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**TRADE ROUTES AND ECONOMIC EXCHANGE AMONG
THE INDIANS OF CALIFORNIA**

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ABSTRACT

Information referring to trade and trails in native California has been abstracted from ethnographic works and other sources which contain specific reference to the subject. Trail routes are plotted and numbered, for bibliographic reference, on one map, and another map indicates, schematically, the California groups who had occasion to use the trails. Each group thus mentioned is listed, together with itemizations of goods imported and exported.

The relative importance of traded material, based upon a count of the number of times each commodity is mentioned in the literature, is suggested by a table with the items arranged in descending order of frequency of mention.

The work is intended as a replacement and supplement to an earlier presentation (Sample, 1950), now out of print, on the same subject. (Ed.)

* * * * *

The related subjects of inter- and intra-tribal trade and the routes followed in traveling from one place to another in aboriginal California are ones which have been largely neglected by ethnographers. The lack of coverage of these topics possibly reflects a series of conscious or unconscious assumptions on the part of both informants and ethnographers. For example, it would not be unreasonable to suppose that if one San Franciscan informed another that he was going to Oakland, both parties would probably assume that the route followed would be over the San Francisco-Oakland Bay Bridge. Similarly, an Achomawi informant, for example, might offer the information that "we go to Glass Mountain to get obsidian," and unless further information is elicited by the interrogator as to the route traversed in getting there, such intelligence probably would not be volunteered because the Indian, possibly unconsciously, assumes that anyone knows how to get to Glass Mountain from a given starting point.

In spite of the lack of specific detailed coverage of these topics in all but a few ethnographic works, such as Steward's (1933) monograph on the Owens Valley Paiute, a considerable body of data may be extracted, piecemeal, from the literature. The first attempt to assemble data on the subjects of trade and trails in California appeared in 1950 in the University of California Archaeological Survey Report No. 8. The present work is offered as a replacement and supplement to its predecessor which has been out of print for a number of years.

Obviously in a research project of this magnitude several sources of information are bound to be overlooked and omissions of data are apt to occur. However, a check of the bibliography will reveal to the reader that a considerable body of literature has been utilized in this study. In all, the principal omissions in the present work have very likely been made in the area of historical sources rather than ethnographic ones. Such omissions must be considered, in a way, as deliberate and are based upon the conviction of the writer that the time involved in searching the huge volume of literature on the early history of California would not be considered well spent when balanced against the relatively small amount of information which may be gained therefrom. Frequencies of imports and exports of various items, as presented in Table 1, might be altered somewhat by additional (historical) information, but in the total picture of trade in aboriginal California alterations or adjustments based on this information probably would appear to be of only small significance.

For many years archaeologists have been aware of the distances, sometimes very great, over which preferred artifacts and materials have spread from one group to another. Such diffusion is well documented in the southwestern United States: see, for example, Ball (1941); Bennyhoff and Heizer (1958); Brand (1935, 1937, 1938); Chard (1950); Colton (1941); Fewkes (1896); Gifford (1949); Heizer (1941, 1946); Heizer and Treganza (1944); Henderson (1930); Hodge (1935); Leechman (1942); Malouf (1940); Rogers (1941); Stearns (1889); Tower (1945); and Woodward (1937). Perhaps the earliest published reference to aboriginal trade in shell products between the inhabitants of the Pacific Coast and the Southwest appears in Barber (1876:68).

Specifically, we may note the following items traded between the Puebloan Southwest and California in aboriginal times, and perhaps between Mexico and California, at least during the Mission period.

Gifford (1947:61-62) found fourteen types of ornaments and beads made from marine shell species restricted in their habitat to the Pacific Coast in various Puebloan sites which ranged in time from Basketmaker II through Pueblo IV. Tower (op. cit., p. 21) notes a similar relationship between the Southwest and California.

Kroeber (1925:934-35) and Gifford and Schenck (1926:104 ff.) note the presence of a Mohave type wooden war club, soft twined bags, and woven cotton cloth of Puebloan type, which accompanied burials (presumably Yokuts) near Buena Vista Lake in California.

Font (Bolton, 1931b:250, 275) attests to the fact that woven cotton blankets imported from the Southwest were known and used by the Chumash Indians on the coast and islands of the Santa Barbara Channel.

Gladwin and Gladwin (1935:204) report that two sherds of Hohokam red-on-buff pottery, dating from the Sedentary Period, were recovered from a Gabrielino site near Redondo Beach, California.

Walker (1945:191, 193) states in reference to a site on the northern outskirts of the city of Los Angeles:

"It was a prehistoric site, history commencing with the arrival of the Spaniards, and no white man's material, such as glass beads, iron, etc., being present.

"Arizona supplies one more or less definite date for the site owing to the discovery . . . of about twenty sherds of Arizona red-on-brown Hohokam pottery. This pottery has been identified . . . as of one vessel made in the seventh, eighth, or ninth century A.D."

For the occurrence of Hohokam and other Arizona pottery among the prehistoric Colorado tribes, see Schroeder (1952:47 ff.).

There is on record the occurrence of grooved stone axes from the Southwest among several California tribes in both archaeological and ethnographic times (Heizer, 1946, *passim*).

Merriam (1955:88-89) notes the use of tripodal metates among the Luiseño in the historic villages of Rincon and Pauma, which perhaps were derived from Mexico.

Another interesting fact concerning relations between the aboriginal peoples of the Southwest and southern California is that, according to Heizer and Treganza (*op. cit.*, p. 335), the turquoise mines in the Mohave Desert were not worked by California Indians but by Puebloan peoples coming into California in presumably rather large expeditions, who remained for some period of time before returning home.

Apparently the most important trade item entering California from the north was the shell of Dentalium pretiosum, which was traded southward from tribe to tribe from the vicinity of Vancouver Island, especially from deep water beds in Quatsino Sound (Drucker, 1950:273).

Not only were these shells traded southward to numerous California tribes as far south as the Chumash (Gifford, 1947:7), but northward to the Kogmollik and Nunatama Eskimo (Stefansson, 1919:164) and eastward at least as far as the Crow and Assiniboin (Denig, 1930:590).

Aside from establishing generalized trade routes and relations by means of determining the source(s) of imported items, the most fruitful results arising from the study of aboriginal trade has been the establish-

ment of relative or "absolute" cross-chronologies of archaeological culture manifestations areally removed from one another by considerable distance (e.g., Bennyhoff and Heizer, op. cit.; Riddell, 1958:45).

Other opinions have been expressed concerning the possible value and utility of the study of aboriginal trade and trails. For example, it has been proposed that the study of Indian trails may be an important tool in attempting to determine the distribution of aboriginal population (Dodge, 1952:235); however the suggestion received rather strong criticism on various grounds (Broek, 1952), and to my knowledge such a study has not been published.

Hill (1948:371-72) sees the consideration of trade goods and trading customs as an important aspect in the study of the processes of cultural dynamics.

Several investigators have suggested that the evolution of modern highways and railroads developed in many instances from game trails leading to such resources as salt and water. Primitive populations often utilized these natural resources, and they could be thought to have certainly expanded the game trails to include paths furnishing access to other communities and to other raw materials and food supplies as well. When Europeans settled on the eastern seaboard, there was already established a network of trails connecting many diverse locations which supplied a large number of the needs of the immigrants. However this may be, Roe (1929, passim) attempts to discredit the thesis that many modern routes of land transportation in Canada and the United States evolved from game trails, on the basis that buffalo wander and graze indiscriminately over an extensive area and that when they do move in a herd from one grazing region to another they move in a large disorganized array, rather than filing in such a way as to leave a well-defined trail.

Whatever the ultimate origin of the narrow Indian trails, we can state with assurance that from a number of them were developed military and post roads. These were later the routes followed by toll and public thoroughfares (Hulbert, 1902a:18 ff.; 1902b:143 ff.; Mills, 1914:7; Myer, 1928:735; Crawford, 1953:60 ff.).

A similar development, at least in regard to Indian trails becoming modern routes of European travel, may be noted in California. For example, Kroeber (1959:299) remarks:

"The Mohave, however, knew about the former residents on Mohave River, for their route to both the San Joaquin Valley and to the coast of southern California and subsequently to the Missions and Spanish settlements had followed Mohave River, as later an emigrant trail, then a horse express and freight route, and finally the Santa Fe Railroad followed it."

Van Dyke (1927:354) also mentions this development. It might be added that most of U.S. Highway 66 and portions of other roads follow the same path.

In addition to the route cited above, numerous other highways in California follow closely the courses of aboriginal footpaths. A listing of the more important of these routes is presented here in the Appendix.

There appears to be good reason for the fact that many Indian trails in California could later become modern highways. For example, Beattie (1925:230) states:

"This region [the Colorado Desert in California] had been inhabited by Indians for generations, and was traversed by well-established trails. When Sonorans and Americans began coming into California, they naturally followed the old paths whenever possible."

Many of the early travelers in California either received directions from Indians or were accompanied by native guides. Examples of this are seen in Anza's 1774 expedition (Bolton, 1930; 1931:216; Beattie, 1933a: 54-55, 61); Portola's 1769-1770 travels (Teggart, 1911:9, 25, 27, 111; Bolton, 1927:89, 151; Priestley, 1937:8; Smith and Teggart, 1909:33); McKee's route from Clear Lake to Humboldt Bay (Gibbs, 1853:124); the establishment of "El Camino Viejo A Los Angeles" (Latta, 1936:3); the "Walla Walla Road" (Heizer, 1942; Maloney, 1945); Fremont's 1844 journey (Fremont, 1845:206, 219, 254, 298); Whipple's route from San Diego to the Colorado River (Whipple, 1951:2, 13); Garces' travels along the Colorado River and Mohave Desert in 1776 (Kroeber, 1959:304). For other instances of California and neighboring Indians furnishing directions or drawing maps for Caucasian explorers, see Heizer (1958a, passim).

All of the paths mentioned in the preceding paragraph are not plotted on the accompanying map for one reason or another, usually lack of detailed information (e.g. McKee's route from Clear Lake to Humboldt Bay). Some, such as that described for Portola's expedition (trail 77)*, have been traced only in part because only a portion of the pertinent narrative may contain specific detail. Others have been plotted in their entirety because of assumed reasonable exactness, for example, "El Camino Viejo A Los Angeles" (trail 102), and Fages' route across the Cuyamaca Mountains to San Diego (trail 94).

Various observations and statements concerning the general course of travel or character of trails in California are on record, for example, Kroeber (1929:255) states that among the Valley Nisenan (Southern Maidu),

* See page 66 and Map 1.

