

**Pole-and-Thatch Structures in the Great Basin:
Evidence from the Last 5000 Years**

by

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Pole-and-Thatch Structures in the Great Basin:
Evidence from the Last 5000 Years

Well-rooted in the archeological evidence is the suggestion that the Great Basin Desert lifeway is an ancient and stable one (Jennings 1957:287). The notion of a basic cultural substratum over the entire Great Basin area out of which later cultures developed was first posited by such scholars as H.W. Krieger (1928) and Kroeber (1939:50). It is this stability and striking time depth which led Jennings to propose, in search of broader relationships, the concept of the Desert Culture (Jennings and Norbeck 1955; Jennings 1957:280-287; Jennings 1964). Seen as a "widespread, uniform and stable culture which persisted for millenia with no essential change," the Desert Culture was marked by striking similarities in material culture and subsistence pattern and heralded by basketry and milling stones (Aikens 1970:201). Despite varying degrees of application and misinterpretation over the years, against the background of a larger and more complete data base, the basic notion of a Desert Culture has stood the test of time. An additional perspective on this remarkable stability over millenia emerges from a review of the evidence for circular pole-and-thatch structures in the Great Basin over the last 5,000 years.

Domed, conical and subconical dwellings exhibit a very widespread distribution throughout much of western North America and the greater part of Canada (Driver and Massey 1957:294-317). More specifically, circular pole-and-thatch structures consisting of a basic framework

of poles and a covering of thatched materials have been well-documented historically throughout the Great Basin culture area. The broad distribution of this structural type implies its great antiquity, which in the past few years has become concretely datable through archeological research.

Circular pole-and-thatch dwellings recorded in the ethnographic literature of the Great Basin can be broadly categorized into four basic structural types, all covered either with brush bundles or with woven mats of grass or tule.

The first structural type is an unroofed windscreen consisting of a series of poles, usually willow, planted vertically to form a semi-circular enclosure with its uprights secured together by horizontal members. The second structural type is a circular domed shelter built from a framework of willow poles set vertically into the ground and bent over and lashed together at the top to form a series of inter-connected arches. Encircling horizontal poles are firmly tied or lashed to the arches to strengthen the frame. The third structural type is the circular conical dwelling; in this form of construction, a number of substantial willow poles, usually four to eight, are secured together at the top tipi-fashion to form a cone-shaped framework against which additional poles are leaned. The fourth type is a subconical dwelling which differs from the conical shelter only in that the top is left unthatched so as to form a smokehole.

While there is some degree of variation in specific aspects of construction depending upon local availability of suitable materials, in

general, the ethnographic literature documents these four basic structural types as having existed throughout the Great Basin. Domed, conical and subconical shelters have most commonly been ethnographically recorded in the Great Basin as winter dwellings, while the less substantial unroofed windscreens are usually identified with summer use (Kelly 1932:104-106; Lowie 1924:218-222; Steward 1941:232; Stewart 1941:377).

Archeological Evidence: Dirty Shame Rockshelter

Archeological evidence of aboriginal dwellings in the Great Basin has, until recent times, been lacking, but a significant body of data is beginning to emerge. A number of house floors have been identified by circular carbon-stained layers, midden deposits, central firehearths and ash concentrations, but actual remains of house superstructures have been decidedly rare. The remains of wall construction materials such as willow poles, brush, thatching, or matting are highly perishable and easily subject to destruction by the elements, especially fire. Superstructures usually leave no archeological traces, especially if the poles are erected in sandy soil or simply placed upon the ground surface (Davis 1965:9). However, archeological remains of wall construction have recently been found intact at several sites in the Great Basin and thus provide the potential for detailed reconstruction and inferences as to structural types. One such site is Dirty Shame Rockshelter in far southeastern Oregon.

