

QUASI-AGRICULTURE IN NORTH-CENTRAL CALIFORNIA
AND ITS EFFECT ON ABORIGINAL SOCIAL STRUCTURE

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Recently there has been some interest in attempted reconstruction of prehistoric social structure from the evidence of large-scale public works projects (Heizer 1960; Kaplan 1963). It is assumed, probably correctly, that a highly developed system of agriculture with its assured food supply and seasonal, sedentary nature allowed the great population density and amount of free time needed to carry out such projects. Actual accomplishment of the undertakings predicated the existence of a highly organized powerful ruling body and, in some cases, implies also the presence of an intermediate social class, perhaps made up of lesser priests, master craftsmen, or the like, as distinct from the ordinary citizen.

However, because each such climax society undoubtedly had to pass through a developmental period, a proto- or semi-agricultural group would be expected to exhibit early stages of these final characteristics. The examination of such a group might be carried out with two primary objectives in mind. First, the demonstration of leisure time as deduced, in part, from the rise of craft specialization, i.e., the freeing of certain persons from the everyday labor of gathering sustenance to perform specific tasks, with the extension of this diversification to eventually include quite non-essential work. A rise in the social status of persons particularly skilled in certain lines of endeavor might logically follow this acceptance of specialization. Second, the identification of any substantial communal undertakings, either social or architectural, along with the determination of roles assumed by all participants in the ventures.

Pre-Contact Indians in certain parts of California maintained an apparently stable economy, based largely on acorn harvesting, for

probably well over three thousand years (Kroeber 1932:401; Baumhoff 1963: 167). Recently, it has been reasonably argued by at least one anthropologist that, in terms of the benefits of agriculture, this particular type of gathering existence was fully equivalent to the manner of life of other aboriginal peoples who practiced primitive forms of farming (Heizer 1958). The present paper will attempt to verify this equivalence and, further, to explore the California societies for the two proto-agricultural manifestations mentioned earlier.

Three groups in north-central California possessed a highly successful acorn economy. These were the Pomo (with population densities as high as 90 people per 100 kilometers²), the Patwin (65 per 100 km.²), and the Maidu (80 per 100 km.²) (Kroeber 1953:Table 7). (Recent work shows these population figures, for far-western tribes at least, may need upward revision by a factor of three--see Baumhoff 1963: 157-161--but regardless of changes in absolute numbers the following comparative data would largely still remain valid.) Compare these density figures with those of the Tolowa (North-west Pacific coast maritime economy)--50 people per 100 km.²; the Foothill Yokuts (acorn economy in south-central California)--110; and the Klamath-Modoc and Northern Paiute (Great Basin hunting and gathering economy without the acorn)--2.5 to 5. Figure 1 shows locations and populations of Northern California groups mentioned in this report.

In other parts of the United States, the Plains bison-hunters had from three to ten people in the same unit of area; the various hunting and primitive agricultural groups of northeastern United States varied from seven to 150 but averaged only about 15; the most advanced North American (excepting Mexico) aboriginal farmers--the southwestern Pueblos--ranged up to 270 persons per 100 km.² (Kroeber loc. cit.). In short, the population densities associated with California acorn economy are obviously set apart from those of other hunting and gathering groups but compare favorably with the concentrations of farming populations.

There were, of course, variations in density within each of the individual groups' territories. For instance, the Maidu were most concentrated along the Sacramento River, where salmon and shellfish provided a complement to the acorn diet. The density lessened in the open valley away from the river, increased as the Sierran foothills to the east were reached, and decreased again in the high mountains above the limits of optimal oak and salmon ranges. It is assumed the populations present in the areas represent the normal carrying capacity of the environment, and that these numbers changed little since the acorn economy became established (Baumhoff 1963).

A synopsis of a typical year's activity for the California tribes might be as follows:

Winter: Largely free time except for local game hunting, which, however, was carried on throughout the year.

Spring: Newly sprouted greens gathered; salmon rites, and spring fishing. (Although the salmon run lasted for two or three weeks, fishing was limited to about ten days at any one village--either for the sake of conservation or, as seems more likely, at the insistence of other groups living upstream.)

