

ARCHAEOLOGICAL RESEARCH ON THE DEVELOPMENT OF COMPLEX SOCIETIES IN
THE HAWAIIAN ISLANDS

Ross Cordy

A very brief discussion of my PhD thesis work (Cordy 1978) is presented here. This work occurred in 1975-1976, after which dissertation revisions occurred between 1976-1978 while various members of my committee were on leave, and further revisions then occurred in 1980 in preparing the work as a soon-to-be-printed volume in the Academic Press archaeology series. The basics of the research are given here, in the theoretical context of the development of complex hierarchical societies.

RESEARCH PROBLEM

My major research interest for some time has been the development of complex hierarchical societies in Hawaii and the Pacific (e.g. Cordy 1974a). I believe it has not yet been shown what changes were involved in these developments.

I do not follow Service's (1962) or Fried's (1967) classifications of societal evolution, largely because the data do not fit their models. This problem is particularly evident when looking at the continuum of Polynesian societies, which cannot be lumped together as they claim. New models of hierarchical development (largely originating from the University of Michigan) have focused on decision-making and decision-making hierarchies (Wright 1977). However, the old Service stage classification terminology is retained by many writers, and confusion still exists.

I chose to avoid these problems by developing another model focusing on the number of social echelons in a society. This criterion serves as an index for classifying societies, and it has historical ties to Sahlins' work (Sahlins 1958). However, to study the nature of changes from one form of organization to another, I chose also to analyze changes in societal population and territorial sizes in relation to changes in the hierarchical structure. This approach again has historical ties to Sahlins, and also to Naroll (1956), Orans (1966), Blau (1961) and, more directly, to Tainter (1973).

As my area of interest is prehistoric Hawaii, an hypothesis was formed using Polynesian ethnology and Hawaiian oral tradition -- improving on my earlier work (Cordy 1974a, 1974b, 1974c). Hawaiian societies were seen to have undergone the following prehistoric changes:

1. Initially, societies were 2-echelon (chief-commoner), with small populations (500-1,500) and small territories (a valley or small part of a large island).
2. Next, change to 3-echelons (paramount-local chief-commoner), with populations ca 2,000-8,000 and territories comprising major portions of large islands.
3. Finally, change to 4-echelons (king-high chief-low chief-commoner), with populations ca 20,000-100,000+ and territories equivalent to one or more large islands.

The critical point remained that it was still unclear how these changes developed. Which dimensions changed first, leading to other changes? Or did they all change at once? The problem, being a prehistoric one, had to be resolved archaeologically.

METHODS

One of the most complicated tasks in this study was the development of archaeological methods that would enable measurement of the societal dimensions -- number of social echelons, population, and territorial size. Crucial points for consideration were: (1), archaeological regions often do not reflect representative samples of former society borders, and (2), time periods must be narrow to measure adequately the dimensions for sequential changes.

Methods for recognising different social echelons were based on labor-expenditure analysis of residential remains. This approach has historical ties to the early 1970's mortuary studies of social ranking (e.g. Brown 1971; Peebles 1972; Tainter 1973, 1975), and is based on a cross-cultural hypothesis that states basically that labor expenditure in the construction of a household's housing varies positively with the rank of that household's highest ranking member. Rank here is not considered genealogical rank, rather social personae based on a composite of several variables (see Goodenough 1965). The key archaeologically lies in isolating households in time, evaluating labor expenditure in housing remains, and classifying these into echelons based on labor expenditure. For Hawaii, a careful review of the historical literature was done to build and evaluate ethnoarchaeological models of permanent versus temporary housing, kinds of permanent houses, and permanent houses characteristic of a household (see Cordy 1976 for early efforts). The household is defined as a tight spatial clustering of permanent houses, at least one of which was a sleeping house. Archaeological traits for each are successfully evaluated in my thesis.

Population reconstruction approaches were reviewed, and Captain King's 1779 estimate of 6 person per sleeping house was selected as the most sensitive to Hawaiian analysis.

Territorial size approaches were developed to search for societal borders. Large buffer zones (non-interaction zones) proved to be a useful identification criterion.

