

# A SUGGESTED CHRONOLOGY FOR SOUTHERN CALIFORNIA COASTAL ARCHAEOLOGY

by  
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Southern California prehistory has never occupied a prominent place in North American archaeological researches, and literature on the subject is not very imposing. This is true despite the fact that much archaeological work has been done by local educational institutions, museums, and interested amateurs. Many localities have been searched for evidence of human occupation and a fair number of sites have been dug, some with a degree of completeness; but publication has lagged far behind survey and excavation. As a consequence, the characteristics of the prehistoric cultures and their sequences in time are but vaguely known. Enough information exists, however, to provide a basis for a few tentative statements concerning cultural development.

Southern California, which includes approximately one-third of the state, can be separated into a western or coastal province and an eastern or desert zone. These subareas are distinct geographically and, in the light of present archaeological knowledge, culturally, though there is some overlapping. Only the coastal region, including Santa Barbara, Ventura, Orange, and the nondesert portions of Los Angeles and San Diego counties, will be discussed here.

## THE COASTAL PROVINCE

Stretching from Point Conception southward to the Mexican border, the coastal province comprises a broad strip of broken land along the sea and inland for some miles. A complex network of mountain ranges, 5000 to 7000 feet high with peaks much higher, separates it from the desert of the interior. The year-round climate is mild with small daily and annual ranges because sea breezes and fogs tend to stabilize the temperatures without extremes. Year averages are from 65 degrees in January to 70 degrees in July, with a greater range in the intermediate and interior valleys.

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leys. The year divides in general into two seasons — wet and dry — with nearly all the rain falling in the months from October to May. Annual precipitation varies from eighteen inches at Santa Barbara to about ten inches at San Diego. Summer is a period of drought.

The streams and rivers of Southern California carry little or no water during most of the year. Large flows come only during heavy winter rains and taper off soon afterward. Springs and small perennial streams in the canyons provide the water supplies.

The dominant woody vegetation is not trees but the almost impenetrable chaparral. Foothills, interior valleys, and canyons are characterized by groves of oaks, while sycamores and willows grow along the stream beds. Large areas are grass- and shrub-covered, particularly in the inland valleys behind the coastal hills. A real forest growth occurs only in the dividing mountains where pines, firs, and cedars are found.

Large land mammals are not abundant, being represented only by the California mule deer and in some localities by the American antelope. Small mammals are numerous, however, with several species of rabbits and many of squirrels, rats, and mice. Carnivores include foxes, coyotes, raccoons, skunks, and badgers. Wild cats and mountain lions are occasionally seen. In the coastal waters are various sea mammals — seals, sea lions, dolphins, and the like. Sea otters formerly abounded. Bird life is varied and profuse with many land and marine species. There are ample resources of fishes and shellfish.

The coastal strip, with its pleasant climate and more than adequate plant and animal food resources, was favorable for aboriginal occupation and contained a heavy population estimated at over 20,000. Most of the native peoples — collectively referred to as the Mission Indians because they were quickly taken to the Franciscan missions by the Spaniards and Christianized — spoke languages of the Shoshonean family. Included were the following groups: Gabrielino, Cupeño, Nicoleño, Juaneño, Luiseño, most of the Fernandeano, and some of the Cahuilla. Non-Shoshoneans were the Hokan-speaking Chumash or Canalino of the Santa Barbara region and the Yuman Diegueño in the southwestern section of the state. The Mission Indians shared essentially one basic culture though there were some regional differences. Most of the coastal tribes are now extinct or nearly so. Abundant traces of the former presence of the historic peoples and their predecessors survive, however, in the numerous and easily discernible habitation sites.

Archaeological evidence now suggests a classification of these remains into four broad temporal divisions or horizons: an initial period of "early man" finds; a long "milling stone" phase; a little known intermediate period; and a late manifestation including historical materials and what

appear to be their immediate prehistoric antecedents. These wide and rather vague divisions do not reflect detailed cultural-historical changes with accuracy but they do provide a framework in which to discuss the data.

### HORIZON I. EARLY MAN

There is little positive evidence concerning the earliest peopling of the Southern California coast. Quite recently claims have been made for a Third Interglacial occupation. These are based upon the recovery of fractured stones from the silts and gravels of river and ocean terraces in the San Diego area. There is no convincing proof that these random finds are artifacts. True, they all show percussion flaking but natural forces can produce chipped edges on rock as well as man. Until supporting evidence is offered, these stones cannot be accepted as conclusive evidence of man's presence in this remote period.

