

The Del Rey Tradition and Its Place in the Prehistory of Southern California

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Abstract

Sometime about 3,500 BP in the Los Angeles Basin, the Encinitas Tradition was replaced by a new archaeological entity, heretofore generally assigned to the Intermediate and Late periods. The changes that initiated the beginning of the Intermediate Period included new settlement patterns, economic foci, and artifact types, all coinciding with the arrival of a new, biologically distinctive population. The Intermediate and Late periods have generally lacked any well-defined cultural designation; although it has frequently been proposed that the beginning of the Intermediate marked the arrival of Tadic groups and that the Late Period reflected a Shoshonean tradition. Related cultural and biological changes occurred on the southern Channel Islands at about 3,200 BP.

It is proposed herein that this new archaeological and cultural entity be named the Del Rey Tradition and that this tradition should replace the Intermediate and Late designations for both the southern California mainland and the southern Channel Islands. Within the Del Rey Tradition, two regional patterns, herein named Angeles and Island, each having several phases, are defined and discussed. Finally, it is proposed that the Del Rey Tradition represents the arrival, divergence, and development of the Gabrielino in southern California. It is hoped that the Del Rey Tradition, patterns, and phases will illuminate a much more dynamic prehistory than was possible by using the less developed designations of Intermediate and Late.

Introduction

The last broad syntheses of southern California prehistory were offered by Warren (1968, 1984) and Moratto (1984), who proposed several cultural traditions as alternatives to the temporal periods ("horizons") that had been suggested by Wallace (1955). Although Warren's traditions have generally been accepted, it seems that the study of these cultural traditions has more

recently been replaced by a focus on broad periods of environmental change, such as the early, middle, and late Holocene. Indeed, one can read many of the general treatments of southern California prehistory published in the last 20 years and see little, if any, reference to the actual cultural entities that produced the archaeological record.

Human adaptation is essentially a continuous series of adjustments to a dynamic natural and cultural environment, with environmental change (e.g., drought) being but one of the factors involved. It is commonly assumed (even if implicitly) that hunter-gatherers are somehow "close to nature" and that their activities are amenable to the same general biological analyses (e.g., optimization models) that work for other animals (e.g., Ingold 1987:11). While it may be true that changes in the natural environment loom large in hunter-gatherer adaptation, we must remember that they are not the only factors.

We can be reasonably sure that prehistoric peoples were organized into social, religious, and political entities, and although such organizations are difficult to infer, acquiring such knowledge remains a major goal in archaeology. These cultural systems can be very complex, even in "simple" societies, and the processes of cultural changes are not well understood. Generally speaking, changes in the natural environment are beyond the control of people, although people can

and do impact their environments. However, cultural change occurs when people make and implement decisions about any response to environmental change. Thus, it is people, not ocean temperatures or drought, that are responsible for actual cultural change.

This is not to say that the study of large-scale environmental change is not useful; indeed, it is critical. Such work permits the development of an understanding of some of the factors that result in people doing different things. However, other factors involved in cultural change may not involve the natural environment, such as a population migration or the diffusion of new technologies. We must remember to include human agency in the study of cultural change.

In coastal southern California, it is apparent that “distinctive new patterns of technology, economy, settlement patterning, and social organization” appeared about 3,500 BP (Raab et al. 2002:13). Beginning with Meighan (1959a), these changes have generally been interpreted as being the result of adaptations to changing natural environments. In the Chumash region of southern California, research into the development of social complexity (e.g., chiefdoms) as a result of environmental change has gained great popularity (Raab et al. 2002:13). The resulting assumptions and models are often extended southward along the southern California coast. This trend has resulted in a general theoretical framework that has focused on periods of broad environmental change (e.g., Late Holocene), minimized cultural traditions, and often dismissed population movement as a cause of cultural change. While there is some overlap in the archaeological records of the Santa Barbara and Los Angeles regions, the two regions are quite different and should not be considered analogous (e.g., Raab et al. 2002:14). While not discounting the role of the natural environment, it is proposed herein that we refocus on cultural tradition as a framework for understanding the cultural changes during the Late Holocene (ca. after about 3,500 BP).

Background

In his synthesis of southern California prehistory, Wallace (1955) proposed four cultural periods: I, Early Man; II, Milling Stone Assemblages (which has commonly been referred to as the Millingstone Horizon); III, Intermediate Cultures; and IV, Late Prehistoric Cultures. These were generally defined using cultural traits but were subsequently operationalized as temporal periods. Wallace (1955:221) lacked sufficient information to assign dates to the Early Man Period but suggested that the “Milling Stone” had begun about 5,000 years ago and lasted until about 3,000 BP. What has become known as the Intermediate Period (Wallace 1955:221) was defined with reference to the poorly known materials that spanned the “gap” between the Millingstone and the Late Prehistoric periods. Lacking any firm dating, Wallace (1955:223) guessed that the Intermediate began between about 3,000 and 2,000 BP and lasted until about 1,000 BP. The Late Prehistoric Period was seen as beginning about 1,000 BP and was characterized as being more complex than the Intermediate. Late manifestations included the appearance of elaborate artifact inventories and “distinctive local complexes” that lasted until contact (Wallace 1955:226).

A great deal more information has become available in the decades since Wallace’s groundbreaking synthesis, and his sequence has been revised to some extent. The Early Man Period is now commonly known as the Paleocoastal or Paleoindian Period (Moratto 1984; Erlandson et al. 2007) and is generally dated between about 13,000 and 8,500 BP. The Millingstone Horizon was redefined as the Encinitas Tradition (Warren 1968; also see Sutton and Gardner 2010), now dated between about 8,500 and 3,500 BP. In southern California, the Intermediate Period and Late Prehistoric (or just Late) Period have remained largely as Wallace defined them, and they continue to be employed as temporal periods in much the same way they were more than 50 years ago.

The division of prehistory into temporal periods provides an initial framework for understanding culture change through time. Change and adaptation occur in cultural contexts, although they are undoubtedly influenced by other factors, such as environmental fluctuations. Thus, archaeological materials must ultimately be placed in cultural contexts to be interpreted from an anthropological perspective. Prehistoric cultural contexts are difficult to interpret, but an understanding begins with an initial model, even if that model “pushes the envelope.”

Given what we have learned in the past few decades, it now seems opportune to reexamine the cultural contexts of the Intermediate and Late periods in southern California. As such, it is proposed that the archaeological materials of the Intermediate and Late periods in the Los Angeles Basin/southern Channel Islands region of southern California be reinterpreted as a cultural tradition, herein named the Del Rey Tradition, with two patterns designated Angeles and Island (Figure 1). It is argued that the Del Rey Tradition began with the arrival of Takic groups into the Los Angeles Basin about 3,500 BP and persisted into contact times.

Each of these two proposed patterns within the Del Rey Tradition can be broadly viewed as an archaeological culture, a construct that serves to model extinct cultural organizations by including those facets of human behavior as detected in the archaeological record. Thus, patterns are modeled as the equivalent of “cultures,” and their phases as more specific expressions of that culture through time and space. Each of the patterns would be related to each other through the tradition (akin to a European tradition with an English pattern having feudal, imperial, and democratic phases).

The Del Rey Tradition takes its name from the Del Rey site (CA-LAN-63), located near Santa Monica in the Marina del Rey area. (Each of the archaeological sites discussed in the text is shown in Figure 2.) The

Del Rey site was occupied primarily throughout the Intermediate Period and into the Late Period and has been the subject of a number of investigations (Van Horn 1987; Altschul 1997; Altschul et al. 2005, 2007). In sum, the Del Rey site manifests a broad range of the characteristics used to define the Del Rey Tradition and so can serve as its type site.

The Intermediate Period: A Review

The first use of the term Intermediate in southern California seems to have been by Olsen (1930:16-17), who defined (but did not date) five cultural periods for the Santa Barbara mainland coast: (1) Archaic, (2) Early Mainland, (3) Intermediate Mainland, (4) Late Mainland, and (5) Historic. Twenty-five years later, Wallace (1955) used this same basic scheme in his outline of southern California prehistory south of the Santa Barbara area. Wallace’s (1955) Intermediate encompassed all but the later part of Olsen’s “Mainland” sequence and included the Hunting Culture proposed by Rogers (1929) for the Santa Barbara region (now called the Campbell Tradition), as well as materials from the Malibu coast and San Fernando Valley. Wallace (1955:223) postulated that the Intermediate Period dated between about 3,000 and 1,000 BP, a time frame that is still widely utilized.

Following Wallace (1955), Meighan (1959b:Figure 6) also equated the Hunting Culture with the Intermediate, which he dated between about 5,000 and 1,600 BP. He noted, however, that definitions of “Intermediate cultures have remained nebulous” (Meighan 1959a:383). Leonard (1966:221) thought that the “Intermediate Period” was represented in the Santa Monica Mountains and dated it between 3,000 and 1,000 BP. Leonard (1966:221) also observed that Intermediate components were always found with other components (above Millingstone or below Late components), suggesting some cultural continuity between the three “occupations.”

In the next major synthesis of southern California prehistory, Warren (1968:2-3) defined the Encinitas Tradition (essentially Wallace’s Millingstone) and proposed that it persisted along the Los Angeles and Orange County coasts until about 1,250 BP, when it was replaced by the Shoshonean Tradition. Warren (1968:2-3) suggested that the Campbell Tradition (Hunting Culture) of the Santa Barbara region influenced developments along coastal southern California and implied that Wallace’s Intermediate equated with the Campbell Tradition, marked by the appearance of mortars and pestles. Warren (1968) did not suggest

that the Campbell Tradition, or the Intermediate, played a prominent role in the prehistory of southern California and implied that the “gap” filled by the Intermediate was minor.

Kowta (1969) reviewed the archaeology of interior southern California, and although he mentioned an “Intermediate Horizon” (Kowta 1969:40), he did not define or discuss it. Apparently for the lack of a better instrument, the Intermediate label has been used by some scholars in interior southern California to describe the poorly known time between the

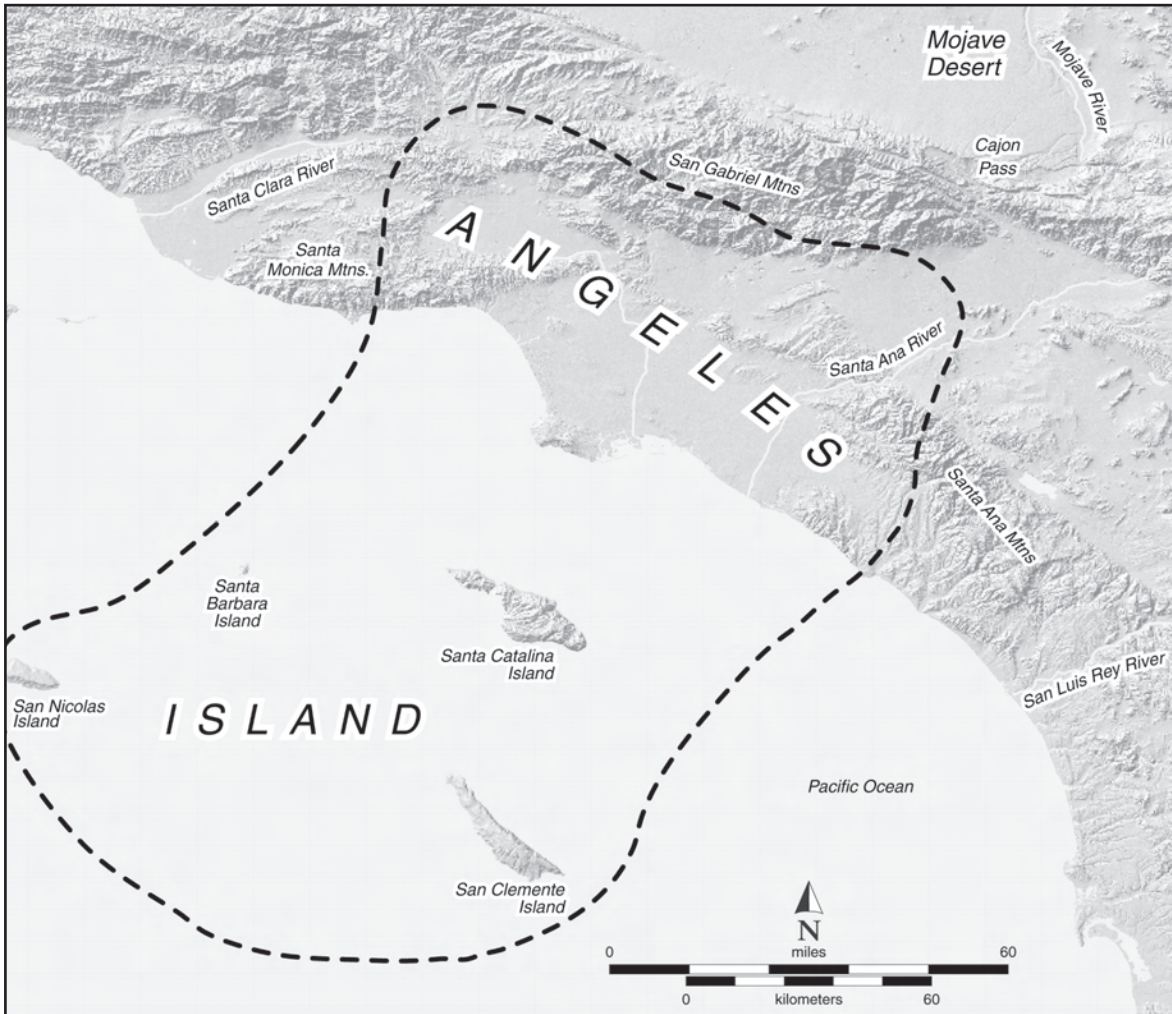


Figure 1. General geographic extent (dashed lines) of the Del Rey Tradition in southern California, showing the general location of the Angeles and Island patterns.

Encinitas Tradition and the Late Period (e.g., Langenwalter and Brock 1985; also see Goldberg and Arnold 1988:13-14).

Until the early 1980s, the “Intermediate” was used rather uncritically as a temporal period (see Moratto 1984:Figure 4.5) and was defined in several ways, with different time spans and traits for different regions. In the Santa Barbara area, the Intermediate was ultimately replaced by the designations Early and Middle periods (Moratto 1984:145; King 1990:93-94;

also see Erlandson 1994:47), and the term Intermediate dropped out of general usage in that region.

