-form variants are:

- rectangular body
- linear body
- circular body
- D-shaped body
- crescent-shaped body
- oval body, outlined
- oval body with short horns, profile
- oval body with long horns, profile
- oval body with horns front, oval body with other forms, including patterned, looking back, and idiosyncratic shapes
- horns only. [4]

Body forms had few design attributes in common, and thus the elements had a high degree of individuality.

Little Lake Ranch and Coso Rock Art Landmark Comparisons

While there is no precise count available of the total number of petroglyph elements contained within the Coso Rock Art Landmark, "conservative estimates indicate an excess of 100,000 individual glyph elements in an area of less than 223 sq. km" (Garfinkel, Marcom, and Schiffman 2007:84, citing Gilreath 1999; Hildebrandt and McGuire 2002). It is said that "over half" of that estimated count are "realistic portrayals of bighorn sheep or the weaponry and ritual paraphernalia associated with hunting" (Garfinkel, Marcom, and Schiffman 2007:84, citing Gilreath 1999; Hildebrandt and McGuire 2002). No matter what form the Coso Rock Art Landmark elements take, most are reported to be easily visible on basalt canyon walls, outcroppings, cliffs, and boulders.

If we assume that the estimated number of roughly 50,000 bighorn sheep elements is approximately correct, then the 7,196 examples recorded at 19 sites in the Coso Rock Art Landmark by Grant, Baird, and Pringle (1968: App. B Table 5; Table 6.2) is an adequate sample for our purposes.[5] To establish a baseline comparison, therefore, we arrayed our 288 Little Lake Ranch bighorn sheep elements in the same format and used the same classification strategy as Grant, Baird and Pringle (1968).

The classic Coso bighorn sheep element is so standardized as to be widely recognizable and closely identified with the Coso Range as a region. It is consistent in two important attributes: a "boat-shaped," "navicular," or D-shaped body and front-facing horns (Grant, Baird, and Pringle 1968:18). Only about 10 percent of the Coso Rock Art Landmark elements fit the classic definition. At Little Lake Ranch, only about 7 percent (19 elements) are within the classic Coso style.

Enriching the Database

Because images are not shown for most of the Grant, Baird, and Pringle examples, we created a database of 589 bighorn sheep elements from images recorded at 12 Coso Rock Art Landmark area sites. Our sources are three publications (Hirschmann and Thybony 1999; Whitley 1998c; Younkin 1998) and photographs taken by the authors and by Bill Wight, a docent at the Maturango Museum. The sites represented are Little Petroglyph Canyon (Lower Renegade Canyon), Upper Renegade Canyon, Big Petroglyph Canyon, Sheep Canyon, Birchim Spring, Carricut Lake, Gossett Site, Linnie Site, Wild Horse

Table 6.2 Comparison of bighorn sheep element types at Little Lake Ranch and Coso Rock Art Landmark

BIGHORN SHEEP ELEMENT MOTIF SUBCATEGORIES OR VARIANTS	COSO ROCK ART LANDMARK BIGHORN SHEEP ELEMENT COUNT (Grant, Baird, and Pringle 1968)		LITTLE LAKE RANCH BIGHORN SHEEP ELEMENT COUNT	
	NUMBER OF ELEMENTS	PERCENT	NUMBER OF ELEMENTS	PERCENT
D-shaped (horns front)	709	10	19	7
D-shaped (horns side)			17	6
Double ended	54	1	0	
Heads only	388	5	20	7
Horns front	1,352	19	39	14
Horns side	4,501	63	185	64
Impaled	105	2	0	
Rectangular	13	<1	2	1
With embryo	6	<1	5	2
With interior design	68	1	1	<1
Totals	7,196	100*	288	100*

* Due to rounding, individual percents in the table add up to 101 percent.

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Table 6.3 Bighorn sheep variant body-forms, Little Lake Ranch.

	RECTANGULAR	D-SHAPE	OVAL	CRESCENT	CIRCLE	LINEAR	HORNS ONLY	TOTAL
Locus 1	0	1	4	2	0	0	0	7
Locus 2	0	0	2	0	0	0	0	2
Locus 4	2	1	38	0	0	0	0	41
Locus 5	0	5	34	2	5	4	5	55
Locus 6	0	11	37	0	0	5	6	59
Locus 7	0	9	37	5	1	2	4	58
Locus 8	0	8	31	2	0	0	0	41
Pottery Slope	0	0	8	1	0	1	5	15
Stahl Site Cave	0	1	8	1	0	0	0	10
Totals	2	36	199	13	6	12	20	288
Percent	1	13	69	5	2	4	7	100*

* Due to rounding , individual percents in the table add up to 101 percent.

Table 6.4 Bighorn sheep variant body-forms, Coso Rock Art Landmark.

	RECTANGULAR	D-SHAPE	OVAL	CRESCENT	CIRCLE	LINEAR	HORNS ONLY	TOTAL
Coso Rock Art Landmark	10	159	337	30	7	6	8	557
El Paso Mtns	0	12	17	1	1	0	1	32
Totals	10	171	354	31	8	6	9	589
Percent	2	29	60	5	1	1	2	100

Mesa, and Wilson Canyon. We also included photographs from the Terese and Sheep Spring sites in the El Paso Mountains south of Little Lake Ranch. These two sites have classic Coso-style bighorn sheep elements, and we considered them to be part of the Coso corpus. Our resultant database was about 8 percent of the size of the Grant, Baird, and Pringle (1968) database.[6]

Comparative Analyses

Body Form The oval body form is by far the dominant body form at Little Lake Ranch (69 percent of the total), and it is also the most common body form in the Coso Rock Art Landmark database (60 percent of the total; Tables 6.3, 6.4).

At the Coso Rock Art Landmark and El Paso Mountains sites, the percentage of the classic D-shaped body form is more than double that found at Little Lake Ranch. Only about 7 percent of the Little Lake Ranch bighorn sheep elements are in the D-shaped body-form style with horns front (Figure 6.8). There are 105 impaled sheep elements (2 percent) and 54 double-ended elements (1 percent) in the Grant, Baird, and Pringle Coso Rock Art Landmark database. We have no examples of impaled or double-ended sheep at Little Lake Ranch; they are relatively rare in the Coso Rock Art Landmark as well.

Production The vast majority of the bighorn sheep elements at Little Lake Ranch (243 elements) were made by densely pecking the interior of the bodies, a labor-intensive task. Only 23 elements are simple outline forms with no interior pecking; most of these are at Locus 5. Only one very roughly made element has an interior body pattern and, like the rectangular body form, it is found at Locus 4. No bighorn sheep elements are painted or scratched.

Figure 6.8
Locus 7, Panel 544: bighorn sheep element with D-shaped body and horns front.

Facing Direction Most of the Little Lake Ranch bighorn sheep elements, excluding examples of horns or heads only, face to the right (Table 6.5). Approxi-

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Table 6.5 Bighorn sheep facing direction, Little Lake Ranch.

	HEAD LEFT	HEAD RIGHT	HEAD FRONT	BODY LEFT	BODY RIGHT
Locus 1	1	2	4	2	5
Locus 2	1	1	0	1	1
Locus 4	11	29	1	12	29
Locus 5	17	23	10	21	29
Locus 6	14	24	15	17	36
Locus 7	16	28	10	22	32
Locus 8	6	26	9	13	28
Pottery Slope	4	6	0	4	6
Stahl Site Cave	4	0	6	7	3
Totals	74	139	55	99	169
Percent	28	52	21	37	63

Table 6.6 Bighorn sheep facing direction, Coso Rock Art Landmark.

	HEAD LEFT	HEAD RIGHT	HEAD FRONT	BODY LEFT	BODY RIGHT	DOUBLE-HEADED
Coso Rock Art Landmark	106	161	278	206	339	4
El Paso Mtns	12	19	0	12	19	0
Total	118	180	278	218	358	4
Percent	21	31	48	38	62	1

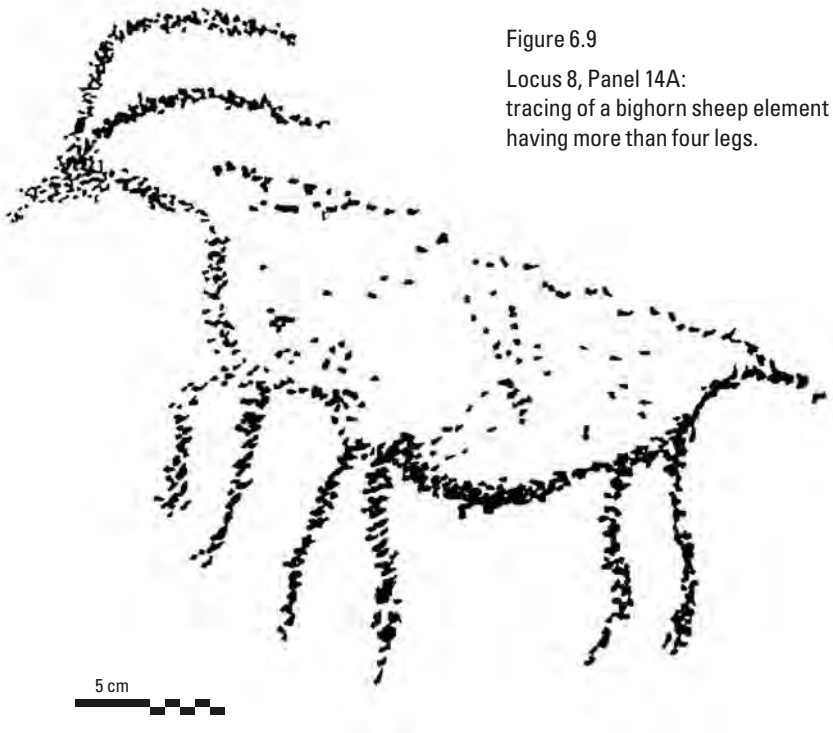

Figure 6.9
Locus 8, Panel 14A: tracing of a bighorn sheep element having more than four legs.

mately twice as many heads and twice as many bodies face to the right as to the left. However, at Pottery Slope, the right- and left-facing elements are about evenly divided. At the Stahl Site Cave, seven of the 10 bighorn sheep elements are left-facing. In the Coso Rock Art Landmark and El Paso Mountains database, the favored body direction of the majority of the sheep elements is also to the right, although by a slightly lower percentage than at Little Lake Ranch (Table 6.6).

It is interesting that the vast majority, about 90 percent, of atlatl elements at Atlatl Cliff are depicted as facing left (the hook drawn toward the left side; Bretney, this volume), whereas about two-thirds of the sheep elements at the other Little Lake Ranch loci are right facing. We have no firm explanation as to why the favored directions vary in this manner. However, we theorize that right-handed artists may be more likely to create animal elements that face to the right.

Legs and Hooves Seventy-nine percent of the bighorn sheep elements at Little Lake Ranch have four legs. The Coso Rock Art Landmark and El Paso Mountains data show a similar relationship, with 88 percent having four legs. A few sheep, however, are depicted without legs. A few have more than four legs, which we surmise may imply running (Figure 6.9).

Hooves as a design detail are extremely rare at Little Lake Ranch, with only nine of 268 full-body bighorn sheep elements having hooves (Figure 6.10). In the Coso Rock Art Landmark sample, only 17 have hooves. Thus, we conclude that hooves were not a significant design attribute of the bighorn sheep element regardless of which body form was depicted.

Tail Of the 268 bighorn sheep elements at Little Lake Ranch showing the animal's complete body, 74 percent have a tail (Figure 6.11). In most cases, the tail is depicted as horizontal or raised slightly above horizontal. For the Coso Rock Art Landmark, 80 percent of the bighorn sheep elements are depicted with their tails in a similar alignment or position. This aspect of bighorn sheep motif variation has been suggested to have symbolic meaning (Keyser and Whitley 2006:19, Figure 9) and is discussed below.

Element Location on Panel Rock art elements at all of the Little Lake Ranch loci we studied were pecked on panels defined by edges, natural cracks, or separations in the rock surface. Panels on boulders were defined by the faces of the boulders. We divided all of the rock art panels having bighorn sheep elements into five sections that were numbered as follows: (1) upper left; (2) upper right; (3) lower right; (4) lower left; and (5) center. In general, the most common location for the bighorn sheep element at Little Lake Ranch is the upper left of each panel (Table 6.7).

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We also evaluated the elements according to their general placement in the top, bottom, left, and right of defined panels (Table 6.8). The top is preferred over the bottom of the panel for element placement. Elements are fairly evenly distributed between the left and right portions of the panels, except at Locus 4, where the preferred position is left. The placement of the bighorn sheep elements in the top portions or upper left of the panels at Little Lake Ranch may or may not be random; regardless, its significance, if any, is not clear to us. Further analysis of a larger regional sample may determine if there is a broadly existing preferential pattern.

Element Context: Natural Features It is suggested that the placement of rock art elements relative to depressions or cracks in rock panels is an intentional symbolic aspect of shamanic rock art production (Whitley 1998b:17). We studied the placement of the 288 bighorn sheep elements at Little Lake Ranch in relation to natural features on the rock panels. Ninety-two percent were associated with depressions or cracks but also with edges. We are not certain that the associations between the rock art and cracks in the rock panels at Little Lake Ranch are significant, because this is a very active earthquake area (Glazner, this volume). It is often impossible to determine whether the cracks were there when the rock art was created or whether the rocks subsequently cracked. There are some rock art panels at Little Lake Ranch that have clearly broken after the various elements were made, but many others associated with cracks are not so clear.

Element Associations We evaluated whether the Little Lake Ranch bighorn sheep elements are isolated on panels or found in direct or indirect association with other categories of motifs (Table 6.9).[7] We defined "direct association" as occurring when a single bighorn sheep element was actually touching another

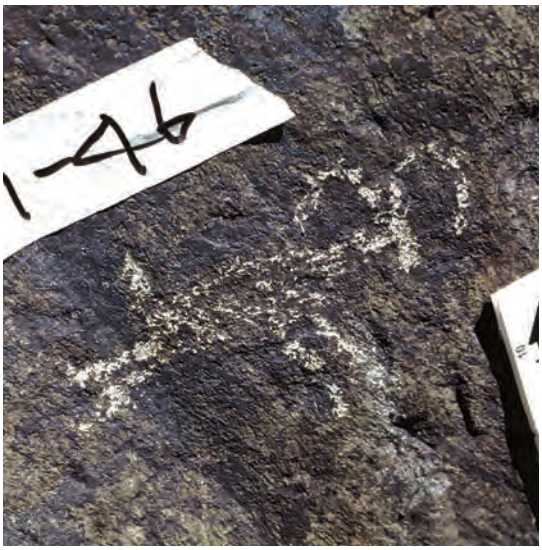

Figure 6.11
Locus 1, Panel 46: bighorn sheep element with upraised tail.

Figure 6.10 Pottery Slope, Panel 108: a bighorn sheep with hooves.

Table 6.7 Bighorn sheep panel distribution, Little Lake Ranch

	PANEL LOCATIONS					
	UPPER LEFT	UPPER RIGHT	LOWER RIGHT	LOWER LEFT	CENTER	UNKNOWN
Locus 1	1	3	0	0	2	1
Locus 2	0	0	0	2	0	0
Locus 4	22	1	3	9	6	0
Locus 5	15	13	12	9	3	3
Locus 6	12	17	10	4	14	2
Locus 7	17	9	15	6	11	0
Locus 8	10	12	5	6	8	0
Pottery Slope	6	0	4	2	3	0
Stahl Site Cave	2	2	4	0	2	0
Totals	85	57	53	38	49	6

Table 6.8
Bighorn sheep panel quadrant preference, Little Lake Ranch

	TOP	BOTTOM	LEFT	RIGHT
Locus 1	4	0	1	3
Locus 2	0	2	2	0
Locus 4	23	12	31	4
Locus 5	28	21	24	25
Locus 6	29	14	16	27
Locus 7	26	21	23	24
Locus 8	22	11	16	17
Pottery Slope	6	6	8	4
Stahl Site Cave	4	4	2	6
Totals	142	91	123	110

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element. "Indirect association" was when a bighorn sheep element was near to any other type of element on the same panel. We defined "near" as being separated from other elements by up to one body length of the sheep in question.

The association of bighorn sheep elements with other elements of any type on a given panel is most common at Locus 6, Locus 8, and Stahl Site Cave. Overall, the association of bighorn sheep elements with other bighorn sheep elements is very strong at Little Lake Ranch and is also dominant in the Coso Rock Art Landmark (Table 6.10).

Curvilinear and angular/linear motif categories are numerically very large at Little Lake Ranch and are similarly dominant throughout the Coso Rock Art Landmark. Ninety-eight curvilinear and 48 linear elements are in direct or indirect association with bighorn sheep elements at Little Lake Ranch, and these were analyzed to determine if there was a preferential pattern. In the curvilinear category, the single circle is the most common variant associated with bighorn sheep elements (50 percent). In the linear category, the multiple lines element is the most common associated variant (40 percent). Both the curvilinear and the linear elements, obviously, are abstract or nonrepresentational.

At Little Lake Ranch, there are 12 anthropomorphs near or touching bighorn sheep elements. Only one of these bighorn sheep elements is of the patterned-body variant. Two anthropomorphs near sheep elements at Stahl Site Cave appear to be holding bows.[8] We discuss these associations when evaluating the hunting magic theory below.

Element Placement and Visibility Locus 7 is a steep, basaltic cliff face adjacent to the southeastern Little Lake shoreline. A shallow wash runs along the length of its base on the west side. Petroglyphs are scattered over much of the cliff, with the main concentration at the south end. Rock Art Archive teams established three survey control points on the ground surface above the level of the wash and used them to map the Locus 7 rock art panels.

Because of the near-vertical slope of the west-facing cliff face, rock art panels up to elevations of 2 m are readily visible from the ground. There are 48 mapped bighorn sheep elements on 11 panels at Locus 7, and nearly half of them can be seen from the wash.[9]

Element Size The largest bighorn sheep element at Little Lake Ranch is at Locus 8. It is of the Coso Range iconic style, which we define as having a D-shaped body lightly pecked with or without a tail; head with front-facing horns and with or without ears, and thin curved legs. There are only two examples of this iconic Coso-style bighorn sheep element at Little Lake Ranch. The one at Locus 8 is on Panel 16 (Figure 6.12). It is 87 cm long, which is almost twice the length of the next largest bighorn sheep element at Little Lake Ranch, and is 37 cm high. It is exceptional in size, visibility, and accessibility. Its posture and near vertical position, with slightly curved legs probably indicating movement, is dynamic. A smaller iconic Coso-style bighorn sheep element is at Locus 6 (48 cm long, 58 cm high).[10] In the Coso Rock Art Landmark sample, approximately 19 percent of the sheep elements are of this iconic style. Other, near-iconic examples exist at Little Lake Ranch and similarly account for 19 percent of the D-shaped body forms. In contrast, this same category represents about 34 percent of the total in the Coso Rock Art Landmark.

In the Coso Rock Art Landmark, the bighorn

Table 6.9 Bighorn sheep element associations, Little Lake Ranch.

	SHEEP		ABSTRACT		ANTHROPOMORPH		ISOLATED
	NEAR	TOUCHING	NEAR	TOUCHING	NEAR	TOUCHING	
Locus 1	4	0	3	0	0	0	1
Locus 2	2	0	0	0	0	0	0
Locus 4	31	9	30	13	3	0	2
Locus 5	26	2	24	4	1	2	14
Locus 6	32	6	17	2	0	0	15
Locus 7	25	4	26	4	4	0	8
Locus 8	34	9	4	1	0	0	5
Pottery Slope	6	0	6	0	1	0	4
Stahl Site Cave	9	0	0	0	5	1	0
Totals	169	30	110	24	14	3	49
Percent	69		47		6		17

Table 6.10 Bighorn sheep element associations, Coso Rock Art Landmark.

	SHEEP		ABSTRACT		ANTHROPOMORPH		ISOLATED
	NEAR	TOUCHING	NEAR	TOUCHING	NEAR	TOUCHING	
Coso Rock Art Landmark	396	70	112	16	65	3	22
El Paso Mtns	24	0	17	2	1	0	2
Totals	420	70	129	18	66	3	24
Percent	83		25		12		4

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sheep elements vary in size from quite small to larger than life-size. The average length of the bighorn sheep elements at Little Lake Ranch is 18 cm, and the average height is 16 cm. With the exception of a few elements with large, upswept horns, the largest Little Lake Ranch bighorn sheep elements are only about half the length of the iconic Coso-style petroglyph found at Locus 8. By any measure, the iconic Coso-style element is *less prominent and less frequent* at Little Lake Ranch than in the Coso Rock Art Landmark area.

Interpreting the Data

In our judgment, the Little Lake Ranch bighorn sheep elements are directly related stylistically to those found in the Coso Rock Art Landmark. While they do not all share the full range of design attributes defined for the Coso Rock Art Landmark corpus as a whole, each Little Lake Ranch variant is a recognizable representation of the actual animal. Owing to their variation in form and completeness of rendition, they appear to be highly individualized products of differing levels of time investment. They were probably made by individuals of varying skill and possibly from different age or ethnic groups. As a whole, they do not seem to have been produced by "art specialists."

Style Progression: Continuity and Florescence

Grant, Baird, and Pringle (1968) divided the bighorn sheep motif into early, transitional, and late periods. Early-period elements include depictions of horns only or heads only and sheep "with horns side" (sheep with horns seen in profile). Transitional forms include oval-bodied sheep with horns side and some with horns to the front as well as rectangular body forms. Late-period elements include the classic D-shaped Coso body form and those with patterned bodies. Garfinkel, Marcom, and Schiffman (2007:85) have a similar stylistic trajectory:

> [D]uring the total span of production [6500 B.C. to A.D. 1000/1300, with the majority of rock art produced during the latter period], rock drawings changed from abstract to more naturalistic forms eventually culminating in the elaborate, boat-shaped bodied big-horns with full, front-facing, bifurcating horns.

Rogers (2010), through the use of X-ray fluorescence (XRF) technology, suggests a time frame for the key defining elements: 4300 B.P. for a sheep head element; 2100 B.P. for sheep with horns side, and 1300 B.P. for the classic Coso form.

We presume the same general stylistic trajectory for Little Lake Ranch. However, only 12 elements in the entire sample have obvious levels of significant patination. They are:

Figure 6.12
Locus 8, Panel 16: iconic Coso-style bighorn sheep element.

- four heads with horns or horns only (Grant, Baird, and Pringle Early style; Rogers Type I)
- four elements with long horns in profile and with oval bodies (Grant, Baird, and Pringle Early style; Rogers Type I)
- three with circular bodies and with long horns in profile (probably also Early and Type I)
- one with a rectangular body (Grant, Baird, and Pringle Transitional style; Rogers Type II).

Nearly all of these early or transitional body forms continued throughout the sequence. From consideration of these data in the context of Little Lake area archaeology as a whole, we infer a stylistic continuity between Little Lake Ranch and the Coso Rock Art Landmark in general and a florescence of bighorn sheep element production at Little Lake Ranch after *c.* 1300 B.P. If this time estimate is correct, it may indicate significant movement of Native peoples from the Coso Range area to or past Little Lake at about 1300 B.P.

Associations, Facing Direction, and Visibility

Bighorn sheep elements at Little Lake Ranch are most frequently associated with other bighorn sheep elements, especially at Locus 6, Locus 8, and Stahl

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Site Cave. The preferred facing direction is to the right. With a few exceptions, the optimum viewable elevation at Locus 7 is 2 m or less.

There is no association between the depiction of bighorn sheep as an important game animal and weapons. For example, the bighorn sheep element is completely absent from Atlatl Cliff, which is distinguished by 99 elements representing atlatls, presumably the weapons used to hunt bighorn sheep (Bretney, this volume). With the exception of those at Stahl Site Cave, none of the Little Lake Ranch sheep elements at any of the loci depicts the animal as being hunted, chased, or killed. In contrast, the Coso Rock Art Landmark has many depictions of atlatls in association with bighorn sheep elements, and many others of sheep being hunted.

Depiction of Raised Tails

Keyser and Whitley (2006:19, Figure 9) describe a bighorn sheep element at nearby Big Petroglyph Canyon in the Coso Range as "killed." Their evidence is "the straight line (presumably an arrow or spear), bleeding from the mouth, and upraised tail (a rigor mortis posture for the big horn)."

A review of over 900 images of *living* bighorn sheep from various sources found *none* with the tail elevated. We then turned to June Sampson of the National Bighorn Sheep Center and asked whether or not an upraised tail was "a rigor mortis posture for the big horn." She said that the only time she had seen a sheep with its tail up was when it was urinating or defecating (June Sampson, personal communication 2006). Pat Feldt (personal communication 2006), owner of Arizona Guided Hunts, a bighorn sheep hunting organization, said:

> I have seen many petroglyphs of sheep (or what people have told me were sheep) in the desert, as well with the tail up…I do not know why they are depicted as having the tail up when alive. I have seen hundreds of live desert sheep, and have yet to see one with its tail up, other than when defecating. When rigor sets in, I don't see the tail up either.

Jim Dines (personal communication 2006), a researcher at the Museum of Natural History of Los Angeles County, said:

> I can't really speak to the idea that mountain sheep raise their tails as they're dying. Usually though, an animal that is dying is so weak that it doesn't have the energy to do things like raise its tail. I haven't been able to find any other reference to raised tails in bighorns, except for the instances of defecation or urination.

So, without further documentation, we do not concur with Keyser and Whitley (2006:19, Figure 9) that the raised tail is a sign of rigor mortis in the actual animal. However, our data reveal that 74 percent of the bighorn sheep elements at Little Lake Ranch and 80 percent of those in our Coso Rock Art Landmark database depict tails raised to at least the horizontal position, and agree that it is a significant stylistic attribute.

Hunting, Hunting Magic, and Petroglyph Production

The regional archaeological context reveals a "focus on bighorn sheep between 3,500 and 1,000 cal B.P." and a correlation with the production of obsidian projectile points and other "hunting implements" (Gilreath and Hildebrandt 2008:17). This interpretation fits well with what we see as an increase or florescence of bighorn sheep petroglyphs at Little Lake Ranch *c.* 1300 B.P.

Garfinkel, Young, and Yohe (2010) correlate the decrease of bighorn sheep from over-harvesting in the Coso Range to the increase in production of bighorn sheep in Coso rock art. This increase, they feel, "is not so much a proxy measure of economic abundance and success of bighorn hunts but was, quite the contrary, a manifestation of ritual intensification designed to affect supernatural agents to increase animals, plants, and the availability of water" (Garfinkel, Young, and Yohe 2010:50).

Gilreath and Hildebrandt also assert that "the production of Coso rock art tracked closely with the rise and fall of bighorn sheep hunting in the southwestern Great Basin," and that the "prolific quantities" of Coso-style bighorn sheep petroglyphs were "aimed at propagating bighorn" (Gilreath and Hildebrandt 2008:18).

Bighorn sheep rock art elements in the Coso Range are said to be "embedded in an archaeological record that dates predominantly between 2,500 and 1,000 years ago" (Gilreath and Hildebrandt 2008:17). We agree that the probable importance of hunting the bighorn sheep in the Coso Range "went well beyond subsistence" and that trophy hunting may have provided "successful hunters with high levels of prestige" (Gilreath and Hildebrandt (2008:17). If most bighorn sheep elements are, indeed, this old, then the use of ethnographic data from the last century or two to interpret such rock art is of little use.

The majority of the bighorn sheep elements are in the riparian zone and in proximity to settlement and use areas. Wildlife seek water sources such as Little Lake, creating game trails in the process. Some researchers state that the proximity of rock art to game trails or hunting blinds is an indicator of hunting magic, and that Little Lake was geographically suited to the ambush hunting of large mammals (Grant, Baird, and Pringle 1968:29; von Werlhof 1965). No game trails are evident in direct relation to bighorn sheep elements at Little Lake Ranch. Of course, any prehistoric game trails probably have

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been lost to erosion and eolian infilling.

Ninety-nine percent of the sheep elements at Little Lake Ranch have no apparent hunting connection at all. The main exceptions are the two apparent hunters with bows shooting arrows at sheep, both of which are inside the Stahl Site Cave, as noted above (Figure 6.13). Except for this, there is a *near-complete absence* of anything that might be even broadly interpreted as a hunting scene. The only other possible hunting associations include one sheep element at Locus 5 that is associated with motifs that appear to be projectile points and another in Locus 4 that is near an apparent projectile point.

If the purpose of producing bighorn sheep elements was an increase ritual intended to ensure the successful hunting of declining sheep populations, such "hunting magic" didn't, in general, work very well at Little Lake Ranch. All of the published faunal analyses for the area reveal that rabbits were the primary prey. Thousands of rabbit bones have been counted at many sites in the region, while only a few bighorn sheep bones have been found (Moore 2005). Nonetheless, participation in communal sheep hunts and off-site consumption would have been possible. The hunting magic thesis, therefore, remains a plausible model which requires further study for the region as a whole (Gilreath and Hildebrandt 2008; Quinlan and Woody 2001:216).

Bighorn Sheep and Shamanism

Whitley (1998e:158–159) asserts that patterned-body anthropomorphs represent rain shamans and that the patterned-body sheep are the shamans in sheep bodies.[11] The patterns are said to be based on those of ritual "shirts" worn by shamans and also on abstract entoptic elements. Whitley (1998e:150–154) states that entoptic elements are seen by shamans when they are in an altered state of consciousness (the neuropsychological model). In his view, the shamans made rock art to record their visions, and the sheep elements represent their spirit helpers. "Because a bighorn sheep was his spirit helper, when he 'killed' himself (by going into a trance), he killed his spirit aid, the bighorn sheep" (Whitley 1998e:158–159). His view that the upraised tail on sheep elements is a metaphorical reference to shamanic death, as we have noted above, is not convincing.

There are only two distinctive patterned-body anthropomorphs at Little Lake Ranch, both at Locus 7. There is a non-patterned sheep element near one of these figures, and both of the anthropomorph's "shirts" are similar to the pattern of the one patterned-body sheep, which is at Locus 4. However, the patterned-body sheep is not associated with any patterned-body anthropomorph. These data are too scant to be evidence for or against Whitley's (1998e) assertion.

Conclusion

We evaluated our Little Lake Ranch bighorn sheep rock art database in terms of such features as placement on panels, body shape, and a full range of descriptive attributes. The oval body form dominates (69 percent of the total), and the vast majority of these are densely pecked. The majority of bighorn elements are also right facing, with four legs, and an upraised tail. The preferred panel location is the upper left. There is a strong association of sheep elements with other sheep elements. We also conducted a comprehensive comparative review and analysis of similar motifs from a large sample of Coso Rock Art Landmark sites.[12] We conclude that the Little Lake Ranch bighorn sheep elements fit stylistically within the greater Coso Rock Art Landmark bighorn sheep rock art corpus.

The suggested stylistic progression from abstract to realistic seems, on the surface, to be reasonable. However, there are only 12 bighorn sheep elements with obvious amounts of patination at Little Lake Ranch. Neither of the iconic Coso forms and *none* of the other directly related classic forms (D-shaped bodies with front-facing horns) is noticeably patinated. Most of those suggested to be early in style are as fresh as those thought to be later. This evidence, in the context of our overall event sequence, suggests a florescence of bighorn sheep petroglyph production at Little Lake Ranch after *c.* 1300 B.P. That florescence correlates, so far as the current data allow, with a broader hunting "focus on bighorn sheep between 3,500 and 1,000 cal B.P." (Gilreath and Hildebrandt 2008:17).

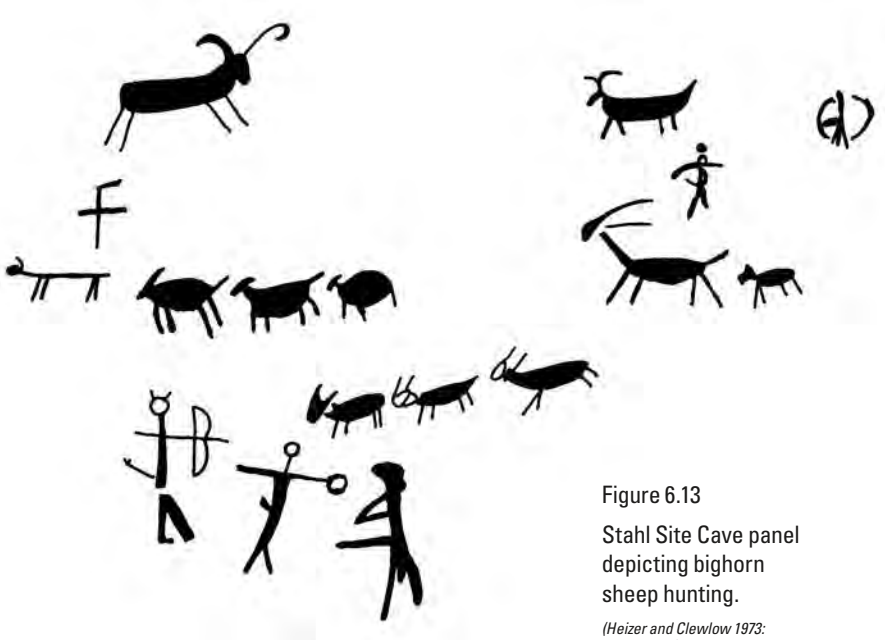

Figure 6.13

Stahl Site Cave panel depicting bighorn sheep hunting.

(Heizer and Clewlow 1973: Figure 24-A). Courtesy UCLA Rock Art Archive Special Collections.

Panel size, 4 x 3 feet.

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Chapter 7

Painted Rock Art and Stahl Site Pigments

Jo Anne Van Tilburg and Clarus Backes, Jr.

There is no such thing as immaculate perception.
Jonah Lehrer 2007

Figure 7.1
Locus 7, Panel 53: red paint applied to a pecked rock element.

Figure 7.2
Locus 3, Panel 7: painted zigzag pattern *(top center)*.

PAINTED ROCK ART AT LITTLE LAKE RANCH is not extensive, and most of it is faded to the point of loss. Nonetheless, it is unique for the area and fully described here for the first time (Figure 7.1). We build upon traditional methods of stylistic and spatial analyses described in Chapter 3 to establish a set of traits characteristic of the painted work and suggest affinities between it and other sites in the region. We also describe the application of more recently developed scientific techniques of pigment analysis. One aim is to judge the applicability to rock art research, if any, of these techniques. Secondly, we wish to determine if there are compositional links between rock art paint and raw pigments retrieved from the Stahl Site (Harrington 1957).

Previous Observations of Little Lake Ranch Painted Rock Art

In 1860 a prospector named M. H. Farley described rock art in our area as "colored with some pigment, perhaps cinnabar" (Chalfant 1933:130). Painted rock art in the Owens Valley as a whole is relatively recent, recognizably different in style from that to the west and "so rare that it may be said that the petroglyph was the sole method of expression of the aboriginal artists of this region" (Chalfant 1933:24–27).

On December 19, 1926 William Lyle Skinner, a mining engineer in Lone Pine, wrote to anthropologist Julian H. Steward at the University of California, Berkeley.[1] He described pecked rock art at Little Lake but stated that "as far as I know there are no Indian rock paintings in Inyo County." Subsequently, Steward (1929:78) visited Little Lake and noted that "in addition to the petroglyphs there are several faint traces of pictographs."

> The pictographs were too dim to gain any adequate idea of their form. They appear however to form designs made up of combinations of dashes. The color is red except one figure which is black. In no case is a pictograph superimposed upon a petroglyph although several petroglyphs were painted red. . . . Although several petroglyphs have been cut through pictographs, there is no reason to believe that there is any great difference in their ages (Steward 1929:82).

Exactly fifty years later, in 1979, a reconnaissance-level cultural resources inventory of 346 acres then comprising the Little Lake

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Wildlife Area was made for the California Department of Fish and Game (Great Basin Foundation 1979). It noted painted rock art at two areas, "Twenty-A" and "Twenty-B." The former consisted of

> petroglyphs in an abstract style and seven panels of pictographs. (Pictographs are not a common element within the Little Lake area). These consist of red on white abstract and representational designs. It should be noted that some of the designs appear to have been first painted and then covered over with a pattern of pecked designs.

Site Twenty-B consisted of

> petroglyph and pictographs extending from ground level to approximately 30 meters up the basaltic walls. There are over 30 separate panels noted with Great Basin Representational elements being the primary style.

Figure 7.3
Locus 8, Panel 47:
(*a*) barely discernible vertical diamond patterns on the left.
(*b*) vertical diamond patterns made visible by digital enhancement.

Von Werlhof (1965:5) examined five clusters of rock art at Little Lake and noted pigment we did not find.[2]

> One hundred feet from the draw leading out of the canyon, and against the malapais [sic] knoll on the western side of the tableland, is a large outcropping with a small cave underneath. Petroglyphs with pigment rubbed into the grooves are to be seen above the entrance.

He believed at the time that there was only one polychrome site in the Owens Valley (Iny-181 or, more properly, CA-INY-181), located 1 mile east of Sage Brush Flat and 4 miles southwest of Olancha (von Werlhof 1965:7). He compared its "elongated and more complex" painted elements to others with paint lying "along the western edge of the Sierra in Tulare County" and suggested that Iny-181 represented "an intrusive cultural element into the valley from the west" (von Werlhof 1965:7).

That same year, Campbell Grant filed his own site report for Little Lake Ranch (Little Lake #1, CG Iny-23).[3] His experienced eye noted with interest the diamond and zigzag designs on Panel 7 at Locus 3 (locally known as Painted Cave; Figure 7.2) and Panel 47 at Locus 8 (Figures 7.3a, b). He thought that both were late and that their affinity would be with the Tübatulabal or the Kawaiisu, an opinion with which we concur, although we also detect the influence of the Yokuts and some techniques similar to those documented in the East Mojave. Grant's site report further noted that the paintings at Locus 3 were unique in the Owens Valley and thought that "no investigator at Little Lake has previously noted the color sites."

Field Documentation

Rock art panels, no matter what their mode of production, were located, mapped in place, and captured photographically by Rock Art Archive teams over the course of fieldwork conducted seasonally from 1997 to 2007. In the early stages we produced both slides and prints using film photography. Subsequently, digital photography was used. The specialized photographic techniques described here were employed by one of the authors (Backes) to extract stylistic data from painted panels in order to establish the groundwork for pigment sampling and analysis.

As with scratched rock art (Reed, this volume) analysis of painted motifs was accomplished at the UCLA Rock Art Archive in two stages. In the first stage, two research teams of two analysts each reviewed the entire Little Lake Ranch image database and assigned pecked elements to defined motif classes and variants.[4] If paint was present, a notation was

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made in the "field notes" section of the panel's prime image text block. Paint that had not been flagged in the field was occasionally discovered in the lab.

In the second stage, all panels containing paint, along with their attached data, were assigned to a subset image database. One of the analysis teams then reviewed each panel again to assign the painted elements to the same motif classes or variant categories defined for pecked elements. If superimposition or overlapping was present, a judgment was made as to whether paint was placed over or under a given pecked motif. Many examples of paint were merely amorphous applications of pigment or fingerprints, but in some cases there appeared to be a clear intent to enhance previously existing petroglyphs.

Location, Distribution, and Scale

The locations and descriptions of individual rock art loci, as well as their relationships to one another and to the lake, are given in Chapter 3. The painted rock art at Little Lake Ranch is only a very small percentage of the total corpus and is *distinctive in its discontinuous distribution*. Of 1,228 pecked rock art panels recorded for Little Lake Ranch as a whole, only 70 panels in four loci have a total of 127 painted elements. Of these, three panels in Locus 7 are only "possible" red and black paint; these are counted as painted panels but do not figure in the motif analysis. Three instances of paint observed on or adjacent to petroglyph panels located outside of our study area on the northern boundary of Little Lake Ranch (Locus 2) are also not included.[5] Three small painted panels are located at Stahl Site Cave, and they are described and illustrated in Chapter 3. All of the other painted rock art is within Locus 3, Locus 7, and Locus 8.

Fully 77 percent of the painted panels are in Locus 7, a rock art–dominant area in the riparian/desert scrub transitional zone south of the lake that contains the largest corpus of pecked rock art at Little Lake Ranch. Locus 8 is a multiple activity area also in the transitional zone between the lakeshore and desert scrub flatland. Locus 3 (Painted Cave) is in sharp contrast to these two areas. It is situated in Locus 4, a lakeside cove in the riparian zone. Locus 3 is set apart from the cove—which we describe as a multiple activity area—but not isolated from it. Locus 3 contains eight rock art panels inside the cave and others outside and directly related to it.

Twenty-two Little Lake Ranch panels consist of paint only. In the professional vocabulary of North American rock art literature, they are categorized as monochrome or polychrome pictographs. All monochrome paintings are red. Polychrome panels often contain white and black as well as variant shades of red, pink, or orange. The red paint is largely within the Munsell 10R reddish-brown category (Table 7.1). It should be noted, however, that perception of

Table 7.1 Munsell Color System value, motif categories, pigment samples, and production techniques.

LOCUS 7 PANEL	MUNSELL DESIGNATION	MOTIF CATEGORIES	TECHNIQUE
26	Black, red	7a, 1g, 4i	Petro over
40		4i	Paint only
41		1,1,1,1b	Paint only
42	10R 4/8	1, 1b	Paint only
43	10R 4/6	1	Paint only
44	10R 4/6	1a, 1, 1	Paint only
45	10R 3/6	1complex	Paint only
47		7a	Paint over
49	10R 3/6	1, 7a, 7a	Paint over
51	10R 4/8	7a	Paint over
53	10R 3/6	7a	Paint over
55	10R 6/6	7a	
56	10R 6/6	1	Petro over
57	10R	1, 1a, 4i,7a,4,4	Paint only
59	10R 3/5	4, 1a	Paint only
61		7a	Paint over
60		7a	
65	10R	1,7a,4i	Paint over
67	10R	7a	Paint over
82		7a	Paint over
83	10R	1, 4, 1	
86	10R	7a	
90	10R 2/5 YR	7a	
91	10R 3/6 black, white	4m	Petro over
92	10R 5/6; sampled	4n, 3a, 1b, 4, 1, 7a	Petro over
93	10R 4/5	1	Paint over
94		7a	Paint over
96		1	
97	10R 2/5 YR	1c, 4, 4m, 1, 1b, 7a	Petro over
108	2.5 YR	7a, 7a, 7a	Paint over
112	10R 2.5YR	4	Paint only
119	10R 2.5YR	1, 4e, 1, 1, 1, 7b	Petro over
120	10R 3/6 sampled; hematite; correlated C1-03; 7-662	1b, 1com, 1com	Paint only
123	10R 2.5YR	1b, 1b, 1	Paint only
130		7a	Paint over
131		7a	Paint over
143		1b	Paint over
159		7a	
160		7a	Paint over
200	5 YR 7/6	7a, 1, 1, 1	
201	10 YR	1	Paint only
214	5YR 7/6	7a	Paint only
552	10YR		
561			
570			
573		1	Paint over
577	5 YR 7/6	7a	Paint over
605	2.5YR 6/7	7a	Paint only
614	5.8YR	1,7a	Paint only
615	5.8YR	1, 7a	Paint only
632	10YR	4h	Paint only
662	Paint plug; hematite; correlated C1-03; 7-120	7a, 4a	Paint over
703		7a	Paint over
727		7a	

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Figure 7.4 *left*

Locus 7, Panel 65: pecked rock art element with applied paint.

Figure 7.5 *right*

Locus 7, Panel 573: paint applied to a pecked rock art element.

real versus apparent color varies with stone surface color and available light (Hilbert 1987:61, 72). Some whites, for example, appear gray or even blue in certain light. The paint is nearly always applied sparsely, no matter what the color.

Paint and pecked elements co-occur on 12 panels but are discrete from one another. Twenty-three panels have paint on pecked elements, including three cases where the paint was carefully applied to underlying pecked elements, some of which are similar to one another (Figures 7.4, 7.5). Only six panels have pecked elements overlaid on or through paint. Scratching occurs on 12 panels, although none of it can be said with absolute certainty to be placed on or over paint.

About 46 percent of the painted panels have only one painted element. The remaining painted elements were classified into a narrow range of motif

Figure 7.6

Locus 7, Panel 92:

(*a*) overview of painted elements possibly stenciled with a straightedge.

(*b*) detail of digitally enhanced photograph of painted elements possibly stenciled with a straightedge.

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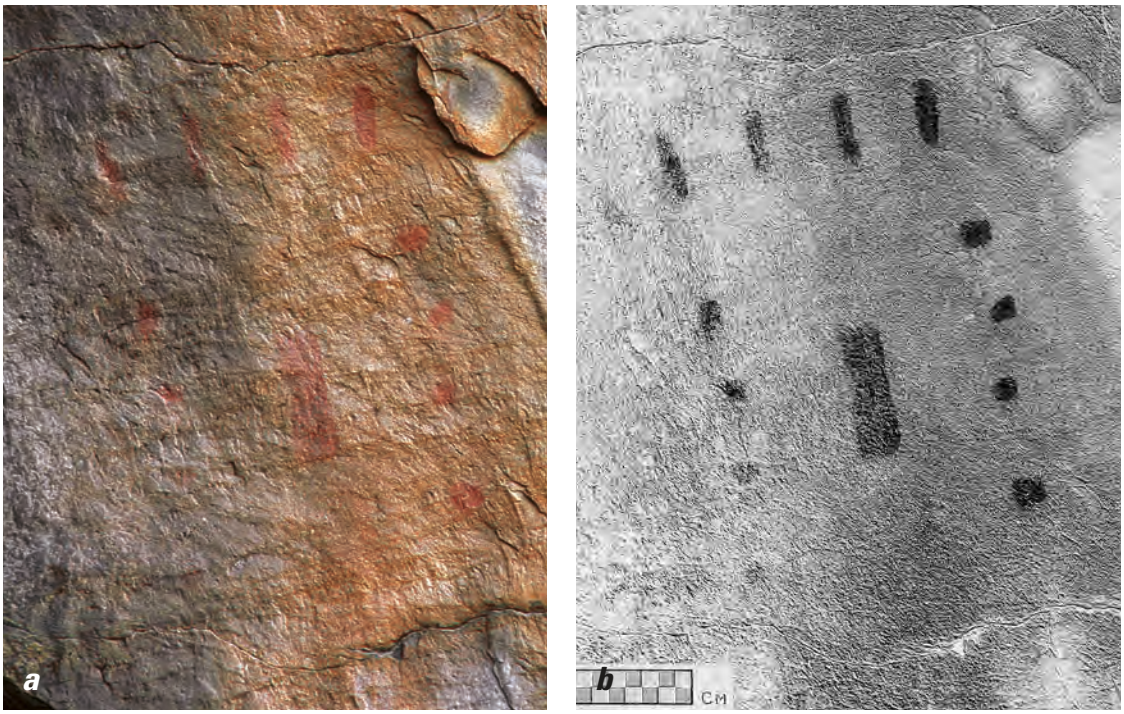

Figure 7.7
Locus 7, Panel 83:
(*a*) paint applied by fingers.
(*b*) digitally enhanced photograph showing paint applied by fingers.

categories (see below). Panel 119 (120 × 92 cm) in Locus 7 is one of two large panels on which paint is found; the other is Panel 112. The median size of 36 painted rock art panels is only 35 × 28 cm.[6]

Methods of Paint Application

Not all of the Little Lake Ranch paint was applied to the rock surface in the same manner, and it is the thicker red pigment that reveals application methods most clearly. For example, in several cases a chunk of red pigment or friable red scoria appears to have been held in the hand and then applied directly to the rock face. Occasionally a thin implement, perhaps a feather or a reed, appears to have been used to apply the paint. Some of the straight lines in a few Little Lake Ranch painted motifs are so well drawn as to appear stenciled or, more likely, drawn with the aid of some sort of straight-edge (Figures 7.6a, b).[7] Several panels show very clearly that red paint was applied first to the tips of the fingers and the fingers applied to or pressed against the stone, leaving fingerprints (Figures 7.7a, b). On some panels two methods of applying paint were used. Vertical line motifs were sometimes made by adding red paint to the fingers and then placing three or more fingers on the stone and drawing downward. One such multiple parallel lines element on Panel 2 in the Stahl Site Cave looks somewhat like partial right and left hands.

Favored Motifs

Locus 7 has 98 painted motifs, of which 35 are amorphous. The preferred painted motif category for Little Lake Ranch as a whole is angular/linear, and nearly half of the motifs at Locus 7 fall into this category (47 percent). Angular/linear elements ap-

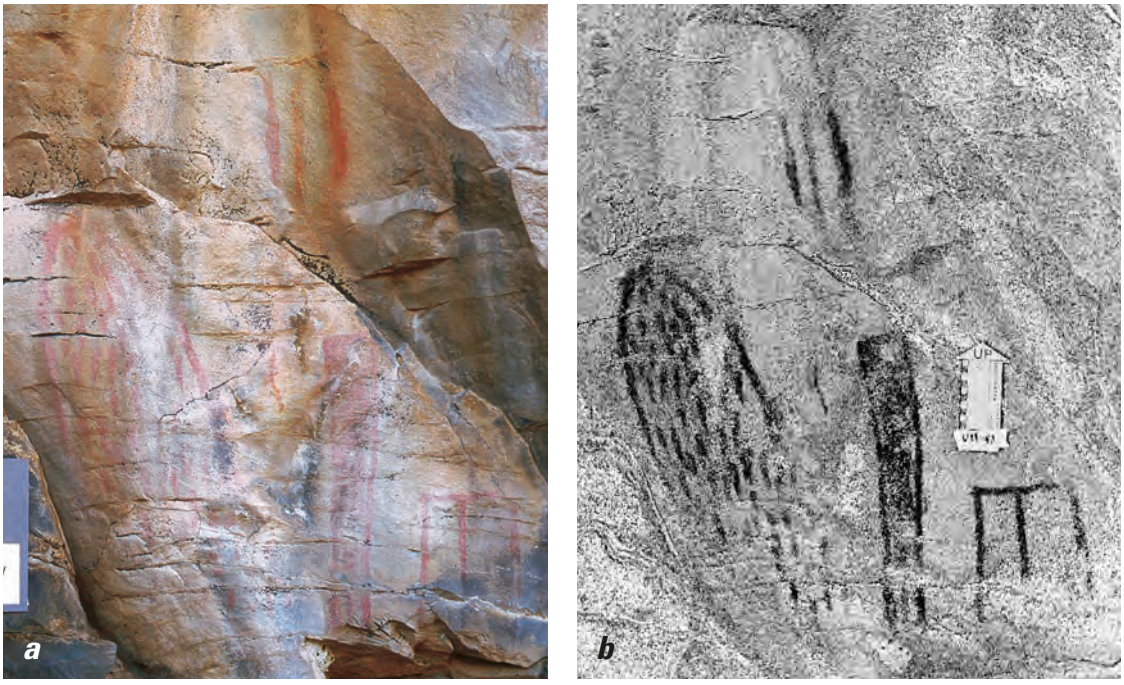

Figure. 7.8
Locus 7, Panel 41:
(*a*) painted angular/linear elements.
(*b*) digitally enhanced photograph of angular/linear elements.

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Figure 7.9

Locus 7, Panel 97: digitally enhanced photograph showing angular/linear painted elements.

pear alone or in clusters and vary widely in scale and complexity (Figures 7.8a, b). In contrast, curvilinear motifs account for only 16 percent of the Locus 7 total. This is the inverse of the angular/linear and curvilinear relationship defined for pecked rock art in the Great Basin. The amorphous category (36 percent) is quite large at Locus 7. Almost a third of it takes the form of red paint daubed or smeared on a pecked or painted panel or, as noted above, applied purposefully to pecked elements. This practice, along with outlining or multiple parallel lines constituting a single motif, is reminiscent of Yokuts rock art and documented for the Tübatulabal and the Kawaiisu (Wells and Backes 2007: Figure 30 Panel 5, CA-SBR-8). Multiple parallel lines are within the category of what we call ideomorphic designs and are the basic component parts of body and face paint designs among, for example, the Owens Valley Paiute. None of the Little Lake Ranch elements is callously painted over or otherwise obliterated.

Some of the larger, more complex panels contain a few unusual and occasionally quite complex curvilinear designs that are nearly faded beyond recognition—although the photographic techniques reported here captured intriguing detail (Figure 7.9).[8] Panel 92 is very visible in Locus 7, and it is extraordinary in that it incorporates a large concavity in the stone face as a design element (Figures 7.6a, b). The panel is so masterfully done that some of

Figure 7.10.

Locus 7, Panel 91: complex painted panel.

