Ceramics from the Firehole Basin Site and Firehole Phase in the Wyoming Basin

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The Firehole Basin site (48SW1217), excavated in 1976 and 1977, is the type site for the Firehole phase proposed by Metcalf for the Wyoming Basin of central and western Wyoming. Given the dearth of excavated sites for the period from 700-300 B.P., and dated ceramics in Wyoming Basin in general, the Firehole Basin assemblage is an important indicator of material culture in this time period, but the artifacts have never been analyzed or reported in detail. Most researchers have characterized the Firehole Basin ceramics as Intermountain ware, but the ceramics have few affinities with this type, and this label should not be applied. Likewise, the Firehole Basin ceramics do not fit the definition of Boars Tusk Gray ware, a proposed southwest Wyoming type. The closest stylistic and technological affinities may be with Uncompahgre Brown ware or the recently proposed Waltman Brown ware.

Keywords: ceramics, Firehole phase, Uncompahgre ware, Wyoming

In 1983, Metcalf proposed the Firehole phase in his initial chronology for the Wyoming Basin of central and western Wyoming (Metcalf 1987; Zier et al. 1983). This phase was named for the Firehole Basin site (48SW1217), one of the few excavated sites at the time that dated between 1000 and 300 B.P. in the Wyoming Basin. The site was thought perhaps to be representative of the terminal prehistoric period. Despite the obvious relationship of the site to the proposed phase, the artifacts have never been analyzed or described in detail, allowing there to be different notions of the nature of the assemblage, particularly the ceramic assemblage. Given the continuing dearth of excavated sites in this time range and dated ceramics in Wyoming in general, the Firehole Basin assemblage remains an important indicator of material culture in this time period. In this paper, we provide a report of the original site investigation and its ceramic assemblage.

THE FIREHOLE BASIN SITE AND PHASE

The Firehole Basin site is located within the Wyoming Basin, a physiographic province consisting of a series of intermountain basins in the Middle Rocky Mountains (see Figure 1). The Wyoming Basin is at the periphery of two major culture areas (Great Plains and Great Basin), and corresponding archaeological research traditions. Prehistoric and historic cultural developments in this area traditionally have been interpreted as resulting from “influences” or actual migration into the region by groups from the Plains and Great Basin “core” areas (e.g., Frison 1973; Sharrock 1966; Shimkin 1986). Metcalf’s (1987) Wyoming Basin chronology was proposed, in part, to stimulate thinking of the region in terms of local devel-
opments, instead of diffusion or movements from the Plains or Basin.

The Firehole phase, originally defined to extend from 1000 to 300 B.P. (Metcalf 1987), is the terminal prehistoric period of the Wyoming Basin chronology. Its onset was defined to correspond with a pronounced decline in site density, accompanied perhaps by a decline in frequencies of Rose Spring and small corner-notched arrow point styles and an increase in frequencies of trinotched points and Intermountain ware ceramics compared to the preceding Uinta phase. The timing of these changes and onset of the Firehole phase was later adjusted to 700 B.P. by Metcalf (McKibbin et al. 1989).

The Firehole Basin site is about 10 miles southwest of Rock Springs, Wyoming near Flaming Gorge Reservoir in Sweetwater County. It lies at about 6,800 foot elevation, on a low ridge between the Green River and Little Bitter Creek. The ridge is mantled with aeolian sand, and covered with sparse sagebrush and juniper. Surface artifacts, including chipped and ground stone, bone, and pottery, cover an area more than 100 by 50 m in size.

The site was discovered by the late George
Babel and brought to professional attention by Mr. Babel and the late Joe Bozovich, both members of the Wyoming Archaeological Society. It was originally recorded in 1976 as Firehole Basin #11 by a crew from Western Wyoming College while they were completing a nearby coal sampling survey (Metcalf 1977). Test excavations were conducted in the fall of 1976 and fall of 1977 by the Sweetwater Chapter of the Wyoming Archaeological Society and the Western Wyoming College Archaeological Field School. Mike Metcalf directed the fieldwork, and an initial discussion of the site was provided by Metcalf and Treat (1979). After completion of the 1977 field season, no further work was undertaken until 1999. The 1999 investigation consisted only of a surface inspection and collection of one projectile point and two ceramic sherds from the surface.