"It is clear that native communications prevailingly followed the large streams." Barrett and Gifford (1933:256) observe, "Miwok trails were usually almost airline in their directness, running up hill and down dale without zigzags or detours." Referring to Wailaki trails, Powers (1877:119) relates:

"Time and again I have wondered why the trails so laboriously climb over the highest part of the mountain. . . .

"When the whole face of the country is wooded alike, the old Indian trails will be found along the streams; but when it is somewhat open they invariably run along the ridges, a rod or two below the crest. . . . The California Indians seek open ground for their trails that they may not be surprised either by their enemies or by [animals]."

Along the trans-Sierran trails, Muir (1894:80) observed:

"It is interesting to observe how surely the alp-crossing animals of every kind fall into the same trails. The more rugged and inaccessible the general character of the topography of any particular region, the more surely will the trails of white men, Indians, bear, wild sheep, etc., be found converging in the best places."

Concerning these same trans-Sierran routes, Hinde (1959:13) states that, "Modern trails marked on the present day U. S. Geological Survey maps coincide to a great extent with old routes said to have been used by the Indians." Farmer (1935:156) says that the trail along the Santa Clara River (trail 77 on the accompanying map) followed the ridges above the canyons rather than the floors of the canyons.

In most regions Indian trails are difficult or impossible to recognize today, in fact many trails were originally so narrow that they served merely as footpaths for humans, and horses could not negotiate them in brush country (Dale, 1918:243). But in the arid desert regions of California one may still recognize at least remnants of the ancient pathways (Gates, 1909; Johnston and Johnston, 1957; Belden, 1958; Jones, 1936; Rogers, 1945:181; Wallace, 1958:8). Referring to these desert trails, Johnston and Johnston (op. cit., p. 23) observed:

"Although the singular word 'trail' will be used throughout this paper, in actuality seldom, and then but for brief stretches, did any of the recorded sections contain only one trail. Almost always there were two or more subsidiaries running parallel to what might be considered the main trunk."

Certain features have been suggested as being associated with Indian trails in different regions of the state. The best documented of such associations are the trailside "shrines" located at irregular intervals along numerous trails in the southern California deserts (Jones, op. cit.; Rogers, 1945:181; Johnston and Johnston, op. cit.; Jaeger, 1933:128; Wilhelm, 1951; Castetter and Bell, 1951:57; Schroeder, 1952:45). Such shrines were also present in Wappo territory (Yount, 1923:61; Heizer, 1953:247, Pl. 31a, b). These shrines consist of piles of rocks, many of which contain "offerings" of potsherds, beads, or other articles. Powers (op. cit., p. 58) and Goddard (1913:passim) relate that the Yurok dropped twigs and stones at the junctions of trails, which in some places accumulated into considerable piles of brush. Similar shrines were also erected by the Chilula (ibid, p. 280). The Yurok also shot arrows into certain trees and made offerings at specific traditional resting places on the trail, as did the Wiyot (Loud, 1918:252-53). Other groups appear to have occasionally marked trails with rocks, for example, the Yana (Anderson, 1909:16) and the Serrano (Campbell, 1931:18). Mallery (1886:34-35) suggests that pictographs are located at or near the origin of the several trails passing over the Santa Ynez Mountains in Chumash territory.

The question of time-depth relating to the establishment, use, or abandonment of the trails is an important one. It is practically impossible, however, in the light of present knowledge, to unravel such history or the time-span of the use of the trails. In this connection, it may be of interest to note a statement by Elsasser (n.d., p. 10): "It is obvious, of course, that trails, however faint, would have to connect one site with another whether the sites were used synchronically or diachronically."

The only date-range I have been able to find for the aboriginal, i.e., pre-European contact, use of a trail (or at least portions of a trail) in California is supplied by Harner (1957:36). Such dating is based upon the occurrence of datable pottery at the trailside shrines along the San Geronio-Big Maria trail as defined by Johnston and Johnston (op. cit., passim; trails 83, 86, 87, and 91 on Map 1 of this paper). The range of dates as cited by Harner extends from 900 A.D. into the historic period, ca. 1900 A.D.

Proposed trails 8 and 9 on Map 1 terminate at Glass Mountain, the formation of which has been dated by means of radiocarbon analysis. Concerning this date, Heizer (1958b:3, discussion of sample C-673) says, "Glass Mountain obsidian, widely used by Indians in Northern California . . . could not, therefore, have been available before 600 A.D."

At present one may only assume that the trails plotted on the map represent different orders of time of use. Some, such as the Mohave trade route, may be quite ancient, while others, such as the "Walla Walla Road" and "El Camino Viejo A Los Angeles," may be quite recent.

In aboriginal California, the most prevalent type of trade appears to have been a simple exchange of goods considered to be of approximately the same value. The outright purchase of desired commodities, through a developed monetary system based primarily upon lengths of strings of clam shell disc beads, was perhaps the next most common method of obtaining desired articles.

Other less common, although not infrequently practiced, methods of securing goods include: the free reciprocal use of at least portions of one another's resources (Merriam, 1955:76; Barrett, 1908:134, 1910:240; Drucker, 1937:289; Garth, 1953:131, 154; Gifford, 1931:35); the purchase of a favorable locale in another territory which then became the semi-permanently owned property of the purchaser (Waterman, 1920:222); the payment to a "chief" to allow a one-trip hunting, fishing, or gathering expedition (Garth, op. cit., p. 136; Loeb, 1926:195); a direct clandestine invasion of another group's territory to obtain articles by theft, which frequently resulted in warfare (Merriam, 1955:16-17; Kroeber, 1925:236; Loeb, op. cit., p. 174).

In addition to formal barter or purchase of goods, many of the California tribes practiced a generally informal exchange of "gifts" (Boscana, 1933:42); however, it was not gift-giving without expectation of reciprocal exchange, for the recipient was generally expected to return items of equal or most often greater value at some future time.

Two restrictions to primitive trade noted by MacLeod (1927:271 ff.) appear not to have operated in aboriginal California. The first of these involves a tribute payment for, or imposition of, a toll on goods passing through the territory of an intervening group. In the first place, the nature of intertribal relations and transportation and exchange of goods militated against such restrictions. Seldom in California did one group pass through another's territory, and in the few cases where this did take place, certain circumstances existed which prevented or affected such tribute or toll collection. As one illustration could be cited the case of the Mohave who traveled through the territory of several intervening groups to trade with the Yokuts and Chumash. Much of the country over which they traveled was very sparsely populated desert. In addition, the Mohave were perhaps the most fierce, fearsome, and feared fighters in California (Stewart, K. M., 1947), and any attempt to exact tribute from them would probably have been met with a kind of warfare quite foreign to the usual Californian pattern of taking flight when the first man was wounded. A similar set of circumstances may be pointed out in relation to the Modocs, who were feared as warriors in northern California as much as the Mohave were in southern California, and who were perhaps the only other tribe besides the latter in the state who habitually traveled through the territory of other tribes.

Another instance concerns the direct trade relations between the Eastern Mono (Northern Paiute) and the Yokuts. In this case, the intervening group through whose territory the Paiute passed, the Western Mono (Monachi), were close relatives, both linguistically and socially, of the Paiute. Members of the Paiute trading parties accordingly were welcomed as friends by the Monachi, although the Yokuts with whom they traded feared and disliked them.

Much the same set of circumstances as cited above prevailed in California in the few cases where direct transport of goods was accomplished through the lands of an intervening group.

The procedure most widely recognized in California was the exchange of goods between tribes having a common border. In most cases, groups fortunate enough to be geographically situated to act as middlemen in the flow of commodities naturally marked up the "price" of articles passing through their lands, but this resulted only after the goods had been incorporated into their body of products available for trade.

The second restriction of the two alluded to above involved individual monopoly for discovering a new trade item. It is true that certain near-monopolies existed on a tribal basis in California, such as the Pomo near-monopoly in the manufacture of magnesite beads and the making of clam disc beads by the Coast Miwok and Pomo, but these were due to geographic considerations rather than to a formally recognized right. (Some additional references relating to trade restrictions in California which may be cited for the benefit of the interested reader are: Schenck, 1926:143; Forde, 1931:105; Muir, 1917:80-81; Stratton, 1935:105-6; Barrett and Gifford, *op. cit.*, pp. 251, 256; Holmes, 1900:177; Treganza, 1952:20-21; Garth, *op. cit.*, pp. 131, 137; Murphey, 1941:360-61).

Despite what has been said above, it appears that there were in fact some factors which tended to restrict a free and reciprocal exchange of goods in aboriginal California. Some neighboring tribes, for instance, felt hostility or fear toward one another, or were perhaps adversely affected by geographical features, such as existed between the Washo and Maidu, who apparently had little to do with each other socially or in a trading relationship (Kroeber, 1925:399; Dixon, 1905:201). The Yuma had little contact with the Cocopah, except perhaps in warfare (Whipple, *op. cit.*, p. 19). Even though the Kings River Yokuts were quite unfriendly to, and distrustful of, the Monachi and Mono-Paiute, a great deal of goods nevertheless passed between them. However, concerning this relationship, Gayton (1946:259) points out:

"Thus two types of environmental factor, topographic access or hindrance,

and 'weather-permitting' or hindering, affected the economic relation of the foothill Yokuts with their neighbors. Easy access does not necessarily mean exchange of goods or other cultural items, but barriers do retard them. On the other hand, differing environments mean different products, and had Eastern Mono products been identical with Yokuts (yet equally accessible) the impetus to exchange would have been wanting."

On the other hand, some neighboring tribes were apparently very friendly and enjoyed much visiting back and forth; for example, the Tübatulabal and Southern Yokuts (Kroeber, 1925:606), the Northeastern Pomo and the Yuki (Barrett, 1904:190), and the Tolowa and the Karok (Waterman, 1925:528). Such visiting would tend also to accelerate exchange of commodities.

Generalized routes or streams of diffusion of items have been noted in aboriginal California. Probably the best example of this is seen in the flow of clam disc beads northward from the region about San Francisco Bay and the reciprocal southward movement of pelts, sinew-backed bows, and stonework. The Central and Northern Wintun acted as middle-men in this exchange, contributing little or nothing to the flow except perhaps the re-grinding of imperfect shell beads, yet profiting from the opposing streams of diffusion (Goldschmidt, 1951:336-37).

Kroeber (1925:309) notes the exchange of shell beads up the Pit River for furs passing downstream.

Gayton (1948a:56) observed the eastward flow of shell beads from the Chumash through the Yokuts to the Eastern Mono (Mono-Paiute) as opposed to a westward movement of various goods in exchange.

