

11. POTTERY ANALYSIS *Stanley A. Ahler, Vince Warner, and Monicque Smail*

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11. POTTERY ANALYSIS

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Introduction and Goals

This chapter deals with analysis and interpretation of pottery remains from the 1998 excavations at Scattered Village. The sample is large and very complex, from the perspective of classification and typology, and represents only the second studied collection of any size and with good chronological control from a village site near the Heart River that post-dates AD 1500 (the other being that from nearby Slant Village, 32MO26). This particular collection therefore offers us a new window from which to view ceramic variability and possibly social or ethnic variation in a very critical time period and geographic location in the Northern Plains. The period and location are presumed to encompass both the apex as well as the disintegration of traditional Plains Village cultures in territory considered to be the Mandan heartland. In keeping with the project research design, we have several specific goals and objectives in this chapter:

1. To develop a database for ceramic remains in a manner consistent with previous studies in the Heart and Knife regions, thereby facilitating comparative studies now and in the future.
2. To provide classification, description, and illustration of body sherds, rim sherds, and pottery vessels in the collection sufficient to convey the stylistic and technological character of the collection.
3. To assess stylistic and technological change within the collection according to the defined chronological structure for the site.
4. To conduct intersite comparative analyses of ceramic data and attributes with focus on the topic of ethnic identity of potters represented at Scattered Village (were they recently arrived Hidatsa-proper peoples, other Hidatsas, or people in the mainstream of the Mandan cultural tradition?).
5. With the perspective of new data from this project, to offer suggestions for future productive investigations or other activities.

This chapter reflects the analytic work of several individuals. Deirdre Morgan conducted a preliminary vessel classification for much of the site collection that was instrumental in assessing the adequacy of samples from various parts of the site and in determining the analytic unit structure for the entire project. This work is discussed in Chapter 5 in this report. Gail Ryser collected basic quantification data and conducted body and neck sherd exterior surface treatment classification for the full study sample. Vince Warner and Monicque Smail conducted attribute coding and ware/type classification for the full collection, with this classification carried out independently of and superceding that conducted by Morgan. Ahler checked and finalized the vessel classification and general quantification databases, conducted all data analysis, and wrote this chapter.

Methods

In the current effort we followed closely and modified as necessary the detailed pottery analysis methods developed in Ahler and Swenson (1985) as part of the Knife River Indian Villages National Historic site study program. Those methods have been applied to numerous ceramic collections from sites in the Knife and Heart regions, most notably as reported in Ahler and Swenson (1993), Breakey and Ahler (1985), Speakman, Ahler, and Breakey (1997), Ahler (2000), and Ahler and Johnson (2000). Under this system, the analysis generally occurs in two phases, and in the present study, we had some effort in a third phase of work. (1) Quantification of all pottery from each context by count and weight and simultaneous separation and recording of vessel parts and exterior surface treatment data for body sherds; (2) individual pottery vessel classification and data coding; and (3) refitting of rim and body sherds, collected in the field as sherd clusters, into large vessel fragments. Data from the latter effort are particularly useful for understanding overall vessel size and shape and for purposes of public interpretation.

Integral to the data collection is the concept of vessel parts or zones, most of which are defined by a change in vessel wall curvature in the vertical section at an inflection point (see discussion in Ahler and Swenson 1985). All vessels consist of a body (zone 1) and a lip (zone 7), the latter being the tightly curved area where the inner and outer surfaces of the vessel meet (usually at the vessel mouth). A vessel that has only these two zones would be a plate or a bowl, or a jar with no neck or rim. Most vessels in Plains Village collections and in this collection have, minimally, one additional zone, the neck (zone 2), between zone 1 and zone 7; zone 2 is distinguished from zone 1 by an inflection point, or place in the vertical profile where the wall curvature changes direction. Vessels distinguished by zones 1, 2 and 7 would be a jar with a straight or everted neck and rim. If zone 3 is present, it occurs above zone 2 (the neck) and is distinguished by yet another change in curvature in vertical section. A vessel with a zone 3 would have an S-shaped rim. If zone 4 occurs, above zone 3, the vessel is said to have a recurved S-shaped rim. Zone 5 is a bit different, and consists of a band or strap of clay that joins the lip (zone 7) at its upper edge and which is placed just below the lip on the outer or inner surface of the vessel. It may be added to zone 2, 3, or 4; presence of zone 5 yields a thickened area just below the lip, and such vessels are often called collared. We call them braced, and we call zone 5 the brace; zone 5 can have many shapes from rounded to wedge-shaped, etc. Zone 6 is a fillet or a band of clay that is added to the vessel exterior (rarely to the interior) in a location well below the lip or zone 7.

We believe zones are useful analytic constructs because (1) they are (usually) readily apparent to the analyst, (2) they were consciously added to the vessel by the potter, and (3) they correlate closely (in most assemblages) with spatial areas chosen for decoration by the potter. There is often (but not always) a strong correlation between the presence of a zone, placement of decoration, and even the choice of decorative technique when several zones are present. Thus, the zones provide conceptual units, both used by the analyst and having some reality to the potter.

Most of the process of data collection regarding pottery can be described with reference to zones. Body sherds consist of fragments in which only zone 1 is present, and can be identified both by curvature and often by interior and exterior surface treatment and decoration. Any sherd

that contains some part of zone 2 (the neck) or a higher zone can be considered a rim sherd. In most village collections, decoration is most often applied to zone 2 and higher zones. The combinations of zones present can be used to describe rim form, and for the study of decoration, the focus can be on zone 2 and higher on the vessel.

In the first phase of the ceramic analysis we broke down every sample of pottery from a single catalog number (single context) according to the sorting scheme identified in Table 11.1. We began by recording class, in which we segregated worked sherds and miniature vessel fragments from what we call sherds from normal-sized vessels, while also dividing the latter into body and rim pieces. After this decision, we further separated the sherds according to the vessel part, as listed in Table 11.1. Separation by part served the purpose of creating subgroups for additional kinds of analysis. Body sherds and neck sherds (part = 1 or 2) moved directly to presence or absence and location of ochre residue, and then recording of exterior surface treatment for size G1 and G2 sherds according to the categories in Table 11.1. Exterior surface treatment was not recorded for size G3 sherds. Count and weight were then recorded for each of the sort categories for body and neck sherds. Because size G3 body sherds were so numerous, we recorded count for such specimens for only a sample of contexts. From this sample, we computed an average weight per G3 body sherd, and used this to estimate counts based on total weight in uncounted contexts. Body sherd analysis concluded with recording maximum thickness data for a sample of size grade G2 sherds, following procedures described in Ahler and

Table 11.1. Summary of variables and attribute codes recorded in the initial inventory of ceramic remains and study of exterior surface treatment for body sherds, Scattered Village (32MO31), 1998 excavations.

Cat No	Catalog Number
SIZE	size grade (1, 2, 3)
CLASS	ceramic category
1-body sherd (zone 1 only)	4-miniature vessel or vessel part
2-rim sherd (zone 2 or higher is present)	5-worked sherd
PART	part of vessel present
1-zone 1 only (body sherd)	7-zone 7 only (lip sherd only with no lower zones)
2-zone 2 only or zone 2 and 1 (neck or neck and body)	8-multiple adjoining zones (2+3; 2+7; 2+3+7, etc.)
3-zone 3 only (nothing above or below zone 3)	
OCHRE	ochre residue
0-none	3-red, exterior
1-red, interior	4-yellow exterior
2-yellow, interior	
SURF	body & neck sherd (zone 1 & 2) exterior surface treatment – size G1 and G2 only
0-indeterminate (eroded away or obscured)	6-incised (decorated)
1-plain / smoothed	7-trailed (decorated)
2-simple-stamped	8-other decoration
3-check-stamped	9-other / not determined (for G3 body sherds only)
4-brushed	blank = vessel part in zone 3 or higher
COUNT	count of sherds having a common code on all preceding variables
WEIGHT	combined weight of sherds for this data case, to 0.1 gram
COMMENT	comments about matching, etc.
CONC	sherd concentration? 1 = yes
NVESS	approximate N vessels in concentration
RESIDUE	number of residue samples taken from sherds

Swenson (1985). We recorded thickness data for a maximum of about 30 sherds drawn at random from any single context (single catalog number).

