

THE COCOPA

BY

E. W. GIFFORD

UNIVERSITY OF CALIFORNIA PUBLICATIONS IN AMERICAN ARCHAEOLOGY
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ABBREVIATIONS USED

| | |
|----------------|--------------------------------------------------------------------------------------|
| A | Anthropos. |
| l'A | L'Anthropologie. |
| AA | American Anthropologist. |
| AAA-M | American Anthropological Association, Memoirs. |
| ArA | Archiv für Anthropologie. |
| AES-P | American Ethnological Society, Publications. |
| AGW-M | Anthropologische Gesellschaft in Wien, Mitteilungen. |
| AJPA | American Journal of Physical Anthropology. |
| AMNH | American Museum of Natural History— |
| -AP | Anthropological Papers. |
| -B | Bulletin. |
| -M | Memoirs. |
| -MA | Memoirs, Anthropological Series. |
| -MJ | Memoirs, Jesup Expedition. |
| BAE | Bureau of American Ethnology— |
| -B | Bulletins. |
| -R | (Annual) Reports. |
| CNAE | Contributions to North American Ethnology. |
| CU-CA | Columbia University, Contributions to Anthropology. |
| FL | Folk-Lore. |
| FMNH | Field Museum of Natural History— |
| -M | Memoirs. |
| -PAS | Publications, Anthropological Series. |
| IAE | Internationales Archiv für Ethnographie. |
| ICA | International Congress of Americanists (Comptes Rendus, Proceedings). |
| IJAL | International Journal of American Linguistics. |
| JAFL | Journal of American Folk-Lore. |
| JRAI | Journal of the Royal Anthropological Institute. |
| MAIHF | Museum of the American Indian, Heye Foundation— |
| -C | Contributions. |
| -IN | Indian Notes. |
| -INM | Indian Notes and Monographs. |
| PM | Peabody Museum (of Harvard University)— |
| -M | Memoirs. |
| -P | Papers. |
| -R | Reports. |
| PMM-B | Public Museum (of the City) of Milwaukee, Bulletin. |
| SAP-J | Société des Américanistes de Paris, Journal. |
| SI | Smithsonian Institution— |
| -AR | Annual Reports. |
| -CK | Contributions to Knowledge. |
| -MC | Miscellaneous Collections. |
| UC-PAAE | University of California, Publications in American Archaeology and Ethnology. |
| UPM-AP | University of Pennsylvania (University) Museum, Anthropological Publications. |
| USNM | United States National Museum— |
| -R | Reports. |
| -P | Proceedings. |
| UW-PA | University of Washington, Publications in Anthropology. |
| ZE | Zeitschrift für Ethnologie. |

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INTRODUCTION

This paper is a unit in a program of ethnological research which the University of California has had in hand for some years. It concerns the tribes of the Yuman family, situated more or less around the head of the gulf of California. This was a fairly important and rather distinctive block of tribes; but until recently they have been strangely neglected in anthropology. Ten years ago there were available a number of historical and travelers' descriptions, scattered vocabularies, occasional accounts of a ceremony or a myth and the like, but not a single ethnological monograph done by modern methods on any one of these Yuman peoples.

The last decade however has brought a series of such studies which bid fair to give us within a few years more some scientific knowledge of every surviving Yuman people. It is in this series that the present paper forms a unit element.

It may be added in passing that the situation in regard to knowledge of Yuman linguistics today is still parallel to that of Yuman ethnology ten or more years ago. Not a single Yuman language has been studied systematically by modern methods.

The following paragraphs review the tribes and summarize the work that has been done upon them.

The total Yuman territory falls into four natural tracts, each of which forms in the main a region of distinctive geographical features. Each of these regions was also inhabited by a group of tribes whose culture was roughly uniform. So far as the scattered data allow a conclusion, the Yuman languages in their interrelations also fall into groups coinciding fairly closely with these geographical and cultural divisions.

The first group is that of the people most frequently called Cochimí by the Spaniards. These held the desert central part and considerable portions of the southern part of the peninsula of Lower California. So far as known, they are extinct or merged into the Mexican population, so that for knowledge of their culture the future will have to depend mainly upon documentary sources of the pre-ethnological period.

The second natural territory is mountains and desert, and comprises the northern end of the peninsula and a strip along the southern edge of the American state of California. In this area were the Diegueño, whose religion was studied by Waterman¹ and their general culture by Spier.² These works I have supplemented with a monograph on the Kamia,³ who appear to have been an eastern Diegueño division which came into contact with the tribes of the Colorado River and to some extent took up agriculture. For the tribes south of the international boundary there are some notes by Lowie and myself on the Akwa'ala,⁴ and a preliminary study, completed but not yet published, of the Kiliwa by Peveril Meigs III.

The flood-plain valley of the lower Colorado river from about Needles to the mouth constitutes a third region, and held a string of unusually distinctive or specialized Yuman tribes, dependent primarily on their agriculture. Most northerly were the Mohave, on whom Kroeber has two chapters in his *Handbook of the Indians of California*.⁵ Next were the Halchidhoma; and then, in order downstream, the Yuma proper, Kohuana and Halyikwamai, and Cocopa; together with the Maricopa to one side up the valley of the Gila. On the Yuma there is Forde's recent monograph,⁶ with which the data herein contained on the Cocopa especially correlate. On the Maricopa, who undoubtedly were originally a Colorado river tribe, although they were already established on the Gila when first encountered by Caucasians, Dr. Leslie Spier has an extensive monograph in preparation, as a result of field work done for the University of Chicago. In this he was fortunately able to embody data also on the Halchidhoma, who were forced out of the Colorado river valley by intertribal wars during the nineteenth century, took refuge with the Maricopa, and have since become merged in them. A similar fate befell the Kohuana, who however seem to have lost their identity more completely among the Maricopa and for whom separate data can therefore probably no longer be recovered.

East of the Colorado, the fourth group of Yuman tribes held most of northwest Arizona, partly in the Basin and Range area and partly on the Colorado plateau. These tribes were the Yavapai, Walapai, and Havasupai. On the latter we have Spier's intensive monograph,⁷ based on work done for the American Museum of Natural History. The Hava-

¹ UC-PAAE 8:271-358, 1910.

² UC-PAAE 20:297-358, 1923.

³ BAE-B 97, 1931.

⁴ UC-PAAE 23:339-352, 1928.

⁵ BAE-B 78:726-754, 1925.

⁶ UC-PAAE 28:83-279, 1931.

⁷ AMNH-AP 29:83-392, 1928.

supai seem thoroughly representative of the Arizona group of Yumans except for an overlay of agriculture which the Walapai and Yavapai were generally unable to practice. On the Walapai there is in preparation a monograph by Kroeber and associates of the Laboratory of Anthropology. The Yavapai consisted really of three tribes, or sub-tribes. On one of these I have published a report,⁸ and on the two others I have in progress studies made with the assistance of a grant from the Social Science Research Council.

It will be seen that when studies and publications which are now pending shall have been completed, we shall have available some body of systematically gathered data on the culture of each major Yuman tribe that still survives. No doubt the comparison of these several tribal accounts will reveal certain gaps in knowledge, and will also present new problems calling for solution. These however will be problems of partial knowledge and understanding, instead of problems of complete ignorance. Some analytic intertribal comparisons within the family, as well as attempts to place native Yuman culture as a whole in the larger frame of the Southwest, have already been made by Forde, Kroeber, Spier, and myself.⁹ These are only beginnings, but may serve as an earnest of the type of expectable results.

It is as part of the basic survey of the whole Yuman group that the present contribution is offered.

FIELD STUDIES*

Author visited Cocopa in winters of 1916-1917, 1921-1922, 1926-1927, 1929-1930 (see Bibliography, Gifford, 1918, 156-166; 1922, 67-68). Data recorded by R. H. Lowie (1922) and E. M. Loeb (1929) included here.

Cocopa localities: on reservation near Somerton, Arizona, and working on ranches; homeland, Sonora and Lower California.

Chief informants: Frank Tehana, leader of reservation Cocopa, born at Heyawah, opposite Colonia Lerdo (Mexican village founded 1872, *vide* Lumholtz, p. 248), later was at Wechushat (San Luis, Sonora) in Yuma territory; his wife; Sam Clam (Suwi), shaman; Sam Barley, funeral orator; Megoinuh, aged woman of Alymos gens.

Miss Alice Eastwood, California Academy of Sciences, kindly identified wild plants.

⁸ UC-PAAE 29:177-252, 1932.

⁹ Forde (Yuma) AAE 28:252; Kroeber, BAE-B 78:786; Kroeber (Seri) SW Mus. Paps. 6:39-51; Spier (Problems) AA 31:213-222; Gifford (S. Cal.) AAE 14:156.

* In the interest of economy, the manuscripts of this series are being prepared so far as possible in the "telegraphic" style that has for many years been employed in manuscripts that present systematic material in the field of the natural sciences.

HABITAT AND NEIGHBORS

S. slope of Colorado r. delta (Kniffen, 43, map p. 47; Forde, maps 1, 2). River water abundant, rains of no economic importance. Configuration of delta subject to change by flood waters; annual inundation in May, extending to base of Cocopah mts. Population in consequence shifting, some moving to gravel terraces at base of mts. (Kniffen, 52). Visiting between delta settlements by raft and balsa during inundation. Agriculture dependent on inundation of arable land.

Maize, beans, pumpkins planted in mud after inundation.

No compact villages; no word for village. Settlements consist of 10 or 12 houses 400 to 500 ft. apart, inhabited mostly by related families, and 4 or 5 miles apart. Family planted near dwelling, sometimes extending privilege to near relatives who asked head of house. Unless disturbed by river, family remained until some member died, when it moved a short distance, still on own land. Kniffen's account (pp. 52-55) suggests greater mobility. Discrepancy may arise from incompleteness of my material, or from my informants' being "river" and Kniffen's, "mountain" Cocopa.

Delta vegetation: willows, cottonwoods, tule, other reeds, arrowweed, etc. At edge of desert and on it where roots can reach water grow mesquite and screw bean trees, producing edible pods. Travelers report burning of reeds, bushes, old grass by Indians along river (e.g., Lumholtz, 247, who says Indians believe smoke produces rain and clouds, while Chittenden, p. 204, says for purpose of driving in game. Lumholtz's and my observations in January).

Salt water from Gulf of California prevented planting below Colorado-Hardy confluence. Colorado r. called Ekwat, Hardy Ehakwükawak, gulf Axakweseix (ocean).

Settlement sites on W. bank of Colorado from Hardy confluence N. (when river flowed near Colonia Lerdo): 1, A'u'ewawa; 2, Kwinyakwa'a; 3, Yishiyul, settlement of Halyikwamai in 1848; 4, Heyauwah, 5 miles N. of Yishiyul and opposite Colonia Lerdo (8 hours' slow walk from Colorado-Hardy confluence); 5 Amanyochilibuh; 6, Esinyamapawhai (Noche Buena of the Mexicans). Megoinuh lived at Hauwala, a lake 25 miles upstream from Colonia Lerdo on W. bank of river, but whether between 5 and 6 or upstream from 6 not certain.

Settlement sites on W. bank of Hardy from confluence N.: 1, Karukhap; 2, Awiahamoka; 3, Nümischapsakal; 4, Eweshespi; 5, Tamanikwawa, (meaning, "mullet [tamanik] place") on lagoon 4 or 5 miles SE. of Cocopah mts; 6, "wispa, "eagle mountain"; 7, Bikwelap; 8, Posabesenti (Pozo Vicente †); 9, "wikukapa (Cocopa mt.); 10, Welsul; 11, Awisinyai, northernmost Cocopa village, about 5 miles S. of Mexicali.

Lumholtz (p. 251) lists following Cocopa settlements in first decade of 20th century: Noche Buena (20 families), Mexical (40 to 50 families), Pescador (15 families), Pozo Vicente (more than 100 families).

Cocopa along Hardy (consequently close to Cocopah mts.) called "Mountain" Cocopa (see Chittenden). Cocopa on ranches near Calxico largely from this group. Frank Tehana said language identical with River Cocopa, except "4 or 5 words"; also planted after inundation. He designated them Kukapa'awiawhe, i.e., (mountain) foreign Cocopa; his own people Axwatnyamats. He said mt. Cocopa called his people Kwaenyak, "easterners." Lumholtz (p. 251) gives Xa'wilkunyawæi, "those who live on the river" (xa'wil). In war 2 groups were unit.

Akualsyuwa, depression in the mesa E. of Colonia Lerdo, contains salt lagoon Hakwesiix. At inundation, river water backs into this.

Along coastal mesas of Sonora Cocopa distinguished from N. to S.: Hakusar, Inbawhela, Kwurksispeuwahan.

Hakusar, a level sandy region, embraces Santa Clara, Isabel, Shipyard; N. portion half-day's walk from Colonia Lerdo. Wild "wheat" (inba) grew there; collected about May, Cocopa camping for month. Hot spring formed pond 50 ft. diameter (perhaps pool El Doctor—Kniffen, pl. 4), drinkable; also another pond 2 or 3 miles N. Cocopa did not bathe in hot spring water.

Inbawhela, apparently named after wild "wheat," home of departed souls.

Kwurksispeuwahan refers to catching fish stranded by waves. Visited by Cocopa and Papago for shellfish and fish.

Visible across gulf from Kwurksispeuwahan is *wichauwas*, "feather mountain," sharp peak behind San Felipe; blue in morning, white in afternoon; not visible from delta. Tale states near mountain Cocopa once had house and land.

On seashore, 5 miles S. of Shipyard, was clam bed (for clam digging on California side of gulf, see Kniffen, 47, 54), reached overland. *Chione fluitifraga* dug.

Cocopa familiar with delta to N. from campaigns against hereditary enemies, Yuma, Kamia, Mohave.

Cocopa and Yuma informants placed their boundary few miles S. of Arizona-Sonora line.

Cocopa knew SW. Arizona from visits to hereditary Maricopa (Hatbasinya) and Pima (Hatbas) allies. Thought Maricopa always lived in present seat.

Each Cocopa bound for Maricopa country carried canteen with 2 days' water, to reach spring Ahawayau near Fortuna mine in Gila mountains (T 10 S, R 20 W) in Yuma territory. 2 days later reached Kuwekwaskwin (probably also name of Mohawk mts., as Maricopa informants equated name to *wikateákwi'ny*, "granary basket mountain"—Mohawk mts.—L. Spier's notes), water place in or near Mohawk mountains. 2 days beyond was Kwaakumat (equated by Maricopa informants to *Kwa'akáma't*, "a-mesquite-like-tree farms," Gila Bend, Halchidhoma settlement—L. Spier's notes), Gila Bend. After that they arrived in Maricopa country.

Mt. Avi-savetkyela of Mohave is Numischapsakal of Cocopa, Avinyümisveskel of Yuma.

If river water not available, shallow wells are scooped with hands in low places; had advantage of being clear. River water, usually muddy, was settled in pot before being drunk.

Non-agricultural Akwa'ala (Axwaal or Ükwaasa in Cocopa) (Kniffen, map p. 47, denotes them by their own name of Paipai), Santa Catarina region, Lower California, were neighbors and friends who traded mt. for delta products. 2 peoples culturally complementary, same as Kamia of Imperial valley and non-agricultural Eastern Diegueño. Both Akwa'ala (Gifford and Lowie) and Diegueño, dwelling in same mt. range, furnished lowland with tobacco and mesal.

Akwa'ala country 2 days' journey from Colonia Lerdo. Cocopa swam Hardy r., traveled SW. 1½ days, lunching on 2nd day at pond of hot water (possibly Pozo Ceniza) at base of Sierra Juarez mts. Climbed to summit of 1st range by zigzag trail, arriving about 5 P.M. (corresponds with Hardy, p 345) in Akwa'ala country. 5 or 6 miles (according to Frank Tehana) S. of Santa Catarina was country of Kiliwa, who speak a Yuman dialect different from Cocopa and Akwa'ala.

Cocopa estimate places Akwa'ala settlement at Santa Catarina 2 days' walk SW. of *wiispa* (Black butte or Cerro Prieto).

Santa Catarina region described by Cocopa as dry; mt. sheep, rabbit, deer hunting. Mescal root abundant; cooked by Akwa'ala all night in earth oven, fire on top.

Periodically some Akwa'ala moved into Cocopa territory (Hardy encountered Akwa'ala there in 1828—Hardy, 368), bringing wild foods on donkeys and horses. These and pack animals traded to Cocopa for agricultural produce. Occasionally man remained among Cocopa and became farmer, or Akwa'ala woman married Cocopa man and remained. Informants denied Cocopa women marrying Akwa'ala men.

According to Cocopa, at Santa Catarina mission were Akwa'ala, Kiliwa, Eastern Diegueño; last called Gambia in Cocopa; homeland, mts. of extreme n. Lower California. Erscha (Cane) or La Huerta their principal seat. Obviously, Gambia is Kamia, term applied by Eastern Diegueño to selves and to Kamia of Imperial valley. Another Cocopa name for Eastern Diegueño is Kūwhai.

N. neighbors of river Cocopa were Yuma. N. neighbors of "mt." Cocopa were Kamia of Imperial valley, called Axwaalmesxa (foreign Akwa'ala), allies of Yuma.

Near Somerton dwelt small band of Papago (in Cocopa, Hatbas), who buried dead. (In 1927 bones of dead washed out by rain.) Lived on wild foods, except vegetables from Yuma in exchange for gulf shells. Came in regalia, marched, and danced with rattles at each Yuma house. Presented with maize and other foods which they put in sacks and took away on horseback. Yuma laughed and said: "No doubt they will be around next harvest season." Made trips to Sonora gulf coast, but finally killed by Mexicans. Maricopa also told Spier (letter) of this group (called xapu'k), friends of Yuma.

In mts., inland from Kwurksispeuwahan, friendly Papago group (in Cocopa, Kaspasma), who visited coast for sea foods.

Halchidhoma (in Cocopa, Heshiyum), lived in vicinity of Blythe, between Mohave and Yuma. (Mother's father's father of Yuma interpreter Joe Homer was Halchidhoma. One grandmother, Kamia.)

1775, Font found Kohuana or Cajuenches (in Cocopa, Ke'wan) and Halchidhoma (Jalchedunes) respectively S. and N. of Yuma (Teggart, 35). Kohuana occasional enemies of Cocopa.

Halyikwamai (in Cocopa, HeIsikwamaia) originally friends, finally fell out, moved to E. side of river, became remnant of people, scattered and parasitic among powerful neighbors, Cocopa, Yuma, Maricopa. In 1848 at Yishiyul. With Cocopa several months, but killed some Cocopa, "thinking themselves great warriors." Cocopa defeated them, so fled to Yuma. Similar trouble. Again sought refuge with Cocopa. Both Yuma and Cocopa attacked, scattered them. Some fled to Maricopa. A few in Yuma valley at present, speaking Yuma or Cocopa. Own dialect very similar to Cocopa. Name Halyikwamai suggests connection with Eastern Diegueño lineage Kwamai (Gifford, 1918, 168).

Yuma informants said Halyikwamai separate people from Kohuana, but Cocopa said gens of Kohuana. Perhaps reduced to such status before dispersal.

Cocopa informants knew nothing of Alakwisa (Kroeber, 1920, 475-485), Coanopa or Hoabonoma, Ozara or Osera, and Cochimi. Ziñogaba thought to be Tina-kata, mt. E. of Shipyard, Sonora. Never heard of "big-eared people" (Kroeber, 1920, 483).

Cocopa called: Yuma, Kwisain; Mohave, Hümakhab; Walapai, Yaupai; Havasupai, Hopai; Cahuilla, Hükwas; Chemehuevi, Samuwau. Yawapai applied to 3 Yavapai groups, all enemies, whose language said to resemble Akwa'ala; Western Yavapai not known by term Tolkepaya.

AGRICULTURE

By July plant single crop of year. September and later, crop harvested.

About week after retreat of waters, land dry enough to plant. In basins begun at edges. Gently sloping bank also satisfactory.

In modern times steel axes to clear trees. Annual fertilizing by inundation prevented exhaustion. No spading. Hole several inches deep made with digging stick (diam.: 1 in.; length: from ground to user's chest), used as dibble. Seeds dropped in. Kniffen (p. 52) states, after hardened crust in basins removed, seeds are planted in moist soil beneath.

Men, women, and children planted, harvested. No artificial fertilization or irrigation. Weeds close to plants removed by hand, elsewhere with sword-like weeder of willow wood, held with both hands, moved sidewise as scraper. No trellises for vines.

All cultivated crops planted at same time. Pumpkins apart lest vines strangle other plants or large leaves shade them. Watermelons matured first, then beans.

Except for heshmicha, described later, no food or sex prohibitions at planting. Neither deities nor dead prayed to.

Maize (akdjas).—4 color-varieties obtained: 3 soft maize (*amylacea*), 1 flint maize (*indurata*). All previously known from other tribes, *vide* Professor G. W. Hendry, who grew these at Davis, California.

(1) White soft maize, akdjas hamai. Hendry reports: "Contains a dwarf strain. Late maturing. Very susceptible to smut." Same as 7.

(2) Yellow soft maize, akdjas kwas.

(3) Blue soft maize, akdjas baliu. Hendry: "Both black and white kernels present on same cob."

(4) Flint maize. Hendry: "Tall, late maturing. Prolific at Davis." Same as 6.

3 Papago varieties:

(5) Yellow soft maize, shawl'k hun ni. Hendry: "Tall, late, prolific. Very little smut."

(6) Flint maize, catont hun ni. Hendry: "Short, early maturing. Cobs contain both flint and sweet kernels. No regular rows."

(7) White soft maize, shawl'k hun ni. Hendry: "Early, short, white soft corn, mixed with yellow soft, 5 ft. tall."

No seeds of red maize (akdjas kwat) and spotted maize (akdjas kusaib) obtained.

Each kind planted separately, sometimes with watermelons. 6 or 7 grains planted in hole. No thinning. Weeds removed; no heaping of earth around growing plants, or planting in hills or rows; no ceremonies.

Beans, watermelons, pumpkins exempt from birds, but not maize. Scarecrows of arrowweed: cross 3 ft. high, parts 3 in. in diameter; suspended from pole 7 or 8 ft. long, thrust in ground at angle so cross dangled.

Maize sprouts guarded against birds (perhaps Abert's towhee), rabbits. In ear, Brewer's and Redwing Blackbirds attacked maize. Men, women, children scared birds away, often dawn till dusk, except for noon luncheon. Mosquitoes trying, but smudge of arrowweed torch helped.

Large hawk also drove away small birds.

Other protection methods: shouting (wau wau, yau yau, or hoo hoo), handclapping, mud-slinging (from end of 2-foot stick), and shooting, by men, arrowweed or cane shafts with bow.

If blackbird menace great, stalks with nearly ripe ears cut, piled, covered with earless stalks.

Young maize on ear parched on coals or boiled, eaten from ear.

Young maize grains pressed from cob with thumb, 7 or 8 ears making bread for 3 or 4 persons; mashed on metate. Maize leaves in foot-lengths laid on hot ashes; mash, with salt added, spread over them. Covered with leaves and hot ashes; fire on top. After 5 or 10 minutes small opening to test; done if hard and brown-surfaced; circular flat loaf, 2 in. thick.

Green maize of one color mashed on metate, hand-molded into lumps, dropped in boiling salted water. Stirred with 5-stick mush-stirrer until thickened. Woman tasted from stirrer. Consistency to eat with index and middle fingers; if thinner, with index, middle, and third.

Ripe, hard maize ground as fine as American cornmeal for mush. 2 grindings on metate. No mat under metate, but meal not spilled over edge. Lifted from metate with hands, placed in pottery dish. Miller sat at end of metate with feet under her and to one side; never cross-legged or straddling. Different colored meals not mixed though color varieties of maize tasted alike.

Tortillas unknown.

Dry maize parched in pottery pan with 2 upward-sloping handles. Eaten whole, as pinole, or as pinole cooked into thick mush. No maize like American popcorn.

Grains picked with thumb from dry ripe maize or green maize hardened on coals, boiled with cowpeas or teparies. Eaten whole or after mashing on metate.

Maize stored on cob in large covered coiled baskets (see pl. 35), placed on housetop (also in trees and on platforms, Kniffen, 54).

Beans.—Native tepary of Southwest (*Phaseolus acutifolius* var. *latifolius*), cowpea or black-eyed bean (*Vigna sinensis*) of Old World. Tepary, amaxix; cowpea, axmax; 5 varieties of each. Samples of some grown by Hendry.

Cocopa think teparies and cowpeas gift of creator. Dr. W. J. Morse, cowpea specialist, United States Bureau of Plant Industry, says of cowpeas in W. hemisphere, in letter to Hendry, December 18, 1928: "So far as we can find out, cowpeas were brought into the West Indies by the Spanish explorers."

1 crop of cowpeas and teparies a year. No preference for 1 variety. Holes 2 ft. apart, 3 or 4 seeds in hole 5 or 6 in. deep. If shallower, plants might die, because upper soil dried out. If in water, would spoil. All plants allowed to grow. One weeding during growing season. If bean bed dried prematurely, no watering. Beans never planted with corn.

In harvesting vines pulled after seeds ripened, laid on hard, smooth ground, beaten with 4-foot stick, to loosen seeds. Beans and chaff put in large pottery pan, poured onto hard ground on windy day, to blow chaff away. Breath not used.

Beans transported to dwelling, in cylindrical, twined basket, 1½ ft. diameter, pack strap of willow twigs over forehead; basket of green willow twigs with leaves, lined with grass; day's labor to make. Conical burden baskets unknown.

Beans stored in pots or coiled baskets (pl. 35), indoors or on roof.

Different beans not cooked together. 2 methods of boiling: whole beans in pot; or beans parched in pottery dish by mixing with coals and shaking, ground to meal on metate; meal poured into boiling water. Meal from unparched maize added. Stirred until thick. Salted while cooking. Dipped out with small bowl (with or without handle), placed in shallow dish to cool. Each person helped self.

Beans and fish not cooked together.

Cowpeas, never teparies, eaten in pod, seeds more mature than in American string beans. Whole pods boiled in pot without removing "strings." 3 or 4 pods placed in mouth, strings seized with fingers and stripped off. Very hungry people ate strings. People sat around broad pottery pan, on which beans were placed after pouring off water.

