

THE HISTORY OF NATIVE CULTURE
IN CALIFORNIA

BY

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Now and then it seems permissible for the student to leave off his daily association with specific facts and rise above them on the gyroscope of his imagination to discover if a broader view may not give him new insights into their relations, or alter his conception of their setting in the larger landscape of nature as a whole. Such flights indeed appear almost incumbent on him at intervals if his occupation with his materials is close and unremitting. The requirement which integrity imposes on these ventures is that knowledge and fancy, fact and fabrication, be kept as distinct as possible, lest one come to pass for the other. The present essay is such a soaring of hypothesis. While it starts from the solid ground of twenty years of inquiry into the culture and speech of the Californian aborigines, it pretends to no greater validity than any summary, undocumented, historical reconstruction may claim.

FORMER CHARACTERIZATIONS

A number of early travelers and residents have left pictures of the Californian tribes they knew, without having come into contact with the inhabitants of any larger portion of the area. The first broader description, the well-known *Tribes of California* of Stephen Powers, deals with nearly all of the groups north of the Tehachapi Mountains. Powers wrote from observation and possessed to a high degree the journalist's faculty of rapid perception and vivid presentation. In spite of some overdrawing, his work remains unsurpassed as a delineation of California Indian psychology. Some of his characterizations of groups are unusually felicitous. His survey was however too rapid to allow of the assemblage of a sufficient number of exact ethnic data for systematic study.

Several years after the foundation of the Department of Anthropology at the University by Mrs. Hearst, I attempted, in volume

two of this series, a review entitled *Types of Indian Culture in California*. In its outlines this classification seems to have been generally accepted, although accumulating knowledge has resulted in some revisions and considerable shifts of emphasis.

Sixteen years later, in the seventeenth volume of the present series, I returned to the subject with an essay on the culture provinces of California. By this time, enough information had become available through studies of members of the University and others to make possible not only a fairly accurate delimitation of the areas of distinctive culture within California, but an appraisal of the relation of these areas to the generally recognized larger culture areas of America and an indication of the focal centers within the areas. The findings were embodied in two maps, the principal features of which are consolidated and embodied in the map herewith.

All this has been a labor first of accumulation, and then of classification. The unraveling of sequential developments in California has heretofore been attempted chiefly for restricted areas or limited aspects of culture. Yet every natural classification contains within itself, so far as it is sound, genetic indications. Recognition, for instance, of the affinity between the culture of northwestern California and that of the North Pacific Coast, or again between those of southern California and the Southwest, long ago forced the inference of a flow of cultural elements or stimuli from these more remote regions into the affected parts of what is now California.

At the same time, there would be something summary and short-circuiting in viewing these Californian tracts as mere reflections or extensions of extraneous culture developments. They are actually in juxtaposition to other local culture types which have been little affected by the remote centers, or at least not so specifically; and which have undergone their own growth on the spot. Local interrelations may not be lost sight of because of the presence of foreign influences—should, in fact, be the first to be accurately determined.

PROBLEMS OF DEVELOPMENTAL SEQUENCE

It seems worth while therefore to endeavor to discover how far it is possible to go in the direction of tracing the development of culture in the Californian area on the basis primarily of its own data. Such a limitation would be arbitrary if regarded as leading to final conclusions. The attempt has, however, the advantage of operating

