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Aboriginal Residential Structures in Southern Idaho

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RESIDENTIAL architecture has traditionally been of special interest to archaeologists (Trigger 1967), and in recent studies of hunter and gatherer societies it has assumed new importance as an indicator of social complexity (Price and Brown 1985) and residential mobility (Ames 1991). A great deal of productive research has been conducted in southern Idaho in the last 15 years, resulting in the identification of 15 sites with house features and information on 29 separate structures. This paper describes the prehistoric houses built in southern Idaho, compares these with other residential structures in the Intermountain West, and identifies needed research to place these features in a broader interpretative framework. The geographic area of the study includes the Snake River Plain in southern Idaho, and the Boise, Payette, and Weiser river drainages in western Idaho (Fig. 1). For recent overviews of southern Idaho prehistory see Butler (1986), Holmer (1990), Meatte (1990), Titmus and Woods (1991), and Pavesic and Studebaker (1993).

Domestic structures are a common feature of the archaeological record in many parts of North America. All native peoples built some sort of structure or used natural shelters, if they spent any length of time at one locality. The historic, ethnographic, and archaeological record of the Great Basin and the interior Northwest documents many types of residential structures, from small windbreaks and summer ramadas to large semi-permanent winter houses. Unfortunately, many of these structures leave very little trace in the archaeological record, and these traces can easily be altered by subsequent disturbances. In this study three criteria were used to recognize residential structures in the archaeological record of southern Idaho (see also Pavesic and Meatte [1980:75-76]). First, the feature should be at least two to three meters in size and have definable limits, both horizontally and vertically. Second, there should be evidence of domestic use. Such evidence includes: interior hearths; domestic furniture in the form of large rocks, anvils, or mortars placed in the floor; internal storage pits and other features indicating differential use of space; and usually domestic refuse such as faunal and floral materials, debitage, broken artifacts, etc. Third, there should be evidence of a superstructure, either in the form of post holes or through the recovery of roofing and wall materials. These criteria are guides and can not be used in a mechanical way, although it is difficult to call a feature a house if its limits cannot be determined.

Based on these criteria, three house types have been documented in southern Idaho. The first is a large semi-subterranean pithouse built by digging a 5 to 7 m. circular depression approximately 50 cm. deep. Roof support posts were placed inside the depression and long poles were placed over these in a conical pattern. This framework was covered with sticks, grass, and dirt. A second house type is a smaller pole-and-thatch structure made by placing poles in a circular or oval pattern in the ground and pulling the top ends together to form either a conical or inverted bowl-shaped structure. The poles were covered with thatch or matting.