Teparies (see G. F. Freeman)—

White tepary, amaLix hamai. Seeds greenish white in color (samples from Papago, called totapah vi; another called o'ampah vi, characterized by Hendry "yellow" and equated to mixture of Freeman numbers 47 and 53—see his pl. 2), Freeman's type, 12, only tepary commonly found on market.

Brown tepary, amaLix kwas (brown). Number 26 of Freeman. Hendry: "Late maturing—vigorous grower."

Earth-colored tepary, amaLix imats (earth-colored).

Black tepary, amaLix nyil (black). Hendry: "Prolific—vigorous grower. I am unable to say with certainty that the Cocopa black tepary corresponds exactly with any of Freeman's color types."

Streaked tepary, amaLix hastak (streaked). Hendry: "Early maturing—large vines. I am unable to identify the Cocopa streaked tepary as being identical with any of the Freeman numbers."

Cowpeas—

White cowpea, axmax hamai. Seeds pure white, small. Hendry: "Late maturing—large vines." Hendry submitted seeds to W. J. Morse, who reports it as appearing "to me to be identical with the varieties sold in the southern states under the varietal name of Rice pea."

Large black-eyed cowpea, axmax patai (large). (Similar Papago cowpea, huhatawu'p kam, grown by Hendry: "Large, late maturing, bush cowpea. Seeds smaller and smoother than ordinary Blackeyes of California, and some have more black markings. There are also some larger ones present. Two or three types present.") W. J. Morse writes: "It appears to be identical with the variety which is sold in our southern states under the name of Native Blackeye. This Native Blackeye is quite different from the California Blackeye, not only in the size of the seed, but also in plant characters."

Small black-eyed cowpea, axmax atamax (small). Hendry: "Late maturing—large vines."

Spotted cowpea, axmax nyurl (spotted). Hendry: "Late maturing—large viny type."

Black cowpea, axmax nyil (black). No sample.

Cucurbits.—Watermelons, muskmelons, pumpkins, gourds.

Hendry grew from seeds: (1) *Cucurbita pepo*, humcha, field pumpkin (2 Papago varieties were haLi and nehpih; latter, grown at Davis, large green and yellow striped with creamy white flesh, yellow flowers; flesh flat, neutral taste; vines, large, prolific); (2) *Citrullus vulgaris*, red-seeded watermelon (wiyub); (3) *Cucumis* sp., gourd (helma').

Watermelon vigorous grower, prolific at Davis. Melons 12 to 14 in. long; seeds red; rind white; flesh light red. Cocopa distinguish 4 varieties:

wiyub nyurl. Striped watermelon. Globular to elongate.

wiyub hamai. "White" watermelon. Globular to elongate.

miyub nyil. "Black" watermelon.

wiyub hamaul. "Gray" watermelon.

All ripened at 1 season. Leaves smaller than white man's watermelons; seeds predominantly red, flavor different. No story of origin.

Seeds of 4 varieties indistinguishable. Most seeds red, some white, white edged with black, white spotted with brown, black. This range in all 4 varieties. From seeds of 1 melon, only 1 type melon produced, seed from "black" melon produced all "black" melons; no white, striped, or gray. According to informant, external markings constant characters.

Watermelon seeds planted in sunny exposure, 3 or 4 to hole, several in. deep. Holes 4 or 5 ft. apart. No extensive fields. Weeds removed.

Seeds from sweetest melons kept for planting.

Ripe watermelons split, scooped with fingers; close to rind scraped with nails. Naturally-ripened melons preferred. If shortage, green melons heated near fire till soft. Placed in pottery dish to cool. 2 or 3 served family for 1 meal.

Seeds sun-dried before parching in pottery pan with coals. Shaking and throwing in air insured even parching. Whole seeds eaten.

Ripe and green melons stored in waist-deep pits, 7 or 8 ft. diameter, in a dry place. No special soil required. Bottom lined with bean vines, not sides. Melons in contact, covered with dry bean vines and chaff; with earth, if owners went away. Pit owned by 1 family. No stealing.

Green melons ripened in storage. Storage before frosts in November. Stored melons frequently examined, those spoiling eaten. Supply usually lasted until March.

4 varieties of muskmelons (*amchanya*), flesh ranging from whitish to orange. Seeds not obtainable. No origin story. Planted apart from watermelons and maize. *amchanya nyil*. "Black" muskmelon. Large ones 15 by 10 in. Prominent ribs, deep depressions.

amchanya hamai. "White" muskmelon, large variety.

amchanya awirl. Cantaloupe. Ribbing shallow, stripe-like; when ripe, surface yellow.

amchanya awirl hamai. "White" cantaloupe; globular to elongate.

Muskmelons eaten fresh, dried; not storable. Very ripe ones sliced, rind discarded, flesh sun-dried. Windy day facilitated drying. Slices twisted together, stored in pottery jars. When used, washed in warm water, pounded in mortar, molded into cakes 2 in. thick, 5 in. in diameter, sun-dried. Melon from jar hard, less palatable than fresh.

Muskmelon seeds boiled with dried pumpkin, mashed on metate, eaten. Whole seeds eaten without husking.

Pumpkins (at least *kwüra* and *hamcha* types) stored in pits like watermelons, or in pile on ground. Covered with dry bean vines.

Pumpkin seeds eaten after parching with coals in pottery dish; also oily kernels rubbed on hands as protection against cold. *Kwüra* seeds, thin-shelled; *hamcha*, thick-shelled, velvety.

Pumpkin rind not used.

Pumpkin flesh cut in strips, dried. Winter best time. Pumpkin placed in fire, turned with stick. Softened rind, scraped off with sharp-edged flat stick, later used to cut flesh spirally in continuous strip. Strip serpentine over long pole set on two uprights. After drying 2 or 3 days broken with fingers into short lengths, stored in large baskets (coiled or bird's-nest weave) on roof. Packed solidly. Usually sufficed till next planting. Mixed with flesh of stored whole pumpkins, to improve flavor of latter.

Fresh pumpkin boiled in pot in chunks, rind on. Seeds sun-dried on willow-bark strips on ground or roof. Sometimes maize meal boiled with pumpkin, mixed with 5-stick stirrer. No salt while cooking. Mixture cooled, served.

Pumpkins roasted whole in hot ashes, several families cooperating. For 4 or 5 families, 10 or 11 large pumpkins. Plug cut from side of each, seeds removed. Shallow hole dug and fire therein several hours. Ashes and coals raked aside, pumpkins placed. Each pumpkin surrounded with hot ashes and coals.

Pile covered with earth, fire on top. Cooking $2\frac{1}{2}$ hours. Cooked pumpkins placed on pottery dishes or willow bark. Flesh eaten with fingers.

Kwüra pumpkin, vertically compressed globe in form, high ribbed; orange-yellow to dark green, intermediates usually mottled, rather than blended. "Red" (orange) one kwüra kwat, green one kwüra hamaul (hamaul, gray). Seeds planted 7 to 8 ft. apart.

Kwüra seeds sometimes pulverized in mortar after parching, hulls eaten with kernels. Normally, pumpkin seeds opened with fingers after parching.

Hamcha pumpkin, globular, not ribbed, red or green in color. Flesh less reddish (inclines toward whitish) than kwüra. Small one measured 10 in. diameter. Very heavy stem connects fruit with vine. Green ones, hamcha nyil, literally, "black" hamcha; red ones, hamcha kwat; large "gray" green ones, hamcha k!achkat, 15 in. diameter, globular.

Hamcha seeds opened with teeth and fingers after parching, never pulverized in mortar.

Another pumpkin, akmita; no description. Mulei pumpkin, "hard as metal," globular or elongate, not over foot diameter, striping longitudinal, green and grayish green; meat "same color" as other pumpkins. Seeds eaten.

Some gourds grow to size of pumpkin, but majority smaller. Used for canteens, ladles, food storage receptacles, rattles. Gourd seeds, grown at Davis, produced light green gourds with white flesh. Very hardy and prolific.

Other plants.—Heshmicha, grain resembling wheat. Among Yuma grew wild, scattered along river banks by god Kumastamxo. Among Cocopa planted, blown from mouth over soft mud. Planting by men; away from wives 4 nights, no food taboo. Continnence to make plants grow without weeds and molestation by birds. Each man had own patch, marked by sticks laid on ground. Harvesting by planter or his delegate. Harvest shared with relatives.

Another unidentified cultivated plant, akicha.

Sugar cane (meyolk) planted for children, who chewed stems. Time of introduction unknown. Cane for arrows grew wild.

GATHERING AND HUNTING

Mesquite (*Prosopis velutinea*) and screw bean (*Prosopis odorata*) pods, ripening about June, staple wild plant foods. Dry pods pulverized in wooden mortar, soaked in water, wet meal chewed, sucked for saccharine content; waste spat out (Hardy, 334, 337). Pods stored in bird's-nest weave circular granaries (pl. 33).

For bending down thorny branches, pole with short crosspiece lashed at acute angle to serve as hook. Lashing of mesquite bark.

Two other leguminous trees with edible seeds in hills on either side of delta: palo fierro (*Olneya tesota*), palo verde (*Cercidium torreyanum*) (Kniffen, 53). On large island near mouth of Hardy, Cocopa in late summer gathered seeds of water grass (*Echinochloa crusgalli*) and wild rice (*Uniola palmeri*). Portion of harvest stored in jars. At same time others gathered seed of quelite (*Amaranthus palmeri*) on higher open ground subject to annual flooding (Kniffen, 52).

April on, agave (*Agave consociata* ?) gathered in Cocopah mountains (Kniffen, 54), core baked.

Other plants.—exchel and chek ("wild potatoes"), echiil (tule), he'kwaa (wild "grass" seed), e'kish ("grass" with leaves like lettuce, seeds eaten), e'kwap, akwer, inba ("wild wheat"), ernyikaseh (wild "grass" growing in flood places). Seed of last, hard-shelled; cracked on metate without crushing kernel. Cracked seeds rotated back and forth in dish, to force shells to top, to be blown away by breath or wind. Kernels soaked, ground, used for mush. Chittenden (p. 201) men-

tions pinole, but seed not indicated. Seeds mentioned above may be sacate colorado or sacate salado (Lumholtz, 249).

3 parts of tules or reeds eaten: pith of stems raw, root raw or boiled, pollen boiled. Roots carried in bundles of pieces 8 to 10 in. long; boiled, stirred until disintegrated. Parched bean meal added; mixture cooked into porridge.

Tule pollen collected by men and women; waded waist deep, broke tops, laid in crook of left arm, tied bundle with tule stem, set aside. At home tops sundried 4 or 5 hours. Pollen shaken out in shallow depression dug 18 in. diameter, nowadays lined with cloth. 4 sticks set up support another cloth and are enclosed by third cloth. Operator winnows pollen in cloth within, so it will not blow away.

Pollen boiled till thick, maize meal added, mixture cooked to thick porridge. Also pollen bread (Hardy, 337).

Cocopa close to Cocopah mts. ate fruit of blue palm (*Glaucothea armata*), fresh, also dried for winter; also ate base of young leaves (Palmer, 598).

Stems and leaves of *Ephedra trifurca* pulverized in wooden mortar, or boiled; applied to sores.

Root and leaves of plant awimimedje, growing at desert edge SE. of Colonia Lerdo, boiled as tea for sore throat, constipation, flatus, wash for sores; pulverized root dusted on sores. Piece of root carried in mouth by runner or gambler, to offset fatigue, give luck. Such use preceded by 4-day fast from meat and salt, bath each morning, lest illness ensue. Yuma used similarly.

Fishing.—4 fishes taken in river, 2 in gulf.

"Bull salmon" (muwilk), *Ptychocheilus lucius*, and bony tail (shekukl), *Gila elegans*, taken with dip net in river, former all year.

Mullet (shamuny), *Mugil cephalus*, taken in river with dip net or bow, in lagoons with bow or gill net.

Humpbacks (suxyex), *Xyrauchen cypho*, taken with gill net in lagoons, with dip net and bow elsewhere. Carp (siix anyur), introduced species, taken with bow.

On Sonora coast ca. 30 miles S. of Shipyard—full day's walk—Cocopa took "sardines" (kwiksi). As waves swept in, fish were beaten rapidly against sand with 4-ft. stick, then scraped up beach with stick. "Sardines" parched on coals; or beheaded, pulverized in wooden mortar, boiled with pulverized tule root for thickening.

Bass (amuyñ) speared on Sonora coast. Fisher stood in water, wielded 6-ft. spear with screw-bean wood point. Spears not used for river fish.

Gill net (chawis) 4 ft. wide, 60 ft. long, meshes 2 in. square; used by one man in currentless clear water, as current lifted bottom of net which was not weighted. Upper edge had 2-ft float of cane every 5 ft. Each end of net attached to long stick for thrusting into bottom. Net left all night. Fish frightened into net by beating water with poles (Chittenden, 201).

Dip net (elwo) attached to 2 10-foot poles for river fishing, fisher standing in water. In use 2 poles crossed near proximal ends, which were connected by band of mesquite bark that rested against fisher's belly. Firmly braced against body, hands grasping poles, net easily lowered and raised. Deepest part of bag near proximal end, so fish readily removed. One seen, of commercial net with meshes of 2 sizes, $\frac{3}{4}$ in. and $1\frac{1}{2}$ in.; patched. (Hardy, 338, saw "beautiful fishing-net.")

Arrows to shoot fish, unfeathered; shot fish floated.

No scoop like Mohave (Kroeber, 1925, pl. 59). Fence of willow twigs and arrowweed stems pushed along by 20 to 30 wading men in lagoon to impound fish.

No true fish poison, but small pond covered with willow leaves, which discolored water, causing fish to rise in 2 or 3 days.

Fishes usually stewed, being gutted, laid on sticks set crosswise in pot. Flesh, skin, bones boiled together for better part of day. About 3 or 4 P.M. very fine maize meal added. If hungry, fish boiled only hour or two before adding meal.

Fishes dried, kept 1 or 2 weeks; gutted, split open, laid on roof of shade. One informant insisted salt obtained near Colonia Lerdo, used in curing.

Fishes cooked in hot coals: "After being cut open and cleaned they were filled with, laid upon, and covered with, red hot coals." (Chittenden, 201.)

Lobsters and crabs not taken.

No dreams about fish; no charms. Fishing easy: with net often possible to catch all fish in pond.

Fishnets of cowpea-fiber string; 2 months work to make large net. String wound on crude arrowweed shuttle, made by lashing at middle 2 parallel sticks a short distance apart. String wound over shuttle obliquely lengthwise, first over one, then over other stick. No mesh measure. First row of meshes looped through ring of heavy cord attached to timber.

Meat.—Burro deer (*Odocoileus hemionus eremicus*), kwak (cf. *kwakas, horse; kakwai, cow), hunted along W. river bank. Sexual intercourse taboo to hunter for 2 or 3 nights preceding hunt. Food taboos.

If 1 hunter, afoot; if several, horseback, following fresh tracks until deer is shot. Also ambush on deer trail; shoot through heart. Arrows not poisoned. Each hunter in party sought to kill 1 deer. Deer not driven into corral, nor hunted with dogs, nets, snares, or decoys.

Piece of deer meat broiled on stick after kill.

To hunter who dreamed of much venison, deer were as if blind and deaf. In dream, woman met hunter on trail, loved, kissed him. In hunt deer came to hunter like woman in dream. If hunter dreamed woman avoided him, could not kill deer. Informant said no dreams about game today because plenty of food.

Cottontail rabbits shot with feathered arrows; boomerangs not used. Antelopes, rare. Ducks, geese shot with wooden pointed arrows. Other birds, eggs, eaten. No domestic turkeys. Rats eaten (Chittenden, 204). Fatted dogs eaten (Pattie, 198). Head lice eaten (Hardy, 380).

Quail captured by hand when drenched with rain, or taken in snare with cowpea-fiber noose attached to bent-over willow twig which flew up when bird released trigger. Bird usually caught by foot.

Palmer (311) refers to Cocopa taste for salt beef, but not pork, and fondness for fish.

Cannibalism absent. Alleged occurrence among Seri known, but certainly not at first hand.

Horses for food, racing, sacrifice. After warring with Yuma, customary to exchange captive boys and girls with Mexicans for horses. Cocopa realize horse derived from whites. Hardy (p. 334) observed horses in 1828.

Salt.—Rock salt today obtained by Cocopa at Somerton, in pond called Eserawawa, between Somerton and Yuma, former Yuma property. Pond 40 yards diameter, in fertile land. Cocopa salt pond was 3 miles E. of Colonia Lerdo. Kohuana and Halyikwamai also got salt there; Papago did not. Salt dark in color, taken in lumps from under water a foot or 2 deep, brought home, ground on metate. Many salt ponds between Colonia Lerdo and gulf. Cocopa did not trade salt with Papago, but cultivated foods for mescal. No quarreling over salt supplies as no communities claimed ponds. Salt not used to preserve animal skins.

Tobacco.—Neither grown nor gathered. From Akwa'ala, in whose territory grew wild. Called op akwaL. (Hardy, 336, saw tobacco in 1828); modern tobacco

op merikan. Second ancient tobacco mentioned. Akwa'ala tobacco probably corresponded to 1 of 2 ancient Yuma varieties, əḍ'ba əquā'l.

Tobacco smoked in cane pipe or corn husk wrapper, by men for pleasure, by shamans (male and female) in curing. Pipe ca. 3 in. long. Through diaphragm near mouth end small perforation admitted smoke.

MATERIAL CULTURE

Firedrill.—Firedrill (a'aukwa) of dry willow, hearth and tinder of arrowweed.

Metate and mortar.—Metate a rectangular slab. Muller moved forward and backward, Pueblo style. Formerly metates rare, purchased. Present quarry for metates near Wellton, Arizona, earlier quarry in Cocopah mts.

Mortar (akmo), deep, of cottonwood trunk; pestle (akmoka) of mesquite wood (pl. 34). Principal use for mesquite pods.

Mush stirrer.—5 stout peeled arrowweed sticks, 18 in. long, laid side by side, lashed 2 in. from 1 end (fig. 1) with 2-ply willow-bark string, put on by twining.

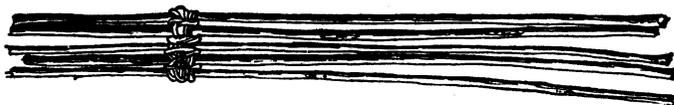


Fig. 1. Mush stirrer (3-2945, Univ. Calif. Mus. Anthrop.). Length, 555 mm.

Gourds.—Holes burned. Long-necked gourd burned in side for ladle. String through hole in handle, for suspension. Some burned to form dishes. Large globular gourds slung in netting bags as canteens, plugged with corn cob or stick. Smaller globular gourds for rattles.

To clean gourd for rattle, opening burned at top where stem attached. Some seeds, pulp extracted; boiling water poured in, allowed to stand 4 days. Contents removed with stick. Remaining pulp removed after dried by placing palm seeds (size of cherry pits) in rattle. After use few days, dried flakes of pulp came out. Palm seeds as sound producers. Wooden handle inserted.

Baskets.—Storage basket, cylinder, of bird's-nest weave, without top or bottom. One seen, of arrowweed, 3 ft. diameter, 1½ ft. high. Rested on earth of housetop, covered with cornstalks and husks, and contained salt. Beans, maize, mesquite beans, etc., stored in such. Made by man or woman.

Other type storage basket large, rough coiled (pl. 35), suggesting Pima (Goddard, 130). Chittenden (p. 202) pictures several on platforms about 6 ft. high. Field Museum has specimen with cover.

Twined cylindrical burden basket described under heading Beans.

Cradle, ladder-like affair, similar to Mohave (Kroeber, 1925, pl. 39b). Baby, in swaddling clothes, lashed on, transported on mother's head, balanced so need not be steadied. Babies also carried astride mother's hip or back.

Burdens.—Thick rings of willow bark fitting crown of head used by women for balancing pots and cradles. Rings had annular foundation and wrapping of willow bark.

Carrying nets (oyul) of cowpea-fiber string, formerly; now rectangular cloth with corners tied, suspended from head down back.

Winnowing.—Seed winnowing with pottery dish, held with both hands and with wave-like motion. Then outer edge lifted and dropped suddenly, so chaff

blown off, using breath if necessary. Near end of process pan rotated back and forth few inches each way, bringing chaff to surface. Further winnowing removed it.

Houses.—Typical old-style, large dwelling (wachawip) was rectangular, earth-covered, resembling Mohave (Kroeber, 1925, 731-735, pl. 56). Modern house walls built of hardened mud held by horizontal sticks, Mexican innovation. Kniffen (p. 54) mentions winter dwellings in bottoms, summer dwellings along base of Cocopah mts. (p. 52).

Twelve posts in 3 parallel rows, central slightly higher, supported roof of old-type house. Top of each hollowed to prevent overlying stringers rolling off. Thin pieces of wood wedged under stringers which ran length of house and supported rafter poles. On these rested covering of branches, arrowweed, earth. Around walls poles placed horizontally, connecting major posts already mentioned and forming open-work wall. Against this willow sticks erected on exterior; arrowweed laid against these; against arrowweed earth piled. In applying arrowweed to sides of dwelling (or shade), 1st vertical layer stems down, 2nd, stems up. Earth placed on roof before heaped against walls roof-high. Smokehole in center of roof. Entrance 2½ ft. wide, in E. wall; buttresses of willow and arrowweed built out either side to hold back piled earth. Doorway had hanging willow mat.

Earth piled against walls hardened so people walked up without displacing. Until then notched log ladders laid against sloping sides.

Main timbers cottonwood. Width of house 20 ft., length greater. No standard measurement, such as length of man or stride. Old-style house warmer in winter: sleep without covering.

In front of house, but unconnected, was shade (wayuwal; different word, wisa, for shadow), where cooking was done. Roof of willow and arrowweed, usually no walls or only one as sunshade.

Conical hut, washiporobir, sleeping house for family in cold weather; also built by man with too few friends to erect big house. 10 ft. diameter, 7 ft. high. Sometimes floor excavated knee deep. No center post; 2 forked sticks, interlocked, against which other sticks to form cone. Timber willow, thatch arrowweed, covered with earth except apex smokehole and entrance. Entrance about 3 ft. high, framed by 2 side posts and crosspiece above.

Domed hut, awakouk, of willow branches, closely woven, erected in summer for mosquito protection (pl. 33). Branches stuck in ground, tops bent over, fastened, sides bound with willow withes, arrowweed on top. Height 4 ft., size just sufficient for family. Round-topped doorway, closed with door of woven willow twigs hinged with withes at side, opened to S. for cool breeze. Mosquito smudges of green arrowweed around house, dish of coals and horse manure within.

One December day, vigorous S. wind blowing, noted crude brush hut occupied by old woman and usually open to S., closed in large measure with freshly cut arrowweed leaned against roof edge. Informant closed N. side of his shade with freshly cut arrowweed.

Hardy (p. 336; cf. McGee, pl. 6) notes resemblance of Cocopa huts to Seri huts on Tiburon island.

No tule mats made.

Tule thatch sometimes used on small rectangular, arrowweed-walled house with slight gable. Held in place with poles.

Special house erected for mourning ceremony described later.

Tree felling.—Besides stone adze for small trees for bows, large trees felled and cut to lengths by burning.

Boats.—No real boats, but 4 means of crossing river besides swimming.

(1) Log (yi); propelled with hands and feet, or paddle of willow or cottonwood. Sometimes swum beside. Cf. Hardy, 363.

(2) Crude balsa (heynek), of bundles of tules lashed together; square-ended, 10 ft. long, 2 wide. Paddled and poled, standing. Likely better ones made, as Hardy (p. 381) mentions "several reed canoes, similar in construction to those of the island of Tiburow."

(3) Rafts (kobap), of willow and cottonwood roots; for voyages to mouth of Colorado.

(4) Pottery ollas, circular, flat-bottomed; to transport babies. Mother swam, pushed across, unless current swift, when towed with rope. Pottery "boat," eska hakswam.

Pottery (elumas).—Variety of forms; some observed (pl. 36): cooking pot, food bowl, winnowing dish, handled cup, pottery anvil (Gifford, 1928). Cooking vessels for: (1) boiling maize, teparies, cowpeas; (2) pumpkins; (3) fish; (4) venison. Pottery spoons or ladles. Hardy (p. 338) saw jars "extremely well made. The size of each of them might be about two feet in diameter in the greatest swell; very thin, light, and well formed."

Origin of pottery making attributed to beginning of world. Young girls learned from mothers.



Fig. 2. Some pottery designs: *a*, sepiliuk, little curves; *b*, utsiik, straight line down; *c-e*, no names obtained.

Megoinuh said hard clay obtained on W. side of Colorado r., Lower California; soaked in pot overnight; for tempering, pulverized sherds and, if large pot to be made, also clear white sand, obtained on mesa or certain spots along river, kneaded in with hands. Coiling with aid of mushroom-shaped pottery anvil (or cobblestone) and wooden paddle (of willow, 10 in. long, blade 3 to 4 in. wide, $\frac{3}{4}$ in. thick, shaped by woman with unhafted black stone blade or sharp clam or oyster shell). Smoothed with fingers dipped in water. Apparently no slip applied.

Sherds for tempering pulverized in wooden mortar 15 in. deep with mesquite wood pestle $3\frac{1}{2}$ ft. long (same implements for pulverizing mesquite beans). In pottery-making by an informant, brick used for tempering, pulverized on stone metate with stone muller (same implements for grinding maize).

Newly-formed pots dried $1\frac{1}{2}$ or 2 days in sun; fired, preferably with mesquite wood, though willow wood used, but not arrowweed. For small vessels, willow bark and cottonwood bark fuel. Usually fire in hole; driftwood from sandbanks along river placed around and above pot. Done by women. Burned all night. Too much fuel avoided, also too little.

In new cooking pot cooked mixture of grass and maize to make pot "hard." When boiling, smeared with stick over interior. Mush thrown away; if young girl ate would be barren.

Pottery vessel with constricted middle (pl. 36) first shaped on anvil, then central portion squeezed with hands, rim bent outward with fingers.

Pottery designs in red mineral pigment, black boiled decoction of gum from mesquite bark and arrowweed plants. Red applied before firing, sometimes with fingers; black after firing, while pot hot. Little bundle of willow-bark fibers as brush. Unpainted ground color after firing dull reddish brown.

Figure 2, design elements, some nameless.