Observations about ochre were made on upper rim pieces (part = 3, 7, 8), then such pieces were documented by count and weight without recording exterior surface treatment. After this, upper rim pieces in size grades G1-G3 were set aside for vessel analysis, the second general phase of study. As the basic quantification and sorting process continued, comments were made when appropriate about various samples and subsets. If a given batch or context sample (single catalog number lot) was from a concentration of sherds collected separately in the field and thought to be from a single vessel, this was noted on the data forms, and all rim, neck, and body sherds in that lot were kept together for purposes of phase 2 and phase 3 study. Notes were collected on individual sherd concentration as basic quantification and sorting progressed. Heavy organic or carbonized residues were often present on sherds from concentrations. Such material was gently removed from sherd surfaces and placed in labeled glass vials, and recorded in the database and notes. These residues can be AMS radiocarbon dated, and they are suitable for various kinds of analysis that may be highly informative regarding the nature of the material burned onto or adhering to the pot. Miniature vessels consist mostly of fragments of crude pinch pots in the present collection. These were not further studied in the current analysis.

Vessel analysis, the second phase of the study, proceeded by first matching neck and upper rim fragments (parts = 2, 3, 7, and 8 in Table 11.1) according to common vessels. To facilitate this we labeled each sherd with the catalog number on its interior so sherds could be sorted and handled freely. We developed lists of catalog numbers from single pit features and for levels within excavation squares in each block, then laid out the sherds in an organized manner to match individual sherds into common vessels. Sherds from any single context were examined for direct refits along fractures and were also matched to common vessels by close inspection of details of temper, paste, color, form, dimensions, and decoration. After this matching process, we assigned individual numbers to each vessel so identified, numbering only vessels that consisted of more than a neck sherd and that contained sherds G1 or G2 in size (that is, we did not assign vessel numbers to isolated zone 2, neck fragments or to any rim sherd that consisted only of size G3 fragments). Neck and upper rim sherds not assigned to vessels were rebagged by catalog number and block and were labeled as “non-coded” rim sherds. Vessel numbers were assigned sequentially within each excavation block, with the number incorporating the block number as well. An example would be vessel V2.273, this being vessel 273 within Block 2. With the block number incorporated into it, each vessel number is unique and constitutes a single line of data in the vessel database. Once vessel numbers were assigned, rim sherds were rebagged according to vessel and vessel coding occurred.

An extensive set of data was recorded and coded for each vessel in the collection. The variable list and code values are shown in Table 11.2. A detailed discussion of the variables can be found in Ahler and Swenson (1985), and such will not be repeated here. New variables and attribute states or variable values applied since the Ahler and Swenson study and used for the first time in this context are shown in italics in Table 11.2. We can provide a few comments about some of the changes and additions used for this study. The collection contains a large number of vessels with interior bracing, with the placement of such bracing being obvious and contributing significantly to the overall shape and appearance of the upper rim.

Table 11.2. Summary of variables and attribute codes recorded in the detailed analysis of individual pottery vessels, Scattered Village (32MO31), 1998 excavations.

SITE	site number (code 202 used for Scattered)	
SIZE	largest size grade (1, 2, 3) among matched sherds	
VESSLNUM	individual vessel number	
CN	catalog number for largest sherd	
CN2	second catalog number if it exists among matched sherds	
CN3	third catalog number if it exists among matched sherds	
RIMFORM	rim form class based on zones present <i>and their placement</i>	
1-lip sherd (zone 7 only)	15-zone 2-3 fragment (zone 2,3 only)	
2-bowl or jar (zone 1+7 only)	16-zone 3 fragment w/ <i>exterior</i> brace (zone 3,5 only)	
3-straight or outflared rim (zone 1,2,7)	19-lip fragment w/ exterior brace (zone 5,7) or brace frag. only (Z 5)	
4-straight rim w/ brace (zone 1,2,5,7)	20-zone 3 fragment (zone 3 only)	
5-straight rim w/ fillet (zone 1,2,6,7)	21-appendage only (no zone designation)	
7-S-rim (zone 1,2,3,7)	23-straight rim w/ interior brace (zone 1,2,5,7)	
8-S-rim w/ <i>exterior</i> brace (zone 1,2,3,5,7)	24-S-rim w/ interior brace (zone 1,2,3,5,7)	
9-S-rim w/ fillet (<i>on interior</i>)(zone 1,2,3,6,7)	25-recurved S-rim w/ interior brace (zone 1,2,3,4,5,7)	
11-recurved S-rim (zone 1,2,3,4,7)	26-zone 2-3 fragment w/ interior brace (zone 2,3,5)	
12-recurved S-rim w/ <i>exterior</i> brace (zone 1,2,3,4,5,7)	27-lip fragment w/ interior brace (zone 5,7)	
ZONE1	condition and shape of zone 1	
1-present, shoulder shape unknown	3-present, with angular shoulder	
2-present, with curved shoulder area	9-unobservable, broken away	
ZONE2	condition and shape of zone 2	
0-zone not used (bowl)	3-present, angular lower juncture with zone 1	
1-present, shape unknown	5-faintly S-shaped	
2-present, curved	9-unobservable, broken away	
ZONE3	condition and shape of zone 3	
0-zone not used	4-present, composite, angular shape	
1-present, shape unknown	5-present, faintly S-shaped	
2-present, curved lower juncture with zone 2	9-unobservable, broken away	
3-present, angular lower juncture with zone 2		
ZONE4	condition and shape of zone 4	
0-zone not used	3-present, angular lower juncture with zone 3	
1-present, shape unknown	9-unobservable, broken away	
2-present, curved lower juncture with zone 3		
ZONE5	condition and shape of zone 6	
0-zone not used	5-present on exterior, wedge-shaped	
1-present on exterior, curved	6-present on exterior, inverted wedge	
2-present on interior, <i>curved</i>	7-present on interior, flat collared	
3-present on interior and exterior	8-present on exterior, shape unknown	
4-present on exterior, collared	9-unobservable, broken away	
ZONE6	condition and shape of zone 6	
0-zone not used	2-present on interior	
1-present <i>on exterior</i>	9-unobservable, broken away	
ZONE7	condition and shape of zone 7	
1-rounded	5-L-shaped	10-round beaded on exterior
2-flattened	6-T-shaped	11-round beaded on interior
3-in-slanted	7-pointed	12-inslanted, beaded interior and exterior
4-out-slanted	8-beaded, round	99-unobservable, broken away
Z1ST	zone 1 exterior surface treatment	
1-plain / rough	4-simple-stamped	8-smoothed over brushed
2-smoothed	5-check-stamped	9-smoothed over simple-stamped
3-brushed	6-cord-roughened	10-smoothed over check-stamped
		99-unobservable, broken away
Z2ST	zone 2 exterior surface treatment	
0-zone not used on vessel	others same as Z1ST	

Table 11.2. Summary of variables and attribute codes recorded in the detailed analysis of individual pottery vessels, Scattered Village (32MO31), 1998 excavations (continued).