At the same time, however, the Intermediate Period continued to be used in Los Angeles and Orange counties, but it became somewhat better defined (e.g., Koerper and Drover (1983:Figure 5). It had become clear that major changes in the archaeological record were evident around 3,000 BP (the date first proposed by Wallace [1955]) and that the Encinitas Tradition ended at about that time. These changes included new

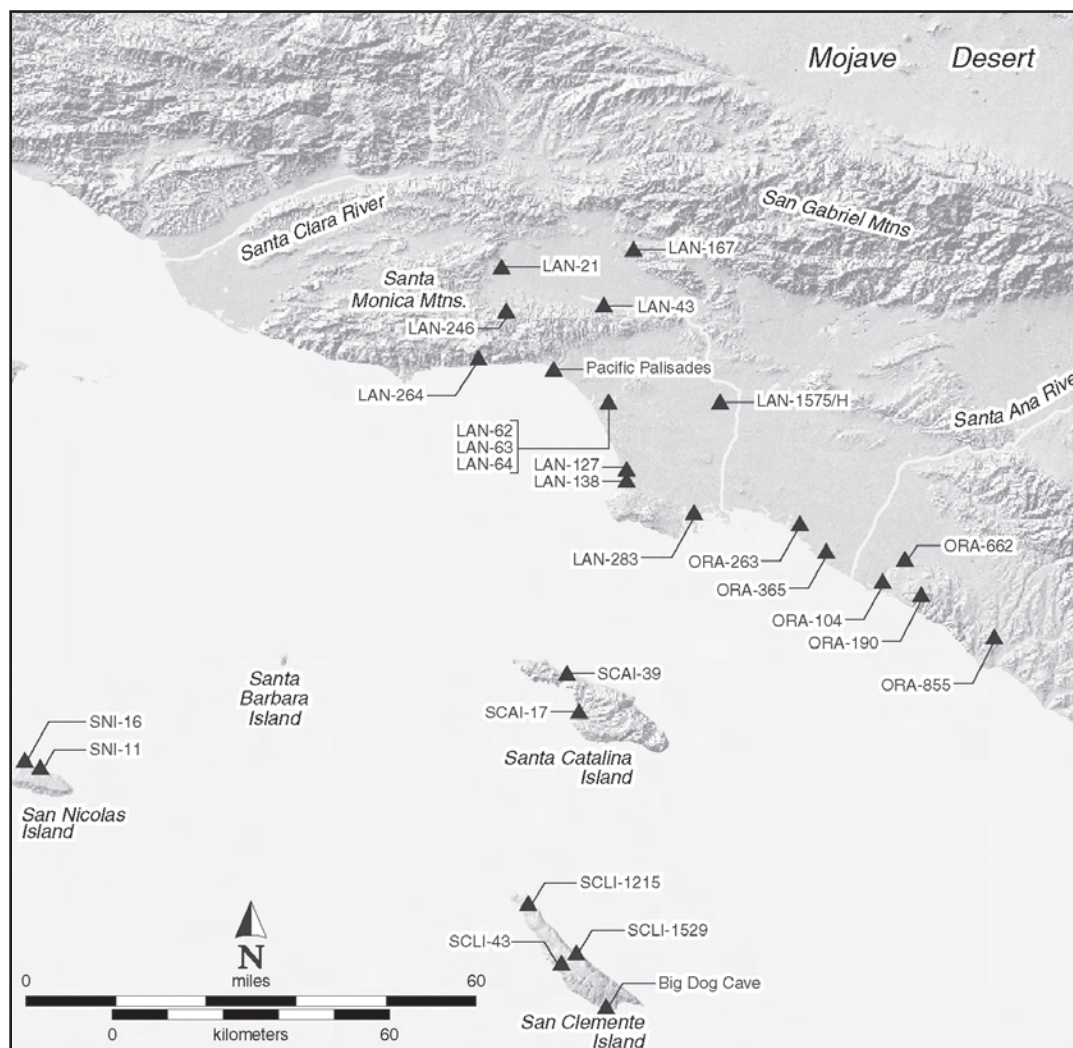


Figure 2. Location of sites mentioned in the text.

artifact types, different settlement and subsistence systems, and an apparent population increase.

Mason and Peterson (1994:18-20) employed the Intermediate in the same manner as Koerper and Drover (1983), using the same basic dating (ca. 3,000 to 1,350 BP) and noting that little was known of the Intermediate in Orange County. Koerper et al. (2002) placed the beginning of the Intermediate at some time between about 4,000 and 3,000 BP, suggesting that 3,400 BP marked the transition between the “late Milling Stone and early Intermediate periods, a time coinciding with the Middle to Late Holocene interface” (Koerper et al. 2002:68), now dated at about 3,350 RCYBP (Erlandson 1997:5).

Since the 1980s, the Intermediate Period has been routinely used in cultural chronologies of coastal southern California (e.g., Stoll et al. 2003; Ciolek-Torrello et al. 2006; Cleland et al. 2007). Others, however, have chosen to use alternative systems to organize southern California prehistory, such as early, middle, and late Holocene (e.g., Gamble and Russell 2002; Byrd and Raab 2007) or early, middle, and late Archaic (e.g., Horne and McDougall 2008).

Following the general Koerper and Drover (1983) definition, the Intermediate represents one of at least three possibilities: (1) a direct development from the earlier Encinitas Tradition; (2) the appearance of a new Takic population; or (3) the appearance of a new, non-Takic, population. There is little evidence to support the idea that the Intermediate reflects an in situ cultural evolution from the Encinitas Tradition, and it is generally accepted that it signifies the appearance of a new population replacing Encinitas groups.

No non-Takic population has ever been proposed as a possible entrant into the region at the beginning of the Intermediate, a point in time that has increasingly become linked to the arrival of Takic groups in southern California, the so-called “Shoshonean

Wedge” (see Sutton 2009). For example, Mason et al. (1997:58, 60; also see Grenda et al. 1998) reported a settlement shift in the Newport Bay area ca. 3,000 BP and viewed this as marking the Takic arrival. Grenda and Altschul (2002:128), Stoll et al. (2003:16), and Altschul et al. (2005:285-295, 2007:35) argued that there had been several migrations of desert peoples to the coast during the Holocene, and they suggested that the sudden influx of people in the Marina del Rey area at about 3,000 BP represented the Takic arrival. Sutton (2009) placed the Takic influx in coastal Los Angeles and Orange counties at about 3,500 BP. Thus, a general consensus has been formed that archaeological evidence from the beginning of the Intermediate represents the arrival of Takic groups.

The Late Period: A Review

Over the years, the Late Period in southern California has been loosely and poorly defined, but it is generally marked by the appearance of material culture that was “more complex” than before. Most recently, the appearance of bow and arrow technology at about 1,500 BP has become the marker trait for the beginning of the Late Period (e.g., Koerper et al. 1996:277).

“Late” cultures in southern California were first defined in the Santa Barbara region, where they were named Canaliño by Rogers (1929). Canaliño was viewed as the archaeological manifestation of Chumash culture and was subsequently divided into early, middle, and late (Orr 1943; Harrison 1964; also see Olsen 1930; Curtis 1959), with Late Canaliño beginning about 2,000 BP. Late Canaliño (see Orr 1943:32) was characterized by reburials, flexed burials with whalebone markers, circular fishhooks, skirt weights of asphalt, steatite ollas, and various shell beads.

Wallace (1955:223, 226) proposed that Late Period witnessed “a number of distinctive local complexes” characterized by a variety of traits that generally dated after 1,000 BP. Walker (1951; also see Wallace 1955:

Table 2) used the term “Malaga Cove IV” to classify “late” materials in the Los Angeles area. Warren (1968:2-3) did not define a “Late Period” in southern California, but he did posit the entry of a “Shoshonean Tradition” into the Los Angeles area, beginning perhaps about 1,350 BP (Warren 1968:Figure 1). Insufficient information was available at that time to characterize the Shoshonean Tradition (Warren 1968:5).

There has since been little effort to refine an understanding of the Late Period in southern California. Many archaeologists have subsumed the Late Period within the Late Holocene that began approximately 3,500 BP. As such, the Late Holocene tends to be employed as a single analytical unit in which post 1,500 BP materials are difficult to impossible to separate from earlier materials. On the other hand, others continue to use the Wallace (1955) chronology that includes a Late Period, often with little modification or explanation (e.g., Mason and Peterson 1994:18-20; Altschul et al. 1998; Stoll et al. 2003; Ciolek-Torrello et al. 2006; Cleland et al. 2007). Thus, a thorough understanding of the Late Period remains elusive, but it is commonly viewed as being specifically linked to the late prehistoric and ethnographic Takic groups in southern California.

A Cultural Context: The Del Rey Tradition

The inception of the Intermediate Period was marked by changes in cultural assemblages from the preceding Encinitas Tradition, and these new assemblages are herein used to define the newly designated Del Rey Tradition. Regional variations of the Del Rey Tradition are defined here as patterns, units of cultural similarity in traits that are part of technology, settlement systems, mortuary practices, and the like. The next (lower) taxonomic level, phase, is used to designate subdivisions within a pattern as identified by specific changes in cultural assemblages through time. These phases are identified by their archaeological signatures in components within sites.

Two patterns of the Del Rey Tradition are herein defined: Angeles and Island, each with several phases (see Table 1 and Figure 3). These two patterns reflect geographic variability within the Del Rey Tradition (Figure 1), but it is important to note that the geographic boundaries of the various phases of the Angeles Pattern are unclear at this time. The Angeles Pattern is the earliest of the Del Rey expressions, and the marker assemblages for its first two phases incorporate those that were used to define the Intermediate Period. Later Angeles phases incorporate cultural assemblages of the Late Period. The Island Pattern on the southern Channel Islands incorporates the material culture that has been used to define assemblages within the Late Holocene.

It is argued here that the inception of the Del Rey Tradition directly represents the arrival of Takic people in the Los Angeles Basin about 3,500 BP (Sutton 2009, 2010). These Takic people were biologically, culturally, and linguistically different from the earlier Encinitas populations (Sutton 2009), and they brought with them at least one new language (proto-Gab/Cupan), new settlement and subsistence systems, and probably other presently unrecognized cultural elements. Thus, it seems clear that these new people can be directly linked to the Del Rey Tradition, and this linguistic continuity implies cultural cohesion through time. If that linguistic connection is later shown to be erroneous, however, the patterns and phases of the Del Rey Tradition should still be valid archaeological entities.

As originally proposed by Wallace (1955), the date of about 3,000 BP has been traditionally thought to be the beginning of the Intermediate Period, and this “round number” frequently appears in the literature. This time frame was based on a “best guess,” but subsequent dating of the changes in the record now make it clear that this date should be adjusted to about 3,500 BP (e.g., Raab et al. 2002:13; Sutton 2009). This 3,500 BP date is the same as that for the suggested arrival of Takic groups into the Los Angeles Basin, a date

Table 1. Patterns, Phases, Traits, and Linguistic Correlates of the Del Rey Tradition of Southern California.

Pattern	Phase	Dates (BP)	Material Traits	Other Traits	Proposed Linguistic Correlates
Angeles	Angeles VI	450 to 150	addition of Euroamerican material culture (e.g., glass beads and metal tools), locally made pottery, metal needle-drilled <i>Olivella</i> beads	change of settlement pattern, movement close to missions and ranches; use of domesticated species obtained from Euroamericans; flexed primary inhumations continue, cremations uncommon to the north (near the Chumash) but somewhat more common to the south (near the Luiseño); apparent adoption of Chingichingish religion	mainland dialects of Gabrielino
	Angeles V	800 to 450	trade of steatite artifacts from the southern Channel Islands becomes more intensive and extensive, with the addition or increase in more and larger artifacts, such as vessels and cornals; larger and more elaborate effigies	strengthening of ties, especially trade, with southern Channel Islands; expansion into the northern Santa Ana Mountains and San Joaquin Hills	development of mainland dialects of Gabrielino
	Angeles IV	1,250 to 800	Cottonwood points appear; some imported pottery appears; birdstone effigies at the beginning of the phase and "Wallace spike" effigies dropped by the end of the phase; possible appearance of ceramic pipes	change in settlement pattern to fewer but larger permanent villages; flexed primary inhumations continue, cremations uncommon; expansion into the San Gabriel Mountains, displacing Greven Knoll III groups	split of Gab and Cupan, with Cupan diffusing south, isolating Gab, which becomes proto-Gabrielino
	Angeles III	1,600 to 1,250	appearance of bow and arrow technology (e.g., Marymount or Rose Spring points); changes in <i>Olivella</i> beads; asphaltum becomes important; reduction in obsidian use; Obsidian Butte obsidian largely replaces Coso	larger seasonal villages; flexed primary inhumations but no extended inhumations and an increase in cremations; appearance of obsidian grave goods; possible expansion into eastern Santa Monica Mountains, replacing Topanga III groups	continued development of proto-Gab/Cupan
	Angeles II	2,600 to 1,600	continuation of basic Angeles I material culture with the addition of mortuary features containing broken tools and fragmented cremated human bone; fish-hooks become more common	continuation of basic Angeles I settlement and subsistence systems; appearance of a new funerary complex	continued development of proto-Gab/Cupan
	Angeles I	3,500 to 2,600	appearance of Elko dart points and an increase in the overall number of projectile points from Encinitas components; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and <i>Olivella</i> shell beads from the southern Channel Islands; appearance of single-piece shell fishhooks and bone harpoon points; Coso obsidian becomes important; appearance of donut stones	appearance of a new biological population, apparent population increase; fewer and larger sites along the coast; collector strategy; less overall dependence on shellfish but fishing and terrestrial hunting more important; appearance of flexed and extended inhumations without cairns, cremations uncommon	arrival of proto-Gab/Cupan (Takic) from the north
Island	Island IV	450 to 200	possible addition of some Euroamerican material culture	apparent adoption of Chingichingish religion; general abandonment of the islands after about 200 BP	Santa Catalina and San Nicolas dialects of Gabrielino
	Island III	750 to 450	increased production of shell beads and steatite artifacts, particularly vessels and cornals	strengthening of ties, especially trade, with the mainland; relatively small number of major villages along the coasts; some smaller sites inland; maritime economy dominated by fishing; flexed primary inhumations	development of Santa Catalina and San Nicolas dialects of Gabrielino
	Island II	1,500 to 750	appearance of bow and arrow technology (e.g., Marymount and Cottonwood points) but never of much importance; birdstone effigies appear near the beginning of the phase and "Wallace spike" effigies dropped by the end of the phase; appearance of Obsidian Butte obsidian	reduced population of the islands and movement of settlements to permanent water sources due to the apparent impact of the MCA; flexed primary inhumations	proto-Gab
	Island I	3,200 to 1,500	appearance of shell fishhooks, bone harpoon points, obsidian, and donut stones; stone projectile points uncommon; beginning of large-scale trade in small steatite artifacts (effigies, pipes, and beads) and <i>Olivella</i> shell beads with the mainland	appearance of a new biological population, increase in population, change in settlement pattern to more and larger villages, greater use of "inland" areas; increase in fishing with decreases in sea mammal and shellfish; animal burials; flexed primary inhumations	proto-Gab/Cupan

General Dates (BP)	Tradition	Los Angeles Basin and Northern Orange Counties		Southern Channel Islands	
450-150	D E L R E Y	Angeles VI		Island IV	
800 to 450		Angeles V		Island III	
1,250 to 800		Angeles IV		Island II	
1,600 to 1,250		Angeles III			
2,600 to 1,600		Angeles II		Island I	
3,500 to 2,600	E N C I N I T A S	Topanga III	Angeles I		
		Topanga II			Middle Holocene (no cultural tradition yet defined)
		Topanga I			Early Holocene (no cultural tradition yet defined)
10,000 to 8,500	undefined	San Dieguito		unknown	
to 10,000	undefined	Paleocoastal			

Figure 3. Proposed new cultural sequence for the Los Angeles region of southern California.

derived from independent biological data. Therefore, the inception of the Del Rey Tradition is proposed here as 3,500 BP.

