

**CULTURE AND ENVIRONMENT
IN THE AMERICAN SOUTHWEST:
ESSAYS IN HONOR OF ROBERT C. EULER**

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Robert C. Euler: A Visual Record

Top left: Lieutenant Robert Euler, USMC, in 1944, just before leaving for the Pacific Theater.

Top center: at a Kayenta Anasazi site on White Mesa, September 1954.

Top right: excavating in Stanton's Cave, September 1970.

Middle left: examining a split-twig figurine cache in Stanton's Cave, July 1969.

Middle right: at Grand Canyon National Park, 1982.

Lower left: Robert Euler as the alter ego of Anthroman, caped superhero in a comic book produced at Prescott College.

Lower right: Bob and Gloria Euler at the Black Mesa field laboratory.



CHAPTER 11

Ethnoarchaeology of a Navajo Mountaintop Way Site on Black Mesa, Northeastern Arizona

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Introduction

Robert C. Euler's scholarly interests spanned an astonishing range of topics in anthropology and related disciplines. Our dendroarchaeological-ethnoarchaeological study of a ceremonial site on Black Mesa in northeastern Arizona intersects at least four aspects of Euler's long and distinguished career: Navajo ethnography (Euler 1951, 1961); archaeology as an integral part of anthropology (as exemplified by the interdisciplinary Center for Man and the Environment that he created at Prescott College); ethnoarchaeology and ethnohistory (Euler 1966, 1972, 1981); and the Black Mesa Archaeological Project (BMAP), which he helped found and operate as a large research operation and training ground for student and professional anthropologists (Gumerman 1984; Gumerman and Euler 1976; Powell et al. 1983; Powell et al. 2002).

AZ D:11:351 (PC) is a Historic period Navajo residential and ceremonial site that was intensively studied by archaeologists and ethnographers affiliated with BMAP. Our AZ D:11:351 (PC) research is part of a larger effort to elucidate the role of dendrochronology in archaeology. AZ D:11:351 (PC) is relevant to three aspects of this effort: the effects of different patterns of human wood use on the dendroarchaeological record (Dean 1996), the development of highly focused sampling principles and procedures that produce the maximum amount of information with the fewest tree-ring specimens, and the evaluation of tree-ring dates from a variety of Navajo site contexts (Russell and Dean 1985; Towner and Dean 1992; Towner et al. 2001). The detailed data from AZ D:11:351 (PC) allow us to test the ethnographic record against archaeological and tree-ring data, and vice versa. Similarities and differences

among these data sets elucidate the degree to which archaeology can replicate ethnographic descriptions and the principles and procedures used in evaluating archaeological tree-ring dates.

Tree-ring specimens from thoroughly sampled and well-controlled archaeological contexts provide information on many aspects of past human behavior (Dean 1996, 1997). The most obvious aspect is the precise and accurate dendrochronological dating of events associated with the material remains of human activities, usually events connected with the construction, use, repair, remodeling, and abandonment of various structures and parts of structures. The distribution of incomplete and complete terminal rings identifies the seasons of the year in which wood was procured for various purposes. The range of dates from specific proveniences illuminates the duration of occupation or other uses of particular features and sites. Attributes of the wooden elements reveal wood use practices such as the techniques and tools used in timber acquisition and modification (tree felling, timber-length reduction, limb trim, debarking, and shaping), the stockpiling of timbers for general or specific purposes, the reuse of elements salvaged from older contexts, the use of deadwood from trees that died of natural causes, and many others. Finally, comparing the species of tree represented in an archaeological collection to those in the site's environment illuminates the differential selection of particular kinds of wood for specific uses. In certain contexts, these dendroarchaeological inferences can be tested against ethnographic records for the site involved. Informed by general knowledge of the activities associated with Navajo ceremonial sites and the broad range of data collected as part of the anthropological mission of BMAP, we were able to test one such context, AZ D:11:351 (PC).

corral (Structure 8) represent reused or deadwood elements. A noncutting date (PBM 3152) and a cutting date (PBM 914) place construction or repair of this enclosure in 1932. The felling with a metal ax of a tree (PBM 3150) rooted in the corral indicates that the structure was no longer in use by 1941 or 1942 and reveals some activity in the area in or after that year. The death in 1973 of a piñon tree (PBM 3133) north of the corral may have been a natural event unrelated to the occupation of AZ D:11:351 (PC). On the basis of dendrochronological data from the residential locus itself, this part of the site can tentatively be dated to 1932.