Summer: Free time; some gathering of small seeds by women.

Fall: Acorn-gathering in September; salmon fishing again if a fall run occurred; more seed gathering.

Thus, within a total of only three or four months, during the spring and fall seasons, the food staples for the year were secured. Local game could be relied upon to some extent to offset the effects of occasional periods of unforeseen food shortage. Famine does not seem to appear in the history of these groups. It should be noted also that the people normally traveled no more than 20 miles from their villages during food-gathering or most other activities.

A description of the mechanics of acorn exploitation would seem to be in order also. About nine species of oak in California provide edible acorns. These grow almost everywhere in the area under

consideration but tend to be sparse in the open Central Valley and in the high mountains. There is often only one good acorn crop every two to four years, but there is at least a partial crop every year. Yields range from 30 pounds per tree in a poor year to 300, 400, or even 500 pounds in a good year. Two hundred pounds per tree per year might be considered as an average yield (Baumhoff 1963:162-166). Individual trees were "spotted" by a family member before harvest and "claim-marked" by various means to assure that an ample amount of acorns remained undisturbed for the needs of the particular household. The full-grown acorns, still green, were knocked or shaken down by the men and picked up by the women and children. The supply collected during the day was peeled at night and dried in the sun while the people were working at the trees again the next day. Toward the end of the gathering period, the acorns had turned brown on the trees, and these were collected but kept unshelled for storage. In a good year, only two or three days were needed to collect between 1500 and 2000 pounds of acorns, an amount which apparently could last a family up to two years. In a poor year, collection of a year's supply might take two or three weeks, but there is no mention by informants that any family ever failed to secure the necessary supply because of shortage of acorns. Granaries three to four feet in diameter and six to ten feet tall were used for long-term storage of up to a ton of the unshelled portion of the crop.

Since the frequent fall salmon run must have taken place some time near the period of acorn ripening, the aboriginal inspecting the young acorn crop and finding it lean would have had the opportunity to stock up more heavily than usual on the fish resource in order to balance out the indicated acorn shortage.

Briefly, the acorns were ground into meal, leached with hot water to remove bitterness, and made into mush or baked as bread. The meal is more or less nutritionally equivalent to wheat or barley although it is a little lower in protein than these two (Baumhoff 1963:162).

The yearly acorn crop, then, being plentiful, easily available for harvest, and nutritious, furnished an entirely satisfactory substitute for the cultivated crops of, say, the Pueblos. The Californians had the apparent advantage of being accomplished hunters and fishermen in a land of abundant game, distinctions not enjoyed by most of the Southwestern farming tribes, although the latter's domesticated animals may have served an analogous purpose.

Turning now to the investigation of social structure in the acorn economy peoples, we should note that the number of families, tribes or similar groups on the Pacific Coast were more numerous per unit area than in almost any other part of North America (see Kroeber 1953:Map 1a). The reason for this areal fragmentation is not immediately obvious to me. For purposes of the present discussion the issue may perhaps be evaded by saying that some peculiarity of acorn economics cannot be the primary cause since the multiplication of political units extended well outside the range of intensive acorn utilization. So many different languages were represented that in Northern California the largest possible political subdivision based on the use of a single mutually intelligible dialect would have included less than 4000 people (12,000 if the newer figures are used). In practice, however, the functional unit was always much smaller. This unit was the village, or group of neighboring villages, containing, in exceptional cases, a population of 400 to 500, but more often only 250 or fewer people.

A typical village might contain about 15 to 20 houses with two to five families (four or five members) living in each. There was a chief office--usually inherited, but not necessarily so. The chief settled arguments, decreed and presided over various ceremonies, and distributed game and products. The two to four shamans were usually physicians but some also took charge of certain ceremonial affairs. None had obvious ruling power as did the chief. This occupation, also, was not necessarily inherited.

These two offices undoubtedly occurred in all hunting and gathering societies. The feature that sets apart the acorn economy groups is the appearance in them of at least 20 other clearly differentiated and defined professions, ranging from hunter to ceremonial drum maker. No such craftsman devoted all of his time exclusively to his particular specialty, but when his product or services were required he was apparently ungrudgingly relieved from all more mundane duties for the length of time needed to complete his task. Products were normally not sold but were distributed by the chief to the population as needed.

