

THE WINTU AND THEIR NEIGHBORS:

A VERY SMALL WORLD-SYSTEM

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ABSTRACT

The world-systems perspective analyzes the modern international system. This approach can be applied to long range social evolution by studying smaller regional intersocietal systems such as the late pre-contact Wintu and their neighbors. Three questions: 1. What was the nature of integration among Wintu groups and between them and neighboring groups? 2. What are the spatial characteristics of this network regarding fall-off of the impact of events? 3. Was there regional socially-structured inequality in this system? Archaeological data may allow estimation of extent and rate of Wintu expansion, obsidian trade patterns, settlement sizes, and other features of this little world-system.

INTRODUCTION

This paper describes a theoretical approach for the comparative study of world-systems and a preliminary consideration of a small regional intersocietal system composed of the Wintu people and their neighbors in Northern California. I am currently engaged in the study of two "cases" of relatively small intersocietal networks -- the Wintu-centered system and late prehistoric Hawaii (Chase-Dunn 1991). This paper describes my preliminary hypotheses and examines possibilities for using archaeological, ethnographic, and documentary evidence for answering questions raised by the world-systems perspective.

The world-systems perspective is a theoretical approach which has been developed to analyze the dynamics of the Europe-centered, and now-global, political economy composed of national societies (cf. Wallerstein 1974, 1979; Chase-Dunn 1989; and a very readable introduction in Shannon 1989). One important structure in this modern world-system is the core/periphery hierarchy -- a stratified system of relations among dominant "advanced" core states and dependent and "underdeveloped" peripheral areas. Tom Hall and I contend that the world-system perspective can be usefully applied to the problem of long range social evolution by studying and comparing smaller regional intersocietal systems to the modern global system (cf. Chase-Dunn

and Hall 1991). Archaeologists, anthropologists, and historians have begun to use world-system concepts in their study of pre-modern systems, but few have tried to apply these ideas to stateless, classless intersocietal systems. Indeed, Immanuel Wallerstein (1984) has argued that stateless systems are not world-systems, but should rather be termed "mini-systems" because social and cultural entities are largely self-sufficient with regard to the production and consumption of fundamental goods (food and raw materials). This raises questions about the way in which world-systems should be defined and the nature of interaction among stateless, classless societies.

CONTENDING DEFINITIONS OF WORLD-SYSTEMS

Immanuel Wallerstein (1974, 1979) defines a world-system as a single division of labor which contains multiple cultures. By a single division of labor he means a network for the exchange of fundamental goods -- food and raw materials which are necessary for everyday life. The criterion of multiple cultures refers to the idea that economic networks may link a number of culturally different societies in which people speak different languages and have somewhat different normative institutions. Wallerstein distinguishes between two types of world-systems: world-empires and world-economies. A world-empire is an intersocietal division of labor which is encompassed by a single overarching imperial polity. A world-economy is an intersocietal division of labor which is politically organized as an interstate system, a multicentric system of unequal and competing states (like the modern international system). Wallerstein (1984) excludes stateless societies from the category of world-systems by characterizing them as "mini-systems" in which, allegedly, production of basic subsistence goods is accomplished autarchically within each cultural entity. Thus for Wallerstein the distinction between world-systems and mini-systems turns on the relationship between the economic division of labor and cultural distinctions among groups. Culturally distinctive groups which trade basic goods constitute a world-system, while culturally distinctive groups which do not trade significant amounts of basic goods are called mini-systems. The intent of Wallerstein's definitions is to encompass those processes which are important for the reproduction and historical development of social structures.

The definition of world-systems developed by Chase-Dunn and Hall (1991) has the same intent but is somewhat more general in order to make it possible for us to compare very different intersocietal networks to one another. We define world-systems as "intersocietal networks in which the interactions (trade, warfare, intermarriage, etc.) are important for the reproduction of the internal structures of the composite units and importantly affect changes which occur in these local structures" (Chase-Dunn and Hall 1991:7).

Several studies of classless, stateless societies challenge Wallerstein's implied assumption that these constitute a form of human social system which is non-comparable with larger intersocietal systems. It is evident that many classless, stateless societies composed of sedentary or semi-sedentary peoples do not constitute "mini-systems" (as defined above) because there are important cross-cultural interactions (including exchange of basic foodstuffs) which affect the reproduction and historical development of constituent groups (e.g., Sahlins 1972).

One of the most important structural features of the contemporary global intersocietal system is the stratified set of relations of dominance and dependence between the "developed" and "developing" countries. The concepts of core, periphery, and semiperiphery have been developed primarily in studies of the modern world-system.¹ Some scholars have begun the task of studying intersocietal hierarchies in earlier world-systems, but the conceptualizations being used are often confused and confusing. Past intersocietal hierarchies may have operated in ways significantly different from those of the modern world-system, especially with respect to the relations between "developed" and "developing" regions.

Ideas about regional and interregional interaction have been discussed in relation to the interpretation of archaeological findings about California prehistory. Fredrickson's (1973, 1982) informative discussions of the applicability of Binford's concepts of tradition, interaction sphere, and adaptive area to prehistoric California quotes Binford's definition of interaction spheres as "areal matrices of regular and institutionally maintained intersocietal articulation." This definition is quite broad enough to include trade, warfare, intermarriage, communication, and anything else that one might want to use to define world-system interaction, but the term has been used by others (e.g., Caldwell 1964) to imply primarily the diffusion of religious practices.

Fredrickson (1982:3) notes that:

...the "spheres" suggested by Binford are themselves multivariate phenomena. It is likely that an "interaction sphere", for example, consists of a variable number of subsystems none necessarily covarying with others.

In addition to the possibility of interaction networks with varying boundaries and dimensions, there is also the possibility of hierarchical or stratified interaction. We know that relations among societies in some world-systems involve socially structured inequalities which enable some societies to dominate and exploit others. Was there anything of this sort in prehistoric California? And if there was not, what accounts for the existence of an intersocietal interaction network in which interactions among societies are primarily egalitarian?

CONCEPTUALIZING CORE/PERIPHERY RELATIONS

Chase-Dunn and Hall (1991:18-21) define two types of core/periphery relationships for the purposes of comparative study. The first is called core/periphery differentiation, in which societies at different levels of complexity and population density are in interaction with each other within the same world-system, as defined above.

The second type is a core/periphery hierarchy, which is understood to mean the existence of political, economic, or ideological domination between different societies within the same world-system. This includes political domination and unequal exchange as well as extraction of resources through raiding, taxation, and tribute. We are also interested in cultural definitions of superiority/inferiority, and how these may interact with more objective forms of exploitation and domination.

We designate two types of core/periphery relations -- differentiation and hierarchy -- because we think it is mistaken to assume that all relations among "more developed" and "less developed" societies involve exploitation and the processes of the development of underdevelopment which are often found in the modern world-system. We need not assume that the "more developed" society always exploits the "less developed." Indeed, there may be cases of the reverse and cases in which domination exists between societies at virtually the same level of complexity and population density. Thus, we seek to analyze how differences in societal size, complexity, technological productivity, and internal stratification are related to intersocietal domination. The nature, longevity, and consequences for social change in both core and peripheral societies of various kinds of intersocietal relations are the findings which comparative study is intended to produce. Variations in the degree to which core/periphery relations cause the "development of underdevelopment" and the factors which account for such differences are considered below in the section on hypotheses.

We have intentionally left out consideration of the nature of what is produced and traded between cores and peripheries. The notion that coreness and peripherality in the modern world-system are essentially constituted around a division of labor in which the core produces manufactured goods and the periphery produces raw materials is itself quite controversial (Chase-Dunn 1989:Chapter 10), and it is known that important reversals of this relationship sometimes occurred within ancient world-systems (e.g., Lamberg-Karlovsky 1975; Kohl 1987). Nevertheless, such differences may be important foci of comparative investigation. This can best be pursued by not building these distinctions into our definition of core/periphery relations. Rather we need to investigate in each case the linkages between intersocietal differentiation and core/periphery domination.

It should not be assumed that all world-systems are hierarchical. We can certainly imagine hypothetical intersocietal systems without intersocietal inequalities or exploitation. For many students of society the very notion of a non-hierarchical world-system is strange. The pairing of the idea of a world-system with the notion of core and peripheral regions is so strong that many are resistant to the application of world-system terminology to non-hierarchical intersocietal systems. The existence of exploitation, domination, or unequal exchange should not be a matter of assumption, but rather of investigation. Chase-Dunn and Hall (1991) argue that some stateless intersocietal systems did not have core/periphery hierarchies, while others had only mild and episodic ones. In order to understand the conditions which generate intersocietal inequalities it is necessary to examine cases in which they are absent. It is crucially important not to read the present into the past. The point is to conceptualize hierarchy as an empirical issue, not an axiomatic one.

SPATIAL WORLD-SYSTEM BOUNDARIES: A MULTICRITERIA APPROACH

Chase-Dunn and Hall (1991:8-15) review and critique the proposals of several scholars regarding criteria for spatially bounding intersocietal interaction networks and reach the following conclusions. It is presumptuous to argue that some forms of interaction are always causally more important than others for social change, especially when we want to study world-systems with very different sorts of social institutions and developmental logics. The relative importance of different types of interaction probably varies across different kinds of systems. Conclusions about relative importance should be the outcome of research rather than the starting-point. Chase-Dunn and Hall (1991) propose an approach to spatial bounding which is inclusive enough to make comparisons possible.