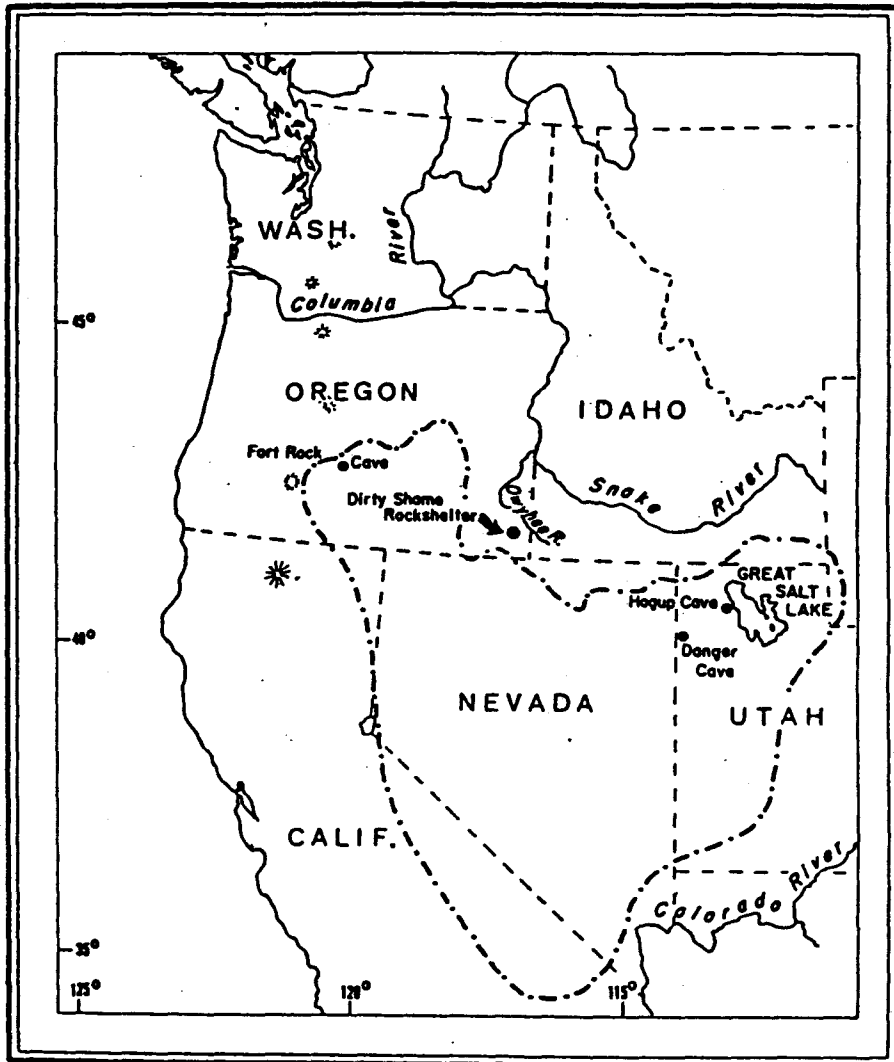
Dirty Shame Rockshelter is located on the Owyhee Plateau in the extreme southeastern corner of Oregon about 35 miles north of the Oregon-

Nevada border and 15 miles west of the Oregon-Idaho border (Aikens et al. 1977:4) (Figure 1). The rockshelter consists of a shallow horizontal nick cut into the base of a 100-meter high rhyolitic cliff on the northwest bank of Antelope Creek, a tributary of the Owyhee River. The nick is cut about five meters into soft breccia underlying the rhyolitic cliff and was probably formed by mechanical weathering and lateral cutting of the creek (Kittleman 1977:2). The sheltered area beneath the overhang is six meters deep from back wall to dripline, and has a southeastern exposure.

Excavations at Dirty Shame have provided a cultural record spanning the last 9500 years. Defined within the upper two meters of excavated deposits in the shelter were six sequent cultural zones, each one comprised of roughly contemporaneous cultural features in a complex series of cultural deposits. Twenty-two radiocarbon dates were obtained and these have been assigned to each cultural zone so as to bracket each within a specific time period of occupation. Zone II of the site (Figure 2), which has been dated from 1100 to 2700 B.P., contained the complex remains of a series of superimposed circular pole-and-thatch structures. The superstructural remnants and wall materials of the uppermost of these structures, Feature 6, were so remarkably well-preserved by the extreme dryness of the site as to permit detailed description of construction and probably reconstruction of the building's original form.

Feature 6 consisted of the remains of a series of paired willow branch uprights arranged around a shallow, dish-shaped depression which

Figure 1. Location of Dirty Shame Rockshelter.



(Aikens et al. 1977:3)