The aboriginal "profession" was undoubtedly a reality, although it may not have been quite as distinct or exclusive as informants' information would make it appear. For instance, in a village of the Wappo (a group situated geographically between the Pomo and the Patwin and very similar to them in economy, culture, and population density), there were 36 adult males. Six of these were described as bead-makers, three as arrow-makers, and so on, and almost all had other duties such as hunter or dance leader (Driver 1936:210). Obviously, six bead-makers, for instance, are a few too many for a village of about 100 people. Information such as this is probably more properly interpreted as meaning that six men could make and had made beads, but that only one or two of them would actually be called upon to work for any particular occasion. In certain occupations, such as fish- or duck-netting, the manufacturing cost of the net as well as its upkeep and handling may necessarily have required the continued involvement of several men but the same argument would hardly seem to hold for flint-chipping or bead-making.

Before discussing the professions further, I would like to separate those which performed what could be termed "vital" functions from those which involved "non-vital" functions. Those professions considered vital would include hunters, fishermen, arrow-point-makers, perhaps salt-preparers, and so on. I would classify dance-leaders and singers, as well as the makers of dance-house drums, ceremonial head-dresses and belts, and large coiled burial baskets, as non-vital craftsmen.

How often, for instance, would a new drum be needed--and how necessary would it be for the people to have one? Bead-money-making is perhaps a borderline case since part of the wampum was traded for outside food-stuffs and necessary raw materials used in tool and weapon manufacture.

I have no doubt that the aboriginals themselves considered the ceremonial products and services essential to the continued well-being of their society; I just mean to point out that life could have gone on without a specialized headdress-maker (as indeed it did, for example, in the Great Basin groups) but hardly without skilled hunters and fishermen. The high ratio of non-vital to vital professions in the North-central California tribes seems to serve as a rough objective indicator of the relatively great amount of leisure time available to these people.

Furthermore, in almost all occupations of both types, rather extensive elaborations of detail or mechanics of the craft are apparent. Among the Patwin (McKern 1922), for instance, there were not just generalized waterbird hunters. Instead, there were those men who shot geese with bow and arrow and an entirely separate group who trapped ducks with a net. There were the salmon fishermen who took these large fish from a dam, and there were the small-to-medium fishermen who took other species with a net. The production of a bow with flint-tipped arrows might require at least three separate workmen. Among these vital crafts, the high degree of specialization could perhaps be excused by saying it notably benefited the general welfare through increased efficiency--as it undoubtedly did. How the fragmentation of duties in the non-vital tasks could benefit the general public, however, is difficult to see. Any man could "rough out" wampum blanks from clam shells. A second person (not present in all groups) further shaped them before handing them over to the man who finally did the actual drilling and polishing. The latter, in turn, was dependent upon still another man who specialized in making the flint bit for the drilling tool.

The sole reasonable explanation for the diversity seems to be that, as suggested earlier, these aboriginal groups just had an enormous

amount of leisure time during at least some parts of the year. Further instances may be cited to help bear out this conclusion. Certain villages among the northwestern Maidu are reported to have posted boundary guards, rotated on a regular shift several days long (Dixon 1905:226). These were not employed through fear of attack by neighboring tribes but apparently were simply used to check on, and sometimes turn back, an occasional outside hunter who may have wandered out of his own territory. Also, in the Nomlaki (a central Wintun group closely allied to the Patwin), two professional "middlemen" have been described (Goldschmidt 1951:337). This pair simply seemed to enjoy traveling, talking, and bartering. They appear to have been under little pressure to settle down and help maintain their families and tribe.

It is quite interesting to note that we have what could quite correctly be termed a "middle class" arising in these societies. A runner perhaps should not be called non-vital although unquestionably he was not as vital to the group as was a hunter. Still, there was obviously some measure of heightened status accorded to his, and others', professions by the ordinary villagers. A Nomlaki informant is quoted as saying, "Everybody feeds people like the runners; hunters give them food, too. The tradespeople are fed by others. Such a person may go hunting if he was caught up with his other work, but he is taken care of while he is working. That is why they like to be big men and why women like to marry that kind of man" (Goldschmidt 1951:332).