Z1DT	zone 1 decorative technique		
1-31 as listed and discussed in Ahler and Swenson (1985)		<i>33-tool impression above paddle-stamped</i>	
<i>32-paddle-stamped</i>		99-unobservable, broken away	
Z2DT	zone 2 decorative technique		
0-zone not used on vessel		others the same as Z1DT	
Z3DT	zone 3 decorative technique		
same as Z2DT			
Z4DT	zone 4 decorative technique		
same as Z2DT			
Z5DT	zone 5 decorative technique		
same as Z2DT			
Z6DT	zone 6 decorative technique		
same as Z2DT			
Z7DT	zone 7 decorative technique		
same as Z2DT			
INTDT	interior zone 2-4 decorative technique		
same as Z2DT			
Z1DP	zone 1 decorative pattern		
1-30 as listed and discussed in Ahler and Swenson (1985)		34-multiple horizontal adjacent to horizontally repetitive vert. bound	
31-multiple horizontal continuous above horizontally repetitive opposed diagonals		35-horizontally opposed multiple diagonals under horizon. repetitive	
32-indeterminate pattern		36-horizontally repetitive adjacent to horizontally repetitive verticals	
33-see lab notes for Slant Village project		<i>37-horizont. repet. no orientation over horizontally repet. verticals</i>	
		99-unobservable, broken away	
Z2DP	zone 2 decorative pattern		
0-zone not used on vessel		remaining codes the same as Z1DP	
Z3DP	zone 3 decorative pattern		
same as Z2DP			
Z4DP	zone 4 decorative pattern		
same as Z2DP			
Z5DP	zone 5 decorative pattern		
same as Z2DP			
Z6DP	zone 6 decorative pattern		
same as Z2DP			
Z7DP	zone 7 decorative pattern		
same as Z1DP			
INTDP	interior zone 2-4 decorative pattern		
same as Z2DP			
TWIST	cord twist direction		
0-present but indeterminate		2-Z-twist	
1-S-twist		9-not applicable (not cord-impressed)	
RESID	organic or mineral residues on interior or exterior		
1-carbonized material, <i>exterior</i>		<i>4-carbonized material, interior</i>	
2-yellow ochre		<i>5-carbonized material, interior and exterior</i>	
3-red ochre		9-none observed	
TEMP	tempering material		
0-no temper visible		3-granite with mica visible at interior or exterior surface	
1-crushed granite		9-other indeterminate material	
2-sand			
APEND	appendages or rim/lip modifications		
1-node	4-strap handle	7-castellation	10-appendage scar visible
2-tab	5-boss	8-pinched or wavy rim	<i>11-flange</i>
3-lop handle	6-spout	9-vestigial lug or tab	99-absent or not observed

Table 11.2. Summary of variables and attribute codes recorded in the detailed analysis of individual pottery vessels, Scattered Village (32MO31), 1998 excavations (concluded).

ZN1SPC	zone 1 mean trailing or incising spacing, 0.1 mm	
ZN1WDTH	zone 1 mean trailing or incising line width, 0.1 mm	
TRLSPC	mean trailing or incising spacing anywhere above zone 1, 0.1 mm	
TRLWDTH	mean trailing or incising width anywhere above zone 1, 0.1 mm	
CRDSPC	mean <i>horizontal parallel</i> cord impress. spacing above zone 1, 0.1 mm	
CRDWDTH	mean cord impression width (diameter) anywhere above zone 1, 0.1 mm	
NLINES	count of parallel horizontal lines used in decoration on zone 3	
ZN2THICK	zone 2 mean thickness, 0.1 mm	
ZN3THICK	zone 3 mean thickness, 0.1 mm	
ZN5THICK	mean thickness at zone 5, 0.1 mm	
ZN7THICK	zone 7 mean thickness, measured 5 mm below lip, 0.1 mm	
VESHITE	total vessel height, whole mm	
RIMHITE	total rim height, whole mm	
ZN2HITE	zone 2 height, whole mm	
ZN2INFLT	zone 2 inflection, 0.1 mm	
ZN3HITE	zone 3 height, whole mm	
ZN3INFLT	zone 3 inflection, 0.1 mm	
ZN5WDTH	width of brace, whole mm	
ORIFDIAM	vessel orifice diameter, cm	
BDYDIAM	vessel body diameter, cm	
WARE	ware classification (see Ahler and Swenson 1985 for complete list)	
	0.0-unnamed straight rim, late or indeterminate ware	6-Knife River ware
	0.1-unnamed straight rim, early ware	8-Knife River Fine ware
	1.0-unnamed S-rim, late or indeterminate ware	9-Transitional ware
	1.1-unnamed S-rim, early ware	32-Le Beau Fine ware
	5-Le Beau ware	99-fragment, unclassifiable
<i>SUBWARE</i>	<i>subware classification</i>	
	<i>1-Knife River ware, large or crude form (definitely not fine)</i>	<i>8-Le Beau High Rim</i>
	<i>2-Knife River ware, indeterminate crude or fine ware</i>	<i>9-Le Beau Normal</i>
	<i>3-Knife River Fine ware (= ware 8)</i>	<i>10-Le Beau Recurved</i>
	<i>4-Transitional ware (= ware 9)</i>	<i>11-Le Beau Indeterminate subware</i>
	<i>5-</i>	<i>12-other S-rim (ware = 1.0 and 1.1 except for subware 13 below)</i>
	<i>6-other straight/braced rim ware (ware 0.0 except for subware 7)</i>	<i>13-composite S-Rim form (subset of ware = 1.0)</i>
	<i>7-rolled rim jar or bowl (a subset of ware = 0.0)</i>	<i>99-fragment, unclassifiable</i>
ORIGTYPE	original type classification (see code list in Ahler and Swenson 1985)	
TYPE	new type based on decoration only	
	0-plain	6-punctate
	1-cord impressed	8-cord-wrapped-tool-impressed
	2-tool impressed	9-finger impressed
	3-incised (includes trailed)	<i>10-simple stamped (paddle stamped)</i>
	4-pinched	11-brushed
	5-filleted	99-unclassifiable fragment
ILLUST	need to illustrate	1=yes
COMMENT	1 = comment exists, recorded outside data base on note sheets	

We had previously accounted for interior zone 5 (brace) placement through the code for zone 5 itself. In order to more directly measure the effect of brace location, we expanded and refined the rimform code to distinguish between interior and exterior placement of the brace on several shapes of rims. Other previously collected data sets can readily be converted or recoded in this manner by working with specific combinations of rimform classification and zone 5 condition and shape classification.

The only other significant coding change has been the addition of the variable “subware” to the code list. We did this to accommodate several observations and features in the current collection. We found it very difficult to make a clear distinction between Knife River ware and Knife River Fine ware as previously defined (Ahler and Swenson 1985), because the two classes seem to grade imperceptibly into one another. Previously, Knife River Fine ware vessels were typically small, well made and finely decorated, while Knife River ware could be distinguished by larger size as well as less decoration and poorer technical quality. In the present Scattered Village sample, all of these features seem to run together. To document this, we created a three-class subware code that includes an in-between category that falls between the two ideal extremes of large crudity and small finesse. Knife River Indeterminate subware vessels are generally coded simply as Knife River at the ware level.

We also observed variation within Le Beau ware at a scale and repetitive frequency that we had not encountered before and which we wished to document with a subware classification. Le Beau ware is generally an S-rim pottery form that has a very smoothly curved lower boundary for zone 3 and which is also characterized by a zone 2 (neck) height that equals or exceeds the height of zone 3 (the upper S area). We observed what appeared to be three distinct kinds of Le Beau ware in the present sample (other distinct variants occur as well but in lesser numbers). One of these we call *Recurved Le Beau ware*, and it is simply normal Le Beau ware with a clear use of zone 4 (making a recurved S-rim). This may occur with or without bracing, and it is sometimes difficult to distinguish between a small exterior brace on zone 3 and a zone 4 added to zone 3. If we determined zone 4 to be present, it was classified as Le Beau Recurved, regardless of bracing. A second Le Beau subware is called *Le Beau High Rim*. It is distinguished by a very short and at the same time sharply incurving zone 3. This rim form is often braced on the interior, as well (although this was not necessary to be classified as High Rim), and such bracing further accentuated the appearance of a sharp upwardly tightening incurvature when viewed from the inside of the vessel. As a residual subware class, we have *Le Beau Normal*. These are basically Le Beau vessels that lack zone 4 (are not recurved) and lack the tightly arced and shortened upper zone 3 area. Zone 3 is more “normal” in height and is more even in curvature from bottom to top. Finally, we have a Le Beau Indeterminate subware group that includes Le Beau vessel fragments too incomplete for classification by subware (mostly zone 3 and zone 2-3 fragments).

We also used the subware variable to isolate two uncommon but distinctive varieties of other unclassified S-rim and straight rim vessels. These are what we call rolled-rim jars (subware = 7) and composite S-rim vessels (subware =13). Both are unusual vessel forms that are often highly decorated, and each will be described in greater detail in presentations of the results of analysis.