In total, about 34 test units were excavated to a maximum depth of 5 to 50 cm. All excavated sediments were quarter inch screened. The excavated portion of the site consisted primarily of a bone midden exposed at the surface and shallowly buried in aeolian sands. Artifacts recovered from the excavations included a large number of bone fragments, plus ceramics, projectile points, hafted knives, chipped stone debitage, ground stone, bone awls, and bone and shell beads. Although there were several charcoal stains and possible posts, no definitive indicators of structures or firepits were found.

The 1976 and 1977 excavations focused on two main loci, one centered on a concentration of surface bone (Area 1), and one centered on a concentration of surface ceramics (Area 2). Excavation of sixteen 2-x-2 m units in Area 1 (Figure 2) yielded over 2,900 bone fragments, plus several charcoal stains, a possible postmold, chipped stone, ground stone, and ceramics. Five additional units excavated in Area 2, downslope and southeast of Area 1, yielded over 900 additional fragments of bone, plus charcoal stains, lithics and ceramics. A final nine units were excavated elsewhere. Unfortunately, details of excavations other than Area 1 are lacking, as maps and most notes have apparently been lost.

Two radiocarbon dates have been obtained. One was based on a charcoal sample from the bone midden in Area 1, while the other was based on a charcoal sample from the main ceramic concentration in Area 2. The bone midden sample re-

Figure 2. Plan of excavations in Area 1.
turned a date of 625 ± 50 B.P. (UGa-2049), and
the ceramic concentration sample returned an es-

timate of 645 ± 135 B.P. (UGa-2048). Using
CALIB 3.0.2 (Stuiver and Reimer 1993) and the
validation data provided by Stuiver and Becker
(1993), these dates correspond with one-sigma
calibrated age ranges of cal A.D. 1290–1410 and
cal A.D. 1260–1430, respectively. The two dates
overlap at the one sigma range. The average of
these radiocarbon ages using the procedure out-
lined by Long and Rippeteau (1974) is 628 ± 49
B.P.

Diagnostic artifacts, including projectile
points and ceramics, were recovered from the ex-
cavations in 1976–1977 and also from the sur-
face in 1999. Projectile points are mostly arrow
points, including four un-notched or triangular,
two side-notched, and two tri-notched forms from
the excavations, plus a single Rose Spring point
from the surface. Ceramics will be described later
in this paper, and analysis and reporting of the non-
ceramic artifacts is underway.

The recovered fauna is dominated by prong-
horn (*Antilocapra americana*), with a minimum
of 433 specimens and 26 individual animals spe-
cifically identified as pronghorn, and an additional
5,397 specimens in the size range of pronghorn.
Other identified specimens include four jackrab-
bit (*Lepus* sp.) bones, three pocket gopher
(*Thomomys* sp.) mandibles, one cottontail rabbit
(*Sylvilagus* sp.) humerus fragment, and one prob-
ably intrusive sage grouse (*Centrocercus urophasianus*)
humerus fragment. An initial dis-
cussion of the fauna has been provided (Lubinski
2000; Lubinski and Metcalf 1996), and a fuller
discussion is in preparation.

**CERAMIC ANALYSIS METHODS**

The ceramics analyzed were all of the mate-
rial in curation as of 2003 derived from the 1976
and 1977 excavations (178 sherds) and 1999 sur-
fase collection (2 sherds), a total of 180 sherds.
Unfortunately, although nearly all were labeled
with an individual catalog number, detailed prove-
nience information has apparently been lost.

All sherds in the assemblage were noted as to
their portion (rim or body), and analyzed as to their
rim form, lip form, maximum thickness, temper,
surface treatment, paste color, and decoration. All
of these attributes were chosen for comparison
to other described ceramics in the region. All
sherds were examined for curvature that might
indicate the presence of a neck. Rim sherds were
identified by the presence of a lip, with all other
fragments noted as body sherds. Rim form was
determined by aligning the rim with the lip on an
even surface, and identifying its profile, ranging
from straight to outflaring. Lip form was described
as rounded, flat, and/or folded over. Maximum
thickness was recorded in millimeters with digi-
tal calipers, and was taken at the thickest portion
of each sherd.