Normally, in most of the acorn economy groups a natural aptitude or inclination for any particular task determined who engaged in it professionally. But among the Patwin (McKern 1922) and to some extent the Pomo (Loeb 1926), the positions, along with the necessary "medicine" and implements, were inherited. Note here that special natural skills in the craft were not considered an essential. An heir could refuse to accept, however, apparently without incurring disfavor, and the task then usually passed to someone else in the male line. It is probably not just chance that these "functional families," as they have been called,

appeared in tribes of very high population densities. In the Northern Wintun (relatives of the Patwin but with only half their population density) both the delimitation of professions and the pattern of distribution of the resultant products were far less rigid than in the more populous groups. A Northern Wintun who enjoyed working with his hands might make bows, arrows and points, quivers, or any other things he desired. He might also keep them, or give, sell, or trade them to anyone he wished, rather than turn them over to the chief for distribution elsewhere (Du Bois 1935:22).

It is difficult to establish any direct relationship between the ubiquitous secret society (Kuksu and related cults) and the professional class, possibly because little actually existed. To some extent, the society involved all phases of aboriginal life, but in general its primary function seems to have been the organization and performance of various dances and ceremonies during a ritual season lasting from October until the following April or May. There is some evidence in the Nomlaki that initiation into the society was a social necessity to carry on a profession (Goldschmidt 1951:317, 331), and such a procedure would have enhanced the establishment of a middle class of tradesmen. However, this requirement was definitely not present in most of the remaining groups. Initiation in most areas was by invitation only but it seems that practically all men (and in some tribes, certain women) were eligible, and most eventually were taken in. Some persons never seemed to have cared to join the local version of the society, and this fact apparently did not impair them socially.

I will not discuss the various ceremonies except to say that in many cases a shaman advised the chief on when and how to conduct particular dances or rites. A shaman might officiate at certain of these activities himself, and he and others like him undoubtedly held positions of high authority in the esoteric society. Despite what seem to have been excellent opportunities, there is no evidence that shamans ever tried to usurp power from the chief as might have occurred had a ruling body drawn

from the religious brotherhood been on the ascent in northern California. The few modern Ghost Cult disciples who spread west from Nevada in the early 1870's seem to have promptly and effectively captured the allegiance of certain groups, but the advanced stage of disintegration of pre-Contact social structure undoubtedly allowed, or at least facilitated, this take-over. Domination by the Whites at this time, however, was so complete that the Cult's newly gained influence was quickly dissipated.

The construction of a dance house was unquestionably the largest communal undertaking attempted by the acorn economy peoples. In northern California both the use and the general construction plan of such houses seems to have originated among either the Patwin or the Valley Maidu of the Central Valley. The surrounding foothill, mountain and coast groups either never used these structures or began to build them only at an obviously later date than did the valley people. In some areas the house was reserved for ceremonial occasions but in many others it served also as a sweat house and men's club.

The semi-subterranean structure was built on the chief's command, usually whenever a former structure had reached a stage beyond repair. The time chosen was generally in the spring, supposedly when the ground was softened enough by the winter rains to make digging relatively easy. No special site within a village seems to have been preferred. If neighboring villages did not possess their own dance house, they were invited to help build and use this one. In the Pomo, messengers were sent to inform all local mourners (who did not participate in such building activities during their bereavement period). The mourners prepared a feast for the workers and in turn were presented with gifts, after which the chief asked for and received permission for the non-mourners to commence construction (Barrett 1916:10ff.).

The house was oval or roughly circular and 30 to 60 feet in diameter, with the floor three to six feet below the surface. Two substantial center poles (occasionally one or three) perhaps 15 to 20 feet in height were surrounded by eight or ten poles of lesser dimensions.

Horizontal stringers tied the tops of each of the two sets of poles together. Ten sloping rafters were tied in place. Each rested, respectively, on the rim of the pit, an 8-pole stringer, and the center poles' stringer. The walls of the pit were sometimes lined with short upright posts and horizontal bark or wood slabs. Smaller rafters placed at right angles on the larger were followed by woven brush or tule mats and the whole covered with clay and the earth from the original excavation pit. Entrance was by a smoke hole at the roof peak or by a covered tunnel sloping into the pit from ground level and sometimes by both. A portion of the roof opposite the tunnel entrance was intentionally left thin to allow emergency exit in case of fire or enemy attack.