Both economic and political forms of interaction are important features of all world-system networks. Chase-Dunn and Hall agree with Wallerstein (1974, 1979) that bulk-goods exchanges are very important and constitutive forms of interconnection, but we agree with Schneider (1977), Abu-Lughod (1989), and Blanton and Feinman (1984) that prestige-goods exchanges are also important. Thus it is proposed that all regularized material exchanges should be included as criteria of system boundedness. It will be necessary to consider how relatively localized networks of bulk-goods exchange are nested within much larger networks of prestige-goods exchange in many systems.

Chase-Dunn and Hall also agree with Tilly (1984:62) and Wilkinson (1987) that political interconnections are important. We propose to use the criterion of regularized political-military conflict interaction proposed by Wilkinson. This will often produce yet a different network boundary from the bulk-goods and

prestige-goods networks (Figure 1).

In many cases the use of these three criteria will result in three nested levels of system boundedness. Bulk goods will compose the smallest regional interaction net. Political/military interaction will compose a larger net which includes more than one bulk-goods net, and prestige-goods exchanges will link even larger regions composed of smaller conflict nets. For example, the bulk-goods net of the Roman Empire was smaller than the system of regularized military interactions of which the Romans were a part. And the system of prestige-goods exchanges utilizing the "Silk Roads" linked the Chinese, Indian, and Roman core regions into an Afroeurasian super-system.

Rather than applying the term world-system to one of these types of linkage and using other terms for the others, we propose that whole world-systems be analyzed in terms of all three forms of linkage. In practice this will lead to the use of terms such as regional subsystems and supersystems for those world-systems in which the different types of connections are structured in the nested way suggested above.

We do not claim that the networks will always be nested in the fashion described. In both the modern global world-system and earlier geographically isolated systems (such as the pre-contact Hawaiian Islands) the three types of networks converge. This convergence may be an important characteristic which differentiates some whole systems from others.

HYPOTHESES AND RESEARCH QUESTIONS

Chase-Dunn and Hall (1991:21-25) propose a preliminary typology of very different world-systems which utilizes distinctions based on modes of production, types of intrasocietal stratification and political structures. The Wintu-centered system I will discuss below represents one of the sub-types included within the more general category of systems in which the dominant mode of production is kin-based normative reciprocity.

The most general questions for a comparative study of core/periphery relations are:

1. Do all world-systems have stable core/periphery hierarchies in which more complex societies dominate and/or exploit less complex ones?
2. Do the stability, magnitude, and nature of these intersocietal inequalities vary systemically with the types of societies which compose intersocietal networks? What is the relationship between intersocietal differentiation and core/periphery domination?
3. What do core/periphery dynamics have to do with the reproduction/transformation of social structures, institutions,

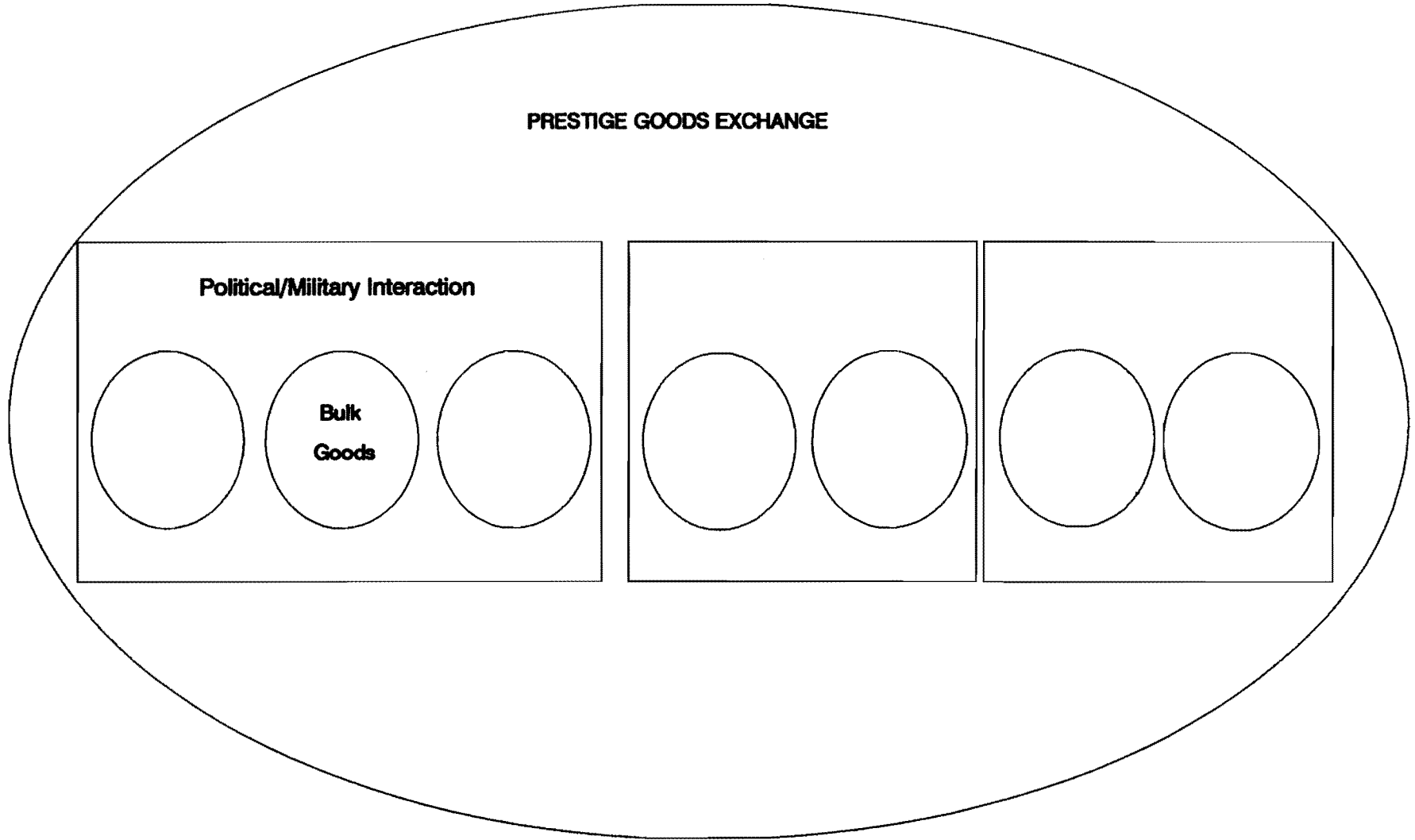


Figure 1. A world-system with bulk goods and conflict networks nested inside a prestige goods network.

and basic systemic logics?

These questions cannot be answered without studying many different kinds of world-systems. Here I am proposing to study only one very small world-system because it is important to see how convincingly the comparative perspective can be applied to stateless, classless systems. For the purposes of studying the Wintu case a more limited set of questions needs to be answered:

1. Does the group of contiguous societies under study form a world-system in the sense that intersocietal interconnections are necessary for the reproduction and change of local structures?
2. Is intersocietal differentiation an important aspect of the system, and if so, how is this organized?
3. Does intersocietal domination or exploitation exist, and, if so, how is this organized, how stable is it, and how much inequality is generated? If not, why not? To what extent does intersocietal interaction result in the development of underdevelopment, or on the other hand, in spread effects² by which peripheral areas catch up with core areas?

The questions I am asking apply to whole intersocietal systems, and thus whole systems need to be studied to answer them. It is known that there is usually considerable variation across different peripheral regions within each intersocietal system, and this is important and needs to be taken into account. But for the general discussion of cross-system comparisons we need to consider "average" or typical core/periphery relations within each system. Questions of systemness and stability can only be answered meaningfully by studying long periods of time. I propose to study the Wintu between A.D. 1300 and A.D. 1850.

Obviously, intersocietal networks in which the constituent societies are all at about the same level of complexity do not have intersocietal differentiation as defined above. But what about intersocietal hierarchy? Do intersocietal hierarchies require intersocietal differentiation? The case of the Nuer-Dinka relationship studied by Kelly (1985) is an instance of "imperialism" among societies at almost the same level of differentiation. How typical is this, and does it correspond to certain types of societies (e.g., Sahlins 1961)? The answers to these questions would require the comparative study of large numbers of intersocietal systems. Though my case study will not provide definitive evidence, I plan to compare the Wintu case with other, somewhat similar, cases in order to address these general questions.

GENERAL HYPOTHESES

The following general hypotheses, like the general questions above, presume a scope of comparison which includes all types of

intersocietal systems. This study, however, focuses on one very small scale intersocietal system. Below I elaborate hypotheses which are specifically relevant to the case I am here considering, but I first present a more general discussion in order to clarify the comparative context within which case studies are undertaken.