Three finds of human skeletal material have been made in the city of Los Angeles under conditions which suggest some antiquity. During the construction of a storm drain in the Ballona Creek area in 1936, human bones were recovered twelve to thirteen feet below ground surface in a geological stratum attributed to the Pleistocene. In the same layer, but not in direct association, were bones and two teeth of a mammoth (*Archidiskodon imperator* Leidy). The remains of "Los Angeles" man consisted of a cranium and seven fragments of other bones, all heavily fossilized. The fluorine content of the human and elephant bones is quite similar, presumably indicating contemporaneity.

At least six human skeletons were uncovered nineteen to twenty-three feet below the surface, during construction in the Angeles Mesa district in 1924. The osseous material was not scattered, all coming from an area of not more than twelve square feet. Some bones show considerable mineralization; in other cases the replacement is not so great. The deep occurrence of the skeletons and a lack of evidence of disturbance of the overlying deposits precludes the possibility of recent burial. Presumably the remains were deposited before the nineteen to twenty-three foot overburden was laid down. No bones of Pleistocene or Recent mammals were secured from the sand and sandy silt in which the human material lay. A quartzite boulder, regarded as an implement, and a small awl-like object were recovered, however.

The famed asphalt deposits of Rancho La Brea, containing a record of life extending from a stage somewhere in the Pleistocene (probably Last Interglacial) into Recent times, has also yielded human remains. An

almost entire skull and some other portions of the skeleton were encountered in Pit 10 at depths extending from approximately six to nine feet. The associated mammals and birds were for the most part more characteristic of the present time than of the Pleistocene, though some Ice Age forms were included. Judging from the accompanying faunal remains the human skeleton would belong to the early Recent epoch or not earlier than the very latest portions of the Ice Age. Purely geological evidences of age are generally exceedingly difficult to obtain in asphalt deposits, owing to the peculiar manner of their accumulation and the possibility of movement in the deposit after they are formed.

These finds have received little consideration, primarily because they were made during a period when skepticism of all "early man" discoveries still prevailed. The skeletal remains and the circumstances of their recovery should be reexamined. Careful cranial reconstructions and measurements need to be made. It would be of great interest, for example, to see how the skulls compare morphologically with types believed to be very early arrivals in the New World. With the possible exception of Los Angeles Man, the present evidences do not point unequivocally to Pleistocene age. They do indicate, however, that they considerably antedate the present and that, if not of Ice Age antiquity, they at least fall in an early phase of the Recent epoch.

There are also a few artifacts which point to man's living along the coast of Southern California in remote times. Traces of man's presence at Rancho La Brea are not limited to the skeleton from Pit 10. Scattered objects of human manufacture have been recovered in another pit from which a more ancient fauna has come. A series of fifteen artifacts of bone, stone, and shell were found in excavation unit 61-67 (which began as two separate pits but merged into one) at depths of from eight to eighteen feet. Most of the items are of types which have no known diagnostic significance. Four, however, all apparently from the same general depth and area, appear to be of old forms unknown in late coastal sites. Three are broken sections of heavy wooden dart foreshafts. The fourth is a more complete specimen, a wooden bunt foreshaft, again presumably for a dart. It is quite possible that these belonged to Late Pleistocene or Early Post-glacial hunters who preyed upon animals trapped in the sticky asphalt.

Also attributed to Late Pleistocene or Early Post-Glacial times are archaeological remains from Level 1 at Malaga Cove and from San Dieguito campsites. Malaga Cove is a large site on a high cliff overlooking Redondo Beach in Los Angeles County. Four physical and cultural levels have been distinguished. In the bottommost (Level 1), a compact yellow stratum, was found an unusual and simple assemblage in which the distinguishing items were microliths. Included also were flake knives, convex-