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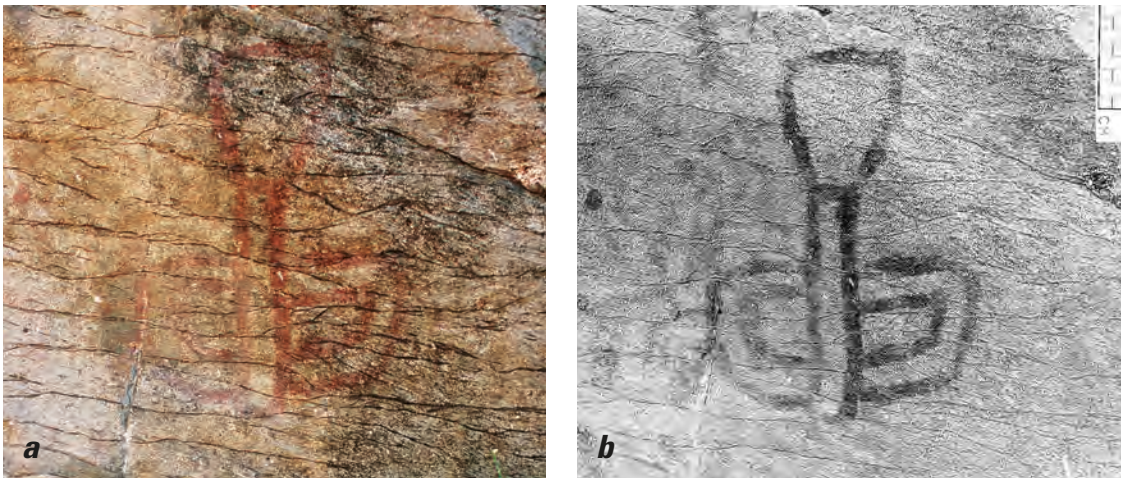

Figure 7.11

Locus 7, Panel 59:

(*a*) unique painted curvilinear element.

(*b*) digitally enhanced detail of a unique painted element.

Figure 7.12

Locus 3, Painted Cave with the "guardian rock" in the foreground.

the lines appear stenciled. It most resembles an element found on a polychrome panel at CA-KER-17 (Andrews 1977:39), a fishing site and village area known as *palakuc.* Flakes of exfoliating or fallen red pigment collected from that panel were analyzed by Accelerator Mass Spectrometer (AMS) methods and yielded a *c.* 1000 rcybp date (Garfinkel 2008). Another complex element at Little Lake Ranch is on Panel 91 and appears to represent a fringed bag or apron-like garment (Figure 7.10). Panel 59 is unique (Figures 7.11a, b).

Locus 3 (Figure 7.12) has 17 elements arrayed on eight panels. Three of them (Panels 2, 3, and 6) are so faded that the paint is discernible only with the use of ultraviolet photographic techniques. The remaining panels are still relatively bright (Figure 3.25, this volume). Large angular/linear elements create what was either a complex of interrelated black, white, and red motifs or a single motif on Panel 1 (Figure 7.13). The element having the greatest basal width, 32 cm, is on Panel 5 and is an elaborate motif formed of three parallel curved lines of alternating white, black, and red and overlaid on

Figure 7.13

Locus 3, Panel 1: polychrome angular/ linear motif.

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Figure 7.14 *above*

Locus 3, Panel 5: polychrome curvilinear motif.

Figure 7.15 *right*

Locus 3, Panel 4: variant of a curvilinear vulva motif *(lower right)*, painted in black.

other faint and undecipherable painted elements (Figure 7.14). Line width varies, but approximately 10 cm is usual, and all of the white outlines have bled and are less distinct than the red. The element having the longest vertical measurement, 81 cm, is on Panel 4.

On the lower right portion of Panel 4 is an element painted in black. It is a variant of the curvilinear vulva motif (Figure 7.15) and similar to others pecked in tuff in Chalfant Valley (CA-MNO-007; Lee and Smith 2003:65, Figure 10; Vuncannon 1985) and to others on the "child rocks" or "baby rocks" of the Pomo (Bibby 2004:11). A motif in red paint on a selected white background in Locus 7, Panel 120 contains a large angular/linear interpretation of the same vulva motif (Figure 7.16). At Gatecliff Shelter in the central Great Basin, Nye County, Nevada, a vulva form is present on a painted panel reliably dated to A.D. 1300 (Elston 1986: 139, Figures 4, 5; Thomas 1983a:311–312, Figures 154, 155; Touhy 1986:232). Overall, however, and as Campbell Grant first intuited, Locus 3 rock art is within the parameters of the Southern Sierra Painted style, *clearly signaling a cultural connection at Little Lake between California and Great Basin groups.*

Ultraviolet Fluorescence Photography

Ultraviolet fluorescence techniques rely on the ability of ultraviolet light to act as an exciting source that triggers a release of visible light in certain types of substances (Backes 2004; Wells and Backes 2007: Figure 38).[9] When this phenomenon occurs in organic or other natural substances, such as those employed to create pigments used in rock art paintings, it is known as primary fluorescence or autofluorescence. Ultraviolet fluorescence photography depends upon the demonstrated ability of various pigments to absorb and emit varying wavelengths of colored light when exposed to ultraviolet radiation. In 2005, this normally invisible color component was isolated in Locus 3, Panel 1, and recorded on photographic film.

Pigment Sampling Methods

The sampling described here was conducted during the 2005 season as part of the larger Little Lake Ranch inventory project. The research team consisted of the authors and Özge Gençay Üstün, then a student in the UCLA/Getty Conservation Program in the Conservation of Archaeological and Ethnographic Materials. Jessica Butler, then an undergraduate at Loyola University acted as recorder. Collection tools were provided by the UCLA/Getty Conservation Program.

Four painted rock art panels were selected for sampling. Panel 1 in Locus 3 was chosen because, as noted above, ultraviolet fluorescence photography indicated that that panel might contain more than

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one paint composition. The others were chosen for their motif content, location, relative ease of sampling, and possible iconographic significance. For each of seven samples collected at Locus 3, we took three before and three after photographs of the panel, the motifs, and the collection process. At Locus 7 we took one before and after image of each area sampled.

Six samples were lifted from Locus 3, Panel 1, of which four were subsequently tested (C1-02, 03, 05, 06; Figures 7.17a–d). Sample 1 consisted of surface material collected by brushing all of Panel 1 with a large, soft brush and a smaller soft brush. The material thus removed was collected in a sheet of aluminum foil and then stored in a plastic sample vial. White pigmented dust constituted sample 2, and was flaked off with a surgeon's scalpel after a needle failed to secure enough material. Paper funnels, rather than aluminum, were used for this and the following samples. Sample 3 was a small powdery red mass collected with a scalpel. Sample 4 was discarded as too small. Sample 5 was collected with both a needle and a scalpel, and was made up of red pigmented shavings. Sample 6 was a chip of white pigment, also collected with the scalpel.

At Locus 7, Panel 92, we lifted red pigment, again using the scalpel. At Locus 7, Panel 120, we lifted a shaving of red pigment with the scalpel from a complex angular/linear element on which the paint was still relatively bright. All of the red paint matched Munsell Chart "very dusky red" 10R 2.5/2. Panel 662 at the current ground level of Locus 7 consists of a single red painted circle and dot element which is a defining Great Basin style motif. On the same panel and next to it on the left is a thin smudge of red pigment that does not constitute a rock art motif or symbolic element, nor is it a fingerprint.

Figure 7.16 *above*

Locus 7, Panel 120: angular/linear interpretation of the vulva motif *(lower center)*.

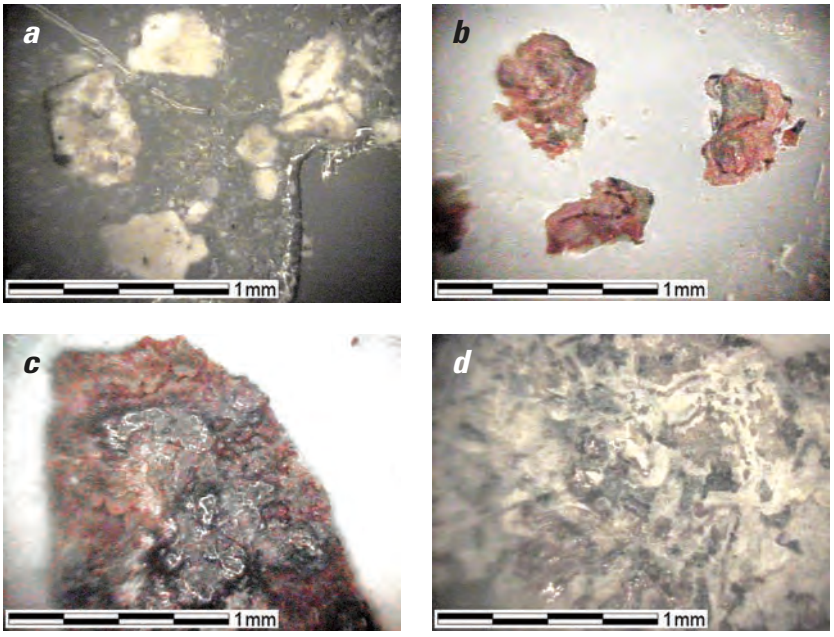

Figure 7.17 *left*

Locus 3, Panel 1, LA-ICP-MS analysis:
(*a*) white paint sample C1-02
(*b*) red paint sample C1-03
(*c*) red paint sample C1-05
(*d*) white paint sample C1-06.

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Table 7.2 Stahl Site raw pigment samples collected by Mark R. Harrington.

SOUTHWEST MUSEUM SAMPLE ID	COLOR	SOUTHWEST MUSEUM CATALOG DESCRIPTION
23.F.754	White	"Clay roll fragment, Harrington - striations, cut marks."
23.F.755	Red	"Little Lake - red paint stone - iron oxide? Scoria: iron oxide."
23.F.756	Red	"Little Lake - red paint stone - iron oxide? Scoria."
23.F.757	Red	"Little Lake - red paint stone - iron oxide? Scoria."
23.F.2938	Red	"Piece reddish pigment, Stahl Site."
23.F.3045A	Red	"Piece reddish pigment, Stahl Site."
23.F.3045B	Red	"Piece reddish pigment, Stahl Site."
5.C.99	Red	"Hematite, Stahl."

It was also photographed, and then a plug 7 mm in diameter with red pigment on its surface was taken from the smudged area using a portable drill with a diamond bit. The color of this sample was matched to Munsell Chart "red" number 10R 4/6.

All of the pigment samples were difficult to secure; some contained stone flakes or dust. These extraneous materials were distinguished from one another during lab analysis. At Locus 7, where the rock surface is more exposed and the paint more weathered, the paint was resistant to sampling. Our sampling techniques did not result in visible damage to any of the individual rock art elements, nor were the shapes or forms of those elements altered in any way.

Museum Pigment Samples

Museum specimens in the Mark R. Harrington Little Lake collections at the Autry National Center are described in an old Southwest Museum catalog (Table 7.2). Descriptions of four selected red pigments unequivocally state that the find spot was the Stahl Site (23.F.2938, 23.F.3045A, 23.F.3045B, and 5.C.99; Figure 7.18). Three pigments (23.F.755–757) are cataloged as "Little Lake." A white "clay roll fragment" with striations and cut marks (23.F.754) is in the Harrington Little Lake collection, but the museum catalog description does not otherwise identify Little Lake as the find spot. All, however, seem to fit published descriptions (Harrington 1957).

Figure 7.18

Red pigment, 23.F.2045A, collected at the Stahl Site by M. R. Harrington.

RAA photograph, by permission of the Autry National Center, Southwest Museum, Los Angeles.

Size, 20mm.

Chemical Analyses

Laboratory analyses of rock art paint samples often involve dealing with small amounts of pigment that are mixed with fine dust, rock flakes, and other extraneous material, or with a thin stain of pigment on the surface of a rock sample. As a consequence, bulk characterization methods such as neutron activation analysis, or techniques that require polished specimens such as X-ray fluorescence (XRF), are impractical because pigments cannot be distinguished from the underlying rock (Whitley and Dorn 1984). Therefore, laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS) was chosen for this study. LA-ICP-MS has a high sensitivity to trace elements, including several transition metals that are often found in the types of ores used for rock art pigments. The method is also able to analyze select areas of such extremely small specimens as were collected at Little Lake Ranch. Finally, LA-ICP-MS is largely nondestructive, making possible the undamaged return of museum samples.

LA-ICP-MS analyses were conducted on both the field-collected samples and the museum objects at the Institute for Integrated Research in Materials, Environments and Society at California State University, Long Beach. The mass spectrometer used is what is known as a "time-of-flight" type. It accelerates and separates entire groups of ions almost simultaneously. This allows accurate results to be obtained from small amounts of sample material.

After surface contaminants were removed, all of the samples were analyzed for a total of 45 major and minor elements. Equivalent analyses of raw basalt showed high concentrations in the stone of copper, barium, and lead. As a group, these elements do not exist in high levels in any of the analyzed pigment samples. Therefore, it is certain that pigment data were not affected by inadvertent analysis of the host rock.

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White Pigments Composition

Because pre-test photography showed that the white pigment on Panel 1 in Locus 3 fluoresced under ultraviolet light while another area on the same panel did not, there was an early suspicion that these two areas might contain discrete pigments. Two samples lifted from Panel 1 in Locus 3 (C1-02 and C1-06) and one raw museum sample (23.F.754) were compared.

White pigments are usually clay based (Gordon 1996). As expected, therefore, each of the three samples tested showed fairly equivalent concentrations of most major elements, including high levels of aluminum and silicon. Trace element comparison, however, showed that the samples do not share the same overall composition.

The museum sample is differentiated by low nickel, cobalt, copper, and zinc. Sample C1-02 is differentiated by low levels of rubidium and barium, and sample C1-06 by high cobalt, copper, and arsenic concentrations. Therefore, while it is likely that all three samples are partially or entirely composed of clay, they are clearly three distinct pigments, each with its own unique chemical composition.

The fact that the museum sample is not the same as the rock art samples is not particularly surprising. However, since samples C1-02 and C1-06 each come from different areas of the *same* rock art panel (Locus 3, Panel 1), it is surprising that they do not share the same composition and may not have come from the same original source. One possible interpretation is that the paint was not applied in both cases by the same individual.

Black Pigments Composition

The only black pigment tested (23.F.2087) was a museum sample. Although the museum catalog lists the sample as graphite, an allotrope of carbon, major element concentrations indicate high levels of aluminum, silicon, and iron which are the main rock- and clay-forming elements. This sample was also shown to be fairly rich in titanium, iron, and zirconium. A relatively low level of manganese—an element often found in black pigments (Gordon 1996; Guineau et al. 2001)—was present. Further geochemical analysis may determine the origin of this sample.

Red Pigments Composition

All red pigment samples tested are composed of hematite, and all showed high levels of iron, aluminum, and silicon. To gain further differentiation, hierarchical cluster analysis was used as an investigative grouping technique to provide a tentative set of nested groups. A dendrogram of the entire set of museum pigments revealed two subgroups which possess a relatively high degree of internal similarity. Group 1 contains four museum samples and Group 2 contains one museum sample and three rock art samples. The validity of these subgroups was subsequently tested and confirmed by using bivariate scatterplots, which provide comparisons of the relative concentrations of paired sets of elements.

Group 1, consisting of three Little Lake raw red pigments designated 23.F. 755–757 and a fourth designated Stahl Site 23.F.3045B, all appear visually to be an essentially identical, red-tinged scoria. Only the first three, however, consistently group together across the entire range of major and minor elements. The fourth, 23.F.3045B, has a unique chemical composition.

In Group 2, Stahl Site red pigment sample 23.F.3045A correlates with rock art samples C1-03 from Panel 1, Painted Cave, as well as with samples 7-120-01 and 7-662-01, each from a different panel in Locus 7 (Figures 7.19a, b). Although there is some disparity in arsenic and barium levels, the elements correlate so closely that we conclude that the pigments are compositionally equivalent (Figure 7.20).

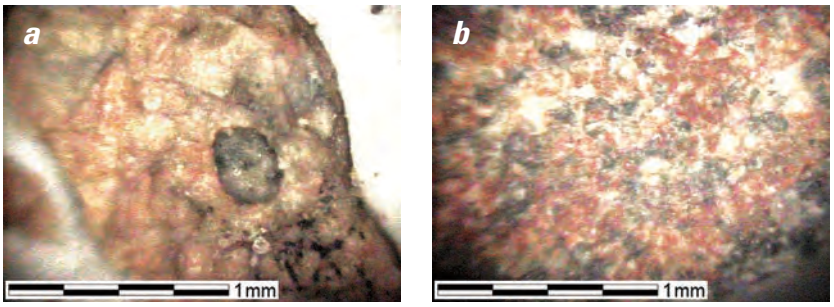

Figure 7.19
LA-ICP-MS analysis, Locus 7:
(*a*) Panel 120, red paint sample.
(*b*) Panel 662, red paint sample.

The remaining red pigment samples all appear to be unique in their chemical compositions and cannot be matched to each other or to the compositional groups described above. Two of the red pigments—museum sample 5.C.99 and paint sample 7-92-01 from Panel 7-92—are relatively high in iron but low in aluminum and silicon. This suggests that they are relatively pure forms of hematite. They are not the same pigment, nor do they match other pigments tested.

It should be noted that the range of variation in elemental concentrations within any one particular hematite source is currently poorly understood. When a particular specimen does not match either known sources or other samples in the analysis, it may not be because its hematite is compositionally distinct, but possibly because the analysis reflects changes that occurred during manufacture or through weathering.

Archaeological Collections Review

In the Great Basin, white paint was made from naturally occurring mineral by the modern Western Shoshone (Thomas, Pendleton, and Cappannari 1986:272, Figure 11). “Gathered from specific sites,

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the mineral is ground fine, mixed with water, and compacted by squeezing water out through a bag." Mineral pigment "mixed with marrow was applied to the face and body, especially the former" (Thomas, Pendleton, and Cappannari (1986:269).

At Little Lake Ranch, Harrington (1957:38–39, citing Lucas 1951:191) reported "diatomaceous earth," thought to be the basis of white paint used in most rock art, at a depth of 40.5 in (102.8 cm) in a large "tree hole" in sector 1, section 12 of his Stahl Site Trench 7. Harrington (1957:75) further reported that

> several stones were found still showing that they had been used respectively for grinding red and white paint, while bits of red and yellow mineral that could have been used as paint appeared occasionally.

A cobble, of granite and "partly coated with a whitish substance resembling paint," was found "at a depth of 20 inches in Trench 4, which places it definitely in an uncontaminated Pinto period deposit" (Harrington 1957:46, 72). A second natural oval cobble showing "plain signs of use in grinding red paint" was retrieved from the "25-to-30-inch level" of Harrington's Trench 7.[10] "Two miniature metates of scoria, one 3 inches, the other 4 inches in maximum diameter" are also reported (Harrington 1957:46, Figure 37b, 47).

> Both had been definitely shaped and show distinct grinding hollows. That they had been used in preparing paint can be inferred from the fact that a trace of white pigment remains on one of them. One was found on the surface, the other [the one 4 inches in diameter] at a depth of 12 inches.

Other relevant context information comes from UCLA field school excavations directed by George Gumerman IV (1991–1993) south of Locus 1 at Pagunda (CA-INY-3826).[11] As described in Chapter 2, Pagunda is the location of the ethnographic Panamint Shoshone encampment identified as a village by Steward (1938:80–84, Figure 7; Byrd and Reddy 2004; Pearson 1995). At least 11 entries in the field school catalog describe "mineral pigment" or "red ochre" retrieved from subsurface contexts.[12]

Subsequent Pagunda excavations nearer Highway 395 (Byrd and Reddy 2004:141, 318) yielded a "[red] pigment palette" that is one of only 18 ground stone objects retrieved during that work. The unit in which the palette was found has a "relatively tight range of occupation between 1,100 and 1,400 years ago" (Byrd and Reddy 2004:185). Thus, raw

Figure 7.20

Red pigment and pictograph paint samples, LA-ICP-MS analysis report.

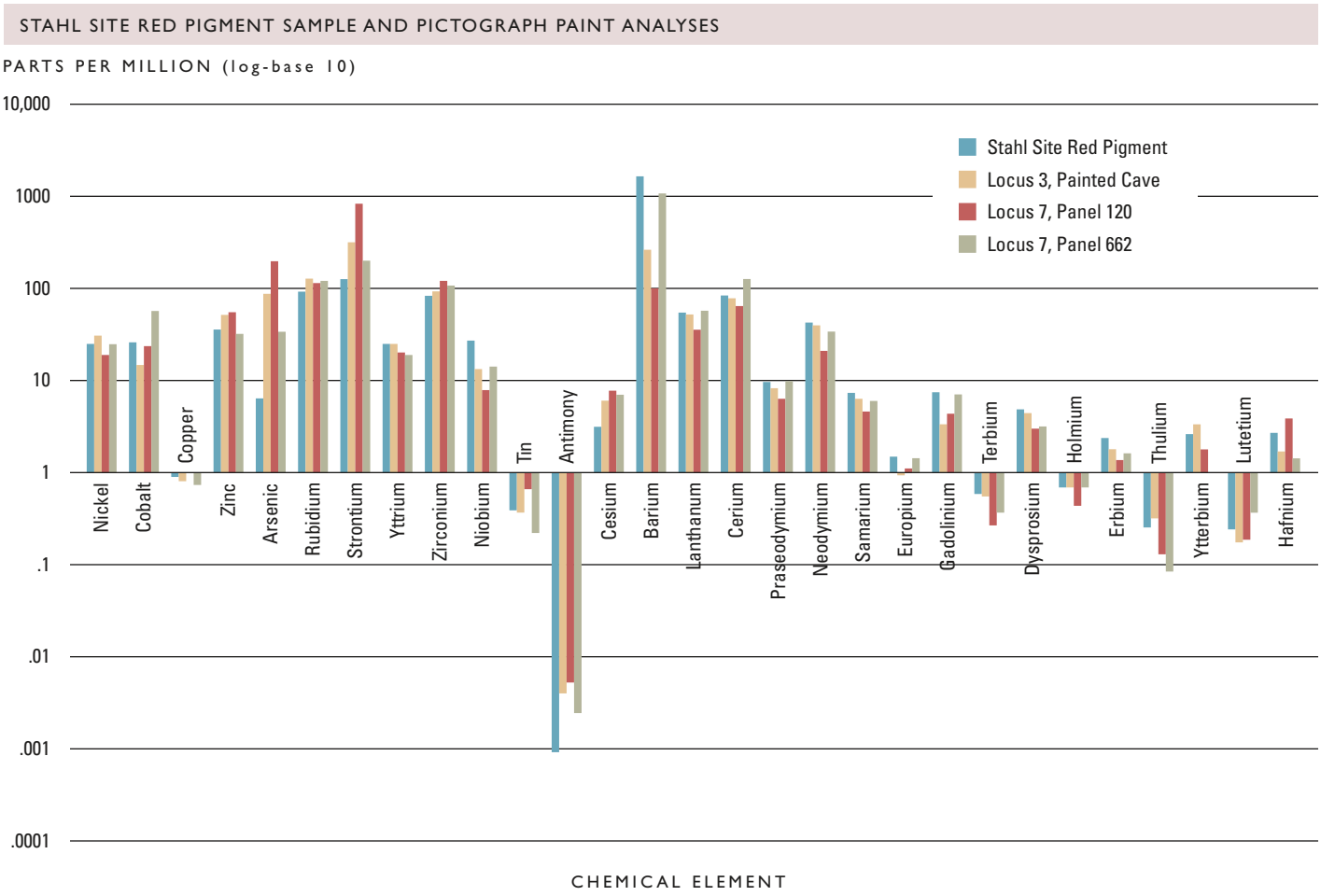

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Figure 7.21
Atlatl dart fragments with painted motifs recovered by M. R. Harrington at Gypsum Cave.
Courtesy J. W. Eerkens.

material and some objects capable of being used to create painted rock art are documented for Little Lake Ranch in proximity to both the Stahl Site and Pagunda and from at least 3,000 to 4,000 years ago.

Context, Color, Style, and Chronology

Great Basin Iconographic Context

Turning first to the larger Great Basin for iconographic context, we find that painted designs similar to some Little Lake Ranch angular/linear and curvilinear painted motifs or their component parts (ideomorphs) are found elsewhere and dated. At Newberry Cave atlatl darts with painted or incised designs that are antecedent to similar Numic designs in other media were recovered (Davis and Smith 1981:50, Figure 18; Elston 1986:140, Figure 6). Hidden Cave in Churchill County, Nevada, had one dart with "painted light green spiral bands," and at Kramer Cave in western Nevada, two red bands were painted on a dart main shaft dated to 1800 B.C. (Justice 2002:38). Harrington (1933: Frontispiece, 113) reported complex designs "composed of combinations of black, brown, red, gray-green, dark-green and blue" on Type 1 atlatl darts from Gypsum Cave (Clark County, Nevada). Pigments recovered from Gypsum Cave included a "rounded lump of yellow gritty clay" and white gypsum, both sides of which had "ancient scorings where the material has been scraped off" (Harrington 1933:155).

The painted designs on Harrington's Gypsum Cave darts were made with fine lines using an unknown tool and formed of zigzags, squares containing dots, and crosshatching (Figure 7.21). The paint is almost always applied in discrete zones or blocks of one color. The basic components of all of the designs are simply repeated horizontal and diagonal single lines. A diagonal line pattern is created when a single line is spiraled along the length of dart and arrow shafts. In one case, such a linear design is traced in curving, black and white adjacent parallel lines on a dart fragment that also shows signs of incising. This design is highly comparable in form (but not in scale) to the black, white, and red curved line design on Panel 1, Painted Cave.

Using the same LA-ICP-MS tests we described above, Eerkens (personal communication 2012) recently analyzed five different pigments on Harrington's Gypsum Cave atlatl darts and arrow shafts to reveal geochemical similarities and differences among the different colors. There were no obvious differences detected by weapon type (e.g., dart vs. arrow), suggesting some degree of continuity in pigment recipes over time. However, there were some consistent differences by material type. For example, there were differences in green pigments between cane and wood specimens, yet other colors did not clearly pattern by material type. There was also variability within each color, most often in the presence of single outliers, suggesting that a range of inorganic and organic minerals was used to create a palette of visually similar hues. Some brown and pink pigments were generated using minerals high in zirconium, while others are lower in this element. One red pigment contains a zinc-based compound, and several brown

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pigments appear to contain tin-based minerals.

At Gatecliff Shelter in the central Great Basin, Nye County, Nevada, a single panel has 13 discrete motifs painted on the shelter's walls in white, red, yellow, and orange (Thomas 1983a). "Because painted chert fragments were recovered from the datable roof fall, we know that at least some (and probably most)" of the designs are pre-A.D. 1300 (Schaafsma 1986; Thomas 1983a:310). X-ray diffraction methods were conducted on a yellow pigment sample lifted from a single Gatecliff Shelter painted element consisting of a horizontal series of slightly slanted but not quite diagonal lines. The results suggested that at least some of the lines, which were visually judged to be so similar as to constitute a single motif, were actually made with different mixtures of paint, perhaps at different times and possibly by different individuals. Eight of the Gatecliff Shelter painted motifs are present in the painted rock art of Little Lake Ranch: hand, row of dots, [horizontal] line, row of [diagonal] lines, chevrons, circle, circle and dot, and an inverted U-shape with a central dot or line that is the curvilinear abstraction of the human vulva (as noted above).[13] In sum, *nearly all of the earliest known Great Basin painted symbol vocabulary is present in the painted rock art at Little Lake Ranch.*

Leska (2009:131) has reopened discussion of Newberry Cave, a ritual site in the Mojave Desert used between 2970 and 3320 B.P. (G. A. Smith et al. 1957). She points out the singularity of Newberry Cave due to the discovery there of split twig figurines (G. A. Smith 1963), "the westernmost and southernmost site where these occur." That tradition, in her opinion, probably originated in the Grand Canyon during "a relatively restricted period of about 1700 years from about 2900 BC to 1250 BC during the Late Archaic period" (Leska 2009:142). At Newberry Cave, she and her team recorded 66 rock art panels with 312 discernible elements, 75 percent of which are "abstract and linear designs, and 14 percent represent animals that seem to mimic split twig figurines" (Leska 2009:135). These painted animals, like the figurines, are unique to Newberry Cave. "The only other painted quadrupeds in the central and eastern Mojave are historic, and no pictograph site in the region contains zoomorphic figures" (Leska 2009:135, citing Christensen and Dickey 1996; Martin 1977). Leska conducted analyses of pictographs and painted stones, some (but not all) of which she interprets as "palettes" (as above). Green paint, unique to the central and eastern Mojave Desert, is celadonite procured locally (Figure 7.22). The positive association of green paint with the objects, rock art, and conjectural ritual use of Newberry Cave is indisputable. We suggest that green stone pendants of the type known at Little Lake Ranch and other sites throughout the region and green paint on atlatl darts signal an *ancient symbolic interrelationship*.

In the Numic ethnographic record, Owens Valley Paiute face paint designs were angular/linear forms created almost exclusively in red. They were composed of limited combinations of horizontal and diagonal parallel lines (Steward 1933b:275–276, Figures 7, 8). Native groups of the Mojave at contact and in post-contact time painted their faces and bodies lavishly in red, black, white, and sometimes yellow for different reasons, including mourning, or to depict gender, age, or marital status (Kroeber 1925). Most often the paint was applied with the fingertips or, occasionally among some groups, by the palms. Names given for the designs are very similar to those collected for Numic basketry. Red paint and red stains are likened to "the woman's blood" by contemporary Numic peoples, and mothers and grandmothers of several of these groups still daub red paint on designs woven into basketry objects, including especially cradleboards.[14]

Regional Rock Art Style Affinities

Because of the co-occurrence of paint and pecked rock art at Little Lake Ranch, we undertook an informal survey to determine similar co-occurrence in the broader region. Our sample was drawn from rock art site records on file at the UCLA Rock Art Archive and included 284 sites with paint in Inyo, Kern, and Tulare counties in California. This record was cross-checked with sites given for the same areas in a selected literature sample (Andrews 1977; Christensen and Dickey 1996; Garfinkel 1978; Heizer and Clewlow 1973; Schiffman 1977; Schiffman et al. 1982; Sonin 1995). Of the sites on the resulting concordance list, fully 251 site records—88 percent of the total—described painted rock art simply as "pictograph" with no petroglyphs recorded. That doesn't mean, of course, that they weren't there.

Only 29 site records noted the co-occurrence of both paint and pecked elements. Of these, 14 found paint over curvilinear or angular/linear pecked elements. An occasional pecked zoomorphic element, including bighorn sheep and snakes, also had some paint applied. Where color was given, 42 sites were said to be painted in red and 13 were described as polychrome without noting the colors involved. No green paint is noted and red is the predominant color. A new recording of the painted sites might better establish colors and determine whether or not traces of paint were overlooked. Nonetheless, and with such caveats in mind, we looked for affinities between Little Lake painted rock art and other styles and sites in the region.

There are two well-established painted rock art styles—with their several variants and overlapping characteristics—that are pertinent as backdrop to this discussion. The first is the Great Basin Painted style (Heizer and Baumhoff 1962:207), and the second is the Southern Sierra Painted style (Heizer

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and Clewlow 1973). These styles are neither discrete from one another nor from pecked styles in the same area (Schaafsma 1986). Both relate broadly to known but permeable ethno-linguistic boundaries, and there is a linkage between painted rock art site location and style. The Great Basin Painted style is characterized by "circles and multiple parallel lines done in red or white mineral pigment" (Heizer and Baumhoff 1962:207). Rectilinear, curvilinear, and representational categories—as in the Great Basin Pecked style—are variants. Other motifs are known, however, including a range of anthropomorphic figures and human handprints (Thomas 1983a:310).

The Southern Sierra Painted style lies generally within the territory of the Tübatulabal and Yokuts. The distinguishing motifs of the style are influenced by contact with the Chumash and include curvilinear forms such as semicircles, rayed circles, and "spoked circles," but also pelt-like figures and stick figures that are sometimes phallic and "painted with single or less commonly polychrome outlines" (Gold 2005:163). Variations on a complex motif made of up parallel lines and nested curves are common among the Yokuts (Van Tilburg 1983:23, Plate 7). A strikingly similar motif is present in Little Lake Ranch painted rock art (Panel 7-90A) and common in the pecked rock art, where an especially intricate version of it appears on the "guardian rock" directly in front of Locus 3.

The Tübatulabal Painted style is a discrete variant of the Southern Sierra Painted style (Heizer and Clewlow 1973). The elements are largely curvilinear and overlap the same categories defined by its parent style. They include simple circles, chains of circles, concentric circles, rayed circles, rayed concentric circles, sunbursts, and "spoked circles" (Gold 2005:163; Garfinkel 2007:97 citing Lee and Hyder 1991). All of these motifs are also defined for the Great Basin Pecked style (Heizer and Baumhoff 1962:202–206). Sites conforming to the Tübatulabal variant are almost exclusively in mountainous territory. Conjectured to be late prehistoric, the Tübatulabal Painted style is thought to date to 150–2000 B.P, or from *c.*1 A.D. to contact (Garfinkel 2007:97 Table 5.10), with one direct radiocarbon dating at CA-KER-17 (Garfinkel 2008).

Archaeological and other data suggest stable, long-standing cultural development in the Tübatulabal area of the South Fork of the Kern River (Isabella Basin) and the interior of the Kern Plateau for at least 2,500 years (Garfinkel 2007:109). It is argued that the rock art of the southern Sierra Nevada—wherein all but one of the known rock art sites are painted in the Tübatulabal variant and no other styles are recorded—"differs radically from the pecked designs found on the basaltic boulders and canyon faces of the Coso Range just a few miles to the east" (Gold 2005:163–165, citing Heizer and Clewlow 1973).

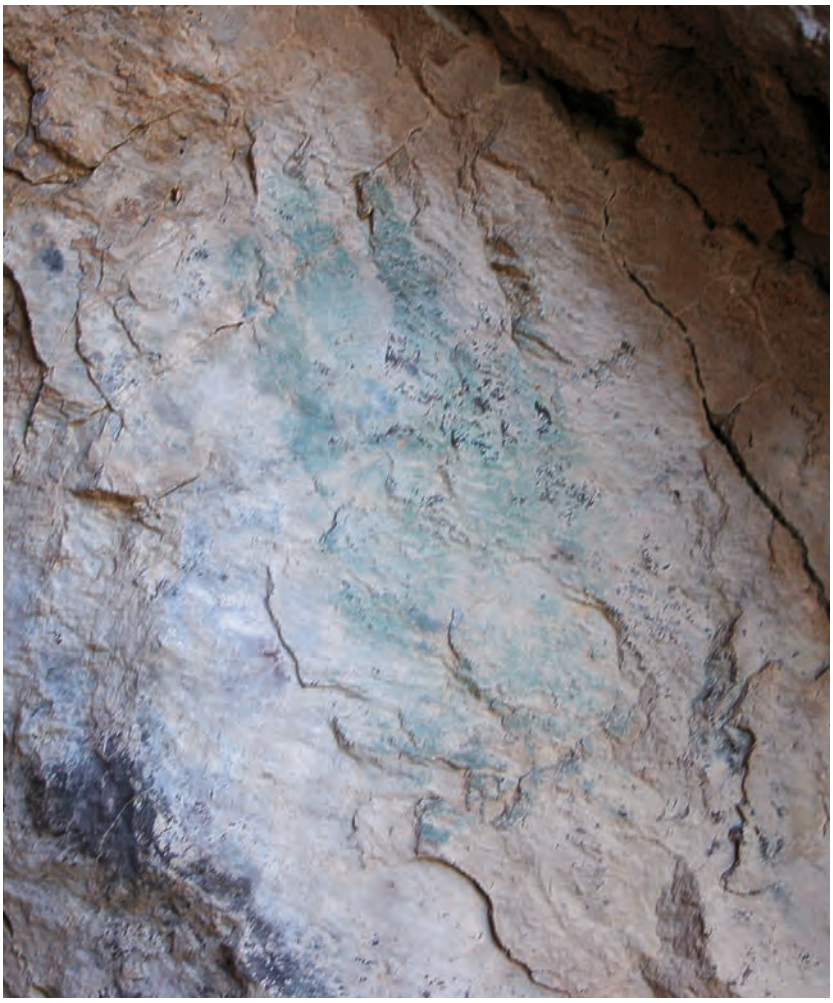

Figure 7.22
Green handprint at Newberry Cave, Mojave Desert.

The painted rock art attributed to the Mountain Kawaiisu in the Tehachapi-Sierra Nevada Mountains is probably late in time and also has a stylistic affinity to Yokuts and through them to the Chumash (Grant, Baird, and Pringle 1968:111; Lee and Hyder 1991). Grant (1971:241) further states that the Mountain Kawaiisu "basically follow the Yokuts' traditions, though some motifs are similar to those of the desert Indians of Walker Pass."

As with the Tübatulabal, the Mountain Kawaiisu apparently favored curvilinear forms including circles, rayed circles, "spoked" circles, and rows or patterns of dots. Angular/linear elements include parallel lines or dashes and zigzags. Anthropomorphs and "pelt" figures are sometimes present; outlining and bilateral symmetry are characteristic. There is a great deal of obvious ambiguity and repetition in the various element categories defined for these stylistic groups.

The Coso Painted style is rather a different case. It is found in both open and concealed areas and is expressed largely in red paint, although it also employs a range of color including, apparently, green (Garfinkel 2007:97–100; Leska 2009). It is thought to date only to 100–60 B.P. (*c.* A.D. 1850–1890; Garfinkel 2007:98, 101), and at least some of it may

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have been made within the context of the widespread Ghost Dance spiritual revival movements of 1870 and, less likely, 1890. Known sites are limited to specific types of terrain and may be related to territorial boundaries separating the Desert Kawaiisu from the Panamint Shoshone. Their distribution is also discontinuous with the style area for the Tübatulabal variant of the Southern Sierra Painted style (Garfinkel 2007:98).

The Coso Painted style is similar in symbolic content to the Coso Representational petroglyph style and is distinguished by the frequent inclusion of bighorn sheep elements—often facing front and with bifurcated horns as in the pecked inventory—as well as a limited range of other zoomorphs, historic horse-and-rider elements, and hunting paraphernalia (Garfinkel 1978; 2007). The bighorn sheep motif, the hallmark of this style, is present in the pecked inventory of the Coso Rock Art Landmark (Van Slyke and White, this volume). *The painted rock art of Little Lake Ranch has no affinities with the Coso Painted style.*

In a survey of 27 painted sites in the Eastern Mojave Desert, Christensen and Dickey (1996:4, 51) showed that the majority were located in rock shelters or caves, often along the bases of mountain ranges, and usually near available water sources. The same is true for painted rock art in Death Valley Monument (Martin 1977). Ten painted sites in Death Valley—less than one-tenth of known rock art sites for the area—are located in rock shelters and are "comparatively recent" (Martin 1977:148). Although the sites are scattered over a large distance, the elements in them are similar. Red, white, and black angular/linear designs are present, often in the form of multiple lines, as are anthropomorphic "stick" figures, bighorn sheep, various geometric forms, and quadrupeds. While location similarities are noted and multiple lines are certainly present in Little Lake Ranch painted rock art, *none of the other diagnostic motifs is represented.*

Comparable Sites

There are three painted rock art sites in the more or less immediate vicinity of Little Lake that are documented to a level similar to that of Little Lake Ranch. Ayer's Rock (CA-INY-135) is an elaborate polychrome painting on a granite boulder and associated with archaeological evidence ranging from the Little Lake Period through the Marana Period. The painting is attributed to the Kawaiisu, and some of it is said to have been done by Kawaiisu shaman Bob Rabbit (Whitley, Whitley, and Simon 2005; Chapter 8, this volume). Representational elements abound at Ayer's Rock, including bighorn sheep, mounted riders, deer, and elk, although none is present in the painted rock art of Little Lake. Handprints are present at Ayer's Rock; they are equivocal at Little Lake Ranch, but fingerprints are certainly present. Overall, the painted rock art at Ayer's Rock is unlike that of Little Lake Ranch.

Another profusely painted site (CA-INY-1378) is at Panamint City (Ritter, Brook, and Farrell 1982: Table 1). The site "may fall at the Shoshonean/Kawaiisu ethnographic interface" (Ritter, Brook, and Farrell 1982:13), and use of it was frequent during historic time. As with Ayer's Rock, nearly all of the Panamint City motifs are stylistically incompatible with those at Little Lake Ranch and most are probably later.

Rock shelters in "the Agnes Bierman Caves Study Area" were investigated during a 2004 survey at Robbers Mountain on the south range of NAWS (Kaldenberg 2005; Wells and Backes 2007:28–29; 2010). Six sites with rock art were documented for a total of 90 painted elements, 77 of which are in just one rock shelter (CA-SBR-8). Obsidian hydration data suggest use of CA-SBR-8 from *c.* 2000 years B.P. to 250 years B.P.

Of the 77 elements recorded at Agnes Bierman Caves, 33 (43 percent) are representational: 29 anthropomorphic stick figures and four zoomorphs. A single quadruped with straight horns does not qualify as a bighorn sheep by our definition (Wells and Backes 2007:29 Figure 16). Some of the paint is weathered, while some of "the vivid red types appear relatively fresh and intact" (Wells and Backes 2007:41). All of the six rock art sites "show evidence of at least short-term habitation" and, in three cases, "of longer-term or repeated habitation" (Wells and Backes 2007:74).

The "Agnes Bierman caves" are within the territorial boundaries of the Desert Kawaiisu, but other groups, including the Chemehuevi (sometimes also called Kawaiisu), passed through. It is suggested that "at least some" of the art "can be linked to the Kawaiisu core area" (Wells and Backes 2007:74). While the Kawaiisu influence is probably also present at Little Lake Ranch, *none* of the three sites described above is fully compatible in overall style or content to the painted rock art of Little Lake Ranch.

Directly Comparable Links

Direct comparisons can, however, be made between some of the painted rock art elements at Little Lake Ranch and those recorded in the East Mojave Desert, an area that is "stylistically contiguous with the rest of the Great Basin" (Rector 1977:151; Christensen and Dickey 1996). At Little Lake Ranch and in the East Mojave, the recorded corpus is extensive. In both areas the painted rock art inventory contains painted petroglyphs and large numbers of angular/linear motifs and their constituent parts: lines and parallel lines produced by two or three fingers. There is a near absence of gender-identified anthropomorphic elements and quadrupeds and a complete absence of painted bighorn sheep elements in both areas. Design links with other media are present in both areas but stronger in the East Mojave.

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At Little Lake Ranch, the occurrence of only one painted element on a given panel constitutes fully 63 percent of the total, demonstrating a significant amount of *singular and probably individual activity.* Single painted elements are often directly related to pecked elements or located relatively near pecked rock art panels. In the East Mojave, in contrast, single boulders having only one painted element are rare, and they are usually located in hidden or isolated places (Christensen 1999:97).

In his discussion of style and individual identity in rock art, Christensen (1999: 98, 101) describes "a series of dark red pictographs that are circular in design with indentations or skewed triangles" in their interiors. Located on the Coconino Plateau in Arizona, these curvilinear designs "appear to have been done by stamping or impressing." These elements and this technique are *directly comparable* with those on Panel 45B in Locus 8 at Little Lake Ranch. The occurrence of these rare, unusual, highly personalized, and individualized forms and techniques so distant from one another is puzzling. In Christensen's (1999:101) opinion, such "stylistic anomalies" suggest "individual authorship" within the context of group connections in the highly mobile Great Basin society.

Other unusual, unique, or extremely distinct elements in Little Lake Ranch painted rock art further echo some in the Mojave Desert. The sinuous red and white painted parallel curved lines of Panel 1, Locus 3—suggested above to be similar to a painted element on a Gypsum Cave atlatl shaft—also resemble a distinctive element at CA-SBR-1928 (Christensen 1999:99, Figure 4). The pecked, tiered, pendant triangles on Panel 577, Locus 7, have applied paint and are nearly exactly the same in form and configuration as others at several sites in San Bernardino County (Christensen 1999:100, Figure 6). The apparent rectilinear "face" with "eyes" painted in red on Panel 45, Locus 7, is unique, although "masks" of an entirely different type are suggested for the East Mojave. The Little Lake Ranch "face" may be the accidental result of a cracked and broken rock surface or, alternatively, a finished product that takes advantage of the rock's configuration. Overall, we agree that, at Little Lake Ranch as in the East Mojave, "pictographs are not a separate style from petroglyphs; they only reflect a different means of manufacture" and a "different preference for favored elements" (Christensen and Dickey 1996:47).

Conclusion

Although it is probable that we did not locate all of the painted rock art at Little Lake Ranch, it is nonetheless safe to say that it is preferentially clustered. The vast majority of it (77 percent) is located at one place: Locus 7, a large, visible area on relatively flat ground capable of hosting a substantial group of people. The paint is scattered from low to middle elevations on the cliff face, but some of it is higher. The purpose of the painted rock art at Locus 7 is not known, but it is not functionally comparable with the female puberty ceremonies described for other California areas. The Locus 3 rock shelter, in sharp contrast, is a "special purpose" site much more in keeping with the sort of spiritual or visionary experiences typically sought or undertaken by a single person.

The painted rock art at Little Lake Ranch is unique for the Rose Valley and Owens Valley. We recognize an underlying unity between it and the Prenumic Great Basin iconographic tradition: basic angular/linear and curvilinear motifs made up of a limited range of repeated, meaningful components or constituent parts (ideomorphs). White, red, and yellow pigments—and implements to prepare paint—are archaeologically reported from the major occupation of the Stahl Site to *c.* 1100–1400 B.P. at Pagunda.

In terms of Numic group associations, we note that the more complex, predominantly curvilinear motifs at Little Lake Ranch have stylistic affinities with the painted rock art of the Tübatulabal and Kawaiisu—and probably through those groups to the Yokuts. Direct or indirect contact or aesthetic interchange between and among the Panamint Shoshone, the Owens Valley Paiute, and the Kawaiisu was certainly facilitated by trade and exchange of obsidian and other resources and products. Social networking through the exchange of marriage partners also played a role.

Chemical analyses reveal that the pigments tested did not all come from the same source, and some are unique. This fits with the diverse nature of the Little Lake site population. However, three samples have nearly identical compositions and probably came from the same source; a fourth is strongly similar. A complex red and white painted angular/linear element on Panel 1 in the Locus 3 rock shelter was painted with two different red and two different white pigments, perhaps (but not necessarily) by different people at different times. In either case, the goal was to enhance or refresh the underlying motif, not to obliterate or destroy it. This suggests that the motivation was to associate with the group or person who authored the original motif and to retain, renew, or revive its symbolic meaning. It further suggests that one ethnic group—probably the Kawaiisu—painted Locus 3.

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Chapter 8

Rock Art, Aesthetics, and Belief

Jo Anne Van Tilburg

I understand . . . how unconsciously the human mind can follow a teasing parallel.

Barry Lopez 1988

THE GREAT BASIN IS THE HEART of the American West. It is also the demanding physiographic environment within which Native religious concepts emerged and to which they were inextricably linked. The flat contours of the arid land and the secret places of caves and water are all part of the fusion of ecology and tradition that produced religion (Hultkrantz 1986:631–632). The abundance of Little Lake Ranch rock art (Figures 8.1, 8.2) imbued the *terrain* with visualized meaning, causing it to become a spiritual or mythological *landscape* of encoded cultural memory.

Great Basin religion and myth are "relatively independent" of one another (Hultkrantz 1986:631), yet there is an underlying and unifying symbolism. Structural elements of Great Basin religions include cosmology, supernatural beings, group and individual rituals insuring survival, crisis ceremonies, and visionary shamanism. The aesthetic, religious, and symbolic worlds were linked, and the verbal arts (stories and songs) shared an iconographic vocabulary with ritual and, in our view, probably with some rock art production. As a result, there is some similarity between rock art motifs and designs on artifacts and objects. Rock art is an integral part of the larger Native iconography that functions across generations within a context of display, communication, and consumption.

Figure 8.1

Basalt cliffs in the form of a rattlesnake border the eastern edge of Little Lake.

Figure 8.2

Locus 7, Panel 575, illustrates the abundance of rock art at Little Lake Ranch.

Art, Ethnography, and Evolving Societies

As many researchers in many areas have pointed out, "art" is not a word in most traditional languages, and the concept of "artisan" or "artist" is not differentiated. In traditional societies, art is inseparable from daily life, and objects are less important than the attached or inherent meanings they convey. Early ethnographers in the Great Basin recorded little about the *values* inherent in crafts or craftsmanship, although we know a great deal about the mechanical *techniques* of craft production

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(Steward 1933a: Plates 3a–b, 5f–g, 6b). Crafts such as basketry and pottery were traditionally within the female domain, and basketry is the epitome of Numic artisanship.

The best definition of traditional arts is provided by Kaeppler (2008:7), who states that they "encompass all cultural forms that result from creative processes that use or manipulate (handle with skill) words, sounds, movements, materials, spaces, or scents in such a way that they formalize the non-formal." By that definition, we regard Little Lake Ranch rock art not as art *per se* but, instead, as a "cultural form" best understood within a dynamic social context. Furthermore, we observe that the major reason to "formalize the non-formal" *is to communicate*. We agree with Olsen (2005:149), who proposed that redundant rock art patterns are intended to *communicate across generations*. She also suggested that some rock art elements may have served as mnemonic aids or symbols.

Figure 8.3.

Ceremonial headdress, attributed to the Shoshonean Indians of Inyo County, 1902. It was originally collected by H. C. Floyd of Independence at an unknown date.

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"Aesthetics" has been defined as "aptness" (Hanson 1990:39). It is a unique point of view held in common by a society and framed within a discrete psychological, social, and historical framework. Again following Kaeppler (2008:7), we define aesthetics as "culturally specific, evaluative, ways of thinking" in which cultural forms—including rock art motifs—are replicated or repeated and innovated over time in order to "formalize" expression or communication. The ancient iconographic vocabulary embedded in Great Basin objects such as painted arrow and atlatl dart shafts, basketry structure and style, scratched stone pendants, pottery, and body art is present in Little Lake Ranch rock art.

Imitation and Continuity: An Ethnographic Example

Washburn (1987:147) notes that "similarities in design structure" are usually related to group interactions "regardless of similarities or differences in linguistic affiliations."[1] The various Numic groups that frequented Little Lake had "a close trading, visiting, and perhaps intermarrying network," and we assume they also had similarities in aesthetic values and symbolic expression—including rock art. Detecting these similarities shed light on shared beliefs or similar behavior (Washburn 1987:147–148).

Iconographic continuity for our area is clearly evident in a male dance costume that includes body art, body ornament, an eagle-down kilt, and a headdress of magpie tail feathers that also sometimes included hawk, redwing blackbird, and turkey feathers (Figure 8.3). The costume and its variants are recorded from 1850 to 1932 among both California and Great Basin Native peoples, including Shoshone and Owens Valley Paiute.[2] This broad geographic reach, as Liljeblad and Fowler (1986:415–416) note, reveals trans-Sierra trade and contact (Gayton 1948:2). Tracing the costume's evolved use over time is an enlightening lesson in the continuity of enduring symbols.

Steward (1933b:321–322, Plate 8a–f) describes the costume for the Owens Valley Paiute and believes that it was introduced to them by California Indians in 1850. Grant (1978a:514) says that the Chumash version of the costume was "identical to that of a Yokuts shaman." According to Fowler and Liljeblad (1986:447, Figure 12), the costume and the way in which it was used were introduced to the Owens Valley Paiute by the Yokuts and from them to the Walker River Northern Paiute.

"Captain" John Spencer (Figure 8.4), who was a Paiute community leader or headman in Bishop in 1905 or 1906, wore a variant of the costume in a "so-called 'war dance'" that could be "danced by himself or others" (Bosak 1975:44). The dance was apparently learned from "a visitor" from the South Fork of the Kern River, "perhaps Tübatulabal, called Paiyote by some" (Bosak 1975:44, citing Steward 1933b:321–322). The dancers' faces were painted red, while other body art was in white, yellow, red, and dark gray.

"Medicine men" or "doctors" (shamans) wearing the costume participated for pay and status

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in numerous performance occasions. One of the participants was Bob Bautista (*Poso'o*), a noted shaman of the Tachi Yokuts (Gayton 1948:39; Wallace 1978b:457–458, Figure 10). Another was Bob Rabbit, "celebrated Kawaiisu weather shaman" (Zigmond 1986:406 citing Voegelin 1938:64), who performed at the Santa Rosa Rancheria *c*. 1914, among other events. One of the last photographic records of the costume was made by M. R. Harrington in May, 1932, when an Owens Valley Paiute man wore it at a San Fernando Mission fiesta (Liljeblad and Fowler 1986:419, Figure 3).