A New Biological Population

One of the major hallmarks of the proposed Del Rey Tradition is its apparent association with the arrival of a distinct biological population in the Los Angeles Basin at about 3,500 BP and onto the southern Channel Islands by about 3,200 BP. Several lines of biological data support this model of population movement, including cephalic (from living people) and cranial (from archaeological burials) indices (collectively CI) and ancient DNA (aDNA) (see Sutton 2009). In sum, the CI data indicate the appearance of a “Western Mono Type” population replacing a “California Type” population (see Gifford 1926a:224, 1926b) in southern California at about 3,500 BP. The Western Mono type is rare and characteristic of the Tubatulabal and Western Mono to the north. The CI values of the Western Mono Type are quite different from those of the surrounding “California” type populations (see discussion in Sutton 2009:40-46; also see Titus 1987; Kerr 2004; Sutton 2010). The aDNA data (summarized in Sutton 2009:48-50; also see Potter 2004), obtained primarily from the southern Channel Islands, suggest the arrival of a genetically distinct population, likely speakers of Uto-Aztecan languages, sometime during the transition from the Middle to the Late Holocene. Unfortunately, the available aDNA data base is small and difficult to interpret (also see Johnson and Lorenz 2006). Using a variety of bioarchaeological data sets, Ezzo (2002:86; also see Hawley 2001:27, 37, Table 5) concluded that it was “clear that San Nicolas Island was occupied by at least two very distinct phenotypic groups,” the earlier of which was replaced by an “ethnically distinct population ancestral to the Gabrielinos” (also see Kerr and Hawley 2002; Kerr et al. 2002; Kerr 2004).

Thus, individuals within burial populations attributed to the Del Rey Tradition should possess CI values

within the range of the Western Mono physical type (dolichocephalic; average CI of 76). In addition, aDNA data should closely link them with populations believed to have spoken Uto-Aztecan languages for the last several thousand years (e.g., Tubatulabal or Gabrielino) rather than with the Takic groups to the east (e.g., Luiseño, Cupeño, or Cahuilla) who are believed to be biologically Yuman (Sutton 2009).

The Angeles Pattern of the Del Rey Tradition

The Angeles Pattern generally occurred in the Los Angeles Basin (Figure 1) along the mainland southern California coast and is divided into six phases (I–VI), with Angeles I being the initial expression of the Del Rey Tradition (see Table 1 and Figure 3). The Angeles Pattern appeared about 3,500 BP (the same date as the beginning of the Intermediate), and many of the traits that had been used to define the Intermediate are subsumed into the archaeological signature of Angeles I. Subsequent Angeles Pattern phases reflect changes in various traits through time, ultimately leading to the ethnographic Gabrielino.

The Angeles Pattern of the Del Rey Tradition replaced the Encinitas Tradition in the Los Angeles Basin (with Angeles I replacing the Topanga II phase of the Encinitas Tradition, see Sutton and Gardner [2010]). Encinitas was remarkably successful as an adaptation, with a very general and flexible, albeit conservative, subsistence strategy that focused on collecting with little emphasis on hunting (Warren 1968:6; Hale 2001:165). The Angeles adaptation appears to have been less technologically conservative and more ecologically diverse, with a largely terrestrial focus and greater emphases on hunting and nearshore fishing.

The Angeles Pattern, Phase I

Phase I of the Angeles Pattern is marked by the appearance of a number of new traits, including those related to material culture, mortuary practices, settle-

ment systems, and subsistence practices. In addition to the appearance of new traits, a number of other characteristics associated with the preceding Topanga II phase of the Encinitas Tradition disappear from the record. In the Los Angeles Basin, Angeles I began about 3,500 BP and lasted until it was replaced by Angeles II about 2,600 BP.

Angeles I Material Culture

A number of new material culture traits mark the inception of Angeles I. In addition, several Encinitas (Topanga) traits, such as discoidals, cogged stones, plummet-like charmstones, and cairn burials (see Sutton and Gardner 2010:Table 1) virtually disappear from the record.

Stone projectile points are relatively rare in Encinitas components, but their numbers increase markedly in Angeles I components. Arriving Angeles I groups would have been using atlatls and darts, probably tipped with Elko or Gypsum series points (Heizer and Baumhoff 1961; also see Heizer and Hester 1978:5-7; Thomas 1981:32-33), which generally date between 4,000 and 1,800 BP in the Mojave Desert (Sutton et al. 2007:241). Thus, it is possible that the appearance of Elko series points marks the inception of Angeles I. Such points have been identified at a number of sites in Los Angeles County (e.g., Lambert 1983:Figs. 2, 5, 6; Van Horn and Murray 1985:95-97, 247, Figs. 31, 92) and in Orange County (Koerper and Drover 1983:10, 12; Koerper et al. 1994:Table 3; Macko 1998:103; Cleland et al. 2007:193), but are not common. However, Elko points are widely distributed across the West and should not, by themselves, be considered ethnic markers.

Very little steatite from Santa Catalina Island is known in Encinitas components in southern California (e.g., Koerper et al. 2002:69). The importation of relatively small artifacts of steatite—including effigies, pipes,

and beads—from Santa Catalina Island began during Angeles I, demonstrating an increase in contact (trade?) between the mainland and the southern Channel Islands. Steatite vessels appear to have been rare in Angeles I. Trade in other materials, such as foods and furs, between the mainland and southern Channel Islands may also have occurred at this same time (e.g., McCawley 2002:59-60).

Shell beads and ornaments, uncommon in Encinitas components, also increased significantly in Angeles I components. *Olivella* sp. shell beads were probably produced on the southern Channel Islands, and new bead types (Koerper et al. 2002:69) include *Olivella* wall disks with large perforation diameters (ca. 2.5 to 3.0 mm) (Class J per Bennyhoff and Hughes 1987:136), small *Olivella* spire-ground beads (Type A1a per Bennyhoff and Hughes 1987:117-118), and teardrop/oval *Megathura* sp. rings. Artifacts inlaid with shell beads also appear.

New technologies for fishing emerged during Angeles I, including bone harpoon points (Kowta 1969:48) and fishhooks. Single-piece circular *Haliotis* shell fishhooks have been found along the Los Angeles coast and on the Channel Islands after about 3,300 BP (Koerper et al. 1988a, 1995, 2002:68; Raab et al. 1995:14; Rick et al. 2002, 2005:209), although an anomalous radiocarbon date of between 4,230 and 5,200 BP was obtained on a “shell fishhook” from San Clemente Island (Goldberg et al. 2000:37). Such technology is also present to the north in the Santa Barbara region but may be later, perhaps 2,500 BP (Glassow 1996:22), suggesting the possibility that fishhooks may have diffused north at about that time. Fishhooks are relatively uncommon on the mainland coast and are absent south of Orange County (see Strudwick 1985). There is no direct evidence for ocean-going boats in Angeles components, but it seems apparent that some ocean-going conveyance was employed if people were moving back and forth between the islands and the mainland.

The use of obsidian appears to have increased in Angeles I from that of the Encinitas (Topanga) assemblages in the Los Angeles region. As in Encinitas assemblages, nearly all of the obsidian in Angeles I assemblages originated from sources to the north, primarily the Coso Volcanic Field (e.g., Koerper et al. 1986; 2002).

Other traits that might mark Angeles I include S-twist textiles (Rozaire 1967:330; Lauter 1982:87-88; Titus 1987:23; Bleitz 1991), bone whistles, and bone beads. Beads of steatite and schist began to appear in greater numbers (e.g., King 1990:133; Altschul et al. 2007:35), and there may be regional differences in the utilization of island and mainland steatite and schist sources (e.g., Eddy 2009).

Donut stones may also be an Angeles I trait. These artifacts are known from both the Santa Barbara region (including the northern Channel Islands) and the Los Angeles region (including the southern Channel Islands). Those that have been dated appear to be “late” (Molitor 2000:53), meaning the Late Holocene or after ca. 3,350 BP. Donut stones have been discovered in a variety of contexts, including both secular and ritual, and are often found in burials and cremations (Koerper 2006:95). This artifact type apparently persisted until contact (Angeles VI phase).

Of particular interest is the identification of a new type of microlith at components identified as “Intermediate” (Angeles I) in the Marina del Rey area (Altschul et al. 2005:288). These small artifacts are blades that were apparently hafted and used for cutting or graving wood or stone (Van Horn 1987:241). They differ from the triangular or trapezoidal microliths apparently used in the Chumash region as drills for manufacturing shell beads and other artifacts (e.g., Swartz 1960:406). Interestingly, blade technology was not thought to have occurred in “areas inhabited by Shoshonean speakers” in southern California (Swartz 1960:406), so it is unclear whether

these tools are a general Angeles I trait or a localized tool form.

Angeles I Mortuary Practices

One of the traits of the Topanga II phase of the Encinitas Tradition is flexed and extended primary inhumations and secondary inhumations, sometimes under stone cairns (Sutton and Gardner 2010:Table 1). In Angeles I, this general custom changed to primarily flexed primary inhumations, with extended inhumations and cairns becoming less common (Koerper and Fouste 1977:40-44; Allen 1994; Goldberg 1999:122). It may be that more tightly defined burial areas appear, perhaps associated with particular domestic groups, and perhaps an indicator of the establishment of territories and notions of land tenure (Richard Ciolek-Torrello, personal communication 2010).

Cremation has been widely considered to be a trait associated with Takic peoples in southern California (e.g., King and Blackburn 1978:535), and it has been suggested (King 1990:199; also see Gamble and Russell 2002:123) that cremations appeared in southern California about 3,500 BP and that the practice was related to the arrival of Takic groups (e.g., Angeles I). However, cremations in the greater Los Angeles region date no earlier than about 2,600 BP, were not widespread, were practiced only occasionally (see Koerper and Fouste 1977:40-44; Allen 1994; Gamble and Russell 2002; Wheeler 2004; Koerper et al. 2008), and do not appear to be a Takic marker (Sutton 2009:59).

Angeles I Settlement Systems

A shift in settlement systems is apparent across the Los Angeles Basin at about 3,500 BP. In the Ballona wetlands at Marina del Rey, many sites containing components that span the Encinitas Tradition (Topanga) through the historic period have been investigated. Until about 3,500 BP, the tops of the bluffs along the Ballona were well occupied, while

the bases of the bluffs (where the marshes were located) were only sparsely occupied (Altschul et al. 2005; Douglass et al. 2005; Van Galder et al. 2007). After about 3,500 BP, however, there appears to have been a change in the functional use of specific sites. Prior to 3,500 BP, sites were apparently general-purpose locales, but after 3,500 BP, many became task specific. After about 3,500 BP, the sites on top of the bluffs contained complex site structures that included definite residential, food processing, and ceremonial areas, a diversity of features, and large well-developed middens, while those in the marsh areas contained hearths and milling equipment but little evidence of habitation.

In the Newport Bay area of Orange County, a series of settlement shifts was noted after about 3,500 BP. Mason et al. (1997:58, 60; also see Altschul et al. 1998:20-26) reported a settlement shift in the Newport Bay area from many small sites to fewer and larger sites ca. 3,500 BP, possibly indicating a decrease in population (Altschul et al. 1998:26). Koerper et al. (2002:63, 73) also noted what appeared to be a decreased population in the Newport Bay area during the latter part of the Encinitas Tradition (Topanga II) and the early part of the Intermediate, suggesting that the emphasis in occupation shifted from Newport Bay to Bolsa Chica about 4,000 BP with a shift back to Newport Bay sometime after about 3,500 BP.

Koerper et al. (2002:73) observed that in the Newport Bay area Encinitas groups practiced a forager strategy, moving between base camps on a seasonal basis. Koerper et al. (2002:73) then argued that the system changed to a collector strategy about 3,500 BP with permanent residential bases located no more than 3 km inland and task groups moving to the coast for fish and shellfish. Conversely, it has been suggested that the Newport coast and bay may not have been heavily utilized between about 3,500 and 1,300 BP and that people moved inland (e.g., Mason et al. 1997),

perhaps in response to increased El Niño activity that could have disrupted beach and kelp bed resources (Masters and Aiello 2007:43).

Angeles I Subsistence Practices

A change in subsistence practices has been noted along the southern California coast at about 3,500 BP. The subsistence system of the Encinitas Tradition was focused on collecting, including shellfish, with relatively little hunting (Warren 1968:6; but see Sutton 1993). Beginning sometime around 3,500 BP, the economic focus of mainland coastal peoples seems to have changed, with a small decrease in shellfish exploitation and an increasing focus on terrestrial resources (the increase in projectile points seems to support this idea). The establishment of sites along the riparian and marsh habitats in the Marina del Rey area implies the addition of resources from those ecozones as well. Altschul et al. (2007:37) suggested that these developments reflected a generally broader spectrum collecting strategy. Fishing increased in importance, but only nearshore species were exploited, evidently those that did not require the use of ocean-going boats.

An analysis of faunal exploitation at 12 sites in the Marina del Rey area spanning the last 8,000 years (Van Galder et al. 2007) revealed contradictory patterns. Van Galder et al. (2007) found that at the Marina del Rey sites the general Encinitas focus on terrestrial and littoral resources with modest use of pelagic fish and shellfish remained unchanged through about 1,000 BP, although site functions did change through time (see above). The meaning of these patterns is unclear, but the absence of major change in subsistence (presumably very sensitive to environmental change), coupled with significant changes in settlement, demographics, and mortuary ritual, appears to support the idea that cultural factors were the most important driving force in the evolution of Angeles I.

Angeles I: A Discussion

A series of remarkable changes occurred in coastal southern California at the end of the Encinitas Tradition about 3,500 years ago. A new way of life appeared, including changes in material culture, mortuary practices, settlement systems, and subsistence. These changes, previously associated with the beginning of the Intermediate Period, are now proposed to mark the inception of the Del Rey Tradition. Many of these changes occurred at about 3,500 BP (Raab et al. 2002:13), generally corresponding to the proposed entry of Takic peoples into southern California (Sutton 2009) and the timing of a population replacement on the southern Channel Islands at about 3,200 BP. The new Angeles I groups physically replaced the earlier Encinitas (Topanga II) Tradition populations in the areas they occupied. Therefore, Angeles I is suggested to date between 3,500 and 2,600 BP.