based projectile points (two only), flake scrapers, chipped core and pebble hammerstones, abalone shells with openings plugged with asphaltum, spire-lopped Olivella shell beads, clamshell disk beads (rare), scored and incised stones, bone points, bone harpoon barbs (projectile tips?), bone spatulae, and bone beads. The uniqueness of this assemblage is emphasized by the apparent absence of seed-grinding implements so characteristic of Californian archaeological sites. The early people subsisted largely by shellfish-gathering, supplemented by some hunting and fishing. There is no concrete evidence of plant-collecting. No human skeletal remains were uncovered, so that information on disposal of the dead is lacking. Level 1 materials lie in the upper three feet of a 25-foot, non-marine Pleistocene terrace. If humans lived at Malaga Cove during the deposition of this last three feet, presumably they were there during the late Pleistocene. The associated fauna, however, includes only one extinct species, a diving goose. The archaeological sampling is such a meager one that additional excavation is needed before any certain conclusions can be drawn concerning this occupation.

San Dieguito represents a distinctive and widespread chipped stone industry distributed from the Pacific shores to the Colorado River and beyond. Typically sites are situated on mesas or hilltops and contain no occupation refuse other than stone objects. All of the lithic material occurs upon the surface or slightly below. The fundamental elements of this assemblage are: numerous scrapers and scraper planes, choppers, "amulets" or "ceremonial stones" (small chipped and notched crescents), large blades, and points. The last three are far from abundant. There is some question whether milling stones and mullers form part of the complex.

An age of 1200 B.C. (or Little Pluvial) was originally assigned to the San Dieguito complex. A greater antiquity has been suggested because of the occurrence of remains on ancient land forms such as elevated marine terraces and inland around the margins of extinct lakes. The general simplicity of the materials has also been taken as a criterion for an earlier placement in time. Dating has recently been confused by a revision downward of the cultural sequence for the Colorado River basin where several phases of San Dieguito are recognized. This was done on the basis of a review of collections from the occupational layers in Ventana Cave. Early San Dieguito remains are now recognized in the Ventana complex, which brings them into chronological agreement with Folsom. This cultural and temporal equation rests on the common possession of a relatively few classes of simple percussion tools and needs to be demonstrated more convincingly. If the dating is accepted, it would push the beginning of the coastal manifestation farther back in time. The San Dieguito complex is assumed to have endured much longer in the west than in the arid

interior and to have passed through several distinct phases with the last (San Dieguito IV) persisting in Baja California until about 900 A.D.

## HORIZON II. MILLING STONE ASSEMBLAGES

A fairly adequate archaeological record exists for a group of lithic assemblages which appear to follow the above in time. These are characterized by the extensive use of milling stones and mullers. There is also a general lack of well-made projectile points. The few points which have been found are often leaf-shaped and of a size to suggest that they were used to tip darts propelled with the throwing stick. Bone tools and shell items are scarce or absent. No containers for storing and cooking food have been recovered. It is probable that these were of basketry and have left no traces in the archaeological deposit. The early people were primarily food collectors, with hunting and fishing definitely in a secondary role. Mammal, bird, and fish bone refuse is scarce in the deposits. These early coastal inhabitants appear to have been more or less sedentary, as the size and depth of some of the sites suggests a long-continued occupancy of the same locality.

The Oak Grove culture of the Santa Barbara region is the best-known representative of this horizon. Similar assemblages have also been unearthed at the Little Sycamore shellmound in southwestern Ventura county, at Topanga Canyon just north of the city of Los Angeles, in Level 2 at Malaga Cove, and in the La Jollan shellmounds of San Diego County. Distinctive traits are summarized in Table 1.

In addition, the Porter Ranch site at San Fernando probably should be included in this horizon. Here a vast concentration of milling stones was uncovered along with a few handstones. The remaining artifacts consisted of a flaked stone knife blade with a convex base, two large projectile points—one leaf-shaped and the other stemmed and corner-notched—a stone discoidal, one mortar, and several "problematical stones." A few burned mammal bones and a single human reburial were also found. The deposit did not give evidence of the existence of a village and is assumed to represent a ceremonial site.

Comparable milling stone assemblages have also been unearthed at Point Dume (Zuma Creek, Site A) on the Los Angeles County coast, and at Encino (LAN 111) in the San Fernando Valley. None has yet been unearthed in Orange County though the lower level (Culture 1) of the Goff Island site may represent this horizon.