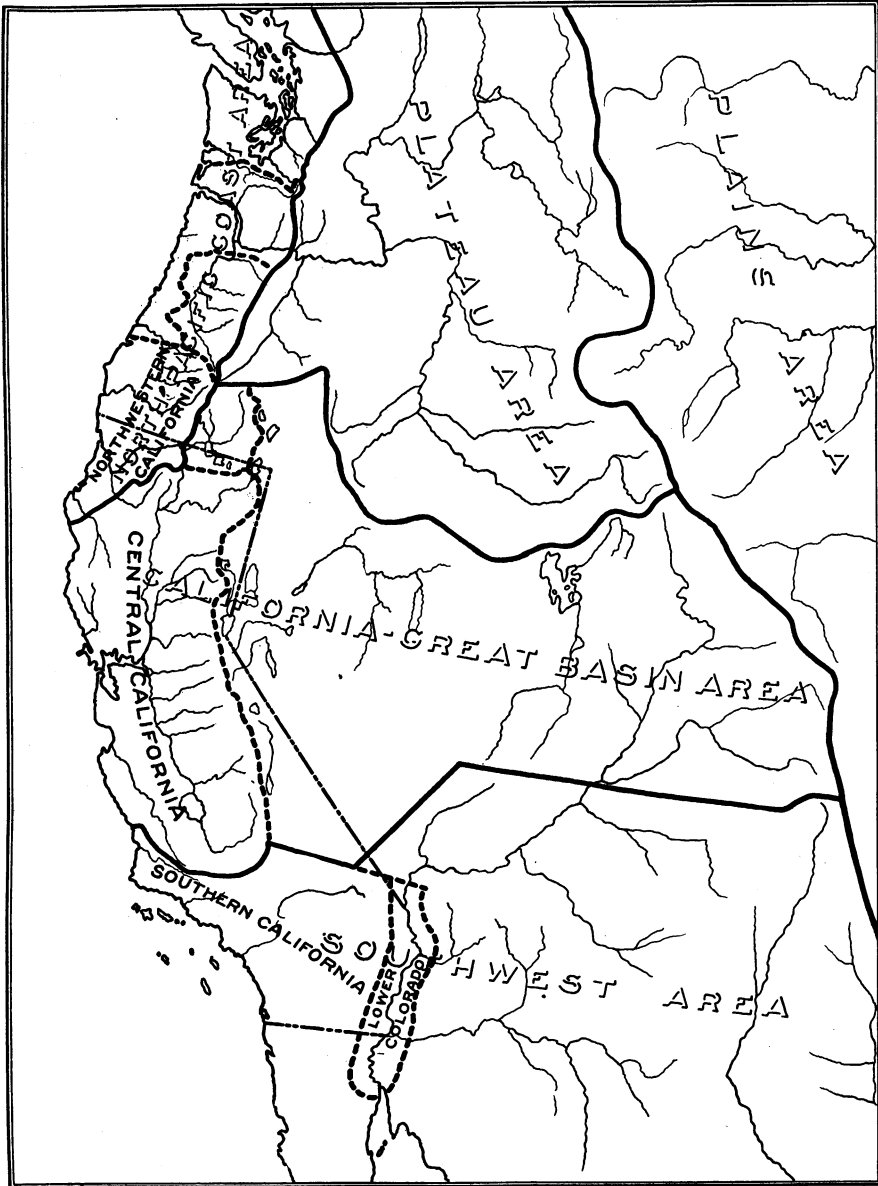


Fig. 1. Areas and Sub-areas of Culture in and about California.

intensively; and such distortions of perspective as ensue will readily enough correct themselves on being brought into relation with the interpretations of our knowledge of other areas.

As a first step toward the conversion of the local ethnic data from their merely spatial relations into temporal ones, I have assembled a number of facts in the appended diagram. The idea of this diagram is to suggest geographical relations by horizontal arrangement, temporal relations by vertical disposition. Of course, the arrangement in both directions is necessarily somewhat rough. Also, the number of culture traits selected is only a fraction of those that might have been chosen; but it includes those whose nature or distribution seems most significant. Data for whose placement in this diagram no warrant is found in previous publications are discussed in more detail in a recent essay on *Elements of Culture in Native California*, in volume 13 of this series, and in a handbook on the Indians of California in press with the Bureau of American Ethnology.

The genetic assumption which underlies the arrangement of elements in the diagram is that, other things equal, widely distributed traits are likely to be ancient; locally limited ones, of more recent origin. Obviously, this assumption may not be adhered to too rigidly: other things never are equal, or we often cannot be sure that they are.

For instance, had the ghost dance of fifty years ago been included in the tabulation, its place therein, on the basis of its fairly wide occurrence, would have been below the two peaks representing the culminations of the northwestern and central cultures; but on the basis of its known recency, overlying them. It is conceivable that a similar influence, institutional, mechanical, or religious, might have been only a very few centuries older than the ghost dance, just far enough in the past to be undocumented by history, and have left permanent residua in the culture of the same two provinces. In that event, it might have been entered, according to the plan followed, in a fairly low portion in the table, at a point representing an antiquity of perhaps several thousand instead of only a few hundred years.