My first general proposition is that stable relations of intersocietal domination are unlikely to be created and sustained in the absence of hierarchical social institutions within the societies involved. The development of internal stratification and forms of the state are quite important in the stabilization and reproduction of core/periphery exploitation. Thus I hypothesize that:

In-based intersocietal systems composed of relatively egalitarian societies will have only minimal and short-lived core/periphery hierarchies and that sedentary foragers, will not have any regularized intergroup domination or exploitation.

I expect that intersocietal exploitation is nonexistent among most sedentary foraging groups except for episodic raiding and competition over favorable natural sites. The war-captive slavery to be found among some hunter-gatherers (e.g., the Yurok) is likely to be of a relatively mild kind because slaves must be incorporated into existing kinship networks to mobilize their labor, and kinship networks usually bestow rights as well as obligations (cf. Patterson 1982).³

My second general hypothesis is that:

The stability and exploitativeness of core/periphery hierarchies increase with the degree of stratification within core societies and with the development of certain "technologies of power" (Mann 1986) which enable centralized polities to extract taxes and tribute from peripheral regions.

Thus, I am further hypothesizing that:

Core/periphery hierarchies were relatively more stable, more hierarchical, and more underdevelopmental for peripheral regions in systems with centralized complex chiefdoms (i.e., Hawaii).⁴

The decentralizing phase of the process of the rise and fall of chiefdoms tended to reverse this trend somewhat, as increased local autonomy slowed the concentration of resources in the center. This effect is thought to be analogous to that which is argued to have occurred in the rise and fall of larger states and empires (cf. Chase-Dunn and Hall 1991).

SPECIFIC HYPOTHESES

I. I expect that I will be able to show that the Wintu-centered case is a world-system in the sense that relations among culturally distinct territorial groups are necessary for the reproduction of group structures and are important for social change. Wallerstein's notion of "mini-system" should apply to the California case if it applies anywhere. Recall that a mini-system is defined by Wallerstein as a network in which the "cultural unit" corresponds to the division of labor for the production of basic foods and raw materials. I expect that the California case study will contradict this specification because it will be possible to show that tribelets and linguistic groups existed in a context in which intergroup intermarriage, warfare, and trade of both bulk-goods and prestige-goods were very important for the reproduction and transformation of local social structures. I expect to be able to demonstrate that the concept of a "world-system" can be usefully applied even to systems which are radically different from the modern world-system. This is not simply a matter of Talmudic classification or semantics, because below I specify the empirical tests necessary to distinguish a mini-system from a world-system. My case study will not tell us how generalizable this conclusion is. I will address the problem of generalization by searching the ethnographic and archaeological literature on other systems of sedentary foragers.

II. By comparing the Wintu system with Hawaii I expect to be able to demonstrate support for the proposition that there is a relationship between the degree of internal inequality and the existence (and degree of) inequality in intersocietal hierarchies. The California case will probably exhibit some intersocietal differentiation but little or no intersocietal hierarchy. I will systematically examine those loci of interaction in which intersocietal inequalities are known to exist in other systems in order to try to disprove the hypothesis of no intersocietal hierarchical relations. More detail about this can be found in the discussion of the California case below.

WHY CALIFORNIA?

Northern California is a region in which regional systems of foragers uncontaminated by contact with state-based systems existed until relatively recently, and it has been studied on an areal basis by both ethnographers and archaeologists. Ethnographic data are not available for most such systems, although comparably studied cases are to be found in some other areas (e.g., New Guinea, Australia, etc.). I have chosen to focus on the late pre-contact Wintu and their neighbors in order to answer certain questions which derive from the comparative world-system perspective because I am familiar with the topography of the region and because there is a combination of ethnographic and archaeological research upon which to draw.

Our ethnographic knowledge of pre-contact California is based primarily on the projects undertaken by Alfred Kroeber and his associates and students at the University of California (Kroeber 1925; DuBois 1935; Heizer and Whipple 1971; etc.). This small army of dedicated ethnographers and linguists tracked down the surviving elders of the native Californian societies and produced a corpus of research which is unique in its thoroughness in ethnographically studying a large region composed of foraging societies that occupied an ecologically diverse territory which included ecologically prime sites for foraging.

The predominantly sedentary nature of late prehistoric California societies also encourages me to choose this case. It is difficult to conceive of world-systems composed solely of nomads, although nomads undoubtedly have played important roles in interaction with sedentary groups in many world-systems (Hall 1991). The existence of well-established territorial boundaries between groups is one of the characteristics which make the California tribelets and linguistic groups broadly comparable with state-based and capitalist world-systems.

I am also interested in California because of the claim advanced by Bean and King (1974:6) that sedentary foragers in prime ecological locations are more typical of those mesolithic human societies that first developed complexity and hierarchy than are nomadic foragers. Our ethnographic knowledge of foragers is biased by the fact that surviving foraging groups have been driven into marginal regions by state-based systems. In most regions of the world the hunter-gatherers were eliminated from the more desirable areas by more stratified societies. Thus most ethnographically-known foragers are nomadic because they live in ecological sites which cannot sustain settled living. California is an exception in this regard. The sedentary foragers of California may have been much more typical of original pre-state groups than is the ethnographically-known sample of foraging societies, most of which are nomadic.

OVERVIEW OF CALIFORNIA INDIAN SOCIETIES

In pre-contact Northern and Central California neither pottery nor metal were used. Planting was limited to the scattering of the seeds of wild tobacco. Dogs were the only domesticated animals. An intensified form of foraging was utilized in which the acorns of oak groves provided the basic storable staple and natural resources were managed in a way which has been termed "proto-agriculture" (Bean and Lawton 1976). Political organization was at the level of the "tribelet", which usually consisted of a union of two or three villages. Major linguistic differences existed over very short distances. "Tribal" designations such as Wintu, Yana, etc., refer in most cases to linguistically similar people. With the exception of the Yokuts (in the San Joaquin Valley), there were no political

organizations at the level of linguistic groupings. Each tribelet exercised control over an explicitly bounded territory within which outsiders could forage only with permission.

Direct links between non-contiguous groups were almost non-existent. And yet trade items of scarce raw materials (obsidian, shells, etc.) traveled long distances by passing from tribelet to tribelet (Davis 1974). Population densities were relatively high, and yet there was no true horticulture. Heizer and Elsasser (1980) claim that population density in California was higher than in any other region in North America north of Mexico. There are many difficulties in comparing population densities and in estimating the populations of precontact peoples. It is probable that population density was relatively high in California, but unlikely that it was higher than in the U.S. Southwest or the American midcontinent where large settlements existed.⁵ The largest villages in Northern and Central California were about 1,200. Though individual villages were small, they were densely packed in some areas (King 1978:60). This could produce very high population densities for these regions.

The type of intensified foraging which allowed such high population density required resource banking and close regulation of land use, and thus the communal distribution of property within tribelets and the carefully-guarded use rights between tribelets were important aspects of this system. Adjacent groups engaged in "trade feasts" in order to balance temporary shortages (Vayda 1967).

It was a system with only minimal hierarchical accumulation. The power of village headmen was predominantly dependent on the willingness of villagers to listen and to be persuaded. Unpopular heads were ignored, replaced, or abandoned. Despite the cultural insularity of the tribelets and the importance of symbolizing local differences, migration and intermarriage across tribelet boundaries, and even across major linguistic boundaries, was common. Thus, even though little unoccupied land was available, the exit option limited the power of leaders. There were no classes, no true chiefs, not even "big men."

The stimulating work presented in Bean and King (1974) and Bean and Blackburn (1976) argues against the conclusions of Kroeber and his students that prehistoric California societies were completely egalitarian. Indeed, they point out that Kroeber's (1932) later work pays more attention to the forms of inequality which were present in Central California. I am very interested in the processes of hierarchy-formation both within and between groups, and so the studies presented in these collections are of great value to me. Some of the authors in the Bean collections seem to have gone to extremes in reacting to the work of the earlier ethnographers. Using terminologies usually applied to state-based societies is certainly stretching the case. Nevertheless, it is important to understand and analyze

those forms of inequality which were present in non-Athabaskan Northern California, especially with regard to possible differences between groups. I am convinced that even the most hierarchical features present in the region I want to study were relatively egalitarian compared to big man systems or class societies, let alone state societies.

THE WINTU AND THEIR NEIGHBORS

My study will examine intersocietal interaction, core/periphery relations, and intersocietal system boundedness using the primary materials and secondary analyses produced by nineteenth century observers, the writings of native Californians, ethnographic reports and unpublished notes, linguistic studies, and archaeological studies. I will focus on the societies within in a 100 km radius of Redding, California. The geographical center of this region was inhabited by the Wintu people, a linguistic group of the Penutian language family.

The Wintu were constituted as tribelets within eight local subregions. They were surrounded by nine other linguistic groups -- the Nomlaki Wintun on the South (another Penutian group), the Yuki, Lassik,⁶ Nongatl, Chimariko, and New River Shasta linguistic groups on the West, the Okwanuchu on the North, the Pit River Madesi and the Northern and Central Yana on the East (Theodoratus 1981).