The eagle down that formed part of the kilts of the Tachi Yokuts and Central Foothill Yokuts was highly symbolic and sanctified, worn by shamans and non-shamans, and was considered to be "dangerous" to anyone who handled it (Gayton 1948:21, 28, 31–33, 38, 52–53).[3] Eagle is a Tachi lineage totem assigned to head the Yokuts West patrilineal moiety and provide wealth to the moiety chief (Gayton 1948:28, 38; Wallace 1978b:452). The Eagle lineage male ceremonial face paint was an ideomorphic design of two groups of two diagonal lines each in black paint on a white ground (Gayton 1948:20).

The upright magpie feathers forming the headdress of the costume are linked to the Chunut Yokuts' "official advisor," who was of the Magpie totem (Gayton 1948:26; Figure 8.4). Apparently, the role of the "official advisor" was to act as a go-between for the chief and members of the community, although he did not speak for the chief. In particular, "if a man wanted to kill a doctor," he spoke to the "official advisor" who, in turn, consulted the chief before the act could be committed (Gayton 1948:26). Native peoples who camped every year around a "cult center on Independence and George creeks"—near the towns of Independence and Lone Pine, respectively—were sometimes called "the Eagles" (Liljeblad and Fowler 1986:428). The Eagles were in opposition to "the Magpies," another group to the north. In short, the costume had an extensive, varied use within a relatively continuous arc of function and meaning. It is probable that other objects and symbols, including rock art, were similarly adaptive.

Figure 8.4

Captain John Spencer, Paiute headman, wearing a traditional ceremonial headdress and tufts of eagle down attached to his body in a pattern.

County of Inyo, Eastern California Museum.

N. B. Latta (1977:300) identifies this same man as "Chico, aged Koyete (Tule River) rattlesnake dancer" in a photo said to have been taken in Porterville *c*. 1900.

Native Spirituality

There is no "one religion," no matter what it is called, that represents *all* Native spirituality; by the same token, "there is also no one prophet or one prophetic teaching that represents the history of Native religions" (Irwin 2008:4). As Hultkrantz (1986:633) notes, the structure of traditional Great Basin religion includes visionary shamanism. Disparate phenomena have been associated with shamanism since the term was first applied in North America to Dakota medicine men in 1854 (Jones 2006:9–10).[4]

Jones (2006) clarifies the historical use of the terms "shaman" and "shamanism" in English-speaking North America and compares current understandings of the phenomenon with the historical record. He reviewed 780 individual historical and archival documents that traced the terms over 150 years, from early anthropology through psychology and biomedicine to the modern development of the study of shamanism as a discrete research field. Early reports, he found, focused almost exclusively on the costumes, ritual objects, and aural (acoustic) and visual aspects of shamanism, and treated it as "a gigantic theatrical performance" and a "showmanship-based event" (Jones 2006:11; Irwin 2008:305).[5]

By the early twentieth century, the term "shamanism" was no longer defined as theatricality centered on a single individual performer—Bob Rabbit, for example—but, instead, was applied to a person who participated in and upheld the larger social purposes and order of his or her community. Ethnographic shamanism morphed into a cultural institution in which shamans and headmen became one and the same (Hultkrantz 1986). This evolution in roles has an as yet unmeasured impact on our understanding of ancient aesthetics.

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Figure 8.5
View of Little Lake.

In Jones's (2006:20) opinion, shamanism as a research construct "has become extremely loose and nonsensical." He sees this as a result of reducing the phenomenon of shamanism to its *observable and measurable* psycho-physiological effects, including mental imagery and the use of psychotropic plants, and then attempting to correlate those characteristics cross-culturally (Whitley 1998a, 1998e, 2005; for critique, see Garfinkel 2006; Matheny, Smith, and Matheny 1997).

Shamanism is usually described as a nearly universal belief system theoretically possessed by all pre-agricultural human societies (Bean and Vane 1992:9; Díaz-Andreu 2001; Hedges 1983:46; 1992; Jones 2006:12). It is offered as the prime motivation for the production of hunter-gatherer rock art and extended as a construct backward in time as far as the Paleolithic—although not without criticism and counterargument (Díaz-Andreu 2001; Helveston and Bahn 2005; Lewis-Williams 2002; Whitley [1998e:162] projects it back 9,000 years in the Coso Range). Overly broad cross-cultural comparisons and interpretations of aesthetics within geographically widely separated societies (Vastokas 1977:106–107) are common.

Gilreath (2007:286) describes the "high energy debate" and "personal attacks" that have characterized the on-going discussion of shamanism and rock art. Whitley (1994b:83) has argued that rock art "was produced by male shamans" on vision quests. Hedges (1983:50, 58) cautions that "clearly, not all rock art is shamanistic," although "any rock art design *could* be a visionary image." Furst (1977:6) points out that shamanism "may or may not constitute a group's entire religious system" and that its "overt manifestations" can differ "even within one more or less homogeneous culture area or closely related population." Like Hedges, Furst (1977:6) finds a broad relationship between shamanistic belief and "symbolic behavior."

We define shamanism as a phenomenon consisting of a male or female individual—the shaman—who has voluntary access to, and control of, "more aspects of their consciousness than other individuals," and, therefore, the community believes that the shaman is in "direct contact with the spirit world through a trance state and has one or more spirits at his [or her] command to carry out his [or her] bidding for good or evil" (Bean and Vane 1992, quoting Harner 1973:41–42).

Numic Beliefs and Practices

Numic groups regarded the natural features of their immediate physiographic environment and the cardinal directions as defining elements of world structure and cosmology. Lakes such as Little Lake were metaphysical features of the landscape (Figure 8.5). Water was a central focus of life, and rattlesnakes and snakes in general were closely associated with water, making the proximity of Little Lake to the "Rattlesnake" formation on which the rock art at Locus 7 is located especially intriguing.

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In the Great Basin, spiritual power is signified by discrete but related terms: *puha* for the Mono and Northern Paiute; *puha* and *poha* for the Shoshone, and *puhwa* for the Kawaiisu. According to Liljeblad (1986:644), there is a plurality of power drawn from animate and inanimate nature. Power in the form of premonitions, for example, appeared unbidden and unexpected to people of both genders and all ages *in the ordinary course of their lives*, sometimes producing identifiable and indestructible spirits to aid not only in hunting, but also in conceiving, birthing, curing, and healing. Visions were sometimes deliberately induced by adults in young people through guided ingestion of psychoactive natural substances. Every man, woman, and child had his or her own spirits or powers made visible in dreams or omens that varied in intensity and danger. Any of these visualizations are plausibly expressed in rock art.

"The dominant religious concept of most hunting peoples, the master of the animals" existed among the Numic, although it was "less conspicuous in Great Basin religion than elsewhere" (Hultkrantz 1986:633). A parallel is suggested between this recurrent deity and the position held by individual leaders of social and ceremonial occasions, including communal hunts (Hultkrantz 1986:633). Garfinkel and Williams (2010) review the central position in Kawaiisu mythology of the master of the animals, a deity known as *Yahwera* (Zigmond 1986). It is most closely associated with birds, especially ravens and crows. Ceremonies involving Yahwera were the focal point of seasonal fertility and food-supply increase rituals.

Shamanism takes variant forms depending upon which aspects of the construct are emphasized by a given community, the goals of a specific social activity, and the parameters of an individual problem or need. A defining element is that the shaman must be able to demonstrate an altered state of consciousness or induced trance state, often employing intensely repetitive words, songs, or dances. The shaman's *overriding duty to the community in all cases* is to use his or her power to cure, heal, and protect. In the northern and eastern Great Basin, individual vision quests are undertaken by males. In the southern areas, "the spontaneous dream often replaced the sought-for vision as the source of power" (Hultkrantz 1986:635).

It has been empirically shown that physiological or visual experiences in some traditional societies are often related to the conditioning, anticipation, or expectation of the individual involved and may be stereotypical. In hunter-gatherer societies, "myth has all the characteristics of ritual" (Myers 1997:39). The fabric of Numic spiritual belief and aesthetic expression is interwoven with daily life and its concerns of procreation, pregnancy and birth, coming of age, death, and mourning. We logically presume the existence of conceptual and iconographic links between Numic language, myth, ritual, craft, and rock art.

Panamint Shoshone Among the Western Shoshone the word for "practicing shaman" was *pohakantł* (Liljeblad 1986:645) or *puhakantł* (Thomas, Pendleton, and Cappannari 1986:271). There were three kinds of shamans: "specialists able to cure specific ailments, individuals who used their powers only for their own benefit, and those who had general curing ability" (Thomas, Pendleton, and Cappannari 1986:271, citing Steward 1941:257). It was "widely accepted that women could be shamans," although "only men *are known* [emphasis added] to have actually practiced" (Thomas, Pendleton, and Cappannari 1986:271). Steward (1933b:305) notes that "doctors' songs, dances" and the "powers" held by shamans could not be inherited or transferred.

The Round Dance was the major ceremonial and social event among the Western Shoshone. It was performed as part of mourning ceremonies and usually held in the fall but also took place in the spring in conjunction with antelope drives. It varied from one group to another but, in general, featured a repeated side step to the left executed as part of group circle formation.

Owens Valley Paiute In general, the natural world was imbued with power (*puha*) which "resided in plants, animals, birds, and 'water babies' of streams and lakes as well as in the earth, sky, wind, thunder, and moon" (Irwin 2008:290). To become a religious leader or healer, a man or a woman first had to acquire power through dreams or visions. Power "came unsought" and unexpected in "vivid dreams" not caused by any sort of "fasting, self-torture, lonely vigils, etc." (Steward 1938:308). Special dreams might start in childhood, be repeated in late teenage years, and come to fruition in adulthood. A person with such dreams might be identified early by his or her family as a shaman. Spirit helpers who appeared unsought "were considered as powerful as those sought in a dream quest rite" (Irwin 2008:290).

According to Steward (1938:308), charms or "power objects" could be "private property" created by individuals as talismans for their own protection or success in everyday life. Group ceremonials took place in the spring and fall and included dances that sometimes lasted for days. An annual mourning ceremony brought people together from miles around and facilitated reciprocity of resources. The ceremony "may have arrived" from the Yokuts (Liljeblad and Fowler 1986:428).

An Owens Valley Paiute male (Tom Stone) told Steward (1933b:293–294) about girls' puberty ceremonies. Girls marked the initiation of their menstrual cycles by interaction with the sacred cosmological landscape. Irwin 2008:290) says that they performed

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"a morning run to a local hill and back, for five to ten mornings" and made "five small brush piles along the run path" (see also Steward 1933b:293–294; Fowler and Liljeblad 1986:449; Gayton [1930] notes sacred numbers). Artifacts known as "scratching sticks" were used during isolation at the onset of menses and following childbirth (Bibby 2004:14–15). Some are painted red or decorated with angular/linear designs that have counterparts in Little Lake Ranch scratched and painted rock art patterns.

Kawaiisu A Kawaiisu elder said that "Little Lake was one of the exit portals for those who visited with Yahwera" (see above; Garfinkel and Williams 2010; Zigmond 1938, 1972, 1977). Yahwera is associated with a cave that leads to the underworld, but also with the being known as Rock Baby who "makes pictographs" (Zigmond 1986:407). Rock Baby for the Kawaiisu is thus associated with painted rock art but also with doom and tragedy.

The general Kawaiisu word for shaman is *pohagadł*. According to Zigmond (1986:406), there were "curing and bewitching shamans and, presumably, weather shamans [who] obtained their power through dreams and visions." A curing shaman (*huviyagadi*) was "one who has a song" (Zigmond 1986:406). An evil shaman acquired his power through dreams and visions of rattlesnake, grizzly bear, coyote, or other supernatural beings. Des Lauriers and Sutton (2010) report a "witch stick," now lost, once attributed to a cave in Kawaiisu territory also containing a pottery sherd, fragments of basketry, cotton cordage, and reeds and grasses. They reasonably speculate that the cave may have been a ceremonial site.

Two life cycle or ceremonial events were constructed in such a way that visionary experiences were induced and cross-generational memories were shared. Rather than being solitary vision quests, however, they were closely supervised ordeals. In one instance, the root of Jimson weed (*Datura wrightii*; Figure 8.6) was shredded and "soaked from sunrise to sunset in a small, decorated basket that was moved during the day in a westerly direction."[6] Unfortunately, the basket decoration is unknown. Historic Numic basketry was influenced by representational rock art designs, but nonrepresentational motifs are ancient (Slater 2000:52).

Tübatulabal Female shamans were required to have psychic abilities from birth and, unlike males, were not able to acquire them later (Smith 1978). Female shamans and other women painted their faces red and white and were often tattooed, although there is little available information on design elements. Male shamans had curative and witching powers, but women lacked curing powers. As they were among the Kawaiisu, supernatural powers or helpers were acquired in dreams and visions, often but not always aided by fasting and partaking of tobacco and jimsonweed. A version of the Round Dance was performed, and shamans sometimes gathered to stage public demonstrations of their prowess.

California Groups: Yokuts

The populous Yokuts societies were structurally more complex than Numic groups and organized as a patrilineal totemic system. As noted above, totemic animals and birds were never realistically depicted. Participants in various ceremonies painted their faces "with patterns symbolizing their totems" (Wallace 1978b:457; Gayton 1948). The patterns included white and red lines, zigzags, and rows of dots. Black paint is associated with shamans.

The Yokuts inhabited a lake and marsh environment shared by monsters and "water babies" (Gayton 1930, 1948). Shamans of the highest standing and visible presence in their communities were male. They often had an assistant (acolyte) and sometimes an interpreter (Gayton 1948:25, 31, 33). There is a messianic or prophetic quality to the highest category of Yokuts shamanism. The lower ranks were considered malevolent.

A man became a shaman by bathing and fasting. Power could be obtained in trance but was also "randomly acquired by dreaming" (Gayton 1948:110). Among the Tachi Yokuts, a man became a bear doctor by bathing or swimming at night, sometimes over the course of many years, until a bear appeared in his dreams. Then he was able to enter or leave his bear persona by plunging in and out of the same pool of water (Gayton 1948:36, citing Kroeber 1925). There is no reliable evidence in our area that rock art elements commonly referred to as bear paws reference bear shamans.

Rock Art Design Concordance

Precontact hunter-gatherer groups throughout the world are thought to have experienced ritual lives in which the main focus was on the "fervent propitiation" of spirits involved with game and the hunt (Furst 1977:3). Within this context, the "creative potential" of shamanism is said to have produced widely recurrent variants of certain design motifs (Brodzky, Danesewich, and Johnson 1977; Brasser 1977:39). In turn, applied biological theory and cognitive neuroscience (Lewis-Williams 2002; Renfrew and Scarre 1998; Whitley 1998a) underpin the argument that biochemical processes experienced during shamanic trance are the causal explanation or genesis of basic design units dubbed "entoptics" and "form constants." However, visual and sensory disturbances, including migraines experienced during non-ceremonial occasions, can also create multi-vision hallucinations, distortions of time and space, and altered (enlarged or diminished) perception of one's

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body, including especially head or appendages (Sacks 1992; Podoll and Robinson 2008).

We know that humans are capable of abstracting "universal, invariant relations" of underlying structure such as symmetry or orientation during visual perception, and they can also perceive "distinctive features, such as those peculiar to the aesthetic system of a particular culture" (Washburn and Crowe 1988:17). Thus, no matter what a person *perceives* in any type of visual or visionary experience or, in fact, how that experience is generated, the patterns or designs that are *selected* for retention, replication, or emphasis will be *those that are already culturally significant*. This obviously implies a certain repetition of symbology. In our view, even the most basic design unit is meaningful (ideomorphic) irrespective of media, and culturally embedded values are the best explanation for why design units are assembled into increasingly complex motifs (Wagner 1975; *contra* Whitley 1998a, 1998e).

Prenumic Design Concordance

Prenumic religious beliefs at Little Lake or elsewhere in the Great Basin are conjectural, although some practices are hinted at in the archaeological record (Gilreath and Hildebrandt 2008). The best-documented Great Basin design vocabulary is present on a large sample of incised stones in a secure archaeological context at Gatecliff Shelter, Monitor Valley, Nevada (Thomas 1983a, 1983b, 1983c; Tuohy 1986). There, 48 recognizable, repeated motifs constructed out of just five basic component parts are incised on a large sample of cached stones. The components are horizontal, vertical, and diagonal lines in rows of three or more; the chevron—which is sometimes linked to form a zigzag or connected diamonds; the circle, and striations (Thomas 1983b:248–253, Figure 108; Figure 8.7).

Preplanning is evident in the use of design surfaces on all of the Gatecliff Shelter incised stones. The motifs were incised "as early as *c*. 3300 B.C. and were, at some time, 'scratched' into non-portable boulders and rock walls" (Thomas 1983c:352). Superimposition dates to about 1400 B.C., and at about 1300 B.C. the simple crosshatch appears (Thomas 1983b:256). The Gatecliff Shelter inventory displays "adaptable interpretations of underlying concepts" meant to articulate "inherent values repeated across media" (Thomas 1983b:251). Furthermore, the same or highly similar angular/linear motifs and basic curvilinear elements are painted on Prenumic atlatl dart foreshafts at Gypsum Cave, Nevada (Harrington 1933; Warren and Crabtree 1986:190). These implements are basic to hunting activities, and we presume that the motifs are associated with such concepts as maleness, male prowess or success, and food acquisition or increase. We consider the Gatecliff Shelter motif inventory to be a regional, Prenumic iconographic baseline.

Numic Design Concordance

Largely unpatinated but also some patinated striations are categorized as scratched patterns at Little Lake Ranch (Reed, this volume) and considered to be Numic. They fall into three formal motif groups. One is angular/linear, one is curvilinear, and the other is mixed. A fourth group consists essentially of striations in horizontal, vertical, and mixed patterns. All of these patterns are present in patinated and unpatinated pecked rock art at Little Lake Ranch but are also broadly present in other Numic media, including incised stones and pendants, Owens Valley Brownware pottery, Owens Valley Paiute and Panamint Shoshone basketry, and Owens Valley Paiute face paint. Thus, we discern a basic Numic design concordance (Figure 8.8).

Figure 8.6.

Jimson weed *(Datura wrightii)* was used during some rituals to create visionary experiences.

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Chronological Implications

The similarities in some Prenumic and Numic design units are an obvious function of their simplicity. The relationships continue to exist, however, when these same design units are combined to create more complex patterns. The longevity of oft-repeated patterns dates from at least 3300 B.C., and, as noted above, curvilinear forms at Little Lake Ranch are possibly older than the angular/linear designs.

On the basis of the evidence summarized in Chapter 3, we presume rock art production at Little Lake Ranch dates at least to the Prenumic Little Lake period. Atlatl Cliff is spatially removed from Little Lake, and we assume that the more heavily patinated rock art there is Prenumic, dating to at least *c*. 6000–3150 B.P. We attribute the concentration of rock art in proximity to Little Lake itself to the inhabitants of Pagunda from *c*. 2300 B.P. We interpret our data as supportive of the Heizer and Baumhoff (1962) thesis that, in general, curvilinear

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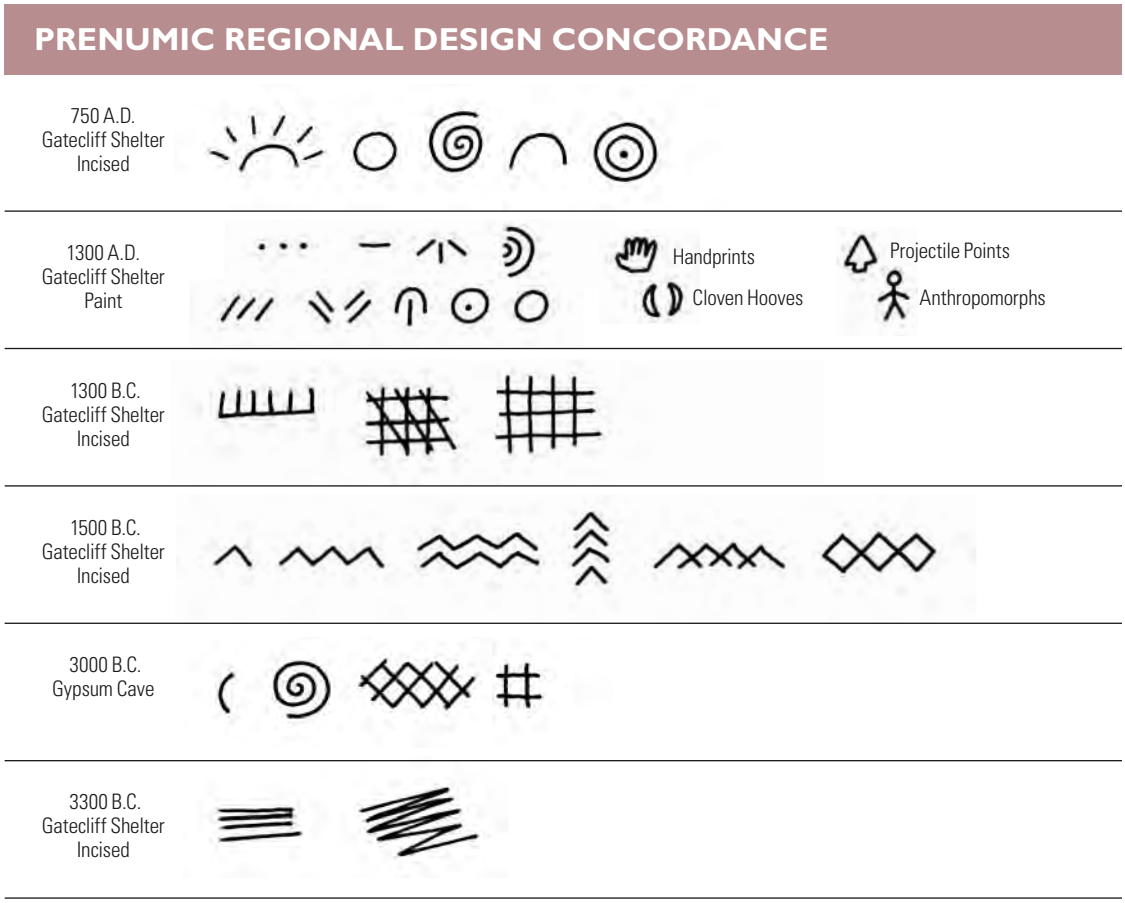

Figure 8.7

Prenumic regional design concordance, 3300 B.C. to A.D. 750.

pecked motifs predate the rectilinear ones (see also Whitley and Dorn 1987:158).

Rock Art and Religious Practice

Visionary rituals in Numic societies made use of trance or psychological suggestibility to produce ecstatic experiences. These experiences could be unpredictable and either positive or negative, pleasurable or terrifying, and were capable of generating a range of physical responses, emotions, and behaviors. All available evidence suggests that most Numic visionary practices were conducted in the context of closely supervised and directed activity. They were personal or family matters that required the presence of an older, experienced person but not necessarily a spiritual adept. It is unlikely that all young boys underwent Numic visionary ritual as an isolated and dangerous quest and probable that only those few with special gifts were selected for these ordeals.

Motivations for Rock Art Production

Research shows that hunter-gatherer desert societies throughout the world have variable patterns of residency (Chapais 2008) based on male–female pairing. While not all members of a given band are necessarily genetically related, ties of kinship within tribes inspire a cooperative network that facilitates reciprocity in the acquisition of life's basic necessities. Families fashion their own identities but also link to other families through marriage; expectant mothers need midwives, budding young hunters need mentors, the aged need the young, and everyone needs food and water. Group identity and unity are stated in mythic origins and promoted by ritual. In our view, some rock art production visualizes and codifies ritual.

Psychology and archaeology reveal that most creative human actions are not reducible to a single motivation or action (Dissanayake 1988:186–187). We presume multiple motivating factors for the creation of pecked rock art at Little Lake Ranch, including the need for explanatory power through ritual; a desire to establish and display attachment to others; and a need to define, envelop, wrap, or surround sacred or supernaturally feared space. Symbols in any format, including rock art, imply the presence and production of a message. Meaning takes place on several levels: between individuals and groups; between spiritual leaders and acolytes; between generations and genders, or between any of these and spirits. In turn, messages can only be understood within a given society if there is a mutual framework of meaning.

The Little Lake landscape acquired associations and meanings related to human activities. Rock art at Little Lake Ranch is not randomly distributed, and we presume that its presence is *connected to the regional time line and commensurate with the variety of activities that took place at Little Lake*. A basis for this assumption exists among Australian hunter-gatherers with an ancient tradition of rock art production. There, "the plan of life itself" is encoded in the

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LITTLE LAKE SCRATCHED PATTERNS and OWENS VALLEY NUMIC DESIGN CONCORDANCE

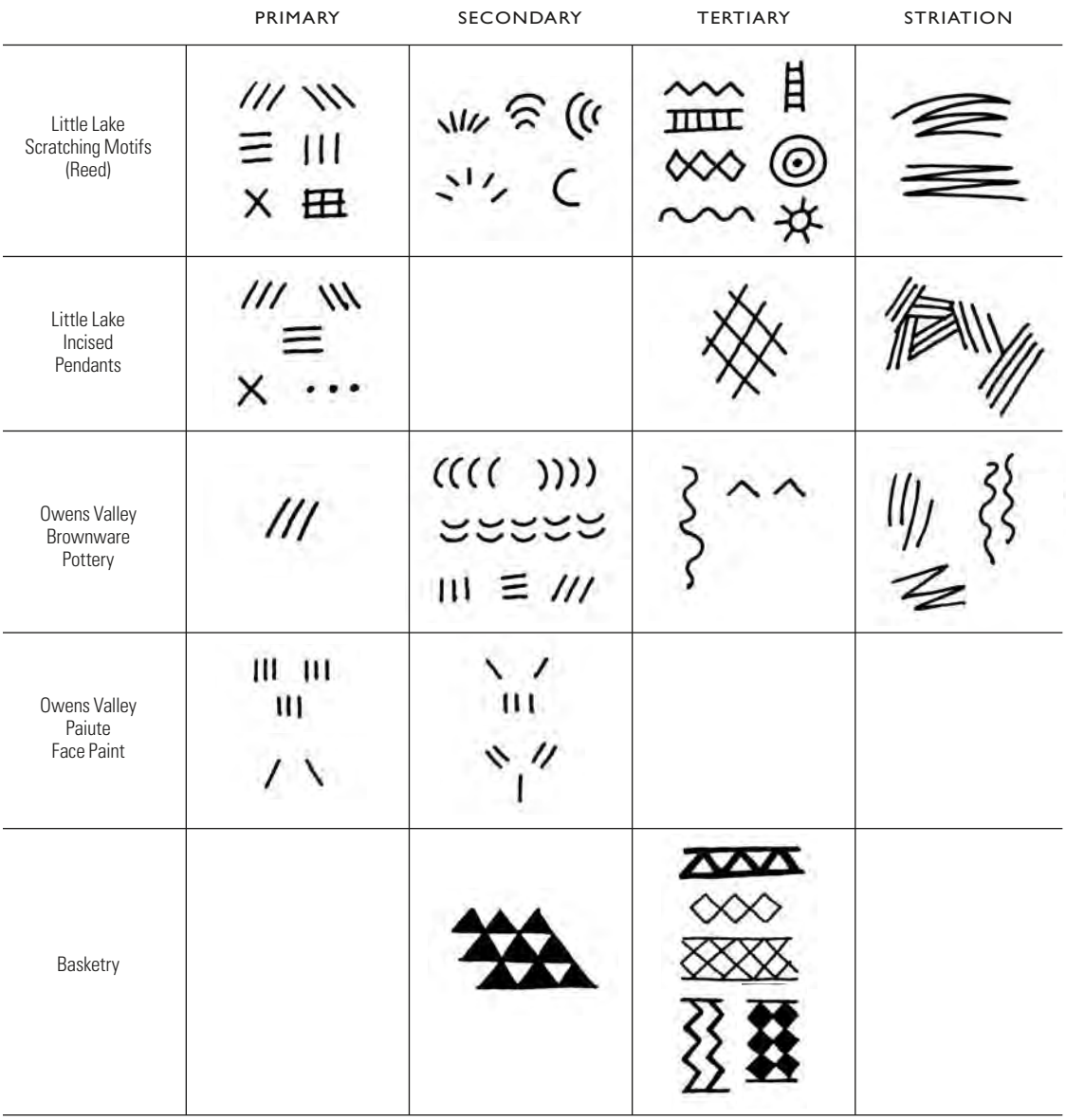

Figure 8.8

Little Lake scratched patterns and Owens Valley Numic design concordance.

configuration of the landscape and communicated in "the events narrated in myths, the acts performed in rites, the codes observed in conduct," and the "habits and characteristics of other forms of life" (Maddock 1973:110).

Locus 3 Painted Rock Art and the Vision Quest

Some caves and rock shelters in our region are ethnographically associated with the supernatural world, named spirits, shamans, and *painted* rock art (Figure 8.9); Driver 1937:126; Grant 1978a:517; Irwin 2008:290; Liljeblad 1986:653, Figure 5; Zigmond 1986:407). Southern Valley Yokuts painted rock art is located in caves and rock shelters in California's western foothills and Coast Range (Clewlow 1978:625; Grant 1978a; Wallace 1978b:459). According to Gayton (1948:113), "painted rocks often marked shamans' caches." Such caches, in turn, were perceived as a particularly dangerous type of wealth. Some cached objects are also known to have belonged to non-shamans or to entire ethnic groups.[7]

Cached objects vary but include pigments, feathers, quartz crystals and tourmaline, clay and twig figurines, and wands, staves, or "spirit sticks" and "witch sticks" (Des Lauriers and Sutton 2010; Gayton 1948:42; Langenwalter 1980; Whitley et al. 1999). Voegelin (1938:64) notes that among the Tübatulabal, quartz crystals were used by weather shamans to create rain, but Langenwalter (1980) reports that not all crystals were "live" or possessed power. Among the Southern Valley Yokuts, plummet-shaped charmstones were meant to bring rain (Gayton 1948:37; Wallace 1978b:457). At the Stahl Site, Harrington (1957:68) found a small object thought to be a "charmstone" and carved of fine-grained stone or bone with one flattened side "as if it had been mounted in a handle or even on a shaft [stave?] like

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Figure 8.9
View over Locus 4 from the Painted Cave.

[*sic*] a projectile-point." However, the "charmstone" was not associated with any sort of cache.

The painted rock art in Locus 3 cave displays—as Campbell Grant originally intuited—the strong presence of traditional Yokuts and Kawaiisu design affinities (Van Tilburg 1983:22, Plate 7). On the basis of the cumulative regional data, we infer that the paintings were made within the ritual context of the guided vision quest. Can any of the individual painted elements be interpreted as substance-induced neurological phenomena?

Hedges (1983:59) states that rock art elements portraying movement or transparency and the techniques of superimposition and the "combination of design elements" are hallmarks of trances that produce entoptics .These characteristics, however, are arguably not present in the Locus 3 painted rock art and, in fact, are only rarely seen in the Little Lake Ranch pecked rock art corpus as a whole (Van Slyke and White, this volume). Some superimposition and refreshing of pecked elements is present—particularly in the more complex and larger panels—but it is uncommon. We have recorded only 170 instances of superimposition in pecked and scratched elements. In short, while the individuals who produced Locus 3 painted rock art may have been shamans or shamans' acolytes, the entoptic genesis of the motifs is not evident in the currently visible motifs. Painted rock art nearest Little Lake may reflect the Numic belief that bodies of water are the portals of entrance and egress to another world used by malevolent spirits but also by shamans.

Angular/Linear Rock Art Motifs and Ritual: A Relationship Test

Curvilinear elements (1,568 examples) and angular/linear elements (1,023 examples) dominate the Little Lake Ranch pecked rock art inventory (4,112 total elements) and link it to that of the Great Basin. As a group, angular/linear elements evidence varying levels of complexity but, in general, usually have little or no patination. We assume that scratched angular/linear patterns (not included in the element total above) are roughly coeval with similarly patinated, angular/linear pecked examples, and both are probably relatively recent.

There are several ways in which multiple vertical or diagonal lines were employed in Numic crafts, including basketry (where they appeared as "ticking" along a basket rim). We selected the angular/linear rock art motif "multiple lines" (Figure 8.10) to conduct a relationship test between it, the "cultural form" of body art, and ethnographic records of a late revivalist, prophetic "messianic cult" known as the Ghost Dance of 1870 (Gayton 1930:1). It originated among the Northern Paiute and was a highly

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creative regional stimulus for the arts, including costumes, flags, and body-paint patterns.

Face-paint patterns that evolved out of traditional designs are also ethnographically documented for several groups as part of Ghost Dance iconography (Du Bois 2007:17; Gayton 1930: Figure 2; 1948:54, 152). Among the Owens Valley Paiute, five face patterns in red and black are known. Four were variations on groupings of two to five straight and diagonal lines, and one was simply an overall red (Steward 1933b). The painted or tattooed chin design worn by "Captain" John Spencer, and consisting of a group of vertical lines, was widespread (Fowler and Liljeblad 1986:446, Figure 11; Gayton 1948:69, Figure 9).

Among the Yokuts, white was traditionally added to the design matrix, and black was sometimes attributed to, or reserved for, shamans. Two groups of two diagonal lines on a white ground were ideomorphic representations of the Eagle totem (Gayton 1948:20). Horizontal and vertical lines for Yokuts men were drawn in sets of four arrayed in groups of two "because the dance lasted four nights" (Du Bois 2007:17; *contra* Gayton [1930:68, 71] who says it lasted six nights; see also Gayton 1948:54).

We have 72 instances of the "multiple lines" motif in pecked rock art at Little Lake Ranch. We conducted an analysis of the motif on panels at Atlatl Cliff and Locus 7 to see if sets of four vertical or horizontal lines were arrayed in groups of two. Most vertical lines were connected in some way. Of those that were not connected, only *one* unpatinated pecked motif and *one* painted motif fit our definition precisely. Scratched panels that include the "multiple lines" motif are widely distributed at Little Lake Ranch. At five discrete loci (1, 4, 5, Atlatl Cliff and Pottery Slope), *none of them* fits our definition. Our test, therefore, is negative for linkage between the "multiple lines" rock art motif and documented face-paint designs associated with the Ghost Dance of 1870.

Numic Iconographic Baseline: Basketry

We undertook an inventory of selected Numic basketry (Fowler and Dawson 1986) to create an iconographic baseline for comparison with Little Lake rock art motif categories.[8] We established a museum studies database of 250 objects held by five different institutions, of which 175 were baskets attributed to the Panamint Shoshone, the Owens Valley Paiute, the Kawaiisu, and the Tübatulabal. Five major motif classes were created and collectively included 46 subcategories. The largest category is angular/linear. Of these, eight have descriptive names such as "arrow" or "feather." Two allude metaphorically to events. The anthropomorphic category contains two subtypes present in Little Lake Ranch rock art. Kawaiisu basketry patterns are similar to those of the Yokuts but appear to have been acquired "later in connection with the trans-Sierran trade" (Fowler and Dawson 1986:723).

The accession information for most of these objects is missing or sketchy, with the best-documented collection being that of C. Hart Merriam at University of California, Davis (Fowler and Dawson 1986:735). The baskets with anthropomorphic or zoomorphic designs are the most recent. Some baskets incorporate motifs to which descriptive names have been attached (James 1972). Zigzags and stepped designs predominate. Zoned surfaces, outlining, and color are all present.

Rock Art Form and Basketry Structure

In an Owens Valley Paiute creation myth told by George Collins (Steward 1936:335–440), female

Figure 8.10

Locus 3, Panel 1: angular/linear painted element on the ceiling of Painted Cave.

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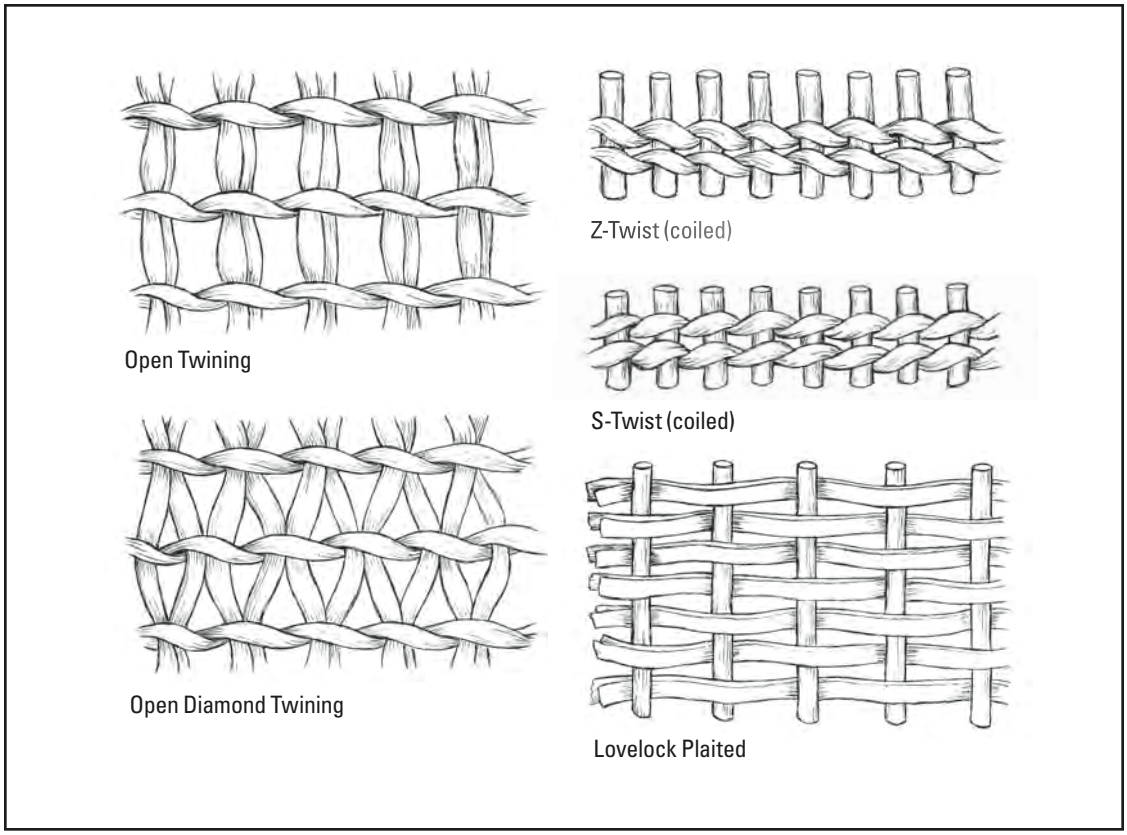

Figure 8.11
Basic structural types in western Great Basin basketry.

spirits within the rocks made baskets.

> They heard a sound inside the rock. They listened and heard the sound of making baskets. They could hear the awl punching to put the willow strands through. Mai'nu said, "I hear somebody making baskets in the rock. How shall we get her out?" Pa'makwa'ju told him to use a deer horn. Hai'nanu said, "But how can we break the rock?" His brother said, "Do as I tell you." Hai'namu hesitated and then struck the rock with the deer horn and broke the rock in two. Inside, it was like a house, and there was a beautiful woman with all kinds of beautiful baskets around her.

There are three basic *structural types* in western Great Basin basketry: twined, coiled, and plaited (Figure 8.11). Each creates, underlies, and organizes the conceptual space on or within which decoration and ornamentation occur. Each reflects spiritual concepts of horizontal and vertical spatial organization, illustrated graphically in the pole and circle of the Round Dance. Decoration is internal, a function of weaving; ornamentation is external, a function of application. Structure is meaningful when, for example, it is metaphorically capable of creating, stating, containing, and sustaining the real and symbolic aspects of life.

Simple or open twining is the oldest basketry construction method in the Western Great Basin and is dated to *c.* 9000 B.C. (Adovasio 1986:197). If the underlying structural form of simple twining is schematically represented in rock art, it would be by a crosshatch (Figure 8.12). A schematic view of open twining yields diamond patterns (Figure 8.13). The antiquity of twining fits with the apparent antiquity of angular/linear designs and includes triangles, zigzags, wavy lines, linear bands, and vertical bars.

Coiling appeared *c.* 4500–2000 B.C. and was used to produce circular parching trays and containers, the analogues for which are circles, concentric circles, and spirals (Figure 8.14). When coiling is represented in schematic form it consists of vertical lines and loops. Overlay and outlining are common decorative techniques. Coiled baskets sometimes bear daubed red paint. Locus 7 pecked rock art motifs have multiple instances of daubed red paint, and outlining is present on Locus 3 painted elements.

A distinctive plaiting technique called Lovelock is associated with the Nevada Cave of the same name and dated from *c.* 1000 B.C. to A.D. 1000. Some baskets there were also "decorated with geometric designs" in color (Adovasio 1986:199–200, Figure 9). The Lovelock technique in schematic representation is also a simple crosshatch.

In short, we suggest that the rough continuum of Great Basin rock art motif development briefly summarized here *parallels that of basketry structure*, not basketry decoration. The trajectory is angular/linear to curvilinear, with the crosshatch motif inherent in the earliest technique of twining and probably one of the oldest pecked, scratched, and painted rock art designs. While basketry production techniques appear to offer unequivocal support of Prenumic replacement by Numic groups (Adovasio 1986:204–205; Adovasio and Pedler 1994:122–123; Bibby 2004;

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Fowler and Dawson 1986; Madsen 1986; Madsen and Rhode 1994; Sutton 1994:138), the Little Lake Ranch rock art data are ambiguous on that point.

Rock Art, Netting, and Other Fiber Objects

Various forms of twined or braided cordage and knotted or looped netting (Adovasio and Andrews 1983:289) were widely used in snaring and trapping and may be suggested in some Little Lake Ranch rock art motifs. Other more complex motifs may display weaving conventions, such as banding of designs (Figure 8.15). A recurring and complex motif that may be either pecked or painted is made up of parallel vertical lines with opposing half-circles over nearly its entire length (Figure 8.16). It recalls protohistoric or historic deer snares made of twisted rope with self-loops at the ends. A cache of these objects was recovered in a rock shelter near Cottonwood Creek above Lone Pine (Osborne and Riddell 1978:101). The snares were apparently historic and "made by a [Paiute] hunter who lived at the winter village of *Hudu-Matu*" (Osborne and Riddell 1978:103, citing Steward 1938:52). One of several possible references for this rock art motif may be game procurement and associated beliefs or rituals.

Sexual Symbolism: Gender, Prophecy, and Identity

Rituals, particularly those centered on human biology and sexuality—male and female puberty, intercourse, pregnancy, and birth—share common and arguably universal, underlying symbolism that serves to distinguish gender roles while, at the same time, binds "men to women, and both to society" (Franklin and Bunte 1996:194).

In the Native languages of the western Great Basin, "neither nouns nor pronouns are inflected for gender," and in English translations of ethnographically recorded oral history, powerful protagonists are "referred to as 'he' or 'she' indiscriminately" (Liljeblad 1986:653). Graphically illustrative sexual characteristics are almost never depicted on anthropomorphic or zoomorphic rock art motifs at Little Lake Ranch. Gender identity and procreative energy are ignored or hidden, protected, or highly abstracted.

The vulva form, which is by far the most common gender symbol in Owens Valley rock art, is the ultimate abstraction of "female." It is widely depicted as a curve or nested curves with an interior straight line or dot. It is present at Gatecliff Shelter, Monitor Valley, where it is dated to A.D. 1300. Nearly precisely the same curvilinear form is painted at Locus 3, and a larger rectilinear version of it is in red paint (see Figure 7.16). The abstracted meaning of the vulva is fertility, fecundity, and female energy.

The zigzag and multiple lines (diagonal) are ubiquitous in Little Lake Ranch rock art. In the Numic basketry design vocabulary, both motifs *are unequivocally and directly linked to gender and indirectly to prophecy.* Diagonal lines—when stitched or woven into the hoods or sunshades of baby cradles fashioned as rectangular, oval, or Y-shaped forms and used by Owens Valley Paiute, Panamint Shoshone, and Tü-

Figure 8.12 *above*

Atlatl Cliff, Group 1, Panel 23A: crosshatch element.

Figure 8.13 *left*

Atlatl Cliff, Group 1, Panel 32: connected diamonds element.

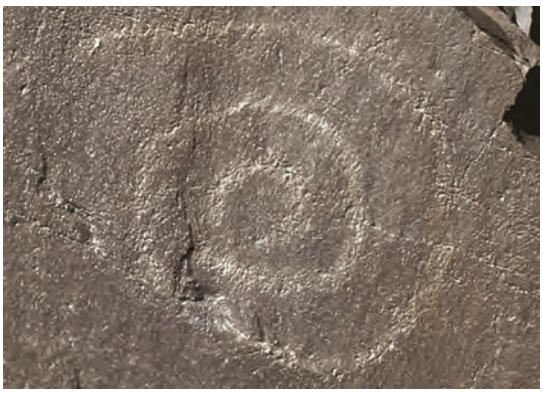

Figure 8.14

Atlatl Cliff, Group 1, Panel 65: spiral element.

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Figure 8.15
Locus 4, Panel 15: banded motif.

Figure 8.16
Locus 7, Panel 111: angular/linear motif with opposing half-circles.

batulabal weavers—indicate the child's male gender (Bibby 2004:61–75; Dean et al. 2004: Figures 1.7, 3.23; Fowler and Dawson 1986; Steward 1938:273).[9] Zigzags or diamonds, the structural elements of which are chevrons—formed, in turn, of diagonal lines—indicate female gender. We interpret the rock art motif categories of zigzag and multiple lines as potentially ideomorphic, gender-specific indicators.

The "cat's cradle" or string figures among the Cahuilla and Yokuts are made up of angular/linear designs including diamonds and zigzags and were regarded as a "game" and a "diversion" by ethnographers and some consultants (Gayton 1948:22, 92, 298). They were hardly a "game," however, when created by a female elder—some but not necessarily all of whom were shamans—in the context of words *to predict or influence the gender of an unborn child* (Bibby 2004:98; Gayton 1948:163). A comparative study of string figures and angular/linear rock art motifs may reveal that behaviors of prophecy and supplication centered on fertility are an explanation for some rock art production.

At the time of contact with Euro-Americans, cradle baskets and cradleboards—terms appearing interchangeably in the literature—were used throughout the Great Basin. The Owens Valley Paiute cradle was known as *hu.pł*, while the Panamint Shoshone cradle was *kohno* and the Kawaiisu *kohnoci*. Cradles were nearly always made by the child's maternal grandmother, but also sometimes by the paternal grandmother. In addition to the ideomorphs indicating gender that are described above, the cradle basket had two other known symbolic referents: the graphic form of the lashings that secured the child in the basket and the shape of the basket itself.

The child was secured to the cradle basket with lashings usually made of deerskin and attached to side loops (Figure 8.17). The lashings were then wound across the child's body in a vertical zigzag pattern. When the cradleboard was not in use, the lashings usually remained laced into the zigzag pattern. The graphic result is a vertically rectangular form with an interior crosshatch or horizontal line design; zigzags cross at the midpoint and loops protrude on the sides. Similar forms are well represented in Locus 4 and Locus 7 pecked rock art. Some have red paint daubed on them in the manner of basketry (Bibby 2004:71).

The Panamint Shoshone also used a cradle basket that was a distinctive Y-shaped wooden fork "made by lashing rods to a frame" (Bates 2004:112). The Tübatulabal and the Yokuts (Latta 1977:567) used a similar Y-shaped frame (Figure 8.17). The Y-form in pecked rock art is numerous at Atlatl Cliff (Figure 8.18). Bretney (this volume) compares it to the atlatl dart. However, in contrast to the expected horizontal position demanded by its use in weaponry, the Y-form in rock art is almost exclusively shown as upright or erect as it would often be when in use as a "forked stick cradle."

How old are baby cradle shapes and designs? The Prenumic antiquity of the double-backed cradle favored by the Owens Valley Paiute is based on two extant examples: one comes from the ancient

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Fremont Culture of the Great Basin and the other from the Anasazi of the Southwest (Bates 2004). The Fremont Culture "bound weave" is "the very technique used by Paiute" and other peoples to produce the gender-specific design band on cradle hoods described above (Bates 2004:115). The "similarity between the cradle baskets of these ancient people" and the "historic people of California is so remarkable that it must be more than a coincidence" (Bates 2004:114).

A cradle is "a container, a metaphor, a vehicle for thoughts, values, relationships, hope, and prayer" (Bibby 2004:6; Figure 8.19). It is "*an immediately recognizable expression of group affiliation, or membership*" (Bibby 2004:6, emphasis added). In short, since the outline *shapes* of baby carriers are, without doubt, ethnic group identifiers, *it is probable that the same schematic or graphic shapes in rock art also signal ethnic identity*. Thus, we suggest that rectangular or subrectangular and oval elements, some of which have scratched or pecked interior patterns of horizontal lines, grids, or zigzags, refer to Owens Valley Paiute or Panamint Shoshone group identity (Figures 8.20a, b). The Y-forms, especially those at Atlatl Cliff that lack patination and are consequently later than Prenumic atlatl motifs, could be Panamint Shoshone or Tübatulabal ideomorphs based on the Y-shaped cradle frame. A connection with life-cycle rituals of human fertility and fecundity is implied.

Little Lake Ranch Rock Art as Cultural Symbolism

Some names for recognizable motifs have become codified in both the basketry vocabulary (James 1972:210–216) and rock art literature. "Medicine bag" and "shaman's shirt" are two such rock art terms. In the case of "medicine bag," Fowler and Liljeblad (1986:451) describe Northern Paiute shamans' paraphernalia kept in "a special bag." One black and red painted element at Little Lake Ranch Locus 8 is roughly comparable to fringed elements in the Coso Rock Art Landmark referred to as "medicine bags." However, we were unable to locate anything even remotely resembling such "medicine bags" in museum collections, although several objects are described as "shamans' bundles." While the lack of appropriate, extant examples of "medicine bags" does not negate the interpretive terminology, it does raise a very strong cautionary note.

The term "shaman's shirt" is applied to the decorated, rectangular torso figures known as "patterned-body anthropomorphs." Fowler and Liljeblad (1986:445, Figure 9) illustrate a Northern Paiute man's buckskin shirt collected in 1916, but no connection with a shaman is given. Du Bois (2007) notes decorated cotton shirts as part of the Ghost Dance of 1870, but these hardly qualify as "shaman's shirts." Elaborate versions of Yokuts body art (Gay-

Figure 8.17

Yokuts girls with cradles on heavy, Y-shaped or forked frames typical of the Tübatulabal, Panamint Shoshone, and other Native groups, *c.* 1902.

Courtesy of the Grace Hudson Museum and the Sun House, City of Ukiah, California. Photo No. 15163

Figure 8.18

Atlatl Cliff, Group 1, Panel 72: pecked Y-shaped or forked element.

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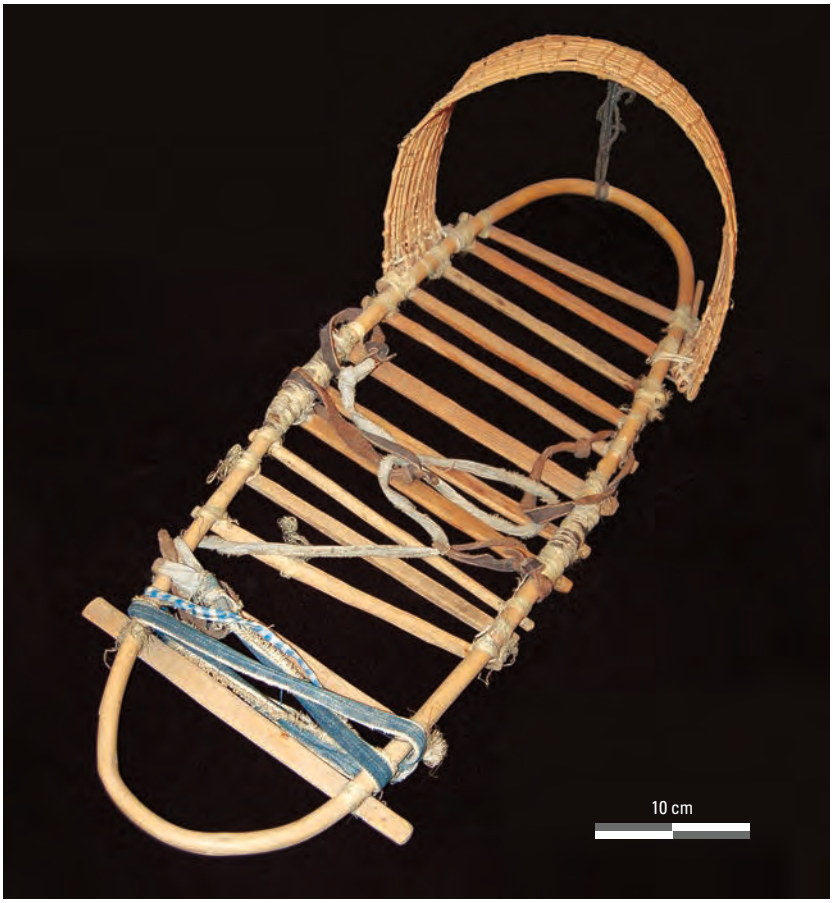

Figure 8.19

Western Shoshone (Panamint or Coso) cradleboard.