Temper was examined under low power mag-
nification (<10x) with the intention of placing
them into general categories such as sand or grit.
However, all sherds were found to be tempered
with sand-sized (<2 mm) particles with variable
roundness, so no further distinctions were made.
The paste was further examined for the presence
of mica and calcite because of their potential sig-
nificance to defined pottery styles in the region.
Additionally, dilute hydrochloric acid was used to
test a sample of sherds for the presence of cal-
cite.

Surface treatment, defined as an exterior sur-
fase texture caused by forming the vessel or fin-
ishing the surface, usually while wet (Rice
1987:136–144), was identified on all body and
rim sherds when possible. Treatment categories
potentially included fingertip impressed, tool im-
pressed, smooth, corrugated, and cord marked, but
only fingertip impressed and smooth were ob-
served in the assemblage. Decoration was defined
as anything added to a vessel as an embellishment
beyond the forming of the final vessel shape or
finishing its surface (Rice 1987:144). Paste color
was identified as to its general color and placed
into one of three visual categories—light gray,
dark gray, and light brown. Several sherds had al-
ready been glued together prior to the analysis,
but no systematic cross-mending has ever been
attempted, so analysis ignored the refits and
counted the individual fragments for consistency.

**THE FIREHOLE BASIN CERAMIC
ASSEMBLAGE**

The ceramic assemblage at the site consists
of 180 fragmented sherds, with the largest mea-
suring approximately 90 by 40 mm. The thickness of the sherds ranges from 3.6 to 11.2 mm. Most of the sherds in the assemblage (167) are body sherds, 12 are rim sherds, and one is a possible rim sherd. None are basal fragments, so base form is unknown in all cases. Only two sherds indicate neck form, which is constricted in those fragments. There are no appendages nor is there any evidence for the attachment of appendages, such as clay plugs, found on any of the rim sherds. The method of manufacture of these sherds could not be determined; there are no remains of coils evident. This could point to paddle and anvil or molded manufacture, although there are no definitive marks for either of these manufacturing methods.

The size of the temper inclusions varies from less than 0.5 to 2 mm. Particles of mica were found in 34 percent of the sherds (62/180), and were assumed to be part of the paste. None of the sherds have calcite in the temper or paste, based on a sample of 20 sherds, 10 of each variety (below), that reacted very weakly or not at all when tested with dilute hydrochloric acid. Eleven sherds have blackened residue on the interior surface, possibly left over from use in cooking. The assemblage exhibits variation which led to the definition of two varieties, finger-impressed gray (Variety 1) and smooth brown (Variety 2).

Variety 1 includes finger-impressed gray sherds, represented by 149 body sherds, 10 rim sherds, and one possible rim sherd. The exterior of these sherds varies from light to dark gray, and is rough in texture with many temper inclusions showing at the surface. Nearly all of the body and rim sherds with an exterior surface (n=135/141, 96 percent), exhibit finger impressed surface manipulations, often in a parallel, diagonal pattern (see Figure 3). In many cases distinct fingertip impressions (dermatoglyphs) are evident. Of the six remaining sherds with an exterior surface, three

Figure 3. Selected rim sherds. The upper six sherds are of the gray variety, with all but L-9101 exhibiting finger impressions. The lower two sherds are of the brown variety. On rim profiles, shaded areas indicate appliqué and white areas indicate perforations. See Table 1 for details.
are smoothed-over impressed and three are smooth. Nineteen other sherds have an unknown surface treatment due to either lack of an exterior surface, or small size preventing treatment identification. Maximum thickness is relatively uniform on each sherd and ranges from 3.6 to 11.2 mm. Two body sherds (L-9002, L-9003) exhibit a uniconical repair hole between them, and one additional body sherd (unlabelled) exhibits a biconical repair hole.

The Variety 1 rim sherds (Table 1) exhibit straight to slightly outflaring profiles and finger impressions extending to the rim. The lips on eight sherds are generally rounded, but on two, the lip has been folded over and flattened on top. Three rim sherds have an irregular appliqué applied over the lip top (resulting in an uneven lip surface), with one or two punctates punched through it. The punctates are 1.5–1.8 mm in diameter, and the appliqués lack finger impressions. One rim sherd has seven fine vertical lines (probably fingernail impressions) on the exterior lip. Based on the 10 rims and two neck fragments, the vessel form is likely a jar with low sloping shoulders, slightly outflaring rims, and constricted necks.