Water ollas painted red on exterior; cooking pots unpainted. Crossed design on cup (pl. 36), of mesquite pigment.

Anvil (pl. 36) illustrates ancient mending by drilling and tying with string. Sometimes arrowweed gum supplemented.

Pottery and stone pot rests for cooking pots over fire; usually 3. Pottery ones nearly cylindrical, tapered slightly toward top; 6 or 7 in. high, space for fuel beneath pot.

Appendix A records pottery making observed.

Adhesives.—No glue from fish heads, but gum from base certain arrowweed plants. Hardened rosin-like gum ground on metate, mixed with water, applied as glue. For broken pot, pieces warmed, glue applied with fingers; set when pot cooled. Not used on cooking vessel, as softens with heat. Used to attach rattle handle. Saw shaman tighten junction between these 2 parts of rattle. He held glowing stick close to gum on rattle, softening it, so he distributed it more evenly in joint by rubbing with finger.

Stone cutting tools.—Adze, knife, arrowpoint. (Identification as adze, not axe, based on informants' statements as to hafting.) No stone-pointed spears. Adze and knife received finish on edges by grinding, not flaking. Unretouched shell and stone flakes used to cut with also.

Adze (*wichakat*) of white stone (*wihamal*), black stone (*winyil*), red stone (*wiakwat*), which obtained from 2 mountains, *Kamshapsukal* and **wiumaka*, 4 miles apart, in *Cocopah mts.*, S. of *Black butte*, Lower California. Stones of 3 colors mixed in these places. Quarries half day's journey from river. (*Akwa'ala* obtained stone in own country farther S., where abundant.)

Stone for adzes broken at quarry by hurling one piece upon another. Pieces 6 in. long carried home for sharpening by rubbing on "file-like" stone (*aksil*), found in sandy places near sea. Blade ground on two broad faces. Split mesquite stick hafting, lashing of mesquite bark.

For knives (*uwe*), brown stone (*wikwash*) from same region as other 3 sorts; harder, rarer. 1 cutting edge, hafted in mesquite wood, bound with mesquite bark. Informant's description hearsay. Principally to cut wood, hide, flesh, hair in mourning. *Megoinuh* used unhafted black stone knife to carve pottery paddle from willow wood.

Bows, arrows, quivers.—Bow (*ichim mechawil yuas*) of simple type, of willow. Reach of outstretched arms, measure for bow length. (Models, Univ. Calif. Mus. *Anthrop.*: 3-2473, length strung 4 ft. 9 in., width at center $1\frac{5}{16}$ in., thickness at center $\frac{7}{8}$ in. 3-2474, length strung 4 ft., width at center $1\frac{5}{16}$ in., thickness at center $1\frac{1}{16}$ in.) Shaped with stone knife. Bending to form by wrapping of soaked willow bark for several hours; half of bow placed under fire in slightly hollowed sandy spot. After half-hour willow bark wrappings remoistened, other half "steamed" in hot sand beneath fire. Bent to proper shape, cowpea-fiber string attached to hold. Dried 4 or 5 days. Cowpea-fiber cord replaced with deer- (latterly horse-) sinew bow-string. No songs in connection with work.

Same bow for fighting, hunting, fishing. Boys' bows smaller. *Chittenden* states (p. 204) for deer, bow 6 to 8 ft. long.

Some arrowshafts of cane, foreshaft of hard wood from shrub resembling greasewood; for shooting fish. Deer arrow of arrowweed without foreshaft or stone point; end pointed. Toy arrow of this material. (U. C. M. A. Cane arrows: 3-2475 to 3-2477, approx. 3 ft. 4 in. of which 9 in. hardwood foreshafts with pointed ends; 3-2478 to 3-2480, approx. 2 ft. 9 in. of which $9\frac{1}{4}$ in. hardwood foreshafts.)

Stone points on some war arrows of red or black stone. These heated in fire to harden. Brown stone also used; latterly glass or iron from barrel hoops.

5 or 6 arrows in hand when hunting; in war 40 or more carried point down in coyote-skin quiver fastened to girdle on right side so hung against thigh. In action, 3 or 4 under girdle for immediate use.

Feathers of bikwAL (medium-sized hawk) halved for arrow; 2 halves placed slightly curved to resemble rifling; attached with sinew, a few barbs stripped from each end to allow binding.

Arrows often marked, especially for games: black and red bands of varying width and spacing near base of cane arrow. Juice of arrowweed bark and pitch mixed with red or black pigment. Painting annular or spiral, applied by revolving arrow in loop of string moistened with paint.

Arrows bestowed on mankind at creation.

Arrow release secondary; grasped between thumb and forefinger. In pulling, forefinger tip and middle finger tip rested against string. Some left-handed archers.

Arrow straightener (ipayichakil) of grooved type; hard red stone (same for metates), from Cocopah mts. Oval in outline, 5 or 6 in. long, 2½ or 3 wide. Transverse groove bisected rounded upper surface. Lower surface flat. Groove pecked with sharp piece of same material. After roughly pecking groove, stone heated and gently pecked further to smooth groove. No rubbing or polishing to smooth (*sic*).

Warrior straightened cane arrows every morning. Arrow shaft rubbed through smouldering end of stick, then placed in straightener and bent very slightly at joints. No heating of stone straightener.

Quiver (kopit), whole coyote skin, hair out, winter-killed. Head formed bottom; tail hung outside. Posterior portion of skin cut to form mouth of quiver. In skinning coyote not cut down belly, but cut wide at mouth and whole skin peeled off carcass.

Fat and flesh removed from hide, which dried wrong side out, then turned and stuffed with grass. Later, turned wrong side out, rubbed with greasy, parched pumpkin and watermelon seeds, mashed in cottonwood mortar with wooden pestle; skin restuffed with grass for final drying and shaping.

Clubs.—War clubs of mesquite or screw-bean wood. One type (yimpaukam) straight, arm's length, 1½ in. diameter, carried stuck in girdle. Used at close quarters; enemy seized by hair or arm and struck. Second type (pl. 34) my informant called shyawhai, while Hardy (p. 373) records macána. Cylindrical head about 4 in. diameter and length. Handle a foot long, pointed for stabbing, particularly abdomen. Club cut with stone adze and knife, finished by rubbing on stone. Specimen figured weighs 3 lb. 4 oz., heavy example for exceptionally powerful warrior. Decorated with red hematite and black manganese dioxide (kindly identified by Professor G. D. Louderback, University of California); former quite pure, latter with admixture of limonite (hydrous iron oxide). In blackening club, operator moistened bit of willow-bark fiber, dipped it in pouch of pigment, rubbed it on club.

Club grasped just below head, so turn of wrist brought either head or point into action. Both used in surprise attack; a stab in pit of stomach doubled victim for blow in face. Enemy's hair seized by warrior's left hand, head pulled over, face smashed with blow from edge of club head. To strike at enemy's head from above or side with this club thought futile, as likely to dodge. Proper use, undercut to chin or temple with angular edge.

Warrior with this club carried shield.

Lance.—Short screw-bean branch lance (pl. 39), stabbing weapon each warrior carried. 3 to 4 ft. long, pointed ends. White or black feathers along one side.

Called wakwil, except when wrapped with coyote skin when called await. Among Yuma and Kamia only leaders carried, as flag or banner (Gifford, 1931, 30).

Shield.—Shield (siehkaub), 20-in. disc of deer or horse rawhide, hair side facing bearer. Attributed to beginning of world.

Divided into 4 quarters, black, white, red, yellow. In battle borne by club-bearers not archers. Grip of shield flat, broad, leather thong through 2 perforations 4 in. apart; across face of shield, tied at back. Willow withe sewed close to edge of shield through perforations, while hide soft after soaking in water. Leather folded over and concealed withe.

Skin dressing.—Deer cut down middle from chin to rectum; down inner side each leg. Hide brought home, staked hairside down, at head, feet, tail. Also 25 stakes driven around edges. Exposed to sun and elements 3 days and nights. No scraping of hide, because cut very clean from carcass without fat. Rolled after drying.

If dehaired, sunk in pond 4 days. Laid across smooth willow log, dehaired with 2 posterior deer ribs (yeseche) from left and right sides. Dried before storage, in sun, then shade. If needed at once softened with deer brains before drying.

In making buckskin, deer (nowadays steer) brains and hot water used. Dried brains had been wrapped in shredded willow bark. Cake of brains put in boiling water; as willow bark separated, skimmed off. Water softened brain, made greasy or soapy, so spread over surface. Hide immersed; soaked till soft. From time to time removed, squeezed, worked.

After final removal placed in sunshine, but not allowed to completely dry. Mesquite stake with beveled top set in ground. Hide pulled back and forth over top for half day. After this, drying finished in short time, hide rolled up.

Preparation of coyote-skin quiver described. Birdskins not used.

Cordage.—Willow-bark cordage 2-ply. Spinning on bare thigh. In example seen, 2 groups of fibers held in right hand; with outward movement of left hand rolled down right thigh toward knee, twisted into 2 separate strands. Reverse movement up thigh, twisted 2 strands together, making 2-ply cord.

Cottonwood-bark fiber lacked tensile strength for cordage.

Cocopa near Cocopah mts. used mescal fiber for cordage also (Chittenden, 204).

Stoutest string cowpea fiber. Dry stems immersed in pond 10 days, removed, dried. Softened fibers easily manipulated. Separated by hand or with aid of stick. In latter laid on ground and gently tapped to remove the pith. String 2-ply; fibers spun on thigh. Used especially for fish nets.

Clothing.—Inner bark of willow, principal material for garments, cut by men, packed between 4 stakes driven in hard-bottomed pond to form corners of rectangle, weighted down with green willow wood, soaked 12 to 14 days. Women removed bark, which had bleached white, peeled off outer bark, hung inner bark on poles to dry until evening.

Men sometimes naked (Hardy, 336); at other times wore breechclout (nuamkohop) (willow-bark band foot wide, length of man's reach with outstretched arms), which in front and behind passed under cowpea-fiber string girdle (anip), so end hung behind below knees, in front halfway to knees. In certain games end hanging behind brought forward between legs and tucked under girdle in front.

Man made own breechclout in summer when bark best. Strips of bark-warp elements, ran length of garment. Weft element one continuous piece string, traveled back and forth across width of garment, wound once around each warp element each time it crossed. Ends finished so no loose strings.

Women wore breechclout of loose willow bark, not woven; held in place, front and back, by string girdle. Front dress (puhal), back dress (chayul); both

reached from hip to hip and from waist to halfway between knees and feet (see pl. 38); were not woven, but comprised strips of willow bark folded and tied over girdle (presumably this is what Hardy describes, p. 336), or of willow-bark string (BAE-B 30:320). Back dress put on first. Daily costume, also worn in game *'skoalup*. Peabody Museum, Cambridge, Massachusetts, has picture of Cocopa woman wearing twined cap, grinding on metate.

Woman made willow-bark dress (pl. 38 shows part). Bark soaked several days in canal. Woman worked with left foot folded under and right folded back at right side. Both legs flexed to right. 2-ply willow-bark cord made for fastening strips of willow bark in dress. At times bark moistened with fingers to work easier, especially that for cord. 4 pieces of cord, or probably 2 doubled, used to bind strips of bark for dress. Each little bundle of strips folded at middle over girdle, tied tightly down next its fellow.

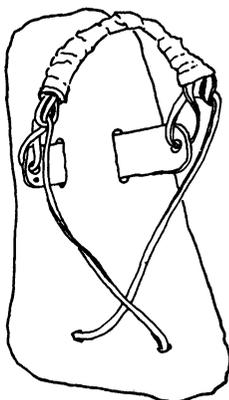


Fig. 3. Leather sandal (3-2472b) from Akwa'ala, Santa Catarina, Lower California. Greatest diagonal length, 290 mm.

Rabbit-skin blanket (*hurlwas*) making: 4 stakes driven vertically into ground as 4 corners of frame for weaving; sides of blanket formed by stretching cord between stakes; weaving done in horizontal position, working from above and below. Long strips of rabbit hide twisted around willow-bark string for warp; weft of cowpea-fiber string was wrapped once around each warp element at each crossing.

Willow bark blanket (*mechichobit*) made similarly (contrast Yuma weave in Forde, pl. 53); warp and weft of willow-bark string. Usually larger than 5 × 8 ft. Softened with use.

Both blankets made by men; used as bed covers, several children under one.

Sandals (*humnyau*) for daily use, of deerhide formerly, horsehide recently. Sole double, sewed with thongs, in modern times nailed. Wearer's foot rested directly on smooth hide. Hide relatively hard, though partial softening achieved by pulling back and forth through split screw-bean wood.

Sandals attached by 2 toe fastenings (between 1st and 2nd toes, between 3rd and 4th toes). Thong bands fastened at these points, passed back around tendon above heel, where tied. In some cases, bands crossed over instep (see fig. 3). On each side, just in front of heel, vertical side band reaching upward to horizontal thongs, which held in place by passing through perforations in vertical side bands.

Vertical side bands fastened basally through holes in sole. Forward ends of horizontal bands similarly fastened.

Sandals reputed ancient, though not work of creator. Formerly always worn by elderly people as protection from cold and heat.

Cocopa at E. base of Cocopah mts. made noiseless sandals of mesal fiber for deer hunting (Chittenden, 204).

Shell beads.—Shell beads, shell tubes or nose sticks, and nose "rings" worn as ornaments; wagered in gambling.

Disk beads (apuk), flat, white, perforated, presumably clam shell, $\frac{1}{4}$ in. diameter, strung on cowpea-fiber string, worn as necklaces. Necklace would buy horse formerly. Few people had them. Not made by Cocopa, but from Walapai country.

C-shaped shell nose rings worn suspended by string from perforated nasal septum.

Cylindrical ornament of clam shell worn in nasal septum by elderly men: white one, kiyar, blue one, xüpsü. Clam shells obtained on Sonora coast, south of Port Isabel, one day's journey from Cocopa country. Place also visited by Papago. Chittenden mentions shaman "who wore a large white bead suspended from his nostril." (Chittenden, 204.)

Tattooing.—Chin tattooing on girls, women. At death, untattooed female, even though cremated, could not attain happiness and comfort in next world (Inbawhela): kicked and scratched by beetle, sat bent over on road, so other souls stepped on her back. Until death of her soul (second death), subject to this discomfort. Same for unpierced ears, but ears pierced shortly after birth, so little danger.

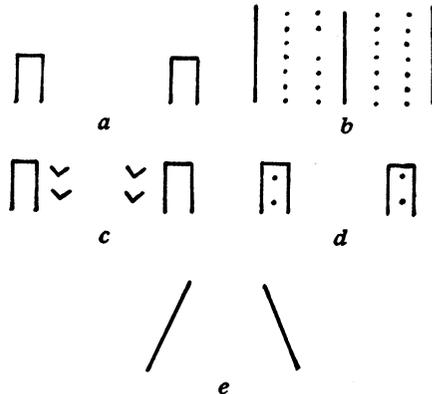


Fig. 4. Women's chin tattoo designs.

After menstruating 6 or 7 times girl tattooed on chin by woman friend. Done in day; singing and dancing. 2 or 3 mesquite thorns tied together as needles. After pricking, charcoal rubbed in. One informant had incomplete pattern, because refused to endure pain.

Figure 4 shows women's chin designs seen by me; some accentuated with paint. Only one tattooed man observed (fig. 4a on his chin). Possible "he" was female transvestite. Figure 4a seen on chins of 5 women; 1 each of b, c, d, e.

Pigments.—Pigments (omal), formerly kept in deerskin pouches, used extensively on faces, bodies, manufactured objects (pottery, shields, weapons, etc.). Mineral paints: red hematite (akwura), black manganese dioxide (kwinyil), white paint made by burning certain rock. Fourth pigment used on face, yellow tulle pollen (Hardy, 337, 349). Mesquite gum decoction used for black or dark brown pottery designs.

Hematite quarry in N. end of Black butte at akwurawawa (red place). Hole dug, fire therein which turned dull reddish material to bright red. Material put in pot of water to leach out salt and soften mineral. Carried down as lump in cowpea-fiber string net, suspended on back by pack strap over forehead.

Manganese dioxide obtained in mts. near N. end of Black butte, presumably Cocopah mts. Quarry called kwinyilwawa (black place). Found as salty hard rock, burned to break up. After burning, pulverized into "black lime."

Mud used extensively for adornment and delousing (Hardy, 368).

Face painting.—Everyone painted. Most designs only decorative, some prophylactic, curative, or prevent chapping. Individual might change pattern daily. Nowadays pigment carried in canvas bag; mixed with lard, formerly with oily pumpkin seed.

Designs seen: black pigment (manganese dioxide) on eyelids of little girl, 4 to 5 years old, for making lashes grow thick and long. Red pigment (hematite) on

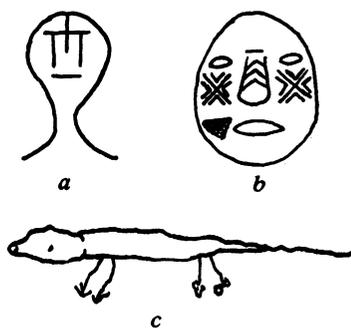


Fig. 5. Face paint designs, native drawing of lizard.

face of baby, 2 years old, prophylactic against skin eruptions. Face below eyebrows painted to within inch of each ear. Middle of chin bare. Young girl had face below eyes, except chin, painted red. Girl baby had black on edge of lower eyelids and black connecting eyebrows. Cheeks below eyes red. Style kweroma. Man with black horizontal band across face, at forehead, eyes, and cheeks. Another man's whole face red; pair of black stripes depended from each eye and from each corner of mouth. Design huma. auyul. Two vertical black lines across each eye, American rouge on cheeks, noted on married woman of 30. On small boy, red hematite band from temple to temple, with eyes in center thereof. Colored area not above eyebrows. Young woman with 3 concentric rings of brown dots near each corner of mouth.

Design of no symbolic significance, on chin of young girl: 5 vertical lines with 4 vertical rows of 5 dots each between them. Design yakwisoto; purpose to beautify.

Reddish brown design on 9-year old girl comprised triangle of solid color on each cheek at mouth level, with base of triangle toward mouth. On cheek above each triangle was #.

On girl of 16 was seen design in bluish black: on chin design like tattoo design in figure 4b, under each eye 2 depending vertical lines with parallel row of 4 dots between, on nose 4 horizontal bars, on forehead above nose 3 horizontal short bars.

On young boy, 3 vertical lines on chin, 2 vertical lines close to each side of nose, and 3 horizontal lines under each eye.

One Saturday afternoon in Somerton, observed following: (1) Woman with vermilion band right across face, passing across upper eyelids and upper part of

nose. (2) Woman with cheeks rouged, eyelids darkened, American style. (3) Young woman with 3 vertical lines on chin with 2 vertical rows of dots between them; design *yyiakwis*, in brown pigment and may have been tattoo pattern painted over. This girl object of attention of 3 Cocopa youths of varying ages and sizes who walked with arms around one another. Tried to jostle her. (4) Young man had 3 widely separated horizontal dark lines on each cheek.

Fig. 5b most elaborate design seen; in American cosmetics on girl of 9 or 10 years. Lines brownish red; blotch on cheek brighter red. Design *humal ayurl*; for enhancement only.

Designs described by informants in addition to war paints:

Girl who had had much sexual intercourse had area around eyes black. From this area two red stripes projected downward on each cheek. Style *humal ayurl*.

Style for girl who has not had sexual intercourse, one vertical red line on each cheek from eye downward (see fig 5a, which shows middle-aged male informant's manner of representing human face). He applied generic name *omal* (face paint) to this design. (Fig. 5c is same informant's representation of lizard.)

For fiesta a style also called *humal ayurl*, worn by men, consisted of red face and black X on each cheek. Feathers might be worn in hair.

Feathers.—Feathers of hawks and eagles not worn by ordinary men: caused severe headache. Certain shamans and twins wore these, also feathers of small hawk (apparently not sparrow hawk). A curing shaman said he once tried wearing them and had severe headache.

Most distinguished warriors wore crow, owl, white heron feathers in hair. Boys black or white feathers tied to lock at occiput.

Cocopa and Akwa'ala men sometimes wore radiating crown of feathers called *chikopaing* on occiput.

Eagle feathers obtained from Diegueño; shamans who dreamed of eagles kept feathers. Others would sicken.

Hairdress.—Men, 20 to 30 ropes of hair reaching waist; loose hair over temples and forehead. Often ropes bound with cord at neck, to prevent flowing too freely down back. One seen with hair hanging below buttocks.

Ropes of hair not artificially lengthened. Made by rolling hair with mud. Cut only in mourning.

Long rolls of hair folded in bundle along crown. Roll from each side crossed over posterior end of bundle, brought under forward end, tied over top of forward part. Nowadays gaudy handkerchief placed over bundle, corners tied under front. Formerly young men let hair hang.

Another method by old men, who separated hair into 2 lots, wound it both ways around head, passing over forehead, and tied with string of soft colt's hair; turban-like effect.

Girls and women wore hair hanging down back. Across forehead, banged short distance above eyebrows.

Hair washed in boiled decoction of mesquite-bark to blacken. Mistletoe (*Phoradendron orbiculatum*) dried, pulverized in wooden mortar, boiled with clay, plastered on hair to kill lice and dye black. No permanent freedom from lice because nits survived. Magical attempt at ridding adolescent girl for life by enclosing 4 in cane tube and casting in river. For adolescent boy boiled mud and mesquite bark applied for 5 or 6 days before nose piercing.

No hair brush. (Yuma made from roots of desert plant [chemahosis] dried in sun.)

Beard pulled with fingernails.

Hair of small children singed with willow or arrowweed stick at new moon, never full moon. Little girls' hair singed $\frac{1}{2}$ in. length all over. Little boys' hair same, except for lock at occiput. At 6 or 7 years of age, boy's hair long except for bangs; hung loose except for 2 or 3 feathers tied at occiput.

VARIOUS ACTIVITIES

Postures.—Men:

yimisuyik. Cross-legged, tailor fashion.

keluchus. Sitting on haunches.

kapochon. Kneeling without buttocks resting on heels.

hamsastuurp. Kneeling with buttocks resting on heels.

sekowib. Sitting postures: (a) 1 foot under, 1 outstretched; (b) 1 knee and toes on ground, buttocks against heel, other foot flat on ground, knee up.

At assemblage of 40 Cocopa men to discuss murdered shaman, majority stood, few sat. One old man leaned against post, standing on left foot; right leg raised and bent, with foot resting against left knee.

Women:

yipuumpuwas. Sitting on ground with both feet to one side, partly under buttocks, knees flexed. Common posture when working on willow-bark objects.

yesakpuwas. Cross-legged, tailor fashion.

yimiskulukul. Feet straight in front, but crossed at ankles.

sekukwib. Feet straight in front. Cf. sekowib (man's posture).

I observed woman seated at work. Another watched, standing bent over so body formed right angle; supported self several minutes with hands against front of legs.

To micturate woman simply squats on ground with modern dress resting on ground well back of her.

In cold weather old people lay with backs to fire, each with own blanket. Young man and wife lay together on ground with single blanket, usually next fire.

Often sat with hand held over face, palm at mouth, fingers up, thumb under one side of jaw.

Pointing with face or mouth.

Left-handedness.—Called kusarp, a blessing; gamblers particularly successful, warriors better marksmen.

Embarrassment.—Woman measured before crowd on cool day under shade, perspired profusely, much embarrassed. No doubt blushed too, but rouge hid. Close inspection of face paint of 10-year old girl caused embarrassment, manifested by shy, bashful manner.

Games.—Before game participants avoided intercourse with wives for 4 nights, though slept in same house. In women's shinny game star player must for 4 nights preceding game avoid intercourse with husband.

No idea of cuckoldry causing loss of luck, but if man dreamed wife unfaithful he might lose in gambling, because worried. This was "bad dreaming." For many games, umpire (pashé) held stakes, presided.

Games absent: boxing, swimming race, high jump.

Distance jump (sukwotup): 2 men ran 25 yards to line, jumped. Betting on result. Horse racing modern.

Foot races (oyau) run by young men, not women. 2 contestants, in breech-clouts, ran from given spot to line on ground, near which stood spectators. Umpire held stakes.

Four sorts contests with bow and arrow: (1) ananup, each shooter had 4 or 5 arrows. 4 or fewer men played. One man shot arrow 30 yards, others as close as possible to first with marked arrows. Man whose arrow closest to first one took all as forfeit. Outsiders did not bet. No umpire. (2) chichuarp employed small target of willow bark and arrowweed leaves. If more than one got arrow into target contest tie. Winner took arrows as forfeit. No umpire. (3) chichuti'p, distance shooting by youths. Winner took arrows. Outsiders bet, but no umpire. (4) kilyahu'mechutim, sham battle and endurance test. 2 rows of young men, each under seasoned warrior, fought with cane arrows, points and foreshafts removed. Shooting began at 30 yards with groups approaching. Each youth had 10 or 15 arrows under belt, but retreat might be necessary before all used. Very strong individuals made headless arrows stick in bodies of opponents. Less courageous finally turned tail amid laughter. It was said such individuals would run in real fight. No betting or forfeit, no umpire.

No sham club fights or spearing contests.

Shinny (utas) by 6 men, 3 on side. Shinny stick, cheruuk. Goals (maknyuama) 100 yards apart, line in dirt and erect 3-foot stick (idushetyimuchumer) in middle. Sometimes players aligned by gentes. Cool winter afternoon favorite time.

Man's shinny stick of willow, unpainted formerly, measured from ground to umbilicus, curved part on ground. Green wood placed under fire to bend, lashed in position till seasoned. Encircling painted rings or string windings ornamental. (Pl. 39.)

Shinny taught by creator Maskwayak; originally played with straight stick. Curved stick from Yuma and Mohave, derived by them from Walapai, according to Cocopa.

Ball (atas), inch diameter, of willow bark tightly covered with cowpea-fiber string. At start ball buried in depression (aunyer) in center of field, under 2 in. of loose earth. 2 opposing center players (monyup) tried to get it out, either with shinny sticks or feet. Sometimes ball driven out by direct downward stroke. Opponent attempted to parry stroke with stick. Foot might be hit if tried to get ball out with foot.

Once extricated, each center player tried to drive it toward his goal. 2 field players (otasup) aided him, while 3 opponents tried to drive it to their goal. If goals N. and S. players on W. had N. goal, those on E., S. goal. No special orientation of goals.