The extent to which the reproduction of intragroup relations was conditional upon intergroup relations is the major question which determines whether or not it is meaningful to think of such sedentary foragers as participating in a larger regional intersocietal system. This question can only be answered by a thorough study of intergroup relations, including trade, conflict, competition, cooperation, intermarriage, and information flows. What are the spatial characteristics of this interaction network in terms of the falloff of the impact of events? Since most interaction is with immediate neighbors, the fall-off is likely to be rapid, but what does it look like for different kinds of interaction? This requires looking at the patterns of trade for bulk goods and prestige goods, and the study of warfare patterns and intermarriage ranges.

Was there anything in this system which could be described as a core/periphery hierarchy? If so, how did it work? If not, why not? I will search for possible intersocietal hierarchical relations by studying closely those places where such relations are often found in other intersocietal systems. This involves looking for regional differentiation in population densities, village sizes, subsistence strategies, population growth rates, levels of political complexity, intermarriage patterns, and locational advantages based on differential availability of forageable foods, as well as for possible economic exploitation or political domination.

I suspect that the Wintu were the local "core" of a multilayered and multicentric system. In terms of prestige goods networks, the Wintu lived in a region in which three different shell trade networks overlapped (King 1978:Figure 5). Clam-disk and magnesite beads were manufactured primarily by the Pomo and were used as prestige-goods and "money" in a large region of Central and Northern California. Based on house and village sizes, King (1978:62) suggests that core areas were concentrated in Central California and states that:

All the large villages and towns were important as interaction centers and probably dominated the control of intervillage trade in their particular areas. The cluster of large settlements in the Sacramento River, Russian River, and Clear Lake areas can be viewed as the centers of an interaction network in which Saxidomus sp. and magnesite beads were frequently used in the protohistoric and historic periods.

The domination of intervillage trade is a phenomenon that suggests possible core/periphery hierarchy. The relationships between these large village areas and their surrounding neighbors should be scrutinized to determine the nature and extent of exchange and interaction. The "culture-area" approach, which designates such sites as "climax regions" (Fredrickson 1973:72-83), is also suggestive of regional hierarchy, but does not explicitly examine the nature of such implied hierarchy. The main process implied in the culture-area approach is diffusion through trade and communication.

The possibilities of unequal economic exchange, exploitation, military domination, etc., need to be explicitly investigated in California prehistory. We know that the Pomo were the primary manufacturers of shell disk and magnesite beads, and that these beads were traded widely. Did the Pomo manufacturers constitute a core region extracting raw materials from surrounding peripheral hinterlands? In many other world-systems, core regions specialize in manufacturing and exporting goods which are exchanged for peripheral raw materials and this kind of division of regional labor sustains processes of the "development of underdevelopment." Were such processes operating in late prehistoric California? One fruitful location for the examination of such questions is the relationship between Pomo groups and their neighbors. There is a wealth of both ethnographic and archaeological data which is relevant for these questions.

My focus, however, is on the Wintu and their neighbors. The Wintu are located well to the north of the large-village regions. While the Wintu had larger villages than many of their neighboring groups, they may be thought of as the upriver and poorer cousins of their Penutian-speaking relatives in the lower Sacramento Valley (the Patwin). This is not to suggest that the

Wintu were in any sense dominated or exploited by groups further down the valley. There was no direct interaction with the large village area. There were indirect trade links, because prestige goods, especially shell beads, were traded from group to group linking these regions. It is very unlikely, however, that this kind of down-the-line trade facilitated an asymmetrical flow of resources from the Wintu to the groups in the south. Davis's (1974:10) discussion of the northern flow of clam disc beads and the southern flow of "pelts, sinew-backed bows and stonework" refers to the conclusion of Goldschmidt (1951:336-7) that the "Central and Northern Wintun acted as middle-men in this exchange, contributing little or nothing to the flow except perhaps the regrinding of imperfect shell beads, yet profiting from the opposing streams of diffusion."

The intergroup relations between the Wintu and their neighbors present an opportunity to study the relations between a possible local core region and its hinterland. I suggest that the Wintu may have been a local core because they may have served as the regional center of trade vis-a-vis several neighboring groups, and they may have been the most powerful in terms of military capabilities. Also, their traits may have been spreading to other groups faster than vice versa.

The Wintu may have married more women from other groups than the reverse. Friedman and Rowlands (1977) and Friedman (1982) discuss the changes which take place in kinship relations as inequalities between societies begin to emerge. They analyze the differing alliance strategies which are evident in the transition from "wife-giving" to "wife-taking."

The Wintu were probably spreading out to the east, north, and west at the expense of neighboring groups that utilized somewhat more nomadic patterns of subsistence such as the "Tehama pattern" described by Clewett and Sundahl (1989). These neighbors may have also been adopting some of the Wintu ways and may have been intermarrying with the Wintu. The borders between linguistic groups were probably complicated matters of cooperation, competition, and conflict.

As several scholars have hypothesized, the Wintu were probably expanding at the expense of other groups. Their riverine mode of subsistence produced substantial quantities of storable and tradeable salmon "flour". This allowed for a greater population density than did the subsistence practices of the more nomadic Hoka-speaking Yana and the Pit River groups. The Wintu may have had a higher population growth rate as well, and may have employed birth control and infanticide less frequently than the Yana or the Pit River groups. Clewett (personal communication 1990) argues that, in addition to these differences in subsistence mode, the Wintu were able to expand because of differences in social organization which allowed them to form larger alliances and to communicate faster and farther among allies. The pattern of chiefly marriages with distant

villages created large networks of relatives.

One way in which this could have been an advantage is in warfare. Clewett (personal communication 1990) contends that the hypotheses of a Wintu social organizational advantage is supported by an incident (reported by Merriam) in which the Yana attacked a small fringe Wintu village on the Pit River near Clickapudi Creek. Escapees from the attack spread the word, and within hours Wintu converged on the site from as far away as Hayfork. As with the case of the Nuer-Dinka relationship discussed in Note #3 above, this ability to concentrate superior numbers would have been a crucial advantage in disputes over territory or other matters of contention.

It would be helpful to have some idea of the rate of Wintu expansion. I suspect that the Wintu were not systematically exploiting or dominating neighboring groups in the sense of extracting human or material resources from them, but were rather expanding their territorial base at the expense of the Hokan-speakers. I need to know more about the process of Wintu expansion and its limits. How did it work? How did it differ in different regions? What were its limitations? What was the significance of slavery among the Wintu? Was there raiding which involved regular or systematic capture of moveable resources?

Also I am interested in possible processes of chiefdom-formation and increasing hierarchy. Were there any efforts to centralize resources? What processes worked against this? The story of Sedipuiwita is possibly relevant here. Gillis (1923) and DuBois (1935:34) tell of this chief, son of a Wintu mother and a Yana (probably) father, who was the leader of a Wintu village near Redding. Sedipuiwita was unpopular with the Wintu villages further north. In Gillis's version Sedipuiwita led his people in a battle against the northern Wintu in an attempt to take over their territory. He was defeated and expelled into Yana country. Gillis's version is obviously distorted as to particulars in his desire to paint the "Wintuns" as "the most powerful tribe of the northern part of California,"⁷ but his account probably reflects an actual historical sequence of events which occurred in precontact days. The mobilization against a neighboring village was met by an alliance of groups from several different areas who repulsed it and punished the perpetrators. This resembles the balance of power process operating on a small scale. It is also significant that, though Sedipuiwita was himself half Yana, the village he led, located on the east side of Sacramento River at Redding, was obviously a Wintu village.

What do we know about relations among different Wintu groups, tribelets, subregions, etc.? DuBois (1935:37) says:

Within local groups and subareas the prestige of the headmen and the bonds of relationship were as a rule strong enough to prevent bloodshed. Occasionally, however, open hostilities were precipitated by the depredations of a

neighboring group coming either from another Wintu subarea or from extratribal territory, or by a personal quarrel. The degree of friendliness was dependent upon social propinquity and therefore partly on geographic propinquity. By social propinquity is meant familiarity with the usages of neighbors. Thus the Achomawi on the lower reaches of the Pit River were considered by the McCloud Wintu more friendly than the Hayfork Wintu.

Were some of the subregions more important than others? Were there important differences between hill and valley Wintu? Kroeber (1925:373) says:

In the whole Penutian family, valley dialects stand off from hill dialects, either as the primary divisions of speech or as noticeable secondary modifications of other lines of linguistic cleavage. And so, in the Sacramento as well as the San Joaquin region, a civilizational distinction has constantly to be followed: the lowlanders are richer, possess more organization and specialization, and much more complex institutions than the hill people.

What about the relations between the Wintu and the Nomlaki? Did the Wintu compete with the Nomlaki or try to expand south into Nomlaki territory? Was their relationship with the Nomlaki significantly different from their relationship with non-Penutian speaking groups? Most students now agree that the distinction between the Wintu and the Nomlaki is arbitrary. Penutian language varied with space, and the differences between Nomlaki and immediately adjacent Wintu were smaller than the differences between Wintu much further apart.

MEASUREMENT PROBLEMS AND SOURCES OF EVIDENCE

It will undoubtedly be necessary to operationalize the concepts of world-system boundaries and core/periphery relations somewhat differently for different cases. The goal of testing general propositions requires us to meet the test of conceptual equivalence in operationalizing variables. Comparable measures will be especially important for future comparative studies.