The routes of diffusion of various religious cults and movements in California are presented by Du Bois (1939). These are relatively late in time and it must therefore be recognized that they were possibly greatly altered by historic conditions and may not reflect an aboriginal pattern of paths of diffusion.

One of the most interesting accounts concerning long-distance travel for trading purposes in California is based on the expeditions of Walla Walla, Cayuse, and Nez Percé Indians, who traveled, after 1800, on horseback from eastern Washington up the Deschutes River, thence down the Pit and Sacramento Rivers as far south as Sutter's Fort (Heizer, 1942; Maloney, 1945:230; Hussey and Ames, 1942) and the cinnabar deposits at New Almaden, south of San Francisco (Heizer and Treganza, op. cit., p. 298).

That this trail, "the Walla Walla Road," is probably quite recent is admitted by the investigators cited above. It conceivably could be, how-

ever, an ancient diffusion route (Davis, 1959:26, Map 1) which through time became a trail in the usually understood sense.

It will be noted in the accompanying list of tribes and articles traded, that all tribal divisions and dialect groups are not consistently segregated; for example, the Pomo are treated as a single entity, while each of the separate Yokuts groups is treated individually. The reason for this variance is that many of the various Pomo groups traveled quite freely throughout much of the entire tribal area at different times of the year, and also because many references do not specify the precise subgroup involved in trading activities. On the other hand, even though the Yokuts are occasionally referred to generically, most of the references to trading practices are specific.

The number of times each article or commodity is mentioned in the literature as having been traded from one group to another is presented in the following table, arranged in descending order of frequency. One occurrence as an export or import is counted for each mention of a group's trading an article to or receiving an item from another group. However, if the reference is to one group's trading three different kinds of animal hides, for example, to one other group, that occurrence is counted only as one rather than three. On the other hand, if it is stated by informants that one group traded but one kind of hide to three other groups, such occurrence is counted as three.

From Table 1, it appears that the classes of items most frequently traded among the California Indians were food (including salt) and tobacco (mentioned 321 times), followed in order by beads and shell products (230), various manufactured goods (205), various raw materials (174), clothing and textiles (68), feathers and birds (25), and miscellaneous items (15).

Swanton (1907:446) noted that shell beads and animal hides were the most common media of exchange in aboriginal North America. Concerning their utilization as items possessing fixed values, this statement is possibly true; however, in California, as stated above, salt as a single item, and foods in general, apparently were more often exchanged.

As Driver and Massey (1957:377) remarked in summarizing Sample's (op. cit.) data:

"It is apparent that there is no simple explanation of the frequencies of the various trade goods. They are determined by local differences in availability, local differences in craft specialization, local differences in re-tradability with another neighbor, and local tastes and preferences for one item instead of another."

On Map 1 are depicted trails known to have been utilized by the aboriginal inhabitants of California, and proposed routes whose probable existence is supported by substantiating evidence. Only major trails are numbered and references are cited for them individually. For unnumbered trails in a geographic region, references are cited only in general terms for the area as a whole. No trail appears on the map for which there is no supporting evidence in the literature.

It may seem to be a simple matter to plot a series of trails on a map, assign numbers to each trail, and then cite references for defined routes. However, numerous difficulties arise in the process of attempting to carry out what appears to be a simple mechanical procedure. For example, J. R. Swanton has remarked in his preface to Myer's (op. cit., p. 731) work:

"It should be remembered that there is and always must be considerable artificiality in the determination of what constitutes a trail, and where a trail begins and ends."

In addition to this problem is the one presented by the considerable overlapping of references to a trail. For example, the trail along the Klamath River could be completed only after examining references to parts of the route in several different sources. In spite of such difficulties as these, it is believed that specific information concerning a particular path may be found in one or more of the references cited for the region in which the trail occurred.

TABLE 1
Number of Times Items Are Mentioned in Literature
as Being Imported and Exported

Item	Im-ported	Ex-ported	Total
Salt	39	40	79
Basketry	40	36	76
Hides and pelts	38	30	68
Marine shell beads (other than those separately listed)	30	28	58
Acorns	24	23	47
Dentalia	23	22	45
Clam disc beads	22	22	44

TABLE 1 [continued]

Item	Im-ported	Ex-ported	Total
Whole or fragmentary marine shells	21	21	42
Fish	20	17	37
Obsidian	19	16	35
Bows (other than sinew-backed and unspecified)	15	15	30
Pigments and paint	17	12	29
Miscellaneous vegetal foods	15	14	29
Pine nuts (other than piñon)	13	11	24
Sinew-backed bows	11	9	20
Molluscs and echinoderms	9	10	19
Caucasian goods (guns, horses, glass beads, axes, fishhooks)	8	11	19
Rabbit-skin blankets	9	9	18
Arrows	9	9	18
Miscellaneous seeds and nuts	7	9	16
Seaweed and kelp	7	6	13
Piñon nuts	6	7	13
Stone arrowheads, blades, etc.	6	7	13
Miscellaneous beads	5	7	12
Animal meat	6	5	11
Tobacco	5	6	11
Woodpecker scalps	5	5	10
Miscellaneous fruits and berries	6	4	10
Tailored skin slothing	6	4	10
Moccasins	5	5	10
Magnesite beads	6	4	10
Dugout canoes	5	5	10
Eagle and hawk feathers	6	3	9
Insect foods	5	4	9
Tobacco seeds	2	6	8
Skin robes	5	3	8
Basketry raw materials	5	3	8
Steatite	5	3	8
Wooden fire drills	4	3	7
Horn for spoons	3	3	6
Material for fiber	2	4	6
Pine nut beads	2	4	6
Miscellaneous foods	3	3	6
Pottery	2	3	5
Yellowhammer feathers	3	2	5
Asphaltum	3	2	5

TABLE 1 [continued]

Item	Im-ported	Ex-ported	Total
Miscellaneous vegetal material	3	2	5
Shell ornaments	3	2	5
Woven fiber blankets and cloth	4	-	4
Miscellaneous sea foods	2	2	4
Dogs	3	1	4
Seeds for planting	2	2	4
Woven tule or fiber mats	2	2	4
Hot rock lifters of wood	2	2	4
Steatite vessels	2	2	4
Sinew	1	2	3
Gourd rattles	2	1	3
Cordage and rope	2	1	3
Miscellaneous articles	2	1	3
<u>Olivella</u> shell beads	1	1	2
Juniper seed beads	1	1	2
Woven pack straps	1	1	2
Unspecified clothing	1	1	2
Nets	1	1	2
Skirts (other than hide)	1	1	2
Stone and wood tobacco pipes	1	1	2
Miscellaneous chipped stone tools	1	1	2
Wooden vessels	1	1	2
Log rafts	1	1	2
Stone mortars and pestles	1	1	2
Clay for pottery	1	1	2
Pumice stone	1	1	2
Pepperwood pods (for hair dressing)	1	1	2
Human slaves	1	1	2
Miscellaneous unworked stone	1	1	2
Steatite beads	1	-	1
Live eagles	1	-	1
Fiber sandals	1	-	1
Feather robes	1	-	1
Sea lion harpoon heads	1	-	1
Wooden digging sticks	1	-	1
Wood for bows	1	-	1
Woven wool ponchos	1	-	1

On the following pages are set forth the details of trade, with the ethnographic groups concerned, arranged in alphabetic order. The inter-connections between Californian groups are shown graphically on Map 2. Each group shown as a major heading may be keyed to Map 2 by means of a following identification number and letter, as, for example, ACHOMAWI:6e.

ACHOMAWI:6e

Supplied to:

Atsugewi	Basketry caps, salmon flour, acorns, salmon, dentalia, tule baskets, steatite, rabbit-skin blankets
Modoc	Shell beads, shallow bowl-shaped twined baskets, braided grass skirts, pine nut string skirts
Northeastern Maidu	Green pigment, obsidian, bows, arrows, deer skins, sugar pine nuts, shell beads
Northern Wintun	Salt, furs, bows
Northern Paiute	Sinew-backed bows, arrows, baskets, dried fish, women's basketry caps, clam disc beads, dried salmon flour
Yana	Obsidian
Unspecified tribes	Raw sinew, bows

Received from:

Modoc	Furs, bows, dentalia, horses
Atsugewi	Seed foods, epos roots (<u>Pteridendia bolanden</u>), other roots and vegetables, furs, hides, meat
Yana	Buckeye fire drills, deer hides, buckskin, dentalia, salt
Northern Wintun	Salmon flour, clam disc beads, dentalia
Northern Paiute	Sinew, arrowheads, red paint, buckskins, moccasins, rabbit-skin blankets, various foods, basketry water bottles
Shasta	Dentalia
Northeastern Maidu	Clam disc beads, salt, digger pine nuts
Unspecified tribes	Completed sinew-backed bows, magnesite beads, <u>Olivella</u> shells, dentalia

ACHOMAWI [continued]

References: Dixon, 1908:211,215; Curtis, 1924:13:131; Kroeber, 1925:399; Kniffen, 1928:316-17; Spier, 1930:42,178-90; Kelly, 1932:114,151; Du Bois, 1935:25; Gifford and Klimek, 1936:83,91-92,98; Stewart, O. C. 1941:432; Voegelin, E. W., 1942:179,191,194,196,199,201; Sapir and Spier, 1943:258; Garth, 1953:136,183; de Angulo and Freeland, 1929:320.

ATSUGEWI:6f

Supplied to:

Achomawi	Furs, hides, meat, seed foods, epos roots, other roots and vegetables
Northern Paiute	Bows, baskets, shell beads
Northeastern Maidu	Bows, twined baskets, furs, horses
Yana	Buckskin, arrows, wildcat quivers, wood-pecker scalps

Received from:

Achomawi	Basketry caps, salmon flour, steatite, acorns, salmon; dentalia, tule baskets, rabbit-skin blankets
Northern Paiute	Horses, buckskins, red ochre, glass beads, guns, <u>Olivella</u> beads
Yana	Salt, dentalia, buckeye fire drills
Klamath	Baskets
Northeastern Maidu	Clam disc beads, coiled baskets, skins
Northern Wintun	Clam disc beads, dentalia

References: Dixon, 1905:201; 1908:211; Kniffen, 1928:316-17; Voegelin, E. W., 1942:196,201; Sapir and Spier, 1943:258; Garth, 1953:130,136,139; Spier, 1930:178,190.