The geographic extent of the Angeles I pattern is unclear but included the Los Angeles Basin and northern Orange County (Figure 1). Inland Angeles I groups occupied at least some of the near coastal inland valleys, such as the San Fernando Valley. Other inland areas in southern California remained occupied by Greven Knoll II/III groups (see Sutton and Gardner 2010).

Sutton (2010:18) suggested that the initial Takic entrants into southern California (Angeles I groups) originated from the southern San Joaquin Valley north of the Los Angeles Basin and were generally adapted to “valley” ecozones, although the ocean would have also been familiar from their experience with the large lakes in the San Joaquin Valley. As such, Angeles I groups may have ignored some of the “mountain” areas where Encinitas groups are thought to have persisted for some time after about 3,500 BP. These “holdover” Encinitas groups survived until fairly late in time, as Topanga III groups in the Santa Monica Mountains until about 2,000 BP (see Sutton

and Gardner 2010:17), as La Jolla III groups in the far southern Orange County mountains and coast until about 1,500 BP, and Greven Knoll III groups in the San Gabriel Mountains until about 1,000 BP (see Sutton and Gardner 2010:21).

It is clear that some environmental changes occurred at the end of the Late Holocene (e.g., West et al. 2007:25). Beginning sometime about 3,000 BP, surface sea temperatures (SST) became more erratic, variously creating more or less favorable environments for marine productivity (e.g., Kennett and Kennett 2000). At about the same time, a highly variable climatic regime emerged, with episodes of El Niño conditions and drought (e.g., West et al. 2007:26). While there is little doubt that such environmental changes would have impacted resident populations and cultural practices, the biological evidence of a population replacement provides a reasonable argument that the changes observed in the archaeological record are the result of more than simple adaptations to environmental change.

The Angeles Pattern, Phase II

Phase II of the Angeles Pattern is identified primarily by the appearance of a new but poorly known funerary complex, reflecting new ceremonial and/or religious activities. This funerary complex emerged sometime about 2,600 BP, the date tentatively assigned to the beginning of Angeles II. Unfortunately, Angeles components lacking direct evidence of such a funerary complex (e.g., mourning features) would be difficult to distinguish as Angeles II.

The Angeles Funerary Complex

Large features containing rock cairns or platforms, broken tools and other materials, and cremated human remains have been identified at a number of sites in the Los Angeles Basin. These features and others have been variously called a cremation or mortuary

complex and have been generally thought to represent the predecessor of the Southern California Mourning Ceremony (e.g., Walker 1951:113-114). Given that the sites so far identified with this complex are known only within the Los Angeles Basin, it is herein named the “Angeles Funerary Complex” (AFC). A full consideration of this phenomenon is well beyond the scope of this article, but it is discussed briefly below.

The primary manifestation of the AFC is large rock features containing many broken tools (manos, metates, bowls, mortars, pestles, points, and a variety of other artifacts and materials), many of which are burned and appear to have been purposefully “killed.” Also contained within these features are highly fragmented cremated human bones and a variety of faunal remains. Other AFC features include small pits containing groups of “killed” tools and the burials of raptors (e.g., eagles). Human inhumations are sometimes found in association with the cremation features, but it is unclear whether these are actually part of the complex or are there merely by coincidence, such as subsequent inhumations being placed within older mortuary features. Interestingly, there is little to suggest that any of the burning was done in situ, meaning the burning had taken place elsewhere, after which the materials were moved and placed in a facility of some sort, perhaps an open pit or within a structure of some kind (e.g., a charnel house).

Materials clearly attributable to the AFC have been found at several sites, the best examples being at LAN-63 (the Del Rey site) and ORA-263 (at Landing Hill). At LAN-63, located near Marina del Rey, at least two such features were identified (Van Horn 1987; Altschul et al. 2005, 2007; Hull et al. 2006). The first, Feature 587, consisted of metate fragments, pestles, steatite vessel fragments, perforated steatite disks, scrapers, a pipe fragment, ochre (loose and smeared on some artifacts), faunal remains (bone and shell), and cremated human bone. This feature measured 5.0 x 5.0 m, was 50 cm deep, and was radiocarbon dated to about 2,100 BP (Hull et al. 2006:5). A second feature at LAN-63

(Feature 11) was smaller (approximately 1.0 by 0.8 m and 30 cm deep), contained broken pestles, steatite vessels, sandstone and basalt bowls, perforated steatite disks, edge-modified flakes, a burin, cores, steatite detritus, and faunal remains (bone and shell), but no cremated human bone, and it is viewed as an ancillary mourning feature. Feature 11 was radiocarbon dated to about 2,150 BP (Hull et al. 2006:4).

The second site with an AFC feature is ORA-263, located at Landing Hill (Cleland et al. 2007). Feature 2 measured approximately 5.0 by 3.5 m and was about 80 cm deep. Within the feature were fragmentary stone mortars and bowls (including a distinctive “flowerpot” specimen), manos, metates, pestles, a charmstone, two possible net weights, bifaces, projectile points (including one each of the Elko and Humboldt series), cores, debitage, hammerstones, stone and shell beads, modified bone, fossilized mammal bone, and as many as 145,000 fragments of cremated human bone (Cleland et al. 2007:Table 8-1, 100-107). Seven radiocarbon assays on burned human teeth from the feature place its use between about 2,250 and 1,650 BP (Cleland et al. 2007:Figure 8-15). However, the presence of *Olivella* cupped beads (e.g., Type K1, per Bennyhoff and Hughes [1987:137]; also see Gibson and Koerper [2000]) in the feature suggested the possibility that it was used as late as 800 BP (Cleland et al. 2007:113). Interestingly, two inhumations were also found in association with this feature and were dated within the time span of the cremation activity (Cleland et al. 2007:Figure 8-15). Cremated human remains were found within the fill of the inhumation grave pits, however, suggesting that these were separate events. The broad date range of the cremated remains suggests that secondary burials had been “curated” over time and cremated in a single event late in time (Cleland et al. 2007:113).

The AFC may be represented at a number of other sites as well. Features similar to those identified for the AFC have been found at Chatsworth (CA-LAN-21)

(Walker 1939, 1951; Tartaglia 1980), Big Tujunga Wash (CA-LAN-167) (Walker 1951; Ruby 1966), Malaga Cove (CA-LAN-138) (Walker 1951:63), and perhaps Palmer-Redondo (CA-LAN-127) (Wallace 2008:204). A cremation in a “flowerpot” mortar was discovered at the Mulholland site (CA-LAN-246) in the Santa Monica Mountains, dated between about 1,500 and 1,100 BP (Galdikas-Brindamour 1970; also see Wheeler 2004:91), but did not contain “killed” ground stone.

Similar materials were discovered at the Encino Village site (CA-LAN-43) in the San Fernando Valley (Cerreto 1986). King (1990:111) reported a number of *Olivella* grooved rectangle (OGR) beads associated with a “cremation mortuary” at the site. OGR beads generally date to the Middle Holocene and are associated with the Western Nexus Interaction Sphere (Sutton and Koerper 2009); one specimen from LAN-43 was radiocarbon dated to ca. 5,000 BP (Vellanoweth 2001:946, Table 1). However, Gamble and Russell (2002:123) reported that the cremation mortuary at LAN-43 contained steatite bowls and *Haliotis* disk beads, suggesting to King (as cited in Gamble and Russell [2002:123]) that the cremations dated to about 2,600 BP. Moreover, the earliest direct radiocarbon date on human remains from the site was about 1,260 BP (Taylor et al. 1986:Table 1). Thus, the presence of OGR beads at this site remains unexplained.

A possibly related cremation area was discovered at the Bluff site (CA-LAN-64) (Van Horn 1987; Altschul et al. 2005; Douglass et al. 2005) near Marina del Rey. This site contained a small area on the west side of the site with a concentration of inhumations with cremated human bone spread throughout the deposit of that area. In some cases, the cremated human remains were present in the fill of the inhumation pits, suggesting that the inhumations came later. One of the inhumations from LAN-64 was radiocarbon dated to 1,930 BP (Hull and Douglass 2005), suggesting that the cremations predated that time. No “killed” artifacts were found in association with the cremated remains or the inhumations.

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The nature and meaning of these features are unclear (see discussion in Cleland et al. [2007:112-116]). However, they do appear to be a trait limited to the Los Angeles Basin and are currently thought to date between about 2,600 and 1,500 BP. It is possible that these features represent the precursor of the Mourning Ceremony in southern California (cf., Lowie 1923:149; Johnson 1962:47-49; Bean and Smith 1978:545-546; McCawley 1996:161-165), one that found its “greatest development” among the Gabrielino and Luiseño (Kroeber 1925:860). It also seems possible that the AFC, or perhaps just some elements of it (e.g., animal burials), could be related to the later *Chingichngish* (or *Chengiichngesch* [McCawley 1996:143]) religion of the Gabrielino (Bean and Smith 1978:548; McCawley 1996:143-148; Jurmain and McCawley 2009:14-16) and Luiseño (Sparkman 1908:218-219; Bean and Shipek 1978:556).

Angeles II: A Discussion

The Angeles II phase does not represent a substantive change over Angeles I settlement, subsistence, or technology. However, the appearance of a radically new funerary complex (AFC) at about 2,600 BP is clearly a phenomenon that sets Angeles II apart. One would expect that a major change in mortuary practices as represented by the AFC would be accompanied by changes in social, political, and religious institutions, but such changes remain to be determined. However, if the AFC is related to the development of the ethnographically known Mourning Ceremony, it is possible that the AFC continued, possibly in modified forms, until contact. Nevertheless, at this time, Angeles II is proposed to date between about 2,600 and 1,600 BP.

The Angeles Pattern, Phase III

The Angeles III Phase is, in essence, the beginning of what has been known as the Late Period and is marked by several changes from Angeles I and II. These include the appearance of small projectile points

believed to reflect the use of the bow and arrow, an increase in the use of asphaltum, and changes in the availability of obsidian. In addition, the geographic extent of the Angeles Pattern apparently increased during Angeles III.

Angeles III Material Culture

Prominent among Angeles III traits are small projectile points weighing less than 3.5 grams, generally classified as arrow points and believed to reflect the emergence of bow and arrow technology (Fenenga 1953; Thomas 1978; also see Blitz 1988). It seems unlikely that the bow and arrow abruptly replaced the atlatl; rather, the two weapons systems and associated projectile point types probably coexisted for some time (Yohe 1998:49).

It is generally assumed that the bow and arrow diffused into coastal southern California from the Mojave Desert, probably about 1,600 BP (but see Koerper et al. 1996:276). Rose Spring series points have been identified as the initial arrow point in the Mojave Desert (see Sutton et al. 2007). Assuming that the bow and arrow came from the Mojave Desert and that Rose Spring series points were used, it seems logical to suggest that Rose Spring points should have accompanied the bow and arrow into coastal southern California. However, very few Rose Spring series points have been identified along the coast (but see Koerper et al. 1996:261), suggesting that some other point type was utilized or that the bow and arrow entered coastal southern California later. Koerper et al. (1996:261) proposed that the earliest arrow points in the region might simply be smaller versions of the atlatl points in use prior to the introduction of the bow and arrow.

Another possibility is that a coastal variant derived from the Rose Spring type was the earliest arrow point in southern California, and Marymount points appear to be the best candidate for this transition. The Marymount point series was defined by Van Horn

(1990; also see Van Horn and Murray 1987) as arrow points “distinctive by form and material” (Van Horn 1990:29). Marymount points are small (less than 40 mm in length), light (generally less than 3.5 grams), have shoulders, and are made of fused shale. Using data from a number of sites in southern California, Van Horn (1990:33) dated the occurrence of Marymount points “principally between AD 400-500 and 1000-1100” (ca. 1,600 to 900 BP).

The overall dating and description of Marymount points (illustrated by Van Horn [1990:Figures 1 and 2]) are very similar to specimens of the Rose Spring series. This similarity was recognized by Van Horn (1990:33), who suggested that “Marymount points should probably be regarded as a regional variant of a more widespread arrowhead type.” Thus, Marymount points should be considered a southern California coastal variant of Rose Spring (Van Horn 1990:35; also see Altschul et al. 2007:35). Van Horn (1990:29, 32-33) reported examples of Marymount points from a number of sites in coastal southern California (also see Koerper et al. 1996:261).

The distribution of the Marymount series appears to be almost entirely restricted to the Los Angeles coast (e.g., Koerper et al. 1996). If Marymount points reflect the entrance of the bow and arrow into the region and its distribution is limited, it is possible that the distribution of bow and arrow technology was also limited, at least until the widespread appearance of Cottonwood series arrow points in southern California about 1,250 BP.

Apparently associated with the adoption of the bow and arrow was the appearance of the steatite shaft straightener. While these artifacts clearly had a secular function, it is possible that they also served a ritual function (Koerper et al. 2008). Asphaltum, which was often used as an adhesive for hafting purposes, also seems to have become common after the inception of Angeles III.

At least one new bead type appeared in Angeles III (see Koerper et al. 2002:69), small *Olivella* wall disks (Class J after Bennyhoff and Hughes 1987:136). As suggested by Gibson and Koerper (2000:351), another change beginning with Angeles III was that the Class B barrel beads (Bennyhoff and Hughes 1987:122), usually made from *Olivella biplicata* shells, began to be made from *O. dama* shells, indicating some sort of linkage with shell sources in the Gulf of California.

Nearly all of the obsidian used by Encinitas Tradition groups and by people of the Angeles I and II phases of the Del Rey Tradition originated from geologic sources to the north, primarily the Coso Volcanic Field. Sometime about 1,000 BP, the trade of Coso obsidian decreased dramatically in the southern San Joaquin Valley (Sutton and Des Lauriers 2002), the Mojave Desert (Sutton 1996:240; Gilreath and Hildebrandt 1997:179; Gardner 2007:230-231; Sutton et al. 2007:244), and along the Santa Barbara Coast (e.g., Ericson and Meighan 1984:149). People in southern California adjusted to this problem by increasing the use of Obsidian Butte (located along the southeastern shore of the Salton Sea in Imperial County) obsidian, which appeared only after about 1,500 BP (Koerper et al. 2002:69; also see Hughes and True 1985; Koerper et al. 1986).