Systemness and System Boundaries

Empirically distinguishing between a mini-system and a world-system requires conceptual clarification and the establishment of decision rules. The importance of intergroup trade, warfare, and intermarriage for the maintenance of local social structures must be estimated. This involves specifying the units which compose the "local social structures" that are interacting. Demonstrating the existence of trade, warfare, and intermarriage is not very problematic. But it is necessary also to estimate their extent relative to internal transactions, and their importance. This is more difficult.⁸

The "units" problem is not without its difficulties. If we define households as the basic unit, all human societies would be world-systems by definition because households always require interaction with other households in order to exist and to survive. In foraging systems cultural and political entities are not very large, but they are significantly larger than households.

The "cultural" entity can be defined in several possible ways. Linguistic differences may be the most convenient, but they are problematic. Northern Wintu (Nomtipom) spoke a dialect which is very different from Southern Wintu (Daunom), and the distinction between dialect and language is strained when we consider the differences between Wintu and Nomlaki -- the southern neighbors who spoke another dialect of the Penutian family of languages. This is less of a problem when we are looking at interactions between Wintu and Hokan speakers such as the Yana, where language differences are great. The point here is that language differences are variable, not dichotomous, and so language cannot be used to distinguish between "cultural" groups in any simple way.

It might be proposed to use marriage patterns to establish "cultural" group boundaries. The problem here is that culturally and politically separate groups often intermarry to some extent in order to promote intergroup alliances. It would clearly be a mistake to ignore this phenomenon by constituting the larger intermarried unit as the "cultural group".

If we define a polity in terms of authority, the Wintu, like most other native Californians, were organized as "tribelets" of two or three villages (LaPena 1978; Dotta 1980). DuBois (1935:34) states:

To sum up the question of chieftaincy in relation to subareas, the following statements may be hazarded. A whole subarea might fall under the influence of a single leader, but such a sphere of influence was in no way formalized. The jurisdiction of an individual radiated outward, declining as it progressed from the center of his activities. It was not strictly bounded by the subareas which have been discussed. Thus, a chief in the northern part of the Upper Sacramento area who had affiliations through marriage or relation with the Upper Trinity might feel his range of influence extending more in a westerly than in a southerly direction, although the Upper Sacramento area extended properly north and south. As previously stated, a chief's prestige also depended upon his personal qualifications. The number of subchiefs probably varied with the density of the population and the number of able individuals. In no respect, however, can chieftainship among the Wintu be considered anything but a loose and extremely malleable institution.

Dotta discusses the distinction between chiefs, subchiefs, and headmen, but the nature of this alleged differentiation of leadership is somewhat unclear in DuBois's (1935:29-34) treatment.⁹ Dotta (1980:122-123) examines the relationship between the usage by Jeremiah Curtin's informant, Norel-putis, of the terms "chief" and "headman" and the estimated size of villages in the Stillwater subregion. He finds that chiefs are more likely to be associated with larger villages; headmen with smaller ones.

If we define polity in terms of warfare, Wintu tribelets sometimes fought with one another, though wars with non-Wintu were more frequent and more violent. The picture which emerges is that of a multilevel polity the most important units of which are the village and the "tribelet" But these distinctions are cross-cut by marriage and family alliances which occasionally cross Wintu subregions and occasionally even into non-Wintu areas.

My study of the Northern California system will examine patterns of interaction among villages, tribelets, and Wintu subregions and between Wintu and surrounding non-Wintu groups. The question of the relative importance of intergroup interaction will involve comparisons of the amount of intergroup trade relative to the amount of "home production" within villages, tribelets, and Wintu subgroups, and across major linguistic boundaries. This kind of estimate can be compared with that of other systems, such as international trade vs. national production in the modern world-system, in order to shed light on the relative importance of intergroup interaction.¹⁰

This kind of comparison can also be made with regard to warfare and intermarriage. It may be necessary, in some instances, to use data from other regions of California to estimate the parameters of interaction in the Wintu system. Milliken (1983) has used Franciscan mission records to estimate the spatial nature of intermarriages among tribelets in the San Francisco Bay region. There were no missions in Northern California, but the general parameters of Milliken's study may be applied as the best guess, as Jackson (1989) has done for the region occupied by the Pomo and their neighbors.

The California case is composed of small groups who interacted primarily with contiguous groups. There was very little direct connection between non-contiguous groups, and so the falloff rate of interaction was very steep. Since there were no long-distance traders who carried goods over great distances, material moved primarily by being traded from group to group -- so-called "down-the-line" trade. There were long-distance procurement treks, as when Wintu traveled to the Medicine Lake region for obsidian. It is important to try to determine how much of the required obsidian was obtained in this way vs. the amount which was acquired through trade, and how these may have changed over time (cf. Sundahl 1986).

I expect to find that there was relatively little network centrality in the Northern California system in the sense that some groups were much more central in the overall trade pattern than others. In such a system the idea of system boundedness must be organized around falloff rates. We can arbitrarily pick any group and determine for that group what the larger relevant boundaries of interaction were. Such a "group-centric" approach to system boundaries is unavoidable in non-centric networks. When a system displays network centrality we can use this feature to help locate a geographical center from which to begin, and this makes "system-centric" boundaries determinable. But even in such cases we must be careful not to assume unicentricity for systems which are really multicentric. Many world-systems, including the modern one, have been multicentric in the sense of containing several competing core regions.

The operationalization of the multi-criteria approach to world-system boundaries will, of course, encounter different problems in different contexts. Archaeological evidence can be used for some kinds of trade networks, although perishable goods such as foods often leave only minimal traces in the recoverable record (but see Wohlgemuth 1991). Obsidian sourcing studies (Ericson 1977; Hughes 1986; Jackson 1986) have revealed the structure of intergroup interaction in many regions of California.

Demonstrating the existence of hierarchical authority relations or military interaction is facilitated by ethnographic evidence, but some archaeological evidence -- such as the building of defensive walls, the concentration of previously dispersed settlements into larger defensible towns, and the location of settlements in militarily defensible places -- is also relevant in some contexts. Dotta's (1980:124) study of the Wintu settlement system and the boundary between the Wintu and the Northern and Central Yana territories suggests that the string of villages along the right bank of Cow Creek and Little Cow Creek "seem spaced as if they were a military 'picket' formation defending the 'heartland' of the Sacramento-Stillwater region."

Intersocietal Hierarchies

Testing the general hypotheses described above regarding the operation of core/periphery hierarchies ideally requires that we be able to comparatively determine degrees of intersocietal exploitation and domination, degrees of intersocietal inequality, and relative amounts of the stability of intersocietal hierarchies. It would also be desirable to be able to compare rates of intersocietal mobility, and the relative balance of "spread" consequences and "backwash" consequences for differential rates of "development" between cores and peripheries. Such operationalizations are difficult even for studies of the modern world-system, a case for which quantitative data are more readily available (cf. Chase-Dunn 1989:Chapters 10-

12). Major operational problems have not yet been resolved even for the contemporary global world-system. Nevertheless, I want to clearly designate the desiderata of a comparative research project so that the task of developing comparable measures can be firmly kept in mind during the course of the case studies.

Whereas in the modern world-system we typically have more information about core areas than peripheral areas, just the opposite is often the case for non-literate systems. Invading complex societies (Europeans) usually destroy indigenous core regions first because these are located in ecological sites which are prime. Thus, we end up with more ethnographic information about the survivors and these tend to be hill people who were originally on the fringes of indigenous systems. To a lesser extent the same may be true of archaeological evidence. This may account, to some extent, for the dispute between Kroeber and Bean over how hierarchical the indigenous California societies were. The early ethnographers were reporting on hill societies, while later archaeological work examined those riverine and bayside sites where the largest and most complex groups had lived.

The problems of measuring differences in the magnitude of inequalities across very different social systems are well-known. When the kinds of resources which are socially valued differ, and the dimensions of inequality are structured in completely different ways, statements about relative degrees of overall inequality are very problematic. This is just as true of intersocietal inequalities as of intrasocietal ones. Though it is often possible to rank objects within a system, such rank orderings do not help with the question of the magnitude of inequalities. For this, interval or ratio scale measurement is required. Nevertheless, rough estimations of differential magnitudes of intrasocietal inequalities have been convincingly made by Lenski (1966) across very different societal types (e.g., hunter-gatherer, horticultural, agrarian, and industrial). I will make analogous estimations of degrees of inequality across very different core/periphery hierarchies.

One way to compare the stability of different hierarchies is to compare rates of change of ranks. An intersocietal system in which there are no, or very few, changes in rank among constituent societies over a time period of a comparable length is obviously more stable than a system with a greater number of rank changes over the same length of time. Making this useful for comparisons across systems requires consideration of the difficulties of comparing different sorts of subunits (e.g., tribelets vs. chiefdoms), and differences across systems in terms of the number of competing subunits. These problems are analogous to those confronted in many comparative studies of social mobility.

The problem of indicators of core/periphery inequality has been considered by some archaeologists. Often it is simply assumed that archaeological indicators of intersocietal

differentiation can be taken as evidence of intersocietal hierarchy. For example, the existence of a settlement system in which villages and towns are of substantially unequal population sizes may be interpreted as indicating a hierarchical interaction between large and small settlements (e.g., Nissen 1988). But, as many archaeologists have themselves recognized, differentiation can exist without domination. All exchange is not unequal exchange.