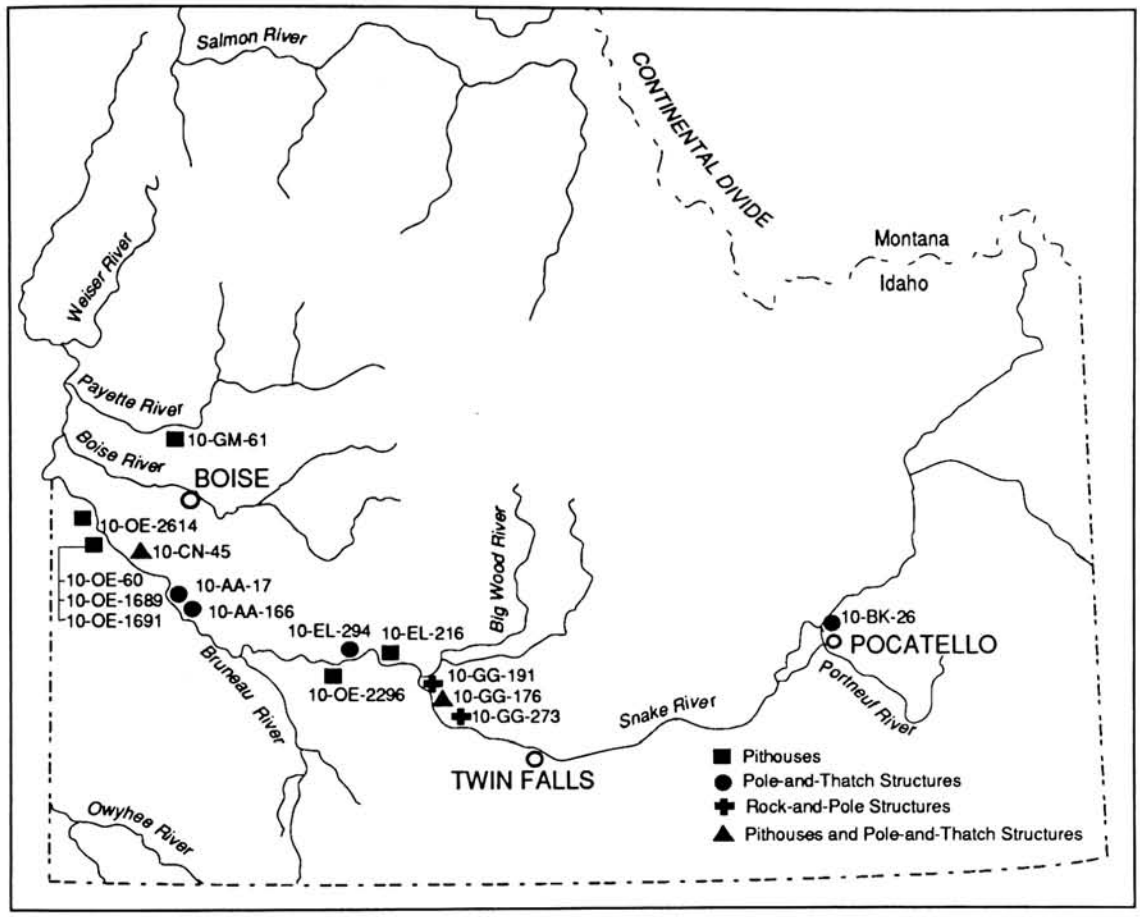

Fig. 1. Archaeological sites with residential architecture.

Pithouses are distinguished archaeologically from pole-and-thatch structures by the size and depth of the pit depression and the placement of post holes. However, the differences between these two types of structures are not always evident. Pole-and-thatch structures can be large and have internal roof supports while pithouses can be small structures without internal roof supports, but generally, pithouses are larger and have deep and well-defined pits. The third type is a variant of these and is called the rock-and-pole type because large rocks were used to form a foundation and lower walls. Each of these types will be discussed in turn.

SEMI-SUBTERRANEAN PITHOUSES

Semi-subterranean pithouses have been found on the major terraces of the Snake River west of Twin Falls and on the lower Payette River in southwestern Idaho (Fig. 1). The geographic distribution of pithouses is limited to the lower elevations of major river valleys. There is a continuous distribution of pithouse features on the Snake River from southwest Idaho, through Hells Canyon, to southeastern Washington (Caldwell and Mallory 1967; Warren et al. 1968; Pavesic 1986). Pithouses have been located on the lower Payette River below

Montour (Artz 1983), but have not been found upstream in the narrow canyons of the Payette, even after a decade of archaeological survey and excavation (see Ames 1982; Plew et al. 1984; Lewarch and Benson 1989; Speulda and Bowyer 1989). Plew's work in the Owyhee Uplands, south of the Snake River Plain, did not locate any house structures (Plew 1980a, 1986), but pole-and-thatch structures were located at Dirty Shame Rockshelter in adjacent eastern Oregon (Aikens et al. 1977; Willig 1981). In summary, the geographic distribution of semi-subterranean pithouses in southern Idaho is restricted to the Snake River Canyon west of Twin Falls and the lower Payette River Valley. Although no pithouses are recorded on the lower Boise or lower Weiser rivers in Idaho or on the lower Owyhee or Malheur rivers in Oregon, little field work has been conducted in these areas. It seems likely that future investigations will locate pithouses in these areas given their environmental similarities to the Snake River Canyon and the lower Payette River Valley, and also because of the similarities in regional prehistoric material culture present.

The southern Idaho pithouses range in age from 4,200 to 1,000 radiocarbon years B.P. (RCYBP) (the standard error, laboratory identification number, material dated, and reference for all radiocarbon dates of southern Idaho houses are listed in Table 1). The oldest houses located thus far are on the Snake River at Givens Hot Springs, 10-OE-1689 (Green 1982), and at site 10-OE-2296 near Hammett (Young 1988). At both sites radiocarbon dates indicate pithouse construction began around 4,200 RCYBP. Pithouses dating later than this have been found at a number of localities. At the Mud Springs site (10-OE-2614), located just west of Givens Hot Springs, a pithouse was excavated dating ca. 3,500 RCYBP (Davis and Green 1988). At 10-GM-61, on the Payette River near Montour, a house was dated to ca. 3,000 B.P. using obsidian hydration and cross-dated projectile points (Artz 1983). Pithouses constructed between 2,000 and 2,500 RCYBP have been found at Givens Hot Springs (Green 1982). At 10-OE-60, another locality at Givens Hot Springs, two houses were investigated dating between 1,100 to 1,300 RCYBP (Green 1982). Butler and Murphey (1982) excavated a pithouse on the Snake River in Swiss Valley at 10-EL-216 that is estimated to date between 700 and 1,350 B.P. based on diagnostic projectile points and one small potsherd. Also, four probable pithouse structures dating to about 1,000 B.P. were found near Hagerman during testing at 10-GG-176 (Pavesic and Meatte 1980). Based on information currently available, it appears that pithouses were not built in southern Idaho after about 1,000 B.P.