Another factor which is likely to vitiate conclusions drawn too mechanically from a diagram like this one is the origination of elements wholly outside the Californian sphere. The sinew-backed bow is a case in point. It is now generally accepted that this bow is only an abbreviated form of the composite, Asiatic bow, which is

| NORTHWESTERN | | CENTRAL | | SOUTHERN | | LOWER COLORADO | |
|-------------------------|--|-----------------------------|--|-----------------------|--|-------------------|--|
| Localized Cults | | Hesi Cults | | Chungichmish Cult | | Song-Myth Cults | |
| Pre-human Race | | Feathered Basketry | | Ground Painting | | No Sweat-House | |
| New Year Religion | | Kuksu Religion | | Tolache Religion | | Dreaming Religion | |
| Property Law | | Creator Concept | | Coiled Cap | | Agriculture | |
| Non-Tribal Society | | Nameless Tribeslets | | Basketry Water Bottle | | Tribes | |
| Plank House | | Mother-in-Law Taboo | | Dying God Concept | | | |
| Sinew Backed Bow | | Moieties | | Pottery | | Non-Local Clans | |
| Salmon Ceremony | | | | | | | |
| Shaman's Training Dance | | | | Mourning Ceremony | | | |
| Shaman's Spirit Pains | | | | Totemism | | | |
| Hoppered Slab Mortar | | | | Metate | | | |
| Overlay Twining | | | | Coiled Basketry | | | |
| | | Girls' Adolescence Ceremony | | | | | |
| | | Sweat House | | | | | |
| | | Taboo of Name of Dead | | | | | |
| | | Twined Basketry | | | | | |
| | | Mortar | | | | | |

built up of layers of sinew, wood, and horn. In the eastern hemisphere, the composite bow is at least three to four thousand years old. There is little doubt of its having been carried into America and applied there in simpler form. It must then have been used first in the northwest of the continent and been diffused southward and eastward. Its Californian distribution represents only a minute fraction of its total distribution. Clearly, the history of the sinew-backed bow could not possibly be solved from a consideration of the facts of its occurrence within this limited region. The answer to the question of when it was first used in California depends in part on evidence that ranges from California through Alaska and Asia to Egypt.

Still, the facts of the bow's distribution within California have their significance, however abridged; and set by the side of facts concerning culture traits of less sweeping range, and still others which are wholly limited locally, a synthesis can result which will yield at least a tentative set of conclusions available for matching against the broader but less intensive syntheses built up on the consideration of data involving whole continents.

In any event, the diagram is valid so far as it presents the facts. Their meaning is another story.

With a clear realization, then, that at this point we abandon indubitable record for speculative interpretation, let us proceed in the reconstruction of the development of native civilization.

This civilization may be conceived as having run a course in four distinctive stages. The first period recognizable would be one of a simple culture with scant regional differentiation. In the second era, influences from the coast farther north and from the Southwestern plateau began to creep in, and the culture took on one color in the northern third and another in the southern two-thirds of California. A third period was that of the differentiation of the four cultures known to us. In the last period, which continued down to the time of Caucasian settlement, these local cultures attained their historic forms.

FIRST PERIOD: RELATIVELY SIMPLE AND UNIFORM CULTURE

The people of this era almost certainly comprised the ancestors of the modern Hokans, perhaps of the Penutians. Algonkins and Athabascans are more doubtful; Shoshoneans had not yet entered. Among the Hokans, the Yuman division may still have been in touch with its congeners of the central Californian district; at any rate its

habitat was scarcely that of the present. The northern Hokan divisions—the ancestors of the Chimariko, Karok, Shastan groups, Yana, Washo—were more widely spread than now.

The culture of all these peoples rested essentially on a food supply of seeds, especially the acorn, helped out by mollusks on the coast, fish, small game, and deer in the interior. The plant foods were crushed with stone pestles in stone mortars, stored, prepared, and cooked in baskets of twined weave, much as now. Wickerware, which is little used at present, may have been made then. Weirs, traps, and nets were worked in textile and cordage processes. The nets ran to rather large seines, weighted by stones. The fishing harpoon with detachable head, and the rush balsa, may have been already known. Wood was worked, at least split, with horn wedges; implements made of it must have comprised self-bows, and perhaps clubs, tubular tobacco pipes, and food stirrers.