Looking for more direct archaeological evidence for intersocietal hierarchy is challenging. Lamberg-Karlovsky (1975) has argued that the village of Tepe Yahya on the Iranian plateau (where carved soapstone bowls were manufactured and exported to the Mesopotamian cities) must have been subjected to unequal exchange because burials did not become richer at Tepe Yahya over the long period during which trade occurred. This case contrasts with many others in which involvement in regional exchange networks did lead to stratification as indicated by the emergence of richer burials (e.g., Marfoe 1987).

Such observations might be used to differentiate between non-exploitative and exploitative intersocietal interactions, and to study the trajectory of interactions within particular world-systems. There are undoubtedly other causes of changes in burial practices besides the nature of intersocietal interaction. Archaeologists commonly use changes in the complexity and stratification of societies as evidence of the consequences of intersocietal relations. This practice needs to be critically evaluated in each case, and archaeological evidence needs to be supplemented with documentary or ethnographic evidence whenever possible.

There may be case-specific problems with the use of mortuary evidence. In some regions of California headmen were cremated, while the remains of less important villagers were buried. In this case changes in burial composition would have a somewhat different meaning than in the Middle Eastern context studied by Lamberg-Karlovsky and Marfoe.

Archaeologists have developed ingenious methods for using recoverable results to indicate the social form of exchange and the structure of trade networks (e.g., Renfrew 1977), but major problems still remain (see review by Schortman and Urban 1987:49-55). Lightfoot and Feinman (1982) demonstrate how changes in settlement patterns can be supplemented with evidence on the nature of architectural structures to infer changes in leadership development. It may be possible to use California archaeological evidence in this way by studying the emergence and location of dance houses.

Types of Evidence

Documentary evidence about intergroup relations among native Northern Californians includes unpublished ethnographic notes held at the Bancroft Library in Berkeley and the Smithsonian

Institution in Washington, D.C., letters and documents written by early observers at the Shasta Historical Society, and correspondence and observations of early white trappers and settlers. Though some of these sources have been previously utilized by other researchers they have not been examined with an eye to the questions I am asking.

The compilation of unpublished data on the Wintu settlement system by Margaret Guilford-Kardell (1980, n.d.) and James Dotta (1980) is an invaluable source for understanding the spatial relations of the Wintu settlement system in the areas covered. Dotta's (1980:120) map of the Stillwater subregion suggests a two-tiered settlement system with larger villages alternating with 1, 2, or 3 smaller villages in strings along rivers and creeks. This is based on the ethnographic information gathered by Jeremiah Curtin from Norel-putis. Perhaps archaeological data could be used to study the transition from a one-tiered to a two-tiered settlement system in this region.

I am collecting 4 different data sets from an examination of the ethnographic and documentary corpus. First is a list of all known marriages which occurred before 1850 in which a Wintu married either another Wintu or a person from a different linguistic group. This will enable me to estimate the balance of wife-taking vis-a-vis surrounding groups. Such an estimate, based on a non-random sample of anecdotal evidence, will be subject to error, but it may indicate differences in the relationships between Wintu and various surrounding groups as well as differences in intermarriage patterns across Wintu subareas. In addition to published sources I will contact informants in the Redding area who have genealogical information about Native Californians.

I am also collecting a list of all reported trade or exchange events before 1850, including trade feasts, midpoint trade meetings, girl's puberty celebrations, collective hunting, fishing or gathering events, use of resources with permission, and perceived trespass or theft. This will make it possible to estimate the relative importance of these kinds of events, the nature of things exchanged, and differences in forms and degrees of exchange across different group boundaries. A related list contains all the reported instances of long-distance procurement treks.

I am also collecting a list of all recorded battles or confrontations among Indians before 1850, including the identity of parties, alliances among groups, numbers involved, injuries and deaths, types of weapons, and type of settlement.

And the last data set I am collecting lists all known villages in Wintu territories and territories of surrounding groups. This includes village names, names and occupations of village leaders, size estimates based on number of houses, presence or absence of a dance house, and archaeological

characteristics of the site if it is archaeologically known. I hope to map the Wintu settlement system and the settlement patterns of as many surrounding groups as possible. This list builds on data already assembled by Guilford-Kardell (1980), Dotta (1980), and Theodoratus (1981).

The Northern California region has been well-studied by archaeologists (for overviews see Moratto [1984] and Theodoratus [1981]; see also Baker [1990], Basgall and Hildebrandt [1989], Clewett and Sundahl [1989], Johnston [1978], and Sundahl [1982, 1986, 1989]), but there remain basic questions about group boundaries, trade and settlement sizes. Though the questions I am asking could often be better served by recourse to primary analysis of archaeological data, such analyses are beyond both my resources and my expertise. I am, however, consulting with archaeologists who are currently engaged in research in Northern California with regard to filling in gaps suggested by my theoretical concerns.

It is possible to use archaeological data to estimate the extent and rate of Wintu expansion, obsidian and shell-bead trade patterns, settlement size hierarchies, and other relevant characteristics of this regional interaction system.

Obsidian sourcing studies in the region I am studying are somewhat limited by the fact that there are only 2 major sources:

1. the Medicine Lake region (Grasshopper Flat, Lost Iron Wells, etc.), and
2. Tuscan obsidian from a few outcroppings near Backbone Ridge.

The Tuscan obsidian is quite inferior to the Medicine Lake region glass, and the small pieces in which it is usually found are harder to work.¹¹ This source distribution is much inferior to that found in the Coast Range region studied by Jackson (1986), where several different sources, none greatly superior to the others, facilitated the reflection of important social structural ties in the obsidian system. Nevertheless, there is much more to be learned from sourcing studies in the North Valley and surrounding areas.

Basgall and Hildebrandt's (1989) careful study of sites in the Sacramento River Canyon establishes an important cultural sequence and provides helpful information about the utility of different styles of projectile points as time markers. In the particular sites they studied the "late prehistoric" period was not well-represented, especially in the northernmost site. Nevertheless, they report that projectile point types thought to be diagnostic of the late prehistoric period (Gunther and Desert Side-Notched) contain a higher proportion of Tuscan obsidian than earlier style points (Basgall and Hildebrandt 1989:1:453-454, Table 177).

Of particular interest are differences from south to north along the river because 3 of the sites studied are within territory ethnographically known to have been inhabited by Wintu, while the fourth, northernmost, site was in Okwanuchu (Southern Shasta) territory. We would expect the northernmost sites to have the greatest proportion of Medicine Lake obsidian (because of propinquity to the site and because of constrained access to the Tuscan source). If the hypothesis of Wintu expansion is correct we should find that the proportion of Tuscan obsidian increases with time and as we move north.¹² Basgall and Hildebrandt report sourcing results by site only for "general bifaces and flake tools", and there are not enough of these to make any conclusions about south to north differences. Further analysis of their data would provide information relevant for the study of group boundaries, boundary changes over time, and trade patterns.¹³

NOTES

1. The first use of the term "semiperiphery" appears to have been in the comparative civilizational work of Carroll Quigley (1979). Chase-Dunn (1988) has explored the roles of different kinds of semiperipheries in the transformation of modes of production.

2. I use the terms "spread" effects and "backwash" effects following Myrdal (1971) to differentiate consequences of core/periphery interaction. Under some circumstances such interaction causes peripheral areas to develop in directions which are more core-like (spread effects), whereas other sorts of interaction cause peripheral areas to become underdeveloped (backwash effects).

3. An intermediate case between unstratified and chiefdom-based intersocietal systems is that of the Nuer-Dinka relationship studied by Kelly (1985). The Nuer lacked strong and permanent chiefs, but they did have 3 levels of hierarchy among villages which enabled them to form larger war bands than the neighboring Dinka, who were similar pastoralists but had only 2 levels of intratribal hierarchy. The Nuer systematically raided the Dinka for cattle and women, and expanded into Dinka territory over a 150 year period. Though the Nuer were clearly exploiting the Dinka by appropriating cattle and women, the limited forms of hierarchy within the Nuer society prevented this relationship from stabilizing in a core/periphery hierarchy based on exploitation of coerced labor in the periphery. The Dinka women taken as captives were rapidly assimilated into Nuer kinship structures.

Obviously my general hypotheses cannot be fully evaluated without the consideration of more hierarchical foragers such as the Athabascans of California or the Northwest Coast. This

comparison will be helpful in understanding why internal and regional hierarchies emerge under some conditions but not under others.

4. Kristiansen (1987) has also studied local and regional hierarchical relations among stateless peoples in Scandinavia. He characterizes these intergroup hierarchies as having been based on the "ritual superiority" of local centers over hinterlands stemming from the control of prestige goods which had a religious significance. Friedman and Rowlands (1977) have argued that core/periphery structures based on prestige goods economies were unstable and subject to rapid spread effects because ideological stratification that was not backed up by military coercion (or more stringent economic dependencies on fundamental goods) was easily undermined. The dominated groups simply found local substitutes for goods that functioned mainly as symbols.

