Desert Chronologies and the Archaic Period in the Coachella Valley

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Introduction

Within the last decade, the discovery of more than a dozen sites or features in the Coachella Valley dating to greater than 1000 years allows for a revised overview of Archaic Period life in this portion of the Colorado Desert. A wide range of environmental settings, site size, artifact densities and artifact types suggests a diverse, perhaps large population with multiple living strategies occupying numerous environments. A summary of these sites and features, in fact, defines the Archaic Period for this region.

Along with this abundance of new data comes the opportunity to review published desert chronologies or cultural sequences and to discuss their applicability and usefulness. This article, therefore, is organized around a three-part framework: 1) review of existing desert time frames for the Colorado, Mojave, and Yuha Deserts; 2) description of Archaic Period sites as they have been exposed and explored in the Coachella Valley; and 3) discussion of the relevance of existing chronologies to the reconstruction of past lifeways in light of these recent findings.

Setting: Ancient Lake Cahuilla

The Coachella Valley (Fig. 1), bounded on the southwest by the Peninsular Ranges and on the northeast by the eastern Transverse Ranges, occupies the northwestern portion of the Colorado Desert geomorphic province, which, from the Coachella Valley extends southeastward through the Imperial Valley and into Mexico (Jenkins 1980:40-41).

One of the major features to be found within the Colorado Desert province is the Salton Trough, a 290-kilometer-long (ca. 180 miles) structural depression reaching from roughly Palm Springs to the Sea of Cortez, some 90 miles south of the Mexican border. Contained in this depression is the present-day Salton Sea. Many times over unknown millennia, the Colorado River has diverted within its delta and flowed temporarily into the Salton Trough, each time creating an ephemeral freshwater lake known variously as Lake LaConte, Blake's Sea, or Ancient Lake Cahuilla (Wilke 1978). Whenever the Colorado River rerouted itself to flow once again directly into the Gulf of California, Ancient Lake Cahuilla dried up.

The age of Native settlements along the shoreline of Ancient Lake Cahuilla is of course tied to the history of the lake itself. Until recently, the last high stand of the lake was thought to have occurred in the 1500s, with its final recession leaving the valley dry by around 1600 (Schaefer 1994a:67). However, within recent years new information points to yet another full in-filling of the lake in the 1600s, with a high

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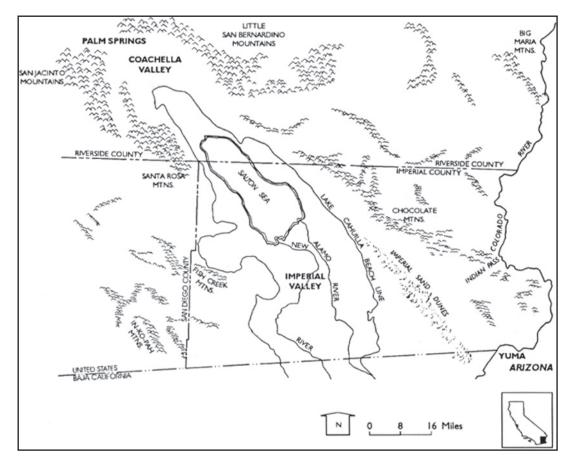


Fig. 1. The Colorado Desert area (after Schaefer 1994a:61).

stand at the 42-foot elevation around AD 1650-1680 (Laylander 1995:69-73; 1997:68, 96; Gurrola and Rockwell 1996:5979-5984).

The results of an archaeological investigation at site CA-RIV-3013, situated along the present-day 42-foot contour line in the City of La Quinta, corroborate such a late date for the last in-filling of the lake (Love et al. 2002). The remains of a fish roasting pit containing thousands of fish bones and charcoal found at the site suggest a very close proximity to the ancient lake (ibid.:30). Faunal analysis of the remains identified four species of fish (*Elops affinis, Xyrauchen texanus, Gila elegans*, and *Mugil cephalus*) that naturally occurred in the lake. Four charcoal samples were retrieved from the feature and sent out for radiocar-

bon dating, which yielded very close "conventional radiocarbon ages" of 240 ± 50 , 250 ± 50 , 270 ± 60 , and 250 ± 70 (ibid.:71). These four radiocarbon ages were averaged to give a "weighted average," which in turn produced a 2-sigma calibrated range of AD 1640 to 1670 with no other intercepts on the calibration curve. Such a finding adds strong support to the growing consensus that Lake Cahuilla had filled once again during the mid-seventeenth century.

As the current article illustrates, the presence or absence of Native life in the Coachella Valley did not wholly depend upon the presence or absence of this freshwater lake. When the lake was full, it was of course exploited for its abundant resources; but as the lake receded and disappeared, other sources of water and game came into use and life continued apace in this extremely arid environment.

Setting: Cultural History

The prehistoric period in the Coachella Valley is generally divided into the Late Prehistoric and the Archaic Periods. The transition between these two periods is considered to be around AD 1000, marked by the introduction of pottery into the region from Colorado River cultures (Pallette and Schaefer 1994:7, Schaefer 1994b:5, May 1978:4). For this reason, the Archaic Period is sometimes also referred to as the "pre-ceramic" period. Other important cultural changes in prehistoric times include the introduction of the bow and arrow, probably around AD 500, and the change from burial practices to cremations, perhaps around 500 BC. Students of historical linguistics propose a migration of Shoshonean speakers (a subgroup of the greater Uto-Aztecan family languages) sometime between 1000 BC and AD 500 from the Great Basin region of Nevada, Utah, and eastern California into southern California. This family of languages included what was to become the late-prehistoric Takic language of Cahuilla, the principal linguistic group of the Coachella Valley.

Today's Cahuilla descendants are found as members of Agua Caliente, Torres Martinez and Cabazon Reservations for the Desert Cahuilla, Santa Rosa and Cahuilla Reservations for the Mountain Cahuilla, and Morongo Reservation for the Pass Cahuilla.

The Archaic Period As a Cultural Construct

A brief discussion of the term Archaic Period is in order (see also, Sutton 1996:241). In the Coachella Valley, as in the Southwest and as for many of the Eastern cultures of North America (and indeed, for Mesoamerica as well), the term refers to a period of time preceding and leading up to the introduction of ceramics. By distinguishing the pre-ceramic from ceramic period, cultural change is implied. The Archaic Period (and a variant of the term, Archaic Stage) connotes a set of cultural traits or a way of life marked by hunting and gathering subsistence strategies and societies of small, mobile bands. The end of the Archaic Period in some chronological schemes, but not in California, coincides with the introduction of agriculture and sedentism. For purposes of this study, the introduction of pottery is used as the watershed event separating the Archaic Period from Late Prehistoric.