The ceremonial component of AZ D:11:351 (PC) is extraordinarily well dated, with 72 tree-ring dates. The circular ceremonial enclosure (Structure 1) produced 33 dates, 22 of which are cutting dates at 1937 (Figure 11.3). A 1936+ near-cutting date (PBM 2901) undoubtedly also belongs to the 1937 cluster. A mix of complete and incomplete terminal rings places this wood procurement event at the end of the piñon and juniper growing season, when some trees (those with complete terminal rings) had ceased growing for the year and others (those with incomplete terminal rings) had not, that is, in the autumn of 1937. Four cutting dates at 1935 (PBM 2895, 3108, 3120, 3131) definitely do not belong to the 1937 cluster and probably represent logs reused from a slightly earlier context, very likely the residential locus. Two near-cutting dates (PBM 3109 and 3148) at 1934+ and one cutting date (PBM 3111) at 1934 may belong to the 1935 cluster also. Two of them (PBM 3111 and 3148), however, have attributes that suggest they came from recently dead trees, and they could have been acquired in 1937. The 1924 and 1932 noncutting dates (PBM 2902 and 3163) could belong to the 1934, 1935, or 1937 tree-cutting episodes. A single, early noncutting date (PBM 3158) comes from a sample with ring-series attributes diagnostic of deadwood. The dendrochronological data leave no doubt that the circular enclosure was built in a single operation in the autumn of 1937.

A single cutting date (PBM 877) indicates that the ceremonial hogan (Structure 2) is contemporaneous with the adjacent enclosure. Two earlier noncutting dates (PBM 876 and 1296) probably represent timbers cut in 1937. One of these trees (PBM 1296) probably was in the process of dying of natural causes. Three noncutting dates (PBM 845, 1172, and 836) and one cutting date (PBM

871) most likely represent elements transported from the residential locus when Structure 7 was moved and reconstructed as Structure 2. A 1933 construction date for Structure 7 is consistent with dates from the residential locus and conforms to clusters of probably reused beams in both the circular enclosure and the cooking ramada.

Nineteen of 31 dates from the dismantled ramada (Structure 3) fall at 1937 (Figure 11.4). A single 1936+ cutting date (PBM 2188) belongs to this cluster also. A 1935 cutting date (PBM 879) probably represents an element appropriated from the residential locus. Six noncutting dates (PBM 3104, 3105, 3106, 2201, 3102, and 837/3151) probably represent timbers belonging to the 1935 or 1937 wood procurement episode. A 1919 cutting date (PBM 842) comes from a sample that lacks deadwood attributes and may represent a log salvaged from an older context in the vicinity. Three nineteenth-century noncutting dates (PBM 2217, 2191, and 2212) come from samples that possess physical and ring-series attributes of deadwood. The mixture of complete and incomplete terminal rings indicates that the cooking ramada, like the ritual hogan and the circular enclosure, dates to the fall of 1937.

Many peripheral structures are also well dated. Of the 14 windbreaks (Figure 11.5), half (Structures 12, 15, 20, 23, 24, 30, and 33) produced only 1937 cutting dates. Another (Structure 9) yielded two near-cutting (+) dates (of 1935 and 1936) that undoubtedly belong to the 1937 wood procurement event. Structure 40, which is designated a windbreak on the site map (Sessions and Spalding 1984:74, Figure 2-12) and a horse corral in the text (Sessions and Spalding 1984:73), possesses one 1937 cutting date (PBM 2930) and an earlier date (PBM 881) that comes from a sample with deadwood attributes. The mix of complete and incomplete terminal rings indicates that these nine windbreaks were built in the autumn of 1937, in connection with the Mountaintop Way ceremony.