5. The population of Cahokia (East St. Louis), a town which was the center of the Mississippian system, is estimated to have been about 40,000 at its largest in the 14th century A.D.

6. Keter and Heffner-McClellan (1991) argue that the so-called Lassik communities were not self-differentiated from other Wailaki groups and should be termed part of the "greater Wailaki" linguistic group. Kroeber and his students did not use the criterion of identification in the construction of California linguistic groups. Rather, when making distinctions within a major linguistic family they differentiated on the basis of linguistic differences. Often linguistic differentiation across space was continuous rather than discrete and so the drawing of lines was somewhat arbitrary.

7. Alfred C. Gillis, a Wintu, was a correspondent with C. Hart Merriam and a published poet whose verse sang the praises of his people. He campaigned for years to have Black Butte, a cinder cone at the foot of Mt. Shasta, named Wintun Butte. In his telling of the story of Sedipuiwita (Gillis 1923), he obviously exaggerates the sizes of the war parties and the size of the dance house in which the victory dance is held, and he probably overemphasizes the importance of war and warriors in Wintu society. His audience was a society in which warfare and warriors were seen as central to social power and glory, and one which had painted the California Indians as lazy "diggers" in contrast to the more warlike and dignified Indians of the East and Midwest. Though some of the details differ, the similarities between the Gillis and DuBois versions of the story of Sedipuiwita are great enough to support the contention that this was a real historical personage who attempted to aggrandize his power and was prevented from doing so.

8. It may be possible to develop methods of comparing intersocietal interconnectedness in terms of the rate at which epidemics spread. McNeill (1976) and Curtin (1989) are

historians who have studied the relationship between intersocietal interactions and the transmission of diseases. Abu-Lughod (1989) makes fascinating use of studies of the spread of bubonic plague in her study of the links between Europe, the Near East and China. There are studies of the rate at which diseases brought by Europeans spread across post-contact California (Cook 1955) and Hawaii. Sahlins (1985) reports that venereal disease, probably gonorrhoea, was transmitted in ten months from Kauai to Maui, several islands and over two hundred nautical miles away. It may be possible to get an approximate idea of the interaction density within an intersocietal system by studying the rate at which epidemics spread, and this may be useful in comparative studies of density and size of intersocietal systems.

9. Describing one subchief, DuBois (1935:29) says:

In this village of Nomkentcau there was only one craftsman, Xalit. Taika, the headman, seems also to have had jurisdiction over the neighboring village of Nomkali. Xalit was a subchief in Nomkentcau alone. However, both were sufficiently important to be called by name in a big meet, for Xalit was a shaman in addition to being a subchief and craftsman. It may be possible that Xalit was called chief more because of his social prestige than because of his political power.

And further:

Sekawas was a subchief under Watcak. If Watcak did not attend a gathering, Sekawas presided in his stead. The relationship term applied to Watcak by Sekawas was kiye (cross-cousin or uncle), although the informant thought them to be parallel cousins on their mothers' side (DuBois 1935:33).

10. It might be possible to construct a comparable measure for comparing world-systems by "mapping" the proportions and locations of labor time involved in production and preparation of the food consumed by individuals or households. This would require us to know the relative labor times involved in the production of different kinds of food and this would vary greatly depending on the technical nature of food production. What proportion of the food consumed in a household is produced and prepared by the members of the household? Of that which is produced elsewhere, how much is produced and/or prepared within 1 km of the household, how much within 10 km, etc.? This is a way of quantifying the extent to which a household is dependent on external groups.

11. Elaine Sundahl (personal communication, October 29, 1990) says:

I think that Conant Creek was almost surely in Okwanuchu

territory. I can think of several reasons why they would prefer Grasshopper Flat obsidian. Perhaps predominant is that it is considered better quality obsidian. It was probably also easier to collect nice big pieces of it, whereas Tuscan you have to hunt for. There is a lot less wastage of GF obsidian since you can just knock off a nice big flake, whereas with Tuscan you have to reduce a cobble, removing all the cortex. Also, and perhaps equally important, the GF source, being high in elevation, was not in anyone's habitation area. The Okwanuchu, Shasta, Modoc and Achumawi could all reach it without crossing the territory of another group, linguistically unrelated to themselves. The Tuscan source, at least in the late period, was sort of borderline between Wintu and Yana territory. These two groups could reach it, but other groups could not without crossing near Wintu and Yana habitation areas.

12. Elaine Sundahl (personal communication, October 29, 1990) says:

I think a spread of Tuscan obsidian accompanying the Wintu expansion into the Trinity River can be documented, however. Gunther Series points from several sites in the upper and middle Trinity and Hayfork Valley are predominantly Tuscan, whereas older point styles are nearly exclusively GF.

13. Unfortunately, I have not been able to complete my analysis of the data on projectile point sources, types and hydration measurements by site contained in Appendix J of Basgall and Hildebrandt (1989:Vol. 2) to determine if the proportion of Tuscan obsidian increases over time and from south to north. The results of this analysis will have be included in a future report.

REFERENCES CITED

Abu-Lughod, Janet

1989 Before European Hegemony: The World-System AD 1250-1350.
Oxford University Press, New York.

Baker, Suzanne

1990 Archaeological Excavations at CA-SHA-479 and CA-SHA-195, Whiskeytown Unit, Whiskeytown-Shasta-Trinity National Recreation Area, Shasta County, California (with contributions by Hugh G. Wagner and Dwight D. Simons). Submitted to the National Park Service, Western Region, San Francisco.

Basgall, Mark E., and William R. Hildebrandt

1989 Prehistory of the Sacramento River Canyon, Shasta County, California. 2 vols. Center for Archaeological Research, University of California, Davis.

- Bean, Lowell John, and Thomas C. Blackburn (editors)
 1976 Native Californians: A Theoretical Retrospective.
 Ballena Press, Socorro, New Mexico.
- Bean, Lowell John, and Thomas F. King (editors)
 1974 Antap: California Indian Political and Economic
 Organization. Ballena Press, Ramona, California.
- Bean, Lowell John, and Harry Lawton
 1976 Some Explanations for the Rise of Cultural Complexity in
 Native California with Comments on Proto-agriculture and
 Agriculture. In Native Californians: A Theoretical
 Retrospective, edited by Lowell John Bean and Thomas C.
 Blackburn, pp. 19-48. Ballena Press, Socorro, New Mexico.
- Blanton, Richard and Gary Feinman
 1984 The Mesoamerican World-System. American Anthropologist
 86:673-92.
- Caldwell, Joseph R.
 1964 Interaction Spheres in Prehistory. Hopewellian Studies,
 Illinois State Museum Scientific Papers No. 12, Part 6.
 Springfield.
- Chase-Dunn, Christopher
 1988 Comparing World-Systems: Toward a Theory of
 Semiperipheral Development. Comparative Civilizations Review
 19:29-66.
- 1989 Global Formation: Structures of the World-Economy.
 Basil Blackwell, Cambridge, Massachusetts.
- 1991 Intersocietal Inequalities in Very Small World-Systems:
 A Research Project Funded by the National Science Foundation.
 Ms. in possession of author.
- Chase-Dunn, Christopher, and Thomas D. Hall
 1991 Conceptualizing Core/Periphery Relations for Comparative
 Study. In Core/Periphery Relations in Precapitalist
 Worlds, edited by Christopher Chase-Dunn and Thomas D. Hall,
 pp. 5-44. Westview Press, Boulder, Colorado.
- Clewett, S. Edward, and Elaine Sundahl
 1989 A View from the South: Connections Between Southwest
 Oregon and Northern California. Paper presented at a
 symposium on Southwest Oregon Prehistory, Ashland.
- Cook, Sherburne F.
 1955 The Epidemic of 1830-1833 in California and Oregon.
University of California Publications in American Archaeology
 and Ethnology 43:303-326. Berkeley.

- Curtin, Philip
 1989 Death by Migration: Europe's Encounter with the Tropical World in the Nineteenth Century. Cambridge University Press, Cambridge, Massachusetts.
- Davis, James T.
 1974 Trade Routes and Economic Exchange among the Indians of California. Ballena Press, Ramona, California.
- Dotta, James
 1980 Some Elements of Wintu Social Organization as Suggested by Curtin's 1884-1889 Notes. In Papers on Wintu Ethnography: 239 Wintu Villages in Shasta County Circa 1850, edited by Margaret Guildford-Kardell and James Dotta, pp. 118-131. Redding Museum Occasional Papers No. 1. Redding, California.
- Du Bois, Cora
 1935 Wintu Ethnography. University of California Publications in American Archaeology and Ethnology 36:1-148. Berkeley.
- Ericson, Jonathon E.
 1977 Egalitarian Exchange Systems in California: A Preliminary View. In Exchange Systems in Prehistory, edited by Timothy K. Earle and Jonathon E. Ericson, pp. 109-126. Academic Press, New York.
- Fredrickson, David
 1973 Early Cultures of the North Coast Ranges, California. Unpublished Ph.D. dissertation, Department of Anthropology, University of California, Davis.
- 1982 Central California Archaeology: The Concepts of Pattern, Aspect and Period (revised version). Paper presented at a symposium on Northern California Archaeology, California State University, Chico.
- Friedman, Jonathan
 1982 Catastrophe and Continuity in Social Evolution. In Theory and Explanation in Archeology: The Southampton Conference, edited by Colin Renfrew, Michael J. Rowlands, and Barbara Abbott Segraves, pp. 175-196. Academic Press, New York.
- Friedman, Jonathan, and Michael Rowlands
 1977 Notes Towards and Epigenetic Model of the Evolution of "Civilization". In The Evolution of Social Systems, edited by J. Friedman and M.J. Rowlands, pp. 201-278. Duckworth, London.
- Gillis, Alfred C.
 1923 The Story of Sid-di-pou-i-wi-ta. Recorded by George W. James. California Indian Herald (July).