The term Archaic, whether period or stage, is used inconsistently across the archaeological landscape, and requires definition for each region or sub-region. The most comprehensive and most recent overview of Colorado Desert archaeology (Schaefer 1994a) uses the term Archaic Period to refer to the pre-ceramic phase of Coachella Valley occupation. The practice continues for the discussion presented here with full knowledge that the term has been used inconsistently and that other researchers might prefer alternative terms.

Chronological Frameworks

Numerous investigations of the history of cultural development in southern California have led researchers to propose various cultural chronologies for the desert regions. Malcolm Rogers (1966) was one of the first to present an overview of this area, which consequently underwent a number of revisions (Warren 1984; Weide 1976; Schaefer 1994a; Hall 2000). In one synthesis, at least five cultural sequences were identified (Rogers 1966:140). The earliest of these is the San Dieguito Complex which is further subdivided into San Dieguito I-III, ca. 9000 BC to 7000 BC. This is followed by the Amargosa Complex, also subdivided into Amargosa I-III, which dates from ca. 5000 BC to AD 1. The Basketmaker III and Pueblo II Periods date from AD 1 to 500 and are followed by the Prehistoric Yuman and Shoshonean Groups, ca. AD 500 to 1500. The period after AD 1500, Rogers identifies as Paiute

68

and Mojave. Subsequent regional chronologies have built on Malcolm Rogers' work and are reviewed in this study (Fig. 2).

Mojave Desert

One of the best known and most often used cultural sequences for the Mojave Desert was established by Warren (1984:413-424); see also, Warren and Crabtree (1986). The prehistoric cultures of the Mojave Desert are divided into five time periods: Lake Mojave, Pinto, Gypsum, Saratoga Springs, and Shoshonean/Protohistoric. Warren (1984:413) states that "a generalized hunting and gathering subsistence system" prevailed during the Lake Mojave Period, which spanned from ca. 8000 BC to 5000 BC. The Pinto Period, ca. 5000 BC to 2000 BC, is characterized by the Pinto projectile point type (for illustration of point types, see Fig. 3), scrapers, and knives. The lack of groundstone artifacts indicates a dependence on hunting and gathering by the indigenous groups of that time (ibid.:414). These early groups were small and settled in seasonal temporary camps.

The Gypsum Period, ca. 2000 BC to AD 500, is associated with Humboldt Concave Base, Gypsum Cave, Elko Eared, and Elko Corner-notched projectile points. Other artifacts found during this time period include shell ornaments from the California coast, knives, scrapers, split-twig figurines, bow and arrow, and groundstone used in processing hard seeds. The shell ornaments acquired during this period may represent the first contact between desert and coastal groups (Warren:419), while the split-twig figurines suggest that there was an attempt by people to try to adapt to the arid environment of that time "through use of magico-religious practices" (ibid.:420).

The Saratoga Springs Period follows and dates from AD 500 to 1200. The Rose Spring and Eastgate projectile point types occur throughout most of the

Love and Dahdul

California Desert region during this time. In the southern Desert area, however, this period is marked by the presence of brownware and buffware ceramics as well as Cottonwood and Desert Side-notched projectile points. This same time period is also associated with "cultural diversification [and] strong regional developments" (Warren:424). More long distance trading is evident and groups in the Antelope Valley developed "more complex settlement-subsistence system with large permanent villages" (Warren:424.) The artifact types of the Saratoga Springs Period continued into the Shoshonean/Protohistoric time period, ca. AD 1200 up to historic.

Sutton (1996:225-240) presents an update to Warren's established chronology for the Mojave Desert region. As the author points out, a "Pre-Projectile Point Period" has been claimed for the area but evidence for such an early occupation is at best sketchy. The earliest time period for which there is irrefutable proof for aboriginal occupation occurs during the Paleoindian Period, ca. 10,000 to 8000 BC. The dominate artifact type for this time is the fluted (Clovis) projectile point associated with the Big Game Hunting Tradition. Thus, the exploitation of megafauna was the primary subsistence strategy, although Sutton claims that smaller game animals and vegetal foods would also have been sought.

The Lake Mojave Period follows around 8000 BC and lasts untill approximately 5000 BC. This period is characterized by the presence of Lake Mojave and Silver Lake points that were used on "thrusting spears." Fluted points were excluded from the stone tool kit of the people living during this time and that millingstones were rare. Between 5000 and 2000 BC, the use of Pinto series points replaced the earlier point forms. Because of increased aridity and desiccation of Pleistocene lakes, the population of the Pinto Period moved away from lakeshore sites towards springs and creeks. With decreased success in big game hunting,

PCAS Quarterly, 38(2 & 3), Spring & Summer 2002

Desert Chronologies and the Archaic Period in the Coachella Valley

Native Americans shifted their focus towards smaller game and exploitation of other food resources (Sutton 1996).

Continuing Sutton's cultural reconstructions, the Gypsum Period dates to about 2000 BC to AD 500 and is characterized by the appearance of several point types classified as Elko series, Gypsum points, and Humboldt Concave Base forms. It is suggested that with a more favorable climate, population densities increased during the latter part of this time period. Again, the focus of hunting activities continued to be on smaller game animals as well as exploitation of plant foods. The Rose Spring Period followed the Gypsum Period and is dated to ca. AD 500 to 1000. This time period saw the introduction of smaller point types known as the Eastgate and Rose Spring series, which could have marked the use of bow-and-arrows. Sites from this period contain middens, stone tools, milling equipment, marine shell artifacts, and obisidian from various locations. Finally the Late Prehistoric Period, ca. AD 1000 to Historic contact, is identified as the last stage of prehistoric Native American occupation of the Colorado Desert area. The Desert Side-notched and Cottonwood Triangular point types replace the earlier Eastgate and Rose Spring series and pottery vessels are introduced. Subsistence strategies appear to be the same as those practiced during the previous period.