RAA photograph, by permission of the National Museum of the American Indian, Smithsonian Institution. Object No. 159210.00, 1928.

ton 1948:20) or the way in which cotton tufts were attached with pine pitch in apparent patterns to the bare skin of Paiute headman "Captain" John Spencer (Figure 8.3) are problematic as rock art "shaman's shirts." Fowler and Liljeblad (1986:452, Figure 17) show Jimmy George, a Northern Paiute "singing shaman" wearing a "twisted and twined bark shirt and leggings" which, because of the way in which it is constructed, has an overall grid pattern not unlike a twined basket. In fact, the grid is similar to some patterns on the torsos of patterned-body anthropomorphs in the Coso Rock Art Landmark corpus. The antiquity of such a costume is unknown, however, and the photograph was taken in 1967.

James (1972:208-209) links the depiction of anthropomorphs in Numic basketry to shamans, the Round Dance, death, mourning, and memorials. In a Paiute basket from Lone Pine, "the oldest type of human figure" is said to have an elongated, sub-rectangular to slightly oval torso with head, arms, and legs. It is similar to many rock art elements in our area. Virtually all anthropmorphs depicted in Numic basketry are solid forms in a single color (James 1972:208–209). However, the underlying *structure* of the basket is visible as an angular/linear pattern on the torsos of nearly all of them. We suggest that the decorated torsos of Coso patterned-body anthropomorphs may be analogous to these underlying structural frameworks. As such, they may reference the rectangular or sub-rectangular motifs we compare to cradle baskets. The goal would be to identify, personify, or memorialize an individual or an ethnic group.

Some motifs have zoomorphic associations. The zigzag or diamond motif, common and widespread in rock art, is said to represent the rattlesnake when it is depicted in basketry (James 1972:210). The Little Lake Ranch "paw" or "bear paw" motifs are shown in an upright position, just as they are in basketry. However, these rock art motifs are not exactly the same as those in basketry. Real black bear tracks made by the front paws are different from those made by the hind paws. In basketry, the designs are upright forms representing the pad of the front paw with detached triangular "claws" above. Little Lake Ranch rock art motifs also represent the front foot pads but have attached, varying numbers of single lines, perhaps representing "claws." Some of the elements are among the more visible and largest motifs and took an inordinate amount of time to create. Others are diminutive. The labor investment in the largest of the Little Lake Ranch "paw" motifs, and their consequent visibility in the landscape, signal status or high cultural value.

Totemic, clawed birds and animals such as Eagle and Bear are represented in face paint as ideomorphs—simple groups of straight lines—among the Yokuts, for example (Gayton 1948:20).

When such simple and unequivocal *signs or signals* evolve into and are replaced by more complex motifs, the result is a ritual *symbol* "saturated with allusive significance" and created in ceremony (Dissanayake 1988:85; Rappaport 1979:179). One purpose of such symbols is to "express the individual's status in the structural system in which he [or she] finds himself [or herself] (Rappaport 1979:179).

As Rappaport (1979:156) states, when "the application of a rule, principle, or classificatory device" is applied to a symbol, it is invested with meaning and transformed into "an icon of other things." Conventionalized rock art motifs at Little Lake Ranch include the atlatl and the bighorn sheep. Their forms were created within a context of rules, and, in turn, rules can only exist within a structure of values. Conventionalized rock art motifs, *ipso facto*, reveal the presence of shared values and social meanings and only exist to suggest "other things."

Defining Social Space: Isolating, Surrounding, and Containing

Irwin (2008:15–16) notes that enduring Native traditions in North America find strength in their "connectedness to place through communal experience that imbues the natural world with embodied significations in ceremonial forms, songs, gestures, and symbolic languages reducible to simple dogmatic 'credos of faith.'" In the cosmic duality of Numic

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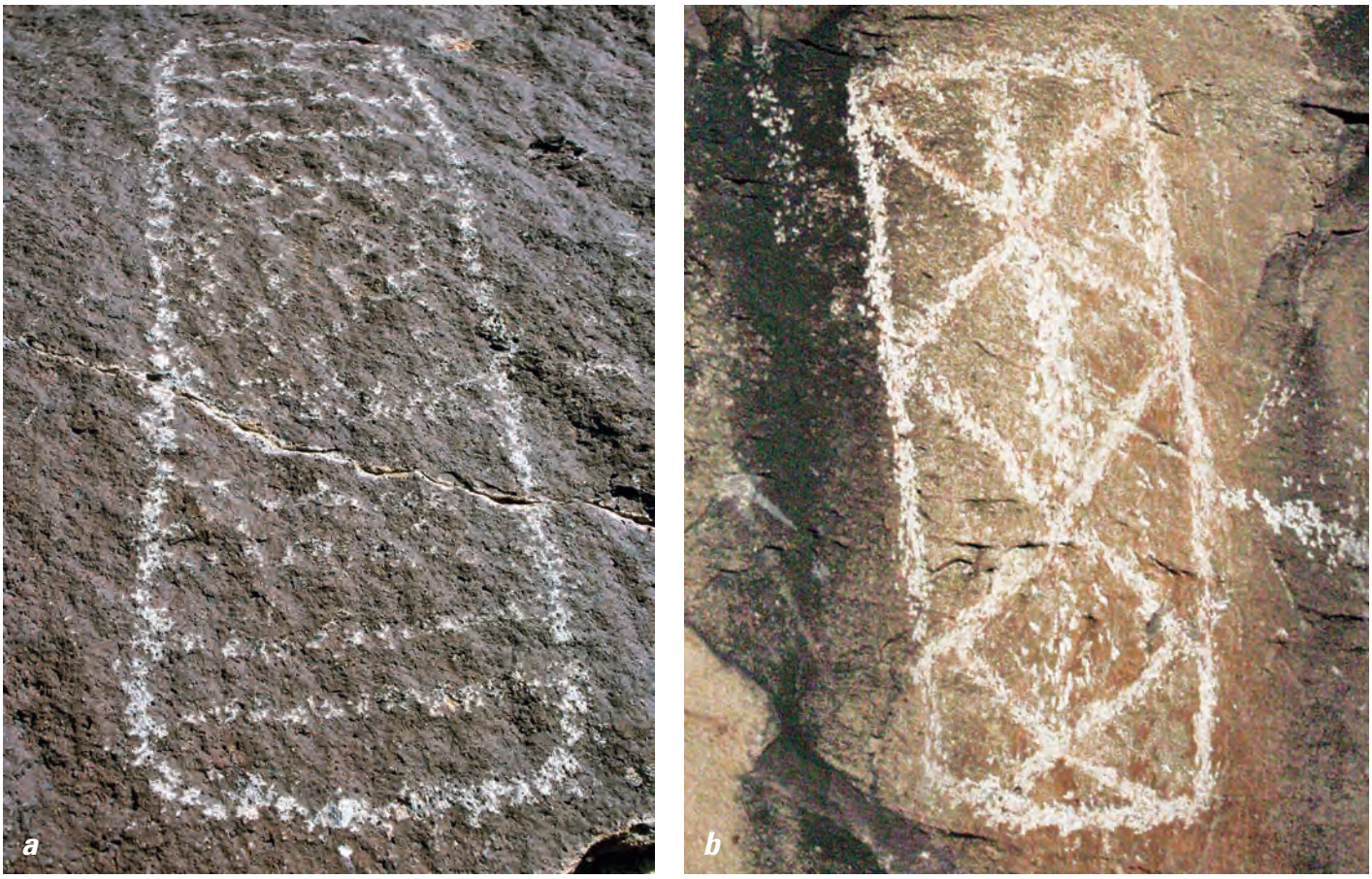

Figure 8.20

(*a*) Locus 4, Panel 1: angular/linear element suggesting a cradleboard.

(*b*) Locus 7, Panel 206: angular/linear element suggesting cradleboard with ties.

belief, human experience in the natural world was counterpoised by an underworld populated by supernatural beings in human and animal forms (Liljeblad 1986:652–653).

One difference between levels in this dichotomy is that, in some versions, time is in reverse order: when it is night in the real world, it is day in the underworld. The underworld can be entered by accident or design and by shamans or non-shamans. Culture heroes enter and release game animals held there in captivity. The entrance to the underworld is usually a cave, crevice, or crack in the rock that opens to a legendary pathway. Safe entrance and egress means adhering to certain restrictions on food or behavior. Winds are connected to the underworld and are produced by four different gods associated with the cardinal directions. Three of the gods are birdlike in appearance (Hultkrantz 1986:632).

Boundaries, both conceptual and real, exist at Little Lake. The lake is bounded on the east by a generally north–south-running basalt cliff that effectively creates a natural backdrop and border between the water and all that lies eastward. The individual coves along the shoreline are discrete and somewhat isolated spaces entered from the lake but also accessible from the shore. The widespread Numic belief that the fearsome Water Baby and related sprites and spirits all entered and emerged from the underworld via water created a metaphysical need for containment of the lake. Protection from dangerous roaming spirits in proximity to daily activities may be partial motivation for abundant rock art production.

Rappaport (1999) draws no line between the sacred and the profane, between society and the individual, nor between culture and nature. He did not deal specifically with rock art, and his emphasis was directed largely toward societies more structured than those of hunter-gatherers, but he maintained that symbols openly displayed in the very heart of ordinary, everyday life—rock art at Locus 1 and Locus 6, for example—probably had a commonly understood purpose.

According to Hultkrantz (1986:633), Great Basin supernatural beliefs "followed the loose and fluid organization of social groups." As we have seen, the Numic group most organized in terms of landownership, leadership, and consanguinal and affinal kinship boundaries was the Owens Valley Paiute. The clustering of scratched rock art at the far northern and southern reaches of the Little Lake area is deliberate. This may suggest "consanguinity lines" relative to ecological zones and resource use rights (Ritter and Ritter 1977:65). The "faint echo of the division terminology of the moiety-possessing California tribes" described above for the Owens Valley Paiute as "the Eagles" and "the Magpies" (Liljeblad and Fowler 1986:428) may be encoded in this spatial division.

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Figure 8.21.

Locus 7, Panel 214: multiple banding within a spatially defined area including a conventionalized hourglass or butterfly motif, common in Paiute basketry.

Organizing Conceptual Space: Banding and Boundaries

Banding—the enclosure of designs in a vertical, horizontal, or diagonal outline or frame—and boundaries—placing a design within a spatially defined area—are present in different classes of Numic basketry and other objects and in some Little Lake Ranch rock art (Figure 8.21). Enclosed bands of designs are a preference in basketry of the Panamint Shoshone, the Kawaiisu, and the Tübatulabal. Overall, however, and in sharp contrast to Numic basketry, Little Lake Ranch rock art displays a relative disorder and lack of restraint in the placement of multiple motifs on individual panels. This fits with the "pronounced individualism" that prevailed in most Great Basin groups (Liljeblad 1986:641). In the religious context, it also fits with the "radically independent self-expression inherent in Great Basin shamanism" (Liljeblad 1986:645).

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Personification and Conflation

Great Basin cosmology in general was based on the personification of animate and inanimate beings and abstract ideas. According to Liljeblad (1986:642), "personification was the productive principle when appealing to nature for aid in everyday affairs." Individuals became associated with personified powers and energy—especially sexual energy—through dreams. Birds, reptiles, and coyote were personified in stories and myths, as were substances such as salt or tobacco, and natural phenomena including thunder, lightning, wind, and rain. Power was revealed in dreams and visions, and the unification of an individual with his or her personal power was physically complete.

The rock art symbol inspired by such belief would be a conflation in which attributes of both power and person are represented. Such attributes, however, might be metaphorically depicted and symbolically abstracted to a level where they are unrecognizable to outsiders unschooled in the linguistic and cultural framework. In the Coso Rock Art Landmark some patterned-body anthropomorphs may represent human and animal conflations (Garfinkel 2006:212, Figure 2).

Complete, Diminutive, and Reduced Forms

The issues of "completeness" and "reduction" in terms of individual motifs are significant. We as researchers analyze what we see, but what we see is not only elusive and culturally conditioned, it may be simply schematic or only a portion of the rock art element originally intended but never completed. Many pecked rock art motifs and nearly all of those categorized as anthropomorphs at Little Lake Ranch are quite small. These and other motifs that are marginalized in terms of unusual or out-of-context placement may be novelties or nonfunctional as symbols and lacking in social value.

Numic peoples lived in constant dread of a mostly unseen but life-threatening dwarf spirits who lived everywhere, but especially near water. "The beliefs in the dwarf spirits were very uniform over the Numic area and, to judge from reminiscences and legends, attracted more attention than any other religious beliefs" (Hultkrantz 1986:633). The fear was mostly of being struck down by poisoned arrows shot by the dwarf spirits which would cause illness requiring the services of a healing shaman. A conceptual link between diminutive rock art forms and such beliefs may exist, but further investigation is required.

Conventionalization

Much of Little Lake Ranch rock art was probably made in the context of belief, but how much of it was made during ritual is difficult to discern. In ethnographically known Numic societies in our area, ceremonies are stylized displays or performances that are as much forms of social communication as they are religious events.

A good case is made by Van Slyke and White (this volume) for the conventionalization—not the standardization—of the "classic" oval-bodied bighorn sheep at Little Lake Ranch. The consistency of presentation and lack of attribute ambiguity in the motif demonstrates the application of aesthetic criteria. In other words, the makers of the motif were guided by a *culturally created standard or norm*. The factors that influence the emergence of a given conventionalized motif in a specific community include environment and environmental change, social values and attitudes, crises, and the development of religious expression and ritual.

Conventionalized motifs are easily imitated and emerge *to convey clear visual messages of a valued idea*. An artistic canon, in the broadest sense of the term, directs the manner in which representational elements articulate ideas as conventionalized motifs. There is room for variation, but in the end *the correct rendering of essential motifs is crucial to the continued existence and functioning of the idea. A* conventionalized motif cannot, by definition, be the singular product of discrete experience and individualized execution.

Individual acts of inspiration or creativity can produce innovation, inspire replication, and bring about social or iconographic change. Some large and accessible Little Lake Ranch rock art panels are lavishly filled with singular or intertwined elements. In some cases, individual elements are repeated, exaggerated, or elaborated for emphasis. We consider these *panels*, as opposed to the elements themselves, to be communicative; that is, they suggest compositions or narratives. We presume they contained connoted and denoted meanings widely understood within the community.

Borrowing and Imitation

Rock art production is, after all, freehand design executed with a limited technology in an essentially unyielding and unforgiving medium. Designs fall into categories of simple, complex, and composite, and the issues of "completeness" and "reductions" are matters of concern (see above). It is difficult to ascertain if copying or borrowing from one panel to another took place. Most of the Little Lake Ranch rock art motifs vary within the same category and, in contrast to such crafts as basketry, precise or exact motif imitation does not appear to be a goal. Figurative elements such as animals or humans depicted in basketry are executed almost exclusively with straight lines and are, in fact, angular/linear motifs. Just as basket form or shape gives symbolic meaning, we considered whether panel form or shape was selected

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Figure 8.22

(*a*) Locus 7, Panel 94: outlined diamond and cross elements.

(*b*) Basket with variants of common outlined diamond and cross elements.

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and, therefore, could have meaning. No obvious conclusions were drawn. Borrowing and imitation of both figurative/representational and nonfigurative rock art motifs by historic basket weavers is known (Bibby 2004; James 1972; Figures 8.22a, b), and, as illustrated above, imitative rituals and similar regalia existed among Native groups.

Perception and Memory

Memorization of the forms of letters, words, and grammatical patterns and their sound/meaning associations is an essential skill basic to the attainment of cultural literacy. The same cognitive operations are required to become "literate" in all other visual symbolic systems. By definition, symbols that are widely replicated are meant to communicate meaning, and, in turn, members of a given society must be educated to perceive or receive what is being communicated. This is achieved by condensing isolated, sometimes incredibly complicated intellectual concepts into a single, sometimes highly abstracted symbol. The symbol, in turn, is perceived within an established and teachable cultural grid consisting of intricately related, larger or more enveloping meanings. Failure to perceive and remember meaning usually results in symbols being infrequently used or abandoned. Thus, frequently occurring and widely replicated rock art symbols *are successful tools of communication*.

In hunter-gatherer cultures around the world, misunderstanding could have dangerous or even fatal consequences. Memory is often linked to physical pathways through territorial lands or to landscape monuments or markers identifying vital resources, particularly water. In some cases, as in aboriginal Australia, the pathways are literally perceived as routes along which lifelong personal or lineage journeys are traced. Biographical details, genealogies, and events along the way are commemorated or memorialized in myth and sometimes through rock art production.

Broad cultural concepts are verbalized in myth and storytelling, memorized through chant and song, and presented and preserved during group ritualized behavior. When such ritualized behavior is combined with physical journeying through the actual landscape—coming-of-age rituals during which Numic girls ran a predetermined course for a predetermined number of days come immediately to mind—a major goal is to preserve cultural memory. The development of relatable symbols—including everything from simple scratches on a plaque worn round the neck to standardized rock art motifs or icons—is not surprising.

Iconicity: The Atlatl and Bisected Circle Motifs

Conventionalized motifs may be raised to the level of icons through exaggeration or enlargement, as in the case of the "bear paw," or alternatively, by economy of presentation. Other defining qualities include conspicuous or concentrated placement, outlining or emphasis, repetition, and redundancy across media. Two related Little Lake Ranch rock art motifs meet the criteria for iconicity: the classic or complete atlatl element and another schematic element of lesser quality often taken to represent it—the bisected circle (Figures 8.23a, b).

Atlatl motifs at Little Lake Ranch demonstrate the highest level of formal consistency in our entire rock art corpus (Bretney, this volume). The depiction of the atlatl weight, however, deviates from its

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cultural analogue. In contrast to the rectangular or "loaf-like" weight that dominates the archaeological record, the Little Lake Ranch atlatl weight is usually round or oval. What is the formal and symbolic relationship, if any, of this attribute to actual atlatl weights? Does it, in fact, represent a weight at all?

In the Great Basin and Far West, atlatl weights vary in stone type, although a greenish-gray slate or granite is often selected (Heizer and Elsasser 1953; Heizer and Hester 1974; Hester, Mildner, and Spencer 1974; Justice 2002; Webb 1957). Unlike the globular weight shown in Little Lake Ranch rock art, however, "the most common form of atlatl weight recorded across the western United States" is a "loaf-like bar" or a "boatstone" (Bretney, this volume; Justice 2002:42). The boatstone has an elongated, sometimes curved form with a flat base and notched ends (Butler and Osborne 1959). Elsasser and Rhode (1996) agree with Grant, Baird, and Pringle (1968) that *boatstones are charms* "to ensure a successful hunt."

In our view, the globular "weights" depicted in Little Lake Ranch rock art are probably functionally equivalent to charms. Bolstering this opinion is a complete atlatl with the stone weight intact—only the fourth to be found in the Great Basin—recovered at "NC Cave" in Lincoln County, Nevada (Tuohy 1982). Its estimated time frame is *c.* A.D. 400, or about 100 years before the replacement of the atlatl by the bow and arrow in our area (Bretney, this volume). The weight was not in the proper (ventral) position on the atlatl shaft but, instead, in the dorsal position. The shaft was further decorated with indecipherable designs in black pigment. All of this evidence suggests that this atlatl was ceremonial. The weight was globular or round (Butler and Osborne 1959:215–244) and *directly comparable to almost all weights portrayed in rock art at Atlatl Cliff.*

Touhy (1982:102) notes that NC Cave is within the presumed time frame of the Pahranagat style of southern Nevada rock art, most of which is thought to date to what would be the Pinto and Newberry periods if it were in our area. "Hunter figures" in the Pahranagat style have rectangular torsos with decorated interiors and hold vertical objects thought to be atlatls (Schaafsma 1986:219, Figure 7; Heizer and Hester 1974:9). They are comparable to the patterned-body anthropomorphs of the Coso Rock Art Landmark (Schaafsma 1986:218).

Bretney (this volume) has shown that about half of the atlatl elements at Little Lake Ranch have heavy amounts of desert varnish, and he believes that they date at least to the Little Lake period. Atlatl elements with less patination may be within the Newberry period, while the least patinated fall into a narrow range of several hundred years of temporal overlap evidenced for atlatl and bow and arrow use in the Little Lake region (Garfinkel 2007:125, Table 6.7). The original form and meaning of the atlatl rock art motif is culturally embedded in Prenumic culture, and later Numic replications of it will not necessarily contain the same meaning.

The upright or vertical position of nearly all

Figure 8.23

(*a*) Locus 2, Panel 12: conventionalized upright atlatl element with a globular weight.

(*b*) Locus 6, Panel 352: conventionalized bisected circle element.

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Little Lake Ranch atlatl elements is noteworthy. A few also suggest unity between atlatl and anthropomorph. The nearest material culture analogues to the upright atlatl are staves, sticks, "witch sticks" or "spirit sticks" as emblematic of male authority and status among Numic shamans, shamans' assistants, and headmen. During Northern Paiute female puberty observances, however, a young girl "might carry a staff painted white and decorated with sagebrush and beads" (Fowler and Liljeblad 1986:450). "Scratching sticks" used by women and girls may be diminutive forms of "spirit sticks."

Economy of presentation causes the Little Lake Ranch atlatl motif to appear simple and even unequivocal, but it is saturated with condensed or concentrated meaning. As such, it is an icon, capable of uniting "in one graspable whole a complex store of information about cultural and natural processes that would be too vast to remember separately and individually" (Dissanayake 1988).

The localization—almost the isolation—of the atlatl element on Atlatl Cliff at the northernmost portion of the Little Lake Ranch rock art terrain is deliberate. So, too, is its disassociation from rock art motifs depicting large game, especially bighorn sheep. The precise motivation for such a situation is unknown, but the concentration of atlatl symbols at a distance from Little Lake successfully removes it from the feminine domain and malevolent associations of water. Interestingly, the densely pecked atlatl weights are comparable in effort and emphasis to the densely pecked classic bighorn sheep bodies, suggesting that their meanings are linked or interchangeable.

We argue, in fact, that the Prenumic Little Lake Ranch atlatl element is related to male sexual virility, group identity, and personal achievement attained in hunting or leadership but perhaps in both. As such, it may also personify a traditional supernatural power, force, or entity. Its longevity and form constancy at Little Lake Ranch are strong evidence of durable but evolving metaphysical principles.

The second iconic symbol of significance at Little Lake Ranch is the bisected circle. Its components are a straight, usually vertical line and a circle. The line runs through the circle near, but not always at, the midpoint. The resultant motif is a schematic composite angular/linear and curvilinear design frequently interpreted as an atlatl.

However, a more complex set of meanings based on the symbolic male and female opposition may be implied. The metaphorical male symbol throughout Numic culture is the straight line; there are also direct linguistic links between line, arrow, and penis in some Native dialects (Myers 1997:43). The formal analogue of Numic society is curvilinear: the circle, concentric circles, and the spiral. Seasonal foraging cycles, Round Dance movements commemorating a variety of communal events or shared concerns, ancient basketry structures and forms, and the configuration of "rock rings," shelters, and houses are all manifestations of this feminine, curvilinear focus. The curvilinear vulva motif in rock art is a widely replicated and powerful symbol with multiple connotations.

Basic to Numic belief is a world visualized as stacked horizontal planes pierced by a vertical cosmic axis (pole) at its midpoint. This oppositional construct is bridged by the shaman, who is believed capable of traveling (flying) through horizontal planes by means of the vertical axis. The shaman's guides on this journey are his or her powers; the route taken may be direct or convoluted and fraught with danger. The primary metaphysical goal of the journey is world balance.

The Ghost Dance is derived from the traditional Great Basin Round Dance. Among the Shoshone, the Round Dance took place at festivals or celebrations held in conjunction with rabbit or antelope drives. Its purpose was to redistribute food, produce rain, or mark an annual mourning ceremony. Dancers (not including shamans) formed circles or concentric circles and moved in a "clockwise progression" (Gayton 1930:67, 70, 82; 1948:45). An upright pole, believed to have curing power, was erected in the middle of the circle during the Ghost Dance (Gayton 1930:68). The bisected circle motif may reference any or all of these material objects, beliefs, social practices, and religious or ritual behaviors. As such, it is a simply rendered icon resistant to simplistic interpretation.

Rock Art and Inter-generational Wealth Transfer

Traditional hunter-gatherer societies are usually described as "egalitarian" (Ames 2007; Arnold 1993). Members of population aggregates in oases such as Little Lake came together to share resources and intermarry (Chapais 2008). Groups cooperated in "occasional common enterprises" such as communal game drives and in the "exchange of rituals," including an annual mourning ceremony (Liljeblad and Fowler 1986:426). The Owens Valley Paiute enjoyed a cooperative interaction that was "unheard of among other tribes of the Great Basin" (Liljeblad and Fowler 1986:427). Leadership in cooperative ventures was in the hands of a headman, and succession to that role was semi-hereditary—although group approval was needed—from father to son. The main reason for leadership selection by heredity was "apparently economic" (Liljeblad and Fowler 1986:428). Owens Valley Paiute shamans were rarely headmen but often exercised influence "in a clandestine manner" (Liljeblad and Fowler 1986:428).

Among the Western Shoshone, headmen (*tekwahni*) "enjoyed power generally restricted to

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periods of communal activity" and "had little authority" (Thomas, Pendleton, and Cappannari 1986:276). The Kawaiisu concept of "chieftainship" accommodated several leaders simultaneously. A "chief" (*niya;gadł)* "was expected to sponsor celebrations, and his reputation grew if he were especially lavish with food and festivities" (Zigmond 1986:405).

Most hunter-gatherer groups are usually thought to have little or no personal wealth capable of being redistributed or transferred across generations. Recent research into the emergence and persistence of human social inequality, however, suggests that even "foragers lacking complex sociopolitical structures show signs of wealth inheritance" (Bowles, Smith, and Mulder 2010). In our view, some Little Lake Ranch rock art played a role in wealth inheritance.

Three categories of acquired or inherited wealth are defined: material, relational, and embodied. Material wealth is the most concrete. It is cultural and includes territory, resources, and objects such as shell bead money (Liljeblad and Fowler 1986:428)—but it is also genetic (health, stature, and personality). Relational wealth is embedded in kinship. Embodied wealth is more ephemeral and is acquired as success based on the possession of knowledge and skill. Embodied wealth in the form of reputation accrues from achievement in such fields as crafts production, hunting, and a wide range of other human activities and connections, including making a good marriage. Achievement creates status and status is wealth.

Embodied wealth is transferred from one generation to another *if communication and modeling are present.* In Numic societies, both are employed to teach, for example, crafts or hunting. Commemoration makes communication and modeling more efficient (Figure 8.24). If it was possible among the Owens Valley Paiute to transfer male political leadership from one generation to another, then it is logical that such transfer was commemorated, and it is equally logical that any lasting symbol of that power transfer—a staff of authority or a rock art symbol depicting it—is material wealth for the individual, family, or group involved.

Oral history, like rock art, also facilitates commemoration, and in Numic culture was the domain of poets and storytellers. North American and other shamans were poets, singers, and musicians, but not all such artists were shamans (Rothenberg and Tedlock 1977:144). Like shamans, storytellers received their inspiration in dreams and demonstrated it in intimate public gatherings. They "depended on eidetic imagery" and required a "clear visualization of the sequence" of the story. Imagination failed when he or she was interrupted or otherwise "lost sight" of the visualized story (Liljeblad 1986:650). Like shamanistic practices, storytelling "must occur in the late evening, 'in darkness,' when people were resting from the hardships of the day but before falling asleep" (Liljeblad 1986:650). If success is wealth, so, too, is the ability to weave a story and create a lasting memory.

Such inter-generational teaching and transfer of memory and, thus, of embodied wealth, is aided by the production of visual symbols—including rock art motifs—as mnemonic devices (Rothenberg and Tedlock 1977:144). Whether it concerns a particularly successful hunt, a particularly healthy child produced by a painful delivery, a joyous union of two groups though marriage, or a frightening encounter with death, *there is a recognized human need to mark, remember, and transfer the meaningful essence of the occasion to the next generation.*

The Polynesian word *noa* means "common" or "ordinary," not "sacred." Liljeblad (1986:642) uses it to describe the Paiute nouns substituted for others that were "taboo [*tapu*] under certain conditions." For example, the Paiute word *togókwa* meaning "rattlesnake" was avoided and "was itself a noa name" that substituted for an earlier name. Word avoidance and substitution, veiled or hidden meanings, and word play of all kinds are linguistically enriching but also obfuscating devices.

It is highly unlikely that there is a direct correspondence between what we as researchers perceive in rock art and what is actually being depicted. Rock art is not a stand-alone, readily decipherable corpus of symbols and metaphorical associations but, instead, a fluid body of largely individual work embedded in culture. If one purpose of rock art was to communicate or commemorate certain activities and to reinforce or validate them across generations, then, by definition, consistency in symbolic representation and accessibility in meaning over time produced a recognizable vocabulary within an established aesthetic.

Comments on Regional Context

The relative proximity of Little Lake Ranch to the Coso Rock Art Landmark requires consideration. That remarkable constellation of graphic symbolism has been in the forefront of research concern since the 1968 publication of *Rock Drawings of the Coso Range* (Grant, Baird and Pringle 1968). Reichert (1998:97) has clarified the use of terminology and nomenclature for the Coso Rock Art Landmark. He points out that rock art of the Coso Range does not constitute a single style and offers his "essential criteria" for analysis: line, scale, proportion, composition, process (production methods), and subject matter.

Reichert (1998:98; Grant, Baird, and Pringle 1968) correctly states that the rock art of the Coso Rock Art Landmark is "essentially linear." Red paint on or associated with petroglyphs is indicated or suspected at Coso and, as we have shown, present at Little Lake Ranch. There is a strong emphasis on

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the torsos of the ubiquitous Coso patterned-body anthropomorphs and "all anatomical elements of these figures are subordinate to the torso and the designs they enclose" (Reichert 1998:99). The scant few examples of patterned-body anthropomorphs at Little Lake Ranch appear to be rough copies of others at the Coso Rock Art Landmark.

The significance of Coso rock art has long been suggested, although not without dissent, to lie in its role as a regional destination center for sympathetic magic or "hunting magic," vision quests, weather control, and other ritual activities (Grant, Baird and Pringle 1968; Hedges 2001; Heizer and Baumhoff 1962; Pearson 2005; Schaafsma 1986; Whitley 1998b). More recently, shamanistic weather control (rainmaking) is asserted to be the central ritual function of Coso bighorn sheep depictions *c.* A.D. 1200 (Whitley 1998e). However, we concur with Matheny, Smith, and Matheny (1997:97) who "do not believe it is reasonable to conclude" that all of the numerous bighorn sheep elements they recorded in Nine Mile Canyon in Utah or others in the Coso "originated in visions resulting from shamanistic activity related to weather control." They further note that research is not well served if "the monolithic hunting magic interpretation" is simply "replaced by an equally monolithic" shamanistic interpretation.

Van Slyke and White (this volume) accept the early observation that the maleness of the iconic Coso bighorn sheep is signaled by its curved horns. However, they argue convincingly that the raised tail is not a sign of rigor mortis in a killed animal (*contra* Keyser and Whitley 2006:19, Figure 9). Yet, and as they point out, it is a highly significant attribute. It may substitute for an erect penis, which is hardly ever depicted; or, alternatively, the raised tail may be a behavior characteristic that signals the female animal's sexual receptivity. If so, the resultant motif is a conjoined representation of both male and female sexuality that may serve to increase the intensity or potency of inherent power.

Reichert (1998) finds it odd that the bighorn sheep, which was intimately familiar to Numic hunters, is depicted with unnatural proportions. We do not share that view, and suggest that a concept similar to the principle of *tapu* was applied to the bighorn sheep rock art motif and, at least some of the time, to the animal itself. If that were the case, the animal would *never* be rendered anatomically correct and, moreover, there would be social or religious limits or constraints on the numbers of animals taken—as, in fact, the archaeological record suggests. Garfinkel (2006:210) places bighorn sheep and their depiction in rock art at the center of a ritual cult associated with hunting "immortals," Numic mythology, and seasonal rounds (Gilreath and Hildebrandt 2008:17). We have made a case for both standardized and iconic rock art symbols at Little Lake Ranch, and argue for their ritualized purpose in the context of many other, highly individualized motifs signaling other sorts of behavior. We reiterate our previously stated opinion: the Coso Rock Art Landmark and the Little Lake Ranch Rock Art Complex *are functionally discrete areas*.

Concluding Remarks

In a scholarly article in a respected medical journal, F. L. Meshberger (1990) interpreted Michelangelo's *Creation of Adam* fresco in the Sistine Chapel as a depiction of God painted within the realistic shape and outline of the outer shell and sulcus of the human brain. He reasonably suggested that since Michelangelo had participated in cadaver dissections, he was surely aware of the correct anatomical form of the brain and covertly depicted it. The artist's message was said to be that God gave man intelligence. In fact, the portion of the fresco that Meshberger studied had such a shape. Following proper restoration, however, the shape rightly disappeared—along with Meshberger's theory.

In our view, rock art interpretation makes the same mistake when it is too narrowly focused on one interpretive strategy or considers only partial data. Motif choices are embedded in design experience, and meaning and value are signaled by redundancy and repetition. Inherent messages are "pronounced in a number of different ways," uniting cultural concepts "into a functional whole" (Washburn 1983:4, citing Bateson 1973). On balance, we consider it highly unlikely that all rock art production at Little Lake Ranch was motivated by the same religious or ritual ideal, and it is implausible to suggest that all rock art in this region was created only by spiritual adepts (shamans).

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Figure 8.24

Shoshonean elder teaching an aspiring basket weaver in Death Valley *c.* 1920.

County of Inyo, Eastern California Museum.

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SECTION THREE

VERNA

Vernacular

9 LITTLE LAKE RANCH
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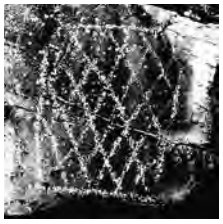
Chapter 9



Little Lake Ranch Toward the Future

James L. Pearson

Figure 9.1

An old wagon salvaged from the Little Lake Hotel property on display at Little Lake Ranch with the southern Sierra in the background.

Little Lake has always been a "stopping place" for travelers going north or south across Owens Valley.

Larry Armstrong and Emerson Ray (n.d.)

LITTLE LAKE RANCH, as we have seen in Chapter 2, is located in the Rose Valley, south of Owens Dry Lake in the southernmost portion of east-central California, part of western North America's Basin and Range territory (Figure 9.1). The Coso Range—containing the Coso Rock Art Landmark—borders the westernmost part of this region, and Little Lake is situated at the western edge of the Coso Range. Numerous cinder cones such as nearby Red Hill have ruptured the granitic rock structure, and immense basaltic flows have extruded and then faulted, forming jagged volcanic rock cliffs at Little Lake.

The Nineteenth Century

At the time of Euro-American contact—about the middle of the nineteenth century in this part of the world—Numic speakers occupied the Coso Range, most of the Great Basin, and the Little Lake area (Pearson 1995). Over the years since then, Little Lake has been a natural oasis for untold numbers of people en route to points north and south. Legend has it that the mountain man Jedediah Smith wandered by Little Lake in the early 1800s. While historians may contest it, some say Smith left his name carved on a rock overhang. It was reportedly seen before its removal by road builders sometime before 1930 or earlier.[1]

The Midland Trail, also known as Three Flags Trail, was a 200-mile-long road that went through Little Lake past a rock-walled outpost then known as "Little Owens Lake." Mexican miners passing the outpost called it "Lagunita" (Chalfant 1933:272). The English translation, "Little Lake," was the name used after the 1860s. Steward (1933b:325; 1938:80–84) gives *pawona* or *pavutaŋ witü* as the Owens Valley Paiute place-name for Little Lake.

In the early 1860s private stage lines and riders passed over the Midland Trail from Los Angeles to Little Lake, on north to Big Pine, then into Nevada (Figure 9.2).[2] The Owens Valley Stage Line and Express began operating in 1863. It connected Visalia, in the Central Valley, with the community of Independence north of Little Lake and was established so that bullion could be transported from the Cerro Gordo Mine in the Owens Valley to southern California for eventual shipment to San Francisco for refinement. At about the same time, two merchants, Hobart and Reed, established a store at Little Lake, carrying "everything in the line of general merchandise," and claimed to do $50,000 in business annually (Chalfant 1933:201).

In 1868 Remi Nadeau, a freighter and promoter, began using the Midland Trail to bring ore from the Cerro Gordo Mine down the mountain to Lone Pine (Chalfant 1933:311). From Lone Pine, he traveled along the southwest shore of Owens Lake to the Haiwee Meadows Station, then south through Little Lake, stopping to camp at Sand Canyon and Grapevine Canyon. Moving south along the trail, he made stops at Indian

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Figure 9.2

The Wolfskill wagon on the Midland Trail, with Red Hill in the background.

County of Inyo, Eastern California Museum.

Wells and Coyote Hole. After leaving Coyote Hole, he would have no water for three days while crossing Red Rock Canyon until he arrived at Willow Springs. He continued on through Soledad Pass, San Francisquito Canyon, over Fremont Pass (here following the Butterfield Stage Road into the San Fernando Valley), through Cahuenga Pass, and on into Los Angeles.

By 1870 mining at the Cerro Gordo was at its peak, and the silver bars were stacking up faster than they could be taken from the camps. Nadeau organized and operated the Cerro Gordo Freighting Line that ran from Owens Valley through Olancha, Little Lake, Freeman Junction, Mojave, and on to Los Angeles. The round-trip to Los Angeles took three weeks or more. In 1871 the Midland Trail hosted a tri-weekly stage from San Francisco to Cerro Gordo via Walker Pass. In the same year a stage began a weekly run from Los Angeles to Cerro Gordo. The route went by way of Willow Springs and passed Little Lake. In 1873 Nadeau built 12 stations along the trail, each about 20 miles apart. One of these way stations was at Little Lake, where teams could be watered and fed.

Lawlessness and silver brought many bandits to the area. Among the most infamous were the outlaw Tiburcio Vásquez (1835–1875) and his band of desperados. According to old-timers, the reason for Little Lake's undisturbed peace was that the stage line owner once saved Vásquez's life and was being repaid for his kindness (Chalfant 1933:269–273). This streak of luck ended just six days after Vásquez was hanged on March 19, 1875. One of Vásquez's lieutenants, Cleovara Chavez, and what remained of the gang committed several robberies, one of them being at the Little Lake Stage Station on March 25, 1875. The event was described in the *Inyo Independent* on Saturday, March 27, 1875.

> On Thursday morning last, as the stage from Indian Wells came up to the Little Lake station, the passengers were astonished to learn that on the evening previous Chavez and four of his banditti had gagged the proprietor of the station, together with three of his men, and after helping himself to all that he considered valuable, loaded four of the stage horses and went his way. The stage passengers were detained some time owing to the scarcity of horses, but finally went on their journey with some misgivings as to their fate, and there was a hasty concealment of watches, jewelry, and coin, but Chavez and his gang did not put in an appearance, though they met several persons

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who came from Passmare's who testified, with much feeling, that they had been robbed by the highwaymen.

Years later Remi Nadeau added to the description of events, stating that after procuring fresh horses, the bandits "jogged nonchalantly up the road" and camped near Little Lake that night, heading north at 10 a.m. the next morning. With the closing of the mines there was little need for a freight line, and freighting service came to an end by 1881. However, private stage coaches, weary travelers, and cattle drovers continued to pass over the Midland Trail, stopping at Little Lake for a rest before moving on.

The Twentieth Century

Mail was carried to the Owens Valley by stage or rider until the completion of the railroad from Mojave to Owenyo in 1911. Owenyo was just east of Lone Pine where standard-gauge tracks of the Southern Pacific met the narrow-gauge rails of the former Carson and Colorado Railroad. In 1909 standard-gauge track from Mojave to Owenyo was laid to assist in the building of the Los Angeles Aqueduct. The track crossed the southwest end of Little Lake, which was nothing more than a tule bed at the time.

In October, 1898 Charles W. Whittock filed to homestead Little Lake. He operated a store, café, and a small post office in a thick-walled adobe building. To the north of the adobe was a saloon. The original adobe was expanded sometime between 1898 and 1900, and then construction on the first Little Lake hotel began. On April 15, 1910, Whittock sold the property to a man named Shuttock who continued the same line of business.

Bill Bramlette bought the land in 1915. From 1900 to 1914, Bramlette had made a small fortune in the oil drilling business and embarked upon a successful career racing automobiles. Known as the "Monarch of the Desert Trail," he was featured in many popular articles of the time. Bramlette constructed a new hotel (the Little Lake Lodge, also known as the Little Lake Hotel) to replace the original one that had been destroyed by fire. He also began a new store and garage at Little Lake in 1919, finally completed in 1923 (Figure 9.3).

Between 1923 and 1926, Tom Standard filed a Homestead patent for a 320-acre parcel of land south of Little Lake on the east side of the Midland Trail. Standard, a native of Indiana, was 67 years old at the time, and his wife was in poor health. He may have been looking to enjoy the advertised medical benefits of desert life, but there is also evidence that he might have been motivated by a desire to do some

Figure 9.3.

Little Lake, including its rebuilt hotel, in the 1920s.

Frashers Foto 130. County of Inyo, Eastern California Museum.

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Figure 9.4
View across Little Lake toward Locus 8.

mineral prospecting. In February 1924 Standard advised the Government Land Office that he had two houses and one farm building on the property. In a subsequent letter, he described his desire to open a tourist shop (selling watermelons, lemonade, oil, and gas, among other things) along the roadway, but also confessed that his buildings had all burned down.

By May 1925 Standard had again put up a couple of buildings on his homestead. In 1929 he filed a Notice of Location of Placer Claim. The following year he filed a similar Homestead Placer Mining Claim and a number of quartz mining claims. Possible evidence of his mining operations still exists in the form of numerous pits found around the Little Lake Ranch property. In 1930 Standard sold his interest in the mining operations and the entire 320 acres of homestead property to his son, Earl, for a sum of $20. Earl sold the property to Bill Bramlette in 1932.

The building of the railroad heralded the arrival of one of the more colorful characters of the area, Casey Jones, an engineer and also a fairly well-known bootlegger. Casey had his still in one of the local canyons and became quite belligerent when he was full of his own moonshine. One incident took place in front of the Little Lake Hotel and Railroad Depot after Casey had sampled too much firewater. Being unable to control him, the locals called the sheriff. When Casey saw the sheriff's car, he kicked out the headlights, thus earning himself six months in the Lone Pine jail. Not long afterward, while bringing a load of hooch down from the canyon, Casey missed a turn, drove his car off a cliff, and died.

After completion of the second hotel in 1923, Bramlette continued to acquire various parcels of land and eventually owned about 1,200 acres which at that time constituted Little Lake Ranch. Along with other changes, he decided to turn the existing tule marsh into a real lake. Knowing that the tule beds northeast of the hotel were spring fed, he built a dam (around 1925) that resulted in a shallow 200-acre farm pond. To eliminate the tule plants, Bramlette imported muskrats from the Colorado River. The muskrats fed on the tule and multiplied until they ate so much of their habitat that they couldn't sustain their population and subsequently died out. Bramlette operated the Little Lake stop and provided other services, such as postmaster, until his death in 1940 at age 64.

In later years Bill's son Tom moved the café into the hotel and added a service station. There

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was a time when the hotel had a reputation among the locals as "the best little bordello this side of the Nevada border." Tom Bramlette also built a ranch house to the northeast of the hotel. Tom finally sold the Little Lake stop to the John Morehart Land Company in 1952. The lake was used for summer camping and fishing and then leased in the winter months to a private duck club.

That organization was, and still is, known as the Little Lake Duck Club. It was formed by a group of sportsmen shortly after the end of World War II (Pearson 1989). For decades, the club leased the hunting rights from Jack Morehart during the waterfowl season. They hauled mobile trailers to Little Lake every fall and parked them at the north end of the lake, where a camping and picnic area is located today (rock art Locus 8). Over the years, there were good times and bad times. In 1971, for example, the members seriously considered disbanding the club because of the deteriorated condition of the lake—the boat launching area was 50 to 60 feet from the water. The president of the duck club noted how sad it was to see this great hunting area reduced to a mud hole. In addition, Jack Morehart had formed his own duck club to operate on the lower part of the ranch, including the southernmost 25 acres of the lake.

In 1972 Morehart sold the upper 777 acres of the property to Tom Gray of Wichita Falls, Texas, and kept the lower portion for his own use. The duck club made arrangements with the new owner to continue to lease the property during the hunting season. Conditions at the lake didn't improve until 1974 when the members of the club paid to have a well drilled on the property. They hit water at a depth of 230 feet and started pumping immediately. In 1976 the members used their own equipment to pump out some of the springs around the perimeter of the lake, greatly enhancing the flow of water. By 1976 the level of the lake was the highest it had been in more than five years.

In 1978 the California Department of Fish and Game (CDFG) purchased the lower portion of the ranch from Morehart for the purpose of establishing a wildlife preserve that would be open to the public for recreational use (Great Basin Foundation 1979). The duck club was not allowed to hunt south of a line of buoys set across the lower portion of the lake by CDFG.

By 1979 the members of the club decided it was time to seriously consider purchasing as much of the ranch property as possible. They formed a corporation—Upper Little Lake Ranch—and finalized the purchase of the upper 777 acres of the ranch in July 1980. Over the next few years, the members revitalized the property (Figure 9.4). The old ranch house, which had been used as a caretaker's residence, was completely renovated. They drilled a new well and planted hundreds of trees around the property.

The California Department of General Services put the Lower Little Lake Ranch property on the state's surplus list in 1985, allowing it to be disposed of through a land exchange process. The club put a suitable piece of property in Mono County in escrow, and the exchange was accomplished late in 1986. Three years later another 80 acres north of the ranch and adjacent to Fossil Falls became available, and the members bought the parcel. Although most of the members didn't realize it at the time, this acquisition included the famous Stahl Site (Harrington 1957).

Little Lake Ranch now comprised more than 1,200 acres of land and included the entire lake and the small ponds south of the lake. A portion of the property was on the west side of Highway 395 and surrounded an independently owned piece of land that included the old (1923) Little Lake Hotel. The hotel burned down in July 1992 and passed into the pages of history.[3]

The Future

The owners of Little Lake Ranch bought the Little Lake Hotel parcel in 2001 and demolished the remains of the hotel and adjacent buildings.[4] This last action was part of an ambitious and significant habitat restoration and improvement project that began a year earlier. Recognizing the importance of habitat quality, the owners of Little Lake Ranch entered into an agreement with the U.S. Department of Fish and Wildlife to support the restoration, expansion, and enhancement of wetlands on both sides of the U.S. 395 scenic byway. Partners in the project included the California Department of Forestry, Inyo County; the California Wildlife Conservation Board, and Ducks Unlimited. The cost of the project was in excess of $650,000, more than half of which was donated by the owners of Little Lake Ranch. The major portion of the program—building a new dam at the lower end of the lake, construction of pond impoundments, changing stream channels, and planting appropriate trees, shrubs, and other plants—was completed in 2005, but the work continues. This is a long-term project that may take 25 years to reach full fruition.

As caretakers of the land, the owners of Little Lake Ranch realize they have an obligation to protect not only the biophysical habitat, but the cultural resources as well. Access to the property is carefully controlled to ensure that the archaeological remains, including the rock art documented by the Rock Art Archive and presented in this volume, will be preserved for future generations.

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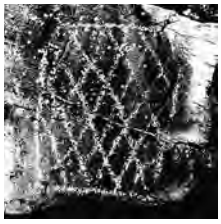
Chapter 10



Basketry
An Ethnographic Legacy

Judith W. Finger

Baskets, and other material culture so important in everyday life have direct links to the stories of the people.

Dale Curtis Miles in McMaster and Trafzer 2004

Figure 10.1

Minnie Barrows Randolph, Bishop, California collection including baskets of the Owens Valley Paiute, Panamint Shoshone, and other California and Southwest Native groups.

County of Inyo, Eastern California Museum.

Figure 10.2

Natives, Death Valley. Print from original silver glass negative (Willard n.d., No. 1853).

Copyright Palm Springs Art Museum, Stephen H. Willard Photograph Collection & Archive, gift of Dr. Beatrice Willard.

THE PANAMINT SHOSHONE, also sometimes referred to as the Coso (Koso) Shoshone, are Numic people who were semipermanent residents at Little Lake. Understanding their basketry is an integral part of analyzing historical events of the last 150 years at Little Lake. Knowledge of basketry is based upon ethnographic data documented by diverse individuals whose motivations varied and whose records and collections are found today in museums. This chapter identifies these sources, describes the few pieces of basketry we have been able to uncover from Little Lake, and draws comparisons between some Numic basketry motifs and some Little Lake Ranch rock art motifs.

Context and Sources

Myths of population migrations abound in Numic traditions (Sutton 1987, 1993). The Panamint Shoshone recount how Coyote brought them in his burden basket to a location known today as Ubehebe Crater in Death Valley.[1] They followed aboriginal lifeways until the mid-1800s, when Euro-Americans entered the Owens Valley, and Forty-niners, hoping to find a shortcut to the gold fields of central California, entered Death Valley. In the 1860s the discovery of silver in Inyo County brought drastic changes to the Panamint Shoshone way of life (Chalfant 1933). Ranchers, farmers, traders, and other settlers quickly followed the miners to the area. As the Panamint Shoshone and their neighbors, the Owens Valley Paiute, participated in the new cash economy, baskets became a commodity and functioned as valuable trade goods (Figure 10.1). Baskets, like pottery, were soon replaced with metal pots and pans (Figure 10.2).

Reliable ethnographic sources include Henry W. Henshaw (1887), one of John Wesley Powell's colleagues at the newly formed Bureau of Ethnology (later the Bureau of American Ethnology, Smithsonian Institution), and Frederick V. Coville, a botanist with the 1891 Death Valley Expedition led by C. Hart Merriam. Dealers who worked with the Panamint Shoshone in-

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Figure 10.3

Detail and overview of conical Paiute or Shoshone basket, S-twist weaving, from a cave near Little Lake.

Southwest Museum of the American Indian, Autry National Center, Los Angeles: 4.C.330.

clude Harry C. Floyd, a colorful English remittance man, and Grace Nicholson, whose well-known art gallery and business was in Pasadena. She purchased baskets from Floyd and others in the Lone Pine area and resold them to collectors all across the country (Slater 2000:92–93).

Local Owens Valley collectors included Rose Black (1861–1940) who lived in Big Pine and collected over 400 baskets, now part of the Eastern California Museum of Inyo County (ECM) collection. John Simpson MacQueen (1864–1939) and Helen Squire MacQueen (1868–1962) lived in Bishop, California, and their collection of about 60 baskets is now part of the Los Angeles Country Museum of Natural History.

Perhaps no ethnologist was more involved with the Panamint Shoshone than C. Hart Merriam (1902, 1904; Dean et al. 2004:90–92; Griset 1993:33–40). Merriam traveled throughout Inyo County and often mentioned the Panamint Shoshone encampment at Little Lake. He made a systematic collection by buying directly from the weavers (Merriam 1902:344) and used Harry Floyd as his go-between for most of the Panamint Shoshone baskets not purchased directly. His careful attention to detail, including the use of native words for basketry forms and a listing of materials used in each basket, provides valuable information for today's scholars.

Little Lake Baskets

Mark R. Harrington (1957) recovered some fragments of twined and coiled basketry from Stahl Site Cave (CA-INY-205) which were attributed to the "Shoshone historic period after white contact," while a few fragments were thought to be Late Basketmaker culture (Harrington 1957:80–81). He reported no complete or nearly complete baskets. Our museum collections research, however, has located two baskets having direct links to Little Lake.