The problem of representative societal sampling was to be dealt with through the identification of societal borders. Fine time control was handled through volcanic glass hydration analysis (which then seemed a bit more sophisticated than now, but which still has tremendous potential for dating). Hundreds of pieces of volcanic glass are often found in sites, each a potential date with a small error range.

DATA

Data from previous research areas were reanalyzed, from Lapakahi, Kaloko, and Anaehoomalu -- with quite different interpretations for Lapakahi and Anaehoomalu. Further, new research work was undertaken in North Kona on Hawaii Island. Sixteen contiguous ahupua'a (excepting one gap of 3 ahupua'a) were analyzed. The focus was on the permanent housing areas -- the $\frac{1}{4}$ - $\frac{1}{2}$ mile wide coastal band. In 6 weeks, 54 house sites with 117 structures were studied. 568 pieces of volcanic glass were collected, and a National Science Foundation Grant (BNS76-08367) enabled dating of 200 pieces. Forty-four sites and 69 structures were dated.

ARCHAEOLOGICAL RECONSTRUCTION OF THE DIMENSIONS OF CONCERN

Analysis indicated that no permanent house sites were present between Anaehoomalu and Kaloko prior to AD 1400-1450. This area was interpreted to be a society border. A similar border was indicated by Tuggle (1976) between Kohala and Hamakua -- lasting until AD 1450-1500. Both border areas were rapidly occupied after these dates, indicating that the borders no longer existed. In sum, the formations of multi-district societies on Hawaii Island are indicated beginning ca 1400-1450.

Reconstruction of social ranking revealed 3 echelons in the unified areas ca AD 1450-1500. However, before that only 1 echelon is visible in the archaeological record, and it is inferred that the higher echelons lived elsewhere within the society's borders. Also, after AD 1450-1500, it is believed that the highest ranks lived elsewhere. In sum, I do not believe the archaeological data are yet fully representative for the former societies.

Population reconstructions at the ahupua'a and regional levels were easily made and showed changes. Yet they too are not representative of societal patterns.

In sum, when I finished my thesis, only parts of the hypothesis could be evaluated. Multi-district societies formed on Hawaii

Island only ca AD 1400-1450, and expanded ca AD 1450-1500, perhaps to and island-encompassing society. Three and probably 4 social echelons were present by AD 1450-1500. These results tend to fit the covariations in the hypothesis after the last period of change. But clearly, much more information is needed to evaluate the change. I urged immediate work in central Kona and Hamakua, where high ranks have been known to dwell for years, to begin to solve these questions. The groundwork in the thesis should facilitate research.

ORAL TRADITIONS AND RECONSTRUCTION OF THE RELEVANT DIMENSIONS

Over the last 2 years, I reviewed Fornander's traditions in detail, reconstructing the societal variables of concern. Estimated dates for 2-echelon, 3-echelon and the formation of 4-echelon societies were computed using two estimates, and results are as follows:

- 2-Echelon Societies: ca AD 400's to at least 1000's.
- 3-Echelon Societies: Present by ca AD 1203 or 1318 on Oahu (where the only clear data on 3-echelon societies exist).
- 4-Echelon Societies: Present by ca AD 1230-1330 or AD 1340-1400 (figures vary with the dating estimate used).

Analysis did reveal sequential changes in the dimensions. Population size is not indicated in the traditions, but when territorial changes are noted, population changes clearly occurred too. When territorial size drastically increased (e.g. Maui's conquest of Oahu and Molokai just after European Contact), a new chiefly decision-making level was inserted under the king, and a new social echelon rapidly formed. When territorial size drastically decreased (e.g. in certain attempted secessions), a chiefly decision-making level was dropped and a social echelon was deleted. In sum, when societal territorial size (and probably societal population size) reached certain high or low thresholds, changes in hierarchical structure followed.

This hypothesis needs further evaluation, both through oral-historical and archaeological research, but it is a very interesting new perspective on the development of hierarchical societies. The hypothesis also suggests compatibility between the two new evolutionary approaches which stress decision-making and number of social echelons. Finally, it tends to lend some support to the communication and information-related ideas current in this field (e.g. Johnson 1978).

Again, clearly more research and evaluation is needed. Archaeological research will take time and must be focused in certain areas. Oral-historical and historical research are also promising.

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