Another sequence for the Mojave Desert, proposed by Hall (2000:14-16), identifies five time periods. These include the Lake Mojave (ca. 8000 BC to 5500 BC), Pinto (ca. 5500 BC to 2500 BC), Newberry (ca. 1500 BC to AD 500), Saratoga (ca. AD 500 to 1200), and Tecopa (ca. AD 1200 to Mission times). Small mobile groups of hunters and gatherers inhabited the Mojave Desert region during the Lake Mojave sequence. This time period is associated with the Great Basin Stemmed points and flaked stone crescents (ibid.:14). These small highly mobile groups continued to inhabit the region during the Pinto Period. There was an increased reliance on ground foods, small and large Love and Dahdul

game animals, as well as the collection of vegetal resources, suggesting that "subsistence patterns were those of broad-based foragers" (ibid.:15). Artifact types found in association with this period are the Pinto points and *Olivella* sp. Spire-lopped beads.

Distinct cultural changes occurred during the Newberry Period in contrast to the earlier periods and include "geographically expansive land-use pattern...involving small residential groups moving between select localities," (Hall:16) long-distance trade, and diffusion of trait characteristics. Artifacts from this period include the Elko and Gypsum Contracting Stem points and Split Oval beads.

The following periods (Saratoga and Tecopa) are characterized by seasonal group settlements near accessible food resources and the intensification of the exploitation of plant foods as evidenced by groundstone artifacts. Hall states that "late prehistoric foraging patterns were more restricted in geographic routine and range, a consequence of increasing population density" (Hall:17) and other variables. Saratoga Period artifact types include Rose Spring and Eastgate points as well as Anasazi grayware pottery. Artifacts from the Tecopa Period are identified as Desert Side-notched and Cottonwood Triangular points, buff and brownware pottery, and beads such as the Thin Lipped, Tiny Saucer, Cupped, Cylinder, steatite, and glass types.

Colorado Desert

A cultural sequence for the Colorado Desert has been offered by Schaefer (1994a:63-66) based on the many archaeological studies conducted in the northern Colorado Desert area. The first time period identified is the Paleoindian (ca. 8000-10,000 BC to 6000 BC) which was characterized by "small, mobile bands" of hunters and gatherers who relied on a variety of small and large game animals as well as wild plants for subsistence. These small groups settled "on mesas Desert Chronologies and the Archaic Period in the Coachella Valley

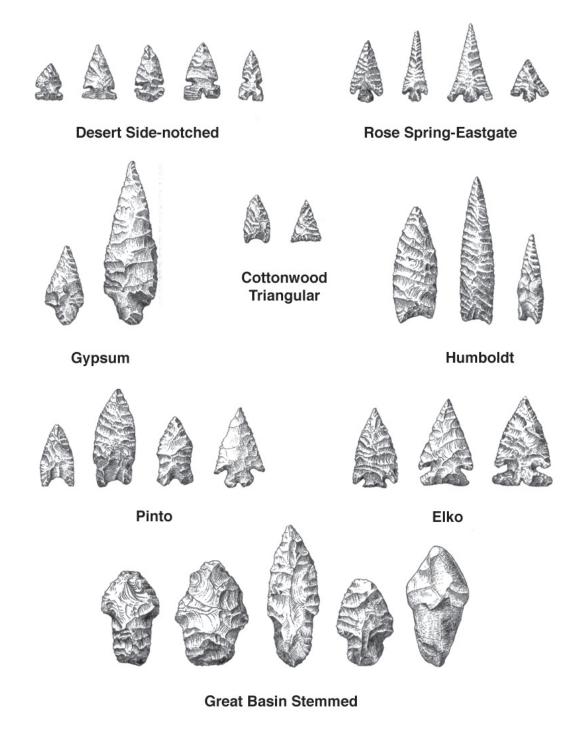


Fig. 3. Projectile point types (after Jennings 1986:117-118).

72

and terraces overlooking larger washes." The artifact assemblage of that time is identified as very simple stone tools, "cleared circles, rock rings, [and] some geoglyph types."

The Early Archaic Period follows and dates from 6000 BC to 2000 BC. It appears that a decrease in population density occurred at this time and that the indigenous groups of the area relied more on foraging than hunting. Very few archaeological remains have been identified to this time period. The Late Archaic Period (ca. 2000 BC to AD 500) continued to have low population densities and "flexible" group sizes that settled near available seasonal food resources and relied on "opportunistic" hunting of game animals. Groundstone artifacts for food processing were also greatly used during this time period.

The Late Prehistoric Period dates from AD 500 up to Mission times and saw the continuation of the seasonal settlement pattern. Peoples of the Late Prehistoric are associated with the Patayan cultural pattern and relied more heavily on the availability of seasonal "wild plants and animal resources" (Schaefer 1994a.:66). This time period also saw the introduction of brown and buff ware ceramics into the region. During times of lake infilling, the shores of Ancient Lake Cahuilla attracted much settlement and resource procurement along its banks but in times of desiccation, people moved away from the receding lakeshore towards rivers, streams, and mountains (Schaefer 1994a.:66). The numerous archaeological sites dating to the Late Prehistoric have yielded brown and buffware ceramics, a variety of groundstone and projectile point types, ornaments, and cremations.

Schaefer further expanded on his cultural sequence in a study presented by Altschul (1994:27-32). The first cultural complex is identified as the Paleoindian and is characterized as resembling Rogers' San Dieguito complex, where groups of this period settled near water sources and exploited resources from the "desert

PCAS Quarterly, 38(2 & 3), Spring & Summer 2002

areas to a limited degree" (ibid.:27). The Early and Late Archaic Periods follow, ca. 8000 BC to AD 600, and are associated with sparse human occupation of the area. Very few archaeological remains have been found associated with the Early Archaic Period, a time when the Colorado Desert region appears to have had "very low population densities" (ibid.:28). An increase in population occurred during the Middle Archaic, which led groups to develop defenses of their territorial boundaries. The variability of projectile point types has led researchers to conclude that these groups were competing for resources. This variability also appears to mark "social group membership in an environment of increasing population" (ibid.:28) The Late Archaic is characterized by a further adaptation to "drier and warmer Holocene conditions," (ibid.:29) where there was a decrease in the availability of small and large game animals and an increased dependence on groundstone technology. Group size and mobility were determined by the seasonal availability of food resources. Artifact types that characterize this period are "large spear and dart points" and "an array of basketry, nets, traps, split-twig figurines, and other perishables" (ibid.:29)

The Late Prehistoric Period is identified as the Patayan Period (ibid.:29), which is further subdivided into the Patayan I-III Periods, and is associated with the introduction of pottery in the Colorado Desert region. The entire Patayan cultural complex is characterized by cremations in ceramic vessels and numerous trail systems. Schaefer in Altschul (1994:30) states that these trails may denote "travel to special resource collecting zones, trading expeditions, and possibly warfare." Pot-drops and trail-side shrines are evidenced along these trails.