The sweat-house is likely to have been in use much as we know it: a permanent structure, fire-heated, entered nightly. To have served its purpose adequately, it could scarcely have been other than earth-roofed. The construction may therefore have been applied also to dwellings; but in the main houses were probably of bark slabs or thatch on a frame of light poles.

The dead were buried, perhaps cremated here and there. They were feared more for their physical contacts than as spirits. Their names were not uttered. There was also a prejudice against the free use of the names of the living. Birth taboos were observed.

The principal dance, besides one of triumph over the heads of fallen foes, was that held for every adolescent girl, who endured a series of restrictions during the rite. For instance, she might not scratch her head nor eat meat. Religion was influenced largely by shamans who derived their power from actual or fabulous animals or celestial phenomena. They may have possessed stone charms. Besides curing and causing disease, they attempted to produce abundance of food, for the community as well as themselves; but these efforts were as yet unaccompanied by communal rituals.

The people lived without exogamic divisions, under chiefs who headed groups of kinsmen or small bodies united by co-residence. So far as descent was weighted at all, which was not often, it ran in the male line. Polygyny was tolerated and practiced. A man married his wife's sister or kinswoman, before or after her death; the widow married her husband's kinsman.

SECOND PERIOD: NORTHERN AND SOUTHERN INFLUENCES

Culture elements from the coast to the north and the interior highland to the southeast of California now began to penetrate. In each case they were worked into the existing culture. The northern influences seem to have been earlier and more effective, so far as they reached; but they scarcely affected more than the northern third of the area. Over this third, culture was comparatively uniform.

The northern house in this period commenced to be of frame construction, though still rudely made of bark slabs rather than planks. Some form of canoe must have been in use. Along with it, skill in wood-working developed. Basketry was commencing to refine on its old basis of twining. Possibly ornamentation in overlaying was practiced. At any rate, basketry was being put to special uses—cradles, caps, and the like. A woven hopper on a slab replaced the mortar. Shamanism was taking on a character of its own. The shaman's power was no longer derived so much from animals as from intangible spirits of localities. The novice in the art was aided by older men in a shaman-making dance. Shamanistic food-supply rites were slowly being elaborated, especially in connection with the salmon run. Society remained as unorganized as before, but possession of property and public influence were beginning to be correlated, and marriage was by purchase.

The Athabascans or Algonkins or both are likely to have entered northern California in this era; perhaps the Penutians were spreading along the Sacramento drainage. As a result of these movements, the Hokans were shifted and separated. The Athabascans came from the north; but, moving more slowly, or at least more intermittently, to judge by the preponderance of precedent, than knowledge and institutions diffused, they were not, in all likelihood, so much the carriers of the new elements of culture that were pervading northern California, as newcomers who found themselves in familiar social environment. The Algonkin ancestors of the Yurok and Wiyot are likely to have come down the Klamath. This movement would bring them out of a hinterland at a time when lapse and remoteness had deprived them of eastern Algonkin culture. Thus they too could not well have contributed much of novelty to the life of the region they were entering.

In the larger southern two-thirds of California the populational movements were less intricate. The Shoshoneans were probably spreading out of the Great Basin across the deserts toward the coast. They may have reached the ocean toward the close of the period. Here and there bodies of them that had come into intimate advance guard contacts with aliens were specializing their speech to become the ancestors of groups like the Tübatulabal or Cupeño. Culturally the Shoshoneans carried little into California: they could have had but little in the Basin. They did separate the southern from the central Hokans; and the break between the central and northern Hokan groups by Penutians may also have been effected during this period.

Most of the new civilizational elements in south and central California that can be assigned to the second era have Southwestern affiliations. They were of course not specific Pueblo elements. Pueblo culture was only beginning to organize; and even when organized it has never evinced a power of radiation equal to the degree of its development. Southern and central California at this time may be assumed to have used the unshaped metate alongside the mortar, and to have sewn coiled basketry. On the southern coast, shell beads began to be made in variety, and canoes were employed. Soon after the islands were reached and settled, the steatite industry may have had its inception, both as regards the manufacture of vessels and possibly also of ceremonial objects and ornaments. The beginnings of totemic sib organization perhaps fall in this period. Whether this took the form of moieties or clans, and whether these were exogamic or localized or not, is difficult to say. The emphasis is likely to have been on the totemic rather than on the organizational aspects of the system. In such groups as recognized descent, this was patrilineal. Shamanism had reached a stage of loose associations or public performances of coöperating individuals of the type of the rattlesnake ceremonies and shamans' contests of the San Joaquin valley in the historic period. Rattlesnake and grizzly-bear shamans were commencing to be differentiated. The public mourning anniversary took form in this era and may have begun to creep northward. With it there is likely to have gone an accentuation of death taboos and perhaps a greater inclination to cremate corpses.