ZONE II

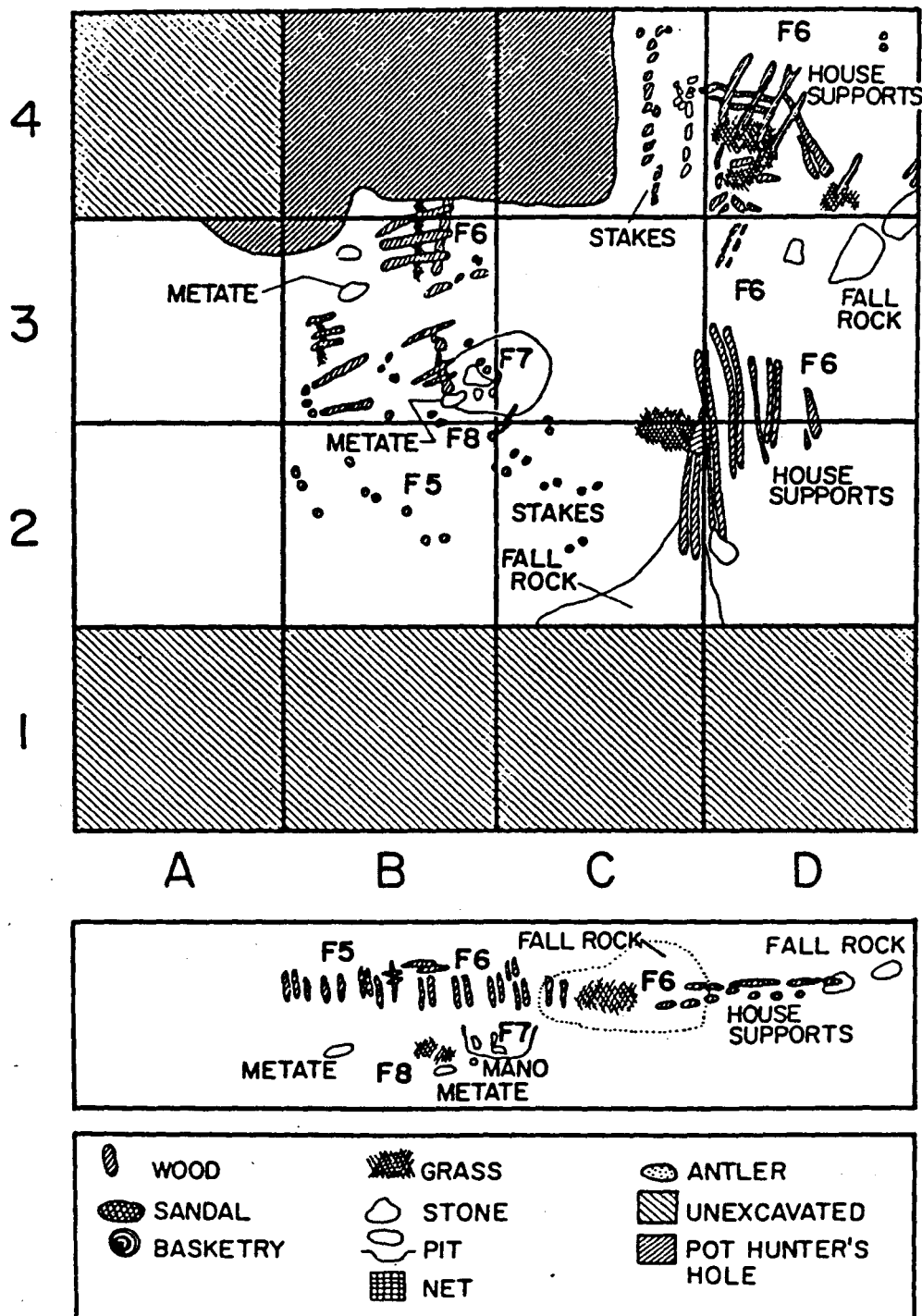


Figure 2. Composite plan and profile Cultural Zone II.

(Aikens et al. 1977:13)

had been cleared of fall rock (Photos 1-3). The depression may have been purposeful or may have been the result of natural compaction throughout the period of its occupation (Aikens et al. 1977:10). These uprights were gently curved, and the stub ends, averaging 2 to 2.5 centimeters in diameter, were spaced about 30 to 40 centimeters apart to form a roughly circular pattern five meters in diameter. The proximal ends of these paired willow poles had apparently been planted in small excavated pits 20 to 40 centimeters deep around the edge of the depression, and had been tamped down with soil, grass, and brush and anchored with large angular rocks. Inside and beneath this framework, which had collapsed inward after the structure burned, was found a series of slender branches which had been lashed horizontally across the vertical supports in multiples of twos, threes, and fours. Twig ties or withes of willow had been bound over the horizontal supports and twisted around the larger vertical members, securing them together.

Bundles of Great Basin wild rye (Elymus cinereus) up to 10 centimeters thick covered this framework. These bundles of rye grass, some as much as one meter in length, were still lashed in some places to the framework. Fragments and lengths of fiber twine made from sagebrush bark and indian hemp were observed in abundance throughout the feature. The fiber ties, some still bound in a variety of knots and threaded into the grass bundles, undoubtedly functioned to hold the bundles of grass thatching together. The bundles of thatching were fastened to the framework in a vertical position by tucking their upper ends under horizontal frame members and tying their middle sections to the underlying framework