Patayan I dates from ca. AD 800 to 1050 and is a time when "small mobile groups" with ceramic technology seasonally settled along the Lower Colorado River and employed a similar tool kit as that of the Hohokam (Altschul 1994:30). The Patayan II, ca. AD 1050 to 1500, coincides with the infilling of Lake Cahuilla and is characterized as a time when new ceramic types were produced indicating "local manufacture." This phase of the Patayan is also characteristic of the movement of peoples from the floodplain out towards the eastern and western regions of the desert (ibid.). The "recession of Lake Cahuilla approximately 500 years ago" (Altschul 1994:30) ushered in the Patavan III Period (ca. AD 1500 to historic times, but see "Ancient Lake Cahuilla," above) and ceramic types known as the Colorado Buff. With contact between indigenous groups and European explorers, the Protohistoric Period was ushered in. During this time period, small mobile bands settled along the Lower Colorado River and depended on "small-scale agriculture, seasonal hunting, fishing, and gathering" (ibid.:31-32).

Yuha Desert

In an attempt to develop a chronology for the Yuha Desert, Weide (1976:81-94) compared the archaeological record for that region against a version of Rogers' cultural sequence for the Mojave and Colorado Deserts. This version of Rogers' cultural chronology begins with a Pre-projectile Point era and is followed by the San Dieguito Period (ca. 10,000 BC to 5000 BC). The Pinto Period spans from ca. 5000 BC to 2000 BC, while the Amargosa dates from 2000 BC to AD 600. Next is the Yuman cultural complex, named after the various sites found along the shoreline of ancient Lake Cahuilla. It is divided into three periods: Yuman I (AD 600 to 1050); Yuman II (AD 1050 to 1450); and Yuman III (AD 1450 to 1850).

The Pre-projectile Point Cultures were composed of small groups made up "of a few related families" who sporadically interacted with other nearby groups. Highly mobile, these groups moved around familiar territories hunting small game and gathering foods such as eggs, seeds, fruits, and insects. Large game was sometimes hunted. Their pre-projectile tool kit consisted of percussion flaked stone artifacts. Examples of these include "primary flakes, choppers, scraper planes, and ovate bifaces" (ibid.:81). The earliest evidence of human occupation during this time period in the Yuha desert comes from a human skeleton dated to 23,600 years ago. (Later radiocarbon dates indicate that this burial actually dates to 1,650 to 3,850 BP [Taylor et al. 1985:Table 1]).

The San Dieguito Complex follows and is characterized by the presence of cleared sleeping circles occasionally situated near water sources (Weide 1976:84). Again, most of the artifacts left behind from this time period are composed of chipped stone tools such as "flakes, choppers, scraper planes, ovate bifaces, notched pebble cores, hammerstones, cleavers, keeled scrapers, pulping planes, side scrapers, and spokeshaves" (ibid.:81).

During the Pinto Period, groups concentrated most of their efforts into hunting and collecting in the mountains (Weide 1976:86). The Pinto projectile points are the "most diagnostic artifact" type of this period and are generally found along water courses with associated milling stone artifacts (ibid.:86). Other perishable artifact types such as basketry and wooden pestles probably have not survived after deposition.

The Amargosa Period is generally associated with "large stemmed and notched projectile points with triangular blades" (Weide 1976:86-87). Sparse archaeological remains, including an inhumation, mark the period after San Dieguito I to the Yuman II Period within the Yuha Desert. However, population density increased in the area during the "final stand of Lake Cahuilla beginning ca. AD 1050" (ibid.:93; but see "Ancient Lake Cahuilla," above).

At the beginning of the Yuman I Period "people with ceramic technologies" settled "along the Lower Colorado River" (Weide 1976:87). Weide suggests that the spread of Yuman ceramics into the Salton Sink during the filling of Lake Cahuilla around AD 1050, which

ushered in the Yuman II Period. People of this time period adapted to the lake environment as evidenced in the archaeological record by the remains of "fish bone, *Anodonta* sp. shell, and aquatic avifauna" (ibid.). With the decline of Lake Cahuilla, Weide surmises that there was large-scale exodus from the Salton Basin to the Colorado River Valley and westward to the mountains. There was also a spread of agricultural activity away from the river towards the desert, where water control techniques were used including wells, springs, reservoirs, irrigation, and ditches. This new period is known as the Yuman III and is characterized by seasonal gathering camps. Also typical of this time were rock cairns.

Indian Hill Rockshelter

A locally specific cultural chronology was proposed by McDonald (1992:57) based on excavations of the Indian Hill Rockshelter site, located in the eastern foothills of the Jacumba Mountains of eastern San Diego County. Archaeological investigations at the rockshelter revealed a long period of occupation spanning from the Archaic Period up to early Historic times. McDonald, following Wilke (1986:163-172) divided the Archaic Period of the rockshelter site into Early Period I and Early Period II. The Early Period I spans from around 4000 BC to 2000 BC and is characterized by the use of the large Elko Eared dart points (McDonald 1992:28). This was followed by Early Period II (ca. 2000 BC to AD 500), a time period associated with Elko Eared dart points, a burial, and rock-lined cache pits used for storing foods. Very few cultural remains and an absence of Rose Spring projectile points and animal bone were noted for the time period between AD 500 and 1,000. McDonald suggests that the site may have been sporadically used during this time or that the use of large dart points could have continued up to the introduction of smaller projectile points. Another explanation is that projectile points were made of wood and consequently would not have survived after deposition. Following this

"gap" in the occupation of the Indian Hill Rockshelter site is the Late Prehistoric Period, ca. AD 1000 to 1850 (ibid.:16). Cultural remains associated with this period include smaller projectile points—Cottonwood Triangular and Desert Side-notched—and ceramics. Cremations, manos, metates, and ornaments are also characteristic of Late Prehistoric times. It should be noted, however, that no cremations were found at Indian Hill Rockshelter (ibid.:147). It appears that the site ceased to be used shortly after Spanish contact as evidenced by the lack of historic-era artifacts—only two glass beads were found.