One windbreak (Structure 25) produced an incomplete terminal ring cutting date (PBM 887/2917/2918) indicative of use during the piñon growing season (summer) of 1942, five years after the Mountaintop Way ceremony. This event could represent the repair and reuse of a windbreak built in 1937, or the structure could have

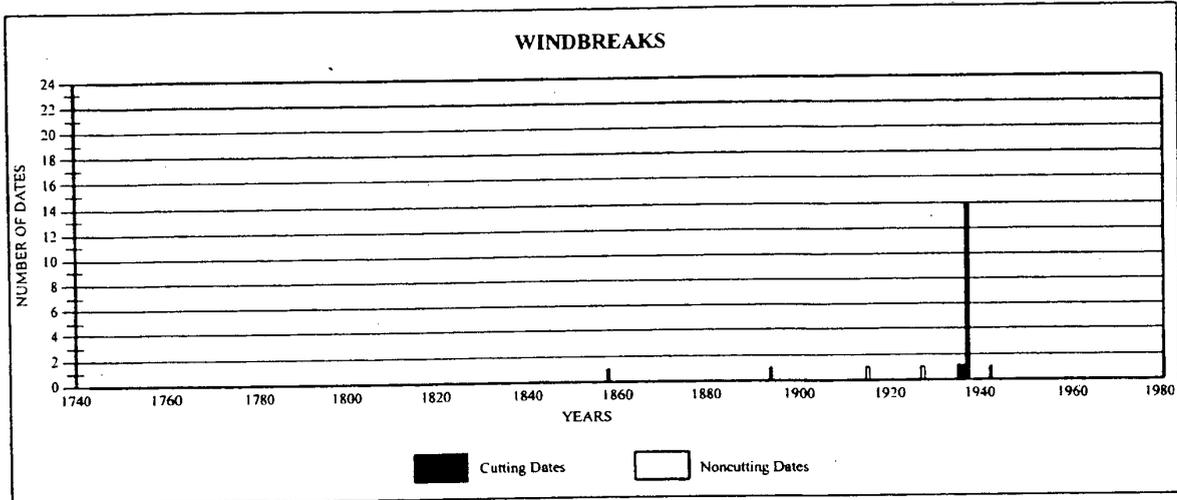


Figure 11.5. Tree-ring dates from windbreaks, AZ D:11:351 (PC).

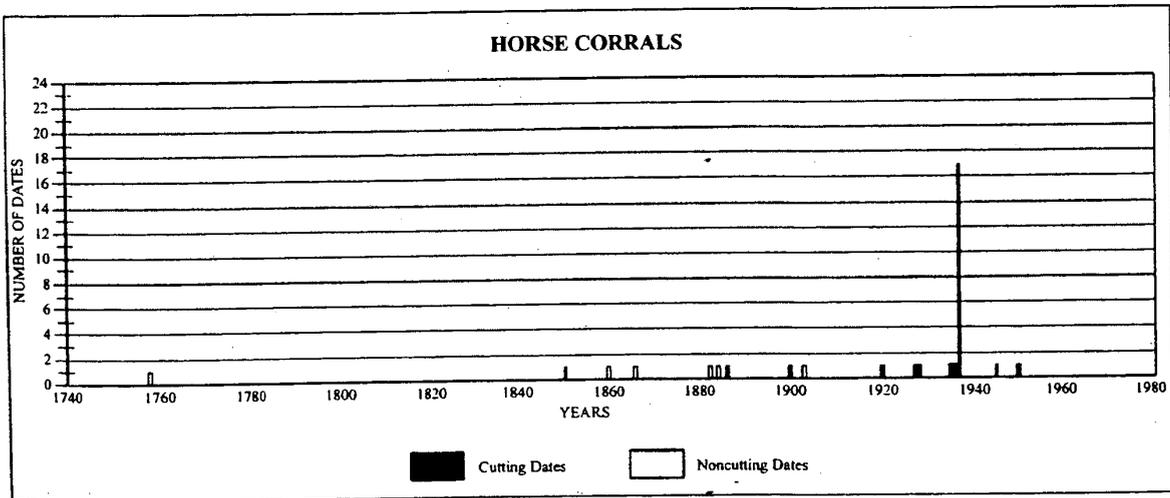


Figure 11.6. Tree-ring dates from horse corrals, AZ D:11:351 (PC).