An extreme in ritualism is evident in one Pomo group (Barrett 1916:11). In this case, the center and surrounding posts as well as each of the stringers and the front and back main rafters were given individual names. All had to be placed in the developing structure in a set sequence obviously ritualistic more than mechanically necessary. In the groups employing two center poles, one was usually regarded as primary, or more sacred, than the other.

A description of the building of a dance house in the Valley Maidu by Dixon (1908:309-311) gives not only a further idea of the amount of ceremony involved but also provides evidence of a certain degree of social distinction between members of the Kuksu and the remaining villagers. On the announced construction day, all able-bodied citizens aided in digging the floor pit, cutting the smaller posts, rafters, and so on. Most of the people then left while the chief and members of the secret society went some distance away to secure the primary center post. This had to be of oak, as did all the other main uprights. The pole was decorated and brought to camp with much ceremony, then it and the other poles were set in the ground and the stringers and rafters tied in place. The rest of the populace was recalled and all worked to finish the roof before dark. A dance was held within the structure that same night.

The building of dance houses in other areas was attended by less ceremony, or at least by less precise requirements than in this example. In certain Foothill Maidu it is definitely reported that there was less ceremony than among Valley relatives (Dixon 1908:312). The correlation may well not be absolute but the trend appears to be that increasing complexity of construction ritual went along with increasing density of population.

The Maidu information cited above implies that the entire work of building the house took only one day. This is difficult to believe unless it is assumed that such work as selecting, cutting, and trimming the larger poles and rafters, along with the preparation of the roofing mats, had all been done prior to the actual day of construction. The soil removed from the pit of a house three feet deep and 30 feet in diameter would amount to a cubic yard each for all 80 able-bodied adult inhabitants of a small village. In the larger habitation unit, 300 working adults would have to excavate two cubic yards of dirt each to form a foundation pit six feet deep and 60 feet in diameter. Considering that digging sticks and baskets were the only available tools, and that the area was too small for more than about half of these people to have been digging at once, the excavation alone would seem to represent at least a good half-day's work for the whole group. Goldschmidt (1951: 423) reports that the Nomlaki dance house was also completed in one day but that previous preparation of the poles may have taken a month.

The house was normally in frequent use for most of the yearly or seasonal dances but Loeb (1926:387) reports that certain Pomo built a house used solely for a down-headdress ceremony. This was recorded as being held in about 1805, again in 1865 and lastly in 1882. The dance and use of a special earth-covered house were probably borrowed directly from the Patwin, but the length of time between performances is rather noteworthy. The informant stated that the dance was desired at least as frequently as was necessary to insure that a younger director received the proper procedural instructions before the older one became too senile

to transmit this knowledge. There is a hint here of a distant parallel with the apparent commemoration by stelae inscriptions, temple remodeling, and the like of the ascent of a new and/or passing of an old religious leader in Middle American Classic cultures (Proskouriakoff 1960; Smith 1950:12, 91).

I would like to summarize here those observations which seem to relate most closely to the stated objectives of this paper.

In terms of the general welfare, quasi-agricultural acorn-salmon economies of north-central California seem to have been reasonably equivalent to proto- or semi-agricultural societies elsewhere.

Manifestations of leisure time and resultant diversity of labor allowed by this type of existence are evident not only in the presence of highly specialized "non-vital" occupations but also in the apparent over-elaboration of assignments in even the "vital" professions.

Recognized competence in at least certain occupations placed the professional on a recognized, but not sharply delineated, higher social plane than unskilled workers, thus forming an incipient "middle class."

Large public works projects were limited to the occasional, although highly ritualistic, construction of communal dance houses. The chief represented the directing force, aided at times by members of the local secret society. The latter seem to have been prominent by virtue of their professional status rather than by reason of any purely religious power derived from cult membership.