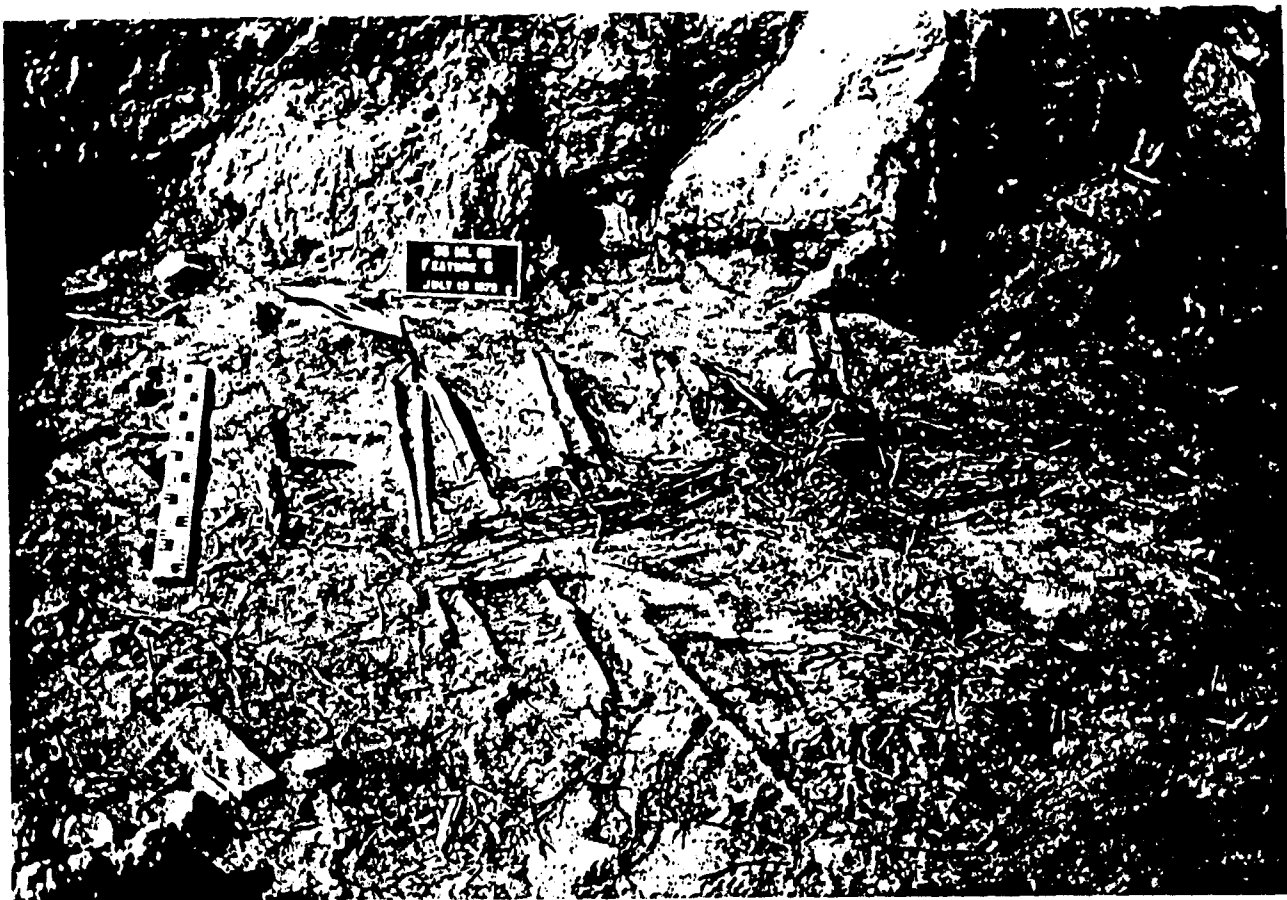


Photo 1. Superstructural remains of uppermost structure (Feature 6) in Cultural Zone II of Dirty Shame Rockshelter: paired willow poles and grass matting.



Photo 2. Uppermost structure (Feature 6) in Cultural Zone II of Dirty Shame Rockshelter: remains of circular brush house.



Photo 3. Uppermost structure (Feature 6) in Cultural Zone II of Dirty Shame Rockshelter:
living floor and charred pole stubs.

with willow "pins," bent into a U-shape, which were thrust through the bundle and wrapped around a frame member. The vertically-set grass bundles were arranged in horizontal rows, in such a way that the lower edges of one row of bundles overlapped and covered the tucked-in upper ends of the row of bundles below, thus creating a shingled appearance.

Several thin branches up to 80 centimeters long overlay the outer layer of thatching. These branches may have been bound horizontally around the outside of the shelter as an additional means of securing the thatching to the superstructure. A row of large angular rock slabs was exposed around the outer edge of the feature; these may have functioned as an exterior buttressing support for the base of the framework, as well as to anchor the basal row of thatched covering.

The southern portion of the feature had been partially destroyed by fire, and the grass matting, willow twigs, and poles were charred and badly burned. The living floor, a hard, extremely well-compacted, yellowish-brown soil, lay beneath the burned remains. The existence of a central firehearth may be suggested by the presence of a large rock in the center of the floor which was surrounded by fire-reddened clumps of earth and several white ash lenses and concentrations of fire-heated chert flakes. It is possible, though it seems unlikely, that these features may have been a product of the fire that destroyed the house.

A gap in the alignment of the vertical wall members on the side of the structure facing the front of the rockshelter, and the presence of heavier, sturdier uprights on either side of this gap, suggests that this may have served as the entrance. There was no detailed evidence for

the appearance of the top of the structure, but the gentle arching of the vertical poles suggests that it was domed. Granting the possible presence of a central firehearth, the unit could be reconstructed as a domed structure open at the top to allow smoke from the fire to escape. It seems probable, then, that the structure represents the remains of a domed, or possibly sub-conical, pole-and-thatch winter dwelling of the kind recorded for the area ethnographically.

