

THE DYNAMICS OF WESTERN NAVAJO SETTLEMENT, A.D. 1750-1900:
AN ARCHAEOLOGICAL AND DENDROCHRONOLOGICAL ANALYSIS

by

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CHAPTER 2

DENDROCHRONOLOGY AND THE STRUCTURE OF NAVAJO LOCAL GROUPS

Tree-ring dates from archaeological sites have little or no intrinsic meaning. The archaeologist must demonstrate how the dates are related to the context in which the specimens were found (Douglass, 1929; Haury, 1935; Bannister, 1962; Robinson, 1967; Dean, 1969a, 1969b). These arguments of relationship constitute interpretations of tree-ring dates. The methodology I employ to perform this task has been discussed in the previous chapter.

The number of possible relationships between tree-ring dates and other kinds of archaeological information approaches infinity. However, the number of interpretations that the archaeologist actually makes is restricted primarily by his problem interests and secondarily by the availability of research time and funds. The relational statements presented in this chapter are answers to questions that arose in the context of my three basic research problems:

- (1) How were Navajo local groups organized within the 1882 study area between A.D. 1750 and 1900?
- (2) What were the Navajo site locational strategies during this period?
- (3) How did Navajo economic systems operate and change from A.D. 1750 to 1900?

Navajo Wood Use

Refined time controls are required to define the composition and the behavioral organization of Navajo local groups as occupational units and through time. In this section, I attempt to evaluate the tree-ring dates in their behavioral settings. The questions I am asking are stated below:

- (1) How was wood used in construction?
- (2) How are the outside ring characteristics of dated tree-ring samples related to wood use?
- (3) How well do tree-ring dates with various kinds of outside ring characteristics approximate the actual construction dates?

The fundamental strategy to a formal evaluation of the NLC archaeological tree-ring dates was found to be twofold: (1) to assign a definite probability range as to the exact death date of a specimen, and (2) to discover, as precisely as possible, how closely the tree-death event approximates the use of the specimen in the feature in which it was located. The two facets of this strategy are interrelated.

An initial phase in the interpretation of the outside dates of tree-ring samples collected from structural features is to develop arguments as to the behavioral alternatives that were employed in the construction of these features. Haury (1935), Bannister (1962; 1965, pp. 123-126), and later Robinson (1967) have outlined the basic behavioral options in a wood procurement-use activity system. The behavioral elements in the sequential subsets of the wood procurement-use activity set may be viewed as follows:

To summarize the findings thus far, a number of general regularities characterize Navajo construction activities:

- (1) Live wood was preferred for construction purposes.
- (2) Wood was preferentially harvested in the late spring and early summer months.
- (3) The scheduling of wood harvesting activity coincides with the preferred season for domestic structure construction.

Wood Storage

The high frequency of specimens with beetle galleries may indicate another regularity in Navajo wood-use behavior. Over half of the dated specimens (54%) exhibited the G condition. An examination of Table 4 shows that specimens with galleries are more consistently compatible with independent dating evidence than specimens where the G condition is absent. A compilation of outcomes from both the G and the non-G subsets from Table 4 is presented in Table 8.

Table 8. Outcomes from the Gallery Condition Subset.

Beetle galleries	Com- patible	%	Incom- patible	%	Unknown	%	Total
Present (G)	142	83	13	8	16	9	171
Absent (Ø)	68	47	40	28	37	25	145
Total	210	66	53	17	53	17	316

The over-all proportionate occurrence of compatible G-dated specimens is higher than those exhibiting the inc or c conditions (see

Table 28 shows that a significant portion of the windbreaks were located as isolated aggregates or single structures. Interestingly, however, they do not occur with ramadas or lean-tos, the other types of warm-weather domestic structures. Windbreaks, ramadas, and lean-tos can replace hogans in their association with corrals, sweathouses, looms, and storage. Moreover, if the sampling error argument for sweathouses and storage is correct, the incidence of hogan association with these warm-weather types of structures is considerably lower than any of the other architectural types.

To summarize the findings thus far, the analyses of tree-ring data, the Land Claim site reports, the site maps, and information from the Long House Valley survey indicate that three behaviorally distinct types of sites were produced by Navajo occupying the 1882 study area. The first type, game traps, represents an activity that was performed at least once a year, in the late spring-early summer period (see Table 14). All of these structures were used repetitively, although perhaps not continuously, for various periods ranging from at least two to 40 years. Game drives were conducted from at least the eighteenth century through 1870, when the deer and antelope populations were virtually eliminated from the region (local informant data, Correll, 1961, p. 1077). These structures are spatially and behaviorally isolated from Navajo habitation sites. The number of personnel required to perform a game drive probably exceeds the populations of local groups (Hill, 1938, pp. 145 to 156). This activity, therefore, may specify a supra-community level of Navajo organization.

labeled "western Navajos" by many ethnographers. The question that arose, therefore, was how did the 1882 study area become intensively settled by Navajo groups?

The earliest tree-ring dates from the study area (1622^{incG}, 1666^{inc}) indicate that there may have been some Navajo use in the 17th century. The region was occupied with some regularity in the early 18th century as a series of cutting dates illustrates (1703^{inc}, 1710^{inc}, 1711^{inc}, 1720^{inc}, 1723^{incG}, 1728^{inc}, 1729^{inc}).

Construction activity ceases or is limited within the study area from A.D. 1730 to 1750. This time gap may be related to survey sampling error although this appears to be unlikely. The Land Claim survey was designed to be extensive but was not a thoroughly intensive investigation of the region (Van Valkenburgh, 1956a, p. 3). This kind of sampling strategy is not amenable to site density analyses or for measuring connectivity between sites. However, there is evidence to show that the survey was spatially and chronologically representative of Navajo settlement within the 1882 Executive Order Hopi Reservation. The 1882 Reservation was a disputed claim area between the Hopi and the Navajo. The NLC survey thus covered the entire region with approximately equal intensity. Second, the claim case was designed to show Navajo use and occupancy of the area both before and after the A.D. 1846 to 1868 legal test period. All sites located by the survey teams, particularly those dating prior to A.D. 1846, were useful for this argument. Moreover, all sites datable by any method were included as documentary exhibits and constitute the reports made available for my study (Correll, 1961). Finally, the spatial distribution of sites dating from A.D. 1750 to 1800