McDonald's research indicates that the Indian Hill Rockshelter was "used most consistently as a longterm camp during the winter and spring, and possibly to some extent in other seasons" (ibid.:327), and that use of the camp "steadily increased over the last 4,000 years" except for the 500 year hiatus mentioned above (ibid.:336). It was also found that storage of food resources was very important to the peoples occupying the rockshelter. Significantly, the faunal analysis from the site revealed very little change in diet over the approximately 4,000 years of the shelter's occupation (ibid.:309).

Summary

In summary of the aforementioned chronologies, there is a strong tendency for researchers to find increase in population and cultural complexity over time, with concomitant trading relations, semi-permanent to permanent settlements, and higher densities of artifacts with wider ranges of artifact types marking the later, more recent periods. Key artifact markers reflect a shift from percussion flaking of large bifaces to pressure flaking of arrow points around roughly AD 500, and while one might expect a change in food consumption based on new hunting technology, McDonald's work finds no change in diet over this transition period. A shift in dependence on plant foods can sometimes be inferred from the presence or absence of groundstone artifacts, and the late introduction of pottery marks the beginning of the final phases in these proposed chronological sequences. The difficulties of reconstructing past, complex cultures or societies based on limited archaeological data become apparent. Multiple millennia of time are blocked together as periods meant to reflect ways of life. Subsistence strategies and social organization are inferred, for example, "generalized hunting and gathering," "subsistence patterns of broad-based foragers," or "small mobile groups" and "seasonal group settlements."

A review of Archaic Period sites (greater than 1000 years before present) from the Coachella Valley provides an opportunity to compare and contrast current findings with previous models as outlined above.

Archaic Period Sites in the Coachella Valley

As the preceding discussion shows, differing cultural sequences have been established for various areas of the southern California desert region. At the time that Schaefer (1994a) published his overview for the Colorado Desert, little to no information had been uncovered regarding human occupation prior to the Late Prehistoric Period. But recent studies conducted by cultural resource management firms have resulted in the identification of a number of archaeological sites dating back to the Archaic Period within the Coachella Valley (Fig. 4). The following section summarizes these finds.

Site CA-RIV-1340 (Feature 3)

The oldest cultural finds in the Coachella Valley (known to the authors as of this writing) are from Feature 3 at site CA-RIV-1340, south of La Quinta near the intersection of present-day Monroe Street and Avenue 62 (Hogan and Dahdul n.d.). Monitoring during grading exposed ashy cremation remains two meters below the ground surface in a matrix of interfingering alluvial sands and lake bottom sediments. Charcoal samples sent out for radiocarbon dating yielded 2sigma calibrated results of 1280 to 830 BC.

Site CA-RIV-5346

During the testing and mitigation phases of the Heritage Palms project in the City of Indio, a basalt flake was recovered in association with a fire hearth feature some eight meters below the top of a large dune in the wall of an active sand pit mining operation (Love 1996:131-133). The flake is unmistakably cultural in origin and is made from a basalt that is not found locally. Apart from the basalt flake, no other cultural items were recovered from this feature.

Ashy sand from the hearth was sent as bulk samples to two different laboratories for radiocarbon dating. The sample sent to the Washington State University Radiocarbon Dating Laboratory returned a 2-sigma calibrated date of 1390 to 850 BC, and the sample sent to Beta Analytic, Inc. returned dates of 850 to 760 BC and 640 to 560 BC.

Site CA-RIV-1974

During monitoring at the Heritage Palms project, a buried midden was uncovered at site CA-RIV-1974 (Love 1996:138). The top of the midden was found approximately 150 cm below the dune surface, and a 1x1 meter unit was excavated at this location to a depth of 140 cm. Cultural remains recovered from the unit included animal bone, groundstone pieces, chipped stone, a shell bead, burned Anodonta sp. shell, imported rock, and large amounts of charcoal. No ceramics were found.

Three charcoal samples from levels 0-20 cm, 40-60 cm, and 80-100 cm were sent to Beta Analytic, Inc. for radiocarbon dating. The charcoal sample from the 0-20 cm level returned a 2-sigma calibrated date of 505 to 35 BC; the sample from 40-60 cm returned calibrated dates of 360 to 280 BC and 250 BC to AD

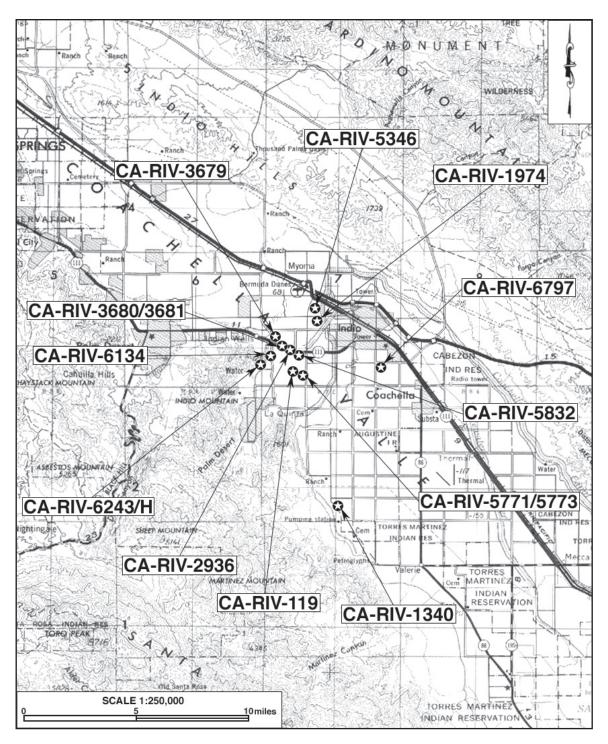


Fig. 4. Approximate locations of Archaic Period sites. (Based on USGS Santa Ana, Calif., 1:250,000 quadrangle.

65; and the last sample was dated at 380 BC to AD 45, suggesting a roughly contemporaneous time of deposition for the entire midden.

The faunal remains from this unit were sent to the UCLA Zooarchaeology Laboratory for analysis (Wake and Flad 1999). A total of 1624 vertebrate remains were recovered from the unit, with the most common being fish. The majority of these remains were identified as those of razorback suckers (Xyrauchen *texanus*) and all appeared to be roughly the same size. Some of the bones also appeared to be burned, suggesting that "whole fish may have been roasted over open fires or tossed into hearths subsequent to consumption" (ibid.:8). The large number of fish remains suggests that some "means of mass capture" (ibid.:8) must have been used by the inhabitants of the site to collect the fish. It is probable that a combination of nets and stone weirs were used, an explanation further supported by the lack of small-sized fish remains (ibid:9).