Samples of grass thatch from Feature 6 produced two radiocarbon dates of 1140 ± 95 and 1175 ± 70 B.P. Samples of charred twigs and poles from various other parts of Feature 6 produced dates of 1480 ± 75 , 1715 ± 70 , 2005 ± 75 and 2545 ± 80 B.P. As Figure 2 shows, the remains of other, earlier structures on the same spot are represented by a number of charred pole stubs. The broad spread in the dates suggests that materials scavenged from earlier structures, which had been long preserved by the dryness of the rockshelter setting, had been incorporated into the uppermost structure. Hence it seems reasonable to conclude that the radiocarbon dates represent a series of structures built over the span of time indicated, that is, from 1100 to 2700 B.P. (Aikens et al. 1977:10).

Archeological Comparisons

Structural remains of houses apparently similar to the pole-and-thatch shelter described from Dirty Shame have been reported by O'Connell from Surprise Valley of northeastern California (O'Connell 1971:167-215; O'Connell 1975). From the King Dog's Site, O'Connell describes a series of circular, shallow, saucer-shaped depressions three to five meters in

diameter, with small central firehearths and postholes set 25 to 50 centimeters deep around the edge of the depression. From careful examination of the charred remains of poles, brush and matting, O'Connell determined that two possible structural types are represented: a domed or conical wickiup and an unroofed windscreen (Figure 3). These brush structures with light pole frames appear in the Bare Creek Phase dated from 3000 to 4500 B.P., and persist in the local sequence into historic times.

At the Rodriguez Site (CA-Las-194) in Surprise Valley, O'Connell and Ambro (1968:136-142) report another series of house floors 3 to 4.5 meters in diameter which also seem to represent the remains of light pole-and-brush structures built around shallow circular depressions. No identifiable entrances were observed, but centrally placed firehearths suggest that the structures may have been sub-conical forms with smokeholes. The oldest of these brush dwellings (House Feature 42) is C-14 dated to 2620 \pm 80 B.P. and structures of this same type persist in the local sequence into historic times (O'Connell and Ambro 1968:136-142).

At the Karlo Site (Las-7) in the Honey Lake region of northeastern California, Riddell (1960a:78-80) has reported many postholes averaging 16 centimeters in depth and 15 centimeters in diameter. These were arranged about a circular depression three meters in diameter, and the distribution of postholes suggests the sequential building of three overlapping circular brush superstructures over the single house floor depression. The exact stratigraphic surfaces of origin of the postholes could not be determined, but the structures have been tentatively assigned to the Karlo period, dating from 3500 to 4500 B.P.