BUENA VISTA YOKUTS:20g

Supplied to:

Southern Valley Yokuts: Asphaltum

Reference: Latta, 1949:65

CAHUILLA:21t

Received from:

"The East"	Gourd rattles, red paint
Yuma	Gourd rattles
Chemehuevi	Basketry caps, conical burden baskets

References: Kroeber, 1908:42,62; Curtis, 1924:15:25

CENTRAL MIWOK:18e

Supplied to:

Eastern Mono	Shell beads, glass beads, acorns, squaw berries, elderberries, manzanita berries, a fungus used in paint, baskets, sea shells, arrows
Washo	Acorns, soaproot leaves for brushes
Yokuts (subgroup not specified)	Baskets, bows, arrows

Received from:

Eastern Mono	Pine nuts, pandora moth (<u>Coloradia pandora</u>) caterpillars, kutsavi (pupae of the fly <u>Ephydra hians</u>), baskets, red paint, white paint, salt, pumice stone, piñon nuts, buffalo robes, rabbit-skin blankets
Yokuts (subgroup not specified)	Dogs

References: Clark, 1904:45-46; Bunnell, 1911:86; Barrett, 1917:14-15; Barrett and Gifford, 1933:193,221,224,270; Steward, 1933:257; Godfrey, 1941:57; Aginsky, 1943:454; McIntyre, 1949:5.

CENTRAL WINTUN (NOMLAKI):16b

Supplied to:

Northwestern Maidu	Clam disc beads, other shell beads
Patwin	Pine nuts, acorns, seeds, game, bear hides, beads, sinew-backed bows
Yuki	Salt
Yana	Clam disc beads, magnesite beads

CENTRAL WINTUN (NOMLAKI) [continued]

Received from:

Patwin	Salmon, river otter pelts, game, beads
Northern Wintun	Obsidian
Yana	Baskets
Yuki	Black bearskins

References: Powers, 1877:240; Kroeber, 1925:399,421; 1932:274;
Gifford and Klimek, 1936:83,91-92,98; Goldschmidt, 1951:336-37,
418-19.

CHEMEHUEVI (SOUTHERN PAIUTE):21e

Supplied to:

Western Yavapai	Shell beads
Cahuilla	Basketry caps, conical burden baskets

References: Kroeber, 1908:42; Gifford, 1936:254.

CHILULA:1d

Supplied to:

Yurok	White grass used in basketry
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Reference: O'Neale, 1932:144.

CHIMARIKO:9

Received from:

Wintun	Obsidian
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Reference: Dixon, 1910:300.

COAST MIWOK:18a

Supplied to:

Wappo	Clam shells, abalone shells
Pomo	Clam shells, clam disc beads

References: Driver, 1936:194; Curtis, 1924:13:131,257.

COAST YUKI:4c

Supplied to:

Kato	Mussels, seaweed, dry kelp for salt, salt, surf fish, abalone, giant chiton
Karok	Whole clam shells
Pomo	Surf fish, abalone, giant chiton, mussels, seaweed, dry kelp for salt, shells of <u>Hinnites giganteus</u>
Yuki	Salt, fish

Received from:

Kato or Yuki (?)	Tobacco
Kato	Redbud baskets, hazel bows
Yuki	Obsidian
Pomo	Clam disc beads, acorns, fire drills of buckeye wood, beads of <u>H. giganteus</u> shell
"The North"	Bone sea-lion harpoon head, red obsidian

References: Gifford, 1939:303ff., 332, 334, 335, 338, 340, 342, 355; Driver, 1939:382, 398; Essene, 1942:56, 61; Foster, 1944:167.

COSTANOAN:19c, f

Supplied to:

Yokuts (subgroup referred to as "Tulare Yokuts")	Mussels, abalone shells, salt, dried abalone
Sierra Miwok (subgroup not specified)	<u>Olivella</u> shells

Received from:

Yokuts (subgroup referred to as "Tulare Yokuts")	Piñon nuts
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References: Pilling, 1950:438; ms., n.d.; Barrett and Gifford, 1933: 251-52.

DIEGUEÑO: 15b

Supplied to:

Mohave	Acorns
Kamia	Tobacco, acorns, baked mescal roots, yucca fiber, sandals, baskets, carrying nets, eagle feathers
Cocopa	Eagle feathers
Yuma	Acorns

Received from:

Cocopa	Salt
Mohave	Gourd seeds
Kamia	Vegetal foods, salt
"The Desert" ¹	Tule roots, bulbs, cattail sprouts, yucca leaves, mescal, pine nuts, manzanita berries, chokecherries, mesquite beans
Yuma	Gourd seeds

References: Spier, 1923:349; Gifford, 1931:17, 23, 25, 35, 37-40; 1933:279; Drucker, 1941:172; Curtis, 1924:15:43.

EASTERN MONO (NORTHERN PAIUTE)²: 21b

Supplied to:

"The West" ³	Mineral paint, salt, pine nuts, seed food, obsidian, rabbit-skin blankets, tobacco, baskets, buckskins, pottery vessels, clay pipes
Central Miwok	Pine nuts, pandora moth caterpillars, kutsavi, baskets, red paint, white paint, salt, pumice stone, rabbit-skin blankets

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1. The list includes several mountain grown species, probably actually obtained from the Mountain Cahuilla rather than the desert.
 2. Also called Owens Valley or Mono Lake Paiute.
 3. Central Miwok, Southern Miwok, Western Mono, Tübatulabal, Yokuts.

Southern Miwok	Rabbit-skin blankets, basketry materials
Tule-Kaweah Yokuts	Sinew-backed bows, piñon nuts, obsidian, moccasins, rock salt, jerked deer meat, hot rock lifters
Kings River Yokuts	Red paint
Washo	Kutsavi
Koso	Shell beads, various goods
Western Mono	Mineral paint, pitch-lined basketry water bottles, acorns, rock salt, piñon nuts, mountain sheep-skins, moccasins, tailored sleeveless buckskin jackets, fox-skin leggings, hot rock lifters, sinew-backed bows, unfinished obsidian arrowheads, red paint
Yokuts (subgroup not specified)	Salt, piñon nuts
Tübatulabal	Salt, pine nuts, baskets, red and white paint, tanned deer skins, kutsavi, pandora moth caterpillars

Received from:

"The West"	Squaw berries, ⁴ shell beads, glass beads, acorns, baskets, manzanita berries, bear skins, rabbit-skin blankets, elderberries
Central Miwok	Arrows, baskets, clam disc beads, shell beads, glass beads, acorns, squaw berries, elderberries, manzanita berries, a fungus used in paint
Paiute to east	Black paint, yellow paint
Southern Miwok	Clam disc beads

4. In previous literature these are believed to have been referred to as "sow-berries" (Steward, 1933:257; Sample, 1950:17). However, an attempt to determine the scientific name for sow berries has failed, and it is believed that the species referred to is Rhus trilobata Nutt. (Squaw Bush) which grows in narrow valleys or canyon bottoms along the western slope of the Sierra Nevada at elevations between 1000-4000 feet (Jepson, 1951:608). Its branches were a favorite basketry material (cf. Brubaker, 1926:77).

EASTERN MONO (NORTHERN PAIUTE) [continued]

Received from:

Tule-Kaweah Yokuts	Deer, antelope, and elk skins, steatite, salt grass, salt, baskets, shell beads
Western Mono	Shell beads, acorn meal, fine Yokuts baskets
Koso	Salt
Yokuts (subgroup not specified)	Shell ornaments, buckskins, acorn meal
Tübatulabal	Shell beads, acorns, manzanita berries, elderberries, baskets, rabbit-skin blankets

References: Clark, 1904:45-46; Bunnell, 1911:86; Muir, 1916:228; Gifford, 1932:21, 26; Barrett and Gifford, 1933:193, 224, 255-56; Steward, 1933:250, 257, 266, 277; 1935:8, 10, 19-20; Driver, 1937:120; Godfrey, 1941:57; Aginsky, 1943:454; Gayton, 1948a:56; 1948b:146; McIntyre, 1949:5; Latta, 1949:64; Heizer, 1950:39, Merriam, 1955:76, 112; Steward, 1938:78; Stewart, G. W., 1927:391.

GABRIELINO⁵:21m

Supplied to:

Serrano	Shell beads, dried fish, sea otter pelts, steatite vessels
Unspecified tribes	Roots

Received from:

Serrano	Acorns, deer skins, seed foods
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References: Kroeber, 1925:630; Strong, 1929:95-96; Eisen, 1905:9.

HALCHIDHOMA⁶:15e

Supplied to:

Maricopa	Tobacco seeds
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5. Apparently the Island (Santa Catalina) Gabrielino carried on most of the trade with the mainland group, who, in turn, traded the material inland.
6. Refers to trade carried on before the Halchidhoma were driven out of their former lands in the Colorado River Valley.

Hopi Cotton

Received from:

Hopi Woven blankets and cloth

References: Spier, 1933:43; Coues, 1900:423; Bolton, 1930:2:386

HUCHNOM:4b

Supplied to:

Yuki Clam disc beads, sea foods, clams, salt,
whole clam shells, kelp

Lassik Clam disc beads

Received from:

Pomo Clam disc beads

References: Essene, 1942:54,56,61; Foster, 1944:173-74.

HUPA:1c

Supplied to:

Yurok Inland foods, skins, acorns

Mattole Grass for rope, pine nut beads

Shasta Acorns, baskets, dentalia, salt

Received from:

Yurok Woven pack straps, smelt, redwood dugout
canoes, dried sea foods, surf fish,
mussels, salty seaweed, dentalia

Wiyot White deerskins

Mattole Angelica root, tobacco, Haliotis shell,
various foods

Northern Wintun Salt

Shasta Buckskin, pine nuts, horn for spoons

References: Goddard, 1903:8,31,50; Dixon, 1907:435; Loud, 1918:250;
Kroeber, 1925:132; Nomland, 1938:105; Driver, 1939:382,386-87;
Voegelin, E. W., 1942:177.

ISLAND CHUMASH:14h

Supplied to:

Mainland Chumash	Chipped stone implements, fish bone beads, shell beads, baskets, a dark stone for digging-stick weights
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Received from:

Mainland Chumash	Seeds, acorns, bows, arrows
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References: Heizer, 1955:151,154; Eisen, 1905:12; Bolton, 1931b:272.

KAMIA:15c

Supplied to:

Diegueño	Vegetal foods, salt
Yuma	Tobacco

Received from:

Diegueño	Tobacco, acorns, baked mescal roots, yucca fiber sandals, baskets, eagle feathers, carrying nets
Cocopa	Shells from Gulf of California
Yuma	Tobacco

References: Gifford, 1931:17, 23, 25, 35, 37-40; 1933:279; Forde, 1931:117; Curtis, 1924:15:43.