The next most common vertebrate remains were identified as mammals. Lagomorphs, including black-tailed jackrabbits (*Lepus californicus*) and cottontail (*Sylvilagus* sp.), were the most numerous in this assemblage. Next in abundance were birds such as duck and coot. Some of these remains were burned, indicating that "they may have been roasted or disposed of in fires" (ibid.:4). Wake and Flad (1999:11) also note that "ducks and coots are strongly associated with lacustrine or estuarine environments, and their presence and association with fish remains strongly suggests exploitation of such habitats."

Few reptile remains were found within this unit at site CA-RIV-1974. The majority of these were represented by snake vertebra, but no turtle remains were recovered. Wake and Flad (ibid:11) find this fact surprising because "the large number of fish remains suggest the presence of suitable, calm, freshwater habitat, which are ideal conditions for western pond turtles

or Colorado River turtles." Other sites surrounding ancient Lake Cahuilla have yielded remains of desert tortoise, which were consumed by prehistoric indigenous peoples.

Based on these findings, Wake and Flad (1999:12) concluded that the inhabitants of this site not only relied on lacustrine resources but also exploited "local terrestrial habitats." It was also determined that "the presence of fish remains at this location suggest it was occupied during a period when fish were available, probably at or near a 2300 year old high stand of ancient Lake Cahuilla, prior to any substantial lowering of lake levels and concomitant increases in salinity and alkalinity"(ibid.:12). When comparing this site with other sites located near the shoreline of ancient Lake Cahuilla, the authors did not find any significant difference in terms of subsistence procurement between this older 2300 year old deposit and later 500 year old finds, a finding parallel to McDonald's (1992) conclusions from Indian Hill Rockshelter (see above).

Site CA-RIV-5771/5773 (Locus 71)

During testing and mitigation programs on the Rancho La Quinta project, situated between Avenues 48 and 50 in the City of La Quinta, a buried deposit, designated Locus 71, was found in a large dune in the north-central portion of CA-RIV-5771/5773 (Love et al. 1999a:21-22). Recovered from this buried portion of site CA-RIV-5771/5773 were fire-affected rock, a basalt core, a wonderstone core, bone fragments, burned and unburned Anodonta sp. shell fragments, and fish vertebrae. The faunal assemblage showed site occupation during one of the high stands of ancient Lake Cahuilla. Two small charcoal samples were collected and sent to Beta Analytic, Inc. for radiocarbon dating by the AMS method. The sample from 150 cm returned 2-sigma calibrated results of 350 to 300 BC and 215 to 5 BC. The sample from 200 cm returned dates of 345 to 310 BC and 210 to 40 BC.

Additional testing of the buried site recovered wonderstone debitage, a metate fragment made from an arkosic sandstone, an *Olivella* sp. spire-removed bead, burned and unburned *Anodonta* sp. and *Physa* sp. shell and shell fragments, bone fragments, fish bone and again, no ceramics (Love et al. 2000a:50-55). Like the original testing program, the fauna recovered here shows occupation during a high stand of Holocene Lake Cahuilla. A sample of charcoal large enough for a standard radiocarbon date was sent to Beta Analytic, Inc. for dating. This sample returned a calibrated date of 785 to 185 BC.

Site CA-RIV-5771/5773 (Feature 37)

During monitoring of grading activities at Rancho La Quinta a second buried deposit was found, referred to as Feature 37 of CA-RIV-5771/5773 (Love et al. 2000b:65-73). It was in the same mesquite dune complex and at about the same elevation as the first buried locus about 35 meters to the north. This buried locus produced debitage of wonderstone, milky quartz, and quartzite, a biface mano fragment, 2 Olivella dama spire-removed beads, 3 fragments of a marine clam (probably Lucina sp. cf. L. lampa from the Gulf of California), burned and unburned Anodonta sp. and *Physa* sp. shells and shell fragments, bird bones from water fowl, mammal bones from rabbits, a desert tortoise bone, and numerous fish vertebrae. As with the earlier buried site, this site was also occupied during a high stand of ancient Lake Cahuilla.

The lithic analysis suggests higher than usual percentages of percussion flakes and shatter compared to percentages of pressure flakes normally found in Late Prehistoric shoreline sites in this region. Wonderstone, presumably from the Rainbow Rock area, was the stone of choice for tool making, and there was good evidence that the material was heat treated as part of the reduction process. A charcoal sample from this site was sent to Beta Analytic for radiocarbon dating returning a 2-sigma calibrated date of 195 BC to AD 75.

Site CA-RIV-2936

Two fire hearth features were found in the southwestern portion of site CA-RIV-2936 in the City of La Quinta, located on the north side of Highway 111 between Adams Street and Dune Palms Road (Love et al. 2000c:18-25). These two fire hearths were constructed of fire-affected clay and one of them contained burned fragments of groundstone. Charcoal samples from each of the two features were sent to Beta Analytic, Inc. for dating. Samples from Fire Hearth 1 returned a 2-sigma calibrated date of AD 140 to 410 and the samples from Fire Hearth 2 returned a date of 115 BC to AD 225. Fire Hearth 2 was stratigraphically lower than Fire Hearth 1 making the dates compatible with the stratigraphy.

During an additional investigation of Site CA-RIV-2936, an extensive buried site consisting of multiple living surfaces was found in the eastern portion of the property (Love et al. 2000a:22-24). The buried site was subjected to a mitigation phase including horizontal exposure (Love et al. 2000d) and was found to contain fire hearths (constructed of both fire-affected clay and rock, with those made of fire-affected clay the most common), lithic debitage, groundstone, shell ornaments, and two large obsidian bifaces. The bifaces, based on size, appeared to be dart point fragments reshaped into scrapers or knives. While the two obsidian bifaces were not sent out for sourcing, all of the obsidian debitage was found to be from the Coso Volcanic Field and none were found to be from the Obsidian Butte area. The obsidian was the second most common type of debitage at 30%, with wonderstone being the most common at 49% of the total.

The size of the site and its variety and range of artifact types suggest a village occupation, but strikingly, this Archaic Period living area was virtually void of fish bone, demonstrating that village life in the Coachella Valley did not wholly depend upon the presence or absence of Ancient Lake Cahuilla. Five charcoal samples from this buried site were sent to Beta Analytic, Inc. for radiocarbon dating. These samples returned 2-sigma calibrated dates of AD 255 to 550, AD 230 to 465 and AD 480 to 520, 180 BC to AD 135, AD 410 to 645, and AD 260 to 610.