Pithouse structures can be round or oval in plan view (Table 2). They range in size from 4 to 8 m., averaging 6 m. in diameter. Floors vary from 0.30 to 0.85 m. below the rim and average 0.55 m. Simple dish- or saucer-shaped pits have been documented, as well as houses having steep-sided walls angled at 45 degrees to the floor. The average floor area is approximately 26 m^2. Post holes from internal roof supports have been discovered in most houses where floors have been excavated. The number of posts varies depending on the overall size of the structure, with the larger structures having at least four supports, and the smaller structures having only one or two. Ryegrass (*Elymus* sp.) and cottonwood trees (*Populus trichocarpa*) were used for roof construction of at least one house at Givens Hot Springs (House 1 at 10-OE-60). Many of the structures have multiple floors indicating reuse. So far, the variation in construction details does not correlate with any particular time period.

Most excavations in southern Idaho have been testing projects, conducted on a scale too small to locate internal and external features associated with the structures. The available information indicates hearths are the most com-

Table 1

RADIOCARBON DATES[a] FOR SOUTHERN IDAHO STRUCTURES

Site No.	Feature No.	^{14}C Assay	Lab No.	Material	Reference
		Pole-and-Thatch Structures			
10-AA-17	Area A	650 ± 60	Beta-3901	Burned roof	Ames 1983
"	Area A	890 ± 70	TX-4508	Burned roof	"
"	Area A	1,470 ± 60	TX-4509	Burned roof	"
"	Area A	2,310 ± 70	Beta-3902	Burned roof	"
10-EL-294	--	970 ± 330	TX-5723	Charcoal	Plew and Gould n.d.
"	--	970 ± 60	TX-5722	Charcoal	"
"	--	580 ± 180	TX-5724	Charcoal	"
10-BK-26	D-1	1,270 ± 120	Beta-13915	Charcoal	Holmer and Ringe 1986
"	D-2	439 ± 90	Beta-13916	Charcoal	"
		Pithouses			
10-OE-60	House 1	1,110 ± 60	TX-4790	Charcoal	this paper
"	House 1	1,190 ± 70	TX-4789	Charcoal	this paper
"	Feature 3	1,270 ± 80	TX-5728	Charcoal	this paper
10-OE-2614	House 1	3,000 ± 520	TX-5725	Charcoal	Davis and Green 1988
"	House 1	3,680 ± 100	TX-5726	Charcoal	"
10-OE-2296	House	4,170 ± 80	WSU-3412	Burnt soil	Young 1988
10-OE-1689	House 4	2,570 ± 100	TX-4309	Charcoal	Green 1982
"	House 4	2,030 ± 60	TX-4310	Charcoal	"
"	House 4	2,780 ± 70	TX-4311	Charcoal	"
"	House 4	2,160 ± 70	TX-4312	Charcoal	"
"	House 2	4,280 ± 70	TX-3652	Charcoal	"
"	House 2	5,120 ± 100	TX-3653	Charcoal	"
"	House 2	4,180 ± 110	TX-4307	Charcoal	"
"	House 2	4,020 ± 100	TX-4308	Charcoal	"
"	House 1	7,300 ± 110	TX-3654	Shell	"
"	House 1	4,060 ± 100	TX-3655	Charcoal	"
"	House 1	4,620 ± 270	TX-3656	Charcoal	"
		Rock-and-Pole Structures			
10-GG-191	C1	620 ± 80	I-12,623	Shell	Murphey and Crutchfield 1985
"	E5	700 ± 80	I-12,203	Bone	"
"	D1	2,430 ± 80	I-12,431	Bone	"
"	A1	4,660 ± 100	I-12,623	Shell	"

[a] All radiocarbon ages presented are uncorrected and based on a half-life of 5,568 B.P.

mon features found in the houses. At Givens Hot Springs, shell middens, trash features, baking pits, and rock features were also found inside the houses. Common external features associated with the structures at Givens Hot Springs are lithic reduction areas, various rock features, trash features, and mussel shell middens.