KAROK:8

Supplied to:

Shasta	Tobacco seeds, baskets, dentalia, salt, seaweed, tan oak acorns, canoes, pods for hair dressing, pepperwood, <u>Haliotis</u> ornaments, <u>Haliotis</u> shells, whole <u>Olivella</u> shells
Tolowa	Soaproot, pine nut beads
Konomihu	Dentalia, baskets
Yurok	Dentalia

Received from:

Shasta	Basketry caps, juniper beads, salt, dentalia, white deer skins, woodpecker scalps, obsidian, sugar pine nuts, wolf skins, deer skins, large obsidian blades, horn for spoons
Wailaki	Dentalia
Coast Yuki	Whole clam shells
Yurok	Whole <u>Olivella</u> shells, tobacco seeds, dugout canoes, clam shells, pipes, bows
Tolowa	Smelt, dentalia
Nongatl	Salt
Konomihu	Furs, deer-skin clothing
Unspecified tribes	Clam disc beads

References: Dixon, 1907:432,436; Kroeber, 1925:283-84,287; Harrington, 1932:128,162; Drucker, 1937:243; Driver, 1939:382-83,386; Essene, 1942:61; Voegelin, E. W., 1942:177,197-98,200-1; Holt, 1946:312,340; Waterman, 1925:529.

KATO:lk

Supplied to:

Lassik	Clam disc beads
Coast Yuki	Hazelwood bows
Wailaki	Baskets, arrows, clothing

Received from:

Coast Yuki	Salt, mussels, seaweed, abalone, giant chiton, surf fish, clam shells, dry kelp for salt
"The North"	Dogs
Wailaki	Dentalia
Northern Wintun	Salt
Unspecified tribes	Hazelwood self bows

References: Curtis, 1924:14:4; Kroeber, 1925:214; Driver, 1939:382; Gifford, 1939:303ff; Essene, 1942:56,61,90.

KAWAIIISU:21f

Received from:

Tibatulabal (?)	Concave-based arrow heads, double-notch based arrow heads
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Reference: Driver, 1937:71,117.

KINGS RIVER YOKUTS:20d

Supplied to:

Tule-Kaweah Yokuts	Clay for pottery, black paint, black sword fern root and redbud bark for basketry
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Received from:

Tule-Kaweah Yokuts	<u>Cladium</u> roots, bunch grass, soaproot brushes, salt from salt grass, baskets, various roots and herbs
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Western Mono	Sinew-backed bows
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Eastern Mono	Red paint
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References: Gayton, 1948b:146; Latta, 1929:16; 1949:57ff.

KITANEMUK:21h

Received from:

Chumash	Wooden vessels inlaid with <u>Haliotis</u> shell
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Reference: Kroeber, 1925:613.

KONOMIHU:6c

Supplied to:

Karok (?)	Furs, deer-skin clothing
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New River Shasta (?)	Furs, deer-skin clothing
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Received from:

Karok (?)	Dentalia, baskets
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New River Shasta (?)	Clam disc beads
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Reference: Kroeber, 1925:284.

KOSO (PANAMINT SHOSHONE):21d

Supplied to:

Eastern Mono Salt

Received from:

Eastern Mono Shell beads, various goods

Reference: Steward, 1938:78.

LAKE MIWOK:18b

Received from:

Pomo Acorns

Unspecified tribes All bows

References: Gifford and Kroeber, 1937:216; Kniffen:1939.

LASSIK:1h

Received from:

Northern Wintun Salt, obsidian

Wailaki Salt, clam disc beads

Nongatl Dentalia

Huchnom Clam disc beads

Kato Clam disc beads

"The North" Dogs

References: Essene, 1942:56,61,90; Baumhoff, 1958:229.

LUISEÑO (not indicated on map)

Received from:

Unspecified tribes Mesquite beans

Reference: Sparkman, 1908:196

MAINLAND CHUMASH:e.g. 14d

Supplied to:

Kitanemuk	Wooden vessels inlaid with <u>Haliotis</u> shell
Island Chumash	Seeds, acorns, bows, arrows
Southern Valley Yokuts	Shell beads, whole pismo clam shells, <u>Haliotis</u> shells, <u>Olivella</u> shells, keyhole limpet shells, cowrie shells, sea urchin shells, dried starfish
Yokuts (subgroup not specified)	Shell ornaments
Tübatulabal	Shell beads, shell cylinders, steatite, asphaltum, fish
Salinan	Steatite vessels, columella beads, possibly also steatite and wooden vessels

Received from:

Island Chumash	Chipped stone implements, a dark stone for digging-stick weights, fish bone beads, shell beads, baskets
Southern Valley Yokuts	Fish, obsidian, salt from salt grass, seed foods, steatite beads, various herbs, vegetables
Tübatulabal	Piñon nuts
Yokuts (subgroup not specified)	Clam shells, asphaltum, buckskins, obsidian, abalone
"The Interior"	Deer skins, acorns, fish, grasshoppers
Mohave	Unspecified goods

References: Mason, 1912:180; Kroeber, 1925:613,630; Voegelin, E.W., 1938:52; Latta, 1949:65,66,274-75; Heizer, 1955:151,154; Stewart, G.W., 1927:391; Taylor, 1860-63:vol. 13; Curtis, 1924:14:154; Eisen, 1905:12; Bolton, 1931b:272.

MATTOLE:1f

Supplied to:

Hupa	Angelica root, tobacco, <u>Haliotis</u> shell, various foods
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Wiyot Tobacco, Haliotis shell, various foods

Received from:

Hupa Grass for rope, pine nut beads

Wiyot Dugout canoes, various foods

References: Nomland, 1938:105; Driver, 1939:386

MODOC:5

Supplied to:

Klamath Human slaves from surrounding tribes,⁷
shallow bowl-shaped twined baskets,
blankets, beads, clothing, axes, spears
fishhooks

Achomawi Furs, bows, dentalia, horses

Shasta^B Buckskin dresses and shirts

Received from:

Achomawi Shell beads, shallow bowl-shaped twined
baskets, braided grass skirts, pine nut
string skirts

Shasta^B Bows, dentalia

Klamath Women slaves, various hides

Unspecified tribes Wooden war clubs with stone or bone insert,
grooved stone axes, feather blankets

References: McKay, 1869; Powers, 1877:254; Dixon, 1908:215; Curtis,
1924:13:131; Kniffen, 1928:309; Spier, 1930:42,178,190; Voegelin,
E. W., 1942:189,191-93,199; Maloney, 1945:231; Clarke, 1960:10.

MOHAVE:15f

Supplied to:

Western Mono-Yokuts Pottery

Diegueño Gourd seeds

7. Also taken to the Dalles to trade for horses.

8. "Warm Springs Indians" ?

MOHAVE [continued]

Supplied to:

Havasupai	Horses
Yuma	Gourds, eagle feathers
Walapai	Horses, shells (halketap), shell beads, glass beads, beadwork, corn, dried pumpkin, screw and mesquite beans, kwa'va seeds, beans

Received from:

Walapai	Rabbit-skin blankets, red paint, meat of deer, mountain sheep, antelope, cottontail, jackrabbit, rat; Hopi and Navaho blankets, eagles, eagle feathers, buckskin, mountain sheep skins, eagle down, chicken hawk down.
Chemehuevi	Eagle down, chicken hawk down
Western Yavapai	Mescal, red paint, eagle down, chicken hawk down
Diegueño	Acorns
Paiute	Rabbit-skin blankets
Havasupai	Pueblo blankets
Chumash	Unspecified goods
Navaho	Woven wool ponchos
Unspecified tribes	Blankets, basketry

References: Kroeber, 1902:277; 1908:41,62; 1935:164ff; Spier, 1928:245; 1933:349; 1955:6,7; Gifford, 1931:49; 1936:254; Latta, 1949:63.

NEW RIVER SHASTA:6b

Supplied to:

Konomihu	Clam disc beads
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Received from:

Konomihu	Furs, deer skin clothing
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Reference: Kroeber, 1925:284

NONGATL:lg

Supplied to:

Lassik	Dentalia
Karok	Salt

Received from:

Northern Wintun	Salt
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References: Driver, 1939:382; Essene, 1942:61.

NORTHEASTERN MAIDU:17a

Supplied to:

Atsugewi	Deer hides, clam disc beads, coiled baskets, skins, bows
Northwestern Maidu	Bows and arrows, skins, sugar pine nuts, shell beads, deer hides, miscellaneous foods, acorns
Northern Paiute	Dentalia
Washo	Papam bulbs, species unidentified
Achomawi	Clam disc beads, salt, digger pine nuts

Received from:

Atsugewi	Bows, twined baskets, furs
Northwestern Maidu	Clam disc beads, other shell beads, acorns, salmon, salt, digger pine nuts
Achomawi	Obsidian, green pigment, shell beads, bows, arrows, deer skins, sugar pine nuts
Unspecified tribes	Wood for sinew-backed bows, blue pigment

References: Dixon, 1905:201; 1908:215; Kroeber, 1925:399; Stewart, O. C., 1941:435; Voegelin, E. W., 1942:180,191,201; Garth, 1953:183; Riddell, n.d.

NORTHERN HILL YOKUTS:20c

Supplied to:

Western Mono	Acorns, willow bark baskets, shell beads
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NORTHERN HILL YOKUTS [continued]

Received from:

Western Mono	Rabbit-skin blankets, moccasins, rock salt, red and blue paint, piñon nuts
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Reference: Gayton, 1948b:160,181.

NORTHERN MIWOK:18d

Supplied to:

Plains Miwok	Finished arrowheads, digger pine nuts, salt, obsidian
Washo	Acorns, shell beads, sea shells, baskets

Received from:

Paiute ⁹	Baskets
Plains Miwok	Grass seeds, fish
Washo	Salt

References: Holmes, 1900:172; Barrett and Gifford, 1933:193,255-256.

NORTHERN PAIUTE (PAVIOTSO):21a

Supplied to:

Achomawi	Basketry water bottles, sinew, arrowheads, red paint, buckskins, moccasins, rabbit- skin blankets, various foods
Atsugewi	Horses, buckskins, red ochre, glass beads, guns, <u>Olivella</u> beads

Received from:

Achomawi	Sinew-backed bows, arrows, baskets, dried fish, women's basketry caps, clam disc beads, dried salmon flour
Atsugewi	Bows, baskets, shell beads
Northeastern Maidu	Papam bulbs

9. Probably Washo.

References: Dixon, 1908:211; Curtis, 1924:13:131; Kniffen, 1928: 316-17; Kelly, 1932:114,151; Stewart, O. C., 1941:432; Voegelin, E. W., 1942:191,194; Garth, 1953:130,136,139,183; de Angulo and Freeland, 1929:320; Riddell, n.d.