THIRD PERIOD: DIFFERENTIATION OF LOCALIZED CULTURES

Populational movements on a large scale cannot be established for the third era. The Shoshoneans no doubt continued to press southwestward, and many minor shifts must have taken place in the welter of groups in the north. In the main, though, the territories of the greater linguistic blocks were commencing to approximate their present configuration. Culturally, the flow from the North Pacific Coast and Southwestern areas continued; but its effects remained more restricted geographically than before; because the imported elements now reached local cultures of some activity both in the north and south, and were there worked over before being passed on; and also because an independent culture was beginning to arise in the middle region.

In the northwest this local differentiation seems to have been most rapidly consummated, and to have become quickly established and correspondingly limited in geography. Consequently it is difficult to distinguish this period and the next in northwestern California. The pure type of plank house, the high esteem of property, exact valuations and laws connected with property, the use of compulsive formulas in religion, the attachment of rites to particular spots, the belief in a prehuman race in place of a creator, all must have evolved to an appreciable degree during the third period.

In central California, especially its northern portion in and about the Sacramento drainage, the vague shamans' associations began in this period to grow into the Kuksu organization: a formal initiation was instituted and spirits began to be impersonated. More or less connected was a development of mythology, in which increased coherence in accounting for beginnings was attained and the concept of a supreme creator began to grow clearer. On the side of arts, the culture failed to progress perceptibly, except in basketry; which was being made with added refinement and in techniques and styles that varied somewhat from region to region. Totemism, accompanied by a moiety system and more or less cross-cousin or other special forms of marriage, and here and there affecting rites, names, honors, or chieftainship, prevailed chiefly but not exclusively in the southern part of the central area. The mother-in-law taboo spread over the whole of it in this period.

South of Tehachapi, the narcotic jimsonweed or toloache (*Datura*) was beginning to be worked more significantly into religion, especially in connection with an initiating organization which was becoming too inclusive to be strictly shamanistic any longer. The ritual came to include in time the idea of the ground painting—the basic element of the altar concept of the Southwest. For some unknown reason—perhaps the barrier interposed by the lower Colorado tribes—the elaborate ritual costuming of the Southwest was not carried into California, or if so only feebly and soon to be lost. A simple standardized costume of feather skirt and head topknot came into use, to continue century after century with practically no modification. The developing jimsonweed ritual and existing mourning commemoration commenced to influence each other, the toloache cult concerning itself more and more with problems of human life and death and spirituality, and instituting special mourning rites for its members. From the Southwest, too, were derived tendencies to reckon the year calendar about the solstices; and to weld the bulk of each tribal mythology into a long, complex whole, beginning with the first male and female principles and continuing through a series of births of beings and a sort of national migration legend. The most conspicuous episode in this cosmogony was that of the death of a great god. This concept seems to have originated in Mexico and either to have passed by the ancestors of the Pueblos or to have been discarded by them because unconsonant with their ritual system.

The scheme of society fluctuated locally between recognition of moieties, clans, and totemism, without ever freeing itself from association with the idea of chieftainship. In material culture, the influence of the Shoshonean Great Basin began to be perceptible at this or that point. The water bottle of basketry, the cap, perhaps the carrying net, emanated from this quarter. Pottery making, which was perhaps not introduced until later, had its source farther south: the region of the Gila and Sonora rather than of the Pueblos is indicated.

Along the Colorado, the bottomlands proved to be capable of sustaining a fairly large population as soon as agriculture was introduced from the Pueblos or more likely from Sonora; and agriculture remained thereafter the permanent basis of civilization. Physiography and climate, however, confined farming to the immediate river, thus concentrating the population into a uniform belt and

marking it off sharply in customs from the inhabitants of the surrounding deserts and mountains. The narrowly localized and particularizing attitude characteristic of the remainder of California being effaced within the farmed tracts, settlements became fluid and lost their significance within true tribes. Had the civilization of these tribes been rich enough to support a real political organization, still further coalescence into a great nation might have ensued. As it was, they wasted one another in habitually sought wars, which absorbed much of their energy.