After making goal, if more money or goods to bet, players changed sides, played again. People appointed 2 men as stakeholders and umpires (laoipashe). They carried extra shinny sticks for their respective sides and followed plays closely.

Women's shinny ('skoalup) played by married and single, who were good runners. 3 on side, armed with straight sticks (inyomskoalup) of peeled wood, reaching from ground to breasts, propelled two connected "balls" of mesquite bark. String for "balls" 2-ply, made into 3-strand braid, ends of braid knotted to form "balls," whole 8 in. long, called shakaa'l.

2 umpires called a'alpashe. Each carried 6 or 7 sticks to replace broken. Player who broke stick at disadvantage until she got new one.

Game played on same sort of field as men's shinny, but "ball" not buried. Goals similar to men's, except longer upright stick. "Ball" placed in center (masmonyup) field; tossed in air with end of stick by center field player (haal monyup) of one side; then she and opponent struck at it with sticks, each driving toward own goal. When "ball" struck ground 4 field players (hoalup) entered

game. "Ball" not touched with hands or feet, or run with on stick. Must throw or drive it with stick. With 2 opponents striking at "ball" broken sticks frequent.

Male stakeholder (laoipashe) for each side kept track of amounts bet; in modern times carried stakes in handkerchief. Bettors, other than players, sat together, handed bets to stakeholders. No odds.

Game initiated by creator Maskwayak.

Kahaloyaup denotes foot-cast ball, also players. Played with 2 balls (kahal) of mesquite wood, ground down on metate, each 3 in. diameter (see illus., Culin, 681). Field $\frac{1}{4}$ mile long; 40-yard wide goals marked by 7-foot sticks at each end of goal. 2 experts played, people bet. To start, balls set on little piles of earth on goal line (maknyuama), each player stood behind. Toes put under ball to cast. If went into hole or brush, removable only with foot. Each player had friend 50 or 60 yards ahead of opponent, who watched for cheating. Player who used hand lost game. 20 or more casts with foot to reach turning point, then back to starting goal. If tie, another day set, course made longer. Stakeholders held bets until then.

Sometimes balls inlaid with shell beads imbedded in arrowweed gum.

Men's game (hochúrbit) of casting poles (achura) at rolling ring (kapsu) or hoop. Taught by creator. Poles additionally designated by manner of marking with cut rings to indicate ownership. Thus pole with ring cut near end called chokolokolshit, with 2 rings, chokolokolhauak. Poles 15 ft. long, of peeled willow. Ring of inner willow-bark string, wrapped around foundation of willow bark, 8 in. diameter.

Players 2, not painted, wore breechelout, each with pole. Long hair fastened up on head. Before retiring each night, prayed for luck, though no deity addressed. One player dreamed ring became woman, embraced him. When he awoke, he said: "I am going to have good luck and win many things." This man's pole continually came to rest in right position.

Other player dreamed he was assaulted by man; an evil omen. He said to self: "I will have pretty bad luck. I will lose my property by this game. I wish it were over." As game agreed, could not withdraw; consoled self that next time would have good luck. Players informed no one of dreams.

Right-hand player rolled ring and had first throw with pole. He continued to roll ring and throw first until left-hand player made winning cast, when they traded positions. Only exception was when player left-handed; he staid always on left.

In rolling ring it was held on inner surface of right arm with palm up. Rolled by bending arm up, then straightening with downward slope to give impetus to ring, at same time running 2 or 3 steps forward.

Casting alternated with each throw from one end of field to other. If ring rolled slowly and right-hand man threw pole so apparent ring to rest on his pole, left-hand man refrained from casting until ring stopped.

If pole stopped on top of ring no count. If one edge of ring rested on pole 3 scored (play called bamutim), but if entire ring rested on top of pole 1 scored. If point of pole passed into ring (play called yamukap) nothing scored. If bare edge of ring rested on pole and nothing of pole was discernible within ring when viewed vertically, nothing scored. To score, at least part of pole must clear inner edge of ring.

If the right-hand man made 1-point cast and other 3-point cast, neither scored, and right-hand man had next throw of ring. Scored only when opponent missed.

Scoring on basis of difference of points, not 3 left to 4 right, but 1 right. 4 to zero was game. Wagers only by players.

Wrestling (sope'up) infrequent, by very muscular men. Wrestlers and spectators bet. Umpire sope'up pashe, supervised. Each man squeezed, hugged, and tried to throw opponent. No seizing of legs or arms, no shift of grip. Falling down constituted defeat. If both contestants fell, tie, and tried again at later set date.

Peon (yechuyu'shup) men's game. Short black stick (inyix), charred and rubbed so smooth it did not blacken hands, and pelican leg bone (iyoshomah) were objects hidden in hands. Attached by foot-long cowpea-fiber strings fitting tightly to wrists. String around wooden stick let into groove about middle. Bird bone perforated and string held by means of large knot inside. When not in use each pair of playing sticks (black and white) was wrapped in own strings. Umpire (pashe) had charge, handed them to players. He scored with counters (emechuma'up) of arrowweed, about foot long. His business to build fire between 2 lines of players.

Umpire and stakeholder selected by players, sat at one end between 2 lines of players. After wagers laid by individual players, audience placed bets with stakeholder, shell beads, etc. No odds.

Assistant umpire (pashe powahaket), paid by superior. Umpire had charge, watched game for cheating, settled disputes. Assistant distributed counters as required and sang impartially with each side. Backers in audience also joined in singing. Songs numerous, and like games, bestowed by creator. Umpire paid by winners, both players and audience.

Peon usually played at night in connection with festivities, at any season. In 1927 played at song festival.

Every Cocopa did not play; informant had not played or sung. His son-in-law very disgusted with game after losses in 1927.

Sometimes good player, who had nothing to bet, invited to play. If his side won he was given part of winnings.

Duration varied with skill of players. Experts might win from novices in half an hour, while 2 evenly matched teams might play all night. As rule winners bet again.

If person died while game in progress, ceased until another day. Meanwhile umpire held stakes.

Posture of players kneeling, with or without buttocks against heels. Body moved up and down or sidewise in time of song. 2 rows of players 10 or 12 ft. apart. Miss by guesser brought shout of jubilation from holder missed.

4 men played on side. Each man on one side with black and white sticks; other side none. Latter selected man to guess location of white sticks in opponents' hands. Many mistakes, replaced by 1 of 3 partners. Or 4 on guessing side consulted in whispers after observing movements of opponents. Hands with white sticks called by directional names: if stick holders faced W., N. called to indicate right hands. Stick holders must then open right hands which they carried folded against abdomens. If S. called, left hands exposed. White sticks exposed, together with black companions, surrendered to guessers' team. Further trials until all removed to guessers' side. Then losing side became guessing side. Each player studied continually his opponents and their plays; did not talk with bystanders or allow mind to wander.

Team holding sticks took counter for every white stick missed by guessers. At beginning 15 counters in central pile, from which distributed until gone (Culin,

326, quoting Palmer, says 18 or 20 sticks). Thereafter passed from team to team until one had all and game won.

Holders of sticks bent bodies forward, swayed and sang, sometimes not looking at opponents for fear of betraying position of sticks. Guesser clapped hands and looked at holders' eyes, pointing first to one eye then to other to make them betray position of white stick. When he called direction and pointed to right or left hand, holders exposed sticks.

In variant form 2 opposing players hid sticks simultaneously. Guesser might declare that opponent had sticks in same hands as self; both exposed hands, which had been folded against abdomens; or guesser might indicate location of white stick by turning head to right or left and calling out; could not point because hands against abdomen, concealing own. He called N., S., E., or W., depending upon orientation of players. He might make many feints with his head to read opponent's expression and determine position of white stick. Sometimes 2 players guessed each other's hands simultaneously. If both correct, or wrong, tie.

Stave, or stick-dice, game ¹tuchuk, with 4 half-cylinders of willow wood, 8 to 10 in. long, 1 in. wide, made by women. Center of flat side marked with longitudinal line of charcoal or red pigment. (See Culin, p. 200.) Game played especially by women. In casting staves players sat on ground, held staves in one hand, threw them end down with force on metate or timber, so they bounced off. 15 arrowweed sticks, often of irregular lengths, as improvised counters, placed in center. Umpire passed these out until gone; thereafter passed them from player to player until in possession of one.

Staves called tauwilsopas, anvil on which thrown shutus, counters inyimichuma^r, umpire pashe.

Counting for player commenced only after 1 stave fell with marked flat side up. All previous combinations did not count. Scoring thereafter as follows:

- 1 flat up entitled to 1 counter and another turn;
- 2 flat up to 2 counters, but staves passed to opponent;
- 3 flat up to 3 counters, but staves passed to opponent;
- 4 flat up to 4 counters and another turn;
- 4 flat down to 6 counters (or 10 in a second method of counting) and another turn.

For each game won player set up stick in ground.

Stave game claimed as Cocopa invention. Stakes: shell rings, other things from sea. No songs sung while playing. Even menstruating woman might play. Young girls did not.

Cat's cradle played, women particularly adept. 12 figures observed by me; some had variants. See figure 6.

Figure 6f, "willow roots," called "coyote nose" by E. Diegueño of Campo, San Diego county, "bark house" by Sierra Miwok.

2 variants of dove figure (fig. 6k): "dove with neck broken," "dove with wing broken." In making latter "broken wing" moved up and down with 2 fourth digits.

Other figures were "eagle" (also E. Diegueño), "bird's nest" (3-dimensional), "gopher going into hole." Last was common trick of putting string around fingers of one hand in such way that pull on proper string causes it to unravel and disappear between thumb and forefinger.

"Turkey vulture" was made by Yuma, not by Cocopa.

Bullroarer (kuelamas nyemalaoi, "toy for children") made from piece of gourd. Hole in gourd allowed insertion of small stick to which willow-bark string attached.

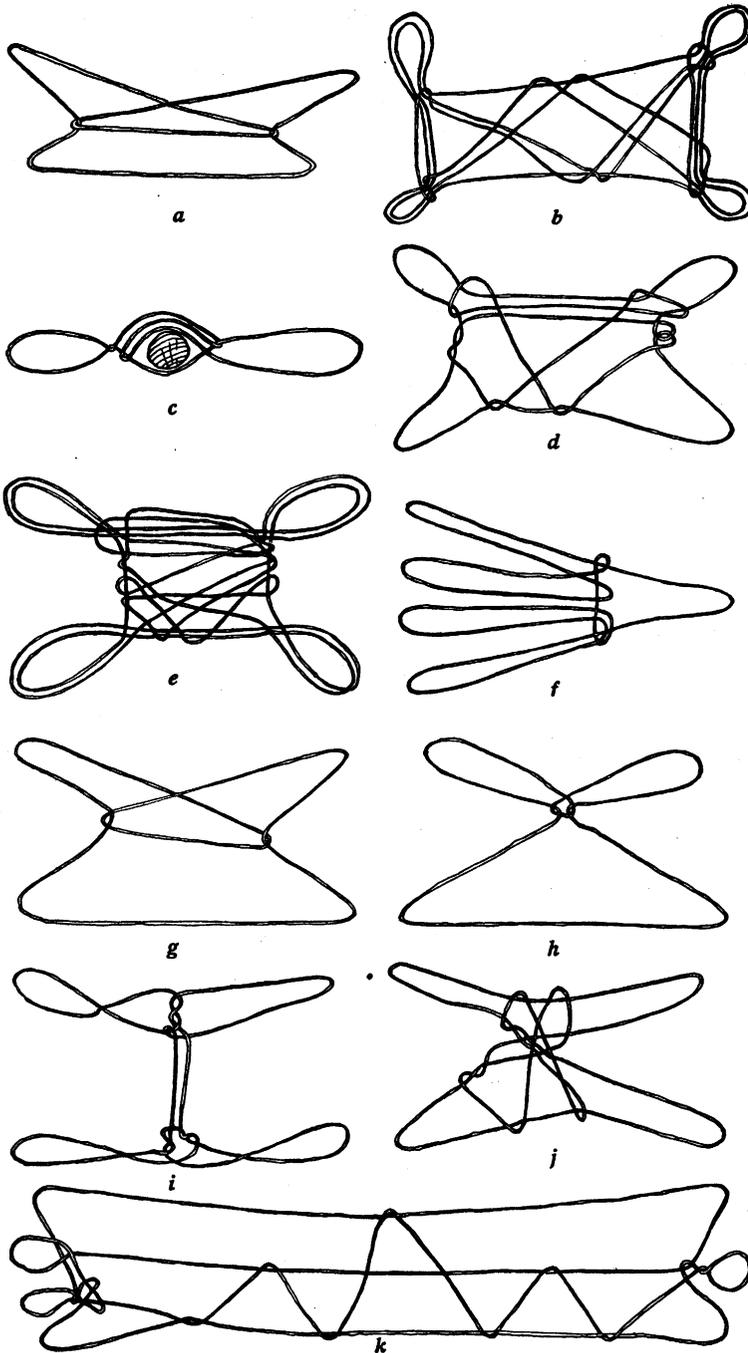


Fig. 6. Cat's cradles. *a*, 3-2967, rattlesnake mouth open; *b*, 3-2969, metate; *c*, 3-2968, rattlesnake mouth closed; *d*, 3-2970, mourning dove nest; *e*, 3-2971, turtle; *f*, 3-2972, willow roots; *g*, 3-2965, jealous women approaching; *h*, 3-2966, jealous women fighting; *i*, 3-2962, boy; *j*, 3-2963, girl; *k*, 3-2964, mourning dove.

Dances.—Aside from scalp dance, following recorded. Fiestas held winter and summer, especially latter.

On January 2, 1927, Cocopa, a few Kamia and Yuma, held fiesta at Escalante ranch, Somerton avenue, near Somerton. Peon, singing, dancing.

3 pairs of singers seated on long bench under shade, each pair 8 or 10 ft. from neighbor. All 3 pairs sang to accompaniment of rattles. 2 Kamia men sang Kamia and Diegueño songs. A Cocopa and Yuma sang Cocopa songs, 2 Cocopa sang Cocopa songs. For while 2 women (1 Cocopa, 1 Kamia) danced in front of Kamia men, who had small tin-can rattles, set on sticks like gourd rattles. Cocopa woman jumped up and down in slow rhythm, feet together, where she stood. Kamia woman jumped sidewise 2 or 3 steps, then back again, feet together. Both women held hands perhaps foot in front of body, palms down, fingers straight and somewhat spread, one hand on top of other.

After time Cocopa and Yuma singers arose and walked or marched in step to own music; forward 10 or 15 ft., then backward same distance. In few minutes 4 girls (8 to 16 years of age) came and stood facing them, holding hands. As singers walked forward girls walked backward; when singers went backward, girls went forward, so always moving in same direction simultaneously, always fixed distance apart, and with one group walking backward.

HEAVENLY BODIES, TIME, DIRECTIONS, COLORS

Cocopa believe stars fixed in courses forever.

Constellation *muh or mountain sheep (Orion) rose in E. shortly after 6 P.M. in winter. Constellation of 7 stars known as hestah (Pleiades) rose about same time. Hestah originally woman and *muh young man who planned marriage. Star called soba', standing to S. of *muh, wished also to marry hestah.

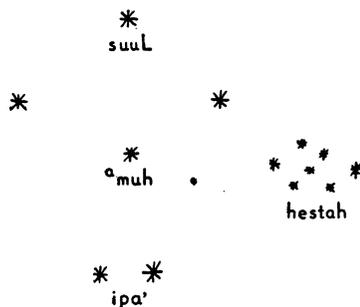


Fig. 7. Native drawing of Orion and Pleiades (hestah).

When *muh was overtaking hestah, soba' lay in ambush in brush, drew bow and arrow, killed him. Constellation suul, head of arrow, constellation ipa' (arrow) shaft or feathers of arrow. Arrow, having passed through or by *muh, lies N. of him in the sky. Suul, point of arrow, comprises 3 stars forming corners of triangle. Ipa', feathers of arrow comprises 2 stars to S. of suul. (Cf. fig. 7 with Gifford, 1931, fig. 3). Walapai also mention arrow in Orion as part of larger constellation; arrow shot at mountain sheep (Kroeber, personal communication).

Star people set example, in beginning of world, for human jealousy. On earth first, but ran up into sky so no one could catch them.

*muh, whose winter position in center of sky indicated midnight, began to be useful as midnight indicator in July.

Sun and moon eclipses caused by celestial lizard (kwachul) devouring luminaries. Same species on earth.

Year, matgam. Termination of year when heavy frost killed vegetation. In 1921 new year began before December 8. Moon of that time was first moon of year.

Solstices called enyuh kowak, "sun turning to go back." No ceremonies.

4 seasons: winter, spring, summer, fall. Native terms: hesul, "cold"; erstubak, "everything turning green"; enikobil, "hot"; tugax, time when frost kills plants (usually November). In hot season wild foods, such as mesquite beans, were ripe.

12 months in year. Names of 3 obtained. Hex'amatinya, Hex'akwen, Hex'ayut. Hex'a, lunar period or month, began with new moon in W. Not learned if 6 month names used twice, as among Kamia (Gifford, 1931, 65), but similarity of names suggests it.

Time reckoned by days, not nights. Informant did not know if days of moon named.

Divisions of day from sunrise to sunrise: inyetsbak, sunrise (bak, "sun ascending"); erpshup, sun getting high and hot, 9 or 10 A.M.; chuurpbaksam, near noon (bak, "sun ascending"); enyatchuurp, exactly noon; chuurpimhap, after 1 P.M.; enyahyul, about 3 P.M.; enyahkuwurl, sun declining rapidly; enyaherxap, sunset; echchinyam, twilight; echchinyam akuri, about 10 P.M.; echchinyam chuk^u-rowib, midnight; chuk^u-rowib yümahap, after midnight; kwele'chau, near dawn; inyak, dawn.

Directions: upstream, mat^ukos; downstream, mat chinanap; north, etshah; south, kowak; east, inyaxsabah (sun rising); west, inyahap (sun setting).

W. bank of Colorado r., aka.inyahap; E. bank aka.inyak.

Colors associated with cardinal directions: white (hamai) north, brown or yellow (kwas) south, red or orange (kwat) east, black (nyil) west. Gray (hamaul) and baliu (blue) not associated with any direction. Baliu means "not to show color," applied to dark blue or "black" maize.

SOCIETY AND RELIGION

Gentes.—List of gentes published (Gifford, 1918, 156-166). Additional woman's gens name: Ameput, referring to helput (dust); in old age replaced by Akoihomus. Frank Tehana's wife so named, also her sisters, but her daughters were Sikuma, name referring to mourning dove (helku), totem of their father's gens.

Cocopa and Yuma Sikuma gentes not considered related.

Cocopa term for gens shiyumul, Yuma shimul.

The family.—No true villages of unrelated people. Sometimes huts grouped together, but housed relatives in male line. Unmarried daughters lived with parents.

Age distinctions for males: soauwe, newborn babe; bowas, baby able to sit alone; huchal, baby at crawling stage; wiskalkuat, baby at stage of trying to walk; buauwit, baby at walking stage; mechuweL, boy, until about 15 years old, when nose pierced; kwe'yumik, young man, unmarried; abu', married man with children; kwür'uk, middle-aged man; auwu', old man, unable to walk.

Children not chastised, but scolded. If whipped would not care for parents in old age. I saw 5-year-old girl tip over dish of beans; not admonished or asked to pick up; elder relative collected. Fathers fondled small children almost as much

as mothers. Both Cocopa and Akwa'ala in Hardy's day occasionally sold children (Hardy, 371); these may have been captives.

Father told son nightly at bedtime: "Don't fight or row, because it's a bad thing; keep on behaving yourself, then you'll become a man and get married and make a home." Orphan received similar instruction from foster father.

Daughters admonished similarly by father: "You are growing up, don't run around too much, but cook for your brother, and help your mother." A girl might disobey, run off, get into trouble. Father would tell her again and reprove her. Girls might marry 4 or 5 months after first menses but usually a few years after.

Boys played with bows and arrows, girls with mud balls. Boys found boy comrades, girls, girl comrades. 2 brothers each had own friends and would not chum together. If boys wanted to do anything, such as build shade, all helped. Friends belonged to different families.

Girls cooked, made mush, got water. Grown-up brothers and sisters permitted to talk to one another.

Orphaned children not adopted in strict sense, if relatives existed from whom kinship tie demanded care. True adopted children were foreign war prisoners, usually Yuma. Childless couples adopted captives.

Captive children washed every morning by adoptive parents, ceremonial cleanliness not required for own children. Washing at river bank with water heated in large olla. Head and body washed. Continued until children grown.

Adopted captive children treated like own; treatment kindly, did not attempt escape; became Cocopa. Given Cocopa names at adoption, though no ceremony. Boys' noses pierced, girls tattooed, Cocopa style; became members of adoptive father's gens regardless of original Yuma gens.

Among Cocopa, Akwa'ala, Yuma, twins (hawaka) of privileged status. At birth welcomed by shaman, as thought celestial origin. Throughout life wishes granted, as refusal would cause death. Dressed continually in gala attire. Parents not anxious for twins because of time and work to bring up.

One adult male Akwa'ala twin seen had radiating bunch of sparrow hawk and blue-tipped white feathers fastened in hair at occiput, and carried shinny stick; wore gaudy ornaments of young person.

Babies.—When woman stopped menstruating pregnancy known. During first 3 months desired certain foods which must be obtained.

Expectant mother refrained from heavy work, as gardening, carrying melons or pumpkins. Near time parents instructed her to walk far daily to make delivery easy. She manipulated breasts so milk dropped. Except for no watermelon, ate like rest of family; she might eat left-overs; did not eat to excess lest baby be fat and she die in childbirth. No harm if dog ate her left-over food, but if studhorse ate, baby still-born. Therefore ate no watermelon, rind of which horses like. If gopher or beaver ate remnants would kill foetus. Same applied to husband's left-over food. Horse which died, eaten, but if vultures first, would not eat lest kill foetus. If woodpecker made hole in tree, wood not used for woman's fire.

Husband not to have intercourse with wife while pregnant, lest child born feet first or breach presentation. If woman adulterous would kill foetus. Adultery of father harmless.

Besides prenatal influence mentioned above, in 1922, Cocopa youth (perhaps 20 years old), dumb, apparently half-witted. Sound uttered goose-like squawk; ate eggs, meat; refused maize and other starchy foods except flapjacks. Favorite pastime playing with water in metal wheelbarrow. Dashed water with board. When walking, sometimes looked upward, smiled, stretched arms upward, gave

little jump, suggesting bird about to fly, or attempt to catch something. Supposed cause of condition and actions: mother's longing to eat goose while carrying him.

Anyone helped at childbirth. If difficult, midwife called. Patient took sitting position, legs extended braced herself with arms on ground. Midwife in back, husband in back of her. If trouble, husband sent out of house, so baby follow father and be born quickly. Girls born more slowly than boys, because bashful; also girl sought mortar and pestle inside mother, but boy grabbed bow and arrow and came out.

If midwife powerless, shaman called. He pulled down on woman's abdomen, blew tobacco smoke, kicked woman's sides, to scare child out. Specialists foretold sex.

As soon baby born "everybody was afraid of the mother." If mother died some woman cared for infant.

Afterbirth expelled by gentle massage, by attendant woman or husband. Abdomen kept warm, warm water drunk, maize-meal mush eaten.

Umbilical cord cut with stone or cane knife. Buried 2 or 3 ft. deep by father or husband of woman, together with afterbirth, so no one saw it.

New baby and mother taken to dwelling. If winter, house kept warm; if summer, lived in shade.

Babe and mother washed morning following birth; warm water.

Baby's first drink few drops of water; for 4 days boiled decoction of inner bark of mesquite tree by attendant woman who dipped her fingers and let baby suck. On 5th day mother's milk. Till then mother's breasts squeezed to keep milk from souring.

Mother observed same taboos as at 1st menstruation: for 8 days no salt, meat, fish; did not scratch with fingers, or touch teeth; drank warm water, ate maize-meal mush. These restrictions for 1st 4 infants woman bore. She did not lie in trench as at 1st menses.

Semi-couvade for 8 days; food and scratching taboos for father; no work; remained in house or shade with new mother. If either broke taboo, infant's stomach would swell and it would die. Both parents bathed each morning.

Ear piercing of male infant 4 days after birth. Lobe and crura pierced, for wearing 2 ornaments in each ear.

9th day after birth baby's body, face, arms, legs, and mother's face painted with red pigment mixed with oily pumpkin seed. If not done mother got black spots on face. 5 or 6 mornings paint washed off, renewed. Baby's face painted every other day until 6 or 7 years old. After that child painted own face.

Sexual intercourse between parents taboo until baby able to walk; then woman "clean" again.

Baby named at 1 year by any relative who invited friends and relatives to feast: watermelons, pumpkins, cowpeas, teparies principal foods served. If no relative suggested name and feast for baby, parents bestowed name, but not necessarily feast.

Special disposal of deciduous teeth assured sound permanent teeth. Father saved each and threw to east at sunrise, saying: "Sun, make the new tooth grow strong." He held tooth between tips of thumb and index finger of left hand, pressed tip of right index finger against tooth, projecting it suddenly so described arc.

Menstruation.—Menstruation (luak) usually at age 14 years. No special term for first. Girl under restriction 8 days, procedure called paraeo, taking care. Repeated 3 following periods. 5th menstruation (luak chuwirl) without observances, as were subsequent. Girl did not work during 4 periods of restriction.

At first menses girl informed mother: "I have the flowing." Old folks advised her: "You had better go and swim. Do not scratch your face with your fingers. Do not scratch your head with your fingers. Do not touch your teeth with your fingers. Do not smile or talk. Do not eat salt or meat or fish." Stick (usually arrowweed or willow) tied to right wrist as scratcher. Only maize-meal mush eaten, warm water drunk.

Hair tied close to head so grow well. Kneel very erect when eating during 4 days of flowing, insure erect posture. If hair fell on shoulders when eating, must cease. During 4 days she must not paint, not even black pigment on eyelids.

If head scratched with fingers hair not grow well; if face, become scarred; if body, hair grow in axillar and pubic regions. (In olden days women said to have no hair on these parts, but now since old customs abandoned, have much hair. [Probably hair pulled out formerly.]) If teeth touched or cold water drunk they would fall out. If salt, meat, fish eaten, sterility. If smiled, develop wrinkles prematurely. Cold water drunk, stop menstrual flow.