Both Northern Side-notched and Humboldt

Table 2

ATTRIBUTES OF SOUTHERN IDAHO PITHOUSES

Site No.	Feat. No.	Plan View	Cross-section[a]	Long Dimension (m.)	Short Dimension (m.)	Floor Depth (cm.)	Floor Area ($m.^2$)
10-OE-1689	House 1[b]	round	saucer	4.0	3.5	45	11.04
"	House 2[b]	oval	steep	6.9	6.0	65	32.6
"	House 3	round	saucer	6.0[c]	5.5	50	25.9
"	House 4	oval	steep	7.5	6.0	70	35.8
"	House 5	--	--	6.0[c]	6.0	50	--
10-OE-60	House 1[b]	round	steep	6.0	5.9	50	28.3
"	Feat. 3	round	steep	5.5	5.3	60	22.9
10-OE-2614	House 1	round	saucer	5.7	5.2	40	23.8
10-OE-1691	--	round	steep	6.0[c]	6.0	50	--
10-OE-2296	House	round	saucer	5.5	5.5	40	23.7
10-EL-216	--[b]	round	saucer	6.5	6.5	85	33.2
10-GM-61	--	--	steep	6.0	--	50	--
10-CN-45	--	round	--	5.0[c]	--	50	--
10-GG-176	Feat. 11	--	saucer	>3.5[c]	--	30	--
"	Feat. 12	--	--	>3.5[c]	--	--	--
"	Feat. 13	--	--	>3.5[c]	--	30	--
"	Feat. 14	--	saucer	>3.5[c]	--	40	--
Average				**5.96**	**5.5**	**56**	**26.4**

[a] Steep refers to cross-sections with steeply defined walls.
[b] Structure completely excavated (all others partially excavated).
[c] All measurements are estimates and are not used to calculate averages.

Concave-based projectile points have been found in association with the floors of the earliest pithouses. In the houses dating between 3,500 and 2,000 B.P., Humboldt, Gatecliff, and Elko series points are more common. Rosegate and Elko points are found in the later pithouses. A wide variety of scrapers, knives, and other fabricating tools are common. Pestles and hopper mortars are the most common milling tools. Pottery has been found in only one pithouse located at site 10-EL-216 near Hagerman. There are no firm dates for this structure, but the recovery of an Eastgate point and one grey ware sherd from the structure suggests a date between 700 and 1,350 B.P. (Butler and Murphey 1982).

POLE-AND-THATCH STRUCTURES

Eight pole-and-thatch structures have been located on the Snake River plain in southwestern and southeastern Idaho (Fig. 1). These features were found at sites 10-CN-45 (Green 1983), 10-AA-17 (Ames 1983), 10-AA-166 (Plew 1980b), 10-EL-294 (Plew and Gould n.d.), 10- GG- 176 (Pavesic and Meatte 1980) and 10-BK-26 (Holmer and Ringe 1986; Holmer

1990). Similar structures were found at Dirty Shame Rockshelter located just west of the Oregon-Idaho border in the Owyhee Uplands (Aikens et al. 1977; Willig 1981). These structures are similar to the historic houses of the Western Shoshone and Northern Paiute described by the pioneer European settlers and early twentieth-century ethnographers.

The radiocarbon dates (Table 1) and diagnostic projectile points associated with pole-and-thatch structures indicate that in eastern Oregon and southern Idaho these structures were being built by 2,600 RCYBP and that their construction continued up to historic times. The earliest pole-and-thatch structures are those built at Dirty Shame Rockshelter (Aikens et al. 1977) around 2,600 B.P., but earlier ones are found farther south in the Great Basin (O'Connell 1975). In eastern Idaho, at the Wahmuza Site (10-BK-26) two pole-and-thatch structures were found that date to 1,270 $\pm$ 120 and 439 $\pm$ 90 RCYBP (Holmer and Ringe 1986). Thus, for a period of time both pithouses and pole-and-thatch structures were constructed in the region. However, the geographic distribution of the pithouses and pole-and-thatch structures is different. Pithouses are found along the major rivers in southwest Idaho, while pole-and-thatch structures are found south in the Owyhee Uplands of eastern Oregon, and east on the Snake River in the Fort Hall bottoms.