The Pottery Sample

The total pottery sample from all Priority 1 contexts and all time periods consists of an estimated 179,303 size grade G3 and larger sherds. This number includes nearly 5,000 sherds from unclassified time period contexts (TP0). Most of this sample comes from the “fluff” sediment unit that was encountered in excavation Block 3. This material was isolated to determine if its content could be used in any way to determine its origin. An examination of ware and type content for the temporally unclassified sample shows it to differ little from a composite of materials from all time periods in the site combined. This observation supports the idea that the “fluff” unit in Block 3 is a washed in or redeposited composite of materials from other site areas. On this basis, we exclude the TP0 pottery from all other analyses, and focus only on ceramic remains classifiable to TP1-TP4, which we call the study sample.

Table 11.3 summarizes count and weight data by size grade for the pottery study sample. The sample consists of an estimated 174,305 individual sherds with a measured weight of 192.747 kilograms. As with most pottery samples, this one is highly fragmented, with an estimated 85% of the sample by count deriving from the smallest size class, G3. By count, more than 94% of the sample consists of body sherds, about 5.5% rim sherds (neck or zone 2 and above), with the remainder made up of a small number of pieces classified as worked sherds and miniature vessel fragments. Five worked items are body sherds with a ground margin on one side. These may have once been part of pottery disks or gaming pieces. One hundred seventy-six fragments of miniature vessels are recorded, with most of these being pieces of small pinch-pots or crudely made and frequently undecorated and untempered toys. Neither worked sherds nor miniature vessel pieces are studied further in this report. Both classes are relatively rare at Scattered Village in comparison to some sites. For example, in a total sample of only 9,551 sherds from Huff Village (32MO11) (1/20th the size of the Scattered sample), 25 worked sherds and 224 miniature vessel fragments occur (counts that exceed the numbers from Scattered).

Ochre residue is similarly rare in the sherd collection. In some village contexts, ochre typically occurs on interior sherd surfaces, apparently not as a fired-on slip or paint, but as residue from use of the vessel for storing or mixing pigment. Red ochre is recorded on the interior of 230 sherds and exterior of 49 sherds, indicating a very low incidence of red pigment-related activities involving pottery at Scattered. Yellow ochre occurs on about 0.12% of the sample (n = 216) and is equally distributed on exterior and interior sherd surfaces. This distribution strongly suggests that most recorded yellow ochre is merely incidental smearing from yellow and brown iron-rich concretions that are abundant in the site matrix. Most of the exterior occurrences of red ochre and an equal number of interior red ochre occurrences can probably be similarly explained. It is reasonable to conclude that pottery was little involved with the preparation and storage of pigments at the site.

Table 11.3. Summary count and weight data for pottery by size grade according to ceramic category for the study collection for Periods 1-4 combined, Scattered Village (32MO31), 1998 excavations. Count data for size G3 are estimates based on weight.

Ceramic Category		Size Grade			Total	
		G1	G2	G3	n	%
Count Data						
Body sherd	n	1,226	17,094	146,192	164,512	94.4%
		.7%	10.4%	88.9%	100.0%	
Rim sherd	n	1,010	6,603	1,999	9,612	5.5%
		10.5%	68.7%	20.8%	100.0%	
Miniature	n		28	148	176	0.1%
			15.9%	84.1%	100.0%	
Worked sherd	n		3	2	5	0.0%
			60.0%	40.0%	100.0%	
Total	n	2,236	23,728	148,341	174,305	
		1.3%	13.6%	85.1%	100.0%	
Weight Data, grams						
Body sherd	wt	19,689	50,354	70,145	140,188	72.7%
		14.0%	35.9%	50.0%	100.0%	
Rim sherd	wt	23,270	27,071	2,027	52,368	27.2%
		44.4%	51.7%	3.9%	100.0%	
Miniature	wt		78	104	182	0.1%
			42.9%	57.1%	100.0%	
Worked sherd	wt		7	2	9	0.0%
			77.8%	22.2%	100.0%	
Total	wt	42,959	77,510	72,278	192,747	100.0%
		22.3%	40.2%	37.5%	100.0%	

Table 11.4 provides a distribution of all ceramic materials by category and size grade, broken down according to the four time periods under investigation. The occurrence of miniature vessel fragments and worked sherds is relatively consistent across time periods. Rim sherds comprise a slightly larger fraction of each sample in the earlier time periods. Similarly, more of the sherds in these time periods fall in large size classes. This is probably a reflection of the fact that most TP3 and TP4 contexts are pits (more protected from post-depositional damage) rather than general level or midden contexts. More than half of the sample by count comes from TP2, the early postcontact period. Less than 20% of the sample comes from the two late precontact age contexts (TP3 and TP4 combined), with the balance (about one-quarter of the collection) assigned to the latest time period.

Table 11.5 provides a slightly different breakdown of the sample according to vessel part and size grade. The approximately 23,000 body and neck parts larger than size G3 form the basis for study of neck and body sherd attributes. The neck sherds are also included in the vessel matching efforts, and through that process, in the study of rims and vessels. Approximately 9,700 sherds are therefore included in the matching efforts and the study of rim and vessel attributes.

Table 11.4. Summary ceramic category count data by size grade according to time period for the study collection for Periods 1-4, Scattered Village (32MO31), 1998 excavations. Count data for size G3 are estimates based on weight.

Ceramic Category		Size Grade			Total	
		G1	G2	G3		
1. Later Postcontact						
body sherd	n	446	4,825	36,610	41,881	94.9%
		<i>1.1%</i>	<i>11.5%</i>	<i>87.4%</i>	<i>100.0%</i>	
rim sherd	n	262	1,547	376	2,185	5.0%
		<i>12.0%</i>	<i>70.8%</i>	<i>17.2%</i>	<i>100.0%</i>	
miniature	n		11	39	50	.1%
			<i>22.0%</i>	<i>78.0%</i>	<i>100.0%</i>	
worked sherd	n		1	1	2	0.0%
			<i>50.0%</i>	<i>50.0%</i>	<i>100.0%</i>	
Total	n	708	6,384	37,026	44,118	100.0%
		<i>1.6%</i>	<i>14.5%</i>	<i>83.9%</i>	<i>100.0%</i>	<i>25.3%</i>
2. Early Postcontact						
body sherd	n	395	8,558	84,145	93,098	94.5%
		<i>.4%</i>	<i>9.2%</i>	<i>90.4%</i>	<i>100.0%</i>	
rim sherd	n	407	3,754	1,127	5,288	5.4%
		<i>7.7%</i>	<i>71.0%</i>	<i>21.3%</i>	<i>100.0%</i>	
miniature	n		9	90	99	0.1%
			<i>9.1%</i>	<i>90.9%</i>	<i>100.0%</i>	
worked sherd	n		1	1	1	0.0%
			<i>100.0%</i>		<i>100.0%</i>	
Total	n	802	12,322	85,362	98,486	100.0%
		<i>.8%</i>	<i>12.5%</i>	<i>86.7%</i>	<i>100.0%</i>	<i>56.5%</i>
3. Late Precontact						
body sherd	n	200	1,856	12,872	14,928	93.8%
		<i>1.3%</i>	<i>12.4%</i>	<i>86.2%</i>	<i>100.0%</i>	
rim sherd	n	199	604	164	967	6.1%
		<i>20.6%</i>	<i>62.5%</i>	<i>17.0%</i>	<i>100.0%</i>	
miniature	n		4	15	19	0.1%
			<i>21.1%</i>	<i>78.9%</i>	<i>100.0%</i>	
worked sherd	n		1	1	1	0.0%
			<i>100.0%</i>		<i>100.0%</i>	
Total	n	399	2,465	13,051	15,915	100.0%
		<i>2.5%</i>	<i>15.5%</i>	<i>82.0%</i>	<i>100.0%</i>	<i>9.1%</i>
4. Late Precontact						
body sherd	n	185	1,855	12,564	14,604	92.5%
		<i>1.3%</i>	<i>12.7%</i>	<i>86.0%</i>	<i>100.0%</i>	
rim sherd	n	142	698	332	1,172	7.4%
		<i>12.1%</i>	<i>59.6%</i>	<i>28.3%</i>	<i>100.0%</i>	
miniature	n		4	4	8	0.1%
			<i>50.0%</i>	<i>50.0%</i>	<i>100.0%</i>	
worked sherd	n			1	1	0.0%
				<i>100.0%</i>	<i>100.0%</i>	
Total	n	327	2,557	12,901	15,785	100.0%
		<i>2.1%</i>	<i>16.2%</i>	<i>81.7%</i>	<i>100.0%</i>	<i>9.1%</i>

Table 11.5. Summary data for vessel part according to size grade for the Period 1-4 study collection, Scattered Village (32MO31), 1998 excavations. Count data for size G3 are estimates based on weight.