Angeles III Mortuary Practices

The Angeles Funerary Complex that marked the inception of the Angeles II phase appears to have continued into Angeles III (and possibly to contact). Nevertheless, several changes in mortuary practices not associated with the AFC characterize the Angeles III phase. Koerper and Fouste (1977:40-44) reported that cremation was rare in the archaeological record of the Los Angeles Basin (e.g., Gabrielino territory). In her review of mortuary practices in southern California, Allen (1994:128, 137, 139) noted that beginning about 1,500 BP, cremation increased to about 20 percent of the total burials, inhumations were no longer placed in an extended position, basketry impressions

associated with burials prior to about 1,500 BP disappeared (see Allen 1994:136-137), and obsidian grave goods appeared. The presence of obsidian in mortuary contexts might be related to the general decrease in the availability of obsidian (see above), with the material becoming more valuable.

Alternatively, in his study of prehistoric Gabrielino mortuary practices, Wheeler (2004) reported no increase in cremation after about 1,500 BP. Instead, he noted that between about 1,500 and 840 BP (roughly Angeles III and IV) the majority of mortuary sites in the Los Angeles Basin contained only inhumations (Wheeler 2004:109). According to Wheeler (2004), cremation increased only after about 840 BP (roughly Angeles V and VI), when most mortuary sites contained some evidence of cremation.

The timing of the increase in cremation appears to be in question. However, at the beginning of Angeles III, extended inhumation was dropped, basketry may no longer have been used as grave goods, and obsidian seems to have been added as a grave good.

Angeles III Settlement Systems

A series of models and explanations has been offered regarding Angeles III settlement shifts after about 1,500 BP (see review in Altschul and Grenda 1998:245-247). Chace (1969) argued that shell middens along the Newport Bay coast represented the winter gathering camps of an inland-based population. Hudson (1971:69-70) expanded this model and proposed a two-part fission-fusion model of "Late Horizon" or "proto-Gabrielino" territorial organization. From San Pedro north to Topanga, the primary villages would have been located along the coast, occupied in the summer by multiple clan groups exploiting marine resources and travelling to the islands. During the winter, these villages would have broken up into smaller units and moved inland to smaller habitation sites to exploit terrestrial resources. From San Pedro south to Newport Bay, the primary

villages would have been located inland, with secondary winter gathering sites along the coast (Hudson 1971:70). Drover (1974) suggested that at least some coastal sites could have been major habitations, an idea supported by Hudson (1977).

A second major settlement model for the “early Shoshonean Tradition” was proposed by Hafner et al. (1971:40; also see Chace 1974; Rice and Cottrell 1976:56-58, 60). This model proposed that the settlement pattern was one of small, dispersed habitation sites with smaller special purpose sites located along Newport Bay and the base of the San Joaquin Hills in Orange County. This model was generally supported by Koerper (1981) and Mason and Peterson (1994:19). Altschul and Grenda (1998:250) suggested that ecozone variation may be a factor in the interpretation of the settlement systems and that it is not clear which model has greater merit.

Angeles III Subsistence Practices

There seems to be relatively little to indicate major changes in the subsistence system between Angeles II and Angeles III. In the Marina del Rey area, the “Late Prehistoric” pattern of faunal (mammal, shellfish, nearshore fish, and bird) exploitation appears to have changed only marginally from the “Intermediate,” with small increases in shellfish, fish, and birds, and a decrease in mammals (Altschul et al. 2007:Figure 3; also see Van Galder et al. 2007). An increase in the use of small seeds (e.g., native barley, *Hordeum pusillum* and Reed canary grass, *Phalaris arundinacea*) has been observed in the Marina del Rey area during the “Late Period,” here defined as Angeles III (Richard Ciolek-Torrello, personal communication 2010).

In the Newport Bay area, Koerper et al. (2002:71) also noted several changes in subsistence beginning in the “Late Prehistoric.” These changes included a much higher emphasis on small schooling fish and an increase in the use of shellfish with a change from rocky shore to

bay species. Newly established inland sites (e.g., ORA-662) (Mason 2008) also contained substantial shellfish apparently transported 6 km from the coast, implying considerable labor and the possibility of expanding territorial boundaries (Koerper et al. 2002:71-72). Koerper et al. (2002:72) also noted an increase in the use of small seeds (e.g., native barley) and suggested that the use (or intensification) of such seeds may have been the impetus for the expansion of settlements into inland habitats (e.g., the San Joaquin Hills).

Only one major technological change that may have influenced subsistence, the bow and arrow, is evident in Angeles III. This technology would presumably have been more efficient for hunting small game, such as rabbits. Unfortunately, detailed data on lagomorph exploitation in Angeles III components is so far unavailable. However, faunal data from the Marina del Rey area suggest that the exploitation of deer increased in the “Late Period” (Richard Ciolek-Torrello, personal communication 2010).

Angeles III Population Movement

As mentioned above, it is possible that Angeles III groups expanded their territory at this time. It has been proposed that Topanga III groups persisted in the eastern portion of the Santa Monica Mountains until about 2,000 BP (e.g., Johnson 1966:20; also see Sutton and Gardner 2010:17). It has been suggested, however, that the Santa Monica Mountains were largely abandoned between 3,000 and 1,400 BP (Ciolek-Torrello et al. 2006:32; also see Moratto 1984), after which the area was occupied by Takic groups. Whichever the case, it seems clear that “Late” groups, here suggested to be Angeles III, occupied the Santa Monica Mountains by at least 1,500 BP (Figure 4).

Angeles III: A Discussion

A number of important changes mark the inception of Angeles III. The most visible of these is the

appearance of bow and arrow technology accompanied by small Marymount (Rose Spring variant) points. The bow and arrow likely diffused into coastal southern California from the Mojave Desert about 1,600 BP, although some believe it was a bit earlier (Koerper et al. 1996:276). Some changes in *Olivella* bead types and sources occurred, asphaltum became important, and obsidian use declined, with Coso obsidian being replaced by glass from Obsidian Butte (Koerper et al. 2002:69; also see Koerper et al. 1986).

Settlement patterns changed to larger seasonal villages located either along the coast or somewhat inland, and subsistence practices diversified and perhaps intensified. Extended inhumations ceased, flexed inhumations continued, and cremations increased, perhaps to about 20 percent (e.g., Allen 1994). Despite a decrease in the overall availability of obsidian, this material began to be used as a grave offering.

Angeles III groups appear to have expanded their territory by occupying the eastern Santa Monica

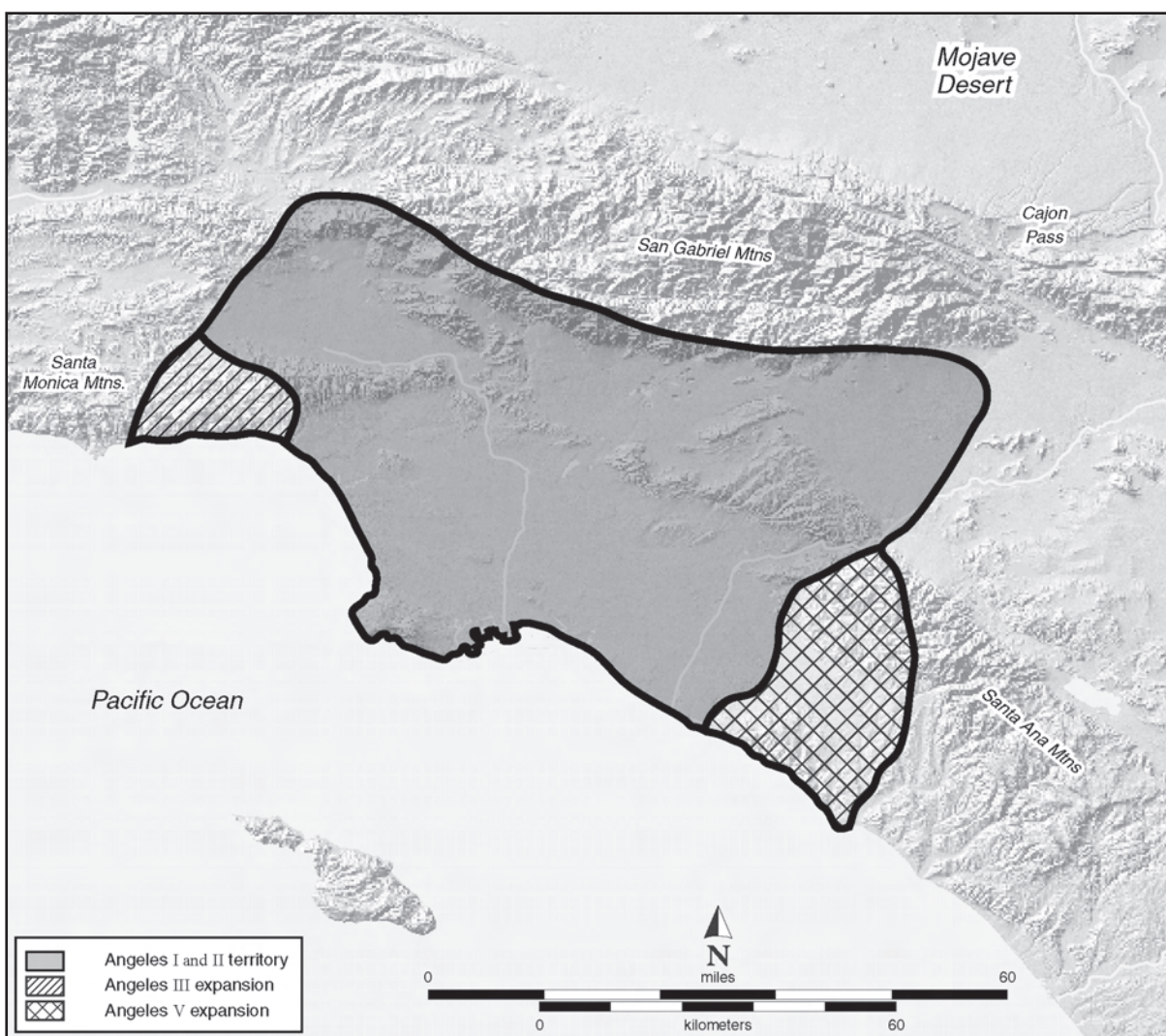


Figure 4. Proposed movement of Angeles groups into new areas by phase.

Mountains (Figure 4). It is not clear whether they displaced the resident Topanga III groups or if the area had already been abandoned (if so, the reason for this possible abandonment is unclear). It seems plausible that the bow and arrow might have been a factor, providing an economic and/or military advantage. It is proposed here that the Angeles III phase lasted from about 1,600 to 1,250 BP.

The Angeles Pattern, Phase IV

The subsequent Angeles IV phase is marked by several new material traits, including the appearance of Cottonwood points, certain stone effigies, and trade items from the Southwest. It appears that population increased and that there was a change in the settlement pattern to fewer but larger permanent villages.

Angeles IV Material Culture

A major marker for Angeles IV is the appearance of Cottonwood series points. The Cottonwood series consists of small, thin, unnotched points that are generally triangular or lanceolate in shape. The series was first formally defined by Lanning (1963:252-253; also see Riddell 1951:17; Riddell and Riddell 1956:30; Heizer and Hester 1978:11; Thomas 1981:16-17), who identified two major types, leaf-shape and triangular. Lanning (1963:252; also see Riddell 1951:Figure 1; Waugh 1988) further divided the triangular type into three major base forms: straight, concave, and convex. The convex classification has rarely been employed by archaeologists, and it seems that such forms have usually been assigned within the leaf-shape type. Cottonwood series points generally date after 1,000 BP in southern California (Koerper et al. 1996:269). Lanning (1963:276) observed that the Cottonwood types from the northwestern Mojave Desert were “both nearly identical to common south coast types, though the coastal specimens are of chert rather than obsidian.” In order to distinguish coastal from desert contexts, Marshall (1979:24; also see Koerper and

Drover 1983:16; Koerper et al. 1996:269) proposed that the label “Coastal Cottonwood” be used for coastal specimens.

Heizer and Hester (1978:11) noted that Cottonwood points tended to co-occur with Desert Side-notched points in the Great Basin. However, the two series have an uneven distribution in the Mojave Desert and in southern California (see Baumhoff and Byrne 1959:38; Heizer and Hester 1978:10-11). Desert Side-notched points are present in quantity in the southern Sierra Nevada and in the Mojave Desert north of the Mojave River (in Numic “territory”) but are rare in the western Mojave Desert and south of the Mojave River (Sutton 1988, 1989). Along and south of the Mojave River (in Takic “territory”), the Cottonwood series is the dominant, and sometimes exclusive, point found. This pattern appears to extend well south into coastal southern California, including the Los Angeles Basin, where Cottonwood types dominate (Koerper and Drover 1983; Koerper et al. 1996) and Desert Side-notched forms are quite rare (Koerper et al. 1996:294). Thus, the geographic extent of Cottonwood types in southern California appears to correspond with the northeastern and southern extent of ethnographic Takic territory (True 1966; also see Sutton 1989, 2009).

The two basic Cottonwood types may vary in time. Lanning (1963:276) argued that the leaf-shape type was somewhat earlier than the triangular type and ranged from “very small arrow points to large dart points,” with the smallest of the type dating to protohistoric and historic times. Koerper et al. (1996:269-271) later made the same argument for coastal southern California. According to Lanning (1963:276), the triangular type, “especially the concave-base variety, is limited to protohistoric and historic times on the south coast” of California. Based on triangular examples from northern San Diego County, Waugh (1988:112) proposed that the “deep” concave-base variant dated later than the other triangular forms. In summarizing a sequence of Coastal Cottonwood types,

then, the leaf-shape type would have originated first, followed by contemporaneous straight-based and shallow concave-base forms, and lastly by deep concave-based forms. Each of the types and varieties of the Cottonwood series would have persisted until contact.

Birdstones (also known as pelican stones or hook stones and occasionally made from materials other than stone [Lee 1981:48]) are purportedly zoomorphic effigies of birds, sometimes equated to herons, grebes, cormorants, pelicans, or even ravens (see Hoover 1974:34; Lee 1981; but see Koerper and Mason 2010:9-10). These artifacts appear to have had some magico-religious function (Koerper 2006). Birdstones seem to first appear early in Angeles IV and virtually all of the known birdstone specimens have been found in the Los Angeles region and southern Channel Islands (see Koerper and Labbé 1987:115; Cameron 2000:47).

Another effigy form of import is the so-called “spike.” Meighan (1959a:392, 1976:28) described a group of steatite effigies from the Little Harbor site (SCAI-17) on Santa Catalina Island. These effigies are generally bulbous on one end and pointed on the other and are herein named “Meighan spikes.” Meighan (1959a, 1976) thought these forms dated to about 4,000 BP, but it is possible that they date as early as 6,000 BP (Fitzgerald and Corey 2009:188). Other examples of “Meighan spikes” have been recovered from Topanga components on the mainland coast, such as from Level 2 at Malaga Cove (see Walker 1951:Plate 15b) and LAN-283 (Butler 1974).