There is some diversity in the local expressions as, for example, in the nonutilization of shellfish resources by the Oak Grove and Topanga

TABLE I  
MILLING STONE HORIZON CULTURAL ASSEMBLAGES

	Oak Grove	Little Sycamore	Topanga	Malaga Cove (Level 2)	La Jolla
Subsistence	Seed-collecting	Shellfish and seed-collecting	Seed-collecting	Shellfish and seed-collecting	Shellfish and seed-collecting
House type	Circular pit-house	Unknown	Unknown	Unknown	Unknown
Grinding implements	Mullers-milling stones, few mortars pestles	Mullers-milling stones, few mortars pestles	Mullers-milling stones, few mortars pestles	Mullers-milling stones, few mortars pestles	Mullers-milling stones
Stone projectile points	Few, large and crude	Few, large and crude, mainly leaf-shaped	Few, large and crude	Absent?	Few, large and crude
Other chipped stone tools	Large blades (leaf-shaped rounded base), retouched flakes	Retouched flakes, few core tools	Abundance of flake and core tools	Knife blades	Retouched flakes, beach cobble choppers
Bone objects	Rare or absent	Few in number	Few in number	Present (no description)	Few spire-topped Olivella beads
Ornaments	Absent	Few spire-topped Olivella beads	Few clamshell disk beads, slate pendants	Shell ornaments, bone beads	
Mortuary complex	Extended burial, rock cairns over corpses, few grave offerings, red ocher abundant	Flexed burial, reburial, rock cairns over corpses, few grave offerings, little red ocher	Extended burial, reburial, rock cairns over corpses, few grave offerings	Reburial, rock cairns over corpses	Flexed burial, rock cairns over corpses, few grave offerings
Special features		Stone discoidals, pitted hammerstone	Stone discoidals and cores, pitted hammerstones	Stone discoidals, steatite objects	

peoples. Also the multitude of forms of rude flake and core tools from Topanga is not duplicated elsewhere. The resemblances outweigh the differences, however, and seem to indicate that the assemblages constitute a basic cultural stratum. Actually the similarities may be greater than indicated as the data are not very complete. Various authors have pointed out possible relationships with similar assemblages in the interior of California and to the Cochise culture and other early lithic complexes in the southwest.

The antiquity of the milling stone assemblages cannot be expressed in exact dates as no radiocarbon analyses have been made. Although the remains are definitely post-Pleistocene, none having been found with convincing evidences of a climate, fauna, or flora demonstrably different from that of the present, they do give indications of respectable antiquity. Signs pointing to an early dating are: the metamorphosed nature of the archaeological deposits; the semimineralization of human skeletal material; and the general simplicity of the remains. Estimates of time are hard to make in the absence of specific dates, yet to allow 4500-5000 years for the beginning of these simple cultures and 2000-3000 years for their duration does not seem excessive.

### HORIZON III. INTERMEDIATE CULTURES

An impressive gap lies between the milling stone assemblages and the rich and elaborate artifact inventories of the late prehistoric period. This "gap" does not imply that the Southern Californian coast was uninhabited for some hundreds or thousands of years, rather it indicates a lack of knowledge of what occurred during the intervening years. Archaeological remains dating from this period have either not been recognized or described. The paucity of well-stratified sites has been a handicap here.

In the Santa Barbara region the Hunting Culture lies intermediate in time but seems to show few specific relations either to the preceding or following cultures. The Hunting people introduced the basket-hopper mortar, mortar, and pestle. Chipped stone implements are more diverse and plentiful, with broad leaf-shaped blades and heavy, often stemmed, projectile points being characteristic. Bone and antler objects though present are far less numerous and varied in form than in subsequent phases. Personal ornaments are few, consisting of massive beads of bone and shell. Asphalt and steatite were occasionally used. No traces of dwellings have been observed. The Hunting people customarily interred their dead in a flexed posture, face down, with the head to the west. Red ocher was spread over corpses, and rocks were heaped up over them.

In contrast to their predecessors, the Hunting people, as their name implies, were primarily dependent on wild game. Land mammal bones are plentiful in their village refuse. There is also a fair proportion of sea mammal remains but only a few fish bones. Quantities of sea shells scattered through the debris give an indication that shellfish contributed heavily to this people's diet.