Pole-and-thatch structures replaced pithouses in southwest Idaho around 1,000 B.P. and became the dominant type of structure all across the Snake River Plain in southern Idaho. In Hagerman Valley, test excavations at 10-GG-176 located a pole-and-thatch structure that, based on the associated artifacts, dates between 700 to 900 B.P. (Pavesic and Meatte 1980:79). At the Three Island Crossing Site (10-El-294), just west of Hagerman, a pole-and-thatch structure was excavated dating sometime after 1,000 B.P. (Plew and Gould n.d.). Further west, at Swan Falls Dam, four radiocarbon dates, ranging from 600 to 2,400 B.P. (Table 1), were obtained from the charred roof remains of a pole-and-thatch structure at 10-AA-17. All samples were taken from what was thought to be the same thatched roof (Ames 1983). Ames (1983:29) argued that the younger radiocarbon dates are probably correct because pottery and Elko, Rosegate, and Desert Side-notched projectile points were found on the floor of the structure. The structures at 10-AA-166 (Plew 1980b) and 10-CN-45 (Green 1983) along the Snake River in western Idaho contained Cottonwood Triangular projectile points and pottery, suggesting they were built after 800 B.P. At the Wahmuza site in eastern Idaho, a pole-and-thatch structure dating between 350 and 530 RCYBP was excavated (Holmer and Ringe 1986).

Pole-and-thatch houses are round to oval in plan view. The round structures are 3 to 4 m. in diameter, while the oval structures are larger (Table 3). Cross-sections show simple saucer shapes, with floors extending 0.20 to 0.25 m. below the rim. The average floor area is 12.4 m^2. Post holes have been found around the edge of the floors. The poles were covered with either woven mats or thatching (Willig 1981). At 10-AA-17, the burned remains of a ryegrass thatch were found (Ames 1983). Dwelling 1 at the Wahmuza Site (10-BK-26), had a different roof structure than those described above. This structure measured 4.4 by 4.2 m. and appeared to have internal posts supporting a conical roof (Holmer and Ringe 1986:65). A pole-and-thatch structure at the Hagerman National Fish Hatchery (10-GG-176) is similar in size to the one at Wahmuza.

Hearths are the primary features found inside the pole-and-thatch structures. Associated external features include hearths, mussel shell middens, and trash deposits. Storage pits have been found at both 10-GG-176 and the Three Island Crossing site. Projectile points commonly associated with the structures are

TABLE 3

ATTRIBUTES OF SOUTHERN IDAHO POLE-AND-THATCH STRUCTURES

Site No.	Feat. No.	Plan View	Cross-section	Long Dimension (m.)	Short Dimension (m.)	Floor Depth (cm.)	Floor Area ($m.^2$)
10-AA-166	--	oval	saucer	4.0	3.0	0.25	12.0
10-CN-45	--	oval	saucer	5.0	3.5	0.25	17.5
10-BK-26	House 1[a]	square	saucer	3.0	3.0	0.0	9.0
"	House 2[a]	oval	saucer	5.6	3.9	0.0	21.8
10-EL-294	--[a]	round	saucer	3.0	3.0	0.25	7.1
10-AA-17	--	round	saucer	3.0	3.0	0.20	7.1
10-GG-176	Feat. 6	round	saucer	5.0[b]	5.0	0.30	--
Average				**3.9**	**3.2**	**0.16**	**12.4**

[a] Structure completely excavated (all others partially excavated).
[b] All measurements are estimates and are not used to calculate averages.

Rosegate, Cottonwood Triangular, Desert Side-notched, and Bliss types. Bliss points are small bipointed projectiles found in late prehistoric contexts along the Snake River in western Idaho (Bonnichsen 1964; Plew and Woods 1985). A few Elko series points also have been recovered from these sites. Pottery is commonly found in these structures. Milling tools are not generally found on the house floors, but are found outside the structures.

ROCK-AND-POLE STRUCTURES

Only five rock-and-pole structures have been found in southern Idaho. Four have been found at the Crutchfield site (10-GG-191) near Hagerman (Murphey and Crutchfield 1985), and the other one was found at site 10-GG-273 near Kanaka Rapids (Butler and Murphey 1983). These structures use large rocks and poles for wall construction, but they appear to represent construction variations of the basic house types already discussed. A number of Idaho archaeologists have questioned whether these features should be considered houses at all. They are included here because they are similar to other residential structures in southern Idaho and the northern Great Basin, but are discussed separately because of the controversy surrounding them.