Vessel Part	Size Grade							
	G1		G2		G3		Total	
	n	%	n	%	n	%	n	%
Zone 1 Only (body sherd)	1,226	54.8%	17,117	72.1%	146,281	98.6%	164,624	94.4%
Zone 2 Only (neck sherd)	506	22.6%	4,593	19.4%	11	.0%	5,110	2.9%
Zone 3 Only (face sherd)	75	3.4%	395	1.7%	766	.5%	1,236	.7%
Zone 7 Only (lip sherd)			137	.6%	1,095	.7%	1,232	.7%
Rim - Multiple Zones	429	19.2%	1,486	6.3%	188	.1%	2,103	1.2%
Total	2,236	100.0%	23,728	100.0%	148,341	100.0%	174,305	100.0%

Neck and Body Sherd Analysis

Exterior surface treatment data are summarized for the entire study collection and separately for body sherds and neck (zone 2) sherds in Table 11.6. Among body sherds, simple-stamped surface treatment dominates the sample, being roughly three times as common as plain/smoothed sherds. Brushing occurs on slightly more than 1% of the body sherds. Check-stamping occurs in seven sherds and makes up a negligible fraction of the collection. The sample is quite homogeneous from the point of view of body surface treatment. Simple-stamp marks are usually prominent and widely spaced on most vessels, and are rarely completely smoothed over the entire surface of any pot. Decoration on body sherds is relatively rare. It consists of about equal frequencies of trailed versus incised patterns of zone triangles placed in the shoulder area, with occasional occurrences of punctates, tool impressions, and, rarely, cord impressions that extend to the body of the vessel. Altogether, only slightly more than 3% of the body sherd sample exhibits decoration.

Exterior surface treatment data (Table 11.6) indicate that the neck area of the vessel is treated differently from vessel bodies, and this is evident in most of the larger reconstructed vessel pieces (e.g., Figure 11.9, 11.23, 11.26). The dominant treatment is plain/smoothed (nearly 70%). Most of the 10% that show simple-stamping probably reflect encroachment of stamping from the vessel body onto the neck across the zone 1-zone 2 boundary. One-tenth of neck sherds exhibit brushing, and this is usually oriented vertically. A greater percentage of neck sherds than body sherds also exhibit decoration. "Other" decoration, which occurs on 6% of the sample, consists primarily of lines of horizontal cord impression, used frequently in the neck area of straight-rim vessels.

Distribution of body sherd surface treatment according to time period is shown in Table 11.7 and the corresponding display of neck sherd surface treatment is in Table 11.8. In both tables, chi-square analysis shows a significant relationship between surface treatment and time ($p=.000$ in both tables). The most striking and consistent differences among time periods are a relatively high incidence of other decoration in TP4, and, particularly, a strong increase in brushing in TP1. In neck sherds, where brushing tends to be emphasized, there is a four-fold increase in brushing in the latest time period.

Table 11.6. Summary of exterior surface treatment data for size grade G1 and G2 body sherds and zone 2 (neck) sherds for Scattered Village (32MO31), 1998 excavations.

Exterior Surface Treatment	Vessel Part					
	Zone 1 Only (Body)		Zone 2 Only (Neck)		Total	
	n	%	n	%	n	%
plain/smooth	3,990	22.5%	3,332	69.8%	7,322	32.5%
simple-stamped	12,922	72.7%	458	9.6%	13,380	59.4%
check-stamped	7	.0%			7	.0%
brushed	226	1.3%	493	10.3%	719	3.2%
incised	230	1.3%	61	1.3%	291	1.3%
trailed	266	1.5%	134	2.8%	400	1.8%
other decoration	130	.7%	295	6.2%	425	1.9%
Total	17,771	100.0%	4,773	100.0%	22,544	100.0%

Table 11.7. Cross-tabulation of size grade G1 and G2 body sherd (zone 1) exterior surface treatment, according to time period for Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Cell residual values >+1.0 are shaded.

Surface Treatment	Time Period				Total
	TP1	TP2	TP3	TP4	
Plain/smooth	1,021	2,147	431	391	3,990
Simple-stamped	3,825	6,078	1,507	1,512	12,922
Check-stamped	4	1	0	2	7
Brushed	132	59	29	6	226
Incised	42	139	23	26	230
Trailed	56	156	34	20	266
Other decoration	50	42	9	29	130
Plain/smooth	19.9%	24.9%	21.2%	19.7%	22.5%
Simple-stamped	74.6%	70.5%	74.1%	76.1%	72.7%
Check-stamped	.1%	.0%	.0%	.1%	.0%
Brushed	2.6%	.7%	1.4%	.3%	1.3%
Incised	.8%	1.6%	1.1%	1.3%	1.3%
Trailed	1.1%	1.8%	1.7%	1.0%	1.5%
Other decoration	1.0%	.5%	.4%	1.5%	.7%
Plain/smooth	-3.9	4.8	-1.2	-2.6	
Simple-stamped	1.6	-2.4	.7	1.8	
Check-stamped	1.4	-1.3	-.9	1.4	
Brushed	8.3	-4.8	.6	-3.8	
Incised	-3.0	2.6	-.6	.1	
Trailed	-2.4	2.4	.6	-1.8	
Other decoration	2.0	-2.7	-1.5	3.8	
Total	5,130	8,622	2,033	1,986	17,771
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 11.8. Cross-tabulation of size grade G1 and G2 neck sherd (zone 2) exterior surface treatment, according to time period for Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Cell residual values >+1.0 are shaded.

Surface Treatment	Time Period				Total
	TP1	TP2	TP3	TP4	
Plain/smooth	651	1,981	390	310	3,332
Simple-stamped	129	273	23	33	458
Brushed	247	180	39	27	493
Incised	5	42	2	12	61
Trailed	17	94	13	10	134
Other decoration	84	113	44	54	295
Plain/smooth	57.5%	73.8%	76.3%	69.5%	69.8%
Simple-stamped	11.4%	10.2%	4.5%	7.4%	9.6%
Brushed	21.8%	6.7%	7.6%	6.1%	10.3%
Incised	.4%	1.6%	.4%	2.7%	1.3%
Trailed	1.5%	3.5%	2.5%	2.2%	2.8%
Other decoration	7.4%	4.2%	8.6%	12.1%	6.2%
Plain/smooth	-5.0	2.5	1.8	-1	
Simple-stamped	1.9	1.0	-3.7	-1.5	
Brushed	12.0	-5.8	-1.9	-2.8	
Incised	-2.5	1.3	-1.8	2.6	
Trailed	-2.6	2.2	-.4	-.7	
Other decoration	1.7	-4.1	2.2	5.0	
Total	1,133	2,683	511	446	4,773
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 11.9 summarizes the average maximum size G2 body sherd thickness values for the more than 8,000 measured sherds by time period. Analysis of variance indicates that differences among time periods are statistically significant. Overall, there is a trend toward decreasing thickness through time, with the value for the latest period, TP1, standing out as being about 2% less than the preceding period.

Table 11.9. Summary and analysis of variance of mean size G2 body sherd thickness by time period, Scattered Village (32MO31), 1998 excavations.

Time Period	Mean Thickness	Standard Deviation	N
1. later postcontact	4.773	1.0905	1,767
2. early postcontact	4.865	1.0580	4,151
3. late precontact	4.906	1.1327	1,240
4. late precontact	4.913	1.0846	1,172

Time Period	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	19.476	3	6.492	5.565	.001
Within Groups	9,712.658	8,326	1.167		
Total	9,732.133	8,329			

Table 11.10 summarizes intersite comparisons of data for body sherds for Scattered Village and three other village sites. Comparative data are taken from Speakman et al. (1997) for Slant (Time Periods 2 and 3 only), and from Ahler and Swenson (1993:Tables 17.1 and 17.7) for Big Hidatsa (Batches 68 and 69) and Lower Hidatsa (Batches 46-49). The time period samples chosen for the other sites are those that closely match Scattered Village. Generally, the two Hidatsa sites are similar to each other and stand well apart from both Scattered and Slant Village. Plain/smoothed surface treatment and check-stamped surface treatment occur in much higher frequency at the Hidatsa sites. Body sherds are on average much thicker in the Hidatsa sites. Overall, Scattered Village is most similar to Slant Village in body sherd attributes, and least similar to Big Hidatsa. It is pertinent that Big Hidatsa is a traditional Hidatsa-proper subgroup settlement, and according to some traditions, the location where the residents of Scattered Village settled soon after departing Heart River. There is little strong support for this interpretation in the body sherd data.