The Sand Dune site (USC-Ven 2), just across a small creek from the Little Sycamore "milling stone" site, yielded evidences of a rather simple complex characterized by numerous pestles and a few mortars. These may have been the only seed-grinding devices employed as there was an apparent absence of milling stones and mullers. Projectile points are heavy and characteristically stemless, though a few small specimens are included. Bone implements, mainly awls, were present in some numbers. Articles of personal adornment were disk-shaped and spire-topped Olivella beads. No information on mortuary practices was obtained. The prehistoric population maintained itself by collecting shellfish and wild vegetable foods, supplementing their diet quite often with fish and wild game.

An archaeological site at Big Tujunga Wash in the San Fernando valley may also be included in this horizon. Many hundreds of fragments of stone bowls were turned up. Mortars, pestles, and handstones were also obtained. Also present were several forms of large projectile points, flaked stone blades, bone awls, and beads of Olivella shells. These items are roughly analogous to the classes of artifacts from Hunting settlements and the Sand Dune site. Included in the Big Tujunga inventory were a series of objects generally regarded as somewhat more recent, namely containers, tobacco pipes, and beads made from steatite, mortars with flat bases and flaring sides, and a few small points. None of the latter, however, are typical late forms. Two separate methods of disposal of the dead appear to have been practiced by the Tujunga population: reburial under stone cairns and cremation. About forty Hohokam sherds, apparently all from a single vessel, have been dated between the seventh and ninth centuries A.D.

For San Diego County the La Jolla culture is assumed to have persisted with little change. During a later phase (La Jolla II), chipped stone tools increased in quantity and variety but the mortar and pestle grinding assemblage is not reported. La Jolla II is assumed to have merged with Diegueño, the last prehistoric phase.

Excluding San Diego County, the major cultural change during this period, aside from an increased dependence upon hunting, was the shift in grinding implements from the milling and hand-stone combination to the mortar and pestle, though the former continued in use on a reduced scale. This may signify a change in food habits or emphasis from hard-

shelled seeds to larger fleshier fruits such as the acorn, the great staple of the historic California Indians. Mortars and pestles are regarded as being more efficient for pulverizing and grinding oily and fleshy acorns preparatory to leaching out their tannic acid content. This superseding of one set of grinding tools by another is duplicated elsewhere in California. The milling stone and muller apparently were kept because they filled a special need.

The prehistoric peoples seem to have used the bow and arrow, at least occasionally. Judging from the size and weight of the majority of their projectile points, they continued to cast darts with the throwing board. The fair number of bone awls suggests the manufacture of coiled basketry, though the sharp-tipped bone implements may conceivably have served some other purpose.

For the present these "intermediate" complexes cannot be arranged in a chronological sequence one to the other, though age differences between them seem apparent. For instance, the Tujunga materials appear to be somewhat more recent. All that can safely be said is that they fall in time somewhere between the milling stone and later horizons. Any attempt to set definite temporal boundaries is entirely guesswork, but a span of time between 1000 B.C.—0 A.D. and 1000 A.D. appears to be well within the bounds of probability. As in the preceding phase, cultural growth progressed at a slow rate. Information is badly needed for this chronological period.

#### HORIZON IV. LATE PREHISTORIC CULTURES

The Late pattern of life along the Southern California coast is more complex, with many more classes of artifacts present which in general show a high order of workmanship. There appear to be a number of distinctive local complexes but all share certain traits, most of which were known to have been present at the time of European penetration. Important new developments include increased use of the bow and arrow (as inferred from the abundant presence of small finely chipped projectile points), stone projectile tips characteristically stemless with either a concave or convex base, steatite containers, pottery vessels (in the south), circular shell fishhooks, perforated stones, generous use of asphalt as an adhesive, bone tools many and varied, numerous personal ornaments of shell, bone, and stone, and elaborate mortuary customs with abundant grave goods. The population seems to have increased as settlements are more extensive or perhaps small local groups joined together to form larger villages. There was a greater utilization of available food resources with more land