The Crutchfield site is located in the Snake River Canyon on Billingsley Creek, about two kilometers east of the Snake River. The dates of the structures built at the site span the entire time range for house construction in southern Idaho (Table 1). The earliest structure (Feature A1) is oval in plan view with dimensions of 4 by 5.8 m. and associated mussel shells were dated to 4,560 to 4,760 RCYBP (Murphey and Crutchfield 1985:68). Another structure (Feature D1) is a 4 m.-long curving wall that was interpreted as a windbreak. It has a radiocarbon date ranging from 2,350 to 2,510 RCYBP from charred bone (Murphey and Crutchfield 1985:71). Two later structures are similar in size, one being 3 m. in diameter (Feature C1), and the other slightly oval and 3 by 4 m. in size (Feature E5). Except for rock-lined walls, these later structures are very similar to the pole-and-thatch structures found elsewhere in southern Idaho. The structures date between 540 and 780 RCYBP (Murphey and Crutchfield 1985:72, 74). All of the

structures at Crutchfield were built in shallow depressions between 15 and 30 cm. deep. Internal post holes were found only in the structure interpreted as a windbreak.

Kanaka Rapids is a major historic and prehistoric fishery on the Snake River (Butler and Murphey 1983). The house reported at 10-GG-273 is a pole structure incorporating large rocks for portions of the walls. It is dated to about 1,000 B.P. based on the cross-dating of Eastgate projectile points and pottery (Butler and Murphey 1983:21). The structure is roughly rectangular in outline and is 4 m. long by 2.2 m. wide. A hearth was found inside the house, and rock features were found outside and adjacent to the house. Butler and Murphey (1983:17) interpreted these features as storage facilities.

While these rock-and-pole features may be anomalies, there are parallels between them and the pithouse and pole-and-thatch structures found elsewhere in Idaho. At the Crutchfield Site, the earliest structures are the largest and they decrease in size after 1,000 B.P. While the use of mussel shell and bone for radiocarbon analyses may introduce some unknown error in dating these features, projectile point associations with the earlier and larger structures (Northern Side-notched, Humboldt, and Elko) and with the later and smaller structures (Rose Spring, Eastgate, Cottonwood Triangular, Desert Side-notched, and Bliss) are similar to those found at other sites in southern Idaho.

These structures are located on alluvial terraces where Bonneville boulders are common, and the builders used these boulders in their construction. The use of readily available building materials is common in all kinds of vernacular architecture. Incorporating rock into the walls of structures is not unusual and this technique has been found elsewhere in the Northern Great Basin (Connally and Pettigrew 1985; Oetting 1989), and in nearby Hells Canyon (Pavesic 1986). If other researchers locate similar features in southern Idaho, these structures should be considered accepted variants on the basic pattern of house construction.

COMPARISONS

Semi-subterranean pithouses similar to those built in southern Idaho have been found in many parts of western North America. They are most common in the Columbia Plateau region, but they have also been found in the northern Great Basin (O'Connell 1975; Cannon et al. 1990). Such structures also are common in late contexts in many parts of California (Moratto 1984) and southwestern Oregon (Cressman 1956; Sampson 1985; Lebow 1988). They have also been found more recently in Wyoming and Colorado (Black 1991; Smith and Reust 1992).

Ames (1991) has collected and analyzed basic information on Columbia Plateau pithouses. The southern Idaho pit structures are smaller and more uniform in size than those on lower Snake or Columbia rivers. The Plateau pithouses average between 7 and 8 m. in diameter, with floors about 70 cm. deep. There is also greater variability in the size of pithouses on the Plateau where structures over 15 m. across have been recorded. Pithouses in Hells Canyon, just to the north of the Snake River Plain, also are generally larger than those recorded in southern Idaho (Caldwell and Mallory 1967; Warren et al. 1968; Pavesic 1986). There is evidence for earlier construction of residential architecture on the Plateau, with the earliest structures dating just before 5,000 B.P. (Sammons-Lohse 1985). Also, pithouse construction continued into late prehistoric times on the Plateau and in Hells Canyon while it is discontinued in southern Idaho after about 1,000 B.P. Pithouses are recorded in central Idaho along the Salmon River and its various tributaries (Knudson et al. 1982; Holmer and Ross 1985; Hackenberger 1988; Hackenberger et al. 1989). Pithouses on the main Salmon River are comparable in size

to those in Hells Canyon and on the Columbia Plateau, while the houses on the Middle Fork of the Salmon River tend to be smaller. Small structures located in the area may be comparable to pole-and-thatch structures found in southern Idaho (Hackenberger 1988:105). Based on obsidian hydration data and radiocarbon dates, it has been suggested that pithouse construction did not begin in the central Idaho mountains until around 2,500 B.P. (Hackenberger 1988: 281).

