An Evaluation of Models of Inezeño Chumash Subsistence and Economics[1]

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THE anthropology of the Chumash and their prehistoric predecessors traditionally has been concerned with the occupants of the coastal strip of the Santa Barbara Channel, and there has been an implicit, if not explicit, tendency to use anthropological information about the coastdwellers to generalize about the nature of culture of the interior Chumash. For instance, Landberg (1965:6), in his definitive work on the Chumash, argues that coastal Chumash culture "varied more in degree than in kind from their linguistic and cultural relations in neighboring regions." There is every reason to believe, however, that the interior Chumash were culturally quite distinct from their coastal neighbors (Grant 1978:518). Nonetheless, considerable evidence indicates strong economic and social ties between coastal and interior Chumash groups, and a full understanding of the cultural systems of either requires that the nature of these ties be elucidated.

I wish to focus my attention in this paper on only one of the interior Chumash groups, the Inezeño, who occupied the Santa Ynez River watershed from the mouth of Zaca Creek eastward, and I shall be most concerned with evaluating the previously proposed models dealing with the economic ties that the Inezeño maintained with their coastal neighbors, the Barbareño. At the same time, I would like to correct certain errors in fact in the published literature on the Inezeño which, if left to stand, would give the impression that more is known of Inezeño adaptations than is actually the case.

Based on King's maps of Chumash village locations (King 1971, 1975), the Inezeño territory contained 18 villages (not including one established at the Santa Ynez Mission), the largest of which hosted about 200 people and the smallest about 25 or 30. The average village population size was around 80 individuals, and the overall Inezeño population appears to have been somewhere between 1000 and 1800. In the 710 square miles of the Inezeño region the population density was about 2 persons/mi.^{2}, a density figure considerably lower than the 21 persons/mi.^{2} found in the Barbareño Chumash territory on the coast.

Several scholars have attempted to interpret the information from the ethnohistory, ethnography, and archaeology of the interior Chumash and more specifically the Inezeño. Landberg's (1965) study of the Chumash was the first to give specific attention to the adaptations of the interior Chumash, even though his consideration was rather brief and general.

Comparing the interior Chumash settlement patterns to those of the coastal Chumash, Landberg believed that "interior settlements probably were much less stable, with greater seasonal variation in community mobility" (Landberg 1965:91). In light of Strong's work in the 1930's (Strong 1935), Landberg (1965: 114-117) suspected that higher elevation sites were occupied only in the summer and fall while lower elevation sites in grasslands, oak woodlands, and chaparral slopes "were used most of the year." Landberg (1965:114) also cited evidence indicating that coastal populations may have made seasonal forays into the interior to gather or hunt, and that some sites may have been used as stop-overs by Yokuts traveling between the Central Valley and the coast (1965:116). On the whole, however, Landberg is very cautious in his reconstruction of interior adaptations. In fact, he really does not offer an explicit model of the nature of these adaptations.

Building upon the foundation laid by Landberg, Spanne (1975) constructed a model that includes propositions about both coastal and interior settlement patterns. In Spanne's model, the Inezeño had access to anadromous fish that occurred in substantial numbers during the winter months. Not only did the Inezeño exploit these, according to Spanne, but so did the coast-dwelling Barbareño during visits to the valley, especially when stormy winters would have severely curtailed channel fishing. Conversely, Inezeño may have come to the coast during the summer when channel fishing was optimal. In essence, then, Spanne is proposing that the Barbareño and Inezeño were linked together in an ecological equilibrium relationship.

Spanne originally proposed this model in an unpublished paper written in 1970, and it was this paper that spawned Tainter's interest in undertaking a survey of a portion of the Santa Ynez Valley (Tainter 1971). His intent was to gather data relevant to testing Spanne's model. While Tainter found no evidence in his survey and test excavations that would lead to rejection of Spanne's model, he was able to propose some alternative explanations of the data he found. Basic to Tainter's arguments is a division between mountain and valley Inezeño. The valley Inezeño, according to him, occupied permanent villages on the Santa Ynez River and its major tributaries. However, the mountain Inezeño occupied the San Rafael Mountains to the north and had a much more flexible settlement pattern that varied from one year to another, depending on the amount of annual rainfall. During unusually dry summers, mountain Inezeño would have congregated at large village sites next to reliable sources of fresh water on the Santa Ynez River, and they would have required food resources from the coast to supplement diminished interior food supplies. On the other hand, during summers following average or above-average rainfall, the mountain Inezeño would have dispersed during the summer into a series of small valley sites along tributaries. As a variant of this model, Tainter proposed that relatively larger sites in the San Rafael Mountains may also have been summer sites when winter rainfall was adequate. In an alternative model, Tainter has the mountain Inezeño occupying dispersed small sites in the valley during the spring and congregating into larger valley sites during the summer.