The first is a basket with overall dimensions of 10.16 × 45.7 × 40.6 cm said to have come "from a cave near Little Lake, Calif." (Figure 10.3). It has "the conical shape, curved shoulder and weaving technique—close diagonal twining—of Paiute seed jars" (Bryn Potter, personal communication 2007). Close diagonal twined seed jars were usually undecorated other than with "bands" that resulted from rows of weaving variations. Such baskets were made by both the Paiute and Shoshone people who frequented the Little Lake area, and it is impossible to determine precisely if the maker was Paiute or Shoshone. The twining is S-twist with split, peeled willow wefts and whole, peeled willow rods. There are two "bands," each a single row of twining over three warps. These rows, about 2.54 cm apart, lend textural interest to the weaving. The basket also has carrying strap attachments made of commercial fiber, possibly wool yarn, which confirm that this is a piece of historic basketry.

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Benjamin Ernest McCown, the donor of the aforementioned basket, was an engineer by training. He shared an avocational interest in archaeology with his wife, Hazel. They and their son participated in the Mark R. Harrington Little Lake Expeditions. B. E. McCown is credited with finding the first Pinto house floors at the Stahl Site (CA-INY-182; Simpson 1964: vi).

McCown began his explorations of Inyo County sites prior to his work with Harrington. In 1940, he came upon four lava caves in the vicinity of Little Lake. He described his work and the recovered items in a paper, "Survey of Lava Field in Inyo County, California," which was part of a letter to Dr. Malcolm J. Rogers, director of the San Diego Museum of Man, dated November 25, 1940. In his Table 1, McCown detailed 17 basketry objects, separating them into two groups. Group 1 consisted of nine twined baskets and two twined fragments. Group 2 included five coiled baskets and one fragment. Four of these coiled baskets, and the fragment, were coated with pitch.

Museum of Man catalog cards identify five coiled baskets or fragments and two twined baskets or fragments as coming from McCown's site M-165, Cave 1.[2] A single conical seed basket (#19079) was returned to McCown in December, 1940. The information on the catalog cards is not sufficient to make any matches with the objects McCown listed in his Table 1. McCown's Table 2 lists matting pieces also found in site M-165, Cave 1. Most are made from tule (*Scirpus* sp.) fiber. Museum of Man records include 35 catalog cards that identify 26 pieces of matting or tule bags, a greater number of artifacts than those listed in Table 2.

Considering the detailed observations McCown made about his finds, it is somewhat surprising, and certainly disappointing, that endeavors to locate these basketry objects and to ascertain their links, if any, with Little Lake Ranch have been inconclusive. It is likely that some of the basketry fragments are at the San Diego Museum of Man and the San Bernardino County Museum (Ken Hedges, personal communication 2009; Adella Schroth, personal communication 2009). However, the whereabouts of the complete baskets are unknown.

The second basket with a more certain Little Lake provenance is a flare-sided bowl (Museum of Man #1971-48-1) that is 10.6 cm high with a

Figure 10.4

(*a*) Flare-sided bowl, probably Panamint Shoshone, found cached near Little Lake. (*b*) Interior of Little Lake flare-sided bowl showing use wear.

Tim Stahl, San Diego Museum of Man.

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Figure 10.5

Weaver Susie Wilson (b. 1895).

County of Inyo, Eastern California Museum.

Figure 10.6

Maggie Ross with burden basket.

County of Inyo, Eastern California Museum.

diameter of 33.2 cm (Figures 10.4a, b). Identified as "probably Western Shoshone," it was found about 2.4 km east of Little Lake under a small overhang in the lava. The basket was covered with pieces of a fiber sack and earth. The individual responsible for the recovery of this basket is unknown.

The basket shows considerable wear and has a slightly recessed base with major breakage that has been coarsely restitched and repitched. It has a rod-and-bundle foundation (possibly two-rod and bundle) with a three-rod rim, used for extra strengthening. Rod-and-bundle construction is very typical of earlier Panamint Shoshone baskets made for actual use (Bruce Bernstein, personal communication 2009). It has an interior work surface and a rightward coil direction (Ken Hedges, personal communication 2009).

The basket is heavily coated with resin or pitch. The pitch on its interior surface has a dull finish, indicative of heavy use, along with a thick layer of at least two foodstuffs, one of which looks like dried mush (Ken Hedges, personal communication 2009). It was used for food processing and may have been used to roast pine nuts. While it was not typical to pitch this basketry form, some are known to have been used by the Panamint Shoshone and Southern Paiute as well as the Walapai. It is interesting to note that five coiled baskets and/or fragments listed by McCown were pitched as well. This practice may be more common than originally believed.

By 1900 Panamint Shoshone life had changed drastically, and many original habitation sites or camps, including Little Lake, were no longer in use. The Paiute and Shoshone moved their camps closer to towns where they could find work. Population loss and the continual movement of people resulted in newly consolidated communities that had little, if any, association with aboriginal locations and groupings.

While some earlier regional variations of Panamint Shoshone basketry may have been maintained in historic communities such as Darwin, Keeler, and Saline Valley, their baskets should be considered a basketry style rather than a distinct cultural product (Bruce Bernstein, personal communication 2009). Furthermore, "Koso" had become an accepted synonym for all of the Panamint Shoshone people, and this term was also used as an identifier for their baskets. As a result, Little Lake baskets should be considered only within the broader heading of Panamint Shoshone/Koso basketry.

Food Resources and Baskets

Panamint Shoshone twined and coiled basketry is similar in manufacturing technique and some design attributes to that of the Owens Valley Paiute, Kawaiisu, and Tübatulabal, all of whom had access to Little Lake. These similarities may be due, in part, to "shared technologies presumably rooted in environmentally determined adaptive strategies that

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Figure 10.7

Locus 7, Panel 577:

(*a*) petroglyph with applied red paint possibly depicting a burden basket.

(*b*) detail sketch of petroglyph with applied paint.

cut across many different ethnic units" (Adovasio and Pedler 1994:119).

In ethnographic time, basket production was almost exclusively women's work (Dean et al. 2004:7; Figure 10.5). Weavers used an awl made from bone or a stout cactus spine from the devil's pin cushion, (*Echinocactus polycephalus*). It was set in a handle of hard pitch made from creosote (Coville 1892:359; Fowler and Dawson 1986:720). By the early 1900s weavers were using metal awls in place of the cactus spine.

Panamint Shoshone/Little Lake women used baskets to gather, harvest, process, and cook seeds and other foodstuffs obtained on their seasonal rounds (Figure 10.6), and the Little Lake riparian environment was a rich source of plants, bulbs, and seeds. In the winter women repaired baskets, wove new baskets, and transmitted weaving traditions to the next generation. Some rock art elements at Little Lake have an overall form that suggests the traditional burden basket (Figures 10.7a, b).

Little Lake was the site of a fall rabbit drive joined by different Native families who sometimes journeyed 40–80 km to participate (Steward 1938:82). Cordage nets were an important part of capturing the rabbits. Panamint Shoshone men used nets that were about 2 feet high and 100 or more feet in length, placing sticks to hold up the nets.

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Men would set fires and beat the brush to drive the rabbits into the nets, and the net owners would beat the trapped rabbits with clubs (Steward 1938:82–83). Hunters wore cordage around the waist as belts and carried the rabbits by tucking their heads under the belt.

Among the Owens Valley Paiute, cord for twine and netting was a two-ply fiber of *wici'vi* (*Amsonia brevifolia*), commonly known as milkweed. A man took two strands of fiber, usually from the plant stem, placed them side by side on his bare thigh, and then rolled them beneath his palm to twist them together. The location for gathering the *wici'vi* was west of Cowan's Station in Rose Valley, about 16 km north of Little Lake (Steward 1933b:325). It is plausible that the Panamint Shoshone also obtained netting material there. Other plants mentioned as sources of string for the Panamint Shoshone include licorice (*Glycyrrhiza* sp.) and Indian hemp (*Apocynum cannabinum;* Irwin 1980:5). *Ăvanava* (*Asclepiaes speciosa* or *A. mexicana*), commonly known as milkweed were also used (Steward 1933b:270).

The Owens Valley Paiute did not make baskets specifically to catch fish; instead, they used baskets made for other purposes that had often already sustained some wear. Men and women waded in shallow water and gathered stupefied fish in baskets after "damming and poisoning the streams" (Liljblad and Fowler 1986:418). They dragged open-twined baskets through the water to trap fish, and they fastened close diagonal twined carrying baskets below dams to catch the fish coming over with the water (Steward 1933b:251). Sometimes, in place of the baskets, several people held a rabbit net and forced the fish to the shallow end of the water where they were collected (Steward 1933b:252).

Numic Basket Manufacture

Twined Basketry

There is a "constellation of basketry manufacturing attributes" that is recognizably Numic and, as well, a common inventory of basic Numic design elements that is also represented in Great Basin rock art (Adovasio and Pedler 1994:119–121; Figures 10.8a, b). While rod-and-bundle techniques are associated with early Shoshone basketry, ethnographic baskets from the Great Basin—especially during the early historic period—are dominated by twining as a production technique. At least 14 twined forms of Numic basketry are known (Adovasio and Pedler 1994:119; Fowler and Dawson 1986:722). The basic technique incorporates rigid rods as the vertical warps and flexible sewing strands as the wefts moving horizontally around them. The weaver worked primarily with two or, less often, three weft strands crossing and twisting them around a single or multiple warps. The spacing of the weft rows resulted in either open or closed twining. Textural variations appeared when the weaver incorporated different twining techniques—plain, diagonal, and three-strand—in the same basket.

Owens Valley Paiute women were proficient and creative weavers of twined baskets. Peeled willow (*Salix lasiandra*) warps and peeled and split willow wefts were used in twined baskets, and the same materials and designs were used to produce close diagonal twined burden baskets and winnowing trays. They were also master weavers of close diagonally twined hats which typically had two, and sometimes three, enclosed bands of traditional Numic designs (Finger 2003:64–73). Hats cushioned the forehead from the pressure of the tumpline used when carrying a burden basket or a water jar and offered protection from the elements. Women would tuck their hair beneath the hat for protection from dripping pine pitch when gathering pine nuts.

Panamint Shoshone twined work baskets have peeled willow shoots for the warp rods and peeled and split willow strands as the wefts. It is also common to find parching and winnowing trays and gathering baskets, especially those made before 1900, with sumac (*Rhus trilobata*) wefts (Bernstein 1979:71). The use of sumac distinguishes Panamint Shoshone baskets from those of their neighbors. Panamint twined baskets are generally plain. Designs, appearing only on close diagonally twined baskets, are simple rows or narrow bands of devil's claw (*Proboscidea parviflora*) or yucca root (*Yucca brevifolia*).

Similar forms were made by all people frequenting the Little Lake area. Seed beaters, for example, are plain twined over one warp and have a shallow, concave bowl and a long handle formed when the warp rods are bound together to finish the basket. This openwork basket was used to knock or "beat" seeds and pods into a close twined gathering basket, also called a "pack-basket" (Coville 1892:357).

Gathering baskets were funnel-shaped, 45.7 to 76.2 cm tall, and almost as wide at the opening. Burden baskets were plain twined, used to carry pinecones and pine nuts, and were slightly shorter than the gathering baskets but wider at the opening. The rim finish of gathering baskets and burden baskets was a coiled warp rod bundle reinforced with a sturdy rim rod attached at intervals with coiling (Fowler and Dawson 1986:718). Both forms, similar to those of the Kawaiisu, had a leather or cloth cover obscuring the start (Fowler and Dawson 1986:718).

Winnowing trays were used to separate edible nuts and seeds from the chaff. The trays were roughly triangular in shape, with varying space gradations so that ground seeds could be finely sifted to the consistency of flour. They might also be used to drain washed root foods or to parch seeds and nuts.

The Panamint Shoshone used two types of water bottles (Merriam 1902:344). The more com-

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a

b

Figure 10.8
(a) Common inventory of basic Numic twined basketry motifs, all of which appear in rock art.
(b) Locus 7, Panel 605: petroglyph motif similar to a common twined basketry motif.

mon of these, woven in close diagonal twining with a narrow neck, broad shoulder, and pointed base, was very similar to those made by neighboring Paiute people. It had a capacity of 18.9 liters (5 gallons) or more (Merriam 1902:344). The bottles were made watertight by covering the basket's interior and exterior with melted pine pitch. Two loops of horsehair were woven into one side of the basket's shoulder, for use with a carrying strap (Coville 1892:357). This same basketry form, left uncoated, was also used to store seeds. The second type of water bottle, with a flat bottom and smaller capacity, was similar to those used by the Tübatulabal (Merriam 1902:344).

Cradleboards, carried on a person's back or placed on the ground, held infants and small children secured to a firm cradle frame. The cradle's bed had horizontal cross rods topped with vertical tules sewn with cord. Merriam reported two shapes, both with a sunshade and shell dangles (Merriam 1902:344). One had a forked-branch frame, like those of the Tübatulabal, and the other had an elongated oval frame similar to those of the Owens Valley Paiute. The twined hood or sunshade was decorated with gender-specific designs. Patterns such as zigzag lines and connected diamonds or triangles identified a girl's cradle. A boy's cradle typically had spaced parallel diagonal lines, usually found in groups of three (Steward 1933b:273; Dean et al. 2004:46).

Coiled Basketry

When coiling a basket, the weaver wraps a supple sewing strand around a stable foundation which spirals in an upward direction. Using an awl, the weaver makes a hole in the top rod of the previous foundation coil and passes the sewing strand through it to secure the coiling rows. Panamint Shoshone, Kawaiisu, and Tübatulabal women were highly competent weavers who coiled a variety of very decorative baskets. They all used baskets with a flat bottom and flaring sides for food preparation and storage. Larger coiled baskets with a similar shape were part of the burial ceremony and later were offered at the burning ceremony to end the mourning period.

The bottleneck form, commonly known as a treasure or gift basket, has a broad shoulder with a short, narrow neck. Used to hold "money" in the form of strings of clamshell beads or other valuable items, it may also have served as payment to a shaman, sometimes referred to as a "doctor."

The Panamint Shoshone also used coiled bas-

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kets, 22.8 to 30.4 cm in diameter, as plates and sifters (Coville 1892:357). Because these flat baskets were subject to hard use, they had minimal decoration: only a simple line band or a circular zigzag of design material. The Kawaiisu and the Tübatulabal made similar coiled baskets, but the Owens Valley Paiute did not.

Panamint Shoshone women used a coiled, multipurpose basket with gently curving sides and a flat bottom; it served as a hat, an eating bowl for dry food and soup, and as a measure, most commonly, of about 1.4 liters (3 pints; Coville 1892:357). Basketry hats, similar to those of the Kawaiisu and Tübatulabal, were very decorative. Owens Valley Paiute women did not weave coiled hats, only twined hats.

Panamint Shoshone, Kawaiisu, and Tübatulabal weavers coiled baskets in a rightward direction. Early Panamint Shoshone baskets were woven on a foundation of two or three grass stems (*Epicampes muhlenbergia*) with a single willow rod (Coville 1892:359) and have a rim comprised of three rods (Bernstein 1979:70). By the early 1900s, foundations of three willow rods became common, occurring almost as frequently as the grass and rod foundation (Bernstein 1979:70). Kawaiisu and Tübatulabal baskets, however, typically have a grass bundle foundation.

Owens Valley Paiute weavers coiled in a leftward direction rather than in the rightward direction of the Panamint Shoshone, Kawaiisu, and Tübatulabal weavers. The Owens Valley Paiute, almost totally dependent on twined basketry, made few coiled baskets for their own use. It is, in fact, difficult to find extant examples that were made for indigenous use. Owens Valley Paiute made-for-sale coiled baskets have a foundation of three peeled willow rods. The background has split and peeled willow sewing strands. Dyed bracken fern root (*Pteridium aquilinum*) designs are normally vertical stacks of geometric forms, such as triangles or diamonds.

Basketry Color

Panamint Shoshone, Kawaiisu, and Tübatulabal coiled basketry designs are typically enclosed by a single-coil-wide band of black or red at the top, four to six rows down from the rim, and another band, the color of which may or may not match the upper band, where the base turns upward to begin the basket's walls. The background is a buff color, with designs woven primarily in black, with the secondary use of red. Ticking, a weaving technique alternating light color stitches with colored ones, usually adorns the rim. While basketry materials vary among the tribes and function as a diagnostic feature, the overall appearance and the designs used are nearly identical.

The buff color background of Panamint Shoshone coiled baskets is derived from either willow or sumac sewing strands (Coville 1892:358). Mature pods of devil's claw have long, flexible horns that are used for a black design material. The long roots of the Joshua tree provide a red color for designs (Coville 1892:358). Design motifs on Panamint Shoshone coiled baskets are usually oriented either vertically or on the diagonal and are woven, most often, using a black design material. Designs might be outlined in a red material, and bird quill accents can be found as well.

Winter-peeled or sunburned willow, willow with its inner bark left on, was the design material used in Owens Valley Paiute twined work baskets. The weaver often enhanced the material by using a soft stick to "paint" it with an indelible dye of iron oxide and ephedra juice. This process turned the color of the design material from its natural reddish-brown to black.

Basketry Design Elements and Their Meanings

The most common Numic designs are simple horizontal or vertical zigzags and a serrate design that has notches angled off a slanted line (Figure 10.8a). Patterns of stacks of triangles or diamonds and crosshatched lines were frequently used. Triangles are easily interpreted in the diagonal twining technique, and two inverted triangles sharing a baseline become a diamond.

Traditional designs used by the Panamint Shoshone, Kawaiisu, and Tübatulabal weavers on coiled baskets are based on simple geometric forms built from a single line, the basic element of decoration. When elaborated upon, these forms may translate into distinct shapes that represent objects or entities, and become such an integral part of an overall-design that the individual unit is completely absorbed (Mason 1988:154–160).

Basic geometric shapes on both twined and coiled baskets are reminders of equally simple rock art motifs (Figure 10.9). Straight lines, either alone or in groups, zigzag lines, and crosshatched lines forming a net or grid are frequently represented in both basketry and rock art. More complex elements, such as diamonds and chevrons, are also evident in both art forms.

Four or five wedge shapes that start narrow at the base of the basket and widen as they continue up the sides are also common. This upright column, representing a quiver of arrow points on Yokuts basketry (Latta 1977:574), is frequently found on coiled baskets from the Little Lake area. There are other interpretations for this design, but all variations are related to arrows or parts of arrows, perhaps reflecting the importance of hunting in the daily life of the people. Sometimes this pattern is noted as the "conventional feather pattern," although it is also referred to as the "conventional arrowhead pattern." Other designated patterns include the deer hoof motif and the coyote tooth motif.

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Figure 10.9

Tübatulabal basket, E360576, acquired in 1931, with common angular/ linear designs including the rattlesnake motif.

RAA photograph, by permission of the National Museum of Natural History, Smithsonian Institution.

A vertical zigzag design, either thick or thin, might denote "lightning," and "butterflies" are represented with an hourglass shape formed by a dark rectangle with a pair of light chevrons on either side. Most of the designs have a decided vertical orientation and often appear to radiate or step their way up the basket's walls. The "flight of the butterfly" design, first noted by Merriam (Mason 1988:420), has a pair of concentric, squared-off zigzag lines (described as "crenelles" by Mason) with sets of triangles projecting from the lines.

Meanings of basketry designs such as these may be understood as a weaver's personal interpretation of her world. In an effort to decipher broad cultural meaning of designs, anthropologists in the past endeavored to acquire some information directly from contemporary consultants or basket weavers themselves. There were certain inherent limitations in this process. First, there were language nuances that were difficult to understand and/or translate. Second, the age of the Native consultant determined how "firsthand" the information was. Third, Native consultants might not have been completely forthcoming, especially about ritual observances and practices.

Equally important, anthropologists did not always express their theoretical biases. Prevailing attitudes reflected a desire to establish a symbolic connection to a design and an attempt to assign meaning to the motifs (Bruce Bernstein, personal communication 2009). As a result, consultants and weavers may have tried to give anthropologists and collectors what they were seeking. In the days of the vigorous curio trade, many dealers encouraged the weavers to "explain" their designs or recount the story depicted on their basket. Such explanations often resulted in overly romanticized descriptions intended as a marketing device to enhance the mystique and "primitivism" of baskets and their makers.

Another significant problem in documented historic basketry research was the tendency of anthropologists to overlook or downplay the importance of women, women's work, and, by extension, their basketry. Julian Steward, whose work in the Owens Valley and the Great Basin forms the basis for much of what is known about the people who frequented the Little Lake area, paid very little attention to basketry. Furthermore, no one has ever written a comprehensive monograph about the Panamint Shoshone, comparable to Steward's study (1933b) of the Owens Valley Paiute. However, some credible work has been conducted among the Yokuts, Tübatulabal, and Kawaiisu. Because their basketry has so much in common with that of the Panamint Shoshone, it is possible to gain some insight from those works.

Many Yokuts baskets, for example, have a design

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that is recognized as representing a rattlesnake. This creature played an integral role in the rituals of Yokuts shamans. A rattlesnake's venom was said to transport Yokuts shamans to the "spirit world" and allowed them to communicate with that world (Latta 1977). As a result, Yokuts people both feared and revered the rattlesnake. Yokuts basketry often has multiple horizontal bands of a pattern representing the rattlesnake's diamond back. The rattlesnake design appears on the coiled basketry of many other southern California and eastern Great Basin peoples.

Many Panamint Shoshone, Kawaiisu, and Tübatulabal baskets have horizontal design bands of black and/or red with a chain of connected diamonds. This design is also believed to suggest the patterning of a rattlesnake. Their baskets can have vertical segments of connected diamonds that may be another representation of the rattlesnake's back.

Shamanic vision seekers sometimes obtained rattlesnakes. The reptile was also known as a friend to witches who used it to accomplish evil. Erminie Voegelin showed 26 Tübatulabal basketry designs to a woman who was able to give names to only three, one of which was the rattlesnake. She concluded that either her informants had forgotten the names or else few designs ever had names (Voegelin 1938:33).

Among the Kawaiisu, rattlesnakes were spirits that appeared in visions to shamans who were harmful and malicious (Zigmond 1986:406). Maurice L. Zigmond began publishing his research among the Kawaiisu in 1936. He recorded the names of 11 basketry designs, one of which is the rattlesnake (Zigmond 1978). The Kawaiisu rattlesnake design is a chain of diamonds, seemingly a universal motif among the groups associated with the Little Lake area. Contrary to the beliefs of the Yokuts, Tübatulabal, and Kawaiisu, the Panamint Shoshone, however, did not hold the rattlesnake in high regard (Voegelin 1938:65).

In the end, it is impossible to know the intended meaning, if any, and a weaver's reason for using a rattlesnake design in a basket. The only thing that can be said with certainty is that the number of baskets with rattlesnake patterns grew with the number of baskets made for sale (Bruce Bernstein, personal communication 2009).

Zigmond's consultants gave other basketry motifs descriptive or directional names rather than object names (1978:207). These include "zigzag," "facing opposite," "going sideways," and "face downward." A more contemporary account of designs on Panamint Shoshone basketry discusses several motifs: swirls from the bottom of a basket and up the wall at an angle might represent "the motion of life;" stacked triangles could indicate arrowheads used in hunting; and crosses with arms of equal length may represent the four directions and the center of life (Sennett-Walker 1985:16).

An interpretation of the motion-of-life design can be associated with Panamint Shoshone perceptions of whirlwinds and dust devils. Whirlwinds and dust devils are rapidly rotating columns of air which frequently form in a hot desert environment and move erratically, and generally slowly, from one patch of heated air to another. Their rotation may be clockwise or counterclockwise. In their desert environment, the Panamint Shoshone were well acquainted with such phenomena, even if they could not explain them scientifically. A weaver could have interpreted the whirlwinds and dust devils as swirling lines that were elaborated into stepped lines radiating or swirling up the walls of a basket.

Throughout the Great Basin, a whirlwind was thought to be a ghost wandering on his or her way to the world of the dead (Hultkrantz 1986:632). Other Native peoples have also linked whirlwinds and dust devils with ghosts and the spirits of the dead. The Tübatulabal believed that ghosts traveled by day in dust spouts (Voegelin 1938:62). The Yokuts thought that windstorms were associated with the deaths of shamans (Gayton 1948:38).

A design feature on older Panamint Shoshone baskets made for Native use is "concealed asymmetry . . . placing diverse marks in the background or in designs or on the edge of designs" (Fowler and Dawson 1986:719). Concealed asymmetry is recognizable by the use of random single stitches or small spots of a different design material that, at first glance, appear to be mistakes. Such "mistakes" were "undeniably intentional" and represented "the same ideology/worldview as the better documented Pomo *dau* mark" (Bruce Bernstein, personal communication 2009; Bernstein 1985:7).[3]

Concealed asymmetry appears most often on polychrome baskets, a preferred basketry style found throughout central California until the last quarter of the nineteenth century, when baskets transitioned away from indigenous use to made-for-sale items. While the more "perfect" baskets, those without concealed asymmetry, were increasingly sought by dealers, those with this feature continued to be made in places with limited contact with collectors (Bruce Bernstein, personal communication 2009).

Some concealed asymmetry appears as stitched pink or white quill, and is described as "maker's marks" or "signature" marks. Today, over 100 years later, a basketry expert or collector can often pick out the work of a single weaver from a random assortment of baskets. The talented women who created these beautiful baskets were, in fact, artisans who had no need to "sign" their works "because a woman's hands are permanently woven into the basket" (Bruce Bernstein, personal communication 2009).

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Figure 10.10
Panamint Shoshone lidded basket with bighorn sheep motif, depicted with hooves and tail up attributes as in Coso rock art and some Little Lake rock art.

Merriam referred to scattered marks as "menstrual marks," a phrase referring to stitches incorporated by a weaver when she worked on a basket during the time of her monthly period, and noted that "at least a dozen menstrual marks may be detected" on a large Panamint Shoshone bowl that he purchased from Harry Floyd in 1902.[4] Many Native peoples had a traditional taboo against weavers making baskets during menses, and the use of such marks allowed women to disregard the taboo and continue weaving.

Whereas the earliest basketry designs did not include representational forms such as anthropomorphs and zoomorphs, the later made-for-sale, pictorial baskets quickly became popular collectibles (Bernstein 1979:72). Panamint Shoshone women continually refined their weaving skills and embellished baskets with realistic features—birds, butterflies, chuckwallas, bows and arrows, human figures, and bighorn sheep (Figure 10.10). Many weavers gained individual recognition for their beautiful coiled baskets. Mamie Gregory (1867–1951), wife of Little Lake consultant George Gregory, is known for creating large food bowls with bold, spiraling designs as well as smaller gift baskets adorned with stylized butterflies.

Conclusion

Weavers may have found inspiration for some of these pictorial designs by copying similar forms found in rock art. Depictions of mountain sheep, for example, are remarkably alike on rock art panels and baskets.

Every basket attests to a weaver's awareness of her inherited roots. The Panamint Shoshone, Kawaiisu, Tübatulabal, and, to a lesser extent, the Owens Valley Paiute, all of whom frequented Little Lake, had similar basketry weaving traditions and a common basketry design repertoire. Ethnic identity, combined with an individual aesthetic sensibility, enabled each woman to weave a cultural and historical, ethnographic legacy into her baskets.

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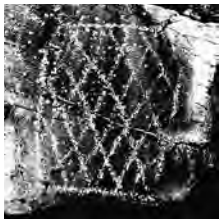
Chapter 11



A Rare Cached Brownware Pot

Jelmer W. Eerkens and Jo Anne Van Tilburg

> A culture, like an individual, is a more or less consistent pattern of thought and action.
>
> *Ruth Benedict 1934*

THE FRAGEMENTS OF BROWN OR BUFF POTTERY found in late prehistoric sites of the Great Basin and Mojave Desert have not inspired significant archaeological research. A few detailed studies have been undertaken, however, and give some insight into the technological and temporal aspects of pottery making (Bettinger 1986; Eerkens 2003a, 2003b; Eerkens, Neff, and Glascock 2002; Griset 1988; Lyneis 1988, 1989). In this respect, a rare, whole vessel found *in situ* at Pottery Slope, a rock art site on the Little Lake Ranch in the Rose Valley, at the southern gateway to the Owens Valley, California, represents an unusual find and an opportunity to learn more about the craft relative to rock art (Figure 11.1).

Figure 11.1
Owens Valley Brownware pot *in situ*, Pottery Slope.

Great Basin and Owens Valley Pottery

It has been shown worldwide that mobile hunting-and-gathering groups do not often make pottery. For example, Arnold (1985) found that less than 25 percent of fully nomadic groups make pots; this is in sharp contrast to 75 percent of semisedentary and 91 percent of fully sedentary societies. The fragility and weight of pottery, along with the mobility and low population numbers of hunter–gatherers, limit the demand for pots (Brown 1989). Also, mobile groups may not stay in one place the several weeks required to complete the pottery production cycle. The most opportune time to produce pots is during the dry season, but this is also the time when many seeds, berries, and greens ripen. As a consequence, food gathering assumes a higher priority than pottery production.

Archaeological dates for the beginning of pottery production in the Great Basin in general and the Owens Valley in particular range from A.D. 800 (Eerkens, Neff, and Glascock 1999:280) to A.D. 1300 (Madsen 1986:214; Pippin 1986; Rhode 1994:128), with the major emphasis on pottery use being after A.D. 1350 (post–A.D. 1650 for CA-INY-30). The oldest pottery in the Owens Valley appears to be formed of sedimentary clays and dates to *c*. A.D. 750 (1200 B.P.; Eerkens, Neff, and Glascock 1999).

The Little Lake Ranch pot belongs to the classic Brownware category. Brownware is common in the northern Mojave Desert and the Owens Valley, where it dates to post–A.D. 1400 (post–550 B.P.; Delacorte 1999). From that time until Euro-American contact, pots became thinner, were increasingly made from clay sources lacking mica, included less fibrous material as temper, and were more diversified in the range of shapes produced (Eerkens 2003a).

During protohistoric times, hunting-and-gathering peoples who spoke the various branches of the Numic languages—including the Owens Valley (post–A.D. 1650 for CA-INY-30), Paiute and the Panamint (Coso) Shoshone, a subgroup of the Western Shoshone—occupied overlapping lands with indistinct and permeable boundaries (Thomas,

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Figure 11.2

Anglo teacher at a Native Owens Valley home near Independence *c.* 1903. Note cast iron kettle, background left.

Andrew A. Forbes 59. County of Inyo, Eastern California Museum.

Pendleton, and Cappannari 1986).[1] Lands to the north of Little Lake were largely within the territory of the Owens Valley Paiute; those to the south were in Kawaiisu territory. The Panamint Shoshone moved about through an area of almost 1,000 square miles that included the southern Owens Valley, the Rose Valley, and Little Lake (Garfinkel 2007:41; Thomas, Pendleton, and Cappannari 1986).

Most Paiute and Shoshone groups produced cooking pots, and potsherds are commonly found in late prehistoric contexts and especially in habitation sites (Eerkens 2004). The presence of this ceramic tradition may be part of the reason that the Owens Valley Paiute, at least, did not invest time in the creation of the more commonly known, tightly coiled cooking baskets. The range of foods boiled in pots was diverse, but acorns, roots, and especially seeds were the most common.[2]

The shape of most pots suggests that they are ideally suited for high-temperature boiling, a process necessary to break down and gelatinize seed resources to maximize their digestibility (Crown and Wills 1995). This observation, coupled with the fact that organic residues extracted from pots are consistent with those of seeds, suggests that the introduction of pottery was tied to seed intensification in the region (Eerkens 2005). Other uses of pots may have included temporary storage or transport of unprocessed foodstuffs, and a small number may have functioned as serving bowls.

A ceramic tradition indicates "a relatively settled lifestyle" among the Owens Valley Paiute, who traded their pots to the Panamint Shoshone from Saline Valley for salt (Dean et al. 2004:8). Notwithstanding that limited trade activity, pots were not part of the broad and extensive exchange systems that characterized prehistoric California but, instead, were produced largely for individual or local use (Eerkens, Neff, and Glascock 2002).

Basketry was produced and other fiber-based crafts were still being practiced and significantly evolving well into the early 1900s (Finger, this volume), but pottery was largely dropped from the cultural inventory in the mid-to-late 1800s. Introduced metal containers were likely preferred over pottery due to their more durable construction and greater heating efficiency. Photographs of historical Paiute and Shoshone camps from the late 1800s and early 1900s depict cast-iron pots, skillets, and kettles as well as stone metates but do not include earthenware ceramic pots (Sutton and Ritter 1984; Figure 11.2). The historically observed use of metal pots—for example, in their usual placement over hearths—is probably a good indication of how earthenware pots

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were used in prehistoric times (Bosak 1975; Milliken, Gilreath, and Delacorte 1995).

Unfortunately, little is directly known about the actual process of pottery making in the western Great Basin. As with rock art, pottery production was not a major concern of ethnographers, and extending their observations back to prehistoric contexts is nearly impossible. Pottery making in the Owens Valley was "a special art formerly limited to a few women," but was "nearly forgotten" by the time ethnographers began collecting data (Steward 1933b:266).[3] Archaeological specimens exhibit workmanship that is superior to ethnographic examples and were "larger, round-bottomed, thinner-walled, smoother, and more regular" (Steward 1933b:266–269).

A major contribution to our knowledge of pottery technology was made by Anna Gayton (1929, 1948) for the Monache or Western Mono in the western Sierra Nevada. Yet even in her work the supposed "traditional" pottery-making techniques described by elderly consultants do not reflect precontact practices. Similarly, while Drucker (1937) states that pottery making in the Owens Valley included painting black decorations on a white slip, painted pots—outside of an occasional or rare piece exchanged from the Southwest—are unknown in prehistoric Owens Valley contexts.

Notwithstanding the scant ethnographic data, it seems that Owens Valley Paiute women were "taught by their mothers or grandmothers" to make pottery in the same way they were taught to weave baskets (Dean et al. 2004:9; Steward 1933b:266, 274). Men occasionally helped by collecting clay in riverbeds or marshland and bringing it back to camp, but women processed the clay.[4] Women also ground decomposed granite crystals to produce the temper. This process created smooth depressions or slicks on boulders, some of which are found at Little Lake. Women shaped, dried, and fired the pots, and were primarily responsible for pottery use, particularly as it related to cooking (Gayton 1929, 1948; Steward 1933b, 1938, 1941; Stewart 1941).

Careful study of the extant pottery reveals that clay pots were formed by the coil-and-scrape method. A flat circular base about 8 cm to 20 cm in diameter—depending on the intended size of the pot—was initially formed. Coils of clay were then stacked on the base, each coil slightly expanding the pot's diameter if the pot was to have a larger mouth than base. The coils were then pressed or "welded" together. This technique had the simultaneous effect of increasing the height of the pot while thinning the walls.

Pots were first sun-dried and then fired in small brush fires with whatever fuels were conveniently available. The maximum temperatures of these fires were low (*c.* 600–800 degrees C), and the rapid, low-intensity firing technique created an uncontrolled atmosphere. As a result, the interior walls were often incompletely oxidized, and pots show considerable variation in surface color even across the same vessel. Pots fired in oxidized atmospheres generally fire to more red and orange colors, while those fired in reduced atmospheres turn out more dark brown and black.

Surface Decoration

Before firing, the interior and exterior surfaces of pots were scraped with a brush, the fingers, or some other implement to complete the welding of coils and to even out their surfaces.[5] "Parallel scratches, horizontal on the inside, vertical on the outside" resulted (Steward 1933b:267). Roughening, scraping, and scratching of exterior surfaces may have been meant to increase heating efficiency by increasing surface area. A need for greater heating efficiency may be related to a decrease in fuel (firewood) usually available near semipermanent campsites such as the Panamint Shoshone site of Pagunda at Little Lake Ranch. Although more than 90 percent of all known pots are undecorated, surface scratches are considered decorative attributes, and "four different brushing styles"—vertical, horizontal, diagonal, and random (mixed)—are recognized (Eerkens 2003a:17). All four styles are present on exterior surfaces. In contrast, only vertical and horizontal styles are found on interior surfaces. No obvious temporal pattern is unequivocally evident in the use of these finishing styles. There is an apparent "decrease in the rate of surface smoothing" on pottery between 650 B.P. and 150 B.P. (Eerkens 2003a:22).

Some pots, including those associated with domestic/habitation areas such as Pagunda, have additional markings.[6] Angular/linear motifs include diagonal marks on exterior rims or single rows of irregularly spaced chevrons, sometimes combined to create loose zigzag or wavy line motifs, below the rims (Eerkens 2003a:3–4, 10, 15; Steward 1933b:268, Figure 1b, i). Two parallel rows of these motifs or a single row of thin incisions may be added on the interior surfaces. Curvilinear motifs consist of punctures (dots) or short rows of impressed crescents or semi-crescents made by fingernail marks. This latter motif "appears to be extremely consistent through time and space" (Eerkens 2003a:3–4).

The narrow range of Owens Valley pot shape variation and even such few design elements as those described above are "prima facie evidence that the peoples who made and used these vessels shared a common, culturally encoded" production and aesthetic system (Kirch 2000:102, discussing Lapita pottery). In many parts of the world, decorative symbols on pots are "explicitly female," and motifs painted or tattooed on women's bodies are "frequently found on pots" (Hodder 1982:146–147, for the Nuba).

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The Little Lake Ranch Pot

According to the report given to Jo Anne Van Tilburg in March 2002 by Elva Younkin, then of the Maturango Museum in Ridgecrest, an Owens Valley family was exploring Little Lake Ranch when one of the children, clambering over the rocks, saw what looked to him like a ceramic pot.[7] He told the adults with him of the find; they, in turn, reported it to the Maturango Museum. Apparently (and fortunately) the integrity of the find was not disturbed and the pot was not moved. Younkin telephoned Jim Pearson of Little Lake Ranch and Van Tilburg at the Rock Art Archive, and a gathering of interested archaeological professionals was convened on the site.[8]

The pot was positioned somewhat laterally and nearly upside-down under a large boulder situated on a nearly north–south-running basalt slope. The general area is a relatively small and discrete cluster of rock art panels then known as Atlatl Cliff North, Atlatl North, or CA-INY-388 (Harrington 1957:10; von Werlhof 1965:21–22). The pot rim was resting on, but not embedded in, the loose, dry, sandy soil underneath the boulder. Before Van Tilburg removed the pot, she and Younkin examined it visually. The exterior was smooth and dusty but free of attached soil, and the pot was a reddish-brown color. There were several cracks and the rim was damaged. The interior was free of soot and dirt.

A complete visual record of the pot before and after its removal was made. A sample of the soil that had been under and around the pot was removed and placed in a plastic bag, and the pot was measured. Younkin packed the pot in archive-safe materials provided by the Maturango Museum and transferred it and the soil sample to the museum, where the pot was subsequently placed on public view. As is often the case with such finds, the area from which the pot was collected (CA-INY-388) took on a new identity. Ron Tallakson, a member of the UCLA field team, dubbed it Pottery Slope.

The condition of the Little Lake Ranch pot is highly unusual for the region (Table 11.1). Just nine pots were previously known for the Owens Valley and six from the Rose Valley. Granitic minerals, including quartz, feldspar, and mica (visible in a small chip), are present in the Little Lake Ranch pot clay. The primarily subangular to angular shapes of these minerals suggest that they were naturally present within the parent clay source and not produced by the grinding process described above. It remains to be determined if the clay source was in the vicinity of Little Lake.

The pot has the characteristic V-shape that most vessels from the Great Basin display, especially those from the Owens and Rose Valleys (Figure 11.3). It measures 180 mm tall, 224 mm in diameter at its mouth, and only 75 mm across the base. This size is nearly equal to the average for whole pots collected from the China Lake region and Rose Valley, and slightly smaller than those from the Owens Valley. The thickness of the pot walls ranges from 5.4 to 6.4 mm just below the lip, which is also very close to the average for China Lake and Rose Valley, although slightly thinner than those from Owens Valley. While the pot stands freely in the upright position, it is somewhat unstable. When used for cooking or storage, the base may have been partially embedded in sand. Because it was essentially free of soot, it may not have been used to boil or simmer foods. If it was used, a small fire may have been built around the outside of the embedded pot.

The pot was made by the coil-and-scrape method. Coil marks 10 mm in width are still faintly visible across parts of the pot, indicating that they were not completely welded together before firing. Vertical striations, occasionally quite deep, are present over most of the exterior surface and horizontal ones across the interior. The lip of the pot undulates in height across the mouth, indicating the potter did not pay close attention to symmetry and evenness during construction; a functioning vessel may have been more important to the potter than a symmetrical or aesthetically pleasing one.

Brownware pots were often cached at certain locations on the landscape to which people expected

Table 11.1 Averages and coefficients of variation (CV) for 54 whole pots by region, along with Little Lake Ranch pot (CA-INY-388).

REGION	NUMBER	WALL THICKNESS		MOUTH DIAMETER		HEIGHT		BASE DIAMETER		MEDIAN TEMPER SIZE	MEDIAN TEMPER DENSITY
		AVG.	CV	AVG.	CV	AVG.	CV	AVG.	CV		
China Lake	6	5.2	.13	176	.24	188	.31	70	.19	Medium	Low
Death Valley	15	5.5	.16	215	.19	178	.32	68	.33	Medium	Medium
Owens Valley	9	6.1	.19	247	.25	226	.42	72	.18	Medium	Low
Rose Valley	6	5.5	.22	221	.29	173	.46	75	.17	Low	Low
Sequoia Natl. Park	14	5.9	.23	192	.21	141	.39	123	.24	Medium	Low
Nevada Test Site	3	5.4	.11	332	.31	287	.05	60	.29	Medium	Medium
CA-INY-388	1	5.9	-	224	-	180	-	75	-	Medium	Low

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to return (Eerkens 2003b). Caches of pots have been recorded in various rock shelters and caves throughout the desert west and near creeks and lakes close to productive seed tracts (Bayman et al. 1996; Campbell 1931; Eerkens 2003b; King 1976; Murray, Fenenga, and Brown 1989; Wallace 1965). Individual pots have been found in caves in the Owens Valley (Dean et al. 2004:9, Figure 1.9). The cached pot at Little Lake Ranch is, therefore, within the expected location model. Its nearly direct association with rock art, however, is unusual and somewhat unexpected.[9]

A single Brownware pot such as that found at Little Lake Ranch is difficult to date based on visible characteristics alone. Eerkens (2003a) has recently attempted to develop a chronology for Owens Valley Brownware using assemblages of sherds from different pots rather than single or whole pots. Three ceramic periods were defined based on the thickness, surface characteristics, and temper composition of the sherds. While overlap in the size and shape of pots is noted in all three periods, the Little Lake Ranch pot may be assigned to Ceramic Period 2. Radiocarbon dates associated with Ceramic 2 fall between 290 and 390 B.P. (A.D. 1560–1660), or roughly 200 years before Euro-American contact in the region.

Figure 11.3

Jo Anne Van Tilburg and Elva Younkin *(right)* with Owens Valley Brownware V-shape pot, Pottery Slope.

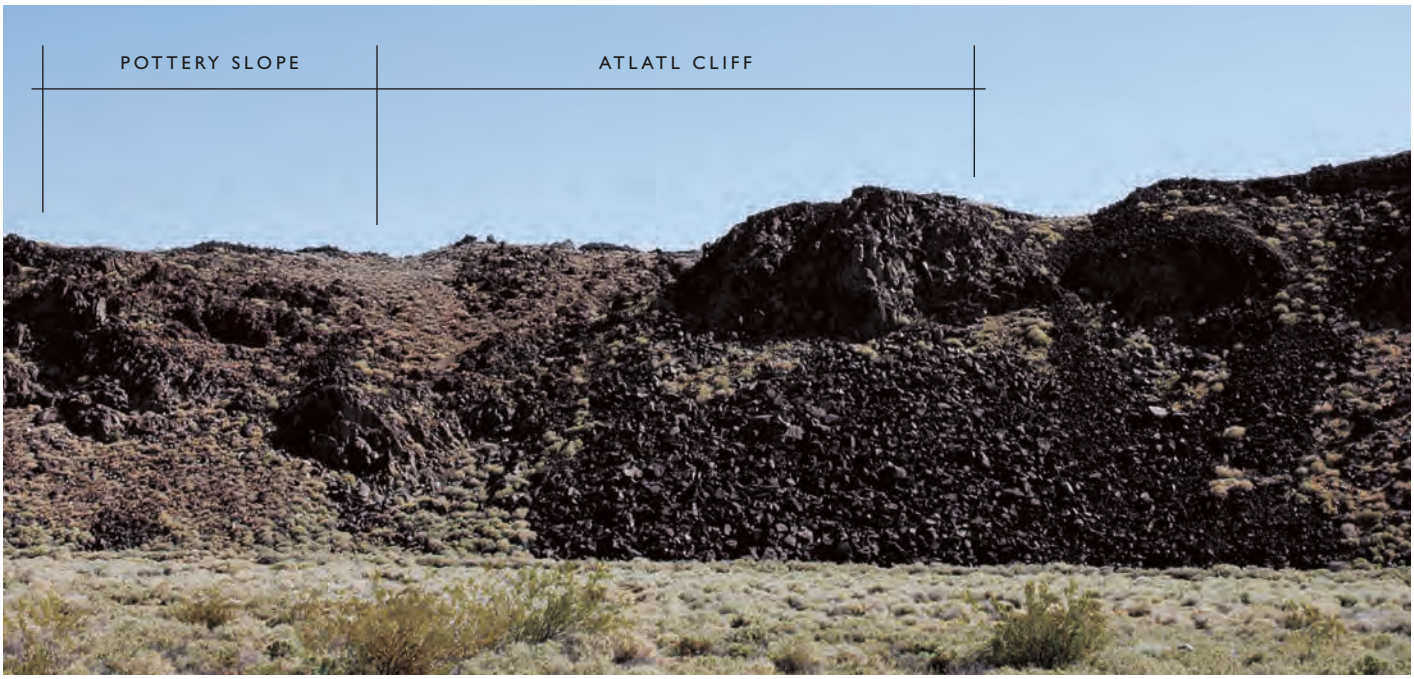
Pottery Slope

Rock Art

As noted above, the larger iconographic context for Pottery Slope includes the more extensive, more distinctive, and much older rock art concentration known as Atlatl Cliff (Bretney, this volume). Both Pottery Slope and Atlatl Cliff are situated on a portion of the Little Lake volcanic flow, a roughly 45-degree slope made up of a "chaotic jumble"

Figure 11.4

Overview of *(left)* Pottery Slope and *(right)* Atlatl Cliff.



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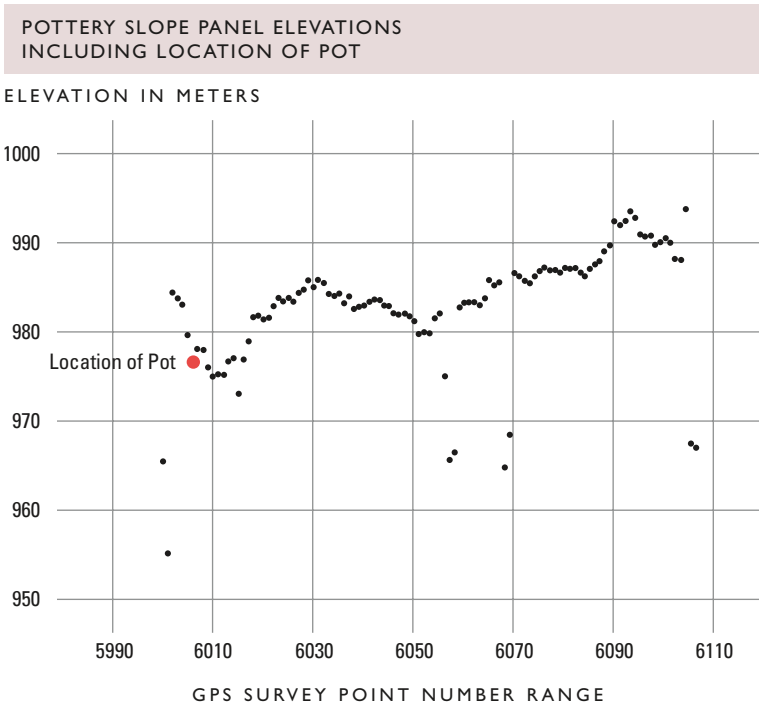

Figure 11.5

Elevation of rock art panels at Pottery Slope, with the location of Owens Valley Brownware pot.

of boulders (Glazner, this volume; von Werlhof 1965:21; Figure 11.4). A watercourse at the bottom of the slope carries seasonal overland flow from Little Lake Canyon and is marked by a shallow, sandy gully. Nearly all of the rock art at Pottery Slope occurs in a roughly horizontal band some 20–30 m above the current desert floor (Figure 11.5).

While Pottery Slope rock art is limited in motif variety, it is not inconsequential in terms of quantity—393 pecked elements are recorded.[10] The largest category is curvilinear (195 examples; Figure 11.6), followed by angular/linear (93 examples; Figure 11.7). Zoomorphic motifs (27 examples) are the most numerous of the representational categories. The remaining motifs include five anthropomorphs and three atlatls. The Little Lake Ranch pot was found *in situ* just slightly north of the main Pottery Slope panel cluster and related to two roughly pecked, schematic, curvilinear motifs.

Fully 65 percent of the Pottery Slope rock art panels have scratching on them (Reed, this volume). Even admitting the possibility that some scratched panels on other loci were overlooked, this is the largest proportionate concentration of scratched rock art at Little Lake Ranch. The vast majority—92 percent—of scratched patterns, no matter where they are located on the ranch, are angular/linear. Diagonal left and right lines, horizontal lines, vertical lines, X forms, and grid or crosshatch—Reed's primary group patterns—account for 52 percent of the scratched rock art elements at Pottery Slope (Figure 11.8). With the exception of the X form, each pattern is a discrete ideomorph with inherent meaning. Angular/linear scratched patterns are thus dissimilar to the predominantly curvilinear pecked rock art elements at Pottery Slope and on Little Lake Ranch as a whole. This is, in part, an artifact of the two different modes of production.

A few of the scratched elements at Pottery Slope are "nearly covered with desert varnish" (von Werlhof 1965:22). Most, however, are judged visually to have little or no indication of desert varnish. Relative to adjacent Atlatl Cliff, the rock art at Pottery Slope appears fresher and brighter, suggesting a more recent production. Scratched rock art is rarely cut deeply into the stone, and desert varnish would presumably cover scratched elements faster than it would elements that were pecked. It is also likely that some scratched elements have been lost.

Archaeological Context

The larger archaeological context in proximity to Pottery Slope and Atlatl Cliff contains the famous Stahl Site (Harrington 1957). It is composed of a cluster of settlement/occupation features located on relatively flat ground about 1 km north of the lake. Human use of the Stahl Site extends "more than 9,000 years" into the past (Pearson 1995:53–55). It is the archaeological type site for the large, bifurcate-stemmed Pinto Series of projectile points that define the Little Lake period (*c.* 6000–3150 B.P.; Garfinkel 2007:69; Gilreath and Hildebrandt 2008:10; Gold 2005:204–212; Harrington 1957; Meighan 1981b; Rogers 2006b: Table 1).

The seasonal domestic economy implied by Stahl Site excavations was based on hunting, primarily of deer and rabbits but also bighorn sheep, and the gathering and processing of wild plant seeds. Occupational intensity of the Stahl Site is thought to have dropped off about 3000 B.P., and it may have been largely unoccupied but not abandoned "during the late prehistoric eras (after A.D. 600)" (Gold 2005:205).

Stahl Site Cave is situated on the northwest edge of the Stahl Site. "Small sherds of undecorated pottery" were found in the Stahl Site Cave in Stratum 1-A and defined as "Shoshone, historic period after Euro-American contact" (Harrington 1957:79).

> Outside of the cave, few potsherds were found, and these all on or near the surface. Without exception they are brown on the outside, black on the inside, and both sides show marks of a scraping tool. The tempering seems to be fine crushed decomposed granite. These potsherds check with the fairly well-made ware characteristic of the Southern Shoshone and Owens Valley Paiute up into historic times. No rim-sherds or decorated pieces were seen (Harrington 1957:70).

Potsherds "of the Owens Valley archaeologi-

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Figure 11.6
Pottery Slope, Panel 132: variants of curvilinear elements.

cal type" from the Little Lake surface area are also reported by Steward (1933b:268). Surface ceramic scatter, including some sherds with incised decoration, is still present today (Figure 11.9).

According to Pearson (1995), Stahl Site Cave use was minimal from the late Marana period (650 B.P.–A.D. 1850), which includes the 290–390 B.P. date conjectured for the pot. Steward's Native consultant George Gregory told him that Shoshone people were still camping in an unnamed cave near Little Lake as late as March 26, 1872, when the massive Lone Pine earthquake struck (Irwin 1980:27, 76).