This growing emphasis on warlike undertakings did not interfere with the Colorado river tribes taking over from the New Mexican or Sonoran peoples such cultural elements as pottery, clan system, and prolix cosmogony, and passing them on to the groups nearer the ocean. For some reason, however, their military spirit and the civilizational distinctiveness enforced by their environment conflicted with other elements that came to them from the same source: the ground painting, for instance. These therefore traversed them without being able to make serious impression. Dreaming was evidently already established as the central idea and act in the religion of the river tribes. Why this should have been, we cannot see clearly. But the fact accounts for such elements as the altar, the dance, the recognized priest, not fitting in and therefore never taking firm root.

On the whole, then, the lower Colorado culture was the result of Sonoran influences being remodeled in a special environment. The product, compactly restricted within its physiographic confines, remained from an early date comparatively unreceptive to New Mexican influences, though without forming an impervious barrier to their spread.

FOURTH PERIOD: CONSUMMATION OF THE HISTORIC CULTURES

In this period North Pacific and Southwestern influences continued to enter California. But as they reached cultures of ever increasingly integrated organization, these influences were absorbed less and less directly. The characteristic event in Californian civilization in this era accordingly was the growth of its specializations.

The duration of this final period should not be under-estimated. In the sixteenth century Alarcon, Cabrillo, and Drake sketched the native life that they found in portions of the lower Colorado, southern California, and central areas. They did not of course describe with

minuteness nor enter upon intricacies or matters of organization. Consequently we cannot be sure how many of their more subtle and elaborate modern traits the groups in question possessed when visited by these explorers. But the picture for each locality tallies so perfectly, so far as it goes, with that presented by the historic cultures of the same spots, as to force the conviction that rather little development occurred in the three to four centuries that followed their visits. Twice that duration thus seems a conservative estimate for the length of this period.

In the northwest, these were the times in which finish in everything technological attained its modern degree. Forms remained less developed: the distance from the center of North Pacific Coast artistic achievement was too great, and central California had no examples to contribute. But the boat was refined with gunwales, seat, and prow ornament of local design; and polished horn was increasingly employed for objects whose material at an earlier time was presumably wood. The caste system hardened, debt slavery began to exist, marriage purchases became more splendid and more formally negotiated, a greater number of possessions and activities were given economic valuations. Treasures or money as such assumed a larger part in life, as compared with merely useful things: dentalium shells from the north, obsidian from the east, ornaments of woodpecker crests obtained at home. The dances, whose esoteric portion remained formulistic, afforded opportunities for the display of much of this wealth, thus rendering unnecessary a potlatch or credit system and perhaps preventing an introduction of this northern institution which might otherwise have taken place. The wealth in turn gave an added dignity to the festivals and enabled them to take on more definitely their ultimate character of world renewing or new year rites. The intensive localization of ritual, myth, magic, and custom was no doubt fostered in some measure by the assignment of economic and legal values to fishing places and nearly all tracts or spots that were specially productive. Fighting wholly lost the character of war and became a system of economically regulated murder for revenge. Any remaining vestiges of scalping or the victory dance disappeared, and the war dance of incitement and negotiation of settlement prevailed exclusively. The idea of spirits as guardians diminished to the vanishing point; disease and cure were thought to be concerned mainly with self-animate pain objects; and shamans of importance were now always women.

In the central area, totemic sib organization perhaps began to decay. If it developed locally, it was without vigor. In religion, the movement of the two preceding eras toward cult organization gained in momentum. The rather widely spread Kuksu impersonations grew more elaborate, their combinations into great dances more numerous and spectacular, the earth-covered dance houses larger. Initiation into membership now was twofold: preliminary and full. The foot-drum, split-stick rattle, and other paraphernalia, or such of them as did not go back to an earlier time, were introduced or at least associated with the Kuksu rites. In the heart of the area, about the lower Sacramento, a superstructure was reared on the Kuksu organization: the Hesi cult. The upper San Joaquin valley was scarcely influenced in religion. Its southward remoteness preserved more ancient forms of ritual, or exposed it to partial permeation by the southern California toloache religion. Throughout the central province, in fact, the hill and mountain tribes took over only patches of the valley culture. Elements of civilization were accepted by them rather freely, organization of elements scarcely at all. Even in the active hearth of the culture, progress was mainly along the line of organization, elaboration, and integration. Aspects of civilization that did not lend themselves readily to making over in this manner—shamanism, for instance, adolescence rites, and many arts—remained primitive.