Site CA-RIV-6797

The discovery of site CA-RIV-6797, another Archaic Period site (Brock 2002), is significant in many respects. Its location is well below the ancient shoreline elevations of many of the La Quinta area sites and it is found in the desert flatlands far from any canyon mouths or streams. Its stratigraphic integrity is well demonstrated by the archaeological testing performed there, in spite of being underneath an agricultural and much disturbed surface environment.

The Archaic component exists in deposits generally greater than 50 cm underlying later lake bed clays and silts, but appears to have been occupied during a time when ancient Lake Cahuilla did not exist. The dates in general (roughly 10 BC to AD 680) coincide nicely with previously described CA-RIV-2936 (roughly 180 BC to AD 645), the large village site north of present-day Highway 111 in La Quinta , that was also notable for its lack of lacustrine-related remains. Recovery from site CA-RIV-6797 included large quantities of fire-affected clay, fire-affected rock, some 40 pieces of chipped stone, a hammerstone, three metate fragments, and a modest number of vertebrate faunal remains.

Site CA-RIV-6243/H

A pre-ceramic deposit was found in a unit excavated into the floor of a stratified rock shelter at site CA-RIV-6243/H, located north of Eisenhower Drive and west of Washington Street in the City of La Quinta (Love et al. 1999b:33-36). A charcoal sample from site CA-RIV-6243/H was sent to Beta Analytic, Inc. laboratory for dating by the AMS method. This sample returned a 2-sigma calibrated date of AD 340 to 530. The sample dated came from a depth of 110 cm, while the deepest ceramic sherd was recovered from 60-70 cm. The interval 100-110 cm produced 4 pieces of debitage, 3 late-stage percussion flakes and 1 piece of shatter, including milky quartz, wonderstone, and rhyolite porphyry.

Site CA-RIV-3679

During cultural resources investigations at site CA-RIV-3679, located at the northeast intersection of Washington Street and Highway 111 in the City of La Quinta, a fire hearth feature was found that did not have any ceramics (nor any other artifacts) associated with it (Yohe 1990:75-78). The feature consisted of ashy soil and fire-affected rocks. Two charcoal samples were collected and sent out for radiocarbon dating. These samples returned 2-sigma calibrated dates of AD 440 to 670 and AD 380 to 620.

Site CA-RIV-3680/3681

During the evaluation of site CA-RIV-3680/3681 (also located on the northeast corner of Washington Street and Highway 111), no intact features were uncovered (Yohe 1990). In their absence, a loose charcoal sample was collected in association with artifacts from a surface scrape conducted on the site. This charcoal sample was sent out for radiocarbon dating and returned 2-sigma calibrated dates of AD 720 to 740 and AD 760 to 1010. It should be noted that the cultural material retrieved from the surface scrape did not include ceramic sherds.

Site CA-RIV-119

During a testing program at site CA-RIV-119, located just south of Avenue 48 and west of Jefferson Street in the City of La Quinta, three loci were evaluated with charcoal samples collected from at least two of them (Jertberg and Farrell 1980:39-41). A charcoal sample 80

from one of these loci was sent for radiocarbon dating. Locus A was a highly disturbed cremation, while Loci B and C were hearths with no associated cultural materials other than fire-affected rocks (ibid.). The sample returned a 2-sigma calibrated date of AD 885 to 1190 (ibid.:135).

Site CA-RIV-5832

A human cremation was uncovered and excavated during testing and mitigation programs conducted at site CA-RIV-5832, situated just south of Highway 111 and east of Dune Palms Road in the City of La Quinta (Love 1997). The site recovery, which had no ceramics, included debitage of basalt, jasper, wonderstone, chalcedony, and aplite. The faunal remains included human bone fragments from the cremation, four Olivella sp. Spire-removed beads, bird bone from waterfowl, mammal and fish vertebrae, and bone from rabbits. A non-human bone sample was sent to the Beta Analytic, Inc. laboratory for radiocarbon dating by the AMS method. The sample returned a 2-sigma calibrated date of AD 905 to 920 and AD 950 to 1175. These data indicate that the introduction of ceramics post dates the activity at CA-RIV-5832.

Site CA-RIV-6134

During the investigation of site CA-RIV-6134 located on the grounds of the St. Francis of Assisi Church in the City of La Quinta, a buried site was found and tested with three one-meter units, with no ceramics being recovered (Love et al. 2001a:21-22). Charcoal samples were obtained from the intervals of 70-80 and 90-100 cm. These samples were sent for radiocarbon dating and returned 2-sigma calibrated dates of AD 1050 to 1100 and AD 1140 to 1290 for the 70-80 cm sample; and AD 1030 to 1270 for the 90-100 cm sample.

A Cautionary Note

It should be noted that the lack of ceramics at a site does not necessarily indicate an Archaic Period occupation. During the investigation of site CA-RIV-3659/H at the northwest corner of Washington Street and Highway 111 in the City of La Quinta, a buried feature was found in a mesquite dune in the southern portion of the site at a depth of 100-110 cm (Love et al. 2001b). The fire hearth feature was associated with fire-affected clay, fire-affected rock, two groundstone fragments, a few pieces of debitage, and some bone. Lacking from this feature were ceramics. Two additional units and a backhoe trench were placed into this dune and all resulted in an absence of subsurface ceramics. A charcoal sample obtained from the hearth was sent out for radiocarbon dating, returning 2-sigma calibrated dates of AD 1410 to 1530 and AD 1560 to 1630. While the absence of ceramics would suggest a site older than 1000 years, the dates are surprisingly recent, providing a cautionary note that not all sites lacking ceramics are pre-ceramic in origin.

Summary

A review of Archaic Period sites from the Coachella Valley has been undertaken in search of trends or patterns that might define the period. Faunal assemblages reflect the degree of dependence on lake resources compared to terrestrial, but do not seem to reflect change in subsistence strategies over time. Cottontail and jackrabbit predominate the land-based resources and razorback sucker the lacustrine. From 2500 years ago to 500 years ago the faunal assemblages can be either lake-based or terrestrial, but since the lake has come and gone multiple times during those years, the faunal assemblages do not serve as a chronological markers. A faunal analyst would have a difficult time distinguishing between collections two millennia apart. Lithic technology, on the other hand, does seem to shift from a higher percentage of percussion flaking in early sites to higher percentages of pressure flaking at later sites. And although wonderstone remains the material of choice during both the Archaic and the Late Prehistoric, there appears to be more imported basalt, chalcedony, and jasper in the earlier period sites.