Pagunda is more distant from Pottery Slope than either the Stahl Site or Stahl Site Cave. Chronological interpretation of multiple lines of dating evidence suggests Pagunda use onset at 2300 B.P. "at about the same time the use of the Stahl Site began to decline" (Pearson 1995:90). Activity fell off to minimal levels from *c.* 650 B.P. (Gold [Garfinkel] 2005:207; Pearson 1995:75–76, 90–91), but, as noted above, minimal use of Stahl Site Cave continued. UCLA field school classes directed by George Gumerman IV (1991–1993) retrieved ceramic remnants (*c.* 204 g) from surface contexts at Pagunda but also from levels of *c.* 10–40 cm depth and, in one instance, at the 40–50 cm level.[11]

Pottery, Scratched Rock Art, and Incised Stones

Scratched rock art is present throughout the Great Basin (Garfinkel 2007:133; Ritter 1994). At least some of it is thought to have been produced by historical or protohistorical Numic populations (Gold [Garfinkel] 2005; Garfinkel 2007; Heizer and Baumhoff 1962; Ritter 1994:51, 65; von Werlhof 1965; Whitley 1994b:85). The scratched rock art production technique is obviously and directly related to the similar manner in which pottery surfaces are scratched or striated. In both cases there is a clear preference for a narrow range of basic angular/linear and curvilinear patterns. Of 248 scratched patterns recorded at Little Lake Ranch, fully 87 percent of them are, in fact, the most basic curvilinear or angular/linear components or constituent parts of *all rock*

Figure 11.7
Pottery Slope, Panel 139: rain or rake motif, a variant of the angular/linear motif category.

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Figure 11.8
Pottery Slope, Panel 171: scratched crosshatch pattern.

art elements. As noted, nearly all of these components are meaningful rock art motifs or ideomorphs (Van Tilburg, Bretney, and Hull, this volume).

In addition to repeated design vocabularies, scratched rock art across the Great Basin evidences other commonalities, including small motif size, intrasite spatial clustering, occurrence near water sources or campsites, and modest labor investment when compared with most pecked rock art. Scratched rock art also occurs by trail shrines in the Colorado Desert, and in a few cases it is isolated from other signs of activity (Eric Ritter, personal communication 2010). Furthermore, scratched rock art is stylistically related to well-documented incised motifs on Great Basin portable stone objects, some of which are of relatively great antiquity (Ritter 1980:103). Ritter (1994) correctly notes that most scratched rock art patterns fit the definition of entoptics, the basis of the neuropsychological model of rock art production. He suggests that scratched rock art is "long-lived, often integral to pecked designs, and possibly related to women's activities and shamanistic power/place associations."

An incised stone bearing angular/linear patterns on both sides was "found 9 inches deep" during Stahl Site excavations (Harrington 1957:69, Figure 49d; Van Tilburg, Bretney, and Hull, this volume), and two green slate pendants with thin, incised or scratched lines were retrieved from the Pagunda site.[12] By comparison, a large number of incised stones were recovered from Gatecliff Shelter, Monitor Valley, Nevada, in the central Great Basin. They are important because each of them "occurs in dated context with cultural associations" to *c*. 3300 B.C. (Thomas 1983b:255; Ritter 1980:103).[13] About 70 percent of the incised stones came from four levels dated 1250 B.C. to A.D. 700, and a deliberate but unexplained cluster or cache of 146 of them was found in a single 2 m square area of one of those levels.

Three production techniques on the Gatecliff Shelter incised stones were described: simple incisions made by drawing a line over the surface with a cutting edge of some type; "rocking" a tool to create a series of serrated lines, and lines "engraved to resemble a rocked line" (Thomas 1983b: 248, 252). The "rocker" stone incising technique produces a line that is virtually indistinguishable from the rocker stamping technique commonly applied to early ceramics (Thomas 1983b:252).

Place, Gender, Status, and Craft Production

Rock art panels are clustered on the Little Lake landscape according to the area's distinctive geography and geology. Such choices are rarely symbolically neutral and are usually taken to reflect social values or religious behavior (Arnold 1985:57; Hodder 1982:6). They may also reflect differential status and access to resources. Hunter-gatherer societies were not all relentlessly egalitarian, and age and gender symbolism are common. Notions of purity, fertility, and fecundity create or reinforce many spatial boundaries and boundary restrictions. Maintenance and disruption of boundaries become issues of concern when there is competition for limited food resources in regions such as the Great Basin or, more locally, in circumscribed areas such as that surrounding Little Lake.

In most small-scale societies, "techniques of production, clearing land, building houses, weaving, or processing food, are incorporated within sexual roles, and are part of being male or female" (Wagner 1981:25; Whitley 1994a). As we have seen, two major Great Basin craft traditions—pottery production and basketry production—are unequivocally associated among the Owens Valley Paiute and Panamint Shoshone with women and women's work and, by direct extension, with plant food procurement and preparation (Liljeblad and Fowler 1986:421). When that linkage is extended into the symbolic realm, the universal conceptual context is fertility and fecundity.

The use of space and the possession of material objects or resources suggest or demonstrate identity or relative status in hunter-gatherer groups (Ames

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2007; Arnold 1993; Bowles, Smith, and Mulder 2010). As we have seen, California (Yokuts) and Owens Valley Paiute groups, for example, identified themselves within east/west and north/south alignments (Chapter 8, this volume). Owens Valley Paiute and other groups during ethnographic time inhabited a "cult center" on Independence and George creeks. The group associated with the south was called "the Eagles," while "the Magpies" were identified with the north (Liljeblad and Fowler 1986:428). Pottery Slope is the northernmost rock art locus in our study area and is situated at the greatest distance from Little Lake and its associated riparian resources. A link may therefore exist between the north, the Owens Valley Paiute, and Pottery Slope.

The association of the Little Lake pot with Pottery Slope and its abundance of scratched rock art—all in proximity to the Stahl Site and Stahl Site Cave and their related activities—can be plausibly interpreted in several ways. If we assume that the woman who made the pot had no hand in the creation of the rock art, and that her culture was removed from it in time, she may have regarded one or more of the elements as "topographic markers" indicating that Pottery Slope was a place "where supernatural powers and/or entities resided, and could perhaps be obtained" (Quinlan 2000a:99). Placement of the pot—as an offering perhaps—would have been an "appropriation of the signs of the past" (Quinlan 2000a:99).

If, on the other hand, we assume that the woman and the rock art were of the same culture and time, then the cached pot is suggestive evidence that women and girls had socially sanctioned permission to access Pottery Slope. It is then logical to assume that at least some of the rock art was directly associated with females and probably made by females. The best candidates for female rock art production would be scratched patterns. If one gives credence to the entoptic interpretation of the patterns we define as ideomorphic, and picks up the thread of Ritter's (1994) speculation, it can be suggested that some scratched rock art at Pottery Slope was made by women in a shamanic context or by female shamans.

In any case, the choice of Pottery Slope as a *place* was dependent upon the perception of it as being within a culturally drawn, accessible, and possibly group-identity-related or gender-linked spatial boundary. The cache *spot* may have been chosen because one or more of the rock art elements were recognizable in form. Through recognition and association, there was a reasonable chance of recall and, therefore, of retrieval of a valued object. The rock art may have functioned as nothing more than a convenient location marker for future reference. Alternatively, it may have been indicative of group or individual identity.

Figure 11.9
Surface collected ceramic sherds, some with scratched or incised lines, Little Lake Ranch.

Conclusion

Based on the contextual and comparative regional data briefly summarized here, the Little Lake Ranch pot was probably cached by an Owens Valley Paiute or Panamint Shoshone woman on a summer or early fall day, when most seed resources ripen, between 300 and 400 radiocarbon years ago. The pot was likely forgotten, lost, or perhaps its owner died before she could come back to retrieve and use it again. The pot was left in this resting spot until March 2002, when it entered the regional artifact record and Little Lake Ranch history.

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SECTION FOUR

Varia

NOTES

APPENDIX

BIBLIOGRAPHY

AUTHORS

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Notes

CHAPTER 2

1 Garfinkel (personal communication 2010) argues that there is "compelling evidence for 13,500 cal bp at the Borden site just north of Little Lake at Coso Junction in the Owens River Channel."

2 Pearson (1995:40) notes that the region in which Little Lake is located is "north of the Garlock Fault" and therefore "physiographically within the Great Basin rather than the Mohave Desert, but environmentally it is transitional between the two, perhaps leaning more toward the latter in terms of plant life."

3 In a culture resource inventory of the Little Lake Wildlife Area prepared for CDFG (1979; RAA), "six to eight petroglyph panels along the edge of Little Lake" were designated "Site Twenty-one." "There is evidence to indicate that these glyphs have been under the water at one time. They could only have been drawn when the water level was down and this portion of the ridge would be accessible to aboriginal people. Great Basin Representational elements are present as well as a scratched-in glyph depicting a steam locomotive. . . . these panels no doubt represent the 'underwater' petroglyphs reported at Little Lake." Bill Bramlette (personal communication, 2009) said his grandfather told him he had seen the steam locomotive glyph. We photographed what we believe to be the same scratched design.

4 Owens Lake was named for Richard (Dick) Owens. The name apparently applied later to the valley as a whole. Owens was a friend and associate of Christopher "Kit" Carson, a guide for the explorer John Charles Frémont, and a captain in the California Battalion (Egan 1985:292, 361).

5 The term "Great Basin" was first used by John Charles Frémont to describe the area lying between the Rocky Mountains and the Sierra Nevada. He was also the first "to make an extensive exploration of this land" of 90 basins and 160 north–south-running mountain ranges (Egan 1985:164).

6 Joseph Reddeford Walker was a trapper, trader, and guide for John Charles Frémont on his 1845 expedition. Walker discovered Yosemite Valley. Walker Pass, Walker River, Walker Lake, and Walker, California, are all named after him (Egan 1985:546, n. 12). Walker Pass is sometimes given as Walker's Pass, and in Underwood (2006:179, Figure 1, 181) both names are used.

7 Native paintings of Europeans (people with wide-brimmed hats) astride animals located in two rock shelters in Indian Wells Canyon (CA-KER-735 and CA-KER-736) may have been done by indigenous Native people as a record of Walker's party (see Backes 2004; Garfinkel 1978; T. K. Whitley 1982a, 1982b).

8 Gumerman n.d., INY 3826, Acc 872, Folder 6, "Botanical Remains," an unedited list of plant genera recovered through flotation in eight excavated units; SBCM collections include "hackberry" seed pods collected by Schroth (1994) at 120–130 cm in Unit 2, Trench 30, at the Stahl Site.

9 "Plant List: Partial List of Common Species Found in Little Lake Area" (ECM, copy on file, RAA). Simms (1985a, 1985b) gives a succinct cost/benefit analysis of various types or varieties of food resources in the Great Basin. Owens Valley Paiute and other Great Basin inhabitants exploited a range of insects as food, including the Pandora moth (*Coloradia Pandora lindseyi*) larvae (Fowler and Walter 1985; Steward 1933a; Weaver and Basgall 1986).

10 Snares, nets, and other perishables are not reported by Harrington (1957:78), although he notes "partly disintegrated basketry" for Stahl Site Cave.

11 According to Harrington (1957:6–7), Ruth DeEtte (Dee) Simpson worked on the Little Lake project "during the first trip," which began March 8, 1948. At that time, she was Assistant Curator of the Southwest Museum and, later, Associate Curator. Reed (2004:97), however, has her "as a crew member on Harrington's excavations at Borax Lake in north-central California, and at the Stahl Site near Little Lake in Inyo County" in 1945; n. 13, below. We have located some SBCM Little Lake materials with a 1948 date that are certainly from Harrington's excavations and may have been collected and/or deposited by Simpson.

12 The significant professional discussions surrounding the Pinto point and Pinto culture complex and their dating have produced a dense literature too lengthy to be detailed here. Briefly, Campbell and Amsden (1934) and Campbell and Campbell (1935) defined the Pinto culture for the Pinto Basin site. The chief cultural element diagnostic of that culture was the Pinto point. Rogers (1939) defined five types of points associated with what he called the Pinto complex and created the Pinto-Gypsum complex. Garfinkel (2007:69) summarizes the Gypsum series and Pinto (Little Lake) series; Garfinkel et al. 2004; Haynes 2004.

13 Report sent by B. E. McCown to Malcolm J. Rogers, Director of SDMoM, November 25, 1940, RAA, in Greenwood 1964. In addition to materials in the SDMoM, there are others in SBCM donated in 2006 by members of McCown's family, who pulled up to the museum "in a truck and U-Haul" to deposit boxes of lithics, basketry, and other materials (A. Schroth, personal communication, 2009; nn. 12, 15 below). Objects with a 1948 date in SBCM #183 collections are probably from Harrington's Stahl Site excavations. They could have been deposited by McCown or Ruth D. Simpson; n. 11 above.

14 The Stahl Site Cave is heavily disturbed, but the identities of those responsible cannot be pinned down. According to Steward (1933b:334), W. L. Skinner of Lone Pine—who, according to RAA Robert F. Heizer (RFH) Collection records, also informed Steward of Little Lake rock art—reported digging "a few inches deep in a cave" at Little Lake. B. E. McCown dug in caves south of Little Lake (Finger, this volume) and probably also in the Stahl Site Cave (n. 17 below).

15 Copies of site reports and sketches, most of which were originally made by D. W. Ritter, are in the RFH RAA collection, Album 12. Those for Stahl Site Cave show 11 quadrupeds, three of which are bighorn sheep; five stick-

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figure anthropomorphs, one of which has a bow and arrow, and five other amorphous elements. Clewlow (1978:621, Figure 4) depicts 11 bighorn sheep and four anthropomorphs, one with a bow and arrow and another with what he says is an atlatl. Other rough sketches for Stahl Site Cave and vicinity rock art are in Spain 1994 (SBCM). Austin (2005) interprets the Stahl Site Cave petroglyphs in his online publication, although Van Slyke and White (this volume) disagree. In the end, the painted rock art in Stahl Site Cave is the only portion of the corpus that is properly documented.

16 Les Tremayne was one of the most popular radio personalities of the 1930s and 1940s. In 1953 he starred in the movie of H.G. Wells's *War of the Worlds*, a science fiction classic.

17 Stan Berryman "was working there as part of his MA thesis and Emma Lou Davis arranged for my class to assist" (Mark Q. Sutton, personal communication to Van Tilburg, 2009). Sutton "never had any control of the collections (Stan took them home every weekend)." Stan Berryman (personal communication to Van Tilburg, 2009) reports that he and his crew dug "a couple of units in one cove but that was all. . . . mostly we mapped the area" and the collections and notes "were transferred to another researcher" whose name he cannot recall. According to Dee Schroth (personal communication to Van Tilburg, 2009), Berryman only had soil samples and the artifacts went to Davis. We have not located any materials attributed to Davis. It is Schroth's opinion that some of Davis's Little Lake materials may be cataloged in various places simply as "Panamint." Materials said to be from "Little Lake" at SBCM may be from Davis or from McCown or from ASA members, including someone named Rita Shantler (SBCM #183 folder ASA Collection). SBCM 1107, attributed to geologist R. Reynolds, 1964, is annotated "Little Lake Cliffs; opp Stahl site." G.A. Smith's SBCM site record for Iny-182 is also on file at SBCM; see n. 14 above. CA-INY-182 should not be confused with SBCM file #183.

18 Haynes (2004:120–121) says "because the comparability of radiocarbon assays between bone, shell and carbonized wood remains uncertain, the strength of these [Stahl Site] dates remains suspect."

19 The Occidental College field school excavated at the Stahl Site and Stahl Site Cave. Through analysis of Gumerman's slides, we discerned the general location of his UCLA units to be in the vicinity of Locus 1. This was confirmed by Bill White, a member of the RAA team, who volunteered during one excavation weekend. In 2009, Pearson's collections were given to UCLA's Fowler Museum (Iny 182 Acc #956) where they were reviewed by John C. Bretney in 2010. Included were obsidian materials attributed to C. W. Meighan (Acc #957) but also other obsidian samples, bone fragments, and trade beads, some of which were from Schroth's Stahl Site trenches T-20, T-21, and T-22 as well as from three units excavated by Pearson to 80 cm in the Stahl Site Cave. A "knuckle bone," which may be the one White remembers turning up in the Gumerman excavations, was also in the collection. The soil samples may be those collected by Berryman (see n. 17 above).

20 The Little Lake or Pinto expression was antecedent to the Newberry or Elko, and the current thinking is that the Pinto period ended *c.* 2000 B.C. and dates to the Stemmed series *c.* 9000 B.C.

21 The Protohistoric period in the western Great Basin is suggested to end "with heavy Anglo use of the California Trail" in response to the California Gold Rush (Arkush 1990:30). The beginning of the end for Owens Valley peoples was the crossing of Death Valley by the Forty-Niners.

22 The remnant of a bone awl, a tool that would have been used in the production of basketry, was "found at 27 inches" (*c.* 69 cm) in the Stahl Site deposits (Harrington 1957:69).

23 Elsasser and Rhode (1996:46) state that "charmstones probably first appeared in California as part of an early widespread diffusion in western North America. . . . the chief region, subsequently, influencing Central California, seems to have been the southern part of the Columbia Plateau and the northern Great Basin."

24 Sutton (2001) reports paint on arrow shafts at CA-KER-508.

25 Gumerman n.d., [FM] Acc 872, Folder 1, "Archaeological Field Catalog," a list of field numbered objects recovered. We are indebted to George Gumermam IV for graciously allowing us to examine his unpublished Little Lake site records, student reports, photographs, and object collections (nn. 26, 27, 29 below).

26 Gumerman n.d., [FM] Acc 872, Folder 1, "Archaeological Field Catalog." A bone awl (Field #631) is from Unit 17, 40–50 cm level; weight 4.5 g.

27 Gumerman n.d., [FM] Acc 872, Folder 1, "Archaeological Field Catalog." Green schist [Greenschist] pendant (Field #1151) perforated, scratched or incised design; Unit 35, excavated, 25–30 cm. (JVT Note: incorrectly identified as ceramic). A second pendant (Field #885) is perforated with a scratched or incised design; Unit 21, excavated 40–50 cm level. A fragment of a greenish stone pendant (#93; 14.5 g) said to be of "steatite" is in SBCM collections.

28 In Layer 1 of Gypsum Cave, Harrington (1933:21–22, Figures 7, 8) found "many" pendants of a soft mineral commonly called gypsum and known as selenite (CaSO42H2O) "in all stages of manufacture from the first crude shaping to the finished product . . . perforated, and in two cases strung with a fiber string ready to be hung from the ear-lobe of the owner."

29 Gumerman n.d., [FM] Acc 872, Folder 1, "Archaeological Field Catalog." Green stone bead (Field #464) from Unit 16, 20–30 cm level; *Olivella* sp. bead (Field #28), Unit 2, surface collected; shell bead (Field #1208) from Unit 1, 0–10 cm; white glass bead (Field #68) from Unit 10, 10–12 cm level.

30 Obsidian from Sugarloaf quarries was a major trade item and is documented throughout California sites, including the Channel Islands; for Orange County, see Ericson et al. 1989:45–60; Heizer 1978:690–691.

31 The presence of trade goods obviously does not signal the actual physical presence of an off-site trading partner. The exotic object or material may have been obtained elsewhere and transported to the site by someone linked directly to that site.

32 Site reports signed by Drover and Jackson in 1976 and a map with handwritten California inventory site numbers in the Little Lake quadrant are in Gumerman n.d., Acc 872, Folder 3, "Location Maps and Notes." A copy of the latter document was graciously provided to the RAA by Jim Pearson.

33 The straight line distance from Little Lake to Little Petroglyph Canyon (Renegade Canyon) is 24.9 km to the mouth of the canyon overlooking China Lake basin and 28.5 km to the head of the canyon. Data are from the USGS map, NAWS.

34 Big and Little Petroglyph Canyons National Historic Landmark is currently known as Coso Rock Art Landmark (1964) but will ultimately be known as the Coso Rock Art District National Historic Landmark. Since the publication of Chambers (2000), the U.S. National Park Service Advisory Board Landmarks Committee—on which Van Tilburg served for two terms—has advised favorably on the Landmark status applications of additional important archaeological sites in California (including Borax Lake). To date, no other rock art sites in the region have been submitted for consideration.

CHAPTER 3

1 Sorting out the various Owens Valley sites in Mallery (1893) reveals that "Watterson's Ranch" is in Mono County (Sonin 1995:97). Von Werlhof's (1965:28) Mno-4 or Watterson Meadow is correlated by Sonin with Watterson's Ranch. Sketches in von Werlhof (1965: Figures 30, 31) are comparable to only one or two elements in Mallery (1893: Plates I, II). "Chalk grade" may or may not be "Chalk Bluff(s)" (von Werlhof 1965:26) or, alternatively, "Chalk Cliffs."

2 Sonin (1995:274) reports that Dan McCarthy "states that there are 21 sites in 9 [California] counties included in Mallery, 1893." Clewlow (1998:15) notes that "one can only imagine [Mallery's] reaction had he known of the main Coso Range concentration, which occupies over 30 miles of intersecting canyon systems."

3 Mallery (1893) described rock art depicting *Cervus* sp., a genus of primarily Asian deer; *antelocapra americanus* is the pronghorn. The only way to distinguish deer from antelope in rock art is by the way the antlers are depicted.

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4 Scratching as a means of producing rock art was noted by Fewkes (1898) in the Rio Verde Valley (Steward 1929:230) but was not specifically included in Steward's analysis.
5 RAA, RFH Collection, Box 3, Item 207, Album 9. William Lyle Skinner (1878–1952) was a mining engineer, mine and mill superintendent, collector, and sculptor. In 1930 he discovered a vein of commercial ore for the Mountain Monarch Mining Company near Lone Pine, California.
6 We tried to correlate Little Lake element drawings in Steward (1929), Heizer and Baumhoff (1962), von Werlhof (1965), and Heizer and Clewlow (1973), and then to match them with our own elements or panels. Issues of scale and accuracy, as well as the practice of creating composite drawings or multiple tracings of published drawings, all complicated matters. Examples of these practices are in, for example, Heizer and Baumhoff 1962: 331, Table F-1; Plates 19, 21e–f. An unsigned editorial note in RFH RAA B4 42 (2) says that "everything in [von] Werlhof from [Iny-] 208 is found in [Heizer and Clewlow 1973]. There's apparently no overlap bet[ween] his drawings and our records."
7 Style, stylistic terminology, and the genesis of motifs for the Great Basin are widely discussed. Lee and Smith (2003:54) note that "as Hedges (1982) and Schaafsma (1986) indicated, the Great Basin Representational Style does not refer to a particular style" but to "representational imagery" in the Great Basin physiographic province. Turpin (2001:369) says that the Great Basin Painted style was "summarily dismissed" by Heizer and Baumhoff (1962). Neuropsychological analysis is said to "prove" that "abstract designs are images spontaneously generated during trance" (Hedges 1983:57; Turpin 2001:371, citing Lewis-Williams and Dowson 1988). There is substantial interchange centered on the neuropsychological model in general and specifically on the model as adopted by Whitley (1998a); see Gilreath 2007; Bednarik 1990; Helvenston and Bahn 2005; Lewis-Williams and Dowson 1990, and Pearson 2005.
8 Robert F. Heizer said that "we know something, but not enough" about California rock art sites (RAA, RFH to R. Coppock, April 14, 1959; RFH, RAA, B4 520–521). He also stated that "our claim of association of petroglyph sites and migration trails is based upon our own fieldwork and our claim is limited to the area of western Nevada." In RFH to R.R. Ashworth, January 17, 1966 (RFH RAA, B5 512), RFH said that "we have a theory that in Mono County such sites are on migration trails;" see also D. W. Ritter to RFH August 13, 1962; RFH RAA B5 381; Fowler 2009.
9 For the use of quartz hammerstones to create rock art, see Whitley, Simon and Dorn (1999); see also Turpin (2001:369).
10 Regarding von Werlhof's Atlatl Cliff sketches (1965: Figures 22k, l; 23a–n), Campbell Grant stated that "he pictures atlatls but fails to recognize them—they are listed as birds" (RAA, RFH, 22 July 1966, B4 677).
11 Field notes and sketches from the UCAS files, RAA, RFH, B4 72 (2). One of RFH's students visited D. W. Ritter in Chico, California, in the 1950s–1960s to review his records for Heizer and Baumhoff's (1962) publication (E. Ritter, personal communication, 2009). The UCAS record indicates loci A–D were designated at Little Lake by "Pilling." His "Little Lake A" is Iny-208 (our Locus 8), and "Pilling suggests that neither this site [Iny-208] nor Iny-210 is the same as Steward's 'Little Lake.'" Steward's Little Lake was largely limited to Locus 7. Arnold Pilling was "then a graduate student at UCB" (E. Ritter, personal communication 2009); Sonin 1995:283.
12 Heizer and Baumhoff (1962: Plate 18) depict rock art at CA-INY-281, included now in the Coso Rock Art Landmark. Heizer and Clewlow (1973) "were fully aware" of Campbell Grant's work and "explicitly framed their definitions of the distributional, locational, and functional attributes of the Great Basin petroglyph style in terms tailored to conform to his observations" (Clewlow 1998:15). Correspondence in RFH, RAA confirms that statement (RAA, RFH to R. Coppock, 8 April 1959; RFH Boxes 4 and 5). Garfinkel (personal communication to Van Tilburg 2010) documented some rock art at Little Lake Ranch and filed some site reports during a cultural resources management (CRM) study.
13 Locus 2 is between the Stahl Site and Fossil Falls, an area we have walked and photographed but not inventoried. Selected elements from this locus are given in Van Slyke and White, this volume and in n. 17 below. Atlatl Cliff, Pottery Slope, and Stahl Site Cave all have site numbers and are described in our text by their names. Stahl Site Cave elements are not considered in our pecked rock art analysis but are included in the painted inventory.
14 There are 29 pecked elements at Locus 3 in the Rock Art Archive visual records that are not included in the summary statistical charts.
15 A brief field foray was made in March of 2009 by Bill White and Doug Brotherton to retake photographs of a few specific elements located in Loci 7, 8, the various coves, and in the vicinity of Pagunda. At that time, they discovered about 20 new elements. These elements are included in the Rock Art Archive database but are not included in our statistical analysis or the summary statistical charts. These new data validate our opinion that at least some rock art remains to be documented at Little Lake Ranch.
16 The numbers given for bighorn sheep throughout this chapter are not the same as those given by Van Slyke and White, this volume. The numbers here are based on the count in the RAA motif database. Van Slyke and White used an augmented database that includes 46 additional sheep in Locus 2 and Stahl Site Cave. Whitley's (1998e:115, Table 2) analysis of Locus 7 was conducted on a sample of 408 elements, and he arrived at 76 percent "abstract" and 24 percent "representational" (Gilreath 1999:38).
17 Berryman and Berryman (1979:52) say that they also found "a possible Pinto level." Mark Q. Sutton (personal communication to Van Tilburg 2009) does not recall Pinto points, but he is "certain that it was the first big cove south along the lakeshore" [our Locus 1] that was excavated.
18 Berryman and Berryman (1979:59, Figure 7) suggest that the bisected circle is a "trail marker." Examples of this motif occur in every locus except Locus 3 (Painted Cave). Twenty-one of them are in Locus 6. Fowler (2009:87, Figure 5.2) depicts a small boulder with what appears to be a bisected circle on it placed *directly adjacent* to a trail across the Mojave Desert.
19 During a tour of Little Lake attended by some members of the Little Lake Research Group, a piece of obsidian wedged into one of the cracks in the face of Panel 51 was said by D.S. Whitley to be an "offering" (Tony Hull, personal communication 1998, and RAA visual data files).
20 Hedges (2002:135) correctly points out that the Great Basin Scratched style described by Heizer and Baumhoff (1962:94, 208) occurs "with considerable frequency over a wide area" (Ritter 1994; Stoney 1994; Christensen, Dickey, and Lee 2002:56, Figure 16).

CHAPTER 4

1 Castleton (1987:xxiii) defines these bisected circle forms as atlatls for Utah, but gives a range of simple to complex that muddies the definition significantly. For example, he assigns his Figure 7.111, p. 255 (painted white) to the atlatl category, which is highly questionable.
2 "Orientation" was defined as the compass direction of a vector or line that is perpendicular to the panel's face.
3 Panels that were horizontal in orientation were eliminated from the analysis because the "correct" direction for viewing the atlatl could not be determined.
4 Of the total number of atlatls at Atlatl Cliff, 83 have the center weights completely pecked, while 8 have an outline only.
5 Based on as yet unpublished data using X-ray fluorescence (XRF), to completely revarnish a petroglyph in the Little Lake area takes 7,000 or more years (Alan Garfinkel, personal communication 2010).
6 In the cation-ratio method, the ratio of potassium (K) and calcium (Ca) to titanium (Ti) in desert varnish is calculated. When the (K + Ca):Ti ratio is compared with a standard ratio age curve, the age of the tested petroglyph, theoretically, can be determined. The standard calibration curve is determined by using radiometric methods (such as K-Ar [potassium-argon] dating) to get initial dates for various cation ratios. The theory behind this dating method is that the K and Ca minerals are not bonded as firmly to the

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varnish as the Ti mineral and therefore decrease in abundance with time; therefore, the lower the cation ratio, the older the varnish and the older the petroglyph. An angular/linear petroglyph at Atlatl Cliff on Panel 1-17 is said to have been tested in this manner and produced a date of 12,000 B.P., although there is no published reference to this to our knowledge (Whitley, verbal statement at a tour of Little Lake at which the author was present; RAA visual files).

7 At Locus 8, seven of nine "paw" elements are similar in overall form to those at Atlatl Cliff and are present on a single panel.

8 Wheat (1967:30) pictures an implement used by the Northern Paiute during piñon harvesting; it has a hook rather than a loop on top. Fowler (1986:67, Figure 2) shows the implement in use and notes a "certain ceremonialism" associated with the harvest. Underwood (2006:185) cites an 1893 account of "beating or pulling sticks" used by the Kawaiisu to collect piñon nuts. They were "straight rods, about an inch in diameter and five or six feet long, stripped of bark and with all the branches removed, save one at the outer extremity, which was cut off about six inches from its union with the main staff." In a SBCM exhibit a staff or crook-like instrument, also an Atlatl Cliff motif, is pictured in use in their area; see n. 9 below.

9 Stick and loop implements were widely used as stirring sticks in cooking (Wheat 1967:25). Barbed hooks were used by the Panamint Shoshone to capture chuckwallas, which probably found Atlatl Cliff a congenial hiding place. The Southern Paiute snagged rabbits with a similar implement (Fowler 1986:83, Figures 8a, 8b). "Spirit sticks" of several types are known archaeologically and are associated with shamanism or male leadership rank; see n. 8 above.

CHAPTER 5

1 Additional panels with scratching only were located during fieldwork after completion of the scratching study and are not included here. It is probable that other panels exist, but it is also likely that the scratched elements will fall into our documented motif categories.

2 Garfinkel et al. (2007:99, n. 1) state that the "Stahl rockshelter petroglyph elements have been *scratched* and abraded into the blackened ceiling and as such are similar to the late prehistoric images identified with the Great Basin Scratched Style (Bettinger and Baumhoff 1982)."

3 Don Simonis (Ritter 1994:55) came to a similar conclusion in 1986, suggesting that "near Kingman, Arizona, haphazard-looking scratched designs are actually a series of superimposed grids, with up to a dozen or so designs present."

4 Ritter (1994) came to a similar conclusion when discussing Great Basin scratched rock art: "The hypothesized 'cancellation' of the power of older petroglyphs through the superimposition of scratched designs is hard to support considering that scratched rock art occurs alone or next to some pecked rock art, was seemingly made concurrently on some panels, and often only partially superimposes pecked elements."

5 This assertion is apparently supported by associative archaeological evidence at three Pinyon Uplands sites. Gilreath and Hildebrandt (2006:14–15) found that the majority of scratched rock art was associated with Desert Side-notched and Cottonwood projectile points from the Marana period (post-650 cal. B.P.). In an adjacent rock art site with minimal scratching, they found older forms of projectile points, "including four Elko/Humboldt Basal-noticed, three Pinto, and only one Rose Spring point."

6 At CA-INY-5508 "[s]cratched rock art is abundant . . . and was deliberately placed out of sight. This pattern of secretiveness pertains only to scratched rock art (though not to all scratched panels); it seldom applies to either abstract or representational pecked designs" (Hildebrandt and Ruby 2003:212).

CHAPTER 6

1 The numbers given for bighorn sheep in this chapter are not the same as those cited elsewhere in this volume, which are drawn from the RAA motif database. In our study, we used an augmented database that includes sheep elements from two additional loci (Locus 2 and Stahl Site Cave) as well as others that we found and photographed after the RAA motif database was closed for analysis.

2 Discrepancies were noted when correlating Whitley's (1998e) Table 1 with Table 5 of Grant, Baird, and Pringle (1968). The following addition errors were discovered in the Grant, Baird, and Pringle table: in the Naturalist element category, the totals should be solid-body anthropomorphs 713; atlatl 326; boat-shaped (horns front) sheep 709; grand total 10,315. In the Abstract element category, the totals should be circle cluster 112; circle concentric and spoked 56; star 22; grand total 3,794. There are also errors in the site totals in both categories. The correct site totals in the Naturalist element category are: CA-INY-7 651; CA-INY-8C 1,381; CA-INY-8D 94; CA-INY-8E 389; CA-INY-8F 817; CA-INY-9 124; CA-INY-9B 511, and CA-INY-9C 251. In the Abstract element category, the correct site totals are: CA-INY-7A 823; CA-INY-8B 900, and CA-INY-8C 605. Whitley (1998e) used the incorrect totals; he also lumps the wavy line and zigzag line abstract elements in with snakes under his representational category and omits the clouds and rain element category of Grant, Baird, and Pringle (1968).

3 Austin (2005) reports 14 sheep elements at Stahl Site Cave; see n. 10 below. Locus 2 was not included in the other motif analyses in this volume. It is included here in order to maximize the number of bighorn sheep elements in the analysis.

4 We recognize that horns or head with horns is not actually a "body" form. However, we interpret them as iconic representations of bighorn sheep. They account for about 7 percent of the total recorded bighorn sheep elements. We have included them in the body-forms category for the convenience of analysis. Grant, Baird, and Pringle (1968:17) illustrate "variations of the Sheep Horn Motif." Clewlow, Wallmann, and Clewlow (1995:136-141) describe 33 sheep elements on three of 10 panels at CA-INY-2847, NAWS. They found that sheep elements were rendered similarly with consistency among panels.

5 At first, it appeared as though some Coso Rock Art Landmark bighorn sheep elements in the Grant, Baird, and Pringle (1968) sample had been counted more than once. However, Pringle told one of us (Van Slyke) that there was no double counting, and that each element was placed in one category only (J. Kenneth Pringle, personal communication 2006). For example, if an element was classified as "impaled sheep" and it also possessed the attribute of "horns side," it was not included in the latter category since, apparently, the "impaled" attribute was deemed to be more significant than that of facing direction. Using the corrected data for Table 5 of Grant, Baird, and Pringle (1968), there are 7,196 sheep. The total of natural and abstract elements is 14,109.

6 We did not include pictographs, as there are none of bighorn sheep at Little Lake Ranch; see Garfinkel, Marcom, and Schiffman 2007:96 for a description of bighorn sheep pictographs at CA-TUL-482, CA-TUL-481, and CA-TUL-479.

7 The percentages in Table 6.9 total more than 100 due to double counting, since on a crowded panel a bighorn sheep element may be near another sheep but also near an abstract or other element.

8 Clewlow (1978:621, Figure 4) notes an atlatl associated with one of the anthropomorphic elements.

9 Elevation data were not recorded for ten bighorn sheep elements at Locus 7.

10 Garfinkel, Marcom, and Schiffman (2007:99, n. 1) state that at least one and possibly two bighorn sheep elements at Stahl Site Cave are in the "unique Coso style—with full front-facing horns and boat-shaped [D-shaped] bodies." We disagree, and consider the element apparently referred to as having an oval body form due to its curved back. That body form, which is in the majority at Little Lake Ranch, is also typical of the Coso Rock Art Landmark. This "unique" Coso-style bighorn sheep accounts for less than 30 percent of the bighorn sheep elements in the Coso Rock Art Landmark; see n. 3 above.

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11 Hedges (2001) and Quinlan and Woody (2001) challenge Whitley's use of the ethnographic data in general and specifically for the use of the Coso Rock Art Landmark as a destination for "rain shamans" from distant areas: The interchange between Whitley (2000b) and Quinlan (2000a, 2000b) also deals with the use and misuse of ethnographic data.
12 Phil Wilke studied bighorn sheep at Little Petroglyph Canyon, but that work is not as yet published.

CHAPTER 7

1 RAA, Heizer Collection, Box 3, Item 207, Album 9.
2 Von Werlhof (1965:36) gives "forty-four sites recorded in Owens Valley." His numbered description, however, begins with "Iny-28" and ends with "Mno- 552" and adds up to 45 sites (von Werlhof 1965:5–36). Assignment of site numbers Iny-208 and Iny-210 begins with Julian Steward. Campbell Grant overlaid his own site numbers (Iny-23).
3 Grant (1965).
4 The image database and the subset paint database were both created by Gordon Hull. Team 1 motif analysts were Anne Adelman and Audrey Kopp; Team 2 analysts were Jo Anne Van Tilburg and John C. Bretney. Motif data entry was accomplished by Audrey Kopp along with Gordon Hull.
5 Rock art on the northern boundary of Little Lake Ranch was surveyed during reconnaissance of the area in 2007. Locus 2 is reserved as the filing designation for the inventory of this area, and the paint found there is not included in our analysis. Some petroglyphs in Locus 2 are considered in the bighorn sheep analysis (Van Slyke and White, this volume).
6 In most cases the panel measurement is the actual painted surface. In some it represents the panel as a whole, including petroglyphs. When Panel 119, which is large and skews the data somewhat, is deleted, the mean for 39 panels becomes 32 × 26 cm.
7 Red painted motifs in several styles appear in rock art and architecture in the Republic of Belau, Micronesia, and it is ethnographically known that guides were employed to draw certain types of straight and curved lines (Van Tilburg 1991). While there is no documentation of that in the Great Basin, there is no reason to doubt that a careful artist, especially one working in paint, might wish to temporarily create such an aid with the materials at hand.
8 In some cases, photographs of painted rock art were digitally manipulated to reveal traces of paint that would otherwise be invisible to the naked eye. Digital photographs and digital scans of traditional film photographs generally use the red, green, and blue channel (RGB) color model. After color correction, select panel photographs were converted from RGB to an alternative color mode known as Lab, which uses three channels: (1) luminance (L channel), (2) green to magenta (a channel), and (3) blue to yellow (b channel). It has been found that by discarding the luminance component and manipulating the contrast of the chromatic components (or, in some cases, discarding one chromatic component altogether), specific hues of color in a painted panel can be effectively isolated and enhanced. This procedure results in a very high-contrast black-and-white image in which the color of interest (most often red, the predominant color at Little Lake) is reproduced as either pure black or pure white, and all other colors are reproduced as shades of gray.
9 In a survey of monolithic stone sculpture and rock art in the Republic of Belau (n. 8 above), Van Tilburg (1991) and David C. Ochsner used ultraviolet fluorescence photography to record extensive red painted symbols on the ceiling of a cave in the Rock Islands.
10 A photograph of this oval cobble with paint is included in our Museum Studies Database, RAA.
11 Pagunda was excavated as a UCLA field school directed by George Gumerman IV in 1990, 1991, and 1992 (Pearson 1995). Van Tilburg examined the collections that resulted from this work. A review in 2009 of the "Archaeological Field Catalog" (Acc 872, Folder 1, George Gumerman IV, 1991–1993) revealed "mineral pigment," "pigment fragment," or "red ochre" listed in the catalog compiled by various UCLA students. All objects were either excavated or screened and attributed to depths ranging from 20–30 cm to 50–60 cm in spatially related Units 27, 35, and 36.
12 "Twelve items, including 10 trimming flakes, the pigment palette, and a milling stone fragment, were recovered from CU 4 between 13 and 40 cm" (Byrd and Reddy 2004:182). "A total of seven charcoal samples was submitted for radiocarbon dating (three from CU 2 and four from CU 4). The results revealed a relatively tight range of occupation between 1,100 and 1,400 years ago. This demonstrates occupation during the Haiwee Period, and this is consistent with the dominant projectile points recovered during testing" (Byrd and Reddy 2004:185).
13 Thomas (1983a:310–311) refers to these motifs as "cupules," a term not otherwise applied then or now. They are vulva forms.
14 The hoods of contemporary Western Mono cradle baskets (*huup*)—one with a chevron pattern (denoting the baby's male gender) by Leona Chepo and another by Lois Jean Conner with a diamond pattern (denoting female)—were each daubed with "red earth pigment" (Bibby 2004:70–73). According to Chepo, the red dots "are made from a pigment that was gathered on the east side of the Sierra" (Bibby 2004:71–72). "While there is no standard interpretation for what the red spots on the hood symbolize, Mono elder Francys Sherman indicated they represented the body, the woman's blood" (Bibby 2004:72).
Whitley (1994c; 2000a:86–87) refers to painted rock art "between Los Angeles and the Mexican border" for which the "primary purpose" of ceremonies associated with the sites was securing the "phallic rattlesnake" as a "single spirit helper" in "an inversion of gender symbols" (see Quinlan 2000a, 2000b for comment). According to Bean (1992:28–29), these ceremonies marked the onset of menstruation as a life crisis in which the power emanating from the girls was "in a highly chaotic state and very dangerous to the community," thus requiring controls applied by a [male or female?] shaman. However, these ceremonies are not ethnographically known in our study area.

CHAPTER 8

1 As a brief archaeological example of aesthetic links and continuity, Eastern California Museum holds several small, incised and scratched stones from the Keeler area (Baldwin n.d.; Steward 1938:275, Figure 7; Thomas 1983a, 1983b, 1983c). A scoria fragment with an incised chevron design is from Ayers Rock (Whitley, Whitley, and Simon 2005: 93–94, Figure 33). Lanning (1963:249, Figure 3) describes three "stone tablets" from Rose Spring (CA-INY-372) Burial 2. It has "naturally polished surfaces" on each of which are "several deep scratches which might be part of a lightly incised design." Davis (1963:299) describes a "thin, flat oval-shaped piece of black slate" with "random narrow, shallow scratches, both hatched and crosshatched, on one naturally smoothed face." It had a "drilled perforation on the margin." Cleland (2006:92, Figure 6) notes crosshatch and other motifs on a flat stone from CA-IMP-5067.
2 Gayton (1948:67–69, Figure 8d) describes Central Foothills Yokuts ceremonial regalia "usually worn by shamans when engaged in public dances or rituals" but does not report any symbolic meaning for any part of the costume other than "special supernatural power" for "weaselskin bands" worn around each wrist. She further states that "such dress was not exclusively a shaman's but might be owned by any person who had need of it" (Gayton 1948:69).
3 Females underwent an ordeal at "about the age of 14" when, after "swallowing live ants in balls of eagle-down, the participants were bidden to lie quietly in the sun all day" (Zigmond 1986:405).
4 Clarification of "shamanism" as a "disputed word" is less important when accepted as a description of a "human universal" (Lewis-Williams 2002:132). Lewis-Williams (2002:132–133) further maintains that the word no more obscures the diversity of practice it encompasses than the word "Christianity" obscures the differences between all the various incarnations of that religion. We disagree. Theological, ritual, institutional, and social differences in the practices of all beliefs lie at the heart of sacred and secular

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identity, and defining such differences among human societies is one of the very reasons anthropology exists. Irwin (2008:9) makes the case for what he calls "ethnotheology."

5 Whenever the induced trance state was observed during a performance, it made such a strong impression on non-Native viewers that phrases such as "as if dead" and "dead to the world" were used to describe it (Irwin 2008:305).

6 The decoration on the *taarabigadi* basket, used exclusively for the Jimson weed brew of the Kawaiisu, is identified with a small-necked jar basket adorned with quail top knot plumes—*taara* is the onomotopoetic name for the quail (Garfinkel and Williams 2011:86). During the version of this ceremony for females, puberty-pregnancy taboos were invoked and "the [Jimson weed] drink was administered by an older person who told about the old days and scattered beads as he or she led the drinker to bed under constant watch . . . at least until the next morning" (Zigmond 1986:404). O'Donnell, Sutton, and Robinson (1997:113-115) speculate on the Kitanemuk use of fiddleneck seeds as a hallucinogen at a remote site known as Eggshell Cave (CA-Ker-341). They suggest that the seeds were administered by an adept to boys for the purpose of acquiring supernatural power. The ceremony may also have involved fasting, the inducement of a state of unconsciousness or coma, as well as offerings of tobacco, feather down, and beads. Interestingly, the offerings were placed in five piles, the same number as the brush piles that feature in the Owens Valley Paiute girls' puberty ceremonies.

7 Langenwalter (1980:240) cites Bean (1975:29), noting that a shaman's bundle (as distinct from a sacred clan bundle) has personal importance "because it is symbolic of his power over the community in which he lives." Langenwalter (1980, citing Strong 1929) mentions "sacred clan" bundles very similar to shamans' kits but representing the symbolic center of an ethnic group termed a "clan."

8 These data are at the RAA. Included are images of twined and coiled basketry fragments from Little Lake in the collection of the ANC identified as 23.F.2223–23.F.2227, 23.F.2228 (Finger, this volume).

9 Among Yokuts groups, the zigzag or "arrowhead" pattern was similarly used for boys and connecting diamonds for girls (Bibby 2004:132 n. 11).

CHAPTER 9

1 Correspondence, D. C. Cragen to E. Grose 1965, on file at ECM; Thormann 1996.

2 "It took about 15 hours to make the run of 105 miles from Mojave to Keeler," according to stage driver E. Grose (correspondence, E. Gross to D. C. Cragen, 12 August 1965, on file at ECM).

3 News stories describing the fire are filed with ECM, and include Forstenzer 1992; Geltner 1992a, b, c, 1993; Guinn 1992.

4 ECM has information on file describing the demolition, including a newspaper account (Ellis 2001) and a Draft Negative Declaration of Environmental Impact (Inyo County Building and Safety Department 2001).

CHAPTER 10

1 Historic Preservation Committee of the Timbisha Shoshone Tribe 1994:5.

2 M-165 is a site location that Rogers assigned when the artifacts came to the museum. The map in the museum files shows the same area as McCown's map and the fieldwork dates are the same, thus confirming that the museum's objects were collected by McCown (Ken Hedges, personal communication 2009). See Chapter 2, nn. 13, 14, 17, for more on McCown and McCown collections in the San Bernardino County Museum.

3 In Pomo basketry with circular designs, the dau "is an intentional break in the continuity of the design . . . where an altogether different design is inserted" (Purdy 1903:321). According to Pomo mythology, a particular race of spirits inhabited the baskets, and they needed the dau, or door, to escape through when the basket was destroyed (Purdy 1903:321).

4 UCD Merriam Collection catalog card 583.

CHAPTER 11

1 "Of all the traits commonly regarded as Numic diagnostics, brown ware [*sic*] ceramics appear to be the single best indicator of Numic affiliation" (Reed 1994:195). This is the case in our region, but "there is no Brownware in Northern Nevada at late sites, for instance" (Eric Ritter, personal communication 2010). Desert Side-notched points may be a better Numic diagnostic, but they also occur "in non-Numic areas like Northern California" (Eric Ritter, personal communication 2010).

2 Owens Valley Paiute food plants (Steward 1933b:242–246) at Little Lake Ranch today include wild rye (*Elymus* sp.), Mormon tea (*Ephedra nevadensis*), sunflower (*Helianthus* sp.), ricegrass (*Achnatherum hymenoides*), chia (*Salvia columbariae*), and other sages and grasses (Pearson 1995:44).

3 Kerr (Irwin 1980: n. 90) gives the Shoshone word for pottery as "*pa'tsakwi'up* or *pa'shakwinup*." Steward (1933b:268) reported that an "old Death Valley Shoshoni man" made pottery and "recently revived the art commercially." Male ethnographers were often directed by women to speak to senior male relatives. In 1936, Shoshone consultant Charlie Wrinkle described pottery making to Mark Kerr (Irwin 1980:28). "Terra-cotta or rude earthen-ware" was used historically by Owens Valley peoples ("Mr. Farley" quoted by A. S. Taylor, *California Farmer* 1860, Vol. 14, No. 17 (R. F. Heizer, Special Collection 1979, Album 6, RAA).

4 The Owens Valley Paiute used clay (*winavi*) "reddish in color" that was obtained from special places such as Fish Springs. The "chief source" of Owens Valley Paiute pots and clay pipes was Big Pine; both were "traded elsewhere for shell money, food, etc." (Steward 1938:266–269).

5 Lanning (1963:245–246) recovered 172 Owens Valley Brownware sherds in the upper 59 cm of the deposit at the Rose Spring site (CA-INY-372) and notes that "vessel interiors are sometimes scored in such a way as to suggest smoothing with a stiff-bristled brush, rather than with a scraping tool." Pottery in the Gumerman collection from Pagunda examined by Van Tilburg includes body sherds with interior and exterior striations.

6 Pottery objects in the Gumerman UCLA collection for Pagunda are given in 26 entries in his "Archaeological Field Catalog" (INY 3826, Acc 872 Folder 1). Of these, one with incised chevron designs is reported and drawn but not included in the collection. The rim sherd with "incised fingernail design" (Item 442) is our Figure 11.3.

7 The pot was found by Jake (10 years old) and Luke (12 years old) with their mother Kathryn Paddock as well as Peter Adee and Brett Lloyd (E. Younkin, personal communication to Van Tilburg, 11 June 2003).

8 Russ Kaldenberg, Jim Pearson, and Elva Younkin, among others, joined the RAA crew on site.

9 In a sample of 284 rock art site reports for Inyo, Kern, and Tulare counties (RAA), only 31 sites noted ceramic scatter; three reported pottery and two specified Owens Valley Brownware. If San Bernardino County site reports are included, there are only 22 more sites with pottery given (albeit of different types; Christensen and Dickey 1996:29, Figure 10, for the East Mojave). Even with incomplete site files and unobservant recorders, this is minor co-occurrence with no direct association such as we have at Pottery Slope.

10 Twenty Pottery Slope panels recorded prior to our GPS mapping effort are not included in this analysis or were not relocated. Those are Panels 9, 21, 101, 104–106, 109, 111, 113–114, 119–120, 122–125, 151, 167, and 170–171. Some of them appear in the scratching analysis, which includes 108 panels (Reed, this volume).

11 Gumerman n.d., "Archaeological Field Catalog" (INY 3826, Acc 872, Folder 1).

12 Gumerman n.d., "Archaeological Field Catalog" (INY 3826, Acc 872, Folder 1); visual examination by Van Tilburg.

13 Two red clay, unfired "tabular pieces" incised on both sides with horizontal and vertical groups of parallel lines are also from Horizon 3, Gatecliff Shelter (Bennyhoff and Hughes 1983:308, Figure 152).

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V A R I A

Appendix

Guide to the Little Lake Special Collection at the UCLA Rock Art Archive

Deidre Whitmore

The UCLA Rock Art Archive currently holds 14 named Special Collections. They accomplish the Archive's goals and donors' requests of maintaining the narratives associated with each unique collection via their relation to field notes, personal correspondence, and varying forms of accumulated metadata. The Little Lake Special Collection within this anthology has the unique status of being archived while the project was occurring and accordingly encompasses a range of item categories describing both the field and archival methods with detailed notes pertaining to each item. Items were grouped into thirteen category types and ordered chronologically within archival safe albums and boxes.

This appendix provides a guide to the materials within the collection. Each item's location within the RAA and the date the item was originally collected is listed. The Attached Location ID provides the reference location as seen in the material files while the Revised Location ID provides the locus designation (Table 3.1, this volume). Correspondence associated with the Little Lake project is not contained within these volumes but has been compiled and recorded in the UCLA Rock Art Archive Correspondence Catalog by Ed Schoch.