Housepits have been found in many localities in south-central Wyoming and northern Colorado (Black 1991; Smith and Reust 1992). These structures are solidly dated to the early Plains Archaic, between 5,000 and 6,000 B.P., although a few later ones have been found. They are smaller in overall size than the pithouses found in southern Idaho or on the Columbia Plateau. They average between 3 and 4 m. in diameter, but some are as large as 6 m. The floors are 50 cm. below the rim of the houses. Hearths and internal storage pits are common in all structures.

Residential architecture has been discovered at a number of localities in the Northern Great Basin. The early houses at Surprise Valley, California are similar to those found in southern Idaho and the Columbia Plateau (O'Connell and Ericson 1974; O'Connell 1975). They are comparable in age to the earliest of the Plateau structures and earlier than those found in southern Idaho. In Surprise Valley, the semi-subterranean pithouses were apparently replaced by pole-and-thatch structures sometime before 3,000 B.P. On the shores of Lake Abert, in south-central Oregon, numerous circular depressions and rock walls have been recorded that are interpreted as remains of residential structures (Connally and Pettigrew 1985:85-100; Oetting 1989, 1990). Although these structures average between 4 and 6 m. in diameter, some as large as 11 m. were recorded. The houses were built between 3,500 and 500 B.P. The earliest structures have circular rock walls and were constructed on the higher lake terraces. The later structures, built on the lower lake terraces, appear to be typical semi-subterranean pithouses, similar to those found in Surprise Valley and in southwest Idaho. Groups of pithouses, similar in construction to those in the Surprise Valley, have been found in the Warner Valley in south-central Oregon (Cannon et al. 1990).

Elston (1982) and Zeier (1986) summarized the evidence for residential structures in the western Great Basin. A few residential structures have been located in Early Archaic contexts, but the majority are associated with Middle and Late Archaic settlements. In general, these structures are smaller than the pithouses in Surprise Valley and the Snake River Plain, and average 2.5 to 3.5 m. in diameter. The floors are about 40 cm. below the rim of the structures. Middle Archaic structures contain central hearths, storage pits, and burials. After 2,000 B.P., during the Late Archaic, houses became smaller and lacked internal features. Livingston (1986:108-109), however, reported an increase in the size of structures at the Humboldt Lakebed site during later time periods.

The pole-and-thatch structures from southern Idaho are comparable to other pole-and-thatch structures in the Great Basin. They tend to be smaller than pithouses and to occur in later contexts. Southern Idaho pole-and-thatch structures are also similar to the Great Salt Lake Fremont structures of the Bear River Phase in northwestern Utah. The Bear River Phase structures are small (3 to 4 m. in diameter), shallow structures made with poles placed in the ground and pulled together to form a cone or a dome (Fry and Dalley 1979; Lohse 1980). They date between 1,100 and 1,600 B.P. A significant difference is that the early Fremont structures apparently were covered with mud. No evidence of a mud covering (daub) has been

found in Idaho. The later Great Salt Lake Fremont structures of the Levee Phase, dating from 1,000 to 650 B.P., are quite different. They are large structures, 6 to 9 m. in diameter, with long attached entries or ventilator shafts (Fry and Dalley 1979:5). However, small pole-and-thatch structures also have been found in later Fremont contexts (Simms 1986) and in post-Fremont settings (Simms and Heath 1990).

DISCUSSION

A basic pattern of residential house construction is evident in southern Idaho. Starting just before 4,000 B.P., the people along the Snake River west of Twin Falls, and in the lower elevations of its major tributaries in southwest Idaho, began building semi-subterranean pithouses and continued to do so until around 1,000 B.P. South and east of this area, pole-and-thatch houses were built as early as 3,000 B.P.; by 1,000 B.P. these types of structures replaced pithouse construction in southwest Idaho and were the preferred type of residential structures in all of southern Idaho.

