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TRADE ROUTES AND ECONOMIC EXCHANGE AMONG
THE INDIANS OF CALIFORNIA

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OF CALIFORNIA

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REPORT NO. 54
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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 are really 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, Hindes (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 Santa Clara River 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 Gorgonio-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 sub-group 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.

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<td>Hides and pelts</td>
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<td>Marine shell beads (other than those separately listed)</td>
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<td>Obsidian</td>
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<td>Bows (other than sinew-backed and unspecified)</td>
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<tr>
<td>Miscellaneous vegetal foods</td>
<td>15</td>
<td>14</td>
<td>29</td>
</tr>
<tr>
<td>Pine nuts (other than piñon)</td>
<td>13</td>
<td>11</td>
<td>24</td>
</tr>
<tr>
<td>Sinew-backed bows</td>
<td>11</td>
<td>9</td>
<td>20</td>
</tr>
<tr>
<td>Molluscs and echinoderms</td>
<td>9</td>
<td>10</td>
<td>19</td>
</tr>
<tr>
<td>Caucasian goods (guns, horses, glass beads, axes, fishhooks)</td>
<td>8</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Rabbit-skin blankets</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Arrows</td>
<td>9</td>
<td>9</td>
<td>18</td>
</tr>
<tr>
<td>Miscellaneous seeds and nuts</td>
<td>7</td>
<td>9</td>
<td>16</td>
</tr>
<tr>
<td>Seaweed and kelp</td>
<td>7</td>
<td>6</td>
<td>13</td>
</tr>
<tr>
<td>Piñon nuts</td>
<td>6</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Stone arrowheads, blades, etc.</td>
<td>6</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Miscellaneous beads</td>
<td>5</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Animal meat</td>
<td>6</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Tobacco</td>
<td>5</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>Woodpecker scalps</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Miscellaneous fruits and berries</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Tailored skin slothing</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Moccasins</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Magnesite beads</td>
<td>6</td>
<td>4</td>
<td>10</td>
</tr>
<tr>
<td>Dugout canoes</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Eagle and hawk feathers</td>
<td>6</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Insect foods</td>
<td>5</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Tobacco seeds</td>
<td>2</td>
<td>6</td>
<td>8</td>
</tr>
<tr>
<td>Skin robes</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Basketry raw materials</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Steatite</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Wooden fire drills</td>
<td>4</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Horn for spoons</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Material for fiber</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Pine nut beads</td>
<td>2</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Miscellaneous foods</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Pottery</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Yellowhammer feathers</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Asphaltum</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Item</td>
<td>Imported</td>
<td>Exported</td>
<td>Total</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>----------</td>
<td>----------</td>
<td>-------</td>
</tr>
<tr>
<td>Miscellaneous vegetal material</td>
<td>3</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Shell ornaments</td>
<td>3</td>
<td></td>
<td>5</td>
</tr>
<tr>
<td>Woven fiber blankets and cloth</td>
<td>4</td>
<td>-</td>
<td>4</td>
</tr>
<tr>
<td>Miscellaneous sea foods</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Dogs</td>
<td>3</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Seeds for planting</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Woven tule or fiber mats</td>
<td>2</td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Hot rock lifters of wood</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Steatite vessels</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>Sinew</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Gourd rattles</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Cordage and rope</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous articles</td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Olivella shell beads</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Juniper seed beads</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Woven pack straps</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Unspecified clothing</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Nets</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Skirts (other than hide)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stone and wood tobacco pipes</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Miscellaneous chipped stone tools</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Wooden vessels</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Log rafts</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Stone mortars and pestles</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Clay for pottery</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Pumice stone</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Pepperwood pods (for hair dressing)</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Human slaves</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Miscellaneous unworked stone</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Steatite beads</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Live eagles</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Fiber sandals</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Feather robes</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Sea lion harpoon heads</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Wooden digging sticks</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Wood for bows</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Woven wool ponchos</td>
<td>1</td>
<td>-</td>
<td>1</td>
</tr>
</tbody>
</table>
On the following pages are set forth the details of trade, with the ethnographic groups concerned, arranged in alphabetic order. The interconnections 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:

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

Received from:

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


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, woodpecker 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, Olivella beads

Yana
Salt, dentalia, buckeye fire drills

Klamath
Baskets

Northeastern Maidu
Clam disc beads, coiled baskets, skins

Northern Wintun
Clam disc beads, dentalia


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 (Coloradia pandora) caterpillars, kutsavi (pupae of the fly Ephydra hians), 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
Northern Wintun
Yana
Yuki

Salmon, river otter pelts, game, beads
Obsidian
Baskets
Black bear skins

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
Cahuilla

Shell beads
Basketry caps, conical burden baskets

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

CHILULA:1d

Supplied to:

Yurok

White grass used in basketry

Reference: O'Neale, 1932:144.