Variety 2 includes smooth, brown sherds, represented by 18 body sherds and two rim sherds (Table 1). The exterior surfaces of three body sherds have been burnished or polished, and the remaining surfaces have been smoothed. On one body sherd (FB11-12), there appears to be a fugitive red wash. There is no decoration on any of these sherds. On the one rim sherd large enough to identify form (SW1217-831, collected from the surface in 1999), the rim form is outflaring in profile, with a rounded lip and no decoration. Maximum thickness is relatively uniform on each sherd and ranges from 4.5 to 8.1 mm. Two distinct vessels may be present in the Variety 2 assemblage, based on the fact that the two rim sherds are of a slightly different shape and size, and the texture of one is much more friable.

**REGIONAL CERAMIC TYPES**

The ceramics at Firehole Basin do not fit neatly into any typologies previously defined for

<table>
<thead>
<tr>
<th>Catalog #</th>
<th>Rim Profile</th>
<th>Lip Form</th>
<th>Decoration/Surface Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gray Variety (<em>n=10</em>):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L-9013</td>
<td>Outflaring</td>
<td>Extra clay added over top &amp; 1.8 mm diam. punctate through it, remainder unknown (fractured)</td>
<td>Oblique, parallel finger impressions</td>
</tr>
<tr>
<td>L-9014 &amp; L-9148</td>
<td>Outflaring</td>
<td>Flat on top, edge folded over exterior</td>
<td>Oblique, parallel finger impressions</td>
</tr>
<tr>
<td>L-9021</td>
<td>Outflaring</td>
<td>Flat on top, edge folded over exterior</td>
<td>Oblique, parallel finger impressions</td>
</tr>
<tr>
<td>L-9048</td>
<td>Straight to Outflaring</td>
<td>Rounded, extra clay added over top &amp; 2 punctates through it (1.5 mm diam.)</td>
<td>Unknown</td>
</tr>
<tr>
<td>Brown Variety (<em>n=2</em>):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SW1217-214</td>
<td>Outflaring</td>
<td>Rounded, top flat</td>
<td>Smooth</td>
</tr>
<tr>
<td>SW1217-831</td>
<td>Rounded</td>
<td>Smooth</td>
<td></td>
</tr>
</tbody>
</table>

1 These two sherds conjoin and were glued together sometime before our analysis

2 This sherd also exhibits fine parallel, diagonal incised lines on the lip, but these are interpreted as excavation damage.
nearby areas. Nonetheless, the ceramics at this site have some attributes that can be compared with regional types or styles from the same period, including established wares such as Fremont gray utility wares (Madsen 1977), Uncompahgre Brown ware (Buckles 1971), and Intermountain ware (Mulloy 1958:84–85). Other contemporary ceramic types or classifications in the region include a proposed Waltman Brown ware (Martin 2000), and two proposed wares (Black Buttes Gray and Boars Tusk Gray) for southwest Wyoming (Creasman et al. 1990). To facilitate comparisons and put the Firehole Basin materials into regional context, we summarize these in Table 2 and discuss them below.

Fremont ceramics are rare, but present in small numbers (1–122 sherds) in at least 22 southwest Wyoming sites according to Smith (1992:Table 1). Of these sites, the nine with radiocarbon dates range from 1650 to 610 B.P. (Smith 1992:Table 1). In the core areas of the Fremont in Utah, ceramics date from about 1550 to 600 B.P., but in peripheral areas, dates may extend to 350 B.P. (Gunnerson 1969; Reed and Metcalf 1999:118,146). Generally, Fremont ceramics are identified by temper, paste color, and method of manufacture (Aikens 1966; Gunnerson 1969; Madsen 1977), although Dean’s (1992) statistical analysis of gray utility wares suggests that these attributes are not sufficient to define or identify these wares in the Great Salt Lake region. The most likely variety of Fremont pottery in southern Wyoming is Uinta Gray, which is the dominant type to the south in the Uinta Mountains and Uinta Basin (Johnson and Loosle 2002:55; Madsen 1986:207; Madsen 1977). This type is defined to include plain gray jars or pitchers with loop handles, or rarely bowls, tempered with calcite or limestone (Madsen 1986:207; Madsen 1977; Truesdale and Hill 1999). In northeastern Utah, it is often thought that any plain gray ceramic “with calcium carbonate temper is by definition Uinta Gray” (Johnson and Loosle 2002:55) although the diagnostic nature of this attribute has been called into question (Johnson and Loosle 2002:277).