Tainter also considers an hypothesis which I had originally suggested to him—that the Barbareño and Inezeño were closely associated with one another in an economic exchange network tied to a Chumash-wide fiesta system (Blackburn 1974:108-110). If this were so, the Inezeño and Barbareño would have brought foodstuffs over the Santa Ynez Mountains when they attended fiestas in one another's territories. Tainter argues that during dry winters when marine fish were available, fiestas were held on the coast; but during wet winters, when river fish were avail-

able, fiestas were held in the Santa Ynez Valley. Furthermore, he suspects that several permanent Inezeño villages in the valley may have formed one sociopolitical unit and would therefore have participated under one regional chief in these fiestas.

As can easily be seen, this model is similar to Spanne's, the major difference being that Spanne has the populations moving to where the food resources are obtained whereas Tainter has the food resources being transported to where they are needed. In a subsequent study, Tainter (1972) attempted to demonstrate that Santa Ynez Valley food resources fluctuated significantly enough to obligate the Inezeño to participate in such an economic system.

Tainter (1975) also gave some attention to the possibility that Inezeño villages exchanged food resources among themselves. He noted that the lands adjacent to the seven Inezeño villages on which his study focused contained differing proportions of food resources. Thus, villages having territories with an abundance of one particular food resource would exchange it for other resources abundant in the territories of other villages. Tainter proposed how this exchange network might have operated, but he was not able to determine whether his predictions were borne out by archaeological data.

This summary of the models proposed for understanding the nature of Inezeño adaptations indicates that anthropologists have run the gamut between very cautious and very liberal model-building. The perspective of these models has been uniformly ecological. Moreover, all of the models make certain basic assumptions that are worth making explicit. In the first place, all assume that the interior Chumash represent an *adaptive type,* if not types, different from that found among the coastal Chumash populations. Even though many of the items in the coastal and interior technologies were identical and the languages spoken by interior and coastal Chumash differed only dialectically, the coastal Chumash adaptation was essentially maritime in orientation whereas the interior Chumash adaptation was essentially terrestrial. Interior Chumash culture, in fact, may have been more similar to that of such other interior groups as the southern Yokuts, the Tataviam/Serrano, or the Fernandeño, neighbors to the north and east. Yet each model, especially Tainter's, argues that all Chumash population aggregates were participating in an interaction sphere in which food resources and probably other products were being exchanged between villages.

The models of Inezeño adaptations, both those already proposed and those that will undoubtedly come forth in the future, depend upon certain kinds of archaeological problem-solving in order that they might properly be tested. I would now like to consider what these problems are and what obstacles lay in the paths toward solution.

One of the most obvious prerequisites for testing these models is the identification of the locations of named interior Chumash village sites. A comparison of the King map (King 1971, 1975) with the Whitehead-Hoover map (Whitehead and Hoover 1975) of Chumash villages reveals that there is not uniform agreement on location of named villages. On both maps most sites are located where archaeological sites have been reported, but not only is there often a choice as to which of two or more sites is the village in question, there also is a question of whether a given site actually has historic deposits. No more than six Inezeño Chumash sites have, to my knowledge, yielded historic material that would justify designating them contact or post-contact villages, and not all of these can be correlated with village names.

Another closely related problem is the determination of the contemporaneity of sites. While all sites in the interior province appear

to represent relatively late occupation, there is no reason to believe that all interior sites were used during any comparatively small segment of time. More likely, some sites were not part of settlement patterns at the time of contact because of shifts in adaptation or possibly resource depletion. We may question, therefore, whether the sites used by Tainter in his 1971 and 1975 analyses were all contemporaneous and all part of one subsistence-settlement system or of two or more contemporaneous systems.

Any model of interior Chumash adaptations also requires that functions of the sites within any one subsistence-settlement system be identified. There are a number of related problems that make such identification difficult. To begin with, the use of such terms as "village," "permanently occupied site," and "stop-over site" have been used perhaps a bit too loosely. The criteria of size and density of midden debris are normally used to differentiate between sites occupied by a relatively large population for most or all of the year and sites occupied by usually smaller groups on a seasonal basis. These criteria should not only be refined and quantified, but they should also be linked with more precise indicators of length and season of occupation.

Second, debris on the surfaces of interior sites indicating site function are often rather deceiving, especially to an archaeologist most familiar with coastal sites. We have observed interior sites (e.g., SBa-1215 [Horne and Glassow 1975]), for instance, that have relatively scant remains on their surfaces but contain deposits below surface reflecting activities not at all anticipated from surface evidence alone. In fact, the comparatively low density of surface debris and poor development of middens is common in the interior and plagues all attempts at determining without excavation the function of sites in subsistence-settlement systems.