In basketry alone must we assume a notable progress per se. But this occurred independently in several parts. The effect thus was, as it were, centrifugal. The Pomo, the Maidu, the Washo, the Yokuts, each developed their own styles, technically and aesthetically. Single rod coiling, lattice twining, feathering, bottleneck shapes, are concrete examples among many slighter indications.

In southern California there was also a differentiation. At least as far back as the preceding era the Chumash seem to have begun to develop a special technological expertness, the Shoshoneans an interest in mysticism. The islanders, who in historic time were of both stocks, participated in both movements. Santa Catalina held the principal steatite quarries and was in close touch with the most favorably situated of the mainland Shoshoneans. It became therefore a radiant point. From it emanated the Chungichnish religion, superposed upon the basic toloache cults much like Hesi upon Kuksu, though its stress was laid more upon the meaning of symbols than their form. This religion had something of a propagandist spirit, which did not

spend itself until after the introduction of Christianity, in fact was probably stimulated and possibly even induced by Christianity. World, birth, death, and soul mysticism flourished in belief and ritual. The basic world myth became more and more inclusive, the sacred ground-painting took on its special features that mark it off from the Southwestern altar painting. As in the Central province, shamanism, adolescence customs, and the like ancient institutions were little affected by these developments; only mourning rites grew ever more elaborate.

In the island and Chumash district the finest of the ornamental and ceremonial manufactures of steatite, hard stone, shell, and wood, as recovered by excavations, must probably be attributed to this late period. An increased refinement in the arts of basket making, feather working, and canoe carpentering seems also to have occurred.

Along the lower Colorado, two main events happened. The dream idea got such a hold on the culture as to associate itself with everything religious. Myth, song, shamanism, dance, were all stamped deeply with its pattern. They assimilated increasingly. Everyone dreamed similar narratives and songs and sang the latter almost indiscriminately for a festival or a mourning, to cure the sick or to celebrate a victory. Secondly, the rather meager culture became so fixed as no longer to digest what might flow in from the pure Southwestern tribes. The dream concept in particular was again influential in this civilizational self-sufficiency and introversion. Being essentially an emphasizing of individual experience obtained in a certain way, dreaming engulfed shamanism as a separate activity; prevented associations or organizations; forbade the adoption of ritual apparatus or even curtailed such as existed; and thus caused the river tribes to do without masks, significant dance costumes, symbols, priests, sweat-houses, or general use of jimsonweed. Even the mourning commemoration became or remained abbreviated.

CHRONOLOGY AND ARCHAEOLOGY

The least sound portion of a reconstruction like the foregoing is likely to be the dates assigned to it; yet the human mind hankers after the specific. The problem may therefore be considered. Ultimately, of course, the chronology of native Californian culture must be worked out largely in connection with the prehistoric chronologies that are gradually being built up for other parts of the world. There are two sources of local information which will contribute something.

One of these is the descriptions of the earliest Caucasian visitors to California, which, as already mentioned, extend back to between three and four hundred years and suggest that the local culture types of the present were already well established then, making it a fair inference that the fourth period has endured perhaps twice as long. Approximate as this fact necessarily is, it seems conservative, and furnishes some basis for estimating the length of preceding periods.