CHIMARIKO:9

Received from:

Wintun

Obsidian


COAST MIWOK:18a

Supplied to:

Wappo
Pomo

Clam shells, abalone shells
Clam shells, clam disc beads

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 *Hinnites giganteus*
- 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 *H. giganteus* shell
- "The North": Bone sea-lion harpoon head, red obsidian


COSTANOAN: 19c, f

**Supplied to:**
- Yokuts (subgroup referred to as "Tulare Yokuts"): Mussels, abalone shells, salt, dried abalone
- Sierra Miwok (subgroup not specified): *Olivella* shells

**Received from:**
- Yokuts (subgroup referred to as "Tulare Yokuts"): Piñon nuts

**DIEGUÑO: 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

---

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, Tübataulabal, Yokuts.
<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Southern Miwok</td>
<td>Rabbit-skin blankets, basketry materials</td>
</tr>
<tr>
<td>Tule-Kaweah Yokuts</td>
<td>Sinew-backed bows, piñon nuts, obsidian, moccasins, rock salt, jerked deer meat, hot rock lifters</td>
</tr>
<tr>
<td>Kings River Yokuts</td>
<td>Red paint</td>
</tr>
<tr>
<td>Washo</td>
<td>Kutsavi</td>
</tr>
<tr>
<td>Koso</td>
<td>Shell beads, various goods</td>
</tr>
<tr>
<td>Western Mono</td>
<td>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</td>
</tr>
<tr>
<td>Yokuts (subgroup not specified)</td>
<td>Salt, piñon nuts</td>
</tr>
<tr>
<td>Túbatulabal</td>
<td>Salt, pine nuts, baskets, red and white paint, tanned deer skins, kutsavi, pandora moth caterpillars</td>
</tr>
</tbody>
</table>

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
Tubatulabal                Shell beads, acorns, manzanita berries, elderberries, baskets, rabbit-skin blankets


GABRIELINO: 21m

Supplied to:

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

Received from:

Serrano                      Acorns, deer skins, seed foods

References: Kroeber, 1925:630; Strong, 1929:95-96; Eisen, 1905:9.

HALCHIDHOMA: 15e

Supplied to:

Maricopa                    Tobacco seeds

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

HUHNOM: 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


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

ISLAND CHUMASH: 14h

Supplied to:
Mainland Chumash

Chipped stone implements, fish bone beads, shell beads, baskets, a dark stone for digging-stick weights

Received from:
Mainland Chumash

Seeds, acorns, bows, arrows


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


KAROK: 8

Supplied to:
Shasta

Tobacco seeds, baskets, dentalia, salt, seaweed, tan oak acorns, canoes, pods for hair dressing, pepperwood, Haliotis ornaments, Haliotis shells, whole Olivella 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 *Olivella* shells, tobacco seeds, dugout canoes, clam shells, pipes, bows

Tolowa  Smelt, dentalia

Nongatl  Salt

Konomihu  Furs, deer-skin clothing

Unspecified tribes  Clam disc beads


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

KAWAISU: 21f

Received from:

Tilbatulabal (?) Concave-based arrow heads, double-notch based arrow heads


KINGS RIVER YOKUTS: 20d

Supplied to:

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

Received from:

Tule-Kaweah Yokuts Cladium roots, bunch grass, soaproot brushes, salt from salt grass, baskets, various roots and herbs

Western Mono Sinew-backed bows

Eastern Mono Red paint


KITANEMUK: 21h

Received from:

Chumash Wooden vessels inlaid with Haliotis shell


KONOMIHU: 6c

Supplied to:

Karok (?) Furs, deer-skin clothing

New River Shasta (?) Furs, deer-skin clothing

Received from:

Karok (?) Dentalia, baskets

New River Shasta (?) Clám disc beads

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


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


LUISEÑO (not indicated on map)

**Received from:**
- Unspecified tribes: Mesquite beans

Reference: Sparkman, 1908:196
MAINLAND CHUMASH: e.g. 14d

Supplied to:

<table>
<thead>
<tr>
<th>Community</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kitanemuk</td>
<td>Wooden vessels inlaid with <em>Haliotis</em> shell, Seeds, acorns, bows, arrows</td>
</tr>
<tr>
<td>Island Chumash</td>
<td></td>
</tr>
<tr>
<td>Southern Valley Yokuts</td>
<td>Shell beads, whole pismo clam shells, <em>Haliotis</em> shells, <em>Olivella</em> shells, keyhole limpet shells, cowrie shells, sea urchin shells, dried starfish</td>
</tr>
<tr>
<td>Yokuts (subgroup not specified)</td>
<td></td>
</tr>
<tr>
<td>Tubatulabal</td>
<td>Shell beads, shell cylinders, steatite, asphaltum, fish</td>
</tr>
<tr>
<td>Salinan</td>
<td>Steatite vessels, columella beads, possibly also steatite and wooden vessels</td>
</tr>
</tbody>
</table>

Received from:

<table>
<thead>
<tr>
<th>Community</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Island Chumash</td>
<td>Chipped stone implements, a dark stone for digging-stick weights, fish bone beads, shell beads, baskets</td>
</tr>
<tr>
<td>Southern Valley Yokuts</td>
<td>Fish, obsidian, salt from salt grass, seed foods, steatite beads, various herbs, vegetables</td>
</tr>
<tr>
<td>Tubatulabal</td>
<td><em>Piñon</em> nuts</td>
</tr>
<tr>
<td>Yokuts (subgroup not specified)</td>
<td>Clam shells, asphaltum, buckskins, obsidian, abalone</td>
</tr>
<tr>
<td>&quot;The Interior&quot;</td>
<td>Deer skins, acorns, fish, grasshoppers</td>
</tr>
<tr>
<td>Mohave</td>
<td>Unspecified goods</td>
</tr>
</tbody>
</table>


MATTOLE: 1f

Supplied to:

<table>
<thead>
<tr>
<th>Community</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hupa</td>
<td>Angelica root, tobacco, <em>Haliotis</em> shell, various foods</td>
</tr>
</tbody>
</table>
Wiyot

Received from:
Hupa
Wiyot

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

MODOC:5

Supplied to:
Klamath
Achomawi
Shasta

Received from:
Achomawi
Shasta
Klamath
Unspecified tribes


MOHAVE:15f

Supplied to:
Western Mono-Yokuts
Diegueño

7. Also taken to the Dalles to trade for horses.
8. "Warm Springs Indians"?
MOHAVE [continued]

Supplied to:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Havasupai</td>
<td>Horses</td>
</tr>
<tr>
<td>Yuma</td>
<td>Gourds, eagle feathers</td>
</tr>
<tr>
<td>Walapai</td>
<td>Horses, shells (halketap), shell beads, glass beads, beadwork, corn, dried pumpkin, screw and mesquite beans, kwa'va seeds, beans</td>
</tr>
</tbody>
</table>

Received from:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walapai</td>
<td>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</td>
</tr>
<tr>
<td>Chemehuevi</td>
<td>Eagle down, chicken hawk down</td>
</tr>
<tr>
<td>Western Yavapai</td>
<td>Mescal, red paint, eagle down, chicken hawk down</td>
</tr>
<tr>
<td>Diegueño</td>
<td>Acorns</td>
</tr>
<tr>
<td>Paiute</td>
<td>Rabbit-skin blankets</td>
</tr>
<tr>
<td>Havasupai</td>
<td>Pueblo blankets</td>
</tr>
<tr>
<td>Chumash</td>
<td>Unspecified goods</td>
</tr>
<tr>
<td>Navaho</td>
<td>Woven wool ponchos</td>
</tr>
<tr>
<td>Unspecified tribes</td>
<td>Blankets, basketry</td>
</tr>
</tbody>
</table>


NEW RIVER SHASTA:6b

Supplied to:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konomihu</td>
<td>Clam disc beads</td>
</tr>
</tbody>
</table>

Received from:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items Provided</th>
</tr>
</thead>
<tbody>
<tr>
<td>Konomihu</td>
<td>Furs, deer skin clothing</td>
</tr>
</tbody>
</table>

Reference: Kroeber, 1925:284
NONGATL: lg

**Supplied to:**

- Lassik: Dentalia
- Karok: Salt

**Received from:**

- Northern Wintun: Salt

**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

- - 31 -
NORTHERN HILL YOKUTS [continued]

Received from:

Western Mono Rabbit-skin blankets, moccasins, rock salt, red and blue paint, piñon nuts


NORTHERN MIWOK: 18d

Supplied to:

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

Received from:

Paiute9 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, Olivella 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


NORTHERN VALLEY YOKUTS:20a

**Supplied to:**
- Miwok (subgroups not specified) - Dogs

**Received from:**
- Miwok (subgroups not specified) - Baskets, bows, arrows
- Costanoan - Mussels, abalone shells


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
NORTHERN WINTUN [continued]

Received from:

Achomawi  Salt, furs, bows
Yana  Salt


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


PATWIN:16d

Supplied to:

Central Wintun  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
Southern Maidu

Received from:
Central Wintuno
Southern Maidu
Northwestern Maidu
Pomo


PLAINS MIWOK:18c

Received from:
Northern Miwok


POMO:la-g

Supplied to:
Yuki
Huchnom
"The North"
Lake Miwok
Wappo

Reference: Huchnom Clam disc beads
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 *Hinnites giganteus*


SALINAN:13b

**Supplied to:**

- Yokuts: Shell beads, whole shells

**Received from:**

- Mainland Chumash: Steatite vessels, columella beads, possibly also steatite and wooden vessels


SERRANO:21h,k

**Supplied to:**

- Gabrielino: Acorns, deerskins, seed foods

**Received from:**

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

SHASTA:6a

**Supplied to:**

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

**Received from:**

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Wintun</td>
<td>Woodpecker scalps, acorns, baskets, pine nut beads, clam disc beads, deer hides, dried salmon, clams, shell beads</td>
</tr>
<tr>
<td>Karok</td>
<td>Haliotis ornaments, Haliotis shells, salt, tobacco seeds, baskets, dentalia, seaweed, pepperwood pods for hair dressing, canoes</td>
</tr>
<tr>
<td>Rogue River Athabaskan</td>
<td>Dentalia</td>
</tr>
<tr>
<td>&quot;Warm Springs Indians&quot;\textsuperscript{11}</td>
<td>Buckskin shirts and dresses</td>
</tr>
<tr>
<td>Klamath</td>
<td>Otter skins, other skins and skin blankets, buckskin dresses, men's shirts</td>
</tr>
<tr>
<td>Yurok</td>
<td>Canoes, acorns, baskets, dentalia, salt</td>
</tr>
</tbody>
</table>

\textsuperscript{11}. Modoc?
SHASTA [continued]

**Received from:**

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


SINKYONE:11

**Received from:**

Wiyot  Beads (dentalia?)


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


SOUTHERN MIWOK:18f

**Supplied to:**

Eastern Mono  Clam disc beads

**Received from:**

Eastern Mono  Rabbit-skin blankets, basketry materials
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, *Haliotis* shells, *Olivella* 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


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
TOLOWA [continued]


TUBATULABAL: 21g

**Supplied to:**

<table>
<thead>
<tr>
<th>Region</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Mono</td>
<td>Shell beads, acorns, manzanita berries, elderberries, baskets, rabbit-skin blankets</td>
</tr>
<tr>
<td>Mainland Chumash</td>
<td>Piñon nuts</td>
</tr>
<tr>
<td>Yokuts (subgroups not specified)</td>
<td>Piñon nuts</td>
</tr>
<tr>
<td>Kawalisu</td>
<td>Concave-based arrow heads, double-notched base arrow heads</td>
</tr>
</tbody>
</table>

**Received from:**

<table>
<thead>
<tr>
<th>Region</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Mono</td>
<td>Salt, pine nuts, baskets, red and white paint, tanned deer skins, kutsavi, pandora moth caterpillars</td>
</tr>
<tr>
<td>Mainland Chumash</td>
<td>Shell beads, shell cylinders, fish, steatite, asphaltum</td>
</tr>
<tr>
<td>Yokuts (subgroups not specified)</td>
<td>Acorns, shell beads</td>
</tr>
</tbody>
</table>


TULE-KAWEAH YOKUTS: 20e

**Supplied to:**

<table>
<thead>
<tr>
<th>Region</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kings River Yokuts</td>
<td>Cladium roots, bunch grass, soaproot brushes, salt from salt grass, baskets, various roots and herbs</td>
</tr>
<tr>
<td>Eastern Mono</td>
<td>Deer, antelope and elk skins, steatite, salt from salt grass, baskets, shell beads</td>
</tr>
<tr>
<td>Southern Valley Yokuts</td>
<td>Steatite, coiled baskets, burden baskets, pottery vessels</td>
</tr>
</tbody>
</table>
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,
piñón 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


WAPPO: 4d

Supplied to:

"Neighboring Groups"  Salt

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


- 41 -
WASHO:11

**Supplied to:**

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Miwok</td>
<td>Salt</td>
</tr>
<tr>
<td>Sierra Miwok (subgroup unspecified)</td>
<td>Salt, piñon nuts, buffalo skin robes, rabbit-skin blankets</td>
</tr>
</tbody>
</table>