TABLE 2  
LATE HORIZON CULTURAL ASSEMBLAGES

	Canalino	Malaga Cove (Level 4)	San Luis Rey I Complex (S.D. 132)	San Vicente Creek	Fallbrook Area (Site 7)
Subsistence	Shellfish- and seed-collecting, hunting, fishing	Shellfish- and seed-collecting, hunting, fishing	Seed-collecting, some hunting	Seed-collecting and hunting	Seed-collecting, some hunting
House form	Circular	Unknown	Unknown	Circular	Circular, rock-paved area
Grinding implements	Mortars-pestles	Mortar-pestle, basket-hopper mortar	Bedrock mortars-pestles, milling stones-mullers	Bedrock mortars, milling stones, mullers	Bedrock mortars, pestles, milling stones, mullers
Stone projectile points	Small, stemless concave and convex-base	Small, stemless concave and convex base	Small, stemless, concave base dominant	Small, stemless, concave base	Small, stemless, concave base

TABLE 2 (continued)

	Canalino	Malaga Cove (Level 4)	San Luis Rey I Complex (S.D. 132)	San Vicente Creek	Fallbrook Area (Site 7)
Other chipped stone tools	Drills, knife blades	Drills, knife blades, scrapers	Drills, scrapers	Flake scrapers	Drills, flake scrapers
Bone objects	Numerous, awls, ornaments	Numerous	Fairly numerous, awls, flakers	Not numerous, awls	Not numerous, awls, scrapers (?)
Ornaments	Numerous shell and stone beads, pendants	Numerous shell beads, bone beads	Shell beads (disk and spire-lopped Olivella), stone pendants	Shell beads (spire-lopped Olivella), disk (Olivella?)	Shell beads, spire-lopped Olivella
Mortuary complex	Flexed burial	Flexed burial, rare cremation		Cremation, bones often placed in pottery vessels	Cremation
Special features	Charmstones, steatite vessels, extensive use of asphalt, shell fishhooks	Steatite vessels, extensive use of asphalt, shell fishhooks, glass trade beads, painted pebbles		Pottery vessels and pipes	Pottery vessels and pipes, steatite arrow-straightener

and sea mammal hunting and fishing, along with a continued interest in collecting.

The Canalino culture of the Santa Barbara channel region, divided into three developmental phases, was the most elaborate of the late coastal manifestations and marks the peak of California Indian culture. It is evident that material culture in practically all of its phases underwent an independent, special, and uncommon development here, which is displayed in an unusual wealth and variety of industrial and artistic forms. The Channel Islands offshore may have received their first occupation at this time, though there is no agreement on this point. The Canalino culture extended southward into Ventura County (Point Mugu site) and into western Los Angeles County (Arroyo Sequit site), localities well within the boundaries of the territory of the historic Chumash or Canalino. Material culture was no respecter of linguistic and ethnic boundaries, however, as quite similar materials have been uncovered farther south in territory occupied in the historic period by Shoshonean-speaking peoples. A like complex is present in Malaga Cove in Level 4 and probably also in Level 3. Although these two strata are separated and regarded as distinct cultural entities, they appear to have much the same content. Except for the lack of a few classes of traits (arrow points, painted pebbles, basket-hopper mortars, flexed burials), Level 3 is much like the overlying area. These absences may well be due to chance circumstances of excavation. A site at Long Beach (Los Altos 1) and several on or near the coast of Orange County have also produced this type of culture. A rock shelter in the Simi Valley, Los Angeles County, gave evidence of late occupation. The number of artifact classes here was small, as this was a temporary stopping place rather than a permanent settlement.

Farther south in San Diego County late manifestations have been reported from a number of localities: Diegueño sites on the coast, Site 7 on the north bank of the Santa Margarita River in the Fallbrook region, the San Vicente Creek site, four miles north of the village of Lakeside, and at SD-132, just west of Pala and a few miles inland from the Pacific Coast.

Table 2 lists the characteristic items occurring in some late sites. Although all share basic traits, a distinction is noticeable between the northern and southern (San Diego County) sections in grinding implements, containers, mortuary practices, and to a lesser extent in the form of projectile points. Portable stone mortars and pestles, along with the basket-hopper slab, continue to be the dominant grinding implements in the north, whereas bedrock mortars and a more extensive employment of the milling stone appears at the San Diego County sites. Pottery vessels are few in number north of the Orange County line. Competition with steatite containers, which are equal to pottery in every respect and can

be used directly over the fire in cooking, may have hampered the spread of the potter's art northward, though knowledge of the craft may still have been spreading at the time of Caucasian entry. Whereas the predominant mortuary practice in the northern section remained flexed burial, cremation was practiced in the south at least during the closing phase of the prehistoric period. Both the knowledge of ceramics and cremation appear to have diffused into the San Diego area from the arid interior. The convex-based point, though not unknown in the south, occurs in reduced numbers. Curved shell fishhooks have not been reported beyond the Orange County line, though at least occasional specimens have been recovered much farther south.