NORTHERN VALLEY YOKUTS:20a

Supplied to:

Miwok (subgroups not specified)	Dogs
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Received from:

Miwok (subgroups not specified)	Baskets, bows, arrows
Costanoan	Mussels, abalone shells

References: Barrett and Gifford, 1933:270; Pilling, 1950:438.

NORTHERN WINTUN:16a

Supplied to:

Shasta	Deer hides, woodpecker scalps, baskets, acorns, pine nut beads, clam disc beads, dried salmon, clams, shell beads
Chimariko	Obsidian
Atsugewi	Clam disc beads, dentalia, acorns
Lassik	Salt, obsidian
Yana	Magnesite beads
Hupa	Salt
Nongatl	Salt
Northwestern Maidu	Shell beads
Kato	Salt
Achomawi	Salmon flour, clam disc beads, dentalia
Central Wintun	Obsidian

Received from:

Shasta	Bows, arrow heads, manzanita berries, pelts, meat, dentalia, obsidian, deer skins, sugar pine nuts, green pigment
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NORTHERN WINTUN [continued]

Received from:

Achomawi	Salt, furs, bows
Yana	Salt

References: Powers, 1877:235; Dixon, 1905:202; 1907:436; 1910:300; Curtis, 1924:13:131; Kroeber, 1925:287,418; Du Bois, 1935:25, Driver, 1939:382; Essene, 1942:61; Voegelin, E. W., 1942:198,201; Sapir and Spier, 1943:255; Holt, 1946:312; Goldschmidt, 1951:419; Garth, 1953:183; Baumhoff, 1958:229.

NORTHWESTERN MAIDU:17b

Supplied to:

Northeastern Maidu	Clam disc beads, other shell beads, salmon, salt, digger pine nuts
Patwin	Obsidian
Southern Maidu	Log rafts
Yana	Clam disc beads

Received from:

Central Wintun	Clam disc beads, other shell beads
Northeastern Maidu	Bows and arrows, skins, sugar pine nuts, shell beads, deer hides, miscellaneous foods, acorns
Northern Wintun	Shell beads

References: Dixon, 1905:201,202; Kroeber, 1925:399,421; 1929:260; 1932:273; Voegelin, E. W., 1942:180.

PATWIN:16d

Supplied to:

Central Wintun ¹⁰	Salmon, river otter pelts, game, beads
Pomo	Woodpecker scalp belts, cordage for making deer nets, shell beads, sinew-backed bows, yellow hammer headbands

10. Items not bartered, paid for with shell beads by both parties.

Wappo Sinew-backed bows
Southern Maidu Shell beads, abalone shells

Received from:

Central Wintun¹⁰ Pine nuts, acorns, seeds, game, bear hides,
 beads, sinew-backed bows
Southern Maidu Obsidian, yellow hammer and woodpecker
 feathers
Northwestern Maidu Obsidian
Pomo Shell beads, salt, obsidian, fish, clams,
 magnesite beads

References: Gifford, 1923:80; Kroeber, 1932:273, 274, 297, 364; Beals,
1933:355-56; Driver, 1936:194; Gifford and Kroeber, 1937:141, 182;
Goldschmidt, 1951:336-37, 418.

PLAINS MIWOK:18c

Supplied to:

Northern Miwok Grass seeds, fish

Received from:

Northern Miwok Digger pine nuts, salt, obsidian, finished
 arrowheads

Reference: Barrett and Gifford, 1933:255-56.

POMO:10a-g

Supplied to:

Yuki Hinnites sp. shell beads, clam disc
 beads, dentalia, moccasins, sea shells,
 shell beads, dried Haliotis, mussels,
 seaweed, salt, magnesite beads
Huchnom Clam disc beads
"The North" Shell beads
Lake Miwok Acorns
Wappo Tule mats, magnesite beads, sinew-backed
 bows, fish

POMO [continued]

Supplied to:

Patwin	Shell beads, salt, obsidian, fish, clams
Coast Yuki	Clam disc beads, acorns, fire drills of buckeye wood

Received from:

Yuki	Furs, beads, baskets, skins
"The North" (Yuki?)	Iris fiber cord for deer snares, arrows, sinew-backed bows of yew
Patwin	Sinew-backed bows, yellow hammer headbands, woodpecker scalp belts, cordage for making deer nets
Coast Yuki	Surf fish, abalone, giant chiton, seaweed, mussels, dried kelp for salt, shells of <u>Hinnites giganteus</u>

References: Gifford, 1923:90; 1926:342; 1939:303ff., 338, 340, 342; Kroeber, 1925:166-67, 257; 1932:273, 365; Driver, 1936:194; Gifford and Kroeber, 1937:141, 182; Kniffen, 1939:361; Essene, 1942:56; Foster, 1944:9, 167, 173-74.

SALINAN:13b

Supplied to:

Yokuts	Shell beads, whole shells
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Received from:

Mainland Chumash	Steatite vessels, columella beads, possibly also steatite and wooden vessels
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References: Mason, 1912:179-80; Gayton, 1948a:7, 9.

SERRANO:21h, k

Supplied to:

Gabrielino	Acorns, deerskins, seed foods
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Received from:

Gabrielino	Shell beads, dried fish, sea otter pelts, steatite vessels
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References: Kroeber, 1925:630; Strong, 1929:95-96.

SHASTA:6a

Supplied to:

Northern Wintun	Deerskins, sugar pine nuts, green pigment, bows, arrowheads, manzanita berries, pelts, meat, dentalia, obsidian
Yahi	Obsidian
Karok	Juniper beads, basketry caps, salt, dentalia, white deer skins, woodpecker scalps, whole <u>Olivella</u> shells, large obsidian blades, obsidian, deer skins, sugar pine nuts, wolf skins, horn for spoons
Rogue River Athabaskan	Acorn flour
Modoc	Bows, dentalia
Klamath	Bows, clam disc beads, conical burden baskets
Yurok	Horn for spoons
Achomawi	Dentalia
Hupa	Horn for spoons

Received from:

Northern Wintun	Woodpecker scalps, acorns, baskets, pine nut beads, clam disc beads, deer hides, dried salmon, clams, shell beads
Karok	<u>Haliotis</u> ornaments, <u>Haliotis</u> shells, salt, tobacco seeds, baskets, dentalia, seaweed, pepperwood pods for hair dressing, canoes
Rogue River Athabaskan	Dentalia
"Warm Springs Indians" ¹¹	Buckskin shirts and dresses
Klamath	Otter skins, other skins and skin blankets, buckskin dresses, men's shirts
Yurok	Canoes, acorns, baskets, dentalia, salt

11. Modoc?

SHASTA [continued]

Received from:

Unspecified tribes	Wooden war clubs with stone or bone insert, grooved stone axes
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References: Powers, 1877:235; Dixon, 1907:432,436; Barrett, 1910:259; Pope, 1918:116; Curtis, 1924:13:131; Kroeber, 1925:283,284,287,418; Spier, 1930:41; Harrington, 1932:128; Du Bois, 1935:25; Driver, 1939:382,397; Voegelin, E. W., 1942:177,191-93,197-201; Holt, 1946:303,312,340; Goldschmidt, 1951:419.

SINKYONE:1i

Received from:

Wiyot	Beads (dentalia?)
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Reference: Nomland, 1935:165.

SOUTHERN MAIDU (NISENAN, NISHINAM):17c

Supplied to:

Washo	Acorns
Patwin	Obsidian, yellow hammer and woodpecker feathers, shell beads

Received from

Paiute (probably Washo)	Carrying baskets, seed beaters, winnowing trays
Patwin	Shell beads, abalone shells
Northwestern Maidu	Log rafts

References: Holmes, 1900:169; Barrett, 1917:14; Kroeber, 1929:260; 1932:273; Beals, 1933:355-56,365.

SOUTHERN MIWOK:18f

Supplied to:

Eastern Mono	Clam disc beads
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Received from:

Eastern Mono	Rabbit-skin blankets, basketry materials
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References: Barrett and Gifford, 1933:256; Merriam, 1955:112

SOUTHERN VALLEY YOKUTS:20b

Supplied to:

Mainland Chumash	Fish, obsidian, salt from salt grass, seed foods, steatite beads, various herbs, vegetables
Tule-Kaweah Yokuts	Tule mats, shell beads
"The East"	Shell money
Western Mono	White paint

Received from:

Mainland Chumash	Shell beads, whole pismo clam shells, key-hole limpet shells, <u>Haliotis</u> shells, <u>Olivella</u> shells, sea urchin shells, dried starfish, cowrie shells
Buena Vista Yokuts	Asphaltum
Tule-Kaweah Yokuts	Steatite, coiled baskets, burden baskets, pottery vessels
Eastern Mono or Koso	Mineral salt, obsidian
Salinan	Whole shells
Western Mono	Salt, sinew-backed bows, stone mortars and pestles
"The East"	Fire drills, digging sticks, baskets

References: Gayton, 1948a:7, 56, 73, 78, 87; 1948b:215, 265; Latta, 1949: 65, 274-75.

TOLOWA:1b

Supplied to:

Karok	Smelt, dentalia
Rogue River Athabaskans	Women's basketry caps, eating baskets, trinket baskets

Received from:

Karok	Soaproot, pine nut beads
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TOLOWA [continued]

References: Driver, 1939:383; Drucker, 1937:243,273; Waterman, 1925:529.

TÜBATULABAL: 21g

Supplied to:

Eastern Mono	Shell beads, acorns, manzanita berries, elderberries, baskets, rabbit-skin blankets
Mainland Chumash	Piñon nuts
Yokuts (subgroups not specified)	Piñon nuts
Kawaiisu	Concave-based arrow heads, double-notched base arrow heads

Received from:

Eastern Mono	Salt, pine nuts, baskets, red and white paint, tanned deer skins, kutsavi, pandora moth caterpillars
Mainland Chumash	Shell beads, shell cylinders, fish, steatite, asphaltum
Yokuts (subgroups not specified)	Acorns, shell beads

References: Steward, J. H., 1935:8,10,19-20; Voegelin, E. W., 1938:52, Driver, 1937:71,117.