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been built in 1942 and be unrelated to the ceremony. The tree-ring data do not permit a choice between these alternatives, but they do show post-ceremony utilization of this locus (which probably also involved the felling of the tree growing in the sheep and goat corral). This windbreak is one of two structures assigned a later date on the basis of interviewee statements.

Two windbreaks (Structures 10 and 39) produced only irrelevant noncutting or deadwood dates, and two others (Structures 11 and 32) yielded no dates at all. Although it is tempting and probably valid to assign these four windbreaks to the ceremonial utilization of AZ D:11:351 (PC), the later use of Structure 25 suggests caution. Without independent chronological control, it is impossible to determine whether these four windbreaks predate, coincide with, or postdate the verified Mountaintop Way structures.

Five of the 16 horse corrals (Structures 16, 27, 29, 37, and 38) yielded only 1937 dates (Figure 11.6). Two others (Structures 18 and 31) have 1937 cutting dates that indicate use during the Mountaintop Way. An earlier sample (PBM 889) that lacks the attributes of deadwood suggests that Structure 18 may have been built or used in 1927 and reused during the Mountaintop Way. A nineteenth-century noncutting date from the same corral comes from an obvious deadwood element. An early date (PBM 2929) may indicate that Structure 31 was built in 1935 and reused in 1937. Given the dates for the whole site, however, it seems more likely that this date represents a log salvaged from the residential locus and incorporated into Structure 31 in 1937. Two horse corrals (Structures 21 and 36) possess near-cutting (+) dates (1936 and 1934, respectively) that indicate use during the ceremony. There can be little doubt that PBM 2911 was cut in 1937, which places Structure 21 squarely within the group of structures built for the ceremony. The nineteenth-century date (PBM 858) from this corral represents a deadwood element. The situation with regard to Structure 36 is ambiguous, in that the 1934+ date (PBM 2194) could apply to events connected with the residential locus, the ceremony, or both. In fact, this sample may represent a timber salvaged from the residential locus and reused in Structure 36. It is highly probable, however, that Structure 36 was used

during the ceremony. Two early samples (PBM 866, 2913) that lack the characteristics of deadwood suggest that Structure 36 may have been used twice, once each in 1920 and 1928 or 1929, before being reused during the ceremony. Structure 26, the most elaborate of the site's horse corrals (Figure 11.1), clearly was built and used during the Mountaintop Way. Two pre-1900 samples (PBM 3160 and 855) have deadwood attributes, and one sample (PBM 3115) indicates a later reuse of this corral that is discussed below. All told, use events at 10 horse corrals can confidently be dated to the time of the Mountaintop Way—the autumn of 1937.

Activities at two horse corrals postdate 1937. Structure 26 was reused in the late summer or early fall of 1945, eight years after the Mountaintop Way. The greater complexity of this corral may be due in part to multiple use. Interviewees indicated that Structure 26 was in use later than the other windbreaks and horse corrals around the periphery of AZ D:11:351 (PC). Whether or not Structure 22 was built in connection with the ceremony, it was utilized between the piñon growing seasons of 1950 and 1951 or 1951 and 1952 (the plus symbol means that the terminal ring dates to either 1950 or 1951). In other words, Structure 22 was utilized between September 1950 and June 1951 or between September 1951 and June 1952.

Four horse corrals (Structures 13, 14, 17, and 19) produced only irrelevant deadwood or noncutting dates. Structure 34, which is identified as a horse corral on the site map (Sessions and Spalding 1984:74, Figure 2-12) and as a windbreak in the text (Sessions and Spalding 1984:73), produced no datable tree-ring material. As was the case with the undated windbreaks, the undated horse corrals cannot be assigned to the Mountaintop Way ceremony, though this association seems likely.

Of the two sweat houses, Structure 28 produced no datable wood samples. Two noncutting dates (PBM 856 and 3146) from Structure 35 represent deadwood elements and are irrelevant to the chronology of this structure. The single cutting date (PBM 3159) suggests that Structure 35 was built in 1932 as part of the residential locus and that, therefore, Structure 28 was the sweat house built expressly for the ceremony.