Intermountain ware, sometimes called Shoshone ware, has been extensively reported in southwest Wyoming (Frison 1971; McNees 1992; Smith 1992; Thompson 1991). Sites with Intermountain ware may date from 750–200 B.P., based on the early date at the Myers-Hindman site in Montana (Lahren 1976:176) and the late date at the Nidiwh site in Wyoming (Chomko 1986, 1992). Intermountain ware is described as generally gray pottery with straight walls, flattened or bulbous/thickened lips, greatest vessel diameter at the lip, flat and often flanged bases, and with either a truncated cone form, or a “flower pot” form (Coale 1963:1; Mulloy 1958:202). Decoration is unknown, and surface treatments consist of roughly scraped or brushed exteriors (Coale 1963:2–3; Mulloy 1958:84). Vessels are coarsely (≥2.5 mm) tempered with grit, sand, or crushed rock (Coale 1963:1–2; Mulloy 1958:84; Reed and Metcalf 1999:152). Intermountain ware is typically considered characteristic of Numic peoples, particularly the Shoshone (Frison 1991:116; Larson and Kornfeld 1994:203; Mulloy 1958:199).

Uncompahgre Brown ware has been reported in north-central Colorado and eastern Utah (Buckles 1971; Reed and Metcalf 1999). This ware has been dated in Colorado and eastern Utah after 850 B.P. (Reed and Metcalf 1999:155). The ware is defined as a brown pottery, principally composed of wide mouth jars with flaring rims, slightly constricted necks, low shoulders, and conical or rounded bases (Buckles 1971:517). Color in this ware ranges from dark to light brown, yellowish-brown to olive gray, and sometimes reddish; temper is variable and of local material; manufacture is coiling and scraping; and surface treatment is fingertip impressed or plain (Buckles 1971:506–527; Reed and Metcalf 1999:155). The finger impressed type consists of impressions made by the finger tips or fingernails covering the entire exterior of the vessel in parallel, aligned rows, sometimes in a diagonal manner (Buckles 1971:522). The plain variety has been smoothed over the entire vessel after construction, occasionally leaving striations from scraping or wiping the surface (Buckles 1971:520). Uncompahgre Brown ware is typically considered characteristic of Numic peoples, particularly Utes (Buckles 1971; Reed 1994).
Table 2. Summary of Contemporary Ceramic Wares Defined in the Region