While current evidence shows pithouses and pole-and-thatch houses were used in different time periods and geographic areas in Idaho, archaeologists should expect to find variation in this pattern. Hunting and gathering peoples frequently used distinct types of structures during different seasons and at different locations. For example, winter pithouses and summer wickiups (pole-and-thatch) were the typical housing pattern among the Klamath (Cressman 1956). Also, different adaptive strategies by culturally similar and contemporaneous peoples may have led to the construction of different types of structures (Simms 1986). Based on faunal evidence from Givens Hot Springs, pithouses in southwest Idaho appear to have been used only during the winter months. It is likely that different types of structures were used at the large summer base camps located in the surrounding mountains.

The initial appearance of pithouse architecture in southwest Idaho is concomitant with other clear indications of increasing cultural complexity in this area. Cemeteries were established by 6,000 B.P. and individual graves in these cemeteries contain large quantities grave goods, including obsidian, basalt, and chalcedony cache blades, turkey-tail bifaces, and preforms (Pavesic 1985, 1992; Green et al. 1986; Pavesic et al. 1993). In addition, pipes, *Olivella* shell beads, hematite, and powdered red ocher were placed with the dead. This complex, called the Western Idaho Archaic Burial Complex, lasted until at least 3,500 B.P. and perhaps as late as 2,500 B.P. (Pavesic 1985). Pavesic (1985:81-82) believed it was part of a regional trade network supplying obsidian to the north and importing exotic goods from the Pacific Coast and Columbia Plateau. Other indicators of social complexity, such as permanent communal hunting structures and the differentiation of site function, have been recorded in southwest Idaho (see Agenbroad 1976; Plew 1979, 1987, 1988). What is not known is how these various aspects of the archaeological record, that is, pithouse construction, cemeteries, long-distance trade, and communal hunting structures, functioned in a regional cultural system during any one time period.

The construction of houses as substantial as pithouses by hunting and gathering peoples generally indicates a more "settled" lifestyle (Binford 1990). It has been argued that sedentism results from an "intensification" of resource use by hunters and gatherers (Price and Brown 1985:11), and resource intensification may have caused more settled lifestyles in southern Idaho, but currently there is no empirical verification. Further, it has been argued that on parts of the Columbia Plateau, true sedentary villages, those settlements that were occupied all year (Rafferty 1985:115), preceded rather than followed more intensive

use of food resources (Lohse and Sammons-Lohse 1986).

Ames (1991) pointed out that a shift to sedentism or semi-sedentism is not always a permanent transition in hunting and gathering societies (see also Chatters 1989). He argued that sedentism is just one class of residential pattern open to hunting and gathering peoples and not necessarily a stable one. If large pithouses represent a more sedentary settlement pattern and pole-and-thatch structures a less sedentary one, then this notion is certainly supported by southern Idaho data. These ideas complement those of Hitchcock (1982:256) and Binford (1983:204), who argued that hunters and gatherers prefer more mobile lifestyles to sedentary ones. To answer questions about mobility patterns and resource intensification in southern Idaho, more detailed data regarding stability and change within the overall settlement and economic systems are required. This knowledge is currently not available.

The pattern of early pithouses and later pole-and-thatch structures observed in southwestern Idaho is reflective of a much broader pattern observed in many parts of the Great Basin. Aikens and Witherspoon (1986) discussed this pattern in relation to the Numic expansion. They pointed out that the Lovelock, Chewaucanian, Fremont, and Anasazi peoples had a more sedentary lifestyle, as indicated by semi-permanent and permanent housing, than the historic Numic peoples found in the same territories in the Great Basin. Around 700 to 800 years ago these cultures were replaced by a cultural system that appears to have been much more mobile and flexible, with smaller and less permanent architecture. Aikens and Witherspoon (1986) attributed this change to the widespread droughts of the twelfth and thirteenth centuries causing the abandonment of many parts of the Great Basin by more sedentary peoples and therefore allowing Numic peoples to move into these regions. The information on residential architecture from southern Idaho complements the observations of Aikens and Witherspoon (1986), but without information on the systemic contexts of these structures, it cannot be considered conclusive.

Before we can speak confidently about matters of social complexity and residential mobility in southern Idaho, or venture too far into the great questions of western North American prehistory, such as the Numic expansion, a great deal of fundamental work must be done on the Snake River Plain. The current evidence indicates only that semi-subterranean pithouses appeared in the major river valleys in southwestern Idaho sometime before 4,000 B.P., and these were replaced around 1,000 B.P. by smaller pole-and-thatch structures. Until additional research is conducted and the resulting data integrated into a broader perspective, archaeologists can only guess at the social, economic, and linguistic implications of the appearance and disappearance of semi-subterranean pithouses in this region.

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