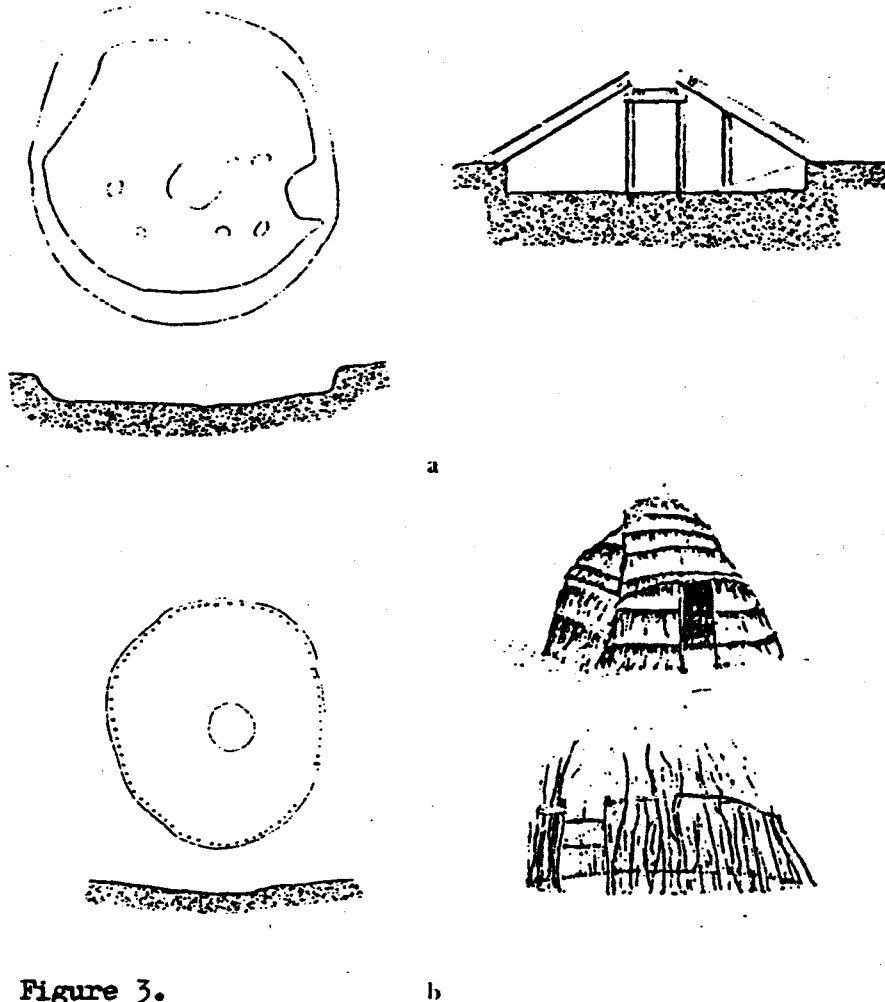


Figure 3. Surprise Valley dwellings: a. Menlophase earth lodge plan and reconstruction; b. Bare Creek phase wickiup plan and possible ethnographic analogues. (After O'Connell 1975.)

(Aikens 1978:160)

Cowan and Clewlow (1968:212-224) report similar structural features from a site in the Humboldt Sink (Nv-Pe-67) 10 miles south of Lovelock, Nevada where a number of shallow, midden-filled depressions were exposed. The depressions were roughly circular in plan and pan-shaped in profile, with an average diameter of 2.3 meters and an average depth of 33 centimeters. "Silica ghosts," white siliceous layers representing the remains of tule or grass mats in criss-cross patterns covering the aboriginal floor, outlined the living surfaces. The remains of framing timbers were present in two of the house pits excavated.

Archeological site survey and preliminary excavations in Grass Valley, Lander County, Nevada, resulted in detailed documentation of extensive remains of prehistoric and historic aboriginal house structures (Clewlow and Pastron 1972:13-32). At Horse Pasture Village, two house depressions dating within the Middle Prehistoric Period (4450 to 750 B.P.) produced evidence of circular floors averaging 3.5 to 4 meters in diameter and 15 to 20 centimeters in depth. No evidence of postholes, firehearths, or wall construction was encountered, but "silica ghosts" outlined the living floors. In addition, survey at Ridge Village North, a historic Shoshoni village in Grass Valley, revealed numerous circular concentrations of collapsed willow poles and fragments of thatching on the surface of the site (Ambro and Wallof 1972:107-126).

Excavation at the Stahl Site near Little Lake, California, on the eastern flanks of the Sierra, exposed several house patterns. Postholes averaging 10 centimeters in diameter were spaced 35 centimeters apart around circular and elliptical depressions 4 to 5.5 meters in diameter. While

no remains of the original superstructure survived, the postholes of House Number Two, seen in profile, sloped slightly towards the center of the depression, suggesting a domed or conical structure (Harrington 1957; Hamilton 1951). These structures are dated by association with Pinto-style projectile points to a period bracketed between 3500 and 7000 B.P. (Aikens 1978:148).

Partial excavation at a historic Paiute village site in Owens Valley, California (CA-Iny-2) revealed a series of small shallow house pits averaging six to eight centimeters deep and 3 to 3.5 meters in diameter. The remnants of willow poles more or less evenly spaced about the edge of the pit seem to represent the structural members of a circular brush house (Riddell 1951: 14-15).

Ethnographic Comparisons

Pole-and-thatch structures closely comparable to the one described from Dirty Shame Rockshelter occurred widely throughout the Great Basin and adjacent regions in historic times and have been documented in detail in the ethnographic literature (Table 1).

Southern Paiute

For the Southern Paiute in general, Stewart has recorded domed and conical wickiups primarily for winter use (Stewart 1942:256-257, 338); and more specifically, conical and subconical winter houses of brush have been reported for the Moapa Paiute (Lowie 1924:218-222; Watkins 1945:13-18) and for the Shivwits Southern Paiute (Lowie 1924:218-222). Other Southern Paiute bands exhibited this same structural type and seasonal use pattern

LOCATION	ARCHEOLOGICAL SITE AND SOURCE	HOUSE FLOOR DIAMETER (meters)	DEPTH OF DEPRESSION (centimeters)	ARCHEOLOGICAL REMAINS	DATING
Little Lake, California	Stahl Site (Harrington 1957) (Hamilton 1951)	4-5.5		• posthole patterns	3500-7000 B.P. : association with Pinto-style points
Honey Lake, California	Karlo Site (CA-Las-7) (Riddell 1960a)	3.0		• posthole patterns	3500-4500 B.P. : tentative assignment by cultural materials
Surprise Valley, California	Rodriguez Site (CA-Las-194) (O'Connell and Ambro 1960)	3-4.5		• posthole patterns • centrally-placed firehearth	2680±80 B.P. : Carbon-14
Southeastern Oregon	Dirty Shame Rockshelter (Aikens, et al. 1977)	5.0		• remains of framing timbers • grass bundles and matting • fiber and twig ties • central firehearth (?)	1100-2700 B.P. : Carbon-14
Humboldt Sink, Nevada	Nv-Pe-67 (Cowan and Clewlow 1968)	2.3	33	• remains of framing timbers • "silica ghosts" of twig or grass matting	none
Grass Valley, Nevada	Horse Pasture Village (Clewlow and Bastron 1972)	3.5-4.0	15-20	• "silica ghosts" of floor matting	750-4450 B.P. : tentative assignment by cultural materials
Grass Valley, Nevada	Ridge Village North (Ambro and Wallof 1972)			• collapsed willow poles • fragments of thatching	Historic Shoshone Village
Owens Valley, California	CA-Iny-2 (Riddell 1951)	3-3.5	6.0-8.0	• remnants of willow poles	Historic Paiute Village