<table>
<thead>
<tr>
<th>Ware</th>
<th>Age (RCYBP)</th>
<th>Principal Location</th>
<th>Color</th>
<th>Vessel Form</th>
<th>Surface Treatment</th>
<th>Temper</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Established Wares:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uinta Gray</td>
<td>1650–610</td>
<td>northeast UT</td>
<td>gray</td>
<td>jars, pitchers and bowls</td>
<td>plain</td>
<td>calcite or limestone</td>
</tr>
<tr>
<td>(Fremont)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermountain</td>
<td>750–200</td>
<td>WY, MT, CO</td>
<td>gray</td>
<td>jars with thickened lips, straight walls, flat bases and a “flowerport” or truncated cone form</td>
<td>roughly scraped or brushed</td>
<td>coarse grit or sand</td>
</tr>
<tr>
<td>Uncompaghre Brown</td>
<td>after 850</td>
<td>north-central CO, eastern UT</td>
<td>brown to gray</td>
<td>jars with flaring rims, constricted necks, pointed or rounded base</td>
<td>fingertip impressed or smoothed (plain)</td>
<td>variable</td>
</tr>
<tr>
<td><strong>Proposed Wares:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black Buttes Gray</td>
<td>1300–650</td>
<td>southwest WY</td>
<td>gray</td>
<td>jars with or without shoulders, pointed or rounded bases</td>
<td>smooth to rough, sometimes with fingertip impressions</td>
<td>grit (e.g., calcite) or sand</td>
</tr>
<tr>
<td>(Fremont-like)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Boar’s Tusk Gray</td>
<td>650–contact</td>
<td>southwest WY</td>
<td>variable</td>
<td>jars with globular, “flowerpot” or truncated cone forms</td>
<td>noticeable scraping, brushing, and/or paddle and anvil marks</td>
<td>coarse grit or sand</td>
</tr>
<tr>
<td>(Intermountain-like)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waltman Brown</td>
<td>640–520</td>
<td>central WY</td>
<td>brown</td>
<td>jars with straight to slightly outcurving rims</td>
<td>fingernail impressed or plain</td>
<td>grit (with micaceous paste)</td>
</tr>
<tr>
<td>(Uncompaghre-like)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
Creasman et al. (1990) have proposed two ceramic traditions for southwest Wyoming, an early tradition (1300–650 RCYBP) with pottery similar to Fremont styles, and a late tradition (650 to contact) which they note as including Intermountain ware styles and technology. Their proposal defines three ceramic wares: Black Buttes Gray from the early tradition, plus Boars Tusk Gray and Skull Point Gray from the late tradition. Either of the first two may be contemporary with the Firehole Basin ceramics dating 780–575 B.P. (range of one-sigma dates). Black Buttes Gray is gray in color, tempered with sand or crushed rock, and composed of shouldered to globular vessels with rounded or pointed bases. Vessel walls are uniform and 5–8 mm in thickness. Surfaces are smooth to rough with fingernail impressions reported at some sites. Boars Tusk Gray ware is defined as being highly variable in color, with heavy coarse tempering of sand or grit, rough surfaces with noticeable brushing, scraping, or paddle/anvil marks, and uneven vessel wall thickness. Vessel forms range from a globular truncated cone style similar to the Intermountain tradition “flower pot” and a straight walled variety, both with flat flanged bases.

Martin (2000) has defined a provisional ware termed Waltman Brown for ceramics found at the Carter site (48NA1425) in central Wyoming. This ware is defined to include thin, micaceous ceramics in central Wyoming that have grit temper, highly finished interiors, finger-nail impressed (in horizontal to slightly oblique rows) and plain surface treatments, no decoration, straight to slightly outcurving rims, rounded or flattened lips, and a wide-mouth jar form (Martin 2000:321). All of the sherds are finely micaceous, include grit temper 0.3–4.0 mm in size, and some of them exhibit remnants of coils from manufacturing (Martin 2000:311). This ware is similar to Uncompahgre Brown ware from Colorado, but Martin (2000:320–321) provided a new name to avoid the implication of cultural affiliation with Ute or Paiute peoples, as is typically assumed for Uncompahgre Brown ware in that state.

The Firehole Basin ceramics share some similarities with all of the regional wares, but do not exactly match any of them. In terms of the well-established wares, they are most similar to Uncompahgre Brown and most unlike Uinta Gray and Intermountain wares. Firehole Basin and Uncompahgre Brown share smooth or finger impressed surface treatments, outflaring to straight rim profiles, constricted necks, and in a few sherds, a brown color. With Uinta Gray, the Firehole Basin assemblage shares the dominant sherd color, and in a few sherds, a plain finish, but differs in a lack of shared finger impressions, distinct calcite temper, handles, and pitcher or bowl forms. The Firehole Basin ceramics bear almost no resemblance to Intermountain ware, lacking the vessel shape, flattened lips, thickened lips, coarse temper, and exterior surface treatment, although the exterior surface color and tempering material are similar. Contrary to Martin (2000:317) and Chomko (1992), the Firehole Basin ceramics are most definitely not Intermountain ware.