On 1st day girl bathed early in hot water. At same time people built outdoors a big fire in trench 6 in. deep, to heat ground. After burning all day scraped ashes away, made fresh arrowweed bed on hot ground. In evening girl lay on it, face down, naked, but covered with willow-bark blanket. (Some people still do this, but have girl clothed.) While girl lying face down, slender female relative stepped on her back, and limbs until bones cracked; to give her good posture. Done for 5 or 10 minutes. Then girl went back to bed in house; put on new 2-piece dress of shredded willow bark.

Left much alone; staid indoors or outdoors in daytime. Father kept people away who might tease her. If poked fun she might laugh and talk; result licentious. No one ate her left-over food, for fear of her, but dogs might eat. Affair primarily family one. No songs.

4 mornings girl bathed and evenings lay in heated trench to make tall and slender.

Very early 5th morning girl ran distance to water and bathed. Running to give strength and wind, so not lazy when grown up. Also gave ambition. When arrived home must be dry. Ate thereafter. Then plucked arrowweed root which pulverized with clay. Her head covered with mixture, hair fluffed up at time "to make it grow well." When hair wet, girl pulled it up to make noise on her skull; made hair grow long. Over head dressing was placed piece of willow-bark cloth. It and her body powdered with red pigment. Hair washed next morning (24 hrs. later) and 2nd dressing put on, for 24 hours. 2 succeeding mornings hair dressed with mud, completing 8 days of restrictions and treatment.

Girl's hair not cut at 1st menstruation.

Another observance of magical import. Girl's mother or other female relative took 4 lice from girl's head, placed in cane tube, 2 or 3 in. long, tightly corked with willow bark. Mother walked to river, cast it in where current swift, to insure girl against lousiness. No corresponding observance for boys at nose piercing.

Chosip, clean, described woman after 8-day observances. Same term applied to scalp-handler after similar 8-day period. Term used also for 5th day, which was usually day after menstruation. Each month sexual intercourse of husband and wife resumed four days after menses; best time for conception. If man held congress with menstruating woman, lost manhood.

Girl might not have sexual intercourse before 4th menstruations, lest become sterile. Thought better not to have intercourse before marriage. In subsequent menstruations girl ate separately, must not go near sick or dying, must not eat fish. Eating fish made sterile.

Boys' puberty ceremony.—Men not tattooed, but nasal septum pierced, called yamas. Took place when number of boys, regardless of gens, attained to about 15 (14–17) years age. Season summer, so water not too cold for boys to swim. Thereafter each boy (mechuweL) termed young man (kwe'yumik). Every male had to undergo operation when reached proper age. No new name given. Thereafter each boy's hair allowed to grow long, trimmed only at forehead. Boys' fathers invited friends to attend. Feasts and dances for 3 days and 2 nights under large specially constructed shade called yamas. On afternoon of 3rd day each boy's nasal septum pierced with sharp screw-bean stick or mesquite thorn. Man who performed operation not shaman. If nasal septum not pierced man's soul after death kicked by beetle, and not allowed to enter land of departed (Inbawhela).

Cycles of songs sung, dancing, supposed to have been given Cocopa beginning of world:

1) ilysha ka'pai (short), series sung by person experienced with jimsonweed. Accompanying dancers in 3 rows, front men and women mixed; middle chief singer and assistant male singers; back men only. 3 rows walked forward simultaneously about 15 yards, backward to original places. Another song of series sung and marching repeated; so on many times. All performed on first day of yamas ceremony.

2) choman akolsya (long). 4 men in front row, 7 in rear row constituted dancers. Their hair whitened with lime, faces blackened, bodies reddened. Individual variations of pattern, some put lime on bodies too. Feathers on head. Dancers did not represent animals. Painted for attractiveness.

3) choman hachochat. At least 6 songs. Row of 5 women and behind them row of 4 men did singing. Not much dancing. Six songs sung on one side of shade. Marched to other side, sang, marched back to original position.

4) echa akolsya (long). In dancing for songs row of 3 women, behind them row of 3 men, still farther back another row of 3 men. Painted in various fashions, no standard pattern. Rows faced E. Men and women sang under direction of head singer, echa ayau (singer) who marched in front of 3 rows. As performers marched stamped feet.

Preliminary to nose piercing boys placed belly down in heated trench, trampled on to make straight and tall. Diet taboos and scratching stick mandatory.

Prior to nose piercing boy refrained from sexual intercourse.

Ceremony planned by fathers of eligible boys, usually 5 or 6. Chief or headman had no official part. Fathers and other relatives on mothers' and fathers' sides built shade and supplied food for visitors. Apportioning of food in charge of man called köwis. He received no pay or extra food. Food apportioned third afternoon, after nose piercing; uncooked and carried away by recipients; consisted of maize, cowpeas, pumpkins, other agricultural products, ranged in separate piles or containers at ceremonial place. Cowpeas in huge coiled willow basket (see pl. 35). Everyone who danced received share. No dancing after nose piercing.

In order of age, youngest to oldest, novices knelt in row facing E., buttocks on heels, toes against ground, heads slightly back, a convenient position for operator (yihoaucas), who called from place to place for purpose. He acquired post neither by dreaming nor appointment, but by virtue of experience. Selected by people for calmness, absence of fear, efficiency. Need not necessarily have taken jimsonweed before career as operator. Position not hereditary, though son might succeed.

Operator thrust perforator with steady pressure straight through nasal septum, without twisting or turning it. Once started must not desist until completed.

While boring, another man called continually, rapidly patting mouth with hand. Call like his name, o ak. In each hole operator put arrowweed plug $\frac{3}{4}$ in. long. Boys stood, ran around shade 4 times to right, then N. into bush. Assembled people started home with food gifts. Man who had taken leading part in construction of shade remained to receive boys in evening.

Boys ran mile or two, producing profuse perspiration. Then swam. After swim remained quietly in bush in charge of young man called bapmashe, selected by boys' fathers. This man made willow-bark string. To each boy's wrist fastened piece with 6-inch scratching stick attached. If boy lost stick all threw theirs away, custodian made new string and sticks. Taboo to scratch with fingers.

In evening (1st day) boys returned to shade. Before entering ran around it to right 4 times, entered from E. Immediately lay down to sleep without speaking. Before sunrise custodian awakened them; ran N. 4 or 5 miles, swam in slough. Returned to shade by noon. Custodian bound their hair on top of heads with willow-bark fabric. Fed them maize-meal mush. Meat, fish, fat, tobacco, salt prohibited. After eating custodian took down their hair. Again they ran N., spent afternoon in bush.

In evening (2nd day) boys returned to shade, encircled it 4 times, entered from E., oldest boy leading single file. Next morning ran E., swam, returned at noon for single meal of day, ran E. again in afternoon, returned to shade in evening. Next 2 days performance repeated, S. and W.

On day of running S. mother of one novice pulverized arrowweed root with mud; in evening wiped mixture over head, body, limbs of each boy. Following morning washed off with hot water. Each boy's face, hair, body, limbs, when dry, painted with white mineral pigment. Woman who did this called hamwal. Then boys ran toward W., as mentioned above, swam, washing off white pigment. Returned to shade by noon, threw away scratching sticks, ate whatever liked, went home.

Throughout, man who was prime mover in building shade, so-called "owner," stayed near it, but did not enter. Shade allowed to fall into ruin. For next batch of boys new one built. (Yuma had similar ceremony for boys from 10 to 16 years of age. No dancing. Nasal septum pierced, string inserted; this pulled back and forth while bathing, to enlarge hole. After 4 days string replaced by stick.)

Next day each boy removed stick from nose which had healed. A little string of beads might be worn in nose, hanging down over lip. In later years C-shaped "ring" of white shell or stone worn, 2 ends of "ring" pierced and connected by string passed through septum, so ornament hung pendent.

Last girls' and boys' puberty observances simultaneously in 1914. After ceremony boys could marry, so it appears as induction into manhood, as girls' ceremonies induction into womanhood.

Personal names.—Personal names of women kept through life. In addition all women of a gens had single gens name, which in old age replaced by one bearing prefix meaning "old woman." (Gifford, 1918, 164.)

Personal names of males not changed at puberty, but in adult life sometimes, involving 4-day feast to relatives and friends. About 1923 6 or 7 men on reservation changed names, shared costs of 4-day feast.

Suwi (Clam), Sapa, men's names. Others published (Gifford, 1918, 166).

Marriage and divorce.—Marriage without parental arrangement preceded by presentation of gifts and work by man to woman. Suitor made little presents over considerable period, usually fish, wild "potatoes" (*chek), ducks, geese; shell beads (apuk) from Walapai country. Courtship of this sort regarded as true love match. Premarital intercourse permissible if marriage followed.

More frequently marriage a contract between parents of young people. Sometimes bridegroom several years the older. He fancied little girl of 10 years and informed his parents. They began making presents to her parents: food, horses, etc. Continued until she was marriageable age, 16 or 17. Her parents did not reciprocate presents. Parents of young couple set time for marriage. Girl must obey her parents in matter of marriage. No ceremony. Young man went to girl's house at appointed time, slept with her. Brought no presents. (An instance of Cocopa humor appeared when I asked if bridegroom took presents when he went to consummate marriage. Informant laughed and said: "I guess you know what he brings.") In such marriage wishes of girl not consulted.

Bridegroom stayed at girl's parents' house first year, helped in house building, planting, etc. After work for father-in-law, did own. Later, took wife to live at his father's house, helping him. When wife bore children, established own residence; only own work thereafter.

After first wife bore children man could take 2nd. If 1st wife sterile, might be discarded. Childless wife who was "good" to husband kept. Wife who had borne children but nagged, discarded or allowed to run away. Children might be left with husband; sometimes woman eloped, especially if husband lazy and cranky. Sometimes man deserted wife and children.

Apparently marriage to sisters simultaneously not practiced. Man sometimes gave up wife to marry her sister. His brother might espouse discarded wife.

Levirate in restricted form; only if (1) surviving brother unmarried, (2) widow had children by dead brother. In such case, surviving brother might say to widow: "Since you have children by my brother, it would not be right for you to marry someone else. I will care for the children and marry you."

Surviving married brother helped care for dead brother's children, even though custom forbade him marrying their mother.

No compounding for adultery. Killing likely procedure of injured husband, unless adulterer his brother. Then would say, "Let it go," but would leave erring wife.

Erring wife and paramour might be killed by injured husband in *delicto*. Relatives of slain man might avenge. In such case husband and relatives fought with bows against relatives of slain man. If contest opposed by public opinion, men rode horseback between warring parties. If husband or one of relatives slain, some specially esteemed man, "a truth speaker," made peace between 2 families, saying: "It is all right now. You are even." No one took feudists to task for fighting.

Married man's prerogative to have relations with other women (usually widow or unmarried woman). If wife lost temper might fight paramour, to amusement of populace. Women did not kill, but pulled hair, wrestled, pummelled, especially if one down. When separated by men, they renewed scrimmage. Determined wife attacked husband's paramour repeatedly if husband persisted.

Some men 2 wives, but different houses, lest quarrel. Second wife called "wife," but no designation for "paramour."

Sterility divorce cause after 4 or 5 years. Each blamed other. Children frequently prevented divorce of quarrelsome pair.

Presents by husband's parents to wife's parents never requested returned in divorce.

2nd marriage might follow on day of divorce.

Sometimes children deserted by parents following divorce, fostered by relatives; sometimes returned to parents, boys to father, girls to mother. Such return evoked gossip that remarkable children should return to unnatural parents.

Transvestites.—Male transvestite (eLha) showed character from babyhood. As child talked like girl, sought company of girls and women. Did not learn to make and use bow or ride horseback. Did things in woman's style, ground maize like woman.

Genitals of male transvestite like ordinary man's. Informants had not heard of male transvestite having intercourse with men or women. Male transvestites not tattooed or nose-pierced. No special functions; apparently disliked.

Female transvestites (war'hameh). Male proclivities indicated by desire to play with boys, make bows and arrows, hunt birds and rabbits. Young man might love such girl, but she cared nothing for him; wished only to become man. Hair dressed like man's, nose pierced. Such females not menstruate or develop large breasts. Like men in muscular build, but external sexual organs of women. Attempted sexual intercourse with women, married, established households like men. Fought in battle like men.

Funerals.—Relatives burned dead's personal belongings and house, so that take things with him and not return for property. If return, living person die. Even saddle horse killed. Good blankets, shell beads put on blindfolded horse; clubbed over head, maize and gifts scattered over body; burned. Dogs not killed. House burning, wasluma².

Name taboo in effect at death. Mourners called deceased by term of relationship. When smoke of pyre rose term "father" or "mother" called for last time. Thereafter, anyone mentioning "your father," "your mother," bereaved struck with stick, or called name of speaker's deceased relative. Then fight, hair pulling, punching. Occurrences rare. Alleged motive for name taboo: relatives of deceased not want reminder, because his assistance and much property lost, latter through burning and presentation to other people. No mention made of calling ghost or mental anguish.

Each member of family maintained purity 4 days, so not remember their loss. If broke this taboo would see dead and sicken.

Cremation (pamaL) only disposal of dead. Took place within 24 hours at any hour.

On afternoon of December 7, 1921, wife of shaman Stump Barley died. Early next morning burned body. On 9th burned house. Wailing began at death. Corpse handled by undertaker, not related. He spread news, directed men to get logs for pyre.

On December 30, 1926, cremation of George Reese, murdered shaman, accused of being "witch doctor." (See Appendix B.)

Woman died before dawn December 26, 1928, at foot of 8th street, Yuma. Funeral pyre prepared that day, corpse burned about 3 A.M., December 27. Burning deferred till sister arrived. No beans or maize scattered around corpse, because none available. Funeral pyre prepared by Kamia (Charles Beans) who acted for all Indians (Kamia, Cocopa, Yuma) living at foot of 8th street. Grandchildren of deceased vociferous in mourning. While corpse lay under shade, funeral orations by Charles Beans (Gifford, 1931, 57), Sam Barley (Cocopa funeral orator), Beans again, Joe Mann (Cocopa headman).

In pyre body with head to E., face to N., left arm over big center log, 3 logs under body. No pit for ashes. Two poles of green mesquite on each side served as walls, thus box formed. After body laid in, clothing and belongings put over body, 15 to 20 poles on top, dried arrowweed around. Old man did burning, young man might get sick. Man not a relative.

At pyre, before torch applied, funeral orator (elyanyus chumuwap) stood, uttered short oration, spoke of place soul of deceased going: better than this earth, plenty to eat, people had good time continually. Did not mention deceased by name.

Next morning hole dug 3 ft. deep, ashes put in without offerings, covered with earth. Members of family bathed over it 4 mornings (see later), so water would harden earth, and prevent coyotes or dogs digging. Then smudged selves with smoke from green arrowweed to remove all thought of deceased from minds. If thought too much of deceased would become ill.

If relative dreamed about deceased, family repeated smudging, adding human, coyote, or horse dung to fire, to frighten ghost away. Footprints of deceased obliterated. Abstention from meat, fish, salt. Tobacco not taboo.

Near relatives cut hair with stone knives, old people very short, young people shoulder length. Cutting by another person, on cremation day. Cut once and allowed to grow until another close relative died. Sometimes crying continued 10 days; 4 mandatory. For 2 or 3 months mourners unkempt. After that widowed person might marry.

After 4 days housemates of deceased moved away. If deceased without relatives, closest friends observed 4 days of mourning as though relatives, lest deceased tell in dream of superior life in land of dead, and dreamer die.

Funeral orator attained position by dreaming. Old man, Mike Barley, held position among Cocopa at Somerton. (Joe Homer was Yuma funeral orator, Charles Beans, Kamia one.) When orator died another had qualifying dream for position. Such person had learned speeches of older orator.

Suspension of animation regarded as death, reviving as coming to life. Man treated by shaman for sores under chin. When obvious could not save shaman left him; in 2 or 3 days "died." Immediately body prepared for pyre; laid on 6 willow sticks, each 18 in. long, spaced at suitable intervals, body laced to these with 1-inch cowpea-fiber rope and wrapped with willow-bark and rabbitskin blankets. 3 hours after "death" man cut wrappings down middle, sat up, talked. Week later sores gone; lived many years.

Mourning ceremony.—Mourning ceremony (karuk) not periodic. Lasted 6 days. If person dreamed of dead relative, or if sorrow poignant and weeping continued 5 or 6 months, family accumulated clothes, food, for ceremony. If in month or 2 edge of sorrow worn off, no ceremony.

Ceremony initiated by bereaved relatives and other families which recently lost relatives. Men and women conferred, assembled supplies of food and clothing, selected as manager (karuki paaua or shapai [person] karuk) good speaker, not necessarily related to mourners. Manager conducted 4 ceremonies only in life time. Sometimes son succeeded.

Assistants of manager: orator (kLnaus) who might be funeral orator; shaman (kusiya); man (wakasai) who knew measures, laid frame, and erected house; 5 singers (shauksayau).

Karuk never twice for 1 deceased person; formerly for men of repute, especially warriors, orators. Not held for woman or shaman unless latter noted for cures and died in good repute. Now ceremony for anyone. One in December, 1927.

Old man could not make ceremony because of work and expense of assembling food, clothing, horses for gifts to visitors and sacrifice to dead. Persons who could rapidly accumulate supplies undertook ceremony.

Singing and wailing 6 days. In opening speech orator spoke of poverty and great effort to assemble food and clothing. Clothes burned for dead; clothes and food given visitors. Uncooked beans and maize carried home by them. Givers left destitute. Ceremony usually in winter; Yuma in summer.

During karuk chief mourners ate only maize, beans, pumpkins, watermelons. Fish, meat, salt taboo. In crying did not name deceased. Sometimes "mt." Cocopa danced at karuk. River Cocopa did not.

Visitors joined crying and mourning, thinking of own dead; did not make offerings. Came to aid givers of karuk and to "enjoy" it with them. Were entitled to food gifts.

Peon and stick dice games day and night, at fire between fences before karuk shade (fig. 8). Old women usually preferred dolorous proceedings in shade. Gamblers spent some time wailing within shade. Field sports: foot races, horse races, shinny games, ring and pole games.

Manager set day to build karuk shade; men of neighborhood assembled in evening; spent night there; at early dawn work began. One man charged with getting and assembling poles at certain place in brush. Others fetched them. Shade constructed that day.

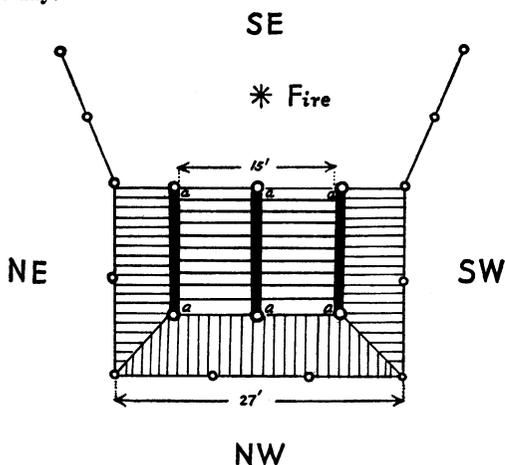


Fig. 8. Shade and fence for mourning ceremony; viewed from above.

Karuk shade (fig. 8) 7 ft. high inside, thatched with arrowweed. Three rows of horizontal sticks connected posts forming outer walls; tied in place with willow withes, one row at bottom, one in middle, one near top. Arrowweed bound on vertically on lower part first, then on upper part. Entire structure (wakakaruk) represented man: 6 pillars *a* legs (yeme); top of central front pillar *a* head (makur); central stringer running between 2 center posts *a* backbone (nyachush); 2 side stringers running between 2 pairs of side post *a* ribs (nyashachul).

Six pillars *a* painted to represent faces of dead. Pillars not named for dead, but said to belong to certain families.

Karuk shade always open to SE., direction of land of departed (Inbawhela).

By noon structure completed. Mourners brought cooked cowpeas, pumpkins, etc. into shade. Believed spirits (loxachak) of departed came and partook. If no feast spirits might cause someone's death. Tobacco smoked at this noonday meal; spirits thought to participate. New clothing, later burned for dead, brought into house on sticks. After few minutes removed. Mourners rested until evening.

After this noon meal givers of ceremony announced through manager or orator "cry for the dead," not that night, as all must sleep. Nevertheless, families giving ceremony stayed up and mourned. At daybreak ceased, rested till evening. Close relatives of dead did not play games. They fasted throughout 6-day ceremony, bathed each morning.

All Cocopa within reach invited. Those without recently dead relatives given uncooked food to take home.

Manager sent messenger early in evening of 1st day to announce "cry" following night. Messenger wailed continually. People at 1st house cried soon as heard him. After a bit ceased and messenger said to them: "You'll have to sleep tonight. In the morning you will prepare your things and come to the ceremony." Without entering house wailing messenger passed to other habitations, repeating performance.

Next morning people began assembling, straggled in all day. Those far away walked much of night. Some old people wept as traveled. In evening old people assembled under shade and cried, while others gambled by fire. Mourning and gambling much of night. Next morning horse racing, foot racing, gambling, latter throughout day. That night manager told gamblers to cease at midnight, so hosts might sleep. Each night crying, gambling, sleeping, except rest on 5th night preparatory to climax of 6th night.

While people mourned, singers sang. Orator harangued people once or twice each night, admonishing to mourn, not to eat meat. Manager stayed in center of shade to direct. Shaman treated all sickness in shade. Spirits of dead present; people saw them, became sick. Official shaman wore hawk feathers, was ghost doctor. He blew smoke, made noise, shook sick person.

People who resembled dead dressed in new clothing each night to impersonate dead. They danced clockwise around fire, men and women joining hands. Singer led dancers, while mourners wailed more vociferously.

During the ceremony 4 or 5 sets of 2 or 3 feathers hung in center of shade; men who impersonated dead wore these feathers, then replaced. Very dangerous; people got sick if wore them, except on this occasion and after fasting and continence.

Mourners thought continually of dead, "so that the dead would know it." Spirit of deceased came to structure, might appear in dream to living relative, demand clothes, horses, etc., brought to ceremony; might threaten: "If you do not obey you will have to go to Inbawhela with me." Dreamer obeyed.

Wants of dead supplied by relatively small sacrifice of food, clothing, horses, which in spirit world increased. Poor horse after sacrifice and burning became race horse in Inbawhela. Horse decorated with shell beads, painted white in spots with "lime" if dark horse, blindfolded, clubbed to death. Sacrifice by male relative of deceased, usually dreamer.

Although Inbawhela far away, spirits there saw everything. 4 steps took spirit to edge of world. Consequently, requests of departed heeded, lest spirit angered and took soul of living. Person sick from this cause sought aid of shaman.

Offended spirit might come to mourner in karuk shade and lead soul away, saying: "I have a good country for you." Then mourner fell "dead." Shaman blew tobacco smoke toward SE. Spirits in Inbawhela saw this, feared lightning, and ghostly kidnapper might leave abducted soul by roadside. Victim's soul returned, reanimated body. *Loxachak paya*, soul taking, term for such fainting spells.

On 6th day people mourned in shade till noon. Men and women painted faces red, black; white clay on hair. In afternoon, procession led by speaker, then people who impersonated dead, then mourners, to end of field and back again, 2 or 3 men carrying bows and arrows. Done 4 times in way people approach enemy (cf. sham battle, Yuma, Forde, 236). Clothing and money thrown to visitors looking on. 2 men mounted on horses belonging to families of dead, and decorated for sacrifice. Nowadays, men jump off horses, visitors jump on, a custom replacing sacrifice.

On 6th night, people sang around fire and mourned until midnight or later. Manager conducting ceremony for 1st time burned house at midnight, 2nd time little after midnight, 3rd time just before dawn, 4th time at dawn. Ignited in several places. No dancing or wailing while burned. People stood around.

Beans and maize had been sprinkled on ground within karuk structure. Essence or spirit of these and of shade went to Karukhap, spiritual abode in cavern S. of Yishapkal in mts. of Lower California. There offerings assumed large proportions, no matter how small. What orator said went to Karukhap forever. When person dreamed of Karukhap sign would soon learn something new; might hear voice directing him how to speak at karuk ceremony.

Simultaneously burned in middle of field in hole 3 ft. deep, with dry arrowweed kindling, clothing, money, bows, arrows, ornaments. Eagle feathers not burned (Yuma throw into river) until used at 4 mourning ceremonies. When all consumed, hole covered with earth, so no signs. Smoke from burning offerings rose high, containing spirits of offerings, which wafted SE. to Inbawhela. There spirits divided new possessions.

The karuk manager built little house where N. post of shade had been, lay there to sleep, half burnt post for pillow. Remained there to dream 4 nights. Saw in dreams that dead relatives had received offerings. Any man who wished success as orator, shaman, or gambler slept 4 nights in ashes of center post. Each morning he bathed. He remained continent and fasted from meat, salt, fish, for the period, but he might smoke. Although women might start karuk ceremony, none slept in ashes.

Akwa'ala attended Cocopa mourning ceremonies; brought bag of tobacco big as one's head; given to relative of deceased who was prime mover in giving ceremony.

Headmen.—Shapai axany', "person good," headman or chief, knew more than anyone else.

Helped people, told what likely to happen. Some people might intend to steal, or kill, or abduct a wife; he warned about this. In morning, about once a month, headman lectured people not to do wrong. He foretold what month river high. Knew when to expect rain and cold; warned that time to build houses lest children catch cold. Sometimes when hot, said: "We've got to have a shade big enough for the families to stay in." Never tired of telling people about things.

Only a few headmen. Each dreamed of bird or mammal or person who made him lucky. Did not tell others about dreams; kindly to every one. Therefore people made him chief or headman.

Another man might tell people about his dream, pretending to know more than headman, but not believed, called liar. When headman very old, his oldest son took office.

If person disobeyed headman, relatives of wrongdoer stood by him. Others separated them, lest fighting. No police, jails, or judges. All people assembled at night to talk things over. That was how decided to war. Headman did not lead in war.

In 1927 Frank Tehana headman for reservation Cocopa, Joe Mann for those off reservation in Arizona and Sonora. Presumably 3rd headman for Cocopa near Cocopah mts.

Formerly each settlement had headman. Nothing learned of supreme chief of Cocopa, though Hardy (p. 343) mentions capitán grande. Although Cocopa felt selves one people, no supreme chief, except possibly from time to time, as impending crisis brought greater cohesion.