The second line of local evidence is furnished by archaeology. On the whole, this has yielded much more slender results as to sequences in California than in most parts of North America. In part this paucity of inferences is the result of the absence of pottery from the greater portion of the state, and its late introduction and lack of variety in the remainder. Retardation of insight is also due to the fact that while prehistoric objects are abundant in California, there is little evidence of stratification; in fact, practically no indication of different cultural types being represented within the same area. It is true that portable mortars, for instance, are found everywhere in the state and that many of the tribes in the historical period no longer used them. But the very universality of the prehistoric distribution renders it difficult to interpret this change in terms of time. Most of the archaeological material, further, has been collected without much attention to depth, position, or collocation. It is almost inconceivable, for instance, that the fairly high types of stone and shell work of the Santa Barbara region could have been made in their full development from the time of the first settlement of the islands. One cannot rid himself of the feeling that the data for distinguishing two or more phases of local culture sequences could have been obtained. Yet it is clear that either the collections formed were assembled without recognition of the historical problems which they might help solve, or that the conditions of their deposition have been exceptionally unfavorable for science. It is still possible that some of the few remaining larger sites in the Santa Barbara region may yield the key of stratification. If not, it will be necessary for the future to attempt to sift out something from the available data by an intensive study of types and the consideration of such information as is available as to their association.

In the San Francisco bay region, certain of the shell mounds had a very considerable depth—thirty and more feet—and have been partly excavated under methodical supervision. The first exploration of this sort, reported by Uhle, does indeed emphasize a considerable

developmental sequence within the mound. The total quantity of objects, however, is small; and I have repeatedly gone over the collection without being able to satisfy myself of any marked cultural changes having occurred in the long period during which the mound accumulated. There is no question that the finer and better made pieces came from the later strata. But it is quality and finish that are involved, rather than new types.

The authority best fitted to pronounce a verdict on this point is Nelson, who excavated several of the larger mounds and has had by far the fullest experience in examining both large and small ones along the ramified shores of San Francisco bay. He has been extremely hesitant in formulating an opinion as to the degree of change indicated by the remains. This hesitation may in itself be taken as an indication that the changes are rather slight. If there were obtrusive ones, he would unquestionably have long since set them forth. I have access to Nelson's data, including his preliminary tabulations of types of artifacts classified according to depth, and am in charge of the mound collections made by him and others. I am unable to see any important alterations in the culture from the earliest to the latest shell mound period. There are indeed distinctions, and there is no question but that the upper strata are by far the richest culturally. But the principal types—whether they be pestles or specialized forms like charm stones or imported materials like obsidian—occur in all strata.

Another consideration of importance in this connection is that artifacts characteristic of a region have been discovered only within that region. There are well marked types found respectively around Humboldt bay, San Francisco bay, the San Joaquin delta, the Santa Barbara channel: they do not extend beyond these areas. If these idiomatic types, if such an expression may be pardoned, are of comparatively late origin, say during the third and fourth of the periods that have here been outlined, this local restriction becomes not only intelligible but significant. We should however in that event expect to find in these areas separate depositions of earlier objects different from the later specialized ones and perhaps fairly resembling those of the other areas. But here is where the evidence leaves us in the lurch. And it seems impossible even to say whether the evidence is actually non-existent or is merely unknown to us because of lack of discrimination in exploration.

One help, however, can be derived from archaeology: an estimate of absolute age. Nelson, following a method of computation which it is not necessary to recount here but which seems at least reasonable, has arrived at the conclusion that some of the deeper San Francisco bay mounds must have begun to be inhabited from 3500 to 4000 years ago. Gifford, in a subsequent examination of the mound constituents, with special reference to the ash content, came to a conclusion that approximately corroborated Nelson's finding, or at least presented no obstacles to its acceptance. Here then is a datum, however tentative, which may help us out for our beginnings, as the discoverers' voyages aid us for the last period. If we assume Nelson's 3500 or more years, and take for granted further that, in accord with precedent elsewhere, Californian culture tended to develop somewhat faster as it grew more advanced, the first of the four culture phases might be set roughly in the time between 2000-1500 B.C. and 500 B.C.; the second as continuing from about 500 B.C. to 500 A.D.; the third until approximately 1200 A.D.; and the fourth from then on.

This does not of course place the beginning of all culture in the area as late as 4000 years ago. The first occupation by man may well have occurred more than twice as long ago. In other words, our "first" period is almost certainly not the original one. It is the first that is fairly recognizable in the present state of knowledge.

What seems to be especially needed, not only for the firmer dating of these eras but for their more accurate and reliable recognition, is further archaeological evidence. The actual facts on the prehistory of California must be much more intensively studied and integrated than they have been, and very likely supplemented by future exploration, before they will be of much use either in corroborating or in correcting the sort of hypothetical reconstruction of prehistoric culture which has been attempted here mainly on the basis of ethnology.