A different form of “spike,” most commonly in the general shape and size of a railroad spike and generally not made of steatite, has been found in several Angeles components, such as at LAN-127 (Wallace 1987:50, 52, 2008), the Pacific Palisades cache site (Wallace 1987), and ORA-104 (see Koerper 2006:88, 96-97). This type of spike, herein named “Wallace

spikes,” appeared during Angeles IV but disappeared by the end of that phase.

Birdstones have been found in association with “Wallace spikes” at several sites. For example, Wallace (1987) described two associated but mixed caches of effigies discovered in Pacific Palisades. The collection included 29 “Wallace spikes” (only three of steatite), 22 birdstones (20 of steatite), three steatite “boats,” and other artifacts such as sandstone mortars, steatite vessels, manos, metates, and a stone ball. Wallace (1987:57) thought the site dated to the “early phase of the closing period” (Wallace 1987:57), perhaps about 1,000 BP. Other co-occurrences of “Wallace spikes” and birdstones are known at ORA-365 (Desautels et al. 2005) and ORA-104 (see Koerper 2006:96-97).

Most researchers place birdstones and other similar effigy forms late in time, generally after about 1,000 BP (Wallace and Wallace 1974:59; Meighan 1976:27; Cameron 1983, 1988; Koerper and Labbé 1987; Wallace 1987). However, this dating is complicated by a radiocarbon date of about 3,800 BP on a “birdstone” from San Nicolas Island made from sea mammal bone (Koerper et al. 1995) and the discovery of a birdstone (cached with a “Wallace spike” and “phallic pestles”) from ORA-365, a site that dates to before about 3,500 BP (Desautels et al. 2005), although the cache was not directly dated. Also, a “pelican” stone was found with a burial from LAN-264, which was dated to ca. 1,300 BP (Meighan 1976:27). Other effigy forms (e.g., ceramic figurines) may date to the Middle Holocene (Fitzgerald and Corey 2009), or even earlier. A burial at ORA-340 associated with a steatite birdstone was directly radiocarbon dated to about 1,500 BP (Koerper and Mason 2010:6).

Several new bead types appear at the beginning of Angeles IV. These include *Olivella* cupped beads (Type K1 per Bennyhoff and Hughes [1987:137]) and *Mytilus* shell disk beads (Koerper et al. 2002:69).

Contact with the Southwest was also evident during Angeles IV. Several types of Southwestern pottery have been found in the Los Angeles Basin (e.g., Forbes 1961; Ruby and Blackburn 1964; Ruby 1966, 1970). Other Southwestern influences on Angeles IV groups include the trade of Hohokam *Glycymeris* shell bracelets (Koerper 1996) and Patayan anthropomorphic ceramic figurines (Hedges 1973; Koerper and Hedges 1996; Sawyer and Koerper 2006). All of these materials attest to interaction between southern California and the Southwest (e.g., Davis 1961).

The appearance of pottery is a potential marker for Angeles IV, although it is never common. Much of it evidently was obtained through trade. In addition to the pottery from the Southwest, some Tizon Brown Ware appeared after about 1,300 BP (e.g., Lyneis 1988), and Lower Colorado Buff wares appeared about 1,100 BP (Waters 1982a, 1982b). Wallace (1955:226; also see Johnson 1962:31) suggested that the presence and utility of steatite vessels may have impeded the diffusion of pottery into the Los Angeles Basin. Local wares were not produced until later (Angeles VI, see below).

Ceramic pipes, clearly present in ethnographic times (e.g., McCawley 1996:139), may have been first used during Angeles IV, although this has yet to be confirmed. Ceramic pipes have been found in "late" sites in southern Orange County, such as ORA-190 (Ross 1970:51, Figure 16e) and ORA-855 (Koerper and Mason 2000), but it remains unclear how much they were in use prior to ethnographic times.

Angeles IV Mortuary Practices

The practice of flexed burials and uncommon cremation that began during Angeles III continued into Angeles IV. This is supported by data from the village of *Yaanga?* (CA-LAN-1575/H), dated sometime after 1,000 BP, at which time inhumation was the dominant mortuary practice (Goldberg 1999).

Angeles IV Settlement Systems

The settlement system of major seasonal villages seen in Angeles III changed to one of fewer and larger permanent villages in Angeles IV. Smaller special-purpose sites continued to be used. Wheeler (2004:119) reported that between about 1,500 and 700 BP, most sites with mortuary remains were associated with oak woodland plant communities. Such sites were presumably major habitation locales.

In the Marina del Rey area, most of the sites occupied during the Angeles I-III phases had been abandoned, and settlement had subsequently concentrated along the edge of the lagoon (see Altschul et al. 2007:39) in Angeles IV. The reasons for this are unclear but may involve the degradation of the bay and estuary habitats that had supported a more dispersed settlement pattern.

Angeles IV Subsistence Practices

There is no specific evidence of any subsistence changes from Angeles III to Angeles IV. However, the change in settlement pattern implies some sort of subsistence change, such as a decrease in some seasonal resources and an increase in others. Such changes remain to be discovered.

Angeles IV: A Discussion

Based on changes in artifact assemblages and other cultural factors (Table 1), the Angeles IV phase is dated between about 1,250 and 800 BP. Probably not coincidental, there was a major environmental change, the Medieval Climatic Anomaly (MCA), starting about 1,200 BP (e.g., Lamb 1965; also see Stine 1994; Raab and Larson 1997; Jones et al. 1999; Gardner 2007; Jones and Schwitalla 2008). How widespread this climatic event was and how it may have impacted human populations are still open questions. The timing and intensity of the climatic changes during the MCA varied

regionally, but in coastal southern California, major periods of drought appear to have occurred from 1,250 to 1,230 BP, from 980 to 930 BP, and from 750 to 670 BP (Jones et al. 1999:143; Jones and Schwitalla 2008:42).

For the Santa Barbara region, Kennett and Kennett (2000) correlated the available evidence, including SST, decreased precipitation (the MCA), water temperature, and evidence of violence to suggest that “increased social complexity was, in part, triggered by an extended interval of high climatic instability, cool marine conditions [El Niño/Southern Oscillation (ENSO) events] of relatively high productivity, and low terrestrial productivity [MCA]” (Kennett and Kennett 2000:391-392). This model, like many others developed in the Chumash region, has been extended south into the remainder of southern California without the benefit of regional data, so caution must be exercised when assuming environmental causes for cultural changes (e.g., Gamble and Russell 2002:104).

Still, it is clear that some sort of cultural adaptation must have resulted from such a major environmental stimulus. Perhaps the consolidation of settlements into large villages was in response to the MCA. Another possible response was the heavy use of oak woodland plant communities in the “Early Late Period” (Angeles IV) (e.g., Wheeler 2004:119).

The Angeles Pattern, Phase V

The Angeles V phase is marked by a significant increase in the number and size of steatite artifacts, demonstrating evidence of increasing contact (trade?) with the southern Channel Islands. In addition, it appears that Angeles V groups expanded south into the San Joaquin Hills and northern Santa Ana Mountains.

Angeles V Material Culture

The major change in material culture in Angeles V is the increase in steatite artifacts. Prior to Angeles V,

most steatite artifacts were generally small, such as effigies, pipes, and beads. After about 800 BP, however, trade between the Los Angeles Basin and the southern Channel Islands, particularly Santa Catalina, increased significantly (Wlodarski 1979:342; Howard 2002:602; Koerper et al. 2002:69). Angeles V components contain more and larger steatite artifacts, including larger vessels, more elaborate effigies, and comals.

Angeles V Mortuary Practices

Mortuary patterns remained about the same as they were in Angeles IV, with primary flexed inhumation being the preferred method and cremation being relatively rare but a bit more common than before (Koerper and Fouste 1977; Allen 1994; Wheeler 2004). Wheeler (2004) observed that many sites in the Los Angeles Basin containing cremations were located near the border with the Chumash, and he suggested that cremations represented people who controlled particular resources (Wheeler 2004:56-57, 59). Moreover, Wheeler (2004:132) reported that “cremation almost completely replaced inhumation as a mortuary treatment [among the Gabrielino] during the latter half of the Late Period,” that is, after about 700 BP. He further suggested that this shift toward cremation as a “special” mortuary treatment might be related to climatic conditions (e.g., the MCA) as a method by elites to exert property or resource rights in a time of increasing stress (Wheeler 2004:133). It may well be, however, that cremation was employed when people died away from home (following Gould 1963:155). Finally, many Gabrielino inhumations contained grave goods (e.g., at CA-LAN-62/H) (see below) while cremations did not, suggesting the possibility that cremation was a treatment for the “poor.”

At LAN-62/H, a large Late/Ethnohistoric period burial ground near Marina del Rey (Altschul et al. 1992; Koerper et al. 2008), the vast majority of the individuals were primary inhumations, reinforcing the argument that cremation was not an exclusive (or even common) prac-

tice. The relatively few cremations included individuals of both sexes and various age ranges. The appearance of large, complex burial grounds may be an important marker of social change reflecting the development of social groups larger than households or lineages (Richard Ciolek-Torrello, personal communication 2010).

Angeles V Settlement Systems

Very little information about Angeles V settlement is available. However, Wheeler (2004:119) noted that after about 700 BP most sites with mortuary remains were associated with prairie plant communities. Assuming this is reflective of subsistence, it represents a shift from the Angeles IV association with oak woodland plant communities. The meaning of this shift is unclear.

Of some interest is the possibility that there was an “enclave” (a settlement?) of people who spoke the Santa Catalina dialect of Gabriellino on the mainland near San Pedro (McCawley 1996:90). If so, it seems possible that these people may have been islanders who established a “port” for the exchange of materials between the islands and the mainland, including the importation of steatite artifacts from the islands.

Angeles V Subsistence Practices

As with settlement patterns, there is little information regarding Angeles V subsistence systems. In the Marina del Rey area, the number of occupied sites decreased, and the exploitation of marine resources seems to have declined (e.g., Altschul et al. 1992). In Orange County, there may have been an increase in the use of small seeds (Koerper et al. 2002:72), perhaps corresponding with Wheeler’s (2004) observation of a shift to prairie plant communities.

An Angeles V Population Movement

It is proposed that Angeles V groups moved south to occupy the San Joaquin Hills and northern Santa Ana

Mountains, moving as far south as Aliso Creek (Figure 4). Based on excavations at ORA-190 and other nearby sites, Ross (1969, 1970) defined the Irvine Complex in the Newport Bay/San Joaquin Hills/Santa Ana Mountains region. Ross (1969:59) thought that the Irvine Complex dated between about 1,000 BP and historic contact and suggested that it represented the ancestors of the Luiseño.

According to Ross (1969:58-59), the traits for the Irvine Complex included: Cottonwood Triangular concave base points to the exclusion of other point types; shell ornaments; bone awls; a few ceramic pipes; flat bone tools; incised stones; a few shaft straighteners; a few stone “spindle whorls”; shell fishhooks (on the coast); and an absence of pottery, bone and stone ornaments, ceramic figurines, steatite containers, ceramic “spindle whorls,” and painted stones. The practice of cremation was also suggested as an Irvine Complex trait (Ross 1969:61). At the same time, Hudson (1969) proposed an “Intermontane Phase” for the northern Santa Ana Mountains that included ceramic pipes, donut stones, steatite shaft straighteners, asphaltum, mortars and pestles, manos, Cottonwood points, flexed inhumations, and cremations.

It is tentatively proposed herein that both the terms Irvine Complex and Intermontane Phase be dropped and their materials subsumed within Angeles V. These groups would have been the ancestors of the Gabriellino and not of the Luiseño as proposed by Ross (1969, 1970).

Angeles V: A Discussion

It is reasonably clear that trade in steatite increased in intensity and extent after about 800 BP (Wlodarski 1979:342; Howard 2002:602), although it is possible that this occurred only after about 500 BP (Finnerty et al. 1970:5). Coincidentally, the impact of the MCA lessened at about 800 BP, and these events may be

related. The Angeles V phase is proposed to date between about 800 and 450 BP.

For the Santa Barbara region and northern Channel Islands, it has been argued that chiefdoms developed after about 850 BP, perhaps in response to resource shortages brought on by environmental conditions (ENSO events). In this model (Arnold 1991, 1992a, 1992b, 1993, 1997; also see Colten 1992; Raab et al. 1994, 1995; Arnold et al. 1997; Raab and Bradford 1997; Gamble 2005), resource shortages would have caused an economic disruption in which elites could have developed and gained economic and political power through the management of craft specialization and production (e.g., beads and *tomols*) and the control of labor. Gamble (2005) argued that Chumash chiefdoms developed by about 1,200 BP.

There is little direct evidence that Chumash-like chiefdoms existed in the Los Angeles Basin, but researchers retain an association between the two regions, with the Late Prehistoric Gabrielino often viewed as very complex (e.g., Gamble and Russell 2002:105). In fact, the social and political complexity of the early or proto-Gabrielino is unknown.

The Angeles Pattern, Phase VI

The Angeles VI phase represents the post-contact (i.e., post-A.D. 1542) mainland Gabrielino. One of the first changes in Gabrielino culture after contact was undoubtedly population loss due to disease, coupled with resulting social and political disruption (see Jurmain and McCawley [2009] for contemporary Gabrielino views on this issue). Euroamerican material culture and subsistence resources began to be added to the native inventory, increasingly after the 1770s. Settlement patterns changed, but mortuary patterns remained similar to Angeles V. Little is known of Gabrielino trade relations at this time (e.g., Davis 1961:22).

At some time, apparently rather late, the *Chingichngish* (or *Chengiichngech* [McCawley 1996:143]) religion appeared among the Gabrielino (Bean and Smith 1978:548; McCawley 1996:143-148) and Luiseño (Sparkman 1908:218-219; Bean and Shippek 1978:556). It is not clear whether this was purely an aboriginal development or was perhaps related to the arrival of the Spanish and Christian influences (for further information, see Bean and Vane [1978:669]; McCawley [1996:143-148]; and Raab [2009a]). It does seem clear that this important development also involved groups on the southern Channel Islands (see below).

Angeles VI Material Culture

Angeles VI material culture is essentially Angeles V augmented by a number of Euroamerican tools and materials, including glass beads and metal tools such as knives and needles (used in bead manufacture). The frequency of Euroamerican material culture increased through time until it constituted the vast majority of materials used.

In addition, by Angeles VI some brownware pottery was being produced locally (Koerper et al. 1978; Hurd et al. 1990), although never very much (Cameron 1999). Pottery manufacture may have diffused to the Gabrielino from the Cahuilla, Serrano, or Luiseño (Koerper et al. 1978:54). Class H *Olivella* disk beads (see Bennyhoff and Hughes 1987:135) drilled with metal needles appeared, including Type H3 rough chipped *Olivella* wall disk beads.