Goldschmidt, Walter

1951 Nomlaki Ethnography. University of California Publications in American Archaeology and Ethnology 42:303-443. Berkeley.

Guilford-Kardell, Margaret

1980 Some Pre-contact Shasta County Wintu Site Locations: A Correlation of the Previously Unpublished Notes of Jeremiah Curtin and J.P. Harrington with Later Published, Recorded, and Unrecorded Data on the Dawpom, Winemem, Puidalpom and Waimuk Areas of Wintu Population. In Papers on Wintu Ethnography: 239 Wintu Villages in Shasta County Circa 1850, edited by Margaret Guildford-Kardell and James Dotta, pp. 1-117. Occasional Papers of the Redding Museum No. 1. Redding, California.

n.d. Some Pre-contact Shasta County Nomtipom Wintu Site Locations. Ms. in possession of author.

Hall, Thomas D.

1991 The Role of Nomads in Core/Periphery Relations. In Core/Periphery Relations in Precapitalist Worlds, edited by Christopher Chase-Dunn and Thomas D. Hall, pp. ??-??. Westview Press, Boulder, Colorado.

Heizer, Robert F. (editor)

1978 California. Handbook of North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Heizer, Robert F., and Albert B. Elsasser

1980 The Natural World of the California Indians. University of California Press, Berkeley.

Heizer, Robert F., and M.A. Whipple (editors)

1971 The California Indians: A Source Book. University of California Press, Berkeley.

Hughes, Richard E.

1986 Diachronic Variability in Obsidian Procurement Patterns in Northeastern California and Southcentral Oregon. University of California Publications in Anthropology No. 17. Berkeley.

Jackson, Thomas L.

1986 Late Prehistoric Obsidian Exchange in Central California. Unpublished Ph.D. dissertation, Department of Anthropology, Stanford University.

1989 Reconstructing Migration in California Prehistory. American Indian Quarterly 13:359-368.

Johnston, James

1978 The Wintu and Yana Territorial Boundary. Paper presented at the 12th Annual Meeting of the Society for California Archaeology, Yosemite National Park.

Kelly, Raymond C.

1985 The Nuer Conquest: The Structure and Development of an Expansionist System. University of Michigan Press, Ann Arbor.

Keter, Thomas S., and Kathy Heffner-McClellan

1991 Territorial and Social Relationships of the Inland Southern Athabascans: A New Perspective. Paper presented at the 25th Annual Meeting of the Society for California Archaeology, Sacramento.

King, Chester D.

1978 Protohistoric and Historic Archaeology. In California, edited by Robert F. Heizer, pp. 58-68. Handbook of the North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Kohl, Philip

1987 The Use and Abuse of World-Systems Theory: The Case of the "Pristine" West Asian State. In Advances in Archaeological Method and Theory, vol. 11, edited by Michael B. Schiffer, pp. 1-35. Academic Press, New York.

Kristiansen, Kristian

1987 Centre and Periphery in Bronze Age Scandinavia. In Centre and Periphery in the Ancient World, edited by Michael J. Rowlands, Mogens Larsen, and Kristian Kristiansen, pp. 74-86. Cambridge University Press, Cambridge, Massachusetts.

Kroeber, Alfred L.

1925 Handbook of the Indians of California. Bureau of American Ethnology Bulletin 78. Smithsonian Institution, Washington, D.C.

1932 The Patwin and Their Neighbors. University of California Publications in American Archaeology and Ethnology 29:253-423. Berkeley.

1971 The Tribe in California. In The California Indians: A Source Book, edited by Robert F. Heizer and M.A. Whipple, pp.367-384. University of California Press, Berkeley.

Lamberg-Karlovsky, C.C.

1975 Third Millennium Modes of Exchange and Modes of Production. In Ancient Civilization and Trade, edited by J.A. Sabloff and C.C. Lamberg-Karlovsky, pp. 341- 368. University of New Mexico Press, Albuquerque.

- LaPena, Frank R.
1978 Wintu. In California, edited by Robert F. Heizer, pp. 324-340. Handbook of the North American Indians, vol. 8, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Lenski, Gerhard
1966 Power and Privilege. McGraw-Hill, New York.
- Lightfoot, Kent G., and Gary M. Feinman
1982 Social Differentiation and Leadership Development in Early Pithouse Villages in the Mogollon Region of the American Southwest. American Antiquity 47:64-86.
- Mann, Michael
1986 The Sources of Social Power: A History of Power from the Beginning to A.D. 1760. Cambridge University Press, Cambridge, Massachusetts.
- Marfoe, Leon
1987 Cedar Forest to Silver Mountain: Social Change and the Development of Long-distance Trade in Early Near Eastern Societies. In Centre and Periphery in the Ancient World, edited by Michael J. Rowlands, Mogens Larsen, and Kristian Kristiansen, pp. 25-35. Cambridge University Press, Cambridge, Massachusetts.
- McNeill, William H.
1976 Plagues and Peoples. Anchor, Garden City, New Jersey.
- Milliken, Randall T.
1983 The Spatial Organization of Human Population on Central California's San Francisco Peninsula at the Spanish Arrival. Unpublished Master's thesis, Department of Anthropology, Sonoma State University, Rohnert Park, California.
- Moratto, Michael J.
1984 California Archaeology. Academic Press, New York.
- Myrdal, Gunnar
1971 Economic Theory and Underdeveloped Regions. Harper and Row, New York.
- Nissen, Hans J.
1988 The Early History of the Ancient Near East, 9000-2000 B.C. University of Chicago Press.
- Patterson, Orlando
1982 Slavery and Social Death: A Comparative Study. Harvard University Press, Cambridge, Massachusetts.
- Quigley, Carroll
1979 The Evolution of Civilizations. Liberty Press, Indianapolis.

- Renfrew, Colin R.
 1977 Alternative Models for Exchange and Spatial Distribution.
 In Exchange Systems in Prehistory, edited by Timothy K. Earle
 and Jonathon E. Ericson, pp. 71-90. Academic Press, New York.
- Sahlins, Marshall
 1961 The Segmentary Lineage: An Organization of Predatory
 Expansion. American Anthropologist 63:322-345.
- 1972 Stone Age Economics. Aldine, Chicago.
- 1985 Islands of History. University of Chicago Press.
- Schneider, Jane
 1977 Was There a Pre-capitalist World-System? Peasant Studies
 6:20-29.
- Schortman, Edward M., and Patricia A. Urban
 1987 Modeling Interregional Interaction in Prehistory. In
Advances in Archaeological Method and Theory, vol. 11,
 edited by Michael B. Schiffer, pp. 37-95. Academic Press,
 New York.
- Shannon, Thomas R.
 1989 An Introduction to the World-System Perspective.
 Westview, Boulder, Colorado.
- Sundahl, Elaine M.
 1982 The Shasta Complex in the Redding Area. Unpublished
 Master's thesis, Department of Anthropology, California State
 University, Chico.
- 1986 New Clues to Northern California Prehistory. Ms. on
 file, Shasta College Archaeological Laboratory, Redding,
 California.
- 1989 Archaeological Investigations in the Northern Sacramento
 Valley and Surrounding Mountains. Ms. on file, Shasta
 College Archaeological Laboratory, Redding, California.
- Theodoratus, Dorothea
 1981 Native American Cultural Overview: Shasta-Trinity
 National Forest. Theodoratus Cultural Research, Fair Oaks,
 California. Submitted to U.S. Forest Service, Shasta-Trinity
 National Forests, Redding, California.
- Tilly, Charles
 1984 Big Structures, Large Processes, Huge Comparisons.
 Russell Sage, New York.
- Vayda, Andrew P.
 1967 Pomo Trade Feasts. In Tribal and Peasant Economies,
 edited by George Dalton, pp. 494-500. Natural History Press,
 Garden City, New York.

Wallerstein, Immanuel

1974 The Modern World-System. Vol. 1. Academic Press, New York.

1979 The Capitalist World-Economy. Cambridge University Press, Cambridge, Massachusetts.

1984 The Quality of Life in Different Social Systems: The Model and the Reality. In The Politics of the World-Economy, edited by I. Wallerstein, pp. 147-158. Cambridge University Press, Cambridge, Massachusetts.

Wilkinson, David

1987 Central Civilization. Comparative Civilizations Review 17:31-59.

Wohlgemuth, Eric

1991 Floral Remains of the Shasta Complex, Redding, Shasta County. Paper presented at the 25th Annual Meeting of the Society for California Archaeology, Sacramento.