War leader.—War leader called *kwinemi* (great warrior). To become one must have proper dreams. Office not hereditary: usually man who lost relatives at hands of enemy and anxious "to die" in avenging. Satisfactory dream omens spurred him. Such leader in charge of war arrangements. Selected for prowess and dreams by all people, including women. At general meeting to talk war, called by prospective war leader, people usually won by his oratory decide to have him for war leader. Old war leader, if living, had no authority to appoint. Even if war leader lost half men in battle, continued to lead; might continue until incapacitated, when new leader arose. In battle indistinguishable from warriors: paint, feathers, weapons same.

At dance of incitement war leader boasted what party would do.

Warfare.—Cocopa interested in war. Allies of Maricopa and Pima of central Arizona against hereditary enemies, Yuma and Mohave. Cocopa fought Yuma in own territory, aided Maricopa if attacked by Mohave and Yuma.

Americans at Fort Yuma stopped chronic warfare between Yuma and Cocopa. Cocopa held meeting, decided to cease and return Yuma captives. Now 2 tribes friendly.

1828, raid by Yuma in which Akwa'ala chief sufferers (Hardy, 354). Some days later, Yuma girl offered for sale to Hardy (p. 379).

No warrior carried all types weapons. Groups designated as "bow carriers," "shield carriers," "lance carriers." Archers called *yichim bakais*; *bakais*, "to hold in the hand"; carried also straight hardwood club (*yimpaukam*) to use when arrows exhausted or bow broken. Warriors armed with short heavy-headed club and shield were called *sichkaub shyawhai bakais*. Certain great warriors, who carried only double pointed feathered lance (see pl. 39) were called *wakwil bakais*.

Against enemy, shield bearers went first, then lance carriers, lastly archers. Mounted warriors might precede others; they carried bows and arrows. Much shouting entering battle. Battle, *mechkuwe*.

Warriors painted faces all red, all black, half red and half black, etc. In *ekwel yiyamtukwam*, nose painted dark red, chin bright red. Only best fighters painted faces black all over, *wiyis omaL*. They wore in hair many crow, owl, white heron feathers.

Paint on warrior helped him fight. Any horses used also painted. Dark horses painted white; or light-colored horses painted black. Shield bearers and archers often wore black paint on face, red paint on hair, black paint on chest and abdomen; white, red, or black on legs. Paint on body and limbs often printed with outspread hand. If long journey to enemy's country, paint when fighting imminent.

In battle warrior wore long hair tied up on back of neck and head.

Sometimes Maricopa warriors came to discuss war against Yuma. Perhaps more frequently Cocopa visited Maricopa. 14 or 15 warriors undertook pedestrian journey to Maricopa. No women went. Maricopa women no voice in conference. Cocopa warriors armed against Yuma or Yavapai attack.

One conference settled details of campaign. Cocopa and Maricopa smoked, not ceremonially. (Smoking on most occasions Cocopa characteristic.)

Did not dance, because sad over relatives killed by Yuma. Instead, cried and wailed over losses. Month later set for attack on Yuma.

On return home Cocopa leaders told people of plans. Made supply of bows, arrows, clubs, shields. Old people in particular worked at these. Dancing and celebrating for incitement, also because some might die in fighting and this last opportunity for festivities. Young men did most dancing, both those going to war

and staying home. Old men made sandals for warriors to wear on desert. Women ground maize to take. Gourd canteens prepared for water.

Everything ready in ample time. Warrior's wife or grown sister might go. Usually 4 or 5 women went with war party, but no children.

4 days preceding departure warriors abstained from sexual intercourse, meat, fish, salt. Breaking prohibitions might mean death in battle. Smoking permitted until enemy's vicinity; feared enemy might smell.

Sometimes Cocopa attacked Yuma from S., Maricopa at same time from E. On morning of fight Cocopa warriors painted selves red, white, black, using hands. Perhaps 20 warriors mounted on painted horses. Feathers in radiating bunches at back of each warrior's head.

Great warriors on campaign forgot home, thought only of battle and whom they would kill. Without this attitude might be killed.

On march single file. 4 scouts (*michpuak*), selected by war leader, mile ahead. When column camped scouts reconnoitered up to 15 miles. Scouts in single file, well separated, lest all ambushed at once. If leader met enemy he shouted, so hindmost man at least return to troops. *Michpuak* also means sentinel where people sleeping.

Although open battles fought, preferred to surprise Yuma and kill while sleeping or demoralized. 3 or 4 girls and boys carried prisoner to Cocopa country; perhaps horses also taken. In march home warrior who slew most or accounted greatest at rear; lesser warrior, who killed no one, led.

Vindictive warriors destroyed property. Houses, granaries burned but field crops not molested except incidental trampling. Stored food not carried away.

Among Yuma killed perhaps 1 great warrior. His scalp and perhaps 1 or 2 others taken, 4 songs sung and danced by victors before start home. Warriors who slew none home first; those who killed but took no scalps arrived 2nd day; scalpers arrived 3rd day. Latter afraid of souls whose scalps carried.

Greatest warrior announced by lesser upon arrival home. Immediately every man and woman ran to his house and took his property. By eating his food acquire equal prowess, immunity from death. Lesser warriors participated.

When scalps brought everyone happy, especially if scalp of Yuma war leader, responsible for death of many Cocopa. Such a man very long haired. Woman, whose relatives he killed and who continually wished his death, addressed scalp: "You killed my relatives; now I am happy to have your scalp." Then she stripped, took scalp, danced with it on stick, waved up and down. 4 songs for 4 sections of dance (*shyahai yumat*). *Shyahai* name of song; *yumat* "dance"; woman *ekshyahai*. Other women and men danced, not naked. When concluded woman dressed.

Shyahai dance 4 consecutive days under large shade. 2 rows face to face, 1 men, 1 women. In middle of women line naked scalp carrier. In middle of men line chief singer. Only dancers sang, referring to slaying of relatives by dead Yuma warrior, rejoicing his death. Lines of dancers extended N.-S., women face E., men W. Women began dancing backward, men facing and following. 2 lines keeping 4 ft. apart. Then men danced backward, women followed, so on alternately. Step slow, short, arms hanging straight at sides except scalp woman's.

Naked woman not painted, other dancers profusely painted with horizontal stripes, applied for several days in anticipation.

Each day scalp dance in morning, then in evening till midnight. (Pattie mentions scalp dance over *Umeas* [Yuma] scalps, Pattie, 199.)

Scalp comprised entire hairy skin of head, and ears. Ordinary slain not scalped; only noted warriors or individuals with especially long hair.

Scalp treated with dry earth to absorb blood and juices; after half hour shaken off. Scalp taken to slayer's home, thoroughly washed, hair and all, with warm water. Inner surface rubbed with cooked oily pumpkin seeds to soften. This treatment 4 successive days.

Not in use scalp kept by official keeper (*yiwakwayau*). If 2nd scalp, 2nd keeper. Scalp keeper ate no meat, fish, salt, did not smoke; taboos also for scalping warrior. Early morning and just before sundown bathed; bodies dried; ate maize-meal mush. If broke taboo no power (*sumasmuha'*), cease to be great warrior. Taboos not apply to scalp woman.

After 4 days scalp dance, slayer and keeper tabooed another 4 days; thereafter clean (*chosip*). Washed scalp, plastered with mud and pulverized arrowweed root on 2 days; treated next 2 days with boiled mesquite bark and mud to darken it. Scalp placed in pottery olla; in bottom shell beads, maize, cowpeas. If these not placed with scalp hair rot off and unfit for further use. Slain man's soul in olla with his scalp.

Olla plugged with round cap of mud and straw, sealed tightly with additional mud. Small hut for olla near keeper's house. Erected over 2-foot pit, square with 4 corner posts connected by stringers, on top poles and arrowweed; sides of arrowweed. Door on E.; over structure cone of willow poles fastened, earth heaped. No ingress without clearing this barricade. Hut 5 ft. high measured from bottom of 2-foot pit. Outside dimensions about 10 x 12 ft.

First occasion scalp taken from hut was month after taken from owner's head. Same woman danced with it. Slayer and keeper not tabooed.

Meantime Yuma cremated their dead and thought of revenge. If Yuma raided, Cocopa cremated their dead. Absence of one's scalp did not debar from spirit world *Inbawhela*.

Cocopa who killed enemies observed continence and food taboos, bathed 4 consecutive mornings. Ceremonial bathing *mecha'oih*, ordinary bathing *ha'sunup*. If breach of taboo or failure to wash off blood and dirt, would go crazy. For merely wounding enemy no purification. Cocopa women who slew wounded enemies not purified. Weapons brought home from campaign not purified. Merely put away.

After warrior killed enemy, might tell companion who killed none to count as his. Warrior thus credited observed taboos, actual killer did not. When warrior killed Yuma, actually or by proxy, he sent message to wife to give away food. Horses not given.

Yuma war party went S. on Lower California side of river, killing and capturing. In latitude of Colonia Lerdo swam river to Sonora side, started N., at evening camped. From Lower California side observed by great Cocopa warriors. Yuma man shouted: "We are taking your women and children away with us." Another Yuma remonstrated with boaster, saying: "Why did you talk that way to him. He is a great warrior. Our home is yet far off and they may pursue us."

That evening Cocopa to whom Yuma shouted assembled people, swam river, hid in brush near Yuma camp. Yuma danced over scalp until midnight, then slept, either without sentinel or else he slain by Cocopa. Cocopa slew sleeping Yuma, rescued own women and children. Place midway between San Luis and Colonia Lerdo, Mexicans call *Noche Buena*. Cocopa named it *Pakuhap*, "to overtake."

9 years before memorable defeat of Yuma and Mohave by Maricopa in 1857, or 1858, Maricopa and Cocopa had rendezvous to attack Yuma. Maricopa, to achieve great glory attacked 6 days in advance of appointment. Fell upon Yuma at Mead-

ows, near Laguna dam. Yuma killed all but one. This action made difficulty for Cocopa against Yuma 6 days later.

Cocopa probably encouraged to attack without Maricopa because month earlier raided Yuma settlement 6 miles downstream from Yuma on Arizona side, took scalp of great warrior, boy and girl prisoners, who adopted by childless Cocopa couples. Lost very few men themselves. Found but few people in camp. 2 women taken, showed road to main Yuma encampment. Later killed to avenge drowning and burning alive of aged Cocopa.

Over 100 Cocopa including women started from Colonia Lerdo, mostly residents of that vicinity. With Cocopa some Kohuana, Halyikwamai, about 10 Akwa'ala. Party went upstream on Sonora side for 2 days. N. of cliffs at Yuma, swam to California side just before dawn, at Hakwiho' (dry channel). Bows and food bound on heads with hair. Logs to aid in crossing, 3 or 4 men swimming with one.

Yuma settlement attacked, at Sakwiye, a little hill 2 miles upstream from Fort Yuma Indian school. Cocopa sent 2 scouts to locate Yuma houses. Scouts seen by Yuma lookouts, who aroused sleeping people. All Cocopa crossed river before Yuma could prevent.

Cocopa burned Yuma houses, but in battle lost half, including 2 women. Only 6 or 7 Yuma killed, as women and children hid in brush. Cocopa took no prisoners. Yuma drove remnant into river. Cocopa dead left to vultures; never received cremation necessary for entering Inbawhela.

Yuma followed Sakwiye victory by raiding Cocopa. Went S. along Cocopah mts. Seen by lookouts, warning issued by Cocopa headman who assembled all at wide, flat, clear area above junction of Hardy and Colorado rivers. There could see long distance. Some Akwa'ala with Cocopa. Poles set up, at distance looked like people (cf. Hardy, p. 361). Yuma withdrew into bush on W. side Hardy r., because supposed size Cocopa force.

Cocopa thought bare land bad place to fight; swam Colorado to Hasasain, Sonora, moved N. to Soxam (La Bolsa), 5 or 6 miles S. of Colonia Lerdo. Yuma swam Hardy r., after dark swam Colorado. Battle in dark; bows first, then clubs. Many killed. Yuma forced back, so Cocopa women clubbed wounded. Yuma had shotgun, ineffective; Cocopa no firearms.

Yuma retreated up Sonora side of Colorado, hiding in bush. Next morning Cocopa massacred sleeping Yuma, many already injured. No sentinel or he was overpowered. One wounded Yuma, sleeping apart, awakened by coyote, escaped. So badly wounded could not travel for 6 days; maggots in wounds. When better, less danger of discovery, he started home. Knowledge of escape reached Cocopa some years later when Yuma freed captive Cocopa with establishment of peace.

After massacre of Yuma, Cocopa returned to camp badly battered. Woman with girl assistant cured arrow wounds. All wounded recovered.

Captives.—Cocopa took Yuma women and children prisoners. In later times children traded to Mexicans for horses. In earlier times child captives adopted by childless couples. Men not taken captive, but killed.

Kwabayau, captive, nowadays translated as "slave." Captives ceremonially unclean, purified by washing. Warrior who brought captive children washed them upon arrival home; mandatory if adoption intended. Captive women never violated, because of ceremonial uncleanness and dire supernatural consequences of insanity to violator. Diet of people of camp where captives brought not affected.

Women prisoners well treated; washed or not, as they wished. After 4 or 5 days at captor's house, where not bound but watched, woman captive given to

aged man as wife, as insult to Yuma, who preferred daughters marry young men even though Cocopa. Yuma treated Cocopa women captives similarly.

Great warriors did not take women and children prisoners; lesser warriors, who perhaps had killed no one in battle, did. Sometimes small babies overlooked when raiding enemy camp. These recovered by kinsmen.

Women prisoners sometimes escaped; lot not so happy as children's. Escape at night; usually got half-night's start, not pursued, as another day of travel brought her to Yuma settlement, which likely to reach before overtaken. During day fugitive might hide in bush. Arrived at home, center of eager questioning as to treatment, habits, movements, and conversation of Cocopa.

Dreams.—Shamans' powers not derived from dreams of creator, but of various deities. These dreams discussed under Shamanism. Dreams (amuwop) also of importance for other activities: funeral orators, gamblers, pole and ring players, warriors, and others dreamed to attain success. Sometimes bad dreams brought failure for gamblers; for instance dreaming one's wife unfaithful or that woman evaded dreamer's advances. Success in games coupled with dreams of successful sexual relations.

Orator received in dream from patron spirit mockingbird (eshakuila; Yuma shekwela), heard at distance, most eloquent speech. Dream came but once. Thereafter orator continent, bathed, fasted from meat, fish, and salt 4 days. Mockingbird not caged (cf. Gifford, 1931, 48). Metabaiiahain denoted an able orator.

If warrior dreamed of water, no longer feared enemy; but dream of owl presaged death. Dreaming of owl by anyone presaged death in family.

Dreams caused by spirit (matkwisa or mitha'au) leaving body and experiencing events of dream. This spirit distinct from soul or ghost (loxachak) which left body at death.

Some persons dreamed of ample food and other necessities. Such dreamer bathed 4 mornings, abstained from all food except cornmeal mush, did not sleep with spouse, but might smoke.

To dream of mountain Karukhap presaged good health, success, shamanistic power.

Frank Tehana unable to remember most dreams at time I was with him; in youth no difficulty remembering. Dreamed of wealth which meant would be poor. Dreamed would always be free, flying up through air like bird. He said: "I had no wings or feathers, but still I seemed to be flying. I asked my parents what it meant. They said it meant that I would live long.

"From another dream I awakened with my body feeling heavy, like a stone. Sickness followed this and I became so weak I could not walk. 4 or 5 nights later I dreamed I was wrestling with a bear which I killed. This was a good omen and I soon recovered.

"In another dream the land, houses, people were destroyed by flood. Others had this dream. We learned later that it was a sign of impending sickness and death. Several of us lost relatives. Another time I dreamed of a flood which stopped about a half mile from my house. I had no sickness in my house, but others did. Still again I dreamed of a storm which stopped a mile or so away. I had no sickness, but others did.

"Formerly dreams of fighting presaged success or failure in war. Nowadays they foretell sickness.

"I dreamed that I was in a high place with a chasm 200 feet deep to cross. I nearly fell off and I wondered how I could cross. If I could cross, it would be a sign of good luck. I crossed it and went close to the deepest place. When I awoke

I was much frightened. Had I fallen into the chasm in my dream I should have sickened and died. By crossing it I should live and be lucky.

"I have had dreams of being dressed in ragged clothes while others around me were well dressed. I felt ashamed. This dream was a sign that I was going to be poor. If you have dreams like that you will be out of work and very poor.

"Only when a boy have I had dreams of micturating. I dreamed I was walking out and trying to micturate, but there were too many people looking at me. Then I played and micturated. When I awoke the bed was wet.

"To forget one's dreams indicates trouble impending. I forgot last night's dreams and I think that the impending trouble is the sick person now dying on the reservation.

"Sometimes I have no dreams for 2 or 3 nights. When trouble impends for friends or relatives I have dreams. Now and then the dream is a good one. Sometimes a bad dream covers up a good one; i.e., a good dream one night is followed by a bad dream the next night. Such a bad dream offsets the influence of the good one."

Asked for example of good dream, informant said: "I dreamed I nearly fell into the river. I seized a root and pulled myself out. This was a lucky dream because I escaped the danger. Had I drowned in my dream I should have sickened and died. Some old people interpreted this dream for me, saying it was a sign that I would live long and be healthy."

One morning Frank Tehana related his dream of previous night: "I left my home, went to Slim's (another Cocopa) house at the crossroads. Slim had invited all the Cocopa there, as he was arranging a feast and wanted them to help him plant his fields with corn. Each person got a digging stick and planted the seeds. I just stood there and looked at them. I just wondered what they were going to do. That is all I know of it."

Dream author had about deceased mother interpreted by shaman Suwi as death portent. He said her soul came.

Suwi said he dreaming lately (1927) that with dead relatives. Such dreams because getting old and would join departed before many years.

Elderly female informant dreamed: Superintendent of reservation came and talked (in Cocopa) of making land allotments to Cocopa who have none. Then dreamer said to her younger daughter, married to a Yuma: "Now I have land here and you do not need to cross the river to your husband's land to work. You can stay and work on my land." (Interpreter, a Yuma, volunteered interpretations of Yuma dreams: To go through a mud hole: forthcoming venereal disease; crowd of people at house: someone about to die, dreamer seeing funeral; flying: longevity, death only from old age; rattlesnake biting: dreamer would get stuck in foot; going through water: rheumatism; sick member of family well and dressed in his best: he would die; being cremated: longevity; intercourse with girl: sign of winning her; young rabbits and birds: children to be born in dreamer's family.)

Omens.—Ominous dreams discussed. Lunar eclipse (heela^habasa) sign enemies soon kill Cocopa; solar eclipse ('nyabasa) portent of success against Yuma and incentive to campaign. Moon on Cocopa side, sun on Yuma side.

Moon with big ring around it, "moon having fiesta," indicative of dry weather (reverse of white man's interpretation). Thunder not ominous. Lightning in abundance indicated prolonged rain, rainbow cessation of rain. These interpretations probably meteorological observations rather than omens. No belief that pointing to rainbow bad for pointer.

Acts of certain animals of evil omen (oyokamyuat). If wild bird entered house, lay as though dying, fluttered, flew away, sign someone in house soon die. If rattlesnake attempted to enter house or shade where people, and did not rattle

even if struck, or try to bite, sign someone die soon. If rabbit entered house and died, not long before inmate died. Coyote calling in bush not ominous, but close to house at night or early morning, sign something bad had happened, perhaps death of friend. Coyote a messenger as in creation story; sometimes its coming forewarning. Owl hooting near house at night death portent for inmates, flying in day meaningless, falling dead or injured close to one sign of death of relative, usually within 2 months to year.

Flock of *Pelecanus erythrorhynchos* (kwenyioe) flew over in V-formation; meant nothing to men, birds looking for fishing place. Flock of 34 sandhill cranes (wukhor) flew S.; no meaning.

Jimsonweed.—Decoction of jimsonweed, *Datura discolor* (malkapit), administered by shaman called kwisiyah (cf. Diegueño kusi, jimsonweed) to young men who desired experience. Usually 3 or 4, ages 22 to 35, took at one time. Women and older men did not.

Green jimsonweed leaves pounded with wooden pestle and mortar. Juice expressed into olla of water. Plants close to road not used, only those in remote places, because women passed along road, also men who had just had intercourse with women; were novices to drink these plants, swell up and die. Novices continent 4 days before drinking jimsonweed, lest suffer same fate.

Single draught quaffed by each novice from pottery serving cup or dipper. As shaman lifted cupful he blew tobacco smoke over it from 5-inch cane pipe, to make more effective. Tobacco taboo to novices. Immediately after drinking potions novices sang. People might hear from distance. Shaman did not sing. Jimsonweed administered secretly in bush. Shaman also drank, went into trance. Persons other than administering shamans drank only once in lifetime.

Jimsonweed beneficial, revealed to novice his aptitude; bestowed power, e.g., prowess as warrior. Prospective warrior might hear voice: "You are going to be a great warrior and kill 4 or 5 persons, but you will die soon yourself." Others drank to become shamans, to become strong, to be successful farmers or gamblers, or to become great men. Men who had visions during narcosis always knew where to get food.

After taking jimsonweed, novice thought swaying trees beckoning him, went from one to another. Immediately after jimsonweed ceremony novice did successfully what destined to do; if farmer planted seeds; if fisherman, "went underwater 4 days," returned with many fish. If to have many wives, went to his house and lay down. If to be expert at pole game, acted as though playing. Various crops planted, by a jimsonweed novice (especially pumpkins, melons) yielded many fold, even in poor soil. Non-initiates, even with good land, not so successful.

4 or 5 days under influence of drug, knew nothing, wandered. Upon return secluded 4 days, ate little, no meat or salt, kept away from women. After that customary habits.

Old person might ask novice what seen. One would say: "I went into a big house and saw an old man there." Another said: "I went into a house and saw crow [roadrunner, frog, lizard, etc.] and talked to him." Each received different instruction. One shaman got instruction from Crow as to curing.

"When man drank jimsonweed looked for his 'luck' (shumak apwhaii; cf. Mohave shuma, dream), usually plant or animal. All living things and wind appear as men. One of these talks to him. He walks about, swims in river and is believed to stay under water 4 or 5 days without drowning. It looks like shady place there. Fish come by and he sees them. He can see snake mile away and it looks like fire. Two or 3 snakes together look like a wood fire; usually close to river."

Although willow tree novice's "luck" seen during narcosis, he might fell tree for use. But if dove one's "luck," he might die, go crazy, or lose all power if killed and ate it.

If novice did not find his "luck," remained at home sleeping after drinking. To see nothing no benefit.

Lacking: dancing, ant ordeal, new personal names, bundle or paraphernalia, special name for novices.

Shaman Suwi went without breakfast and luncheon; 3 P.M. ate three jimsonweed flowers, drank water. Lay down, feeling drunken. In evening drank much water; vomited it. Took jimsonweed to get inspiration for peon game. He could see human apparition standing behind opposing team, indicating to him how sticks held. Informant described apparition as jimsonweed transformed into human being. This aid amounted to cheating, so informant never revealed practice to other players. By this means he won.

Suwi took no jimsonweed to aid in curing.

The lands of the departed.—3 lands for departed souls; most to Inbawhela (cf. Cochimi em-bai, sky; ambei-ng, "in heaven"; Kroeber, 1931, 32) (or to Hakusar according to some informants). Shamans, funeral orators, speeches of funeral orators, and spirit of mourning ceremony shade to Karukhap, in mts. of Lower California. Twins to heaven or sky world ('ma) (cf. Cochimi, as above), conceived as 4-storied. (Falling of frogs in rain evidence of sky world.) 4 layers of heaven alike, designated by number, 1 lowest. Knowledge of sky world from shaman whose soul went there.

Loxachak, soul which went to land of departed at death. Animals also have; *kwokas loxachak, horse's soul. Inanimate objects' souls, kwesabuh; yual kwesabuh, clothes' soul. Informant insisted plants, notably trees, without souls, which possible to send to other world. They might, however, assume human form and address one, as for instance a shaman. (See Deities.)

Soul located in whole body. When person died soul left body for good, while in swoon or trance temporarily. If person merely frightened soul did not leave. Soul loss caused sickness.

Sometimes, at death, departing soul seen, floated in air 4 days near house, came close to corpse on pyre before burning. To land of dead, where only souls of Cocopa.

From Inbawhela road led to dying person's feet. Just before death person saw road and dancing and feasting of dead relatives; thought it better place than this earth. Once sick person had this vision sure to die. Dead relatives, especially parents, came and told him was better place.

Ghost, i.e., visible soul, called loxachak, like invisible soul. Conceived of as soul which had assumed visibility, rather than different spiritual entity; seen at night; looked, acted like human being, but moved rapidly. Eyes no different from living. Person who saw ghost might close eyes for instant; opening, ghost gone. Often identity of ghost apparent. If relative about to die ghost might come. Sometimes ghost seen which on second look assumed form of stump or clump of arrowweed.

If one saw ghosts or apparitions of two individuals, and at the same time heard owl cry, he must not pass between them lest he drop dead.

Whirlwind often embodied ghost attempting to visit old home, but wind kept it moving. Many whirlwinds in Inbawhela and Hakusar. If Cocopa saw ghosts while gathering "wheat" there, faces swelled.

Loxachak also applied to apparition of living person. Such person would not live long; no shaman could help one in that condition. Shaman Suwi had seen

such apparitions. Persons concerned not informed, as would become very frightened and probably accuse informer of witchcraft.

Although shaman might send soul to retrieve abducted soul of patient, no belief that shaman had 2 souls or that his soul divisible.

Frank Tehana re loxachak (account abridged): "Cocopa customs from 'first creation.' When die can find new home if have lived according to custom. Without tattoo no woman can find home after death. Soul travels to Inbawhela in 1 or 2 steps—good land, but none knows exactly what like. Story is all things thrive, plenty of grass for horses. Souls there need food: watermelons, maize, pumpkins, beans, etc. All grow well without planting; no frosts. People in this world go there in dreams, meet dead relatives, who urge them to stay and escape hunger and trouble of this world. People who dream thus sicken. Dead relatives return to our land at night, try to take sick away, show him all good things they have, so sick man very anxious to go. Sick man tells living relatives: 'My brother came to take me to other world, showed me many nice things. I want to go.' In 2 or 3 days visitors want to return and take sick man away. When come on time, sick man dies. His soul departs to country whence dead brother came.