In terms of their affinity to the provisional, proposed wares, the Firehole Basin ceramics are most similar to Waltman Brown, intermediate to Black Buttes Gray, and least similar to Boars Tusk Gray wares. Both Firehole Basin and Waltman Brown exhibit finger-impressed and plain surface treatments, straight to outcurving rims, rounded or flattened lips, and some micaceous paste. These two vary slightly in that the Firehole Basin ceramics exhibit finger impressions oriented more vertically, and some exterior burnishing lacking in the Waltman Brown ceramics at the Carter site. The Firehole Basin ceramics were placed into the Boars Tusk Gray ware by Creasman and others (1990), but we argue that this is inappropriate given the lack of noticeable brushing, paddle and anvil marks, and uneven walls said to be distinctive of Boars Tusk Gray. Instead, their Black Buttes Gray ware may be a better match, based on finger-impressed surface treatment, outflaring rims, and finer temper.

OTHER WYOMING BASIN CERAMIC SITES

Few ceramic assemblages in the Wyoming Basin are directly comparable to Firehole Basin, mostly because few are associated with similar radiocarbon ages during the Firehole phase (700–300 B.P.). If we consider a slightly broader time range of Late Prehistoric sites, those with mean
radiocarbon dates 800–200 B.P., there are 10 ceramic-bearing sites (see Table 3). These sites indicate extreme variability in the ceramic assemblages in the Wyoming Basin. Some of the ceramics in this time period fit easily within established typologies. For example, specimens from Eden-Farson (Frison 1971), Harrower “B” (Thompson 1991), and Skull Point (McGuire 1977) provide good matches with classic definitions of Intermountain ware. Others are more ambiguous, such as the purported affinities of Archery and 48SW97 ceramics with Fremont types (Hakiel et al. 1984, 1987; Smith 1992), without sufficient specific information to allow for evaluation of the Fremont affiliation. The single Wyoming Basin site from Colorado (5MF1915) yielded classic Uncompahgre Brown ware. Several Wyoming assemblages have affinities with Uncompahgre or Waltman Brown wares, especially in the rows of fingernail impressions and sandy temper, particularly Carter (Martin 2000), 48SW97 (McNees 1992), and Firehole Basin.

Similarities of some Wyoming ceramics to Uncompahgre ware are compelling (Loendorf 2002; Martin 2000), but whether this means a Ute presence in Wyoming is certainly debatable. In this paper, we do not intend to address this question, but rather suggest that the distribution of ceramics may not be very helpful in this regard. The idea that an Uncompahgre pot represents a Ute person and an Intermountain pot represents a Shoshone person is undoubtedly a vast oversimplification of a much more complicated dynamic. Furthermore, we hold with others the position that ceramic types, like all artifact types in archaeology, are defined on formal, spatial, and temporal attributes that do not necessarily correspond with ethnicity, certainly not in any one-to-one relationship (Larson and Kornfeld 1994). In fact, some recent studies of Great Basin ceramics imply that at least some of the variation previously attributed to ethnicity may instead be due to differences in investment in ceramic manufacture as a result of mobility (Bright and Ugan 1999; Simms et al. 1997). At this nascent point in the study of Wyoming ceramics, we prefer to begin with evaluating technological and stylistic similarities rather than placing pottery into a given type simply because of its spatial location compared to ethnographic distributions.

In the Wyoming Basin during the general Firehole phase time period, there appear to be three broad ceramic “traditions”: Fremont, Intermountain, and Uncompahgre or Waltman. What might this mean? One possibility is that this diversity reflects the transitional nature of the time period, for example encompassing late Fremont manifestations and early Intermountain wares, and/or it reflects a diversity of ceramic technological investment as a result of mobility. It could also reflect a true cultural diversity and the movement of peoples into and out of the Wyoming Basin (see Larson and Kornfeld [1994] for a further discussion of this issue).

Unfortunately, there are two additional, simpler explanations for the apparent diversity of ceramics during this time period. One is that it simply reflects poor dating control. That is, a number of the ceramics are only loosely associated with radiocarbon dates, and the association may be in error. For example, in some cases ceramics were obtained from the surface and their connection with underlying dated deposits is uncertain. Additionally, some radiocarbon dates may be based on heartwood, and thus provide ceramic ages perhaps hundreds of years too old. Direct dating of ceramics using thermoluminescence (e.g., Benedict 1989; Feathers and Rhode 1998; Rhode 1994) would resolve some of these problems.