TULE-KAWEAH YOKUTS: 20e

Supplied to:

Kings River Yokuts	<u>Cladium</u> roots, bunch grass, soaproot brushes, salt from salt grass, baskets, various roots and herbs
Eastern Mono	Deer, antelope and elk skins, steatite, salt from salt grass, baskets, shell beads
Southern Valley Yokuts	Steatite, coiled baskets, burden baskets, pottery vessels

Received from:

Kings River Yokuts	Clay for pottery, black paint, black sword fern root and redbud bark for basketry
Eastern Mono	Sinew-backed bows, jerked deer meat, rock salt, obsidian, hot rock lifters of wood, piñon nuts, moccasins
Southern Valley Yokuts	Tule mats, shell beads

References: Latta, 1949:57ff; Gayton, 1948a:56.

WAILAKI:lj

Supplied to:

Lassik	Salt, clam disc beads
Karok	Dentalia
Yuki	Whole clam shells, bows
Kato	Dentalia

Received from:

Kato	Baskets, arrows, clothing
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References: Essene, 1942:56,61,90; Foster, 1944:173; Curtis, 1924:14:4.

WAPPO:4d

Supplied to:

"Neighboring Groups"	Salt
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Received from:

Patwin	Sinew-backed bows
Pomo	Tule mats, fish, magnesite beads, sinew-backed bows
"The North"	Yellow hammer headbands
Coast Miwok	Clams, clam disc beads, clam shells, abalone shells

References: Barrett, 1952:114; Driver, 1936:194; Heizer, 1953:238.

WASHO:11

Supplied to:

Northern Miwok	Salt
Sierra Miwok (sub-group unspecified)	Salt, piñon nuts, buffalo skin robes, rabbit-skin blankets

Received from:

Northern Miwok	Acorns, shell beads, sea shell, baskets
Northeastern Maidu	Papam bulbs (species not identified)
"The West"	Redbud bark for basketry, soaproot leaves for brushes
Eastern Mono	Kutsavi
Sierra Miwok (sub-group unspecified)	Acorns, beads, shells, baskets, manzanita berries

References: Barrett and Gifford, 1933:193,221,224,270; Kroeber, 1925:571; Barrett, 1917:14,15,17; Heizer, 1950:39; Riddell, n.d.

WESTERN MONO:21c

Supplied to:

Eastern Mono	Clam disc beads, canes for arrows, acorn meal, fine Yokuts' baskets, tubular clam beads, shell beads, acorns, manzanita berries, squaw berries, elderberries, rabbit-skin blankets
Southern Valley Yokuts	Salt, sinew-backed bows, stone mortars and pestles
Kings River Yokuts	Sinew-backed bows
Northern Hill Yokuts	Rabbit-skin blankets, moccasins, rock salt, red and blue paint, piñon nuts

Received from:

Eastern Mono	Unfinished obsidian arrowheads, hot rock lifters of wood, sinew-backed bows, tailored sleeveless buckskin jackets, mountain sheep skins, moccasins, fox skin leggings, rock salt, piñon nuts, baskets, red paint, white paint, tanned deer skins, kutsavi. pandora moth caterpillars, mineral pigments, pitch-lined basketry water bottles
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Northern Hill Yokuts Acorns, willow bark baskets, shell beads
Southern Valley White paint
Yokuts

References: Steward, 1935:8,10,19-20; Driver, 1937:120; Gifford, 1932:
21,26; Merriam, 1955:76; Gayton, 1948a:73,78; 1948b:146,160,181,
214-15,258-59,265; Latta, 1929:16.

WESTERN MONO-YOKUTS (ENTIMBITCH)¹²:21c

Received from:

Mohave (?) Pottery

Reference: Latta, 1949:63.

WIYOT:3

Supplied to:

Mattole Dugout canoes, various foods
"Inland" Olivella shells
Sinkyone Beads (dentalia?)
Hupa White deer skins
Yurok White deer skins

Received from:

Mattole Tobacco, Haliotis shells, various foods
Yurok Iris fiber rope

References: Nomland, 1935:165; 138:105; Driver, 1939:386; Curtis, 1924:
13:87; Loud, 1918:250.

YAH:7d

Received from:

Shasta Obsidian

Reference: Pope, 1918:116.

12. See Gayton, 1948b:254-55.

YANA:7b-d

Supplied to:

Atsugewi	Salt, dentalia, buckeye fire drills
Achomawi	Buckeye fire drills, deer hides, buckskin, dentalia, salt
Northern Wintun	Salt
Central Wintun	Baskets
"The North"	Deer hides, buckskin

Received from:

Atsugewi	Buckskin, arrows, wildcat skin quivers, woodpecker scalps
Achomawi	Obsidian
Northwestern Maidu	Clam disc beads
Northern Wintun	Magnesite beads, dentalia
Central Wintun	Clam disc beads, magnesite beads
"The North"	Barbed obsidian arrowheads
"Unknown"	Dentalia, clam disc beads

References: Garth, 1953:139; Voegelin, E. W., 1942:179,201; Sapir and Spier, 1943:254,255,258; Du Bois, 1935:25; Gifford and Klimek, 1936:83,91,92,98.

YUKI:4a

Supplied to:

Pomo	Furs, beads, baskets, skins
Coast Yuki	Obsidian
Central Wintun	Black bear skins

Received from:

Pomo	Dentalia, clam disc beads, moccasins, sea shells, shell beads, dried Haliotis flesh, mussels, seaweed, salt, magnesite beads
Huchnom	Kelp, sea foods, salt, whole clam shells, clam disc beads
Wailaki	Whole clam shells, bows

Received from:

Central Wintun	Salt, obsidian
Coast Yuki	Salt, fish
"The North"	Dogs

References: Kroeber, 1925:166-67; Essene, 1942:9, 54, 56, 61; Foster, 1944:167, 173, 174; Goldschmidt, 1951:336, 411; Gifford, 1939:334; Powers, 1877:240; Curtis, 1924:13:131, 257.

YUMA:15d

Supplied to:

Diegueño	Gourd seeds
Western Yavapai	Glass trade beads, dried pumpkin, maize, beans, melons
Cahuilla	Gourd rattles
Kamia	Tobacco

Received from:

Western Yavapai	Rabbit-skin baskets, baskets, buckskin, other skins, mescal, finished skin dresses
Mohave	Gourds, eagle feathers
Pima	<u>Martynia</u> pods used in basketry
"The Northeast"	Buckskin
Diegueño	Acorns

References: Gifford, 1931:49; 1936:253-54; Curtis, 1924:15:25; Spier, 1923:349; Forde, 1931:107, 117, 124, 126.

YUROK:2a

Supplied to:

Hupa	Woven pack straps, smelt, redwood dugout canoes, dried sea foods, surf fish, mussels, seaweed, dentalia
Karok	Clam shells, pipes, bows, whole <u>Olivella</u> shells, tobacco seeds, dugout canoes

YUROK [continued]

Supplied to:

Shasta	Redwood dugout canoes, acorns, baskets, salt, dentalia
Wiyot	Iris fiber rope

Received from:

Hupa	Inland foods, skins, acorns
Karok	Dentalia shells
Chilula	White grass used in basketry
Shasta	Buckskin, pine nuts, horn for spoons
Wiyot	White deer skins
"The South"	<u>Haliotis</u> shell ornaments

References: Kroeber, 1925:5,132; Voegelin, E. W., 1942:177,201; Holt, 1946:312,340; Driver, 1939:386,387,398; O'Neale, 1932:144; Goddard, 1903:8,31,50; Harrington, 1932:162; Dixon, 1907:432,436; Powers, 1877:47; Curtis, 1924:13:8 ff.,87; Loud, 1918:250; Waterman, 1925:529.

APPENDIX

CORRELATION OF INDIAN TRAILS OF ABORIGINAL CALIFORNIA
WITH MODERN THOROUGHFARES

Trail Nos. (Map 1)	Modern Road
21, 47, 77	U.S. Hwy. 101 from the Oregon border south to Loleta; from Longvale south to Windsor; from San Jose south to Gilroy; from Salinas south to Paso Robles; from Gaviota south to Ventura.
4	State Hwy. 96 along its entire route, from U.S. 99 west and south to Willow Creek.
12	U.S. Hwy. 299 from Willow Creek east and north to the Oregon border.
5, 102, 63	U.S. Hwy. 99 from the Oregon border south to Los Angeles.
103	State Hwy. 1 from Rockport south to Bodega Bay.
24	State Hwy. 20 from Fort Bragg east to Willits; from Ukiah east to Colusa.
21	State Hwy. 128 from near Albion southeast to Cloverdale; from Harbin Hot Springs east to Sacramento.
28	State Hwy. 29 from Lakeport south to Vallejo.
29	State Hwy. 16 from Clear Lake Park southeast to Sacramento.
27	U.S. Hwy. 40 from Sacramento northeast to Nevada border.
30 102	U.S. Hwy. 50 from Sacramento east to Nevada border; from Oakland east to Manteca.
34 57	State Hwy. 33 from Tracy south to near Los Banos; from Coalinga south to Taft.
39	State Hwy. 152 from Gilroy east to Fairmead.
48	State Hwy. 25 from Hollister south to junction with State Hwy. 198, thence east to Coalinga.
65	Unnumbered road from Santa Margarita east to McKittrick.
69	State Hwy. 166 from near Santa Maria east to junction with U.S. Hwy. 399.

Trail Nos. (Map 1)	Modern Road
74	U.S. Hwy. 399 from Ventura northward to junction with U.S. Hwy. 99.
70	U.S. Hwy. 466 from Bakersfield east to Mohave.
68, 101	U.S. Hwy. 6 from Mohave north to junction with U.S. Hwy. 395, thence north to Mono Lake.
64	State Hwy. 178 from Bakersfield east to junction with U.S. Hwy. 6.
83, 80	U.S. Hwy. 66 from San Bernardino east to Needles
83, 86, 92	U.S. Hwy. 60 from Los Angeles east to Blythe.
78	State Hwy. 126 from Ventura east to junction with U.S. Hwy. 99.

The preceding list represents only a small fraction of the number of roads which essentially follow Indian trails, but it is sufficient to illustrate the fact that many of the major modern routes of travel in California probably evolved from aboriginal footpaths as suggested previously in this paper.