"When sick man dreams about dead relative who was old on earth, he finds him young. These rejuvenated souls do not have children, but are joined in Inbawhela by souls of their earthly children. Souls age and die in Inbawhela.

"Warriors fight in Inbawhela, but not killed.

"All human souls go to Inbawhela, so long as bodies cremated. If body not cremated soul wanders aimlessly, presumably in this world. If untattooed girl cremated, soul goes to Inbawhela, but crouches on road; passing souls step on back. Subject to this until 2nd death. Same for any person with unpierced ears, or for youth with unpierced nose. Piercing of ears insures baby safe conduct to Inbawhela.

"Domestic animals of Inbawhela, souls of those that died. Souls have mortal appearance, are solid. Although corpse appears to burn on funeral pyre, soul and body pass to Inbawhela; only 'wooden' body burns. Food products of Inbawhela solid.

"Souls from Inbawhela bring food to sick on earth, who, once they eat, insist on dying, because of superiority of Inbawhela products. Belongings of deceased sent to him when house and property burned. Mourners tear up and burn things, which become new in Inbawhela. When dying many relatives sitting around. Sick man requests clothes, horses, etc., to take. 'Then you will live right,' he says. 'If you give me nothing, then you too will die soon, everyone of you.' So relatives give many things to dying and these burned. Horses killed.

"In Inbawhela new melon immediately replaces ripe picked melon. Food ripe at all times. Games and dances held. Husbands and wives rejoice.

"Chief from earth is chief in Inbawhela until earthly successor dies, then he dies in Inbawhela and earthly successor succeeds him.

"Sometimes when gathering wild 'wheat' in Inbawhela we see land of dead: houses, people working, children playing, but when we approach scene vanishes. [Probably mirage.]

"Person dying here expected in Inbawhela by souls there. Relatives from Inbawhela fear to approach deathbed, because of crowd of living relatives. Therefore send stranger to act as escort. When newcomer arrives in Inbawhela souls assemble and cry. Relatives in Inbawhela instruct to abstain from eating food 4 days, because he just from world and smells different. Souls marry in Inbawhela. Souls dying there, cremated, become inanimate ashes and charcoal, wind, and whirlwind in succession. People dream of relatives in Inbawhela having died.

“Souls of still-born infants go to Inbawhela, where they mature.”

Between owls and human souls connection. Some souls became owls or animated owls: for hear owl say at night, “I am so-and-so.” In owl form some went to Inbawhela, where assumed human form (cf. Gifford, 1931, 72). Apparently great horned owl, *kechupit*, was species. From Inbawhela owls might return to this world without human personality. No taboo against killing.

Twins (*awak*^a) not begotten by earthly husband of mother; supernatural paternity. From ‘*ma* (heaven). If not treated properly left this world. Girl and boy twins came for visit. Twins in general come to swim. If liked country, stayed; if not, returned to sky. Women who bore twins dreamed of them during pregnancy. Twins already had names in heaven, so not named like ordinary children at one year. When 3 or 4 years old named selves.

Because of supernatural origin twins helped by everybody, if in need. When twin died, cremated, but soul went to sky (‘*ma*). Twins’ ears pierced, nose pierced, chin tattooed.

Mother of twins glad. If sorry babies might go back to sky. If she died in childbirth, cared for by other women. If called bad names or mistreated by foster parents they understood, even though babes, and left for sky.

If not treated preferentially returned to heaven. When grew up (“became about 30”) changed minds, decided to be like ordinary Cocopa and get married.

‘*ma* or heaven inhabited by souls of twins. In heaven, land as on earth. All kinds of men lived there: some with one leg, one arm; some without bodies, just head. Such was account of twins.

Deities.—No generic name like term *loxachak* for souls or ghosts. Deities resident in mountains and trees: “If person lucky, trees and mountains assume human form and tell him something.” Deities immortal; souls of dead ultimately perished, except twins.

Illustrative of cultural attitude was refusal of informant to tell creation story because had not “learned” it, even though had heard it.

Creator ‘*makwayak* (‘*ma*, heaven; *kwayak*, god), equated to Yuma *Kokumat*. Act of creation, *pohau*. ‘*makwayak* created all things. According to Frank Tehana, the god’s spirit (*amatyin kwisa*’) comes to people and causes dreams. He said this was Cocopa conception from “first generation” (*cha’pai homi kwiyapuk*).

Creation story told in vulture (buzzard) cycle of songs, sunset to sunrise to sing.

Sun (‘*nya*) male, moon (*heel’a*) female. Coyote (*hutstapa*) has intercourse with moon, as consequence died in moon, where body still seen.

Great mountains had resident anthropomorphic deities, or great mountains manifested selves in human form. See biographical account of shaman Suwi. Mountains mentioned: ‘*wikwil*, in Maricopa county, near Laveen in central Arizona; ‘*wiispa*’ or Black butte in Lower California; ‘*wichauwas*, nr. San Felipe, Lower California; ‘*wikwame* or Newberry mt., near Needles; *sakupai* or Mt. San Jacinto, California.

Kamuyum, volcano god in Black butte, patron of shamans, taught to cure boils and other skin eruptions. *Kamuyum* or Hairy Person spoke Yuma; his mt. at SW. extremity Yuma territory.

Sumalitup, god of Mt. San Jacinto and lord of cold winds and clouds. Lesser deity of mt. was *Mistau*, also named *Umpotkwila*. Both bestowed powers on shamans. Feather mt. (‘*wichauwas*) visited by novice’s spirit in dream; “mt. became a man” and instructed visitor how to become shaman.

Other deities: (1) Turtle, *Uktya*, could hold ocean in hand and appear in human form; (2) Owl, ‘*chupi*, assisted young shamans; (3) *Halkwichats*, ocean monster and ruler of people in S.; (4) *Ispa’komai*, deity in eagle (*ispa*) form who

ate human beings, dwelt near Needles in Mohave territory; (5) Heltuts, black spider deity; (6) jimsonweed god who might appear to one who had partaken of plant.

Struggle between Halkwichats and Ispa'komai. Halkwichats equivalent of great ocean serpent of other Yuman tribes. Man-eating eagle Ispa'komai suggests man-eating eagle of Yavapai (Gifford, 1932, 243-245).

Ispa'komai captured people, ate them. Where alighted made valleys and mts. Sat on mt. in Maricopa country; bent under weight. When found mt. would not support him flew W. to mt. kwaskin, near Mohawk, Arizona. Also bent. Tried Black butte (*wiispa), returned to Needles.

Halkwichats saw Ispa'komai eating people, angered, said: "I am going to kill him." Traveled N. underground, making groove that became channel of Colorado r., killed Ispa'komai. Latter's mate pursued Halkwichats, killed him in Lower California. Part of Halkwichats' skeleton still seen. Staff with which killed stands near as lofty peak (Feather mt. or *wichauwas) (cf. Gifford, 1931, 81, mt. Wiwotat).

Song cycles.—For accompanying dances see Boys' Puberty Ceremony.

(1) *ilysha ka'pai* or short *ilysha* (cf. Mohave *alysha*, Kamia *alysha*, Cocopa *alysha*, as listed by Kroeber, 1925, 786). Mohave told Kroeber learned *alysha* from Yuma, Yuma told me learned *ilysha* from Cocopa.

(2) *choman akolsya* or long *choman*. Evidently equivalent to Mohave *tumanpa*, Cocopa *tumanpa*, Diegueño *tutumunp*, as listed by Kroeber (1925, 786).

(3) *choman hachochat*.

(4) *echa akolsya* or long *echa*.

(5) *cheyil* (vulture) cycle, related creation story. Perhaps equivalent of Maricopa buzzard (vulture) cycle (Kroeber, 1925, 786).

Shamanism.—Profession of shaman usually in families, sons following father, daughters either father or mother.

Generic term for shaman *sukwiya*. Curing shaman, in other words, good doctor, *kusiya paxwe*; witch doctor, *kusiya sinyapis*.

Shamans' powers in dreams from nature deities or spirits, never from ghosts. No belief in possession. Cocopa aware of similarity of their shamanism to that of Maricopa, Yuma, Mohave.

Animals appeared in dreams as human, told dreamer were animals, because had animal names. Woman or man dreamed of fox or coyote to cure gun and arrow wounds. Dream of roadrunner gave power to overcome snake bites, poisons, stomach trouble (see below). Hawk, owl, or vulture appeared to future witch doctors.

Spirit animal took neophyte to house in mts. or sea, sacred mts., as Eagle mt. (Black butte), Feather mt. Neophyte given power, told to cure sick person, sometimes in spirit's house. Neophyte did this, spirit said this was way must always treat patients, and now competent to cure. Probationary period of 2 or 3 years. If dreamer young he must wait some years before curing. Sometimes waited until father (if shaman) died, sometimes not, according to instructions in dream. Spirit appeared to shaman afterwards from time to time to aid and give instructions.

When novice doctor awoke, fasted 4 days, ate no salt or meat, kept away from women, did not paint face, bathed daily. Young person who had good time, went to dances and fiestas, would not become doctor; someone who would stay home wanted for doctor. Man between 40 and 50 could start doctoring immediately after dream.

Whoever dreamed of Roadrunner could treat snake bite. Roadrunner in human form took dreamer up in air to listen. Novice heard people talking and treating sick. Roadrunner took novice to Feather mt., his home. Sick person in his house.

Every doctor tried, but none cured invalid, neophyte told. First, Roadrunn sick man; then neophyte treated him. Treatment: singing 4 songs, rubbing blowing smoke on invalid. Then patient got up. Neophyte should treat in any sick person in actual life. Fox, in dreams, gave certain women shamans to cure eye trouble.

Prime business of shaman curing. Failure frequently brought charging death of patient; also shamans accused of witchcraft. During periods visits 3 shamans I knew were murdered. At least 3 out of 4 male shamans came to violent ends. Women shamans not killed.

To escape enemy shamans reputed to run into bush and take on appearance willow tree until enemy passed. Paint used to aid this disguise.

Bear and weather shamans lacking; latter among Akwa'ala (Gifford 1934: 347).

More male than female shamans. Latter usually handled childbirth, eye diseases, eye trouble, stomach trouble, diarrhoea, arrow and gunshot wounds, fractures, injuries from falls. Many people used herbs for cuts, wounds, diseases, and called doctor only if sickness serious.

One type specialist (loxachakiapas) treated illness resulting from ghostly visitations or soul theft; another treated club wounds; arrow wound (ipayapas). One shaman, reputed capable of sitting unharmed in fire, for burns. Specialists who treated consumption, pneumonia, and sores of mouth.

In treating patients, shaman generally dreamed. Good dreams indicated recovery, bad dreams reverse. Dreaming his wife unfaithful, running from some one, portended death. Dreaming of non-recovery. Dreaming of long life for self portended recovery.

Shaman examined body of sick person, sang, told patient what trouble was. Songs, shaman called name of his patron deity or spirit: "You told me and I am doing it now. I want so-and-so to get well." Shaman might lose spirit again after revelation in his first dream, but thought of him always while treating patient and tried to remember his first dream. If shaman dream again while attempting cure, it was sign patient would recover.

In most sickness, as with Yuma, tobacco smoke blown on patient. Cure formed by rubbing, sucking, blowing, blowing frothy saliva, blowing tobacco. Blood sucked from body of patient. Shaman sometimes cut before sucking to cool body of patient.

Eye doctor did not use tobacco, but stuck her tongue in eyes.

Shaman paid property to value of \$10, \$15, or \$30.

Following cure related: Hands and feet of informant's nephew could not walk. Shaman sang 4 songs, rubbed hands and feet, breathed, blew breath and tobacco smoke over them, sucked them.

Arrow wound treated by singing, blowing frothy saliva, and with hands. Shaman breathed on hand, rubbed wound, walked off, approached wounded in 4 cardinal directions, sang songs referring to Fox or Coyote (huts) reputed great healer. In walking around patient shaman breathed and exclaimed rapidly with each breath, "Ah! Ah! Ah!" Shaman learned in dreams, taught by Coyote or Fox in human form. 4 songs learned, 4 wounded men to recover. Songs called ipayupasayau. After wounded man recovered, he or relatives washed still painful wounds with decoction of boiled acorn and cottonwood leaves. No sand painting in treating arrow wounds. (Interpreter said this device rarely used by Yuma.)

Men suffering club wounds treated by male shamans. If face fracture, shaman breathed upon, blood sucked. Songs referred to deities other than Coyote.

Fox). Shaman walked in 4 cardinal directions, made rudimentary sand painting (matsakorokor) near house in which wounded man lay. Made only once during treatment. Made marks on ground with foot, drew ring with piece of wood, heaped 4 tiny piles of earth with hands, in the 4 cardinal directions, within circle (mataukas). Whole about 1 ft. diameter. No differentiating colors. Ring represented edge of world, four piles sacred mountains. These helped shaman bring all dreams to aid in curing. Picture not obliterated, but left.

Woman shaman seen had power to knit bones, and successfully treated broken collar bone of informant's daughter. She declined to tell about her power because new and feared to spoil by telling.

Megoinuh, another female shaman, was treating baby, chiefly by rubbing. Baby's face painted red as skin eruption prophylactic.

In pneumonia case shaman touched different parts of patient with left hand, felt temples, rubbed them. When located center of pain, blew on spot, sucked around it.

When people dreamed of dead relatives, suffered shock which made ill; if soul in other world thought or spoke of living relative, that relative would die unless shaman intervened. Shaman Suwi said he cured such cases in few hours. Illness also caused by soul theft. Dead person discovered next world better than this, returned to abduct relatives. This caused soul loss and sickness.

In 4 steps ghost could reach edge of world or return with victim to Inbawhela.

Doctor blew tobacco smoke around patient, and to SE., whence soul taken. This caused fire to spring up in that direction and ghost gave up soul. Doctor finally blew smoke around ears and body of patient, which revived him.

Sickness ensued if person dreamed of sexual intercourse with dead spouse. Symptom, swollen stomach. No children resulted. Ghost specialist treated by rubbing, sucking, blowing. Male ghost left seminal fluid inside widow. Shaman removed by sucking woman's stomach. If woman mentioned name of dead husband, it brought him in dream. If seemed at distance, no harm; if he touched her she sickened.

In fright cases, ghost of dead relative appeared, patient "died." Ghost doctor called, walked around patient once or twice, gently kicked hands and feet, walked away to locate tracks of patient's soul. All while he smoked. Returned to patient, shook him, shouted a-h-h-h in both ears. If no help, went around patient again, touching body, shouting in both ears. If still no response, again went out in darkness, looking for tracks to determine where soul hidden. Chances doctor would discover it and patient revive. Soul of doctor outside his body, while searching. Smoke from doctor's pipe scared away ghosts. If soul in possession of ghosts, smoke forced them to relinquish. Soul floated back in air, reentered patient, who awakened, as from heavy sleep.

If person stopped breathing at midday, at evening ghost doctor summoned. If person not revived by following midday, cremated. Ghost doctor only called in case of ghost sickness, which indicated when person suddenly fell as if dead.

Only in obstinate cases which lasted over night did doctor lie down beside patient and send own soul to land of dead. Afterwards doctor related adventures, how abducted soul locked in house in land of dead.

If any man wished to see land of dead, he and ghost doctor lay down together, and souls of both went there.

Sorcerers went to land of dead and practiced witchcraft there. Sorcery declared cause of death if patient or shaman dreamed someone brought nice food. Accused sorcerer shot or clubbed to death by victim's family. Only shamans could be sorcerers or witch doctors. No one claimed to be witch doctor.

If shaman told family patient would recover, but patient died, shaman usually killed. Some large families defended members accused of witchcraft, but usually no feud followed killing of sorcerer.

Witch doctors got power from vulture, hawk, rattlesnake. Hawk gets food early in morning by killing something. "It was same with witch doctors; they wanted to kill someone."

When child 7 or 8 years old fainted, predisposed to be witch doctor. Later, in dream, hawk took novice high in air, to Feather mt., where he lived. Instructed how to kill person by swelling up food in stomach, by turning water drunk into salty water. Victim sickened, bowels became green, because water from ocean. (Sorcerer could turn fresh water salty by merely looking at it.) Body of sick person became salty; when doctor sucked, he sucked salt. Sometimes doctor who treated patient was sorcerer and made person sick. Claimed he was sucking objects out, but really placing objects in patient. If doctor lost 2 or 3 patients, proof he was sorcerer. Therefore doctor afraid to undertake to cure very sick people. He would say, "This is not the kind of sickness which I treat. You must go to a specialist." Sometimes sick man said hard place, stone, or something like that, in throat or side. Doctor sucked this out as blood and saliva. Sorcerer had placed this in patient's body through food. Doctor would name sorcerer's spirit.

Biographical notes related by shaman Suwi (clam) or Sam Clam, in 1927:

Suwi dreamed first when 10 years old: Saw all things of earth and mts. Did not know he to be shaman. Cared for self by avoiding salt and meat. Dreamed many nights, same thing. One night dreamed something fell from sky. It had big head, big body, was like human being. Before it struck him he awakened. Some other nights dreamed, but no more about this being falling on him. He dreamed that Horned Owl (kechupit) came to him as human being named Horned Owl.

Owl said, "I come for you," but did not call Suwi by name. Owl laid down a staff, told Suwi to stand on it. Staff rose in air with Suwi and Owl. In a second high in air. There stood still. Owl got off, said: "He is here." In front of him was mt. "wikwil, to which Owl spoke. From mt. came Turtle (uktya"); looked like man; said: "I am like you. If I want anybody I call him to me. So I asked you to come. That is why you are here now. You are here to learn a few things from me." Asked Suwi to touch mt. with right hand. Strong wind came. When Suwi touched with left hand wind slackened, became calm. Turtle said: "Now you have learned it from me. I showed you." Suwi had been taught how to stop strong winds, really sickness and disease. That was all Suwi saw there. That was where he learned to cure loxachak (sickness caused by ghosts: swooning, fainting, unconsciousness). Suwi said white doctors called this heart trouble. Suwi learned 4 songs there for loxachak. They gave him strength to feel this sickness with his right hand. That is how Suwi tells this sickness from another.

Owl and Turtle asked him to stand on staff again. Suwi and Turtle stood on it. Owl disappeared. Staff turned sideways and they landed on Black butte in W. There Turtle made 4 little piles of earth and named them for 4 mts.: "wikwil, "wiispa" (Black butte), "wikwame, sakupai (Mt. San Jacinto). Suwi stood in center of them.

Turtle had ocean in his hand. He said to Suwi: "See what I have in my hand. I am so powerful that everything seems small to me. As you see, 4 great mts, so far apart are close together at your feet. So you are as I am. They call this place 4 mts. Ocean belongs to big black spider Heltuts." So Spider came forth. He looked like human being. Turtle said: "It is for Spider to tell you his part."

Spider said: "Whatever Turtle says or wishes me to do, I am going to do." Spider made web, told Suwi to enter it. They traveled in air. At last they returned to "wiispa". There was volcano under it and Suwi could see it in action. Spider

called volcano "wiyap". Out of volcano came person with long yellow-brown beard, and hair all over his body. This hairy person said: "See, that ocean belongs to Spider, this mt. and volcano belong to me. I will show you my part. My name is Kamuyum." Suwi saw fire and hot ashes pour out of mt. Hairy person said: "So you see now," speaking in Yuma dialect. Hairy person sang song. When he sang ashes, hot rocks, black smoke came forth from volcano. "So you see now that this is sores, tubercular sores, and all kinds of sores," meaning volcano and its discharge. He sang another song and smoke and ashes receded into crater. This song made volcano stop belching smoke and ashes. "So you see what I have done," said Hairy person. "You can do the same thing." Suwi learned 4 songs from Hairy person, by which he cures tubercular and other sores, swelling of arms, legs, and body.

Turtle turned and said to Suwi: "My back is very old." His back was full of songs as he held a turtle shell in palm of his hand. "My back is full of songs," he said and he motioned to the different mts. "These songs will travel to all places," he said.

Turtle sang songs for Mt. San Jacinto. In his song he did not name the mountain. Sumalitup appeared from mt. "wiksai, a very healthful, foggy place, was name Sumalitup used for the mt. in singing. The mt. is chief of cold winds and clouds. Sumalitup said: "This is the song you will use. In naming this mt. you alone will call it "wiksai. You will use this song. This is my home here. You will see what my part is here." Suwi had gone from volcano to Mt. San Jacinto. Another god from Mt. San Jacinto appeared with Sumalitup. His name was Mistau. Suwi knew him, addressed him by name. Sumalitup said: "You will call Mistau if sickness is not very serious. If it gets worse you will call him by name of Umpotkwila." [Suwi sings of this deity in his treatments today.] Mistau called Suwi to one side; suddenly came a song out of Mt. San Jacinto. 4 songs came altogether, one above another. Then he heard no more, because top of mt. was place of issue of last and rest, if there were any, went up in air. Hearing these 4 songs meant for Suwi to learn more than 4 songs. Mistau called these songs cheyil (turkey vulture cycle). Mistau said: "I have done my part, so you learn to sing these songs now." After what Mistau had said Suwi awoke.

Suwi could not eat or feel hungry for 2 days. On 3rd day ate little maize porridge. On 4th day washed well in little lake at Colonia Lerdo. After those 4 days, could go anywhere. In wind heard again songs sung in his dream. About 11 years old and at first did not know what dream meant.

At that time, if near sick person he could see what sickness was. Said to self could cure it. That way for several years. Could see other doctors treating and said to self whether cure or non-cure would result. Told no one, not even other doctors, of his dream. Other doctors knew he had dreamed, because of his actions. He could not sleep if sick person near.

In time he treated members of family when ill. No outsiders knew. If he knew what trouble was he cured it. Motion in outer joint of his little finger indicated cure. Mouth also indicated: over sick person it watered. If could not cure, indications absent, mouth very dry. Another doctor would be called.

He laid palm of left hand on patient to determine illness; put hand over seat of pain, pressed gently and repeatedly. Thus he felt sickness. When he sang, song went to that part. He sang songs learned in dream. Used everything learned in dream. If person did not respond in 2 or 3 days, might not recover. If could not cure let patient have his way about another shaman.

If man "dropped dead," ghost of dead relative had taken his soul. Suwi could restore person in few hours. He sang, blew breath and tobacco smoke. Thus sent own soul ahead of soul of victim on road to other world. Blew smoke, so soul of

victim would turn back. Although Suwi sent own soul with smoke, he continued conscious and active. Suwi cured many that way. He asked revived man, who took soul. Latter replied with word of relationship of ghost who took his soul.

If someone dropped "dead" at distance, messenger told Suwi, who diagnosed soul stealing if he had cramp in leg or arm when arose in talking to messenger. If no cramp, sickness other than soul stealing cause of death.

At fiesta Suwi's eyes and body felt different, so could see everything that happened, even what other shamans doing. Ordinary mortals could not see.

At place of karuk ceremony shamans could see many shamans and eagle feathers. Eagle feathers invisible to ordinary mortals. Feathers presided over ceremony. Witch doctors wore hawk feathers on their heads, visible to everyone. Only shamans could anticipate or see their evil intentions. Good shaman could see, as in mirror, what witch doctor did or planned. Shaman detected evildoers in case of witchcraft.

Suwi objected to singing his doctor songs; would spoil power. He was willing to sing vulture cycle relating how world made and taking from sunset to sunrise to sing.

CONCLUDING REMARKS

Cocopa culture was unmistakably of the same pattern as that of two other great Colorado river tribes, Mohave,¹⁰ and Yuma.¹¹ It had surprisingly few deviations from the basic pattern of culture, in spite of the fact that the Cocopa were at chronic enmity with the Yuma and Mohave. The Cocopa were fully aware of the basic resemblance of the river cultures. In the matter of deities, for instance, they unhesitatingly equate their 'makwayak with the Yuma Kokumat.

Further instances will reveal what I mean by basic similarity. Mush stirrers were composed of 5 sticks instead of 3, yet the important similarity remains that they were composed of separate sticks. Shamans received instruction from several gods on mountains instead of one, but the fundamental facts remain that the instruction was through dreams and that the power came from mountains. In short, the fabric of culture was the same throughout the delta and valley of the lower Colorado. Here and there a tribe made some slight variation in the otherwise common pattern of culture embroidered thereon, but there were no such differences as prevailed, say, between the cultures of Hopi and Pima.

Geographic environment varied but little in the habitats of the Cocopa, Yuma, and Mohave. Proximity to salt water was the only important difference in the Cocopa habitat and it had scarcely any effect upon the Cocopa. They ate a few sea foods and had at hand the raw materials for making shell ornaments. In the fundamentals of their culture they no more approached the littoral Seri¹² than did the upstream Yuma or Mohave. Cocopa culture remained essentially a river culture in spite of proximity to the gulf of California.

Kroeber has recently presented an analysis of the culture of the river tribes in relation to the cultures of their neighbors.¹³ My sketch of Cocopa culture gives no basis for radical modification of his findings.

The Cocopa loom and the cultivation of beans call for special comment. Russell¹⁴ describes the Pima loom as horizontal, in contradistinction to the vertical loom of the Pueblos and Navaho. The Cocopa device appears to be a simplified derivative of the Pima and is another cultural trait which illustrates the aloofness of Cocopa culture from Pueblo culture.

¹⁰ Kroeber, 1925, 726-780.

¹¹ Forde, 1931.

¹² Kroeber, 1931.

¹³ Kroeber, 1931, 40-47.

¹⁴ *The Pima Indians*, 150.

Cocopa agriculture like that of the Southwest in general is no doubt of Mexican origin. Yet a problem revolves around the particular species of bean grown. *Phaseolus acutifolius*, the tepary, is a species native to northern Mexico and Arizona. *Phaseolus vulgaris* is the species cultivated by Pueblo, Mexican, and Central American tribes. The question is whether the cultivation of *acutifolius* is not merely in imitation of *vulgaris* cultivation. If so, it is an example of a local species brought under cultivation through outside stimulus. An examination of references to beans in the modern and ancient Southwest reveals the following:

For the Zuñi Mrs. Stevenson¹⁵ reports *Phaseolus vulgaris*, not *Phaseolus acutifolius*. She says: "Next to corn, beans are the most important article of food cultivated by the Zuñi. These are grown from the native species. As much care is observed in securing beans of different colors as in the case of corn. The beans are yellow, blue, red, white, all colors, and black, symbolizing the six cardinal points—north, west, south, east, zenith, and nadir, respectively."