Table 1. Archeological Evidence

but with some variations in materials used for covering the framework. For example, Kelly reports the use of juniper or cedar bark as well as wild rye grass as house coverings for the Panguitch, Kaibab and San Juan Southern Paiute (Kelly 1964:55-59). Kelly also notes that in summer, the Kaibab constructed domed shaped grass "shades" which were lighter than the more substantial subconical winter houses (Kelly 1964:55-59).

Shoshone

Steward recorded the extensive use of conical and subconical brush-covered structures in both summer and winter for the Western Shoshone of Nevada (Steward 1941:233, 282-283). Both Lowie and Steward noted these same structural types and patterns of seasonal use for the Northern Shoshone of eastern Idaho and northern Utah, but in addition domed shelters of grass were constructed in summer (Steward 1943:272, 305; Lowie 1909:182-184). The Wind River Shoshone of Wyoming constructed conical winter lodges "thatched with tall dry grass" (Lowie 1924:218-222).

Northern Paiute

For the Northern Paiute area in general, domed, conical and subconical winter dwellings have been recorded most extensively (Steward 1943:272, 305; Stewart 1939; Stewart 1941:377-379). Ethnographic analogues bearing the closest resemblance to the structure described from Dirty Shame are the winter dwellings reported by Riddell for the Honey Lake and Secret Valley region of northeastern California (Riddell 1960b:41-42), by Steward and others for the Owens Valley and Mono Lake Paiute (Harrington 1932a, b; Steward 1933:263-266, 343; Heizer 1966; Davis 1965), by Kelly for the Surprise Valley Paiute (Kelly 1932:104-106), by Wheat and

Lowie for the Paviotso of Pyramid Lake (Wheat 1959, 1967:103-111; Lowie 1924), and finally by Whiting for the Wadadika band of Paiutes centered near Malheur Lake in east-central Oregon (Whiting 1950:93-95).

Other Areas

Other ethnographic documentation includes reports of domed brush shelters, primarily in summer, for the Wappo (Driver 1936), for the Gosiute at Skull Valley and Deep Creek in northern Utah (Steward 1943: 272-305), for the Pomo of the Clear Lake area in California (Kniffen 1939; Heizer 1966) and for the Klamath-Modoc of southern Oregon and northern California (Spier 1930; Barrett 1910:239-292).

In contrast, conical to subconical brush dwellings primarily for winter use have been recorded for the Washo of the Lake Tahoe area of Nevada and California (Lowie 1939:301-352), for the Wintu of northern California (DuBois 1935), and for the Klamath-Modoc and the Pomo.

Each of these ethnographic sources describes in remarkably similar terms the materials and methods involved in the construction of domed or conical winter houses of upright willow members reinforced by a series of slender horizontal supports. To this basic framework are lashed bundles of rye grass or tule mats, depending upon local availability, in a sequence of overlapping rows so as to form a shingled covering said to function amazingly well in shedding rain and moisture. Thatching is attached to the inner framework by means of willow withes and ties, and held down on the exterior by additional slender branches of willow which are lashed through the grass thatch to the frame. The house floor is a circular, shallow depression averaging 3 to 4.5 meters in diameter. Entrances

always face east, and an opening is left at top center for a smokehole.

Photographs of ethnographically-documented pole-and-brush structures can be found in the following sources: Cowan and Clewlow (1968), Curtis (1972), Dellenbaugh (1877), Driggs (1956), Euler (1966), Fowler and Fowler (1971), Fowler (1972), Fowler and Matley (1979), Harrington (1932b), Heizer (1960), Lowie (1924), Merriam (1966), Kniffen (1939), Jennings (1966), Steward (1933, 1939), Watkins (1945), and Wheat (1959, 1967).