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Category	Archive Location	Date	Attached Location ID	Revised Location ID	Brief Description
Project Notes	Intro Item 1				Motif analysis definition key, scratching, and project beginning
Project Notes	Intro Item 2				Naming conventions
Project Notes	Intro Item 3				Site record files
Project Notes	Intro Item 4				Unpublished manuscript files
Project Notes	Intro Item 5				Heizer Collection references
Project Notes	Intro Item 6				Photograph searches
Project Notes	Intro Item 7				Team contact information
Project Notes	Intro Item 8				Archive and field methods
Project Notes	Intro Item 9				Book references
Project Notes	Intro Item 10				Researched materials (general)
Project Notes	Intro Item 11				Researched materials (ethnographic)
Project Notes	Intro Item 12				Researched materials (style)
Historic Record	Box 1 Item 1	1959	Atlatl Cliff	INY-389	UC Archaeological Survey Record
Historic Record	Box 1 Item 2	1966-1967			Santa Barbara Museum of Natural History Survey Record
Historic Record	Box 1 Item 3	1976	Atlatl Cliff	INY-389	BLM Survey Record
Slides	Box 1 Item 4	1978			Various
Field Notes	Box 1 Item 5	1978			Field data and record sheet
B/W Prints Color Prints	Box 1 Item 6	1993	INY-389 Section 1	INY-389 Group 1	Inventory of Section 1:1-1a through 1-73
Slides	Box 1 Item 7	1993	INY 389 Locus 1	INY-389 Group 1	Inventory of Locus 1: 1-1a through 1-51
Maps and Mapping	Box 1 Item 8	1993	INY-389 Locus1	INY-389 Group 1	Data and loci maps
B/W Prints	Box 1 Item 9	1993	INY-389 Locus 2	INY-389 Group 2	Inventory of Locus 2: 2-1a through 2-22
Historic Record	Box 1 Item 10	1993	INY-389	INY-389	J. C. von Werlhoff 1959 site record
Archival Notes	Box 1 Item 11	1997			Digital image instructions
Photographic Notes and Log	Box 1 Item 12	1997	Atlatl Cliff, Locus 1, Locus 2	INY-389, INY-389 Group 1, INY-389 Group 2	Photo record forms and log
B/W Prints Color Prints	Box 1 Item 13	1997	Locus 1, Locus 2	INY-389 Group 1, INY-389 Group 2	Negatives, contact sheet and prints
Slides	Box 2 Item 1	1997	Atlatl Cliff, Locus 1 and Locus 2	INY-389 Group 1, INY-389 Group 2	Slides
Field Notes	Box 2 Item 2	1997			R. Miller notes and sketches
Archival Notes	Box 2 Item 3	1997	Atlatl Cliff, Locus 1	INY-389 Group 1	Atlatl Cliff analysis
B/W Prints	Box 2 Item 4	1997	Cove A and Cove C	INY-3826 Locus 1, INY-3826 Locus 2	Negatives and prints
Slides	Box 2 Item 5	1997	Cove A and Cove B	INY-3826 Locus 1, part of INY-3826 Locus 5	Slides
Field Notes	Box 2 Item 6	1997	Cove A	INY-3826 Locus 1	Sketch of Panel 23 (A-1-23)
Color Prints	Box 2 Item 7	1997			Negatives and prints of overviews
Maps and Mapping	Box 2 Item 8	1997	Locus 2	Locus 2 became part of INY-3826 Locus 5	Maps of panel locations
Slides	Box 2 Item 9	1997	Cove C	INY-3826 Locus 4	Slides
Field Notes	Box 2 Item 10	1997			Notes and sketches from various loci
Photographic Notes and Log	Box 3 Item 1	1997	Cove A, Cove C	INY-3826 Locus 1, INY-3826 Locus 4	Photo record forms
Field Notes	Box 3 Item 2	1997			Notes from various loci
Archival Notes	Box 3 Item 3	1997	Cove C, Cove A	INY-3826 Locus 4, INY-3826 Locus 1	Digital image data sheets
Maps and Mapping	Box 3 Item 4	1997			Distribution maps and analysis
Field Notes	Box 3 Item 5	1997			Survey and researched material
Slides	Box 3 Item 6	1997	Inyo 23, Locus 5, Atlatl Cliff	Part of INY-3826, INY-3826 Locus 5, INY-389	Slides

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Category	Archive Location	Date	Attached Location ID	Revised Location ID	Brief Description
Slides	Box 3 Item 7	1998	Stahl Site, Atlatl Cliff, Cove C cave	INY-182, INY-389, INY-3826 Locus 3	Slides and negatives
Color Prints	Box 3 Item 8	1998	Cove A and cave	INY-3826 Locus 1, INY-3826 Locus 3	Prints
Slides	Box 3 Item 9	1998	Locus 1	INY-389 Group 1	Slides at dusk and dawn
Motif Analysis	Box 3 Item 10	1998	Atlatl Cliff	INY-389	Visual Definition Key
Motif Analysis	Box 4 Item 1	1999	Atlatl Cliff	INY-389	Visual Definition Key and Summary
Archival Notes	Box 4 Item 2	1999	Cove A	INY-3826 Locus 1	Notes
Slides	Box 4 Item 3	1999	Cove A cave	INY-3826 Locus 3	Slides
Photographic Notes and Log	Box 4 Item 4	1999	Cove A	INY-3826 Locus 1	Photo record sheet
Archival Notes	Box 4 Item 5	1999	INY-23	part of INY-3826	Notes
Color Prints	Box 4 Item 6	1999	Cove A	INY-3826 Locus 1	Prints
Photographic Notes and Log	Box 4 Item 7	1999	Cove A	INY-3826 Locus 1	Photo record sheet
Archival Notes	Box 4 Item 8	1999	Cove A	INY-3826 Locus 1	Notes
Slides	Box 4 Item 9	1999	Cove A	INY-3826 Locus 1	Slides
Archival Notes	Box 4 Item 10	1999	Cove C	INY-3826 Locus 4	Notes
Photographic Notes and Log	Box 4 Item 11	1999	Cove C	INY-3826 Locus 4	Photo record sheet and log
Slides	Box 4 Item 12	1999	Cove C, cave	INY-3828 Locus 4 and INY-3826 Locus 3	Slides
Archival Notes	Box 4 Item 13	1999	Stahl Site and Cove C/Locus 4	INY-182 and INY-3826 Locus 4	Notes
Photographic Notes and Log	Box 4 Item 14	1999	Locus 19, Stahl Site, Cove A and Cove C	INY-3826 Locus 7, INY-182, INY-3826 Locus 1, INY-3826 Locus 4	Photo record sheet and log
Slides	Box 4 Item 15	1999	Stahl Site and Cove C	INY-182, INY-3826 Locus 4	Slides
Photographic Notes and Log	Box 4 Item 16	1999	Cove C	INY-3826 Locus 4	Photo record sheet and log
Archival Notes	Box 4 Item 17	1999	Cove C / Locus 4	INY-3826 Locus 4	Notes
Slides	Box 4 Item 18	1999	Cove C	INY-3826 Locus 4	Slides
Archival Notes	Box 4 Item 19	1999	Cove C / Locus 4	INY-3826 Locus 4	Notes
Photographic Notes and Log	Box 4 Item 20	1999	Cove C	INY-3826 Locus 4	Photo record sheet and log
Slides	Box 4 Item 21	1999	Cove C	INY-3826 Locus 4	Slides
Photographic Notes and Log	Box 4 Item 22	1999	Cove C	INY-3826 Locus 4	Photo record sheet and log
Archival Notes	Box 4 Item 23	1999	Cove C / Locus 4	INY-3826 Locus 4	Notes
Slides	Box 4 Item 24	1999	Cove C	INY-3826 Locus 4	Slides
Field Notes	Box 4 Item 25	1999	Stahl Cave	INY-182	Notes
Color Prints	Box 4 Item 26	1999	Cove A	INY-3826 Locus 1	Prints
Field Notes	Box 4 Item 27	1999	Cove A	INY-3826 Locus 1	Notes
Motif Analysis	Box 4 Item 28	1999	Cove A and Cove C	INY-3826 Locus 1, INY-3826 Locus 4	Motif inventory form
Photographic Notes and Log	Box 4 Item 29	1999	Atlatl Cliff	INY-389	Photo record sheet and log
Motif Analysis	Box 5 Item 1	1999	Locus 7	INY-3826 Locus 7	Summary of Locus 7
Field Notes	Box 5 Item 2	1999			Sketches from various loci
Photographic Notes and Log	Box 5 Item 3	1999	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Color Prints	Box 5 Item 4	1999	Locus 19	INY-3826 Locus 7	Prints
Slides	Box 5 Item 5	1999	Locus 19	INY-3826 Locus 7	Slides and negatives
Field Notes	Box 5 Item 6	2000			Sketches from various loci

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Category	Archive Location	Date	Attached Location ID	Revised Location ID	Brief Description
Motif Analysis	Box 5 Item 7	2000	Locus 19	INY-3826 Locus 7	Data and motif analysis
Field Notes	Box 5 Item 8	2000	Locus 19	INY-3826 Locus 7	Notes
Photographic Notes and Log	Box 5 Item 9	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Motif Analysis	Box 5 Item 10	2000	Locus 19	INY-3826 Locus 7	Data and motif analysis
Photographic Notes and Log	Box 5 Item 11	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Color Prints	Box 5 Item 12	2000	Locus 19	INY-3826 Locus 7	Prints, negatives and notes
Photographic Notes and Log	Box 5 Item 13	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Slides	Box 5 Item 14	2000	Locus 19	INY-3826 Locus 7	Slides
Photographic Notes and Log	Box 5 Item 15	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Slides	Box 5 Item 16	2000	Locus 19	INY-3826 Locus 7	Slides
Photographic Notes and Log	Box 5 Item 17	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Slides	Box 5 Item 18	2000	Locus 19	INY-3826 Locus 7	Slides
Photographic Notes and Log	Box 5 Item 19	2000	Locus 19	INY-3826 Locus 7	Photo record sheet and log
Slides	Box 5 Item 20	2000	Locus 19	INY-3826 Locus 7	Slides
Archival Notes	Box 6 Item 1	2001			Database instructions and organization
Field Notes	Box 6 Item 2	2001	Locus 19	INY-3826 Locus 7	Audit lists
Slides	Box 6 Item 3	2001	Locus 19	INY-3826 Locus 7	Slides
Photographic Notes and Log	Box 6 Item 4	2001	Picnic Area	INY-3826 Locus 8	Photo record sheet and log
Slides	Box 6 Item 5	2001	Picnic Area	INY-3826 Locus 8	Slides
Photographic Notes and Log	Box 6 Item 6	2001	Picnic Area	INY-3826 Locus 8	Photo record sheet and log
Slides	Box 6 Item 7	2001	Picnic Area	INY-3826 Locus 8	Slides
Photographic Notes and Log	Box 6 Item 8	2001	Picnic Area	INY-3826 Locus 8	Photo record sheet and log
Slides	Box 6 Item 9	2001	Picnic Area	INY-3826 Locus 8	Slides
Photographic Notes and Log	Box 6 Item 10	2001	Picnic Area	INY-3826 Locus 8	Photo record sheet and log
Slides	Box 6 Item 11	2001			Slides of Panel 64
Archival Notes	Box 6 Item 12	2001			Notes from various loci
Slides	Box 6 Item 13	2001	Locus 5, Locus 8	INY-3826 Locus 5, INY-3826 Locus 8	Slides
Archival Notes	Box 6 Item 14	2001			Notes from various loci
Photographic Notes and Log	Box 6 Item 15	2001	Picnic Area	INY-3826 Locus 8	Photo record sheet and log
Field Notes	Box 6 Item 16	2001	Atlatl Cliff	INY-389	Notes
Color Prints	Box 6 Item 17	2001	Picnic Area, Locus 2	INY-3826 Locus 8, INY-389 Group 2	Prints and negatives
Color Prints	Box 6 Item 18	2001	Picnic Area	INY-3826 Locus 8	Prints and negatives
Color Prints	Box 6 Item 19	2001	Picnic Area and Locus 5 / Lakeshore	INY-3826 Locus 8 and INY-3826 Locus 5	Prints
Slides	Box 6 Item 20	2001	Lakeshore / Locus 5	INY-3826 Locus 5	Slides
Archival Notes	Box 6 Item 21	2001	Cove A, Locus 1	***	Notes
Color Prints	Box 7 Item 1	2001	Lakeshore / Locus 5	INY-3826 Locus 5	Prints and negatives
Photographic Notes and Log	Box 7 Item 2	2001	Lakeside	INY-3826 Locus 5	Photo record sheet and log
Field Notes	Box 7 Item 3	2001	Lakeshore	INY-3826 Locus 5	Notes on panel locations
Archival Notes	Box 7 Item 4	2001	Atlatl Cliff North	INY-388	Notes

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Category	Archive Location	Date	Attached Location ID	Revised Location ID	Brief Description
Field Notes	Box 7 Item 5	2001	Lakeshore	INY-3826 Locus 5	Notes
Archival Notes	Box 7 Item 6	2001	Lakeshore (Locus 5)	INY-3826 Locus 5	Notes
Color Prints	Box 7 Item 7	2001	Lakeshore	INY-3826 Locus 5	Prints
Field Notes	Box 7 Item 8	2001			Data analysis, loci designation and sketches
Slides	Box 7 Item 9	2001	Atlatl Cliff, Locus 19	INY-389, INY-3826 Locus 7	Slides
Field Notes	Box 7 Item 10	2002	Atlatl Cliff, Locus 1, Cove A, Locus 2	INY-389, INY-389 Group 1, INY-3826 Locus 1, Atlatl Cliff Group 2	Notes
Field Notes	Box 8 Item 1	2002			Task lists for various loci
Photographic Notes and Log	Box 8 Item 2	2002			Photo record sheet and log
Color Prints	Box 8 Item 3	2002			Prints (corresponding disc in drawer)
Field Notes	Box 8 Item 4	2002	Locus 7	INY-3826 Locus 7	Sketches
Slides	Box 8 Item 5	2002	Atlatl Cliff and Pottery Slope	INY-389 and INY-388	Slides
Color Prints	Box 8 Item 6	2002	Pottery Slope	INY-388	Prints and negatives of pot recovery
Archival Notes	Box 8 Item 7	2002			Notes
Archival Notes	Box 8 Item 8	2002			Notes on panoramas
Color Prints	Box 9 Item 1	2002			Prints
Color Prints	Box 9 Item 2	2002			Prints of pot recovery
Color Prints	Box 9 Item 3	2002			Prints of fauna
Slides	Box 9 Item 4	2002			Slides at dusk
Slides	Box 9 Item 5	2002			Slides for paint analysis
Field Notes	Box 9 Item 6	2002	Locus 7	INY-3826 Locus 7	Sketches
Field Notes	Box 9 Item 7	2002	Atlatl Cliff	INY-389	Notes
Archival Notes	Box 9 Item 8	2002	Atlatl Cliff	INY-389	Notes
Negatives	Box 9 Item 9	2004	Picnic Area, Cove C, Locus 7	INY-3826 Locus 8, INY-3826 Locus 4, INY-3826 Locus 7	Negatives of panorama
Field Notes	Box 9 Item 10	2005			Task lists for various loci
Photographic Notes and Log	Box 9 Item 11	2005	Cove B, Cove C, Locus 7	part of INY-3826 Locus 5, INY-3826 Locus 4, INY-3826 Locus 8	Photo record sheet and log
Color Prints	Box 9 Item 12	2005			Prints of various loci, flora and fauna
Field Notes	Box 9 Item 13	2005	Pottery Slope	INY-388	Sketches
Color Prints	Box 10 Item 1	2005			Scratch and sheep shots
Archival Notes	Box 10 Item 2	2005			Database tasks
Field Notes	Box 10 Item 3	2007			Patination study
Archival Notes	Box 10 Item 4	2010			Discrepancy report
Slides	Box 10 Item 5				Slides selected for website
Negatives	Box 10 Item 6				Negatives
Motif Analysis	Box 10 Item 7				Motif analysis chart
Maps and mapping	Box 11 Item 1		Locus 7, Cove A, Cove C	INY-3826 Locus 7, INY-3826 Locus 1, INY-3826 Locus 4	Mapping data and results
Field Notes	Box 11 Item 2				Field records for digital media
Field Tracings	Box 12		Cove C, Rock B, Picnic Area and Locus 7	INY-3826 Locus 4, part of INY-3826 Locus 5, INY-3826 Locus 8, INY-3826 Locus 7	Tracings
Field Tracings	Box 13	2004	Locus 1	INY-389 Group 1	Tracings of Locus 1, Panels 1-11 to 1-35b
Field Tracings	Box 14	2004	Locus 1	INY-389 Group 1	Tracings of Locus 1, Panels 1-36 to 1-52
Field Tracings	Box 15	2004	Locus 1	INY-389 Group 1	Tracings of Locus 1, Panels 1-54 to 1-102
Field Tracings	Box 16	2004	Locus 1	INY-389 Group 1	Tracings of Locus 1, Panels 1-114 to 1-125d

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Category	Archive Location	Date	Attached Location ID	Revised Location ID	Brief Description
Field Tracings	Box 17	2004	Locus 2	INY-389 Group 2	Tracings of Locus 2, Panels 2-1a to 2-22
Field Tracings	Box 18	2004	Locus 5	INY-3826 Locus 5	Tracings of Locus 5, Panel 310
Field Tracings	Box 19	2004	Cove C	INY-3826 Locus 4	Tracings
Field Tracings	Box 20	2004	Cove C	INY-3826 Locus 4	Tracings
Field Tracings	Box 21	2004	Cove C	INY-3826 Locus 4	Tracings
Museum Studies	Box 22	2006			Records and documentation from CSM, PAHMA, ANC and NMNH
Museum Studies	Box 23	2006			Records and documentation from NMAI, HML and Little Lake/UCLA Field School Collections, Gumerman ACC 872
Discs	Drawer 2	2001 - 2011	All Loci	All Loci	Discs of images and data

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Bibliography

Adovasio, J. M.
1986 Prehistoric Basketry. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 194–205, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Adovasio, J. M., and D. R. Pedler
1994 A Tisket, a Tasket: Looking at the Numic Speakers through the "Lens"of a Basket. In *Across the West Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 114–123. Salt Lake City: University of Utah Press.

Adovasio, J. M., and R. L. Andrews
1983 Material Culture of Gatecliff Shelter: Basketry, Cordage, and Miscellaneous Fiber Constructions. In *Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 279–289. The Anthropological Papers 59(1). New York: American Museum of Natural History.

Aikens, M. C.
1994 Adaptive Strategies and Environmental Change in the Great Basin and Its Peripheries as Determinants of the Migrations of Numic Speaking Peoples. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 35–43. Salt Lake City: University of Utah Press.

Allen, M. W.
2006 In the Footsteps of Malcolm Rogers: Archaeological site Recordation at Indian Spring, South Range, China Lake Naval Air Weapons Station. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, *Maturango Museum Publication 20*, edited by R.L. Kaldenberg, pp. 33–40. Ridgecrest, California: Maturango Museum.

Ames, K.
2007 The Archaeology of Rank. In *Handbook of Archaeological Theories*, edited by R. A. Bradley, D. G. Mascher, and C. Chippendale, pp. 487–513. Lanham, MD: AltaMira Press.

Amsden, C. A.
1937 The Lake Mojave Artifacts. In *The Archaeology of Pleistocene Lake Mojave*, pp. 51–98. Southwest Museum Papers 11. Los Angeles: Southwest Museum.

Anderson, M. K.
2009 An Ecological Critique. In *Forgotten: Fires Native Americans and the Transient Wilderness*, by Omer C. Stewart, edited by H. T. Lewis and M. K. Anderson, pp. 37–64. Norman: University of Oklahoma Press.

Andrews, S. B.
1977 Pictographs of the Tubatulabal. *Kern County Archaeological Society Journal* 1:33–42.

Apostolides, A.
1975 Recording Rock Art. *The Artifact* 13(1):31–35.

Arkush, B. S.
1990 The Protohistoric Period in the Western Great Basin. *Journal of California and Great Basin Anthropology* 12(1):28–30.

Armstrong, L., and E. Ray
n.d. Little Lake Hotel—1860 to Present. *Saga of Inyo County* 23. Manuscript on file, Eastern California Museum Collection.

Arnold, D. E.
1985 *Ceramic Theory and Cultural Process*. Cambridge: Cambridge University Press.

Arnold, J. E.
1993 Labor and the Rise of Complex Hunter-Gatherers. *Journal of Archaeological Science* 12:75–119.

Austin, D.
2005 *The Stahl Site Petroglyphs: New Observations and Comments*. Electronic document, *http://www.petroglyphs.us/article_stahl_site_petroglyphs.htm*.

Austin, M.
1903 *The Land of Little Rain*. Boston: Houghton Mifflin.

Backes, C. J., Jr.,
2004 More than Meets the Eye: Fluorescence Photography for Enhanced Analysis of Pictographs. *Journal of California and Great Basin Anthropology* 24(2):193–206.

Bacon, S. N., R. M. Burke, S. K. Pezzopane, and A. S. Jayko
2006 Last Glacial Maximum and Holocene Lake Levels of Owens Lake, Eastern California, USA. *Quaternary Science Reviews* 25(11–12):1264–1282.

Baldridge, W. S.
2004 *Geology of the American Southwest, A Journey through Two Billion Years of Plate-Tectonic History*. Cambridge: Cambridge University Press.

Baldwin, C. P.
n.d. Archaeological Exploration and Survey of Southern Inyo County. Manuscript on file, Eastern California Museum Collection.

Basgall, M. E., and M. C. Hall

READ ONLY/ NO DOWNLOAD

2000 Morphological and Temporal Variation in Bifurcate-Stemmed Dart Points of the Western Great Basin. *Journal of California and Great Basin Anthropology* 22(2):237–276.

Bates, C. D.
2004 Cradle Baskets in Southern and Central California: Continuity and Change. In *Precious Cargo: California Indian Cradle Baskets and Childbirth Traditions*, by B. Bibby, pp. 111–134. Novato, CA: Marin Museum of the American Indian and Berkeley/Heyday Books.

Bateson, G.
1973 Style, Grace and Information in Primitive Art. In *Primitive Art and Society*, edited by A. Forge, pp. 235–255. Oxford: Oxford University Press.

Baumhoff, M. A., R. F. Heizer, and A. B. Elsasser
1958 *The Lagomarsino Petroglyph Group (Site-26-1) Near Virginia City, Nevada*. Reports of the University of California Archaeological Survey 43(2). Berkeley: Department of Anthropology, University of California.

Bayman, J. M., R. H. Hevly, B. Johnson, K. J. Reinhard, and R. Ryan
1996 Analytical Perspectives on a Protohistoric Cache of Ceramic Jars from the Lower Colorado Desert. *Journal of California and Great Basin Anthropology* 18:131–154.

Bean, L. J.
1975 Power and Its Applications in Native California. *Journal of California Anthropology* 2(1):25–33.
1992 *California Indian Shamanism*. Anthropological Papers No. 39. Menlo Park, CA: Ballena Press.

Bean, L. J., and S. B. Vane
1992 The Shamanic Experience. In *California Indian Shamanism*, edited by L. J. Bean, pp. 7–20. Menlo Park, CA: Ballena Press.

Bednarik, R. G.
2006 Names and Hyphenation Memes. *Rock Art Research* 23(2): 257–259.

Bednarik, R. G., J. D. Lewis-Willliams, and T. A. Dowson
1990 On Neuropsychology and Shamanism in Rock Art. *Current Anthropology* 31(1):77–84. Wenner-Gren Foundation for Anthropological Research. Chicago: University of Chicago Press.

Benedict, R.
1934 *Patterns of Culture.* Boston and New York: Houghton Mifflin Company.

Bennyhoff, J. A., and R. E. Hughes
1983 Material Culture of Gatecliff Shelter: Shell Beads and Ornaments. In *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 290–309. Anthropological Papers of the American Museum of Natural History 59(1).
1987 Shell Bead and Ornament Exchange Networks between California and the Western Great Basin. *Anthropological Papers of the American Museum of Natural History* 64(2):80–175. New York: American Museum of Natural History.

Bernstein, B.
1979 Panamint Shoshone Basketry: A Definition of Style. *American Indian Art Magazine* 4(4):68–74.
1985 Panamint-Shoshone Basketry, 1890–1960: The Role of Basket Materials in the Development of a New Style. *American Indian Basketry* 5:4–11.

Berryman, S. R., and J. A. Berryman
1979 Initial Studies of the Rock Art Designs within the Little Lake Archaeological Site Area. *Pacific Coast Archaeological Society Quarterly* 15(2):50–60.

Bettinger, R. L.
1976 The Development of Pinyon Exploitation of Central Eastern California. *Journal of California Anthropology* 3(1):81–95.
1980 Review of *The Shoshoni Indians of Inyo County, California: The Kerr Manuscript*, edited, annotated, and with an introductory preface by Charles N. Irwin, *Journal of California and Great Basin Anthropology* 2(2):305–307.
1982 *Archaeology East of the Range of Light: Aboriginal Human Ecology of the Inyo-Mono Region, California*. Monographs in California and Great Basin Anthropology 1. Davis, CA.
1986 Intersite Comparison of Great Basin Brown Ware Assemblages. In *Pottery of the Great Basin and Adjacent Areas*, edited by S. Griset, pp. 97–106. Anthropological Papers 111. Salt Lake City: University of Utah.
1991 Native Land Use: Archaeology and Anthropology. In *Natural History of the White-Inyo Range, Eastern California. California Natural History Guides*, edited by C. A. Hall, Jr., pp. 463–464. Berkeley/Los Angeles: University of California Press.

Bettinger, R. L., and M. A. Baumhoff
1982 The Numic Spread: Great Basin Cultures in Competition. *American Antiquity* 47(3):485–503.

Bettinger, R. L., and J. Eerkens
1999 Point Typologies, Cultural Transmission, and the Spread of Bow-and-Arrow Technology in the Prehistoric Great Basin. *American Antiquity* 64(2):231–242.

Bettinger, R. L., and R. E. Taylor
1974 Suggested Revisions in Archaeological Sequences of the Great Basin in Interior Southern California. *Nevada Archaeological Survey Research Paper* 5:1–26.

Bhattacharyya, J., and J. M. Lees
2002 Seismicity and Seismic Stress in the Coso Range, Coso Geothermal Field, and Indian Wells Valley Region. Southeast-Central California. *Memoir, Geological Society of America* 195:243–257.

Bibby, B.
2004 *Precious Cargo: California Indian Cradle Baskets and Childbirth Traditions*. Berkeley: Heyday Books; Novato, CA: Marin Museum of the American Indian.

Biemiller, L.
2001 Clambering Up a Cliff to Record the Fading Handiwork of Man. Notes from Academe. *The Chronicle of Higher Education* 47(24).

Bierman, P. A., R. A. Gillespie, and S. Kuehner
1991 Precision of Rock-Varnish Chemical Analyses and Cation-Ratio Ages. *Geology* 19(2):135–138.

Bolt, B. A.
1999 *Earthquakes*. New York: W. H. Freeman and Company.

Bosak, J.
1975 Andrew A. Forbes - Photographs of the Owens Valley Paiute. *Journal of California Anthropology* 2(1):38–59.

Bowles, S., E. A. Smith, and M. B. Mulder
2010 Intergenerational Wealth Transmission and Inequality in Premodern Societies. *Current Anthropology* 51(1):7–17.

Boyles, J. C.
1940 Bah-Vanda-Sava-Nu-Kee aka George Hansen, Patriarch of the Panamint Shoshone. *Desert Magazine* 3(4):3–6.

Brasser, T.
1977 The Shaman as Artist. In *Stones, Bones, and Skin: Ritual and Shamanic Art*, edited by A. T. Brodzky, R. Danesewich, and N. Johnson, pp. 38–41. Toronto: Society for Art Publications.

Bright, W., and J. McLaughlin
2003 *Inyo Redux*. Unpublished Works Section, Northern California Indian Development Council. *www.ncidc.org/bright/inyo_redux.doc.*

Brodzky, A. T., R. Danesewich, and N. Johnson, (editors)
1977 *Stones, Bones, and Skin: Ritual and Shamanic Art.* Toronto: Society for Art Publications.

Brown, J. A.
1989 The Beginnings of Pottery as an Economic Process. In *What's New? A Closer Look at the Process of Innovation*, edited by S. E. van der Leeuw and R. Torrence, pp. 203–224. London: Unwin Hyman.

Burton, J.

READ ONLY/ NO DOWNLOAD

1992 A Single-Component Hunting Site near Fish Springs, Owens Valley, California (INY-2596). *Pacific Coast Archaeological Society Quarterly* 28(4):26–45.

Butler, R. B., and D. Osborne
1959 Archaeological Evidence for the Use of Atlatl Weights in the Northwest. *American Antiquity* 25(2):215–224.

Butzer, K. W.
1982 *Archaeology as Human Ecology: Method and Theory for a Contextual Approach*. Cambridge: Cambridge University Press.

Byers, D., and J. Broughton
2004 Holocene Environmental Change, Artiodactyl Abundances, and Human Hunting Strategies in the Great Basin. *American Antiquity* 69(2):235–255.

Byrd, B. F., and S. Reddy
2004 Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, North Little Lake Rehabilitation Projects, U.S. 395, Inyo County California. Prepared for Caltrans.

Campbell, E. W. C.
1931 An Archeological Survey of the Twenty Nine Palms Region. *Southwest Museum Papers* 7:1–93.

Campbell, E. W. C., and C. A. Amsden
1934 The Eagle Mountain Site. *The Masterkey* 8(6):170–173.

Campbell, E. W. C., and W. H. Campbell
1935 *The Pinto Basin Site: An Ancient Aboriginal Camping Ground in the California Desert*. Southwest Museum Papers 9. Los Angeles: Southwest Museum.

Carvalho, M. F. F. M.
2008 Questions and Contributions on Rock Art Developed through the Study of Tagus Valley Ideomorphs. *Annali dell'Università degli Studi de Ferrara*, 43–47. Ferrara, Italy: Museologia Scientifica e Naturalistica.

Castleton, K. B.
1987 *Petroglyphs and Pictographs of Utah* (Volume 2): *The South, Central, West, and Northwest*. Salt Lake City: Utah Museum of Natural History.

Castleton, K. B., and D. B. Madsen
1981 The Distribution of Rock Art Elements and Styles in Utah. *Journal of California and Great Basin Anthropology* 3:13–175.

Chalfant, W. A.
1933 *The Story of Inyo*. Bishop, CA: Community Printing and Publishing. Rev. edition, 1975, Bishop, CA: Pinyon Book Store.

Chambers, Jr., S. A.
2000 *National Landmarks, America's Treasures*. New York: John Wiley and Sons, Inc.

Chapais, B.
2008 *Primeval Kinship: How Pair Bonding Gave Birth to Society*. Cambridge, MA: Harvard University Press.

Chippendale, C., and G. Nash
2004 Pictures in Place: Approaches to the Figured Landscapes of Rock-Art. In *The Figured Landscapes of Rock-Art, Looking at Pictures in Place*, edited by C. Chippendale and G. Nash, pp. 1–36. Cambridge: Cambridge University Press.

Christensen, D. D.
1994 Rock Art and Its Archaeological and Environmental Context: A Study at Opal Mountain. *Pacific Coast Archaeological Society Quarterly* 29(2):27–63.
1999 Style and Individual Identity in Rock Art Inventories. In *Rock Art Papers* 14, edited by Ken Hedges, pp. 95–104. San Diego Museum Papers 36.

Christensen, D. D., and J. Dickey
1996 The Pictographs of the Eastern Mojave Desert of California and Nevada: An Initial Investigation. *Pacific Coast Archaeological Society Quarterly* 32(2,3):1–81.
2001 The Grapevine Style of the Eastern Mojave Desert of California and Nevada. *American Indian Rock Art* 27:185–200.
2004 An Overview of Rock Art Research in the East Mojave Desert. In *The Human Journey and Ancient Life in California's Deserts*, edited by M. W. Allen and J. Reed, pp. 199–210. Ridgecrest, CA: Maturango Museum.

Christensen, D. D., J. Dickey, and D. Lee
2002 The Granite Mountains Archaeological Survey: Prehistoric Land Use in the East Mojave Desert, California. *Pacific Archaeological Society Quarterly* 37(2):1–78.

Cleland, J.
2006 Preservation of Quechan Cultural Sites. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*. edited by R. L. Kaldenberg, pp. 89–93. Maturango Museum Publication 20. Ridgecrest, CA: Maturango Museum.

Clements, T.
1957 Appendix I: Geology of the Little Lake Site. In *A Pinto Site at Little Lake, California*, edited by M. R. Harrington. Southwest Museum Papers No. 17.

Clemmer, R. O.
1989 Differential Leadership Patterns in Early Twentieth-Century Great Basin Societies. *Journal of California and Great Basin Anthropology* 11(1):35–49.

Clemmer, R. O., L. D. Myers, and M. E. Rudden (editors)
1999 *Julian Steward and the Great Basin: The Making of an Anthropologist*. Salt Lake City: University of Utah Press.

Clewlow, C. W., Jr.
1978 Prehistoric Rock Art. In *Handbook of North American Indians*, Vol. 8*: California*, edited by R. F. Heizer, pp. 619–625, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
1981 Rock Art Research in the Great Basin: Some Historical Comments. *Journal of California and Great Basin Anthropology* 3(1):78–83.
1998 The History of California Rock Art Studies. In *Coso Rock Art, A New Perspective*, edited by Elva Younkin, pp. 11–26. Maturango Museum Publication 12. Ridgecrest, CA: Maturango Museum.

Clewlow, C. W., Jr., S. Wallmann, and T. Clewlow
1995 Archaeological Test Investigations at Sites CA-Iny-2844, CA-Iny-2845, and CA-Iny-2847, Inyo County, California. *Technical Publication 8264*. China Lake, CA: Naval Air Warfare Center Weapons Division.

Conkey, M. W.
1980 The Identification of Prehistoric Hunter-Gatherer Aggregation Sites: The Case of Altamira. *Current Anthropology* 21:609–630.

Cook, S. F.
1976 *The Conflict between the California Indian and White Civilization*. Berkeley/Los Angeles: University of California Press.

Coville, F. V.
1892 The Panamint Indians of California. *American Anthropologist* 5(4):351–361.

Cragen, D. C., and E. Grose
1965 Correspondence on file, Eastern California Museum.

Crown, P. L., and W. H. Wills
1995 The Origins of Southwestern Ceramic Containers: Women's Time Allocation and Economic Intensification. *Journal of Anthropological Research* 51:173–186.

Crum, S.
2001 Deeply Attached to the Land. The Owens Valley Paiutes and Their Rejection of Indian Removal, 1863 to 1937. *News of Native California* 14(4):18–20.

Davis, C. A., and G. Smith
1981 *Newberry Cave*. Redlands, CA: San Bernardino County Museum Association.

Davis, E. L.

READ ONLY/ NO DOWNLOAD

1978 *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country.* Science Series 29. Los Angeles: Natural History Museum of Los Angeles County.

Davis, J. T.
1963 Test Excavations at Iny-372. In *Archaeology of the Rose Spring Site (Iny-372)*, by E. P. Lanning. University of California Publications in American Archaeology and Ethnology 49(3), Appendix 5, 296–304. Berkeley/Los Angeles: University of California.

Dean, S. E., P. S. Ratcheson, J. W. Finger, and E. F. Daus, with C. D. Bates
2004 *Weaving a Legacy: Indian Baskets and the People of Owens Valley, California*. Salt Lake City: University of Utah Press.

Delacorte, M. G.
1999 *The Changing Role of Riverine Environments in the Prehistory of the Central-Western Great Basin: Data Recovery Excavations at Six Prehistoric Sites in Owens Valley, California*. Report submitted by Far Western Anthropological Research Group to Caltrans District 9, Bishop, California.

DeMenocal, P. B.
2001 Cultural Responses to Climate Change during the Late Holocene. *Science* 5517:667-73.

Des Lauriers, M. R. and M. Q. Sutton
2010 The Archaeology of Witchstick Cave, Tomo Kahne State Historic Park, California. *Pacific Coast Archaeological Society Quarterly* 44(1):25-31.

Díaz-Andreu, M.
2001 An All-Embracing Universal Hunter-Gatherer Religion? Discussing Shamanism and Levantine Rock-Art. In *The Concept of Shamanis, Uses and Abuses*, edited by H. P. Francfort and R. Hamayon in collaboration with Paul Bahn, pp. 117–134. Bibliotheca Shamanistica, Vol. 10. Budapest: Akadémia Kiadó.

Dissanayake, E.
1988 *What is Art For?* Seattle/London: University of Washington Press.

Dorn, R.
1983 Cation-Ratio Dating: A New Rock Varnish Age-Determination Technique. *Quaternary Research* 20(1):49–73.
1991 Rock Varnish. *American Scientist* 79:542.
1998 Age Determination of the Coso Rock Art. In *Coso Rock Art*, edited by E. Younkin, pp. 69–96. Ridgecrest, CA: Maturango Press.

Dorn, R. I., and T. Oberlander
1982 Rock Varnish. *Progress Physical Geography* 6(3):317–367.

Dorn, R. I., D. B. Bamforth, T. A. Cahill, J. C. Dohrenwend, B. D. Turrin, D. J. Donahute, A. J. T. Jull, A. Long, M. E. Macko, E. B. Weil, D. S. Whitley, and T. H. Zabel
1986 Cation-Ratio and Accelerator Radiocarbon Dating of Rock Varnish on Mojave Artifacts and Landforms. *Science* 231:830–833.

Dragovich, D.
2000 Rock Engraving Chronologies and Accelerator Mass Spectrometry Radiocarbon Age of Desert Varnish. *Journal of Archaeological Science* 27(10):871–876.

Driver, H. E.
1937 Culture Element Distributions, VI: Southern Sierra Nevada. *University of California Anthropological Records* 1(2):53–154.

Drucker, P.
1937 Culture Element Distributions: V. Southern California. *University of California Anthropological Records* 1(1):1–52.

Du Bois, C.
2007 *The 1870 Ghost Dance.* Lincoln, NE/London: University of Nebraska Press.

Duffield, W. A., and C. R. Bacon
1981 Geologic Map of the Coso Volcanic Field and Adjacent Areas, Inyo County, California. U.S. Geological Survey, Miscellaneous Investigations Series Map 1–1200, scale 1:50,000.

Duffield, W. A., and G. I. Smith
1978 Pleistocene History of Volcanism and the Owens River near Little Lake, California. *Journal of Research of the U.S. Geological Survey* 6(3):395–408.

Eerkens, J. W.
2003a Towards a Chronology of Brownware Pottery in the Western Great Basin: A Case Study from Owens Valley. *North American Archaeologist* 24:1–27.
2003b Residential Mobility and Pottery Use in the Western Great Basin. *Current Anthropology* 44:728–738.
2004 Privatization, Small-Seed Intensification, and the Origins of Pottery in the Western Great Basin. *American Antiquity* 69:653–670.
2005 GC-MS Analysis and Fatty Acid Ratios of Archaeological Potsherds from the Western Great Basin of North America. *Archaeometry* 47:83–102.

Eerkens, J. W., H. Neff, and M. D. Glascock
1999 Early Pottery from Sunga'va and Implications for the Development of Ceramic Technology in Owens Valley, California. *Journal of California and Great Basin Anthropology* 20:275–285.
2002 Ceramic Production among Small-Scale and Mobile Hunters and Gatherers: A Case Study from the Southwestern Great Basin. *Journal of Anthropological Archaeology* 21:200–229.

Egan, F.
1985 *Frémont: Explorer for a Restless Nation*. Reprinted. Reno: University of Nevada Press. Originally published 1977, Garden City, NY: Doubleday.

Ellen, R. F.
1984 *Ethnographic Research: A Guide to General Conduct*. Research Methods in Social Anthropology 1. London: Academic Press Ltd.

Ellis, D.
2001 Plan Aims to Boost Habitat. *Inyo Register* (Inyo, CA), 25 August.

Elsasser, A. B., and P. Rhode
1996 Further Notes on California Charmstones. In *Archives of California Prehistory* 38, edited by G. S. Breschini and T. Haverset. Salinas, CA: Coyote Press.

Elston, R. G.
1986 Prehistory of the Western Area. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 135–148, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Ericson, J. E., H. C. Koerper, C. E. Drover, and P. E. Langenwalter II
1989 Advances in Obsidian Hydration Dating and Obsidian Exchange in Prehistoric Orange County. *Pacific Coast Archaeological Society* 25(2):45–60.

Ewers, J. C.
1959 *Adventures of Zenas Leonard, Fur Trader*. Norman: University of Oklahoma Press.

Fagan, B.
1995 *Ancient North America.* London: Thames and Hudson.

Faull, M. R.
2006 Emerging Efforts to Define the Coso Obsidian Economic Exchange System in the Rose, Fremont and Antelope Valleys of the Western Mojave Desert, California. Papers on Desert West Prehistory. *Proceedings of the Society for California Archaeology* 19:156–167.
2007 The Coso Obsidian Economy and Possible Links to Village Establishment and Cultural Transition in the Rose Valley of Eastern California. *Proceedings of the Society for California Archaeology* 20:66–76.

Fewkes, J. W.
1898 Archaeological Expedition to Arizona in 1895. *Bureau of American Ethnology Seventeenth Annual Report to the Secretary of the Smithsonian Institution*. Washington, D.C.: Smithsonian Institution.

Finamore, D.

READ ONLY/ NO DOWNLOAD

2010 Coda: The Sea and the Art. In *Fiery Pool: The Maya and the Mythic Sea*, edited by D. Finamore and S. D. Houston, pp. 290–297. New Haven/London: Peabody Essex Museum.

Finger, J.
2003 Twined Basketry Caps of Eastern California and the Great Basin. *American Indian Art Magazine* 28 (Spring):64–73.

Forstenzer, M.
1992 Empty Spot in the Road—and the Heart. *Los Angeles Times*, 14 September.

Fowler, C. S.
1972 Some Ecological Clues to Proto-Numic Homelands. In *Great Basin Cultural Ecology: A Symposium*, edited by D. D. Fowler, pp. 105–121. Reno: University of Nevada, Desert Research Institute Publications in the Social Sciences.
1983 Some Lexical Clues to Uto-Aztecan Prehistory. *International Journal of American Linguistics* 49(3):224–257.
1986 Subsistence. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 64–97, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
2009 Reconstructing Southern Paiute-Chemehuevi Trails in the Mojave Desert of Southern Nevada and California: Ethnographic Perspectives from the 1930s. In *Landscapes of Movement Trails, Paths, and Roads in Anthropological Perspective*, edited by J. E. Snead, C. L. Erickson, and J. A. Darling, pp. 84–105. Philadelphia: University of Pennsylvania Museum of Anthropology and Archaeology.

Fowler, C. S., and L. E. Dawson
1986 Ethnographic Basketry. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 705–737, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Fowler, C. S., and S. Liljeblad
1986 Northern Paiute. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 435–465, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Fowler, C. S., and N. P. Walter
1985 Harvesting Pandora Moth Larvae with the Owens Valley Paiute. *Journal of California and Great Basin Archaeology* 7(2):155–165.

Francis, J., L. Loendorf, and R. Dorn
1993 AMS radiocarbon and Cation-Ratio Dating of Rock Art in the Bighorn Basin of Wyoming and Montana. *American Antiquity* 58(4):711–737.

Franklin, R., and P. Bunte
1996 Animals and Humans, Sex and Death: Toward a Symbolic Analysis of Four Southern Numic Rituals. *Journal of California and Great Basin Anthropology* 18(2):178–203.

Furst, P. T.
1977 The Roots and Continuities of Shamanism. In *Stones, Bones, and Skin: Ritual and Shamanic Art*, edited by A.T. Brodzky, R. Danesewich, and N. Johnson, pp. 1–28. Toronto: Society for Art Publications.

Garfinkel, A. P.
1978 "Coso" Style Pictographs of the Southern Sierra Nevada. *The Journal of California Anthropology* 5(1):95–101.
2006 Paradigm Shifts, Rock Art Theory, and the Coso Sheep Cult of Eastern California. *North American Archaeologist* 27(3):203–244.
2007 *Archaeology and Rock Art of the Eastern Sierra and Great Basin Frontier*. Ridgecrest, CA: Maturango Press.
2008 Dating *palakuc* (CA-KER-17): A Tübatulabal Pictograph and Fishing Site on the South Fork of the Kern River, Isabella, California. *Archaeological Associates of Kern County Research Report* Number 1. Also published in the *Kern County Archaeological Society Journal* 10:91–98.

Garfinkel, A. P., and J. K. Pringle
2004 Dating the Rock Drawings of the Coso Range: Projectile Point Petroglyphs. In *American Indian Rock Art* 30:1–14.

Garfinkel, A. P., and H. Williams
2010 *The Kawaiisu Handbook: A Sourcebook and Guide to Primary Resources on the Native Peoples of the Far Southern Sierra Nevada, Tehachapi Mountains, and Southwestern Great Basin.* Bakersfield, CA: Wahi Sina'avi Publications.

Garfinkel, A. P., G. Marcom, and R. A. Schiffman
2007 Culture Crisis and Rock Art Intensification: Numic Ghost Dance Paintings and Coso Representational Petroglyphs. *American Indian Rock Art* 33:83–103.

Garfinkel, A. P., R. A. Schiffman, and K. McGuire
1979 *Archaeological Investigations in the Southern Sierra Nevada: The Lamont Meadow and Morris Peak Segments of the Pacific Crest Trail*. Bakersfield, CA: California Bureau of Land Management, Cultural Resources Publications—Archaeology.

Garfinkel, A. P., D. A. Young, and R. M. Yohe II
2010 Bighorn Hunting, Resource Depression, and Rock Art in the Coso Range, Eastern California: A Computer Simulation Model. *Journal of Archaeological Science* 37(1):42–51.

Garfinkel, A. P., D. R. Austin, D. Earle, and H. Williams (*Wokod*)
2009 Myth, Ritual and Rock Art: Coso Decorated Animal-Humans and the Animal Master. *Rock Art Research* 26(2):179–197.

Garfinkel, A. P., J. D. Binning, E. Younkin, C. Skinner, T. Origer, R. Jackson, J. Lawson, and T. Carpenter
2004 The Little Lake Biface Cache, Inyo County, California. *Proceedings of the Society for California Archaeology* 17:87–101.

Gayton, A. H.
1929 Yokuts and Western Mono Pottery-Making. *University of California Publications in American Archaeology and Ethnography* 24(3):239–251.
1930 The Ghost Dance in South-Central California. *University of California Publications in American Archaeology and Ethnology* 28(3).
1948 Yokuts and Western Mono-Ethnography. *University of California Anthropological Records* 47:1–302.

Geltner, T.
1992a Fire Ravages Familiar South Inyo Landmark. *Inyo Register* (Inyo, CA), 22 July.
1992b Board Takes Heat for Lack of Fire Service. *Inyo Register* (Inyo, CA), 22 July.
1992c Efforts to Rebuild Hit New Hurdles. *Inyo Register* (Inyo, CA), 30 September.
1993 Report: Agencies Gave Best Possible Response. *Inyo Register* (Inyo, CA), 24 March.

Giambastiani, M. A., and T. Bullard
2010 Terminal Pleistocene-Early Holocene Occupations on the Eastern Shoreline of China Lake, California. *Pacific Coast Archaeological Society Quarterly* 43(1–2):50–70.

Gilreath, A. J.
1999 The Archaeology and Petroglyphs of the Coso Rock Art Landmark. *American Indian Rock Art* 25:33–44.
2007 Rock Art in the Golden State: Pictographs and Petroglyphs, Portable and Panoramic. In *California Prehistory: Colonization, Culture and Complexity*, edited by T. L. Jones and K. A. Klar, pp. 273–290. Lanham, MD: Altamira Press.

Gilreath, A. J., and W. R. Hildebrandt
1997 Prehistoric Use of the Coso Volcanic Field. *Contributions of the University of California Archaeological Research Facility* No. 56. Berkeley: University of California, Berkeley.
2008 Coso Rock Art within Its Archaeological Context. *Journal of California and Great Basin Anthropology* 28(1):1–22.

Gold, A. P.
2005 Linguistic Archaeology: Prehistoric Population Movements and Cultural Identity in the Southwest Great Basin and Far Southern Sierra Nevada. Ph.D. dissertation, University of California, Davis.

READ ONLY/ NO DOWNLOAD

Gordon, M.
1996 An Ethnographic Comparison of the Sources, Composition and Uses of Paints by the Yocuts of the Southern San Joaquin Valley and Sierra Nevada, California. *Kern County Archaeological Society Journal* 7:36–58.

Goss, J. A.
1972 A Basin-Plateau Shoshonean Ecological Model. *Desert Research Institute Publications in Social Sciences* 8:123–128.

Gottesman, S.
2009 *UCLA Rock Art Archive Special Collections Guide to the Papers of Dr. Robert Fleming Heizer.* Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Grant, C.
1965 *Santa Barbara Museum of Natural History Pictograph Survey Record.* UCLA RAA Site Records.
1971 Rock Art in California. In *California Indians: A Source Book*, edited by R. F. Heizer and M. A. Whipple, pp. 231–235. Berkeley: University of California Press.
1978a Eastern Coastal Chumash. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 509–519, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
1978b The Occurrence of the Atlatl in Rock Art. *American Indian Rock Art* 5:1–21.
1983 Foreword. *Ancient Images on Stone*, edited by J. Van Tilburg, pp. 4–8. Los Angeles: Institute of Archaeology, University of California.

Grant, C., J. W. Baird, and J. K. Pringle
1968 *Rock Drawings of the Coso Range, Inyo County, California*. Maturango Museum Publication 4. Ridgecrest, California: Maturango Museum.

Grant, G.
1968 The Shaman at Ending. In *Rock Drawings of the Coso Range, Inyo County, California*, by C. Grant, J.W. Baird, and C. Pringle. Maturango Museum Publication 4. Ridgecrest, California: Maturango Museum.

Great Basin Foundation
1979 *Cultural Resources Inventory of the Little Lake Wildlife Area, Inyo County.* California Department of Fish and Game, Little Lake, Inyo County, California. NADB #1043492, California State Office of Historic Preservation. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Greenwood, R. (editor)
1964 *Collected Papers of Benjamin Ernest McCown.* Paper No. 6, Archaeological Survey Association of Southern California.

Griset, S.
1988 Ceramics. In *The Archaeology of CA-Iny-30: Prehistoric Culture Change in the Southern Owens Valley, California*, edited by M. E. Basgall and K. R. McGuire, pp. 250–278. Report submitted to California Department of Transportation, Bishop, California.
1993 C. Hart Merriam: The Naturalist as Ethnographer. *Museum Anthropology* 17(2):33–40.

Gudde, E. G.
1962 *California Place Names*. Berkeley: University of California Press.

Guineau, B., M. Lorblanchet, B. Gratuze, L. Dulin, P. Roger, R. Akrich, and F. Muller
2001 Manganese Black Pigments in Prehistoric Paintings: The Case of the Black Frieze of Pech Merle (France). *Archaeometry* 43(2):211–225.

Guinn, M.
1992 Fire Destroys Little Lake Lodge. *Daily Independent* (Ridgecrest, CA), 21 July.

Gumerman, G., IV
n.d. *Archaeological Field Notes and Collections, CA-INY-3826* [1991–1993]. On file with the author.

Hanson, A.
1990 Deciphering the Language of Things: Aesthetics and the Cultural Process. In *The Language of Things*, edited by P. ter Keurs and Dirk Smidt, pp. 37–44. Leiden: Rijksmuseum voor Volkenkunde.

Harner, M. (editor)
1973 *Hallucinogens and Shamanism*. London: Oxford University Press.

Harrington, M. R.
1933 *Gypsum Cave, Nevada*. Southwest Museum Papers No. 8. Los Angeles: Southwest Museum.
1948a A New Pinto Site. *Masterkey* 22(4):116–118.
1948b America's Oldest Dwelling. *The Masterkey* 22(5):148–152.
1949 A New Old House at Little Lake. *The Masterkey* 23(5):135–136.
1950 Pinto Man at Little Lake. *Desert Magazine* 13(11):22–27.
1951 Latest from Little Lake. *The Masterkey* 25(6):188–191.
1952 The Fossil Falls Site. *The Masterkey* 26(6):191–195.
1953 A Cave near Little Lake. *The Masterkey* 27(3):77–82.
1957 *A Pinto Site at Little Lake.* California Southwest Museum Papers 17. Los Angeles: Southwest Museum.

Hatcher, E. P.
1974 *Visual Metaphors: A Methodological Study in Visual Communication*. Albuquerque: University of New Mexico Press.

Haynes, G. M.
2004 An Evaluation of the Chronological Relationships between Great Basin Stemmed and Pinto Series Projectile Points in the Mojave Desert. In *The Human Journey and Ancient Life in California's Deserts: Proceedings from the 2001 Millennium Conference*, edited by M. W. Allen and J. Reed, pp. 117–128. Ridgecrest, CA: Maturango Museum.