The employment of geographical techniques of locational or spatial analysis to determine the place of a site in a subsistence-settlement system must also be done with due caution. Tainter used a variant of Theissen polygons to define the area utilized by occupants of seven sites in the Santa Ynez Valley, yet other geographic models may actually be more appropriate—for instance, the use of boundaries of the drainages in which, or next to which, sites are located. In fact, considering all 18 named Inezeño village sites on King's map, the variation in site habitats appears to be much more complex than recognized by Tainter (cf. USDA vegetation maps of this region [USDA 1941]).

Finally, we come to a considerably more specific problem in determining the nature of interior Chumash adaptations. Both Spanne and Tainter argued that the Inezeño exploited anadromous fish, particularly steelhead trout *(Salmo gairdneri)*, partly basing their argument on information obtained from older residents of the Santa Ynez Valley who remember the days prior to the construction of the three dams on the river when steelhead and other salmonids were abundant during spawning runs. Their oral historical data are supported by published data (USDI 1948) which indicate that annual steelhead runs may have averaged about 20,000 with a range between 13,000 and 25,000 fish (cf. also Shapovalov 1944, 1945). Thus, there should be little question about the availability of steelhead in the Santa Ynez River and its major tributaries. Also, there appears to be adequate ethnographic documentation of Inezeño river fishing, even though no mention is made by Harrington's informants of obtaining specifically steelhead. Craig (1967:119) presents a description by one of Harrington's Inezeño informants of the use of a gill net in river fishing. Moreover, Harrington (1942:7) reported in his culture element distribution study that the Inezeño used a long fishtrap twined of slender sticks, which seems to be a

device particularly adapted to river fishing.

However, adequate archaeological identifications of fish remains from Inezeño sites are only now being undertaken. Tainter (1971:36) reported having identified the remains of anadromous fish from his test excavations at SBa-846 and SBa-848. In actual fact, the remains from the latter site are not those of any freshwater fish (Casteel, personal communication), and those from the former site have not yet been identified. One might assume that any fish remains in interior sites would be those of anadromous fish; however, our ongoing analysis of fish remains from SBa-167, probably the Inezeño village of *Sohtonokmu,* has revealed that a variety of marine fish were brought in from the coast in the same manner that shellfish were, whereas anadromous fish remains are represented by only one vertebra.

It seems paradoxical that anadromous fish remains are seemingly not present in any of the Inezeño sites so far tested, given that these fish were an abundant and easily obtained resource. We might wonder if bones of salmonids simply were not preserved due to their relatively cartilaginous nature. However, Casteel (1976:88-92) effectively argues that salmonid bones do preserve reasonably well in sites. Another more plausible possibility is that salmonids were processed with a mortar and pestle, resulting in fragmentation or even pulverization of the bones. Thus, if there is to be any chance of encountering salmonid bones in Inezeño sites, screen mesh sizes smaller than the conventional 1/4 in. must be used. Casteel (1976:93) obtained highly fragmented salmonid bones from protohistoric central California sites using a 1 mm. mesh screen.

Beyond the strictly archaeological problems that must be solved to test models of Inezeño economics, the models themselves must be evaluated against what is known of the environmental variables included within them. The most serious shortcomings of the models in this regard is their failure to consider the relationship between climatic fluctuation and size of spawning runs of salmonids. Both models argue that dry winters would result in small runs of salmonids. Data on the natural history of steelhead indicate that the situation is more complicated than this (Fry 1973:60). After hatching, young steelhead spend one or two years in fresh water before migrating downstream to the ocean, so the size of a spawning run is related to the number of fish hatching two or three years previous to the run. Thus, weather conditions of the year the spawning steelhead hatched will have at least as much effect on the size of the run as the weather conditions during the spawning run. So long as the river mouth is sufficiently breached by river discharge, there is the potential for substantial runs, even during years of minimal rainfall.

A hasty conclusion to this evaluation of the models of Inezeño economic organization and the evidence supporting them might be that the models should be set aside and attention devoted to ascertaining archaeological (and environmental) facts before returning to model-building. This is reasonable, but it must be remembered that the facts we look for (e.g., small pieces of salmonid bones) and the techniques used to obtain them (e.g., fine screening) imply that certain kinds of information are necessary to test such models as these. It cannot be denied that the presentation of the models, however flawed they might be, has had the effect of focusing our attention on problems that otherwise probably would not be recognized. So as we set out to seek more facts, we should also be refining our models. The two enterprises go hand-in-hand.

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NOTE

1. This is a shortened version of an unpublished paper I wrote with Steve Horne of Los Padres National Forest that was presented at the 1976 meetings held in Santa Barbara of the Southern California Academy of Sciences. I have extracted for this paper those portions for which I was exclusively responsible. I wish to thank Steve Horne for permission to do this and for his advice on many aspects of the paper as it now stands. This paper sets out some of the objectives of a research program at the University of California, Santa Barbara, that is currently involved with the analysis of collections obtained in the 1960's from SBa-167 and SBa-485, both of which were historically occupied.

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