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Abbreviations Used

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AAnt	American Antiquity
AMNH	American Museum of Natural History
-AP	Anthropological Papers
-B	Bulletin
CHS	California Historical Society
-Q	Quarterly
KAS	Kroeber Anthropological Society
-P	Papers
MAIHF	Museum of the American Indian, Heye Foundation
-C	Contributions
PMCM	Public Museum of the City of Milwaukee
-B	Bulletin
SBMNH	Santa Barbara Museum of Natural History
-L	Leaflet
SC	Sierra Club
-B	Bulletin
SI	Smithsonian Institution
-AR	Annual Report
-BAE	Bureau of American Ethnology
-B	Bulletin
-R	(Annual) Report
SWJA	Southwestern Journal of Anthropology
SWM	Southwest Museum
-M	Masterkey
-P	Papers
UC	University of California
-AR	Anthropological Records
-AS	Archaeological Survey
-MS	Manuscript
-R	Report
-IA	Ibero-Americana
-PAAE	Publications in American Archaeology and Ethnology
-PAPCH	Publications of the Academy of Pacific Coast History
YNN	Yosemite Nature Notes

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[Dotted Lines Show Proposed Routes Supported by
Evidence in Ethnographic Literature]

Trail No.

1. Drucker, 1937:230; Waterman, 1920, Maps 5-32; Loud, 1918:231.
2. Merriam, 1955:11.
3. Loud, loc. cit.
4. Waterman, loc. cit.; Goddard, 1903:31; Voegelin, E. W., 1942:189; Miller, 1873:162.
5. Work, 1943-45, passim; Maloney, n.d., passim; 1945, passim; Sample, 1950, Map 1.
6. Merriam, 1955:16; Du Bois, 1935:25; Miller, 1873:32, Maloney, loc. cit.
7. Maloney, 1945:230; Garth, 1953:131,136; Kniffen, 1928:315.
8. Merriam, loc. cit., Du Bois, loc. cit.
9. Garth, 1953:154; Kniffen, loc. cit.
10. Work, 1943-45, Map 1; Maloney, n.d.; 1945:230; Heizer, 1942, passim; Sample, loc. cit.
11. Sample, loc. cit.; Miller, n.d.:4; personal survey and site distribution records in the files of the University of California Archaeological Survey.
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13. Nomland, 1935:176-77.
14. Kroeber, 1925, Fig. 32.
15. Ibid.; Anderson, 1909:2 ff.
16. Kroeber, loc. cit.
17. Riddell, n.d.; Sample, loc. cit.
18. d'Azevedo, n.d.
19. Barrett, 1908:244.
20. Ibid.; Kroeber, 1925, Pl. 36.
21. Barrett, 1908:134; Loeb, 1926:192; Stewart, O. C., 1943, map facing p. 29; Kroeber, 1925, Pl. 36.
22. Kniffen, 1939:361, Barrett and Gifford, 1933:122.
23. Sample, loc. cit.
24. Ibid.
25. Ibid.
26. Fontana, n.d.
27. Sample, loc. cit.
28. Ibid.; Heizer, 1953, Map 1.
29. Gibbs, 1853:109; Sample, loc. cit. For other trails in the Pomo region (north of San Francisco Bay) see: Maloney, n.d.;

Trail No.

29. Sample, loc. cit.; Gifford, 1939:296 ff.; Stewart, O. C.,
[cont'd.] 1943, map facing p. 29; Kroeber, 1925, Pl. 36; Barrett,
1908:158,167,244; Strobridge, 1954:365.
30. Sample, loc. cit.
31. Barrett and Gifford, 1933:256.
32. Sample, loc. cit.
33. Latta, 1949:68.
34. Ibid.
35. Frémont, 1887:445; Merriam, 1917, passim.
36. Stewart, 1933:329-30, Maps 1 and 2.
37. Latta, loc. cit.
38. Hindes, 1959, Map 1.
39. Latta, loc. cit.
40. Ibid.
41. Dorsey, 1903:210 ff.; Stewart, loc. cit.; Bennyhoff, 1956:23-24.
42. Hindes, loc. cit.
43. Ibid.; Stewart, loc. cit.
44. Stewart, loc. cit.
45. Sample, loc. cit.
46. Latta, loc. cit.
47. Sample, loc. cit.; Pilling, 1950, passim.
48. Latta, loc. cit.
49. Sample, loc. cit.; McCubbin, n.d.
50. Gayton, 1948b, Maps 4 and 5.
51. Stewart, loc. cit.
52. Ibid.
53. Ibid.
54. Gayton, 1948b:212, Map 3.
55. Elsasser, n.d., Map 1.
56. Latta, loc. cit.
57. Gifford and Schenck, 1926:13.
58. Stewart, loc. cit.
59. Ibid.
60. Anonymous, 1959, passim.
61. Stewart, loc. cit.
62. Ibid.
63. Latta, 1949:67.
64. Ibid.
65. Ibid.
66. Ibid.
67. Gifford and Schenck, 1926:16.
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Trail No.

70. Wedel, 1941:14.
71. Latta, 1949:67.
72. Ibid.
73. Voegelin, E. W., 1938:51.
74. Gifford and Schenck, 1926:16.
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76. Cooke, 1940:5-6; Sample, loc. cit.
77. Ibid.
78. Farmer, 1935:156; Gifford and Schenck, loc. cit.
79. Sample, loc. cit. For other trails in south central California see: Voegelin, C. F., 1935:221; Voegelin, E. W., loc. cit.
80. Beattie, 1933a, passim; 1933b:112; Sample, loc. cit.; Farmer, 1935, passim.
81. Sample, loc. cit.
82. Kroeber, 1925:529.
83. Farmer, 1935:154.
84. Kroeber, loc. cit.
85. Ibid.; Boscana, 1933:145.
86. Johnston and Johnston, 1957, Map 1; Benedict, 1924:367.
87. Johnston and Johnston, loc. cit.
88. Kroeber, 1925:634.
89. Ibid., 529; Boscana, loc. cit.
90. Barrows, 1900:35; Bolton, 1930:I:148-49; Sample, loc. cit.
91. Johnston and Johnston, loc. cit.
92. Wilson, 1883:92.
93. Sparkman, 1908:200; Kroeber, 1925:654; Boscana, loc. cit.
94. Rensch, 1955, passim; Velásquez, n.d.
95. Gifford, 1931:8-9; Sample, loc. cit.
96. Ibid.
97. Bolton, 1930:I:108 ff.; II:384; Sample, loc. cit.; Schroeder, 1952:40,43; Spier, 1955:15.
98. Gifford, 1931:8-9; Sample, loc. cit.; Bolton, 1930:I:118-48; II:59.
99. Gifford, loc. cit., Sample, loc. cit.
100. Ibid.
101. Steward, loc. cit.
102. Latta, 1936, passim; Cook, 1957:144.
103. Maloney, n.d., passim.

MAP 2. TRADE RELATIONS IN ABORIGINAL CALIFORNIA

Number or number and letter prefix shown before family or group subdivisions correspond with those on Kroeber's (1922) map titled "Native Tribes, Groups, Dialects and Families of California in 1770." Numbers in brackets refer to page where trade relationships of tribe in question are itemized.

Athabascan Family

Tolowa Group

- 1b. Tolowa [39]

Hupa Group

- 1c. Hupa [23]
- 1d. Chilula [18]

Mattole Group

- 1f. Mattole [28]

Wailaki Group

- 1g. Nongatl [31]
- 1h. Lassik [27]
- 1i. Sinkyone [38]
- 1j. Wailaki [41]
- 1k. Kato [25]

Algonkin Family

Yurok Group

- 2a. Yurok [45]
- 3. Wiyot [43]

Yukian Family

- 4a. Yuki [44]
- 4b. Huchnom [23]
- 4c. Coast Yuki [19]
- 4d. Wappo [41]

Lutuamian Family

- 5. Modoc [29]

Hokan Family

Shastan

- 6a. Shasta [37]
- 6b. New River Shasta [30]
- 6c. Konomihu [26]
- 6e. Achomawi (Pit River) [15]
- 6f. Atsugewi (Hat Creek) [16]

Hokan Family [continued]

Yana

- 7b. Central Yana (Noze) [44]
- 7c. Southern Yana [44]
- 7d. Yahi [43,44]
- 8. Karok [24]
- 9. Chimariko [18]

Pomo

- 10a. Northern [35]
- 10b. Central [35]
- 10c. Eastern [35]
- 10d. Southeastern [35]
- 10e. Northeastern [35]
- 10f. Southern [35]
- 10g. Southwestern [35]
- 11. Washo [42]

Salinan

- 13b. Migueleño [36]

Chumash

- 14a. Obispeño [28]
- 14d. Barbareño [28]
- 14f. Emigdiano [28]
- 14g. Interior (doubtful)
- 14h. Island [24]

Yuman

- 15b. Southern (Eastern) Diegueño [20]
- 15c. Kamia [24]
- 15d. Yuma [45]
- 15e. Halchidhoma (now Chemehuevi) [22]
- 15f. Mohave [29]

Penutian Family

Wintun (Dialect Groups)

- 16a. Northern [33]
- 16b. Central (Nomlaki) [17]
- 16d. Southwestern (Patwin) [34]

Maidu (Dialect Groups)

- 17a. Northeastern [31]
- 17b. Northwestern [34]
- 17c. Southern (Nisenan) [38]

Penutian Family [continued]

Miwok

- 18a. Coast [18]
- 18b. Lake [27]
- 18c. Plains [35]
- 18d. Northern [32]
- 18e. Central [17]
- 18f. Southern [38]

Costanoan

- 19c. Santa Clara [19]
- 19f. Monterey (Rumsen) [19]

Yokuts (Dialect Groups)

- 20a. Northern Valley (Chulamni, Chauchila, etc.) [33]
- 20b. Southern Valley (Tachi, Yauelmani, etc.) [39]
- 20c. Northern Hill (Chukchansi, etc.) [31]
- 20d. Kings River (Choinimni, etc.) [26]
- 20e. Tule-Kaweah (Yaudanchi, etc.) [40]
- 20g. Buena Vista (Tulamni, etc.) [16]

Uto-Aztekan (Shoshonean) Family

Plateau Branch

Mono-Bannock Group

- 21a. Northern Paiute (Paviotso) [32]
- 21b. Northern Paiute (Owens Valley) [20]
- 21c. Western Mono [42,43]

Shoshoni-Comanche Group

- 21d. Koso (Panamint Shoshone) [27]

Ute-Chemehuevi (Southern Paiute)

- 21e. Chemehuevi (Southern Paiute) [18]
- 21f. Kawaiisu (Tehachapi) [26]

Kern River Branch

- 21g. Tibatulabal (and Bankalachi) [40]

Southern California Branch

Serrano Group

- 21h. Kitanemuk (Tejon) [26]
- 21k. Serrano [36]

Gabrielino Group

- 21m. Gabrielino [22]

Luiseno-Cahuilla Group

- 21t. Desert Cahuilla [17]

MAP I
INDIAN TRAILS OF
ABORIGINAL CALIFORNIA

50 mi.
SCALE