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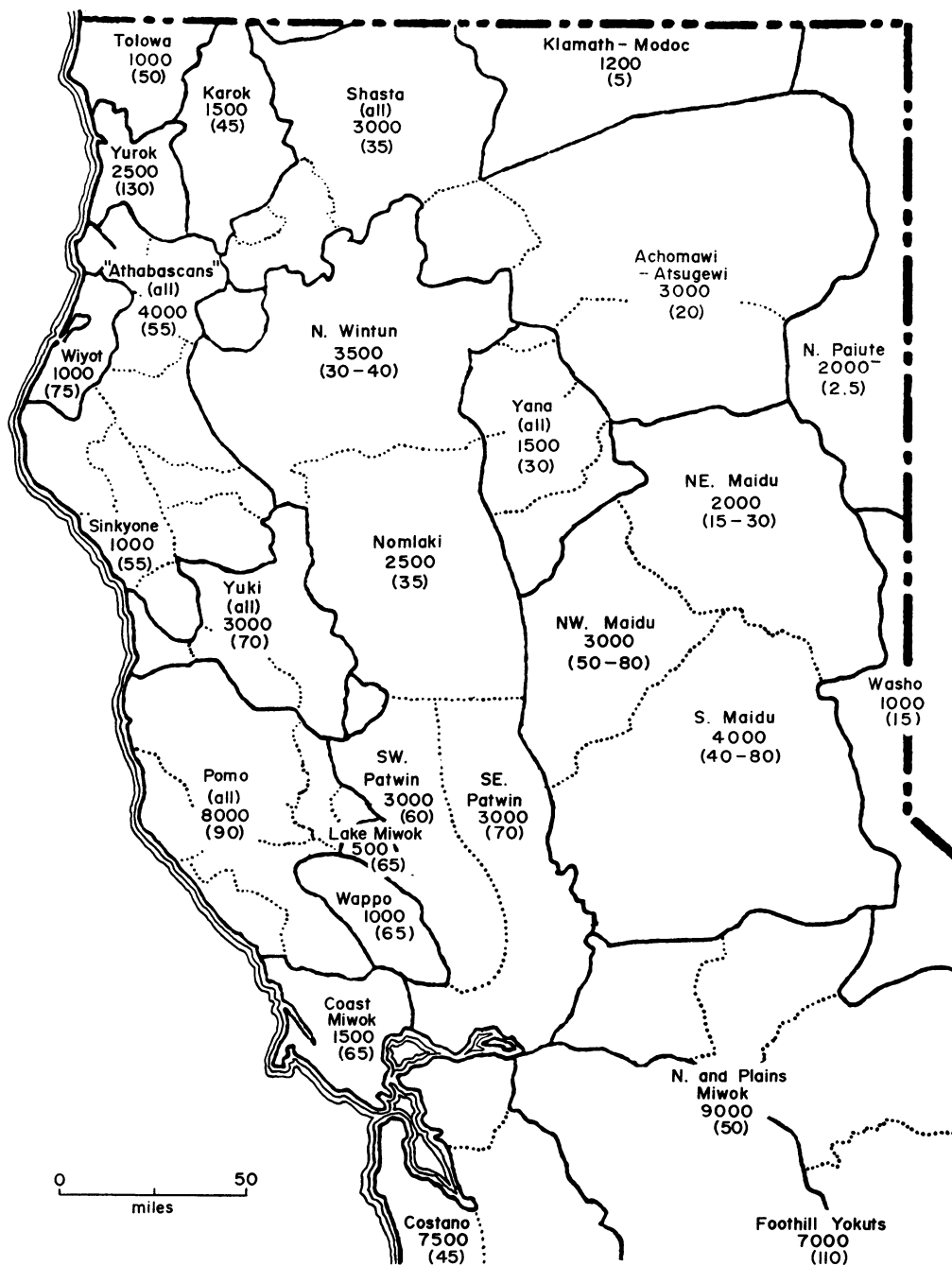


Fig. 1 Boundaries of Northern California Indian groups. The four-digit figures indicate estimated total populations and the numbers in parentheses represent persons per 100 square kilometers. Dividing the latter by 35 will approximate density per square mile (data from Kroeber 1953).

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