**Received from:**

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern Miwok</td>
<td>Acorns, shell beads, sea shell, baskets</td>
</tr>
<tr>
<td>Northeastern Maidu</td>
<td>Papam bulbs (species not identified)</td>
</tr>
<tr>
<td>&quot;The West&quot;</td>
<td>Redbud bark for basketry, soaproot leaves for brushes</td>
</tr>
<tr>
<td>Eastern Mono</td>
<td>Kutsavi</td>
</tr>
<tr>
<td>Sierra Miwok (subgroup unspecified)</td>
<td>Acorns, beads, shells, baskets, manzanita berries</td>
</tr>
</tbody>
</table>


WESTERN MONO:21c

**Supplied to:**

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Mono</td>
<td>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</td>
</tr>
<tr>
<td>Southern Valley Yokuts</td>
<td>Salt, sinew-backed bows, stone mortars and pestles</td>
</tr>
<tr>
<td>Kings River Yokuts</td>
<td>Sinew-backed bows</td>
</tr>
<tr>
<td>Northern Hill Yokuts</td>
<td>Rabbit-skin blankets, moccasins, rock salt, red and blue paint, piñon nuts</td>
</tr>
</tbody>
</table>

**Received from:**

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastern Mono</td>
<td>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</td>
</tr>
</tbody>
</table>
Northern Hill Yokuts  Acorns, willow bark baskets, shell beads
Southern Valley Yokuts  White paint


WESTERN MONO-YOKUTS (ENTIMBITCH)\(^1\)\(^2\):21c

Received from:
   Mohave (?)  Pottery


WIYOT:3

Supplied to:
   Mattole  Dugout canoes, various foods
   "Inland"  \textit{Olivella} shells
   Sinkyone  Beads (dentalia?)
   Hupa  White deer skins
   Yurok  White deer skins

Received from:
   Mattole  Tobacco, \textit{Haliotis} shells, various foods
   Yurok  Iris fiber rope


YAHI:7d

Received from:
   Shasta  Obsidian


\(12\). 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


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


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 Martynia 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 Olivella shells, tobacco seeds, dugout canoes

- 45 -
YUROK [continued]

Supplied to:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shasta</td>
<td>Redwood dugout canoes, acorns, baskets, salt, dentalia</td>
</tr>
<tr>
<td>Wiyot</td>
<td>Iris fiber rope</td>
</tr>
</tbody>
</table>

Received from:

<table>
<thead>
<tr>
<th>Tribe</th>
<th>Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hupa</td>
<td>Inland foods, skins, acorns</td>
</tr>
<tr>
<td>Karok</td>
<td>Dentalia shells</td>
</tr>
<tr>
<td>Chilula</td>
<td>White grass used in basketry</td>
</tr>
<tr>
<td>Shasta</td>
<td>Buckskin, pine nuts, horn for spoons</td>
</tr>
<tr>
<td>Wiyot</td>
<td>White deer skins</td>
</tr>
<tr>
<td>&quot;The South&quot;</td>
<td>Haliotis shell ornaments</td>
</tr>
</tbody>
</table>

APPENDIX

CORRELATION OF INDIAN TRAILS OF ABORIGINAL CALIFORNIA
WITH MODERN THOROUGHFARES

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

- 47 -
<table>
<thead>
<tr>
<th>Trail Nos. (Map 1)</th>
<th>Modern Road</th>
</tr>
</thead>
<tbody>
<tr>
<td>74</td>
<td>U.S. Hwy. 399 from Ventura northward to junction with U.S. Hwy. 99.</td>
</tr>
<tr>
<td>70</td>
<td>U.S. Hwy. 466 from Bakersfield east to Mohave.</td>
</tr>
<tr>
<td>68, 101</td>
<td>U.S. Hwy. 6 from Mohave north to junction with U.S. Hwy. 395, thence north to Mono Lake.</td>
</tr>
<tr>
<td>64</td>
<td>State Hwy. 178 from Bakersfield east to junction with U.S. Hwy. 6.</td>
</tr>
<tr>
<td>83, 80</td>
<td>U.S. Hwy. 66 from San Bernardino east to Needles</td>
</tr>
<tr>
<td>83, 86, 92</td>
<td>U.S. Hwy. 60 from Los Angeles east to Blythe.</td>
</tr>
<tr>
<td>78</td>
<td>State Hwy. 126 from Ventura east to junction with U.S. Hwy. 99.</td>
</tr>
</tbody>
</table>

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

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Trail No.


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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. Nongat1 [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]
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. Túbatulabal (and Bankalachi) [40]

Southern California Branch

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

Gabrielino Group
21m. Gabrielino [22]

Luiseño-Cahuilla Group
21t. Desert Cahuilla [17]
MAP 1
INDIAN TRAILS OF ABORIGINAL CALIFORNIA

SCALE
50 mi.
MAP 2. Trade Relations in Aboriginal California