Table 11.10. Comparative summary of body sherd surface treatment and thickness data for four contemporaneous village samples from the Knife and Heart regions.

Attribute	Lower Hidatsa Village	Big Hidatsa Village	Scattered Village	Slant Village
Body Surface Treatment				
plain/smoothed	32.0%	31.1%	22.5%	11.3%
simple-stamped	64.6%	63.7%	72.7%	84.4%
check-stamped	1.0%	3.2%	0.0%	0.2%
brushed	-	-	1.3%	1.6%
decorated	2.4%	2.2%	3.5%	2.6%
<i>Sample n</i>	4,011	1,521	17,771	4,873
Mean Body Sherd Thickness	5.172 mm	5.337 mm	4.858 mm	4.902 mm
<i>Sample n</i>	3,641	1,350	8,330	2,609

Vessel Analysis

After vessel matching, the collection sample in the database consists of 1,994 vessels. Fifty-four of these are assigned to TP0, or indeterminate, and are predominantly from the “fluff” sediment unit in Block 3. Chi-square analysis of ware and type classification indicates that there is no significant difference between vessels in TP0 and vessels from all other periods combined. It is reasonable to conclude that TP0 materials include a washed-in composite of vessels from other contexts at the site, and do not warrant additional study. On this basis, study of vessels is confined to data for 1,940 specimens in TP1 through TP4 only. This is termed the vessel study sample. Within the vessel study sample, 1,929 are complete enough to be classified according to decorative type, and 1,793 are complete enough for classification according to ware. Specimens unclassifiable by ware are predominantly small lip and brace fragments.

Regarding overall rim and vessel form, nearly two-thirds of the coded vessels (65.5%) express some variant of an S-rim form, about one quarter (26.3%) have a straight or everted rim (some with and some without braces), two (0.1%) are bowls or vessels without a neck, and the remainder (8.1%) are various kinds of small fragments less classifiable by form (lip and brace fragments, appendage pieces, etc.). In our classification of the vessels, we followed the general concept of wares and types as formulated by Lehmer (1954) in which wares are intended to be higher order groups based primarily on variation in rim or vessel form, with types being a hierarchical subdivision of wares distinguished largely by decoration. We also followed the procedure of Ahler and Swenson (1985) in which types are simplified to a large degree and are based largely on decorative technique or dominant decorative technique, with little consideration of decorative pattern being involved in type distinctions.

In the present sample, the type classification is relatively straightforward, whereas ware classification is relatively challenging and complex. The latter is partly due to the very common use of bracing (zone 5) in vessel construction. In many assemblages studied previously that postdate AD 1500 (for example, many sites used in Ahler and Swenson 1993, as well as Slant Village, Speakman et al. 1997), use of bracing is restricted to a great degree to the exterior of straight rim vessels, and particularly, in the construction of Knife River ware (straight, braced rim form). In the present collection, bracing is used extensively on both the interior and the exterior of S-rim vessels, and this greatly complicates both the technical form of the vessel (based on zones present and their placement) as well as the visual form or appearance of the vessel (whether a vessel appears to have a thickened lip, or a recurved area at the top of the S-rim). Details of the technology of bracing are indicated in Figure 11.1, which shows detachment scars for braces on the interiors and exteriors of S-rim and recurved S-rim vessels. It is largely because of this complexity in rimform that we refined the rimform classification code to incorporate directly the placement (interior or exterior) of the brace in combination with other aspects of rimform. This complexity also caused us to attempt to classify the general group, Le Beau ware, into several subsets based on rimform that appeared to recur in the collection.

Within this particular collection, S-rim ware, in general, and Le Beau ware by name, grades into straight rim and braced straight rim pottery (predominantly Knife River ware). Because of this gradation, it is extremely difficult to derive a classification system based on the simple principles set forth by Lehmer that captures the variation in the collection. This is the first collection studied in detail by the first author where this complexity occurred and had to be dealt with. Since starting work with the Scattered collection two years ago, this author has had opportunity to study several additional collections from the Heart region that are similar in age to Scattered Village. Similar typological complexity is noted in several of these samples. To date, no one has effectively dealt with this complexity and published a classification system that is both direct in application and demonstrably effective for measuring or capturing ethnic, temporal, or spatial variation. Thad C. Hecker was one of the first and the few archaeologists to wrestle directly with this problem, and his solution lies in a large unpublished manuscript in the archives of the SHSND – a document so daunting that it has so far been largely ignored.

As noted, the present approach has been to apply the attribute coding system developed by Ahler and Swenson (1985), to modify that system to incorporate brace placement

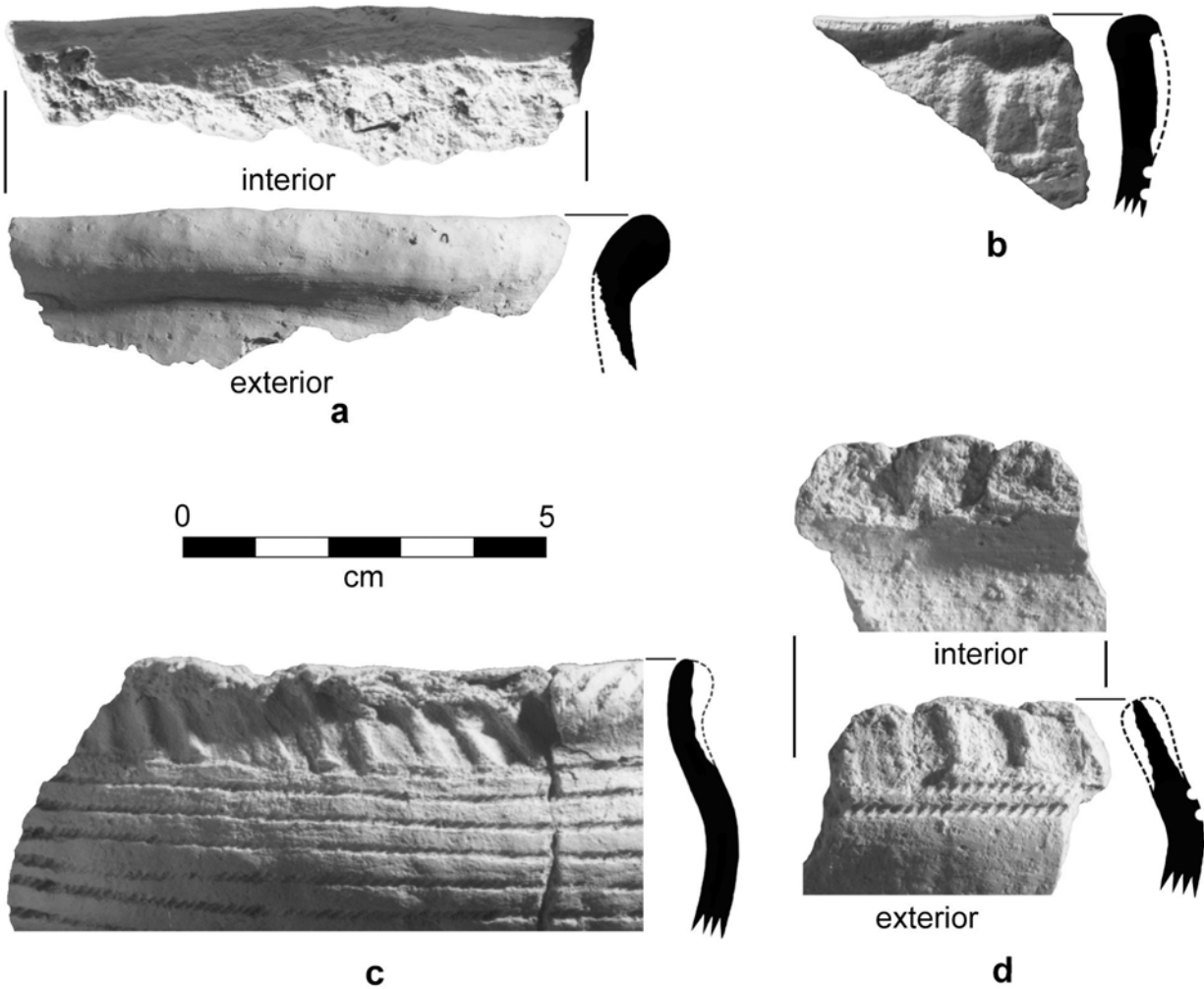


Figure 11.1. The technology of bracing and brace (zone 5) placement in straight rim and S-rim vessels, Scattered Village (32M031), 1998 excavations. a: brace created as a thick strap or coil attached to upper neck of a straight rim vessel; b-d: braces attached to the exterior (b-d) and interior (d) of S-rim (b, d) and Recurved S-rim (c) vessels, showing the attachment surface beneath the brace having been prepared with a simple-stamped paddle.