Hearle, K. (editor)
2006 *Essential Mary Austin: A Selection of Mary Austin's Best Writings.* A California Legacy Book. Berkeley: Heyday Books.

Hedges, K.
1973 Rock Art in Southern California. *Pacific Coast Archaeological Society Quarterly* 9(4):1–28.
1982 Great Basin Rock Art Styles: A Revisionist View. *American Indian Rock Art* 7–8:205–211.
1983 The Shamanic Origins of Rock Art. In *Ancient Images on Stone*, edited by J. Van Tilburg, pp. 46–61. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
1992 Shamanic Aspects of California Rock Art. In *California Indian Shamanism*, edited by L. J. Bean, pp. 67–88. Anthropological Papers No. 39. Menlo Park, CA: Ballena Press.
1999 Notes on Basic Methods of Recording Rock Art: Philosophies and Procedures. *American Indian Rock Art* 25:191–202.
2001 Traversing the Great Gray Middle Ground: An Examination of Shamanistic Interpretation of Rock Art. *American Indian Rock Art* 27:123–136.
2002 Rock Art Styles in Southern California. *American Indian Rock Art* 28:25–40.

Heizer, R. F.
1978 Trade and Trails. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 690–693, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
n.d. In *UCLA Rock Art Archive Special Collections Guide to the Papers of Dr. Robert Fleming Heizer*, edited by S. Gottesman. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Heizer, R. F., and M. A. Baumhoff
1962 *Prehistoric Rock Art of Nevada and Eastern California.* Berkeley: University of California Press.

Heizer, R. F., and C. W. Clewlow, Jr.
1973 *Prehistoric Rock Art of California.* 2 vols. Ramona, CA: Ballena Press.

Heizer, R. F., and A. B. Elsasser
1953 Some Archaeological Sites and Cultures of the Central Sierra

READ ONLY/ NO DOWNLOAD

Nevada. *University of California Archaeological Survey Reports 2*. Berkeley: University of California Press.

Heizer, R. F., and T. R. Hester
1974 Two Petroglyph Sites in Lincoln County, Nevada. *University of California Archaeological Research Facility Contributions* 20:1–52.

Helskog, K.
2003 Seeking Answers (Out of the Cave). In Review Feature: The Mind in the Cave: Consciousness and the Origins of Art, by D. Lewis-Williams, E. T. Lawson, K. Helskog, D. S. Whitley, and P. Mellars. *Cambridge Archaeological Journal* 13(2):269–271.

Helvenston, P. A., and P. G. Bahn
2005 *Walking the Trance Fixed*. Louisville, KY: Wasteland Press.

Henshaw, H. W.
1887 Linguistic Field Work: Work of Mr. H. W. Henshaw on Washoe, October–November, 1883]. P. xxx in *5th Annual Report of the Bureau of Ethnology for the Years 1883–1884*. Washington, D.C.

Hester, T. R., M. P. Mildner, and L. Spencer
1974 *Great Basin Atlatl Studies.* Ballena Press Publications in Archaeology, Ethnography, and History 2. Ramona, CA: Ballena Press.

Hilbert, D. R.
1987 *Color and Color Perception: A Study in Anthropocentric Realism.* Palo Alto: Center for the Study of Language and Information, Stanford University.

Hildebrandt, W., and A. Ruby
2003 *Archaeological Testing of Fourteen Prehistoric Sites within the Coso Target Range at Naval Air Weapons Station, China Lake, California.* Prepared by Far Western Anthropological Research Group, Inc., Davis, California.

Hildebrandt, W. R., and K. R. McGuire
2002 The Ascendance of Hunting during the California Middle Archaic: An Evolutionary Perspective. *American Antiquity* 67(2):231–256.

Hirschmann, F., and S. Thybony
1999 *Rock Art of the American Southwest*. Portland, OR: Graphics Arts Center Publishing Company.

Historic Preservation Committee of the Timbisha Shoshone Tribe
1994 *The Timbisha Shoshone Tribe and their Living Valley*. Published by the Death Valley '49ers, Inc. in cooperation with the Timbisha Shoshone Tribe.

Hodder, I. (editor)
1982 *Symbols in Action: Ethnoarchaeological Studies of Material Culture.* New Studies in Archaeology. Cambridge: Cambridge University Press.
1987 *The Archaeology of Contextual Meanings*. New Directions in Archaeology. Cambridge: Cambridge University Press.

Hoffman, W. J.
1893 Petroglyphs in Owens Valley. In *Picture-Writing of the American Indians. Tenth Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution, 1888–1889*, edited by J. W. Powell, pp. 56–60. Washington, D.C.: Government Printing Office.

Hotz, V., and C. W. Clewlow, Jr.
1974 A Northern California Petroglyph Site. *The Masterkey* 48 (4):148–152.

Hughes, R. E., and J. A. Bennyhoff
1986 Early Trade. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 238–255, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Hull, G., A. Adelson, H. Adelson, J. Bretney, A. Kopp, and J. Van Tilburg
n.d. *Little Lake Ranch Master Rock Art Research Database.* On file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Hull, T.
1998 Mapping of Rock Art at Little Lake. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, UCLA.

Hultkrantz, Å.
1986 Mythology and Religious Concepts. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 630–640, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Inyo County Building and Safety Department
2001 Little Lake Hotel Demolition Project. Draft Negative Declaration of Environmental Impact. Manuscript on file, Eastern California Museum Collection.

Irwin, C. N. (editor)
1980 *The Shoshoni Indians of Inyo County, California: The Kerr Manuscript*. Independence, CA: A Ballena Press/Eastern California Museum Cooperative Publication.

Irwin, L.
2008 *Coming Down from Above: Prophecy, Resistance, and Renewal in Native American Religions*. The Civilization of the American Indian Series. Norman: University of Oklahoma Press.

Jacknis, I. (editor)
2004 *Food in California Indian Culture*. Classics in California Anthropology. Berkeley: Phoebe Apperson Hearst Museum of Anthropology, University of California.

James, G. W.
1972 *Indian Basketry*. Republication of the fourth edition, 1909. New York: Dover Publications, Inc.

Janetski, J. C.
1979 Implications of Snare Bundles in the Great Basin and the Southwest. *Journal of California and Great Basin Anthropology* 1(2):306–321.

Jenkins, D. L.
1987 Dating the Pinto Occupation at Rogers Ridge: A Fossil Spring Site in the Mojave Desert. *Journal of California and Great Basin Anthropology* 9(2):14–231.

Jenkins, D. L., and C. N. Warren
1984 Obsidian Hydration and the Pinto Chronology in the Mojave Desert. *Journal of California and Great Basin Anthropology* 6(1): 44–60.

Jennings, J. D.
1986 Prehistory. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 113–119, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Jones, P. N.
2006 Shamanism: An Inquiry into the History of the Scholarly Use of the Term in English-Speaking North America. *Anthropology of Consciousness* 17(2):4–32.

Justice, N. D.
2002 *Stone Age Spear and Arrow Points of California and the Great Basin.* Bloomington: Indiana University Press.

Kaeppler, A. L.
2008 *The Pacific Arts of Polynesian and Micronesia.* Oxford: Oxford University Press.

Kaestle, F. A., and D. G. Smith
2001 Ancient Mitochondrial DNA Evidence for Prehistoric Population Movement: The Numic Expansion. *American Journal of Physical Anthropology* 115:1–12.

Kaldenberg, R. L.
2005 A Short History of Archaeological Inquiry at China Lake Naval Air Weapons Station between about 1930 and the Early 1950s. Symposium 7, China Lake NWAS Heritage Resources. *Proceedings of the Society for California Archaeology* 18:165–175.
2010 Introduction to the Archaeology of Naval Air Weapons Station, China Lake, California. *Pacific Coast Archaeological Society Quarterly* 43(1–2):1–13.

Kelly, I. T.
1932 Ethnography of the Surprise Valley Paiute. *University of Califor-*

READ ONLY/ NO DOWNLOAD

nia Publications in American Archaeology and Ethnology 31 (3):67–210. New York: Krauss Reprint, 1965.

Kerr, M.
1979 *The Shoshoni Indians of Inyo County, California: The Kerr Manuscript*, edited, annotated, and with introductory preface by C. N. Irwin. Ballena Press Publications in Archaeology, Ethnology, and History 15. Socorro, NM: Ballena Press.

Keyser, J. D., and D. S. Whitley
2006 Sympathetic Magic in Western North America Rock Art. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

King, T. J. Jr.
1976 A Cache of Vessels from Cottonwood Spring (Riv-937). *Journal of California Anthropology* 3:136–142.

Kirch, P. V.
2000 *On the Road of the Winds: An Archaeological History of the Pacific Islands before European Contact*. Berkeley/Los Angeles/ London: University of California Press.

Kirch, P. V., and R. C. Green
2001 *Hawaiki, Ancestral Polynesia. An Essay in Historical Anthropology*. Cambridge: Cambridge University Press.

Klassen, M.
1998 Icon and Narrative in Transition: Contact-Period Rock-Art at Writing-on-Stone, Southern Alberta, Canada. In *The Archaeology of Rock-Art*, edited by C. Chippindale and P. S. C. Taçon, pp. 42–68. Cambridge: Cambridge University Press.

Koehler, P. A., and R. S. Anderson
1995 Thirty Thousand Years of Vegetation Changes in the Alabama Hills, Owens Valley, California. *Quaternary Research* 43:238–248.

Kroeber, A. L.
1925 *Handbook of the Indians of California*. Bureau of American Ethnology Bulletin 78. Washington, D.C.: Smithsonian Institution.
1939 Cultural and Natural Areas of Native North America. *University of California Publications in American Archaeology and Ethnology* 38(1):1–242.

Kylander-Clark, A. R. C., D. S. Coleman, A. F. Glazner, and J. M. Bartley
2005 Evidence for 65 km of Dextral Slip across Owens Valley, California, since 83 Ma. *Geological Society of America Bulletin* 147:962–968.

LaForge, A.
2006 Trailside Scratched Petroglyphs along the Lower Colorado River. *1994 IRAC Proceedings, Rock Art-World Heritage*, pp. 455–462. Flagstaff, AZ: American Rock Art Research Association.

Langenwalter, R. E.
1980 A Possible Shaman's Cache from CA-RIV-102, Hemet, California. *Journal of California and Great Basin Anthropology* 2(2):233–244.

Lanning, E. P.
1963 Archaeology of the Rose Spring Site, INY-372. *University of California Publications in American Archaeology and Ethnology* 49(3):237–335. Berkeley: University of California Press.

Latta, F. F.
1977 *Handbook of Yokuts Indians*. Santa Cruz, California: Bear State Books.

Lawson, E. T.
2003 Bridging the Gap between Cognitive Neuroscience and Archaeology. In Review Feature: The Mind in the Cave: Consciousness and the Origins of Art, by D. Lewis-Williams, E. T. Lawson, K. Helskog, D. S. Whitley, and P. Mellars. *Cambridge Archaeological Journal* 13(2):267–268.

Lee, D. M., and C. R. Smith
2003 Variation, Distribution, and Context of Anthropomorphic and Zoomorphic Elements in the Rock Art Record of the Volcanic Tableland. *American Indian Rock Art* 29:53–68.

Lee, G., and W. D. Hyder
1991 Prehistoric Rock Art as an Indicator of Cultural Interaction and Tribal Boundaries in South-Central California. *Journal of California and Great Basin Anthropology* 13(1):15–28.

Lehrer, J.
2007 *Proust was a Neuroscientist*. Boston/New York: Houghton Mifflin.

Leland, J.
1986 Population. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 608–619, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Leska, A.
2009 Newberry Cave, Mojave Desert, California: A Fresh Look at Newberry Cave and Its Paintings. *American Indian Rock Art* 35:131–146.

Lewis, H. T.
2009 An Anthropological Critique. In *Forgotten Fires: Native Americans and the Transient Wilderness*, by O. C. Stewart, edited and with introductions by H. T. Lewis and M. K. Anderson, pp. 17–36. Norman: University of Oklahoma Press.

Lewis, H. T., and M. K. Anderson, (editors)
2009 *Forgotten Fires: Native Americans and the Transient Wilderness* by Omer C. Stewart. Norman: University of Oklahoma Press.

Lewis-Williams, D.
2002 *The Mind in the Cave*. London: Thames and Hudson, Ltd.

Lewis-Williams, D., and T. A. Dowson
1988 The Signs of All Times: Entoptic Phenomena in Upper Paleolithic Art. *Current Anthropology* 29(2):201–245.
1990 On Neuropsychology and Shamanism in Rock Art. *Current Anthropology* 31(1):77–84.

Lightfoot, K. G., and O. Parrish
2009 *California Indians and Their Environment: An Introduction*. Berkeley/Los Angeles/and London: University of California Press.

Liljeblad, S.
1986 Oral Tradition: Content and Style of Verbal Arts. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 641–669, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Liljeblad, S., and C. S. Fowler
1986 Owens Valley Paiute. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 412–434, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Liu, T., and W. S. Broecker
2000 How Fast Does Rock Varnish Grow? *Geology* 28(2):183–186.

Lopez, B.
1988 *Crossing Open Ground*. New York: Vintage Books.

Lucas, B. J.
1951 Tree-Holes at the Stahl Site. *The Masterkey* 25(6):191–193.

Lyneis, M. M.
1988 Tizon Brown Ware and the Problems Raised by Paddle-and-Anvil Pottery in the Mojave Desert. *Journal of California and Great Basin Anthropology* 10:146–155.
1989 Ceramics from the China Lake-Fort Irwin Joint Land Use Area, San Bernardino County, California. In *Survey and Test Evaluation of the China Lake-Fort Irwin Joint Land Use Area, San Bernardino County, California, Appendix E*, edited by P. D. Bouey and P. J. Mikkelsen. Report prepared by Far Western for Department of Defense.

Maddock, K.
1973 *The Australian Aborigines: A Portrait of Their Society*. London: Allen Lane.

Madsen, D. B.
1986 Prehistoric Ceramics. In *Handbook of North American Indians*,

READ ONLY/ NO DOWNLOAD

Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 206–214, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Madsen, D. B., and D. Rhode (editors)
1994 *Across the West: Human Population Movement and the Expansion of the Numa*. Salt Lake City: University of Utah Press.

Mallery, G.
1893 Picture Writing of the American Indians. *Tenth Annual Report of the Bureau of Ethnology to the Secretary of the Smithsonian Institution, 1888–1889*, edited by J. W. Powell. Washington, D.C.: Government Printing Office.

Marshall, D. E.
1977 Aesthetics of the Great Basin Pecked Style. *American Indian Rock Art* 3:80–85.

Martin, D. E.
1977 Introduction to the Rock Art of Death Valley. *American Indian Rock Art* 3:144–150.

Mason, O. T.
1988 *American Indian Basketry*. Reprinted. Mineola, New York: Dover Press. Originally published 1904, New York: Double Day, Page and Company.

Matheny, R. T., T. S. Smith, and D. G. Matheny
1997 Animal Ethology Reflected in the Rock Art of Nine Mile Canyon, Utah. *Journal of California and Great Basin Anthropology* 19(1):70–103.

Mayewski, P. A.
2008 Paleoclimate from Ice Cores: A Framework for Archaeological Interpretations. In *El Niño, Catastrophism, and Culture Change in Ancient America*, edited by D. H. Sandweiss and J. Quilter, pp. 16–32. Washington, D.C.: Dumbarton Oaks Research Library and Collection.

McCown, B. E.
1955 *Temeku: A Page from the History of the Luiseño Indians.* Paper No. 3. Los Angeles: Archaeological Survey Association of Southern California.
1964 Survey of Lava Field in Inyo County, California. *Collected Papers of Benjamin Ernest McCown*, pp. 1–14. Archaeological Survey Association of Southern California, Paper No. 6. Facsimile Reprint, Coyote Press.

McGuire, K. R., and W. Hildebrandt
2005 Re-thinking Great Basin Foragers: Prestige Hunting and Costly Signaling during the Middle Archaic Period. *American Antiquity* 70(4):695–712.

McMaster, G., and C. E. Trafzer (editors)
2004 *Native Universe: Voices of Indian America.* Washington, D.C.: National Museum of the American Indian, Smithsonian Institution.

Mehringer, P. J., Jr., and J. C. Sheppard
1978 Holocene History of Little Lake, Mojave Desert. California. In *The Ancient Californians: Rancholabrean Hunters of the Mojave Lakes Country*, edited by E. L. Davis, pp. 153–166. Natural History Museum of Los Angeles County Science Series 29. Los Angeles: Natural History Museum.

Meighan, C. W.
1981a *Messages from the Past: Studies in California Rock Art.* Monograph 20. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
1981b The Little Lake Site, Pinto Points, and Obsidian Dating in the Great Basin. *Journal of California and Great Basin Anthropology* 3(2):200–214.
1981c Theory and Practice in the Study of Rock Art. In *The Shape of the Past, Studies in Honor of Franklin D. Murphy*, edited by Giorgio Buccellati and Charles Speroni, pp. 66–91. Los Angeles: Institute of Archaeology and Office of the Chancellor, University of California.
1989 Further Comments on Pinto Points and Their Dating. *Journal of California and Great Basin Anthropology* 11(1):113–118.

Merriam, C. H.
1902 Personal journal. Manuscript. Library of Congress, Washington, D.C.
1904 Distribution of Indian Tribes in the Southern Sierra and Adjacent Parts of the San Joaquin Valley, California. *Science* 19(494):912–917.

Meshberger, F. L., M.D.
1990 An Interpretation of Michelangelo's *Creation of Adam* Based on Neuroanatomy. *Journal of the American Medical Association* 264(14):1837–1841.

Miller, J.
1983 Basin Religion and Theology: A Comparative Study of Power (*Puha*). *Journal of California and Great Basin Anthropology* 5(1–2):66–86.

Miller, K., and R. Walker
1989 Calorimetry: Methods and Tools. In *The Photonics Design and Applications Handbook*. Pittsfield, MA: Laurin Publishing Company.

Miller, W. R.
1986 Numic Languages. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 98–106, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Milliken, R., A. Gilreath, and M. Delacorte
1995 Photographic Evidence of Ethnographic Owens Valley Paiute Shelters. Report prepared by Far Western Anthropological Research Group for California Department of Transportation, contract no. 09H259.

Moore, R. S.
2005 A Case for Protein: Faunal Analysis of CA-INY-2284. Report for UCLA Archaeological Certificate Program. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Moratto, M. J.
2007 Foreword. In *Archaeology and Rock Art of the Eastern Sierra and Great Basin Frontier*, by A. P. Garfinkel. Ridgecrest, CA: Maturango Museum.

Murray, J. R., F. Fenenga, and R. S. Brown
1989 A Cached Ceramic Bowl from the Squaw Tank District, Joshua Tree National Monument, California. *Pacific Coast Archaeological Society Quarterly* 25(2):22–28.

Murray, W. B., and H. Lazcano
2001 Atlatl Hunters of the Sierra Madre Oriental (Mexico). *American Indian Rock Art* 27:261–268.

Myers, L. D.
1997 Animal Symbolism among the Numa: Symbolic Analysis of Numic Origin Myths. *Journal of California and Great Basin Anthropology* 19(1):32–49.

Nissen, K. M.
1982 Images from the Past: An Analysis of Six Western Great Basin Petroglyph Sites. Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.

O'Connor, J. T.
2002 The Nampaweap Site Petroglyphs-Stars, Sex and Piñon Nuts. *American Indian Rock Art* 28:193–206.

O'Donnell, J. T., M. Q. Sutton, and R. W. Robinson
1997 Eggshell Cave: A Ceremonial Site in the Western Mojave Desert, California. *Journal of California and Great Basin Anthropology* 19(1):104-116.

Olsen, N. H.
2005 Learning from Images in Context: Theory Building for Rock Art in Archaeology. In *Making Marks: Graduate Studies in Rock Art Research at the New Millennium*, edited by J. K. K Huang and E. V. Culley, pp. 149–162. American Rock Art Research Association Occasional Paper 5.

Osborne, C. M., and H. S. Riddell, Jr.

READ ONLY/ NO DOWNLOAD

1978 A Cache of Deer Snares from Owens Valley, California. *The Journal of California Anthropology* 5(1):101–109.

Pavlik, B. M.
2008 *The California Deserts: An Ecological Rediscovery*. Berkeley/Los Angeles/London: University of California Press.

Pearson, J.
1989 A Brief History of the Little Lake Duck Club and Its Environs. Manuscript on file, Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.
1995 Prehistoric Occupation at Little Lake, Inyo County, California: A Definitive Chronology. Master's thesis, Loyola University of Los Angeles.
2005 *Shamanism and the Ancient Mind: A Cognitive Approach to Archaeology*. Walnut Creek, CA: AltaMira Press.

Pippin, L. C.
1986 Intermountain Brown Wares: An Assessment. In *Pottery of the Great Basin and Adjacent Areas*, edited by S. Girset, pp. 9–21. Anthropological Papers 11. Salt Lake City: University of Utah.

Pister, E. P.
1991 Fishes. In *Natural History of the White-Inyo Range, Eastern California*. *California Natural History Guides*, edited by C. A. Hall, Jr., pp. 272. Berkeley/Los Angeles: University of California Press.

Podoll, K., and D. Robinson
2008 *Migraine Art: The Migraine Experience from Within*. Philadelphia: North Atlantic Books.

Porcasi, J. F.
2004 Vertebrate Remains Recovered from INY-3826. In *Phase II Archaeological Testing and Evaluation of CA-INY-3647, CA-INY-3650/H, CA-INY-3826, and P-14-7356, North Little Lake Rehabilitation Project, U.S. 395, Inyo County, California*, edited by B. F. Byrd and S. N. Reddy, pp. 269–283. Report on file, California Department of Transportation, District 9, Bishop.

Purdy, C.
1903 The "Dau" in Pomo Baskets. *Outwest* 18:317–325.

Quinlan, A. R.
2000a The Ventriloquist's Dummy: A Critical Review of Shamanism and Rock Art in Far Western North America. *Journal of California and Great Basin Anthropology* 22(1): 92–108.
2000b Response to Whitley. *Journal of California and Great Basin Anthropology* 22(1):129–132.

Quinlan, A. R. (editor)
2007 *Great Basin Rock Art: Archaeological Perspectives.* Reno: University of Nevada Press.

Quinlan, A. R., and A. Woody
2001 Marking Time at Lagomarsino: An Exploration of the Competing Narratives of Rock Art Studies. *American Indian Rock Art 27:*211–220.

Rappaport, R. A.
1971 Nature, Culture, and Ecological Anthropology. In *Man, Culture, and Society*, edited by H. Shapiro. New York: Oxford University Press.
1979 Ecology, Meaning, and Religion. Berkeley: North Atlantic Books.
1999 *Ritual and Religion in the Making of Humanity.* Cambridge Studies in the Social and Cultural Anthropology. Cambridge: Cambridge University Press.

Raymond, A. W.
1982 Two Historic Aboriginal Game-Drive Enclosures in the Eastern Great Basin. *Journal of California and Great Basin Anthropology.* 4(2):23–33.

Raymond, A. W., and E. Sobel
1990 The Use of Tui Chub as Food by Indians of the Western Great Basin. *Journal of California and Great Basin Anthropology* 12(1): 2–18.

Rector, C. H.
1977 The Function of East Mojave Rock Art. *American Indian Rock Art* 3:151–156.

Reed, A. D.
1994 Numic Occupation of W. Colorado and E. Utah. In *Davey, Dee and 'Early Man'*, edited by D. B. Madson, D. B. and D. Rhode, pp. 188–199. Salt Lake City: University of Utah Press.

Reed, J.
2004 Davey, Dee and 'Early Man'. In *Proceedings from the 2001 Millennium Conference*, edited by M. W. Allen and J. Reed, pp. 97–102. Ridgecrest, CA: Maturango Museum.

Reichert, R. X.
1998 Rock Art Styles of the Coso Range: Some Considerations for Their Definition. In *Coso Rock Art: A New Perspective*, edited by E. Younkin, pp. 97–106. Maturango Museum Publication 12. Ridgecrest, CA: Maturango Press.

Reneau, S., and R. Raymond
1991 Cation-Ratio Dating of Rock Varnish: Why Does It Work? *Geology* 19(9):937–940.

Reneau, S., R. Raymond, and C. Harrington
1992 Elemental Relationships in Rock Varnish Stratigraphic Layers, Cima Volcanic Field, California: Implications for Varnish Development and the Interpretation of Varnish Chemistry. *American Journal of Science* 292(9):684–723.

Renfrew, C.
1978 Space, Time and Polity. In *The Evolution of Social Systems*, edited by J. Friedman and M. M. Rowlands, pp. 89–112. Pittsburgh: University of Pittsburgh Press.
1994 Archaeology of Religion. In *The Ancient Mind: Elements of Cognitive Archaeology*, edited by C. Renfrew and E. B. W. Zubrow, pp. 47-54. New Directions in Archaeology Series. Cambridge: Cambridge University Press.

Renfrew, C., and C. Scarre (editors)
1998 *Cognition and Material Culture*: *The Archaeology of Symbolic Storage*. Cambridge: McDonald Institute for Archaeological Research.

Rhode, D.
1994 Direct Dating of Brown Ware Ceramics Using Thermoluminescence and Its Relation to the Numic Spread. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsden and D. Rhode, pp. 124–130. Salt Lake City: University of Utah Press.

Ritter, D. W., and E. W. Ritter
1977 The Influence of the Religious Formulator in Rock Art of North America. *American Indian Rock Art* 3:63–79.

Ritter, E. W.
1980 A Historic Aboriginal Structure and Its Associations, Panamint Mountains, California. *Journal of California and Great Basin Anthropology* 2(1):97–113.
1994 Scratched Rock Art Complexes in the Desert West: Symbols for Socio-Religious Communication. In *New Light on Old Art. Recent Advances in Hunter-Gatherer Rock Art*, edited by D. S. Whitley and L. L. Loendorf, pp. 51–66. Monograph 36. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
2004 Paradigms and Petroglyphs of the Dry Lakes Plateau, Mono County, California. *American Indian Rock Art* 30:19–42.
2006 Archaeological Context and Explanation for Nevada's Massacre Bench Scratched Rock Art. In *1994 IRAC Proceedings, Rock Art-World Heritage*, pp. 463–484. Flagstaff, AZ: American Rock Art Research Association.

Ritter, E. W., and G. Coombs
1990 Southern California Desert Archaeology: Prospectus for Settlement Subsistence Studies. *PCAS Quarterly* 26(1):24–41.

Ritter, E. W., R. Brook, and N. Farrell
1982 The Rock Art of Panamint City, Inyo County, California. In *Pictographs of the Coso Region: Analysis and Interpretations of the Coso*

READ ONLY/ NO DOWNLOAD

Painted Style, edited by R. A. Schiffman, D. S. Whitley, A.P. Garfinkel, and S. Andrews, pp. 5–21. Publications in Archaeology No. 2. Bakersfield, CA: Bakersfield College.

Rogers, A. K.

2006a *Excavations at the Terese Site (CA-KER-6188), El Paso Mountains, East Kern County, California*. Monograph No. 2. Ridgecrest, CA: Maturango Museum.

2006b Temporal Patterns of Archaic Land Use in the El Paso Mountains, Kern County, California. *Proceedings of the Society for California Archaeology* 19:173–184.

2010 A Chronology of Six Coso Rock Art Motifs in the Coso Range, Eastern California. *American Indian Rock Art* 36:23–36.

Rogers, M. J.

1939 *Early Lithic Industries of the Lower Basin of the Colorado River and Adjacent Desert Areas*. San Diego Museum Papers No. 3.

Rothenberg, J., and D. Tedlock

1977 The Shaman as Proto-Poet. In *Stones, Bones, and Skin: Ritual and Shamanic Art*, edited by A. T. Brodzky, R. Danesewich, and N. Johnson, pp. 140–149. Toronto: Society for Art Publications.

Sacks, O.

1992 *Migraine*. London: Vintage Books.

Schaafsma, P.

1980 *Indian Rock Art of the Southwest*. School of American Research Southwest Indian Arts Series. Albuquerque: University of New Mexico Press.

1985 Form, Content, and Function: Theory and Method in North American Rock Art Studies. In *Advances in Archaeological Method and Theory* 8, edited by M. B. Schiffer, pp. 237–277. New York: Harcourt Brace Jovanovich.

1986 Rock Art. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 215–226, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Schiffman, R. A.

1977 *Archaeological Investigations of a Tübatulabal Indian Hamlet, Sequoia National Forest, Kern County, California*. Porterville, CA: United States Department of Agriculture, United States Forest Service.

Schiffman, R. A., D. S. Whitley, A. P. Garfinkel, and S. B. Andrews (editors)

1982 *Pictographs of the Coso Region: Analysis and Interpretations of the Coso Painted Style*. Publications in Archaeology No. 2. Bakersfield: Bakersfield College.

Schneider, J. S., and L. Jackson

2006 Petroglyphs and Milling-Stone Production at a Basalt Outcrop in Northwestern Arizona. In *A Festschrift Honoring the Contributions of California Archaeologist Jay von Werlhof*, edited by R. L. Kaldenberg, pp. 169–175. Maturango Museum Publication 20, Ridgecrest, CA: Maturango Museum.

Schroth, A. B.

1994 The Pinto Point Controversy in the Western United States. Ph.D. dissertation. Department of Anthropology, University of California, Riverside.

Sennett-Walker, B.

1985 The Panamint Basketry of Scotty's Castle. *American Indian Basketry* 5(3):12–17.

Sharp, R. P., and A. F. Glazner

1993 *Geology Underfoot in Southern California*. Missoula, MT: Mountain Press.

1997 *Geology Underfoot in Death Valley and Owens Valley*. Missoula, MT: Mountain Press.

Shipley, W. F.

1978 Native Languages of California. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 690–693, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Simms, S. R.

1985a Acquisition Cost and Nutritional Data on Great Basin Resources. *Journal of California and Great Basin Anthropology* 7(1):117–125.

1985b Pine Nut Use in Three Great Basin Cases: Data, Theory, and a Fragmentary Material Record. *Journal of California and Great Basin Anthropology* 7(2):166–175.

Simonis, D.

1986 Scratched Style Petroglyphs near Kingman, Arizona. Paper presented at the Thirteenth Annual American Rock Art Research Association Symposium, Flagstaff, Arizona.

Simpson, R. D.

1949 The Plot Thickens at Little Lake. *The Masterkey* 23(1):19.

1964 Foreword. In *Collected Papers of Benjamin Ernest McCown*, pp. v–vi. Archaeological Survey Association of Southern California, Paper No. 6. Facsimile Reprint by Coyote Press.

Slater, E.

2000 *Panamint Shoshone Basketry: An American Art Form*. Morongo Valley, CA: Sagebrush Press.

Smith, C. R.

1978 Tubatulabal. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 437–445, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Smith, G. A.

1963 Split-Twig Figurines from San Bernardino County, California. *The Masterkey* 37(3):86–90.

Smith, G. A., W. C. Schuiling, L. Martin, R. J. Sayles, and P. Jillson

1957 The Archaeology of Newberry Cave, San Bernardino County, California. *San Bernardino County Museum Association Scientific Series 1*, Quarterly 4(3).

Smith, G. I., J. L. Bischoff, and J.P. Bradbury

1997 Synthesis of the Paleoclimatic Record from Owens Lake Core OL-92. *Geological Society of America Special Paper* 317:143–160.

Sonin, B.

1995 California Rock Art: An Annotated Site Inventory and Bibliography, edited by M. Leigh Marymor. *Occasional Papers*, No. 17. Rock Art Archive, Institute of Archaeology, University of California, Los Angeles, and Bay Area Rock Art Research Association.

Sowaal, M.

1985 *Naming the Eastern Sierra: Dirty Sock to Bloody Canyon*. Bishop, CA: Community Printing and Publishing.

Steward, J. H.

1929 Petroglyphs of California and Adjoining States. *University of California Publications in American Archaeology and Ethnology* 24(2):47–238.

1933a Ethnography of the Owens Valley Paiute. In *Food in California Indian Culture*, edited by I. Jacknis, pp. 305–321. Classics in California Anthropology. Berkeley: Phoebe Apperson Hearst Museum of Anthropology, University of California.

1933b Ethnography of the Owens Valley Paiute. *University of California Publications in American Archaeology and Ethnology* 33(3):233–350.

1936 Myths of the Owens Valley Paiute. *University of California Publications in American Archaeology and Ethnology* 34(5):355–440.

1937 Linguistic Distributions and Political Groups of the Great Basin Shoshoneans. *American Anthropologist* 39(4):625–634.

1938 *Basin-Plateau Aboriginal Sociopolitical Groups*. Smithsonian Institution Bureau of American Ethnology Bulletin, No. 20.

1941 Culture Element Distributions: XIII. Nevada Shoshone. *University of California Anthropological Records* 4(2):209–360.

Stewart, O. C.

1941 Culture Element Distributions: XIV: Northern Paiute. *University of California Anthropological Records* 4(3):361–446.

2009 The Effects of Burning of Grasslands and Forests by Aborigines the World Over. In *Forgotten Fires: Native Americans and the Transient*

READ ONLY/ NO DOWNLOAD

Wilderness, by Omer C. Stewart, edited by H. T. Lewis and M. K. Anderson, pp. 38–315. Norman: University of Oklahoma Press.

Stoney, S. A.
1994 Rock Art in the Great Basin: The Scratched Style Mystery Reexamined: Is It Illusion or Reality? *Pacific Coast Archaeological Society Quarterly* 30(4):33–54.

Stover, C. W., and J. L. Coffman
1993 Seismicity of the United States, 1568–1989 (revised), *U.S. Geological Survey Professional Paper* 1527:418.

Strong, W. D.
1929 *Aboriginal Society in Southern California*. Banning, CA: Malki Museum Press.

Sundahl, E., and W. Henn
1993 Borax Lake Pattern Assemblages on the Shasta-Trinity National Forests, North-Central California. *Journal of California and Great Basin Anthropology* 15(1):73–90.

Sutton, M. Q.
1981 Obsidian Hydration in the Antelope Valley. *Obsidian Dates III: A Compendium of the Obsidian Hydration Determinations Made at the UCLA Obsidian Hydration Laboratory*, edited by C. W. Meighan and G. S. Russell, pp. 123-124. Institute of Archaeology Monograph 16. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
1982 Two Incised Green Slates from Southern California. *Masterkey* 56(1):28-32.
1987 A Consideration of the Numic Spread. Ph.D. dissertation, Department of Anthropology, University of California, Riverside.
1989a A Crescent from the Southern San Joaquin Valley, California. *Journal of California and Great Basin Anthropology* 11(1):96–98.
1989b Ethnobiological Inferences from Great Basin Oral Traditions. *Journal of California and Great Basin Anthropology* 11(2):240–267.
1993 The Numic Expansion in Great Basin Oral Tradition. *Journal of California and Great Basin Anthropology* 15(1):111–128.
1994 The Numic Expansion as Seen from the Mojave Desert. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 133–140. Salt Lake City: University of Utah Press.
2001 Excavations at Teddy Bear Cave (CA-KER-508), Tomo-Kahni State Park. *Pacific Coast Archaeological Society* 37(1):1–26.
2007 *An Introduction to Native North America*. Boston: Allyn & Bacon.
2010 A Re-evaluation of Early Northern Uto-Aztecan Prehistory in Alta California. *California Archaeology* 2(1):3-30.
2011 *A Prehistory of North America*. Upper Saddle River, NJ: Prentice Hall.

Sutton, M. Q., and E. W. Ritter
1984 A Basket Fragment from the Lava Mountains, San Bernardino County, California. *Journal of California and Great Basin Anthropology* 6(1):115–118. Available from *http://escholarship.org./uc/item/66-077cc.*

Sutton, M. Q., M. E. Basgall, J. K. Gardner, and M. W. Allen
2007 Advances in Understanding Mojave Desert Prehistory. In *California Prehistory: Colonization, Culture, and Complexity*, edited by T. L. Jones and K. A. Klar, pp. 229–245. Lanham, MD: AltaMira Press.

Taylor, A. S.
1860 Mr. Farley. *California Farmer*.

Taylor, M. W., and J. D. Keyser
2003 The Columbia Plateau Scratched Style: A Preliminary Interpretation. *American Indian Rock Art* 29:11-20.

Thomas, D. H.
1994 Chronology and the Numic Expansion. In *Across the West: Human Population Movement and the Expansion of the Numa*, edited by D. B. Madsen and D. Rhode, pp. 56–61. Salt Lake City: University of Utah Press.

Thomas, D. H., editor
1983 *The Archaeology of Monitor Valley 2. Gatecliff Shelter.* Anthropological Papers of the American Museum of Natural History 59(1).

Thomas, D. H., and D. Mayer
1983 Behavioral Faunal Analysis of Selected Horizons. In *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 353–391. Anthropological Papers of the American Museum of Natural History 59(1).

Thomas, D. H., L. S. A. Pendleton, and S. C. Cappannari
1986 Western Shoshone. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 262–283, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Thomas, T.
1983a Rock Art of Gatecliff Shelter. In *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 310–319. Anthropological Papers of the American Museum of Natural History 59(1).
1983b The Material Culture of Gatecliff Shelter: Incised Stones. In *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 246–278. Anthropological Papers of the American Museum of Natural History 59(1).
1983c The Visual Symbolism of Gatecliff Shelter. In *The Archaeology of Monitor Valley 2. Gatecliff Shelter*, edited by D. H. Thomas, pp. 332–352. Anthropological Papers of the American Museum of Natural History 59(1).

Thormann, J.
1996 *The Zig-Zag Post Office and Its Neighbors*. Ridgecrest, CA: Historical Society of the Lower Mojave Desert.

Tuohy, D. R.
1982 Another Great Basin Atlatl with Dart Foreshafts and Other Artifacts: Implications and Ramifications. *Journal of California and Great Basin Anthropology* 4(2):80–106.
1986 Portable Art Objects. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 227–236, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Turner, C. G., II
1963 *Petrographs of the Glen Canyon Region. Styles, Chronology, Distribution, and Relationships from Basketmaker to Navajo*. Museum of Northern Arizona Bulletin 38 (Glen Canyon Series No. 4).

Turner, W.
1994 The Rock Art of Black Canyon. *San Bernardino County Museum Association Quarterly* 41.

Turpin, S. A.
2001 Archaic North America. In *Handbook of Rock Art Research*, edited by D. S. Whitley, pp. 361–413. Walnut Creek, CA: AltaMira Press.

Underwood, J.
2006 Discovering the Desert Kawaiisu. In *A Festschrift Honoring the Contributions of California Archaeologist J. von Werlhof*, edited by R. L. Kaldenberg, pp. 179–192. Maturango Museum Publication 20. Ridgecrest, CA: Maturango Museum.

Vander, J.
1997 *Shoshone Ghost Dance Religion: Poetry Songs and Great Basin Context*. Urbana/Chicago: University of Illinois Press.

Van Tilburg, J.
1983 *Ancient Images on Stone*. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
1991 *Anthropomorphic Stone Monoliths on the Islands of Oreor and Babeldaob, Republic of Belau(Palau), Micronesia*. Honolulu: Bernice P. Bishop Museum.
1997 Twenty Years of Rock Art Tradition at UCLA 1977–1997. In *Handbook of Policies and Procedures Including Mission Statement and Five Year Plan*, edited by J. Van Tilburg. Los Angeles: Rock Art Archive, Cotsen Institute of Archaeology, University of California, Los Angeles.

Van Tilburg, J., and C. W. Meighan
1981 *Prehistoric Indian Art: Issues and Concerns*. Monograph 19. Los

READ ONLY/ NO DOWNLOAD

Angeles: Institute of Archaeology, University of California, Los Angeles.

Vastokas, J. M.
1977 The Shamanic Tree of Life. In *Stones, Bones, and Skin: Ritual and Shamanic Art*, edited by A.T. Brodzky, R. Danesewich, and N. Johnson, pp. 93–117. Toronto: Society for Art Publications.

Vaughan, S. J., and C. N. Warren
1987 Towards a Definition of Pinto Points. *Journal of California and Great Basin Anthropology* 9:199–213.

Vita-Finzi, C.
1978 *Archaeological Sites in Their Setting*. London: Thames and Hudson.

Voegelin, E. W.
1938 Tübatulabal Ethnography. *University of California Anthropological Records* 2(1):1–84.

von Werlhof, J. C.
1965 Rock Art of Owens Valley, California. *Reports of the University of California Archaeological Survey 65*. Berkeley: Department of Anthropology, University of California.

Vuncannon, D. H.
1985 Fertility Symbolism at the Chalfant Site, California. *Rock Art Papers 2(*18):127–132.

Wagner, R.
1975 *The Invention of Culture*. Englewood Cliffs: Prentice Hall.
1981 *The Invention of Culture.* Revised and expanded edition. Chicago/London: University of Chicago Press.

Wallace, W. J.
1965 A Cache of Unfired Clay Objects from Death Valley, California. *American Antiquity* 30:434–441.
1978a Post-Pleistocene Archaeology 9000 to 2000 B.C. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 25–36, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
1978b Southern Valley Yokuts. In *Handbook of North American Indians*, Vol. 8: *California*, edited by R. F. Heizer, pp. 448–461, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.
1978c The Chuckwalla: A California Indian Food. *The Journal of California Anthropology* 5(1):109–113.

Waller, S. J.
2002 Sounds of the Spirit World: Auditory Perceptions of Depth at Rock Art Sites. *American Indian Rock Art* 28:53–56.

Warren, C. W., and R. H. Crabtree
1986 Prehistory of the Southwestern Area. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 183–193, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

Washburn, D. K.
1983 Toward a Theory of Structural Style in Art. In *Structure and Cognition in Art*, edited by D. K. Washburn, pp. 1–7. Cambridge: Cambridge University Press.
1987 The Neighbor Factor: Basket Designs in Northern and Central California. *Journal of California and Great Basin Anthropology* (9)2:146–173.

Washburn, D. K., and D. W. Crowe
1988 *Symmetries of Culture: Theory and Practice of Plane Pattern Analysis*. Seattle/London: University of Washington Press.

Waters, M. R. ,S. L. Forman, T. A. Jennings, L. C. Nordt, S. G. Driese, J. M. Feinberg, J. L. Keene, J. Halligan, A. Lindquist, J. Pierson, C. T. Hallmark, M. B. Collins, and J. E. Wiederhold
2011 The Buttermilk Creek Complex and the Origins of Clovis at the Debra L. Friedkin Site, Texas. *Science* 331(6024):599–1603.

Weaver, R. A., and M. E. Basgall
1986 Aboriginal Exploitation of Pandora Moth Larvae in East-Central California. *Journal of California and Great Basin Anthropology* 8(2):161–179.

Webb, W. S.
1957 T*he Development of the Spearthrower*. Occasional Papers in Anthropology 2. Lexington: University of Kentucky Department of Anthropology.

Wehausen, J. D.
1988 The Historical Distribution of Mountain Sheep in the Owens Valley Region. In *Mountains to Desert: Selected Inyo Readings*, edited by Friends of the Eastern California Museum, pp. 97–106. Independence, CA: Eastern California Museum.

Wehrey, J. (editor)
2006 *Voices from This Long Brown Land: Oral Recollections of Owens Valley Lives and Manzanar Pasts.* Palgrave Studies in Oral History. New York: Palgrave Macmillan.

Wells, H. F., and C. J. Backes, Jr.
2007 Robbers Mountain: Revisiting the Archaeology and Rock Art of Bierman Caves. Sa*n Bernardino County Museum Association Quarterly* 53(4).
2010 Living on the Edge: Late Prehistoric Foragers on the South Range. *Pacific Coast Archaeological Society Quarterly* 43(1– 2):113–134.

Western Regional Climate Center
2007 California Climate Data Archive, Haiwee, California, Station 043710, Monthly Climate Summary 1948–2006. Electronic document, *http://www.wrcc.dri.edu/cgi-binMAIN.pl?ca3710*.

Wheat, M. M.
1967 *Survival Arts of the Primitive Paiutes*. Reno: University of Nevada Press.

Whitley, D. S.
1982a Notes on the Coso Petroglyphs, the Etiological Mythology of the Western Shoshone, and the Interpretation of Rock Art. *Journal of California and Great Basin Anthropology* 4(2):262–272.
1982b The Study of North American Rock Art: A Case Study from South-Central California. Ph.D. dissertation, Department of Anthropology, University of California, Los Angeles.
1992 Shamanism and Rock Art in Far Western North America. *Cambridge Archaeological Journal* 21(1):89–113.
1994a By the Hunter, for the Gatherer: Art, Social Relations and Subsistence Change in the Prehistoric Great Basin. *World Archaeology* 25(3):356–373.
1994b Ethnography and Rock Art in the Far West: Some Archaeological Implications. In *New Light on Old Art: Recent Advances in Hunter-Gatherer Rock Art Research*, edited by D. S. Whitley and L. L. Loendorf, pp. 81–93. Los Angeles: Institute of Archaeology, University of California, Los Angeles.
1994c Shamanism, Natural Modeling and the Rock Art of Far Western North America, pp. 1–44. In *Shamanism and Rock Art in North America*, edited by S. A. Turpin. Rock Art Foundation, Inc. Special Publication No. 1.
1998a Cognitive Neuroscience, Shamanism, and the Rock Art of Native California. *Anthropology of Consciousness* 9(1):22–37.
1998b Finding Rain in the Desert: Landscape, Gender and Far Western North American Rock-Art. In *The Archaeology of Rock-Art*, edited by C. Chippindale and P. S. C. Taçon, pp. 11–29. Cambridge: Cambridge University Press.
1998c *Following the Shaman's Path. A Walking Guide to Little Petroglyph Canyon*, *Coso Range*, *California*. Maturango Museum Publication 13. Ridgecrest, CA: Maturango Museum.
1998d History and Prehistory of the Coso Range: The Native American Past on the Western Edge of the Great Basin. In *Coso Rock Art*, *A New Perspective*, edited by E. Younkin, pp. 29–68. Maturango Museum Publication 12. Ridgecrest, CA: Maturango Museum.
1998e Meaning and Metaphor in the Coso Petroglyphs. In *Coso Rock Art*, *A New Perspective*, edited by E. Younkin, pp. 109–177. Maturango Museum Publication 12. Ridgecrest, CA: Maturango Museum.
2000a *The Art of the Shaman*. Salt Lake City: The University of Utah

READ ONLY/ NO DOWNLOAD

Press.

2000b Response to Quinlan. *Journal of California and Great Basin Anthropology* 22(1):108–129.

2003 What is Hedges Arguing About? *American Indian Rock Art 29*:83–104.

2005 The Iconography of Bighorn Sheep Petroglyphs in the Western Great Basin. In *Onward and Upward! Papers in Honor of Clement W. Meighan*, edited by K. L. Johnson, pp. 191–203. Chico, CA: Stansbury Publishing.

Whitley, D. S., and R. I. Dorn

1984 Chemical and Micromorphological Analysis of Rock Art Pigments from the Western Great Basin. *Journal of New World Archaeology* 6:48–51.

1987 Rock Art Chronology in Eastern California. *World Archaeology* 19(2):150–164.

1988 Cation-ratio Dating of Petroglyphs using PIXE. *Nuclear Instruments and Methods in Physics Research* 35:410–414.

2010 The Earliest Rock Art in Far Western North America. Paper presented at the IFRAO Congress, September 2010.

Whitley, D. S., J. W. Simon, and R.I. Dorn

1999 The Vision Quest in the Coso Range. *American Indian Rock Art* 25:1–32.

Whitley, D. S., T. K. Whitley, and J. M. Simon

2005 *The Archaeology of Ayers Rock (CA-INY-134), California*. Maturango Museum Publication 19. Ridgecrest, CA: Maturango Museum.

Whitley, D. S., R. I. Dorn, J. M. Simon, R. Rechtman, and T. K. Whitley

1999 Sally's Rockshelter and the Archaeology of the Vision Quest. *Cambridge Archaeological Journal* 9(2):221–247.

Whitley, D. S., G. Gumerman, IV, J. M. Simon, and G. H. Rose

1988 The Late Prehistoric Period in the Coso Range and Environs. *Pacific Coast Archaeological Society* Quarterly 24(1):2–10.

Whitley, T. K.

1982a Coso-Style Pictographs of CA-KER-735. In *Pictographs of the Coso Region: Analysis and Interpretations of the Coso Painted Style*, edited by R. A. Schiffman, D. S. Whitley, A. P. Garfinkel, and S. B. Andrews, pp. 22–46. Publications in Archaeology No. 2. Bakersfield, CA: Bakersfield College.

1982b Rock Art of CA-KER-736. In *Pictographs of the Coso Region: Analysis and Interpretations of the Coso Painted Style*, edited by R. A. Schiffman, D. S. Whitley, A. P. Garfinkel, and S. B. Andrews, pp. 47–66. Publications in Archaeology No. 2. Bakersfield, CA: Bakersfield College.

Wilke, P. J., and H. W. Lawton

1976 *The Expedition of Capt. J. W. Davidson from Fort Tejon to the Owens Valley in 1859*. Ballena Press Publications in Archaeology, Ethnology, and History 8. Socorro, NM: Ballena Press.

Wilke, P. J., and M. McDonald

1989 Prehistoric Use of Rock-Lined Cache Pits: California Deserts and Southwest. *Journal of California and Great Basin Anthropology* 11(1):50–73.

Woody, A.

1996 Layer by Layer: A Multigenerational Analysis of the Massacre Lake Rock Art Site. Technical Report 97-1. Reno: University of Nevada.

Wylie, A.

1989 Archaeological Cables and Tacking: The Implications of Practice for Bernstein's "Options beyond Objectivism and Relativism." *Philosophy of the Social Sciences* 19:1–18.

1992 The Interplay of Evidential Constraints and Political Interests: Recent Archaeological Research on Gender. *American Antiquity* 57:15–35.

Yohe, R. M., II

1992 A Re-evaluation of Western Great Basin Cultural Chronology and Evidence for the Timing of the Introduction of the Bow and Arrow to Eastern California Based on New Excavations at the Rose Spring Site (CA-Iny-372). Ph.D. dissertation, Anthropology Department, University of California, Riverside.

1998 The Introduction of the Bow and Arrow and Lithic Resource Use at Rose Spring (CA-INY-372). *Journal of California and Great Basin Anthropology* 20:26–52.

2000 Rosegate Revisited: Rose Spring Point Temporal Range in the Southwestern Great Basin. In *Archaeological Passages: A Volume in Honor of Claude Nelson Warren*, edited by J. S. Schneider, R. M. Yohe, II, and J. K. Gardner, pp. 213–224. Hemet, California: Western Center for Archaeology and Paleontology.

Yohe, R. M., II, and M. Q. Sutton

1999 Settlement, Subsistence, Technology, Environmental Change, and the Rose Spring Period in the Western Mojave Desert. Paper presented at the 1999 Kelso Conference on California Desert Prehistory, Panamint Springs, California.

2000 Implications of Technological and Environmental Change in the Rose Spring Period in the Western Mojave Desert. Paper presented at the 2000 Annual Meeting of the Society for California Archaeology, Riverside, California.

Younkin, E. (editor)

1998 *Coso Rock Art. A New Perspective*. Maturango Museum Publication 12. Ridgecrest, CA: Maturango Press.

Zachos, J., M. Pagani, L. Sloan, E. Thomas, and K. Billups

2001 Trends, Rhythms, and Aberrations in Global Climate 65 Ma to Present. *Science* 292(5517):686–693.

Zigmond, M. L.

1938 Kawaiisu Territory. *American Anthropologist* 40:634–638.

1972 Some Mythological and Supernatural Aspects of Kawaiisu Ethnography and Ethnology. In *Great Basin Cultural Ecology: A Symposium*, edited by D. D. Fowler, pp. 129–134. Publications in the Social Sciences No. 8. Reno: Desert Research Institute.

1977 The Supernatural World of the Kawaiisu. In *Flowers of the Wind: Papers on Ritual, Myth, and Symbolism in California and the Southwest*, edited by T. C. Blackburn, pp. 59–95. Socorro, NM: Ballena Press.

1978 Kawaiisu Basketry. *Journal of California Anthropology* 5(2):199–215.

1986 Kawaiisu. In *Handbook of North American Indians*, Vol. 11: *Great Basin*, edited by W. L. D'Azevedo, pp. 398–411, William C. Sturtevant, general editor. Washington, D.C.: Smithsonian Institution.

n.d. Plant List (Partial List of Common Species Found in Little Lake Area.). Manuscript on file, Eastern California Museum Collection.

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