Harrington, Robbins, and Freire-Marreco¹⁶ report *Phaseolus vulgaris* from pre-Spanish ruins at Rito de los Frijoles. Hough reports three kinds of beans from ruins in the upper Gila-Salt drainage.¹⁷ M. R. Gilmore writes me of *P. vulgaris* from Pueblo 2 and later sites; also of charred *P. acutifolius* from a Pueblo 2 site in N. Arizona, sent him by the Museum of Northern Arizona. He adds: "These are the first *Ph. acutifolius* of archaeological origin which have come to me so far." Guernsey and Kidder¹⁸ knew of no beans from Basket Maker sites when they wrote in 1921, and mention none in 1922.¹⁹ Roberts²⁰ attributes the addition of beans to Basket Maker 3 period. Sample Basket Maker 3 beans sent me by Earl Morris from Broken Flute cave, Atahonez canyon, NE. Arizona, proved to be 3 varieties of *Phaseolus vulgaris*, according to Professor Hendry. This seems to point conclusively to the introduced *vulgaris* as the first species cultivated and to *acutifolius* as an example of the extension of cultivation to another species, which will grow under conditions too hot and arid for *vulgaris*.

Freeman obtained his samples from the Pima and Papago. He has this to say about the two species of *Phaseolus*:

"This also accords with the Indian tradition that beans [*P. vulgaris*] had been secured from the white man, but that they had grown *teparies*

¹⁵ Stevenson, 69.

¹⁶ P. 100.

¹⁷ Hough, 10.

¹⁸ P. 42.

¹⁹ Nusbaum, 66.

²⁰ 1929, p. 4; 1930, p. 4; 1931, p. 3.

[*P. acutifolius*] 'long time.' Distributional and other evidence also points to the more southern origin of beans.²¹

"The Tepary was domesticated from wild plants growing in the canyons of the southwestern United States and northern Mexico by prehistoric Indian races. Being variable in the wild state it has responded during domestication by the production of many varieties. Forty-seven distinct types have been isolated and grown at this Station."²²

Although Freeman's Pima informant makes *acutifolius* the earlier species, I think this would hardly apply to the beans of the Pueblo peoples.

²¹ Freeman, 576.

²² Freeman, 618.

APPENDIX A. POTTERY MAKING

On January 2, 3, 1927, woman demonstrated process. Drying curtailed somewhat, because lacked time. Other steps in full.

Clay obtained from field on Somerton reservation, said to be material used by local Mexicans for adobe bricks. Obtained from few inches below surface and distinguishable from sandy soil on dyke nearby. Stick, 18 inches long, wielded with both hands, was digging implement. Material hard and caked from recent rains.

Lumps of clay examined, roots removed, clay put in clean tin pan. Clay moistened by dipping hands in water, letting drops fall on clay. 11:20 A.M.

At 10:45 A.M. preparation of tempering material begun. Red brick instead of potsherds used. Fragments crushed on a metate. Slight pounding of large fragments with muller, but otherwise pulverized with rolling motion of muller, as it pushed away from wielder, who sat cross-legged at end of oblong metate. Metate rested on cloth on which brick dust accumulated. At end of metate near operator were fragments of brick to be crushed, at opposite end pulverized material fell off on cloth. Operator grasped muller with both hands, thumbs in. Formerly sherds usually pulverized with wooden pestle in wooden mortar, as metates scarce.

Crushed brick placed in another dishpan. Pulverized brick sifted by shaking dishpan with both hands, outer edge high. Large pieces came to surface on low side of pan, removed with fingers, crushed on metate.

Wooden paddle improvised from box; foot long; blade 4 by 4 in. Man (interpreter) made it.

11:35 A.M., operator tested clay in pan with fingers, added more water with fingers. After working clay slightly with hands, transferred some to dishpan to mix with brick dust. Kneaded stiff mass with left hand, while steadying pan with right.

Mass of tempered clay kneaded into biscuit, worked, patted between hands until slightly concavo-convex disk, about 4 in. diameter, $\frac{3}{4}$ in. thick (at least on edge). Moistened slightly to aid smoothing, laid aside; another made.

11:50 A.M. first disk placed on pottery anvil (pl. 36c) patted with paddle, removed, replaced, patted. Removal and replacement to assure evenness. Stem of anvil with clay disk held in left hand, paddle in right hand. As result of paddling, clay disk molded into saucer 5 in. diameter, $\frac{1}{4}$ in. thick (on edge at least).

Operator placed saucer on left knee, as sat with knee flexed and resting on ground. Prepared cylinder of clay 1 ft. long, $\frac{3}{4}$ in. diameter, by rolling clay between hands held vertically. Apparently weight of pendent clay aided lengthening cylinder. Small bulb of clay at lower end eliminated by turning roll upside down, rolling back and forth between hands held vertically.

Attaching clay cylinder to edge of saucer, left digits pinched cylinder onto edge of saucer. Proved right length. New edge rubbed with fingers dipped in water.

Cylinder of clay prepared for attachment to 2nd saucer; also $\frac{3}{4}$ in. diameter. I attempted photograph; woman objected; interpreter posed with cylinder of clay. Potter declared pot would crack in firing, because man touched materials.

In attaching cylinder to 2nd saucer, pinched on with digits of right hand; fingers of left hand placed under edge of vessel and also held cylinder of soft clay in position. Cylinder broke (no doubt due to extra handling) and potter

attached piecemeal to rim. One part too high pinched off with fingers. Before compacting addition on anvil, dipped anvil in brick dust to prevent sticking.

Potter pinched off edge of 1st vessel, except small section to become handle. Prepared very short cylinder of clay which attached to projecting part. Hammered this with paddle on anvil to requisite thinness. This caused too great lateral expansion of handle; unneeded material pinched off. Whole vessel patted very gently with wooden paddle without support of anvil. More pinched off with right thumb and fingers to reduce parts too high. Entire edge smoothed with fingers dipped in water. Fingers moistened again and interior scraped, rubbed with right fingers while vessel held in left. Outer edge of rim rounded slightly by striking gently with paddle without anvil.

Small bit of clay, pinched off lump in pan, added to handle to form knob. Worked on entirely with fingers, moistened occasionally. 2 small additional bits added to represent eyes on handle, each slit through middle with twig. Potter said handle represented man's face (pl. 36f).

Potter set 1st vessel aside, took up 2nd, which had laid aside after affixing 1 coil. Dipped anvil and paddle in brick dust, so not stick to vessel. Held vessel on edge on right knee, anvil against inner upper edge. Vessel revolved, to bring each part over anvil for blow of paddle. Edge smoothed with fingers dipped in water. Noting clay in dishpan getting dry in sun, potter let water trickle from fingers onto it.

Again turning attention to vessel, pinched off edge where too high, smoothed with moistened fingers. Lump of clay kneaded in hands and rolled to add to rim; thicker than vessel wall. Pinched to near proper thickness in attaching, causing vessel's new edge to rise.

Potter moistened slightly lump of original clay, to which no brick dust yet added, during wait of 3 or 4 minutes for vessel in hand to dry a bit in sun. Throughout whole process potter gave attention to matter of moisture, in raw material and pieces in hand. Apparently this factor very important for success.

Paddling of piece in hand (2nd, to be parching dish) resumed with aid of anvil. 2 projecting pieces added for handles (pl. 36e). Vessel held in lap, edge up to shape with paddle and anvil. In pinching off excess clay, potter did not take off bit by bit, but pinched along whole edge to be removed, then took it off. Small lump added to low place in rim moistened in mouth with saliva, so as not to have to reach for water. The edge smoothed with fingers dipped in water. In smoothing inside, back of fingers as well as underside used, always moistened. Exterior finger-smoothed with right hand while vessel held in left.

1:15 P.M., both vessels (dipper and parching dish) finished and placed on cloth to dry. Paddle scraped with sharp flake of stone to remove clay.

3rd vessel, food bowl (pl. 36a), started. Clay, with brick dust added, kneaded and thumped in hands. Amount of brick dust determined by appearance of mixture. Potter sat on ground, feet straight in front of her and covered with blanket.

In rolling cylinder of clay palms rather than fingers used. After rolling from one end cylinder turned over and bulbous lower end rolled out. In applying cylinder to saucer 1st formed, squeezed on with right thumb and forefinger, thumb inside. Potter misjudged length, added small piece to fill gap. United new coil to vessel still further by pressing downward with right thumb on exterior of vessel, turning slightly after each pressure until complete circuit. Edge smoothed with moistened fingers. Slight depression filled with bit of clay, pinched off big lump and added with thumb and index finger of right hand.

Potter held vessel in left hand in shadow of body so might dry slightly. Brisk breeze aided drying, which evidently too rapid if vessel exposed to sun. After 5

minutes of drying potter patted vessel with paddle and anvil, first dipping latter in brick dust. Paddling leisurely, with intervals of conversation, reduced vessel walls to proper thinness. Unevenness of edge which resulted adjusted by pinching off parts. Potter pinched along edge to be removed, pinching outward from her body. Then drew thumb and forefinger back to remove pinched-up part, which done with 1 movement, if amount to be removed not too extensive.

Rolled another coil $\frac{5}{8}$ in. diameter. Wall of vessel only $\frac{1}{4}$ in. thick. Process of adding coil seemed to be pressing down of cylinder over finished edge, both inside and out, 1st with thumb on inside; after coil in position, with thumb on outside, fingers on inside, index finger doing most of work. Paddle scraped, preparatory to use. Anvil placed, vessel patted. Anvil adhered to clay, because not enough brick dust. Pulled off, more brick dust applied. Patting proceeded on different parts of vessel before more brick dust used. After completing patting, unevenness of edge eliminated by pinching off. Edge smoothed with moistened fingers.

Interpreter and I handled drying pots, eliciting potter's remark that would break when fired. If jealous woman handled, result same.

At sundown I departed. At 9 A.M., January 3, potter smoothing interior of 3 pots with moistened fingers and drying pots near fire.

10:10, still drying pots by fire. 10:30, put pot against embers for minute. 10:40, rubbing exteriors with convex side of china fragment. 11:00, rubbing interiors with china fragment, using convex side, moistened slightly at times. Edges smoothed too. 11:25, coloring edge with red mineral pigment, applied with moistened finger, also design applied with tiny twisted 2-ply willow-bark brush. 3:00, drying vessels in sun after painting; hastened drying by placing near fire, turning constantly. 4:15, pots placed bottom up on bricks and cans over fire of willow wood. For larger vessels mesquite wood, as burns longer.

Designs in red painted on 3 vessels represent nothing, have neither symbolism nor names (pl. 36).

Pots must be fired by potter alone. If spectator breaks wind, pot will crack in firing. Man did this just as firing started. Potter declared pots ought to break, but perhaps would not, as he not to windward. One pot found cracked after cooling.

Potter had made other vessels with brick dust tempering, e.g., large pot shown in plate 36.

No myth of origin of pottery. No singing before or during work.

APPENDIX B. A SHAMAN'S FUNERAL

On Sunday night, December 26, 1926, 4 Cocopa residing in Sonora plied with drink Cocopa shaman George Reese, about 40 years of age. Later cut his throat, transported his body to spot about 3 miles south of San Luis, Sonora. One had threatened him previously. On Wednesday, December 29, body found hidden in clump of willows. Mexican official visited scene, 2 suspects confronted with corpse, but denied guilt; however, jailed. Earlier that day they industriously aided searchers probe waterhole under bridge, perhaps to throw searchers off scent. 1 suspect believed to have had hand in killing 2 or 3 other shamans. Deceased in this case accused of being "witch doctor." At body when we arrived was deceased's brother, chanting and sobbing. Burden of his chant, words of which were meaningless, was: "A da cha dja," sung very slowly, with rise in tone on cha, following by sobbing. (On December 30, at funeral, heard him sing this at times.) Other Cocopa who came to body wailed and wept for time. Brother stood most of time, but sometimes sat on ground; kept about 10 ft. from corpse, usually not facing it.

Attitude of Cocopa toward 2 suspects not threatening. I did not note on 29th if brother had hair cut, but on 30th long rolls of hair had been clipped off with shears just below shoulders. During mourning both on 29th and 30th, brother allowed hair to fall over face; wore neither hat nor turban. In evening when we left he remained alone with body and small fire until return of his sister's son, who was other chief mourner.

December 30, body cremated at a point about 5 miles S. of San Luis, near house belonging to deceased. When we arrived at 2:30 P.M. corpse swathed in blankets, lay on litter of sticks (fig. 9), which later used as handles by dozen (mostly men) pallbearers.

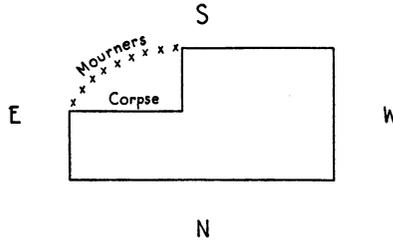


Fig. 9. Corpse and mourners in relation to house of murdered shaman.

Women seated; some had babies, and small children who were rather quiet, perhaps impressed by wailing. 50 people gathered, number increasing later. Men stood as cried, facing corpse. At feet stood brother. Nephew moved slowly about, at times putting hand on some friend's shoulder. Later stood beside elderly man for considerable time, each with arm on back of other. Grief seemed genuine with all present. Some men sat back and did not wail, or retired after wailing a bit. A man who came with us from Somerton did not participate. Frank Tehana and Mike Barley, funeral orator, who came with me, wailed. Condry Cooper, Yuma, showed his respect, then stepped back to near-by wagon where I joined him. Crying of men with 2 exceptions not chant. Only one man besides brother chanted. He was one who aided in constructing funeral pyre. Could not hear his words, but chant much briefer than brother's. Some of women's voices high soprano. One woman had very musical contralto wail, several bars long. Most of women's voices high-pitched. No shrieking. About 3:15 orator spoke for 10 or 15 minutes, 2 or 3 words at time, shouted above sound of mourners, who did not abate wailing in slightest. After few minutes followed by Mike Barley, regular funeral orator. Mike spoke for 10 or 15 minutes. Both faced S. wall of house, though first man turned face to right during latter part of address. About 3:45, 3 young men ceased wailing and proceeded to tear out 15 ft. of arrowweed walls at E. end of house and on S. side adjacent to corpse. They also tore off horizontal sticks which held arrowweed in place. One man used claw hammer. Later 2 of these 3 men rejoined mourners. Toward end of mourning, about 4:15, brother came over; conferred with Frank Tehana (my informant), standing with Condry Cooper and me. Later returned to wail, about 4:30. Few minutes later whole company arose and proceeded to pyre, 100 yards to S., across road.

Around body was large quantity of wheat. Inside house beans scattered (at least in E. room). About 4:15, 2 or 3 women built fire in E. room, apparently for warmth. 2 or 3 small children with them.

In carrying corpse on bier to pyre, bearers and mourners moved very slowly. Carried about pyre 3 or 4 times, contraclockwise, mourners marching and wailing. At pyre corpse uncovered, transverse carrying sticks removed. Corpse put into box-like

opening in log pyre, head to E., face down. Pyre a hollow box of logs with no pit beneath, short transverse logs beneath to raise whole above ground for draft. Arrowweed taken from house piled against logs. Log box about 3 ft. deep inside. After corpse in place, logs piled on top of it, blankets on top of all. Bunch of flaming arrowweed used as torch. Soon whole pyre raging mass of flame. I saw no offerings thrown on pyre, unless it was what appeared to be skirt cast by woman. When fire well under way many mourners left, as did we.

On December 31, bereaved brother came to old oil derrick near Somerton; there Cocopa assembled for cry, burning clothes of deceased. House of deceased in Sonora not burned, because farmer, on whose land it was, objected. House in which deceased lived with brother near Gadsden (on property of American farmer) burned day or so later. Animals of deceased given to people of another tribe.

Suwi, shaman, who lived near Somerton, did not attend cremation, as not safe across international boundary. Evidently someone accused him of witchcraft, too.

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EXPLANATION OF PLATES

EXPLANATION OF PLATES

Plate 33. *a*, typical delta landscape with huts and shade. *b*, house with arrowweed sides, hut. *c*, bird's-nest weave granaries. Photos by W. T. Clarke.

Plate 34. *a*, gourd rattle (3-2948)¹⁴; *b*, war club (3-2497); *c*, *d*, *e*, pots (3-2954, 3-2955, 3-2953); *f*, pestle (3-2944). *b*, 410 mm., other figures to scale.

Plate 35. Coiled storage basket with lid (3-2940a, b).

Plate 36. *a*, pottery dish (3-2957); *b*, pottery anvil, repaired (3-2949); *c*, pottery anvil (3-2950); *d*, dish (3-2952); *e*, parching bowl (3-2955); *f*, dipper (3-2956). *a*, 200 mm. diameter, other figures to scale.

Plate 37. *a*, willow-bark pillow (3-2935) for cradle; *b*, willow-bark bedding for cradle (3-2934). *a*, 205 mm. long, *b* to scale.

Plate 38. *a*, incomplete coiled basket (3-2942); *b*, bird's-nest weave storage basket for mesquite pods; *c*, woman's front dress and girdle (3-2936a, c). *b*, 360 mm. high, *a* to same scale as *b*; *c*, skirt 560 mm. long, girdle to same scale.

Plate 39. *a*, feathered lance (3-2943); *b*, shinny stick (3-2482), Akwa'ala, Santa Catarina, L. C.; *c*, feathered lance (3-2481). *b*, 1150 mm. long, *a* and *c* to same scale.

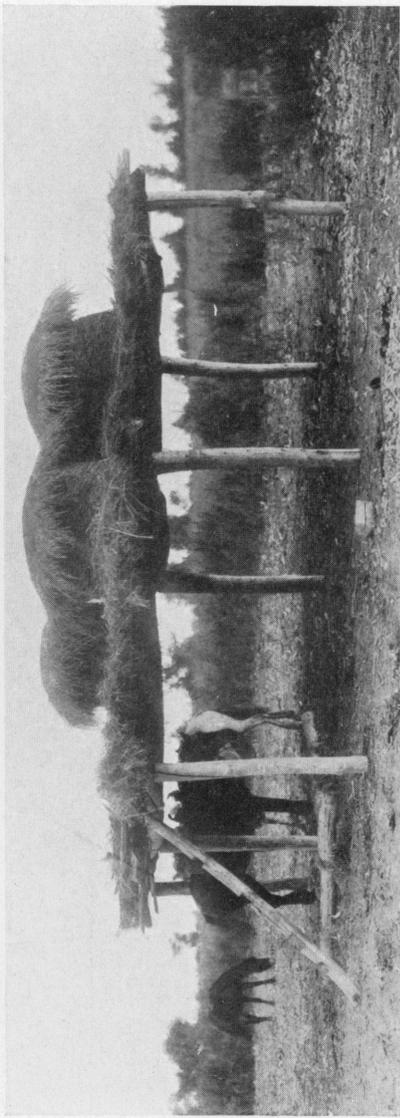
¹⁴ Specimen numbers in University of California Museum of Anthropology.



a



b



c

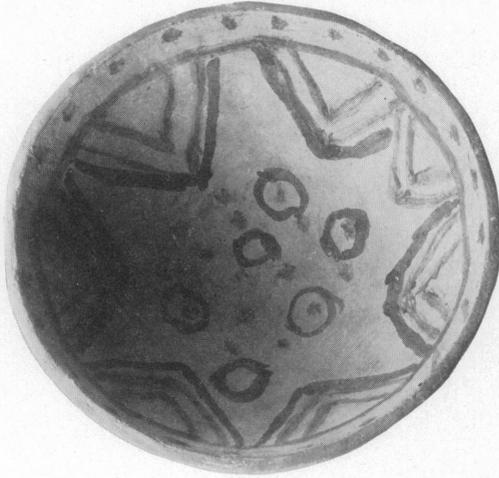
DWELLINGS AND GRANARIES



GOURD RATTLE, WAR CLUB, POTS, PESTLE



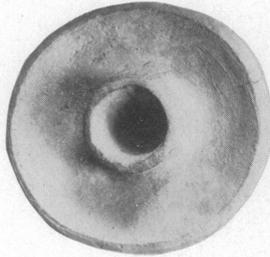
COILED STORAGE BASKET WITH LID



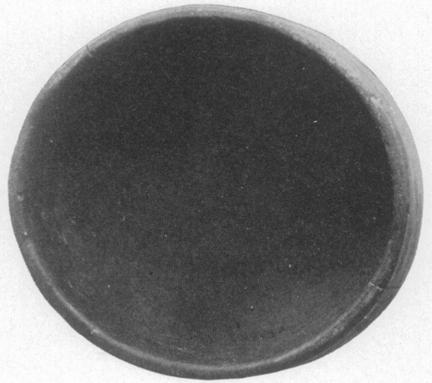
a



b



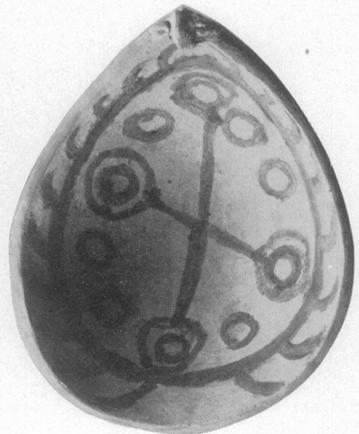
c



d

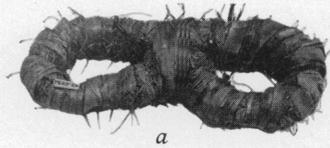


e

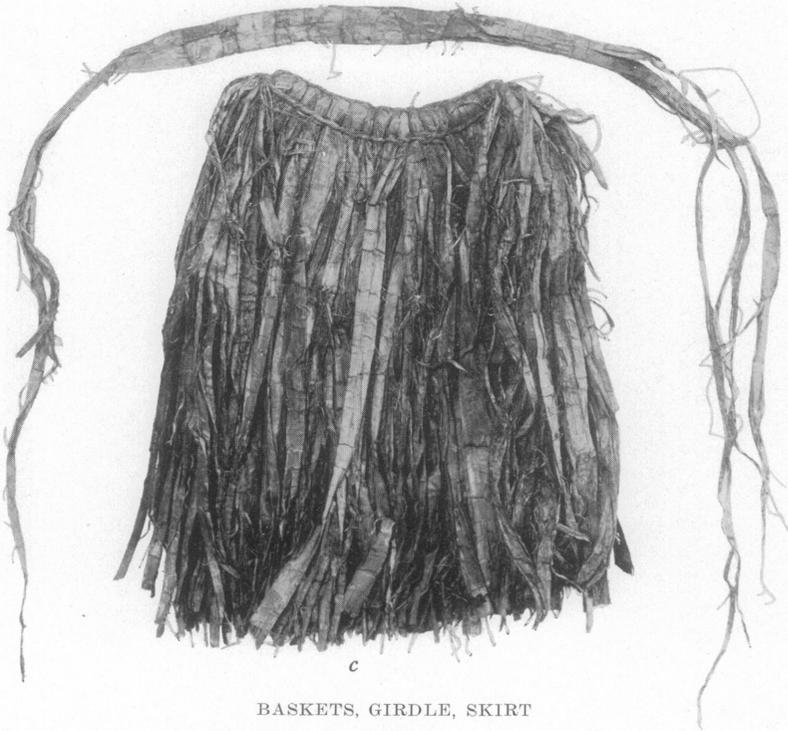
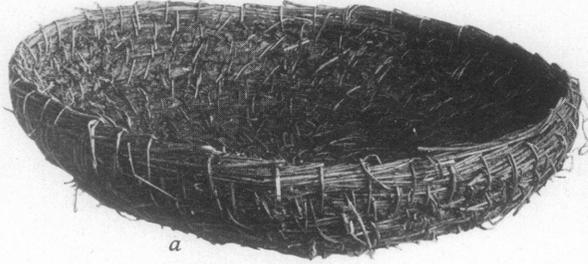


f

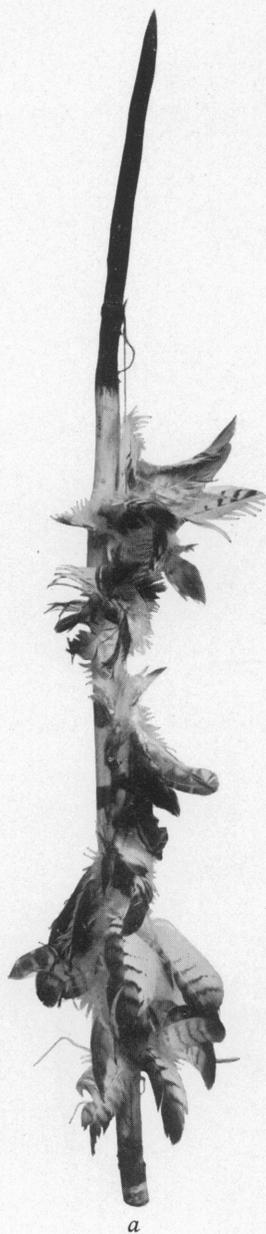
POTTERY: DISHES, ANVILS, BOWL, DIPPER



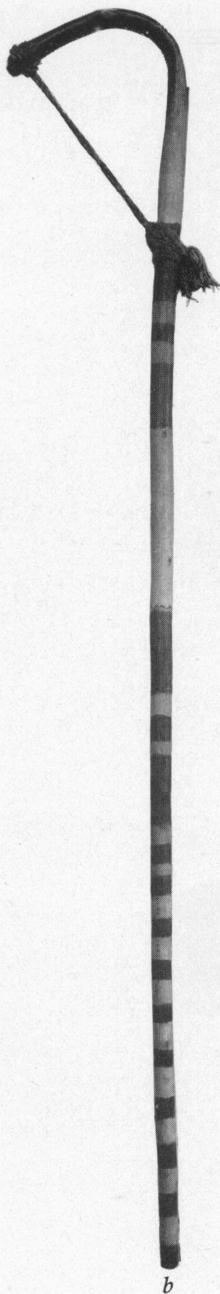
WILLOW-BARK PILLOW AND BEDDING FOR CRADLE



BASKETS, GIRDLE, SKIRT



a



b



c

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