directly into rimform classification, and to develop a hybrid classificatory group that we have called directly into rimform classification, and to develop a hybrid classificatory group that we have called “subware” in the hopes of organizing some of the recognizable variability within the sample into a group that may have utility beyond this study. The accompanying diagram (Figure 11.2) indicates the relationship between wares, in the sense that that have been used previously and are used again here, and the subwares used here for the first time. In essence, we use subwares to (1) separate an apparent continuum between Knife River ware and Knife River Fine ware into a 3-part arrangement; (2) separate Le Beau ware into four subsets called High Rim, Normal (sometimes referred to as Simple), Recurved, and Indeterminate; (3) isolate a small

<i>General Vessel Class</i>	<i>Ware</i>	<i>Subware</i>
Bowl	Unnamed Straight Rim Late Ware	Other Straight Rim
Straight Rim Form	Unnamed Straight Rim Late Ware	Other Straight Rim Rolled-Rim Jars
	Knife River Ware	Knife River Large Knife River Intermediate
	Knife River Fine Ware	Knife River Fine
Hybrid, S-rim with Exterior Brace	Transitional Ware	Transitional
S-Rim Form	Unnamed S-Rim Early	Other S-Rim
	Unnamed S-Rim Late	Other S-Rim Composite S-Rim
	Le Beau Ware	Le Beau High Rim Le Beau Normal (Simple) Le Beau Recurved
	Le Beau Ware	Le Beau Indeterminate

Figure 11.2. Classificatory relationship among general vessel form, wares, and subwares as used in the Scattered Village pottery analysis.

group of straight rim vessels best described as rolled-rim jars; and (4) isolate a few odd S-rim vessel fragments that have an angular S-form that we call composite.

The following three tables provide summary information about the classification of the study collection as a whole. Table 11.11 lists rimform class frequencies according to ware and serves to illustrate the complexity of, particularly, vessel form in Le Beau ware that has five distinct expressions of rimform. One may note also single occurrences of Knife River ware with S-rim and recurved S-rim form, seeming errors in classification. These ware classifications were maintained because of the overall appearance of one vessel (Figure 11.3b), and in the second instance because the recurved S-rim, braced vessel also carried a spout, a feature normally considered specifically indicative of Knife River ware. Table 11.12 indicates type frequencies (the singular or dominant decorative technique) according to ware classification. Nearly two-thirds of the collection has cord-impressed decorations, with lesser occurrences of plain and finger-impressed decoration. Similarly, Table 11.13 lists type frequencies according to subware classification. Examples of these decorative expressions will be presented in the discussion of individual wares and subwares.

Table 11.11. Vessel rim form class frequencies and percentages according to ware class for the pottery vessel study collection, Scattered Village (32MO31), 1998 excavations.

Rim Form and Zones Present	Ware								Total	
	Knife River	Knife River Fine	Transitional	Unnamed Straight Rim Late	Unnamed S-Rim Early	Le Beau	Le Beau Fine	Unnamed S-Rim Late		
bowl / jar (no Z2)	n			2					2	
	%			5.6%					.1%	
straight rim	n	36	3	28					67	
	%	8.5%	4.8%	77.8%					3.7%	
str. rim w/ext. brace	n	370	57	4					431	
	%	86.9%	91.9%	11.1%					24.0%	
str. rim w/int. brace	n	7	2	1					10	
	%	1.6%	3.2%	2.8%					.6%	
s-rim	n				1	397	8	10	416	
	%				33.3%	33.6%	53.3%	50.0%	23.2%	
s-rim w/ext. brace	n	1	48			107	2		158	
	%	.2%	96.0%			9.1%	13.3%		8.8%	
s-rim w/int. brace	n		1			237	2	3	243	
	%		2.0%			20.1%	13.3%	15.0%	13.6%	
s-rim w/fillet (int)	n					2			2	
	%					.2%			.1%	
recurved s-rim	n					89	2		91	
	%					7.5%	13.3%		5.1%	
recur. s-rim w/ext. br.	n	1				43	1	1	46	
	%	.2%				3.6%	6.7%	5.0%	2.6%	
recur. s-rim w/int. br.	n					2			2	
	%					.2%			.1%	
zone 2-3 fragment	n				1	167		1	169	
	%				33.3%	14.1%		5.0%	9.4%	
zone 3 fragment	n				1	133		5	139	
	%				33.3%	11.3%		25.0%	7.8%	
lip frag. w/extbrace	n	11	1			4			16	
	%	2.6%	2.0%			.3%			.9%	
lip w/int. brace	n			1					1	
	%			2.8%					.1%	
Total	n	426	62	50	36	3	1,181	15	20	1,793
	%	23.8%	3.5%	2.8%	2.0%	0.2%	65.8%	0.8%	1.1%	100.0%

Knife River Ware, Knife River Fine Ware, and Related Subwares

Knife River ware makes up ca. 23.8% of the classifiable collection, and Knife River Fine ware 3.5% of the sample. In its classic form or by its original definition (Lehmer et al. 1978), Knife River ware is a braced and rather coarse and crudely made straight rim pottery group, distinguished in part by its lower technical quality and unrefined decoration and detail. Knife River Fine ware is in essence a subware originally used with Knife River Village collections to isolate vessels with similar form, but generally smaller in size and much more refined and

Table 11.12. Vessel decorative type frequencies and percentages according to ware class for the pottery vessel study collection, Scattered Village (32MO31), 1998 excavations.

Type	Ware									
	Knife River	Knife River Fine	Transitional	Unnamed Straight Rim Late	Unnamed S-Rim Early	Le Beau	Le Beau Fine	Unnamed S-Rim Late	Total	
Plain	n 79		1	12		206	3	2	303	
	% 18.6%		2.0%	33.3%		17.5%	20.0%	10.0%	17.0%	
Cord-Imp	n 314	61	47	16	3	762	10	7	1,220	
	% 73.9%	98.4%	94.0%	44.4%	100.0%	64.8%	66.7%	35.0%	68.3%	
Tool-Imp	n 4			1		13		1	19	
	% .9%			2.8%		1.1%		5.0%	1.1%	
Incised	n 3	1	1	6		13		5	29	
	% .7%	1.6%	2.0%	16.7%		1.1%		25.0%	1.6%	
Pinched	n 3					2			5	
	% .7%					.2%			.3%	
Punctate	n 5					5			5	
	%					.4%			.3%	
CWTI	n 3					3		3	6	
	%					.3%		15.0%	.3%	
Finger-Imp.	n 22		1	1		129	2	1	156	
	% 5.2%		2.0%	2.8%		11.0%	13.3%	5.0%	8.7%	
Simple-St.	n 41					41			41	
	%					3.5%			2.3%	
Brushed	n 2					2		1	3	
	%					.2%		5.0%	.2%	
Total	n 425	62	50	36	3	1,176	15	20	1,787	
	% 23.8%	3.5%	2.8%	2.0%	0.2%	65.8%	0.8%	1.1%	100.0%	

elaborate in decoration that were noted as occurring in both traditional Hidatsa and Mandan sites (Ahler and Swenson 1985). In the present study, the dividing line between these two groups is unclear, and we created a third subware, Knife River Intermediate (Can't Tell) to identify vessels that seem intermediate in technical quality and decorative details between the other two classes. Subdivided in this manner, "classic" or "Large" Knife River subware makes up 12.3% of the collection, Knife River Intermediate subware 11.5%, and Knife River Fine subware 3.5%.