Angeles VI Mortuary Practices

Archaeologically, during the Angeles VI phase flexed burials continued as the primary mortuary practice, and cremation continued to be uncommon. However, cremation appears to have increased in frequency in the southern portion of Gabrielino territory where it meets Luiseño territory (Wheeler 2004).

Ethnographically, the mainland Gabrielino practiced interment and some cremation (Kroeber 1925:633, 641; Bean and Smith 1978:545). Gould (1963:155) suggested that for the most part the Gabrielino practiced primary inhumation but cremated people who died away from home to make it easier to transport their remains back home. In fact, Lowie (1923:149) reported that in southern California, the only groups who cremated were “those which in recent times adopted the South Californian mourning ceremony,” suggesting that cremation was late and not widespread. In some cases, such as at LAN-62/H in the Marina del Rey area, well-defined burial grounds marked with whale-bone similar to those known for the Chumash appeared very late in time (Richard Ciolek-Torrello, personal communication 2010).

Angeles VI Settlement Systems

At the time of contact, there may have been some 50 or more Gabrielino (Angeles VI) communities, but probably not all were major villages (McCawley 1996:25). Permanent residential sites tended to be located at ecotones (where two ecozones meet), and inland resources were exploited on a seasonal basis (e.g., Hudson 1971; McCawley 1996:25).

After contact, many people moved to the missions, some villages remained in their original locales, some were abandoned, and new ones were established closer to the missions. Somewhat later, a few settlements were established closer to ranches.

Angeles VI Subsistence Practices

The ethnographic mainland Gabrielino subsistence system was based primarily on terrestrial hunting and gathering, although nearshore fish and shellfish played important roles (see Bean and Smith 1978:546; McCawley 1996:111-131). Sea mammals, especially whales (likely from beached carcasses), were prized (see McCawley 1996:122). In addition, a number

of European plant and animal domesticates were obtained and exploited. Koerper et al. (2002:70-71) argued that the ethnographic Gabrielino economy reflected resource intensification, but this has yet to be demonstrated in the archaeological record.

Angeles VI: A Discussion

The Angeles VI phase, dated between about 450 and 150 BP, reflects the ethnographic mainland Gabrielino. Both the archaeological record and the biological data support the idea that there was Gabrielino cultural continuity from about 3,500 BP and that the pre-3,500 BP populations were not Gabrielino.

The Island Pattern of the Del Rey Tradition

Our understanding of prehistory on the southern Channel Islands has been hindered by several factors. The first is the matter of chronology. Archaeologists researching the southern Channel Islands tend to use a single chronological unit, the Late Holocene, for all materials that date after about 3,500 BP. There is little differentiation of the materials into finer chronological units and almost no discussion of cultural entities. Second, any change that is noted in the record is almost immediately ascribed to environmental causes. This trend is certainly not without merit, as it is clear that human groups did adapt to changing conditions, but environment is not the only causal factor in cultural change. Lastly, there has been a tendency to extend the results of research conducted in the Chumash region onto the southern Channel Islands, even though the archaeological records (at least in the Late Holocene) are not analogous (e.g., Raab et al. 2002:14).

It now seems clear that sometime about 3,200 BP, a new biological population (evidently speakers of a Takic language) appeared on the southern Channel Islands, replacing existing populations that were “Chumash” in character (e.g., Kerr 2004; Potter 2004; Sutton 2009; also see Hawley 2001:27, 37, Table 5;

Ezzo 2002:86). This new Takic population appears to have originated from the mainland Los Angeles Basin (Sutton 2009), essentially Angeles I groups that moved to the southern Channel Islands. Upon their arrival on the islands, these generally terrestrial Angeles I groups adapted to their new environment, adopted additional maritime traits, and initiated the Island Pattern of the Del Rey Tradition.

The new Island I groups brought with them new technologies (e.g., fishhooks and bone harpoon points) and new materials (Coso obsidian), and initiated changes in settlement patterns and economy. Island I groups presumably also brought a new language, proto-Gab/Cupan, to the southern Channel Islands, although it is not clear what language it replaced.

It is also clear that major environmental changes, such as fluctuations in SST, marked the beginning of the Late Holocene. The generally concordant timing of changes in the archaeological record with the documented environmental changes makes it almost irresistible to causally link the two (as witnessed in the literature), and little thought is given to the possibility that the archaeological changes could also be related to other factors. In fact, the evidence for a population replacement at the beginning of the Late Holocene is convincing, and when coupled with an understanding of environmental fluctuations, it provides a better framework for an explanation of cultural change.

Four phases (I-IV) are defined for the Island Pattern (see Table 1). Island I begins with the arrival of Takic groups on the southern Channel Islands at about 3,200 BP. The Island Pattern culminates with Island IV, essentially the ethnographic Island Gabrielino.

Island Pattern, Phase I

For some time, it has been postulated that a population replacement occurred on the southern Channel

Islands. Gifford (1926a; also see 1926b) hinted at it, and Rogers proposed it in the 1930s (Rogers 1993:21), as did Kowta (1969:44, 47-50), who suggested that it occurred about 2,300 BP. Subsequent analyses and interpretations of the various bioarchaeological data sets all support population replacement (Titus 1987; Titus and Walker 2000; Hawley 2001; Ezzo 2002; Kerr and Hawley 2002; Kerr et al. 2002; Kerr 2004) as do the aDNA data (Potter 2004; also see Salls 1984:21, 26; Kennett et al. 2007).

Thus, Island I marks the initial arrival of Takic populations on the southern Channel Islands. Prior to the Island I phase, the southern Channel Islands were occupied by people biologically similar to the Chumash (e.g., Titus and Walker 2000:81; Kerr 2004; Potter 2004) and seemingly unrelated to the Encinitas groups (probably Hokan) that occupied mainland southern California (see Sutton and Gardner 2010:42-43). It seems that people living on the southern Channel Islands prior to about 3,200 BP were relatively isolated, had independent polities (e.g., Cassidy et al. 2004; Rondeau et al. 2007), and had relatively little interaction with either the southern California mainland or the northern Channel Islands. In spite of the relative isolation of the southern Channel Islands, island foxes (*Urocyon littoralis*) appear to have been introduced from the northern Channel Islands sometime between 3,800 and 3,400 BP (Collins 1991), attesting to some amount of inter-island interaction prior to the Takic arrival.

Arriving Island I groups would have been required to adapt rapidly to a different ecological setting from that of their mainland Angeles I relatives since the southern Channel Islands contained different habitats with different niches. It may be that the shift to more pelagic fishing, less shellfish collecting, and decreased sea mammal hunting noted for the beginning of the Late Holocene might reflect this new Island I adaptation.

Island I Material Culture

Island I groups brought new material culture traits. Based on excavations at SNI-16 (on San Nicolas Island), Lauter (1982; also see Titus 1987; Cannon 2007) distinguished three periods, which she labeled I, II, and III (Early, Intermediate, and Late; see Lauter [1982:71]). The Late Period (III) was dated between about 3,000 BP and contact, and was identified by the appearance of new traits (Lauter 1982:69, Table 15), including shell fishhooks, cremation (but only one was known from the island [Rozaire 1959a]), stone pipes, boat anchors, sea urchin spines for beadmaking, limpet rings, and a sharp increase in bead manufacture. Traits lost from Period II included bone awls, effigies, manos and metates, stone ornaments, and side-notched and triangular points. Many of these new island traits were also present during Angeles I (see above), suggesting some connection. Stone projectile points are uncommon in Island I components.

On Santa Catalina Island, Island I groups developed a trade network with Angeles I groups on the mainland. Trade in small steatite artifacts (e.g., effigies, pipes, and beads) expanded, and there was a marked increase in the trade of shell beads (see above). Another important trade item was obsidian (primarily from the Coso Volcanic Field; see Bouey [2000]; Rick et al. [2001]), which appeared on San Clemente Island only after about 3,000 BP (Goldberg et al. 2000:35), probably transported by Island I groups.

The new fishing technologies that appeared in Angeles I, including bone harpoon points (Kowta 1969:48) and single-piece circular *Haliotis* fishhooks, appear to have been taken to the southern Channel Islands by Island I groups early on (Koerper et al. 1988a, 1995, 2002:68; Raab et al. 1995:14; Rick et al. 2002, 2005:209), although there is an apparent fishhook from San Clemente Island dated between about 5,200 and 4,230 BP (Goldberg et al. 2000:37).

New textile techniques may have also appeared. It seems that S-twist (presumably Takic) replaced Z-twist (presumably non-Takic) textiles on the southern Channel Islands sometime between 3,700 BP (Lauter 1982:87-88) and 2,550 BP (Rozaire 1967:330; also see Rozaire 1957:90, 1959a, 1959b).

Beginning early in the Del Rey Tradition (both Angeles I and Island I phases), trade in small steatite artifacts from Santa Catalina Island was initiated or expanded, marking an increase in interaction between the mainland and the southern Channel Islands. Larger steatite artifacts, such as vessels, are rare. Trade in other materials, such as foods and furs, between the mainland and southern Channel Islands may have also occurred at this same time (e.g., McCawley 2002:59-60; also see Davis 1961). Steatite was obtained from quarries on Santa Catalina Island, and small artifacts from this source appear in quantity in Island I components.

Island I Mortuary Practices

It had long been assumed that cremation was the mortuary practice of Takic groups in mainland southern California but that inhumation was the practice on the Channel Islands (see discussion in Sutton 2009:55-59). On the mainland, however, cremation does not appear to have been a Takic marker (Sutton 2009:59). Indeed, cremations are known for the southern Channel Islands (e.g., Woodward 1941; Meighan and Eberhart 1953; McKusick and Warren 1959; Rozaire 1959a; Saylor 1959; Rogers 1993), and the practice could easily predate the arrival of Takic groups on the southern islands, as seen by the presence of a cremation (Burial 7) at Eel Point C (SCLI-43) within “a cemetery containing individuals of a ‘Chumash’ morphology” (Goldberg et al. 2000:39).

Nevertheless, there is evidence of mortuary change. The mortuary practices seen at the Middle Holocene Eel Point site (SCLI-43) consisted of a mixture of

primary inhumations, some reburials, and cremations (Titus 1987:21). Titus (1987:23; also see Alliot 1916:4) further suggested that the interment of individuals in a “circle” may be an “early” trait. With the arrival of the Island I Takic groups, mortuary treatment appears to have changed to one of primary interments in flexed or semiflexed positions (also an Angeles I trait, see above), as seen at the Nursery site (SCLI-1215) (Titus 1987:21; Titus and Walker 2000:85).

Dog burials might be largely a Takic trait (Sutton 2009:55). Dogs appear to have been present on the Channel Islands throughout much of the Holocene (Rick et al. 2008), but the intentional burial of dogs on the southern Channel Islands appears to be limited to late in time (e.g., Hale and Salls 2000; Martz [cited in Kerr and Hawley (2002:549)]). It is possible that burials of other animals, such as foxes or raptors (see Hale and Salls 2000; Raab 2009a) may also be Island Pattern traits.

Island I Settlement Systems

With the arrival of new people, particularly Angeles I groups that became Island I groups, changes in settlement systems would be expected, and such changes have been observed at several of the southern Channel Islands. Prior to about 3,500 BP, it has been noted that the majority of the occupation of San Nicolas Island was confined to its northwest coast, but that after 3,500 BP there is evidence that the entire island was utilized (Rick et al. 2005:207; also see Martz 2005). On San Clemente Island, the diversity of settlement and occupation increased after about 3,500 BP (Rick et al. 2005:207).

Several large villages were established on each of the southern Channel Islands (Rick et al. 2005), with the exception of Santa Barbara Island (see Erlandson et al. 1992; Rick and Erlandson 2001), suggesting an increase in the intensity of use. The most extensive deposits at

the Eel Point site formed after 3,300 BP, indicating an expanding island population (Raab et al. 1995:17).

A number of factors might account for these settlement shifts. The changes may be related to the new population using the land in a different manner, the exploitation of different resources, new technologies, a different world view, changes in the natural environment, or any combination of these.

Island I Subsistence Practices

Several changes in the subsistence practices of Island I groups are evident in the archaeological record after about 3,200 BP. Perhaps the most apparent of these changes is the intensification of fishing (see Raab et al. 1995:14; Raab 2009b:149). For example, at SNI-161 on San Nicolas Island, the percentage of fish in the archaeofaunal assemblage changed from about 22 percent at about 3,800 BP to about 84 percent by about 3,000 BP (Vellanoweth and Erlandson 1999:267; Rick et al. 2005:197). A similar pattern was observed at the Eel Point site (SCLI-43) on San Clemente Island (Raab 2009b:Figure 8.1), although it is important to note that fishing intensification took place at different times at different places (Raab 2009b:149).

Coupled with the increase in fishing was an apparent decrease in shellfish collecting, although shellfish did remain important (Raab 2009b). In some cases, shellfish use increased, as can be seen by the appearance of many small “*Tegula middens*” on San Clemente Island. These sites all date after about 3,000 BP (see Raab 2009b:153; also see Garlinghouse 2000) and contained large numbers of *Tegula* and abalone (*Haliotis cracherodii*) shells, with the latter becoming less common through time.

Changes in mammal exploitation are also apparent. At Eel Point, pinnipeds were very important in the Early Holocene but steadily decreased in importance until the Late Holocene, after which they

dramatically increased in importance once again (see Porcasi et al. 2000:Figure 3), except on San Nicolas Island (Martz 2005:77). Sea otters also increased in importance during the Late Holocene (see Raab 2009b:155; also see Garlinghouse 2000; Porcasi et al. 2000), and there was a decrease in dolphin hunting (Porcasi 1995). There was also a major increase in avian remains at Eel Point after about 3,700 BP (Porcasi 1995:46).

Island I: A Discussion

Sometime about 3,200 BP, a new Takic population arrived on the southern Channel Islands. These Island I people physically replaced the existing “Chumash-looking” Middle Holocene population and brought with them some new technologies (e.g., fishhooks) and materials (e.g., obsidian). Large villages were established, previously unoccupied portions of the islands became occupied, a robust trade with the mainland began, burial practices changed, and significant alterations were made in the subsistence practices. Some scholars have interpreted these differences primarily as adaptations to environmental shifts. While environment undoubtedly played a role, the appearance of a new population concurrent with widespread changes in the archaeological record suggests that these events must take a leading role in explanations of change on the southern Channel Islands.

It further appears that there was a decrease in violence on the southern Channel Islands after about 3,300 BP (Potter 1998:12; Titus and Walker 2000:87). The reasons for this decrease are unclear, but one possibility might be the replacement of a number of competing pre-Takic sociopolitical entities by a single noncompetitive (at least internally) Takic polity. The Island I phase ended about 1,500 BP with the introduction of bow and arrow technology.