Another possibility is that the apparent diversity reflects misidentifications and/or vague descriptions. For example, the ceramics at the Archery site were assigned to Fremont types, but not described in sufficient detail to allow other researchers to evaluate that interpretation. Generally speaking, if we are going to understand the nature of Wyoming Basin ceramics, there need to be much more detailed ceramic descriptions than have sometimes been offered in the past.

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Table 3. Summary of Wyoming Basin Sites with Ceramics Dating 800-200 B.P.

<table>
<thead>
<tr>
<th>Site/Component</th>
<th>Dates (B.P.)</th>
<th># Sherds</th>
<th>Description and Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>5MF1915 580±50</td>
<td>76</td>
<td>Variation 1: all Uncompaghre Brownware micaceous body sherds tempered with quartz, probably from one vessel, 7 with polished exterior, 2 fingernail impressed, color range pink to black (Kalasz et al. 2000)</td>
<td></td>
</tr>
<tr>
<td>48CR1113 210±50</td>
<td>360</td>
<td>Vessel A: flat-bottomed, thick walled, pronounced shoulder; Vessel B: simple stamped, thin walled; both sand and quartz temper (Chomko 1986, 1992)</td>
<td></td>
</tr>
<tr>
<td>48LN317 300±50 (surface + excav.)</td>
<td>76</td>
<td>Brushed interior and exterior, many burnished, thickened lip, sand-tempered, 4-10 mm thick (McGuire 1977; Creasman et al. 1990)</td>
<td></td>
</tr>
<tr>
<td>48NA1425 580±60 (Carter)</td>
<td>535</td>
<td>3+ wide-mouthed, rounded jars with straight to outflaring rims, plain surface or fingernail impressions in parallel rows, micaceous paste, sand/grit temper up to 4 mm in size, and total thickness 2.8-6.0 mm (Martin 2000)</td>
<td></td>
</tr>
<tr>
<td>48SU867 850±70 (Harrower)</td>
<td>22</td>
<td>A—sand tempered, exterior fingernail impressed, interior smoothed to burnished (Thompson 1991)</td>
<td></td>
</tr>
<tr>
<td>48SW97 880±80 610±60</td>
<td>3</td>
<td>Body sherds, fingernail impressed in parallel rows, with quartz sand/quartzite temper, 6.0-6.4 mm thick (McNees 1992; Smith 1992)</td>
<td></td>
</tr>
<tr>
<td>48SW304 230±100 (Eden-Farson)</td>
<td>Unknown, at least 11 vessels</td>
<td>Truncated cone to shouldered flat bottomed jars (some flanged) with brushed or smoothed surfaces. Lips rounded or flat, some thickened. Body sherds 3.5-9 mm thick. Temper sand, unpulverized clay, crushed limestone, granite (Frison 1971)</td>
<td></td>
</tr>
<tr>
<td>48SW1217 645±135 625±50</td>
<td>160</td>
<td>Gray with diagonal finger-impressed exterior, some rims with appliqué and punctuates, some rims with vertical incised lines at lip, 3.6-11.2 mm thick (this report)</td>
<td></td>
</tr>
<tr>
<td>48SW5176 570±50 (South Baxter Brush Shelter)</td>
<td>196</td>
<td>A—gray/brown, wide-mouthed, slightly shouldered jar with rolled lip, outflaring rim, flat-bottomed, slightly flanged base, plain surface, and sand temper, 7.5-11.0 mm thick (Hoefer et al. 1992)</td>
<td></td>
</tr>
<tr>
<td>48SW5222 850±70 (Archery)</td>
<td>15</td>
<td>Uinta Grey and/or Emery Gray, with temper of calcite, dolomite, crushed rock, or sand (Hakiel et al. 1984, 1987)</td>
<td></td>
</tr>
</tbody>
</table>
suggestions were made by Stephen Chomko, Lynn Harrell, Matt Kautzman, Lance McNees, Kelly Pool, and Craig Smith. Stacy Kautzman, Ben Sainsbury and Victoria Ciccone completed illustrations. Reviewers Mary Lou Larson and Patricia Dean made helpful comments that materially improved the manuscript. Firehole Basin artifacts were borrowed from the Western Wyoming College Archaeological Repository, and thanks are due to that facility and the Wyoming Bureau of Land Management for curration of these important materials.

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