Conclusion

In short, archeological remains of pole-and-thatch structures in the Great Basin have now become sufficiently well-known as to permit detailed comparisons in the specifics of construction types and have become concretely datable through archeological research in recent years. Pole-and-thatch structures such as the one from Dirty Shame Rockshelter, C-14 dated to about 1100 years ago, can be compared to others recorded archeologically (Table 2). Evidence from house floors at the Stahl Site (Harrington 1957; Hamilton 1951), the Karlo Site (Riddell 1960a), the Rodriguez Site (O'Connell and Ambro 1968), the Horse Pasture Village Site (Clewlow and Pastron 1972), the Ridge Village North Site (Ambro and Wallof 1972), the Nv-Pe-67 Site (Cowan and Clewlow 1968) and the CA-Iny-2 Site (Riddell 1951) all show general similarities to the house from Dirty Shame Rockshelter. House floors described from these sites are roughly circular in outline with more or less evenly spaced postholes, and average 3 to 4.5 meters in diameter.

Close similarities to the Dirty Shame house in superstructural

CULTURE AREA	GEOGRAPHIC REGION OR BAND	SOURCE	STRUCTURAL TYPE	MATERIAL	SEASON IN USE
SOUTHERN PAIUTE	General Southern Paiute Area	Stewart 1942	domed conical	brush	winter
	Kaibab	Kelly 1964	domed shade	grass juniper bark cedar bark	summer
			conical subconical		winter
	Panguitch	Kelly 1964	conical	wild rye grass juniper bark	winter
	San Juan	Kelly 1964	conical	juniper bark	winter
	Moapa	Lowie 1924 Watkins 1945	conical subconical	brush	winter
Shivwits	Lowie 1924	conical subconical	brush	winter	
GOSIUTE	northern Utah	Stewart 1943	domed	brush	summer or winter
KLAMATH - MODOC	southern Oregon and northern California	Spier 1930 Barrett 1910	domed conical	grass tule	summer and winter
POMO	Clear Lake area, California	Kniffen 1939 Heizer 1966	domed	brush	summer
				grass tule	winter
WASHO	Lake Tahoe area, Nevada & California	Lowie 1939	conical subconical	brush	summer or winter
WAPPO	California	Driver 1936	domed	grass	summer
WINTU	northern California	DuBois 1935	conical subconical	bark evergreen	summer or winter

Table 2, Part 1: Ethnographic Evidence

CULTURE AREA	GEOGRAPHIC REGION OR BAND	SOURCE	STRUCTURAL TYPE	MATERIAL	SEASON IN USE
NORTHERN PAIUTE	General Northern Paiute Area	Steward 1939, 1943 Stewart 1941	domed conical	brush	winter
	Honey Lake, California	Riddell 1960b	domed conical subconical	grass tule	winter
	Secret Valley, California	Riddell 1960b	domed conical	grass tule	winter
	Owens Valley, California	Harrington 1932 a, 1932b Steward 1933	domed	grass	summer
			domed conical subconical	wild rye grass tule	winter
	Mono Lake, California	Steward 1933 Davis 1965 Heizer 1966	domed conical subconical	wild rye grass juniper bark juniper needles pine oats	winter
	Surprise Valley, California	Kelly 1932	conical subconical	wild rye grass tule	winter
	Paviotso Pyramid Lake, Nevada	Lowie 1924 Wheat 1959, 1967	conical subconical	wild rye grass sagebrush cattails tule	Summer or winter
Wadadika, South-central Oregon	Whiting 1950	conical subconical	wild rye grass tule	winter	
SHOSHONE	Wind River Shoshone, Wyoming	Lowie 1924	conical	grass	winter
	Northern Shoshone, Eastern Idaho and northern Utah	Steward 1943 Lowie 1909	domed conical subconical	brush grass	Summer and winter
	Western Shoshone, Nevada	Steward 1941	conical subconical	brush	Summer and winter

Table 2, Part 2: Ethnographic Evidence

materials used for outer covering have been documented from two sites in Nevada: Horse Pasture Village in Grass Valley and Nv-Pe-67 in the Humboldt Sink. At both sites, "silica ghosts," the remains of tule or grass matting, outlined the original living floors. In addition, fragments of original grass thatching were reported from the Ridge Village North Site in Grass Valley, a historic Shoshone village. Remains of framing timbers and collapsed willow poles have been discovered at the Ca-Iny-2 Site in Owens Valley, California (Riddell 1951), as well as the Nv-Pe-67 Site and the Ridge Village North Site in Grass Valley, Nevada.

The uppermost structure at Dirty Shame Rockshelter is generally similar to the structural remains reported from other archaeological sites in the Great Basin, and remarkably similar to those recorded ethnographically for the area. These striking similarities through time, as well as the broad distribution of this structural type throughout the Great Basin, strongly support the concept of a Desert Culture as proposed by Jennings (1957:280-287; 1964), viewed as a "widespread, uniform and stable culture which persisted for millenia with no essential change" (Aikens 1970:201). The evidence for circular pole-and-thatch structures in the Great Basin throughout the last 5000 years provides a picture of great antiquity and striking stability which is in full accordance with the concept of a widespread Desert Culture. The persistence of such structures over the millenia is an affirmation of their outstanding utility in the Great Basin environment.

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