The late period sites are not all chronological equivalents but they can be placed within a time span from about 1000 A.D. to contact times. Throughout this period there appears to have been a definite cultural lag in the southern part of the region, despite such innovations as pottery and cremation. The present dating of late sites appears to be a little conservative. The placing of the first appearance of the Diegueño culture in the fifteenth century and San Luis Rey I, regarded as essentially pre-ceramic, in the period between 1400 and 1750 A.D. seems too moderate and does not allow enough time for subsequent cultural-historical developments.

The coming of the Spaniards to the California coast during the last third of the eighteenth and the first third of the nineteenth century and the removal of the native peoples to the missions brought the aboriginal period to a close. The Indians suffered greatly from missionization and their cultures quickly collapsed. As a consequence there are few sites in the coastal strip belonging to the period of contact with Western civilization when Indian and white lived side by side.

## SUMMARY AND CONCLUSIONS

Regional sequences as now conceived for the Southern California coast are summarized in Table 3. Correlation between the various localities is replete with difficulties, and the chronological placement of sites and complexes has been arrived at by rather broad typological comparisons and guesswork, only occasionally from archaeological stratigraphy. The whole scheme suffers from a lack of reliable dates, so that the complexes included in the same level can be regarded only as approximate time equivalents.

Though the primary concern is with sequence, estimates of age and duration are included. These are admittedly estimates which probably will change radically with new evidence. As regards more reliable dates

TABLE 3  
REGIONAL SEQUENCES IN SOUTHERN CALIFORNIA ARCHAEOLOGY

Date	Santa Barbara County (northernmost)	Ventura County	Los Angeles County	San Diego County (southernmost)
	III Canalino II I	Canalino (Point Mugu)	Canalino (Arroyo Sequit) Malaga Cove IV (Probably also III)	San Luis Rey I San Vicente Creek Fallbrook
1000	Hunting	Sand Dune	Big Tujunga	La Jolla II
AD BC	Oak Grove	Little Sycamore	Malaga Cove II Topanga	La Jolla I
3000			Malaga Cove I La Brea Angeles Mesa Los Angeles Man	San Dieguito

nothing constructive can be offered as none has yet been provided by carbon-14 samples.

A broad interpretation of the archaeological record indicates a more or less parallel development in the several localities. Following a scantily-represented and ill-defined early phase, there was a period in which the peoples lived primarily by gathering and made use of milling stones and mullers. The remainder of their material equipment was meager and crude. They were replaced in time by populations preferring the mortar and pestle for grinding and who added to their diet through more hunting and fishing, though collecting continued to be extremely important. The final phase shows a marked elaboration of culture and probably a rise in population. Fishing and sea-mammal hunting assumed more significance.

The picture is one of slow progress with simple cultures persisting for long periods. Part of this can be explained by the marginal, isolated position of the Southern California coast in relation to the main centers of cultural development in native North America. Also the habitat did not make numerous and rigorous demands on the people settling in it, so that cultural adaptation to the geographical environment was fairly easy. Once established, the pattern of life was maintained relatively unaltered for many centuries.

There are many critical problems which remain to be solved before a detailed and connected history of human occupation in Southern California can be written. The development of detailed local sequences constitutes a basic need. The rareness of stratified deposits, combined with the general simplicity of form and manufacture of the artifacts and the absence of sensitive time-makers, makes accomplishment of this task difficult. Once reliable local chronologies are set up, the problem of synchronizing regional sequences can be attacked with more assurances of success. Another critical question involves the relationship of the coastal assemblages to those of the interior desert province. For the present only tenuous relationships can be noted. Finally, the Southern California sequence needs to be fitted into a wider western North American or continental perspective.

A contribution toward an answering of many critical questions can be made by an ordering, publication, and interpretation of data already secured. But further field investigations and site reports are badly needed. Also some absolute datings are necessary. There is an ever-growing interest in Southern Californian prehistory and a considerable amount of archaeological research is being carried on; so in the near future, at least, some of the gaps in present knowledge will be filled.