Material type, of course, is partly responsible for flaking practice; fine-grained very hard basalt is almost impossible to pressure flake. McDonald (1992:78) notes that basalt (and porphyry) was commonly used for dart points. Debitage analysis suggests that possibly larger blades or points were being made more than 1500 years ago, and two large obsidian "scapers" from CA-RIV-2936 could well be reworked broken dart points, but the "smoking" dart point has not been found in the Coachella Valley to date. The shift from dart points to arrow points is thought to have occurred around AD 500, and the debitage analysis is consistent with this model.

Groundstone tool fragments are found throughout all periods in the Coachella Valley. Common items include thin schist portable metates, boulder metates, fully shaped carefully manufactured manos as well as expedient unshaped rock manos, and long cylindrical pestles associated in the ethnographic record with deep wooden mesquite trunk mortars (Bean and Saubel 1972:109; James 1960:55; Kroeber 1908:52).

One potential archaeological marker of early behavior, found in recent Coachella Valley excavations, may be large blocks of hardened or semi-fired clay in cooking features. At this time the evidence is more impressionistic than scientific, but there are definite associations of chunks of clay—sometimes used with cooking stones, sometimes by themselves—associated with deep roasting or baking ovens that seem to be absent in Late Prehistoric sites. Regarding settlement size and type, the density of artifacts and range of artifact types at the buried locus of CA-RIV-2936, northeast of the intersection of Highway 111 and Dune Palms Road, suggests a more permanent village-type occupation than almost any of the nearby lake shore sites from the Late Prehistoric era. While the lake shore sites appear to be more in the realm of specialized temporary camps for gathering, trapping and fishing, the buried locus at CA-RIV-2936 was not dependant on lake resources and reflects a permanent or semi-permanent population. Overall, there is today almost no indication that population density and site complexity increased over time.

Discussion

For some 3000 years (at least), people in the Coachella Valley have been gathering, trapping, and hunting resources, manufacturing tools and implements, engaging in long distance trade, and carrying on the cultural traditions of their ancestors. In attempts to understand the distant past, archaeologists try to organize these almost unfathomable lengths of time into manageable blocks or periods reflecting ancient human behavior and change over time. Such a change is the transition from so-called Archaic to Late Prehistoric, a change reflected in the archaeological record by the introduction of ceramics to the Coachella Valley.

The current review of cultural chronologies or sequences as presented by previous researchers in the desert regions of southern California, and this summary of what is known about Archaic Period sites in the Coachella Valley, allows for comparing and contrasting current findings with previously established frameworks (Fig. 2). As a result, certain general conclusions can be reached. First, although the term Archaic Period is used generally in North American (and Mesoamerican) archaeology to refer to cultural traits or patterns, the shift from Archaic Period to Late Prehistoric in the Coachella Valley does not appear to 82

reflect changes in social organization or subsistence strategies. The appearance of pottery around AD 1000 marks a real change in the archaeological record, but faunal assemblages, groundstone use, village size, village location, long distance trade for obsidian and marine shells, and other cultural markers, do not seem to change at this time.

The apparent lack of change in social organization, subsistence strategies, and settlement patterns (at least from what can be discerned from the archaeological record) when moving from pre-ceramic to Late Prehistoric brings into question a number of assumptions inherent in previously proposed desert chronologies. For the northern Colorado Desert, a lack of data led to the interpretation that Archaic Period people lived in small, highly mobile bands relying on opportunistic hunting and gathering for survival. Recent archaeology paints an entirely different picture, including long distance trade in ornaments and raw material, permanent village occupation, wide ranging subsistence strategies, and settlements within a whole range of environments from sheltered coves to lakeshore dunes to open expanses of level desert (presumably with walk-in water wells or springs).

Generally, the existing desert chronologies present patterns of increasing population and complexity over time with the greatest variation occurring in the protohistoric period. How much of this is a direct result of site preservation patterns where the older sites are more difficult to find, i.e., deeply buried, more dispersed, and more disturbed than the recent sites? The assumption seems to have been that sparseness of data reflects low population and minimal social complexity. We argue, based on recent data from the Coachella Valley, that the a priori assumption, until shown to be otherwise, might be that societies in ancient times were at least as complex and diverse as in the protohistoric period. Love and Dahdul

Another key question emerging from the current study is the appropriateness of naming blocks of time, presumably reflecting culture, after types of projectile points. The current review suggests that the introduction or change in projectile point types had little to do with subsistence strategies, settlement patterns or long distance trade. Faunal analysis suggests heavy reliance on rabbit with complements of fish, fowl, reptile and other sources of protein, none of which would be necessarily hunted by atlatl or bow-and-arrow. Driving, netting, clubbing, and trapping can account for all the animal capture necessary to maintain a healthy protein intake without the use of projectile points at all. Indeed, as shown above, there is nothing to distinguish the faunal record from before or after the introduction of the bow and arrow. Neither does the introduction of ceramics coincide with patterns of social change in the Coachella Valley. Point types and ceramics therefore become useful chronological markers for archaeologists, but may have been less than paramount in the lives of the living peoples.

Should the term "Archaic Period" for this block of time older than 1000 years be discarded? Any other term would be just as arbitrary, and if the researcher is willing to define his or her terms prior to using them, why not stay the course laid out by previous scholars in a particular geographical region? For the Coachella Valley, the Archaic Period refers to a time prior to the introduction of ceramics, but as this study confirms, it does not seem to mark any particular shift in subsistence strategies or cultural behaviors. A better term might be Pre-ceramic Period, or more simply, "greater than 1000 years." As time depths grow with the discovery of more data, perhaps a useful scheme would be to reference the past by millennia, as in first millennium AD, first millennium BC, second millennium BC, etc.

As archaeological pursuits continue in the Coachella Valley, there will be opportunities for future finergrained chronological frameworks to reflect real changes over time in peoples' societies. As ever, site formation processes and stratigraphy are all-important to this effort. The findings of old intact surfaces deep within large desert sand dunes, recently discovered Archaic Period strata under agricultural fields, and the occasional discovery of rockshelters along the bases of the surrounding mountains hold great promise.

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84

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86