The mechanism(s) by which the Island I (Takic) intruders were able to supplant the established

populations(s), presumably well adapted to their insular environments on the southern Channel Islands, is unclear. This question should become an important research topic.

Island Pattern, Phase II

Phase II of the Island Pattern is marked by the appearance of bow and arrow technology, probably sometime around 1,500 BP (Rick et al. 2005:209). The other major “marker” of Island II is large-scale environmental change, the MCA, and its influence on human adaptation.

Island II Material Culture

Bow and arrow technology appears to have reached the southern Channel Islands about 1,500 BP (e.g., Rick et al. 2005:209), almost certainly imported from the mainland Los Angeles Basin where it had arrived somewhat earlier (see above). The earliest projectile points were probably the Marymount forms that appeared in Angeles III on the mainland. Cottonwood points should have arrived on the Islands ca. 1,200 BP. Very few arrow points of any type have been recovered from the southern Channel Islands, however, making arrow points an uncommon phase marker. Perhaps the people had little need of such technology within a maritime-based economy and where there were few terrestrial animals to hunt.

The arrival of bow and arrow technology may have had some effect on the frequency and type of personal injuries. As noted earlier, the frequency of traumatic injuries declined after about 3,300 BP (Potter 1998:12; Titus and Walker 2000:87). Kerr and Hawley (2002:548) suggested that further declines after 1,500 BP might be related to the introduction of the bow and arrow and a concomitant decline in the use of clubs, with arrow wounds being less visible on the skeleton than club wounds.

Very little obsidian has been found on the southern Channel Islands (Bouey 2000; Rick et al. 2001), with only a small percentage being from Obsidian Butte. It seems likely that the Obsidian Butte source was only utilized after about 1,000 BP (e.g., Koerper et al. 2002:69; also see Koerper et al. 1986).

Island II Mortuary Practices

The mortuary practices of the Island II phase were essentially the same as the preceding Island I phase. Flexed and semi-flexed primary inhumations were common, and cremation was rare.

Island II Settlement Systems

Two major trends are apparent in Island II settlement systems after about 1,250 BP. First, there appears to have been a general population decline, at least on San Nicolas (Martz 2005:78) and San Clemente (Yatsko 2000; 2003; Yatsko and Raab 2009) islands. Second, on San Clemente Island, settlements appear to have moved away from upland areas to locations near permanent springs (Yatsko 2000; 2003; Yatsko and Raab 2009).

As noted above, there is considerable evidence of a major environmental change (primarily drought) at about 1,200 BP (the MCA). The breadth and depth of this drought is not fully understood, but it appears to have impacted human populations on the southern Channel Islands, at least in terms of settlement changes (Yatsko 2000; 2003; Yatsko and Raab 2009).

Island II Subsistence Practices

There are currently insufficient data to address subsistence change on the southern Channel Islands during the Island II phase. Certainly, the movement of settlements away from upland areas documented for San Clemente Island must have been accompanied by some subsistence changes, but the nature of such has yet to be documented. There have been no studies

addressing the specific role of the MCA in particular aspects of the economic system.

Island II: A Discussion

The major material marker for the Island II phase, dated between about 1,500 and 750 BP, is the bow and arrow, primarily seen in the archaeological record as arrow points. Marymount points should have made it to the islands a bit after their appearance on the mainland at about 1,500 BP, with Cottonwood Triangular points arriving at about 1,200 BP. However, arrow points are rare in island components, suggesting that they were used infrequently.

The advent of the MCA should have had a major impact on both settlement and subsistence systems on the southern Channel Islands. Changes in population numbers and settlement patterns have been documented for several of the southern Channel Islands (e.g., Yatsko 2000, 2003; Martz 2005; Yatsko and Raab 2009). An understanding of subsistence change at that same time has been elusive.

Island Pattern, Phase III

The Island III phase is distinguished by a significant increase in the steatite trade between the southern Channel Islands and the mainland, particularly the appearance of numerous large vessels and comals. No changes in mortuary or subsistence practices from the preceding Island II phase have been reported.

Island III Material Culture

Trade in relatively small steatite artifacts from Santa Catalina Island began sometime around 3,500 BP and is a marker for both the Angeles I and Island I phases (see above). Sometime about 750 or 800 BP, there was a marked increase in the production and trade of steatite artifacts between the mainland and the southern Channel Islands (Wlodarski 1979:342; Howard

2002:602; Koerper et al. 2002:69; also see Rosen 1980; Williams and Rosenthal 1993). In addition to greater numbers of artifacts, larger artifacts (such as vessels and comals) were added to the inventory. The bulk of this steatite came from Santa Catalina Island, and there were separate quarries of coarse-grained material for the manufacture of these larger artifacts (Wlodarski 1979:334), although the material for some of the smaller artifacts (e.g., beads) may be from the Sierra Pelona source in the southwestern Mojave Desert (e.g., Rosenthal and Williams 1992; Eddy 2009).

It has been suggested (e.g., Arnold 1990) that craft specialization played a role in the development of complex sociopolitical systems in coastal southern California. However, there is little to suggest that the manufacture of steatite vessels and comals on Santa Catalina Island involved craft specialization (Williams and Rosenthal 1993), thus weakening any potential argument for a role of steatite artifact manufacturing in the development of complex societies.

Island III Settlement Systems

The increase in trade of steatite artifacts would have had some effect on settlement systems. For example, it has been suggested that villages were established on the coast of Santa Catalina “as ‘on-loading’ sites” for the export of steatite artifacts to the mainland (Rosenthal and Williams 1992:223). Large late villages, such as Isthmus Cove on Santa Catalina Island (SCAI-39) (Finnerty et al. 1970), that contain numerous fragments of finished and unfinished vessels and comals support this argument. It would be reasonable to expect the existence of one or more “sister ports” on the mainland, one possible example being in the San Pedro Harbor area where there may have been an “enclave” of people speaking a Santa Catalina dialect of Gabrielino (McCawley 1996:90). Certainly, steatite was not the only material traded by Island III groups, and the trade of other items, such as foods and furs, likely also occurred (e.g., McCawley 2002:59-60; also see Davis 1961).

Elsewhere on the southern Channel Islands, little is known about shifts in settlement systems after the amelioration of the MCA. In general, one would expect that population numbers might have increased and that areas abandoned during the MCA might have been reoccupied.

Island III: A Discussion

The primary marker of the Island III phase is the increase in steatite trade and the addition of large steatite artifacts (vessels and comals) to the material inventory. The MCA most likely impacted Island II populations, as indicated by population reductions and settlement shifts. However, the adjustments of Island III groups to a more favorable climate are not well understood. Based on these changes, the Island III phase is generally dated between about 750 and 450 BP.

Island Pattern, Phase IV

The Island IV phase represents the ethnographic Island Gabrielino (see Johnson 1962; Bean and Smith 1978; McCawley 1996; Raab 2009c). One of the first changes after initial European contact with the islands (ca. AD 1520) was likely population loss due to disease, coupled with disruption to social and political institutions.

The observations of visiting Europeans suggest that the population of the southern Channel Islands declined rapidly after contact (see McCawley 1996:80). There seem to have been few opportunities for the inhabitants of the southern islands to have adopted Euroamerican material culture, although there is evidence of the use of metal tools in the steatite quarries on Santa Catalina (Wlodarski et al. 1984). Further, very little is known about the adoption of Euroamerican foods by island peoples, but it is possible that some domesticated crops were being grown on Santa Catalina by about AD 1800 (McCawley 1996:79).

Soon after contact, the southern islands were apparently abandoned by native people, notwithstanding the “lone woman of San Nicolas Island” (see Kroeber 1907:153; Daily 1989). As such, there is virtually no information regarding Island IV mortuary, settlement, or subsistence practices. Island IV is dated between about 450 and 200 BP.

There is good reason to believe that the *Chingichngish* (or *Chengiichngech* [McCawley 1996:143]) religion was practiced by the Island Gabrielino (see Raab 2009a), as evidenced by animal (canid, fox, and raptor) burials at Big Dog Cave and Lemon Tank (SCLI-1524) on San Clemente Island (see Hale and Salls 2000; Raab 2009a). Raab (2009a:210-211) suggested that *Chingichngish* was a “crisis” religion in response to Euroamerican pressures, particularly disease. The *Chingichngish* religion also appears to have been on Santa Catalina Island, and Kroeber (1923:138) suggested that the movement may have originated there.

Linguistic Correlates of the Del Rey Tradition

A basic premise of the proposed Del Rey Tradition is that it represents the archaeological signature of a new population that entered the Los Angeles area ca. 3,500

BP, the beginning of the formerly designated Intermediate Period. That this new population was “Takic” has long been suspected and has been supported by a series of data sets compiled by Sutton (2009). This idea is further supported by a reclassification of the Takic linguistic branch (see Sutton 2010). Thus, it is proposed that the initial Del Rey peoples were Takic and arrived from the north at ca. 3,500 BP.

Takic is not itself a language but forms a branch of Northern Uto-Aztecan (NUA), a subfamily of the Uto-Aztecan linguistic family that extends from southern Mexico across much of western North America. Traditionally, NUA has been divided into four branches (e.g., Hinton 1991; Goddard 1996): Hopic, Tubatulabal, Takic, and Numic. A recent reclassification of NUA (Manaster Ramer 1992; Hill 2007) has placed Tubatulabal within a Takic branch, now divided into two major sub-branches, Serran and Tubatulabal/Gab/Cupan (see Table 2).

The Tubatulabal/Gab/Cupan sub-branch consists of two subdivisions, Tubatulabal and Gab/Cupan. Tubatulabal is isolated in the southern Sierra Nevada, while Gab/Cupan is located in the Los Angeles Basin and southern Channel Islands. Gab/Cupan is again divided

Table 2. The Revised Classification of the Takic Branch within Northern Uto-Aztecan (following Hill 2007).

<p>I. TAKIC (two sub-branches)</p> <p>A. SERRAN</p> <ol style="list-style-type: none"> 1. Serrano (and Vanyume?) 2. Kitanemuk 3. Tataviam (tentative) <p>B. TUBATULABAL/GAB/CUPAN</p> <ol style="list-style-type: none"> 1. Tubatulabal 2. GAB/CUPAN <ol style="list-style-type: none"> a. Gabrielino (four dialects; two mainland and two island) b. CUPAN <ol style="list-style-type: none"> 1. Luiseño (two dialects) 2. Cahuilla (three dialects) 3. Cupeño

Note: Linguistic divisions are all upper case while languages are upper and lower case. Tubatulabal is a sub-branch and a language, Gabrielino is a sub-sub-branch and a language.

into two sub-sub-branches, Gabrielino and Cupan, the latter consisting of three languages; Luiseño, Cahuilla, and Cupeño (see Table 2). Sutton (2009; also see Sutton 2010) argued that the Takic expansion that initially colonized the Los Angeles Basin some 3,500 years ago was undertaken by people speaking proto-Gab/Cupan. As such, the initial archaeological expressions of the Del Rey Tradition (Angeles I and II and Island I) would correlate with proto-Gab/Cupan.

The Takic groups that entered the Los Angeles Basin about 3,500 years ago carried a new cultural tradition (Del Rey), and it is proposed here that the first phases of the Angeles and Island patterns represent a single linguistic unit, Gab/Cupan. People speaking proto-Gab/Cupan moved onto the southern Channel Islands (to become Island I) after ca. 3,200 BP but stayed in contact with their proto-Gab/Cupan relatives on the mainland. Proto-Gab/Cupan developed in place (on the mainland and the southern Channel Islands) until about 1,250 BP when it split, with proto-Cupan diffusing into Yuman groups to the south and east (see Sutton 2009). Proto-Gab remained in place in the Los Angeles area to become proto-Gabrielino and eventually the mainland Gabrielino language encountered at contact.

Gabrielino appears to have had at least two mainland dialects, Gabrielino in the Los Angeles Basin and Fernandeano in the San Fernando Valley (Kroeber 1925:620; Harrington 1962:viii; McCawley 1996:90). The island Gabrielino apparently spoke two additional dialects (Harrington 1962:viii), San Nicolas (Nicoleño) and Santa Catalina. Santa Catalina was spoken on both Santa Catalina and San Clemente islands and may have also been spoken on the mainland near San Pedro (McCawley 1996:90). The Island Pattern is historically related to the Angeles Pattern on the mainland, with sufficient interaction to have maintained mutually intelligible dialects for more than 3,000 years. Thus, the lineage of Gab/Cupan, proto-Gabrielino, and Gabrielino exhibits a 3,500-year cultural

and linguistic continuity in the Los Angeles Basin and southern Channel Islands.

Sutton (2010:18) proposed that the early Gab/Cupan Takic (Angeles I) groups had originated in the southern San Joaquin Valley and so were adapted to a “valley/lake” ecozone. When they moved south, they would have occupied the valley zones, replacing the Topanga II groups in those areas. Angeles I groups would have rapidly employed boat technology, likely reed boats similar to the tule boats they probably used on the lakes of the southern San Joaquin Valley, for nearshore use. Borrowing the oceangoing boat technology possessed by Middle Holocene Island groups, Angeles I people would have quickly moved to occupy the southern Channel Islands (Island I), replacing populations that were “Chumash” in character (e.g., Kerr 2004; Potter 2004; Sutton 2009; also see Hawley 2001:27, 37, Table 5; Ezzo 2002:86).

Based on these linguistic correlates, it is suggested herein that Angeles I and II groups would have generally ignored the mountains, isolating the Topanga III people in the Santa Monica Mountains for another 1,500 years. Angeles groups never moved south of the Santa Ana Mountains and probably only occupied the eastern Santa Monica Mountains and San Gabriel Mountains rather late in time.

Conclusions

It has long been clear from the archaeological record of coastal southern California that there were major changes sometime around 3,500 years ago. These shifts were sufficient enough that a new descriptive category, called either the Intermediate Period (Olsen 1930:17; Wallace 1955:221; Moratto 1984:125) or Middle Period (Moratto 1984:145; King 1990:93-94), was created to distinguish it from the preceding Encinitas Tradition. The Late Period designation was employed to describe later manifes-

tations generally believed to represent the “Shoshoneans.” Both the Intermediate and Late periods described spans of time.

It is proposed that a new population with a new cultural tradition, herein named the Del Rey Tradition, entered southern California at about 3,500 BP. The biological evidence and linguistic distributions make the case for a single cultural tradition that ultimately led to the ethnographic Gabrielino. Certainly, the cultural developments on the mainland and southern Channel Islands were distinctive and are herein divided into two cultural patterns, but they remained closely related within the same basic cultural tradition.

Thus, with the introduction of the Del Rey Tradition, the long and good service of the Intermediate and Late periods is no longer required or even useful. It is hoped that the Del Rey Tradition will offer a more productive way of conceptualizing southern California prehistory.

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