Examples of Large Knife River subware are illustrated in Figure 11.3 through Figure 11.7, Knife River Intermediate subware in Figure 11.7 through Figure 11.9, and Knife River Fine subware in Figure 11.10 through Figure 11.12. Mediocre technical quality is clear in several vessels that have coarse temper particles protruding from the vessel surface, crumbly paste, sloppy brace attachment, irregular zone thickness, and/or poor decorative alignment (Figure 11.3a,f; Figure 11.4a,c,d; Figure 11.5a,d; Figure 11.8b,e). Appendages in the form of castellations and spouts are in the hallmark of Knife River ware and Knife River Fine ware, and such features are common the present collections as can be seen in the illustrations that were

Table 11.13. Vessel decorative type frequencies and percentages according to subware class for the pottery vessel study collection, Scattered Village (32MO31), 1998 excavations.

Type	Subware													Total
	Knife River Large	Knife River Indet.	Knife River Fine	Transitional	Other Straight/ Braced	Rolled Rim Jar/Bowl	Le Beau High Rim	Le Beau Normal	Le Beau Recurved	Le Beau Can't Tell	Other S-Rim	Composite Zone 3		
Plain	n 39	40		1	11	1	48	99	19	43	2		303	
	% 17.7%	19.5%		2.0%	47.8%	7.7%	16.2%	24.3%	14.1%	12.2%	11.8%		17.0%	
Cord-Imp.	n 158	156	61	47	7	9	190	203	93	286	8	2	1220	
	% 71.8%	76.1%	98.4%	94.0%	30.4%	69.2%	64.2%	49.9%	68.9%	81.0%	47.1%	33.3%	68.3%	
Tool-Imp.	n 3	1			1		3	7	1	2	1		19	
	% 1.4%	.5%			4.3%		1.0%	1.7%	.7%	.6%	5.9%		1.1%	
Incised	n 1	2	1	1	3	3	4	1	1	7	1	4	29	
	% .5%	1.0%	1.6%	2.0%	13.0%	23.1%	1.4%	.2%	.7%	2.0%	5.9%	66.7%	1.6%	
Pinched	n 2	1						1	1				5	
	% .9%	.5%						.2%	.7%				.3%	
Punctuate	n							5					5	
	%							1.2%					.3%	
CWTI	n								2	1	3		6	
	%								1.5%	.3%	17.6%		.3%	
Finger-Imp.	n 17	5		1	1		45	60	13	13	1		156	
	% 7.7%	2.4%		2.0%	4.3%		15.2%	14.7%	9.6%	3.7%	5.9%		8.7%	
Simple-St.	n						6	29	5	1			41	
	%						2.0%	7.1%	3.7%	.3%			2.3%	
Brushed	n							2			1		3	
	%							.5%			5.9%		.2%	
Total	n 220	205	62	50	23	13	296	407	135	353	17	6	1787	
	% 12.3%	11.5%	3.5%	2.8%	1.3%	0.7%	16.6%	22.8%	7.6%	19.8%	1.0%	0.3%	100.0%	

selected to some degree to highlight these features. Within the present sample of 422 Knife River ware vessels, 16 examples of spouts and 16 examples of castellations occur; such features are relatively a little more common in Knife River Fine ware vessels. Single examples of strap handles occur in each ware, with an odd spout-handle occurring in two vessels (Figure 11.7a and Figure 11.10e). Cord-impressed decoration typically changes orientation or pattern at the locus of a spout or castellation. A single horizontally flanged vessel rim occurs (Figure 11.8g); a similar feature, combined with an angular edge on the flange, occurred in one Knife River ware vessel at Slant Village (Speakman et al. 1997:220). Both of these could in fact be end parts of oval or boat-shaped pots (see discussion below of such a vessel in the Scattered collection) that have previously gone unrecognized in regional ceramic studies.

By its original definition, Knife River ware has a braced, straight rim form. In the present sample, we included a number of vessels (about 9% of the category; Table 11.11) that, technically, lack bracing, but have a subtle thickened form on the upper part of the rim (e.g., Figure 11.5b; Figure 11.8f,g; Figure 11.9). It is useful to point out some of the differences among the subwares within Knife River ware. Difference in vessel size is illustrated by the

Table 11.14. Comparison of means of selected metric variables among subwares of Knife River ware, Scattered Village (32MO31), 1998 excavations.

Subware	Mean	Std Dev	Cases
Orifice Diameter			
Knife River Large	22.7188	7.3754	64
Knife River Indeterminate	17.9322	6.2031	59
Knife River Fine	15.2258	4.7799	31
Overall	19.3766	7.1016	154
ANOVA	F=16.3288	p=.0000	
Cord Spacing			
Knife River Large	3.3153	.7006	150
Knife River Indeterminate	2.9919	.6304	148
Knife River Fine	2.7480	.6554	59
Overall	3.0875	.6959	357
ANOVA	F=18.03	p=.0000	
Cord Diameter			
Knife River Large	1.6626	.3151	152
Knife River Indeterminate	1.5720	.3683	152
Knife River Fine	1.4508	.3240	59
For Entire Population	1.5903	.3469	363
ANOVA	F=8.63	p=.0002	

comparison of mean orifice diameter by subware in Table 11.14. Large Knife River subware has an orifice diameter ca. 50% larger than that of Knife River Fine subware, with this difference probably translating into a three- to four-fold difference in vessel volume. Spacing and diameter in cord-impressed decoration also varies significantly by subware, as shown by data in Table 11.14. Knife River Fine subware exhibits the most closely spaced decoration and the smallest diameter cordage among the three groups.

Table 11.15 presents a finer-grained assessment of decorative type according to subware than shown in Table 11.13. Decoration varies significantly according to subware ($X^2=29.19$, $df=10$, $p=.001$). The differences are straightforward. Finger-impressed decoration occurs predominantly in Large Knife River subware, and is absent in Knife River Fine ware. Similarly, plain decoration is absent in Knife River Fine subware, and is common in the two larger vessel groups. Knife River Fine subware is dominated by cord-impressed decoration; Figure 11.9 through Figure 11.12 also show that decoration in this subware is common in multiple zones on the vessel, frequently occurring on the lip, brace, neck, and body shoulder just below the neck. Shoulder decoration is usually incised. Decoration and vessel size are therefore closely related within braced, straight rim vessels. These broad differences, which we capture here as subware classification, are probably related ultimately to a difference in vessel function.

Transitional Ware

Transitional ware is characterized by a combination of an exterior brace (usually quite prominent in size and appearance) applied to an S-rim vessel form in such a manner that the brace obscures the presence of the zone 3 area. From the interior, the rim part of the vessel resembles a Le Beau ware S-rim vessel, and from the exterior, the rim closely resembles Knife

Table 11.15. Distribution of decorative types according to subware within Knife River ware, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, standardized cell residual values bottom. Cell residual values >+1.0 are shaded.

Type	Subware			Total
	Knife River Large	Knife River Indet.	Knife River Fine	
Plain	39	40	0	79
Cord-Imprinted	158	156	61	375
Tool-Imprinted	3	1	0	4
Incised	1	2	1	4
Pinched	2	1	0	3
Finger-Imprinted	17	5	0	22
Plain	17.7%	19.5%	.0%	16.2%
Cord-Imprinted	71.8%	76.1%	98.4%	77.0%
Tool-Imprinted	1.4%	.5%	.0%	.8%
Incised	.5%	1.0%	1.6%	.8%
Pinched	.9%	.5%	.0%	.6%
Finger-Imprinted	7.7%	2.4%	.0%	4.5%
Plain	.6	1.2	-3.2	
Cord-Imprinted	-.9	-.1	1.9	
Tool-Imprinted	.9	-.5	-.7	
Incised	-.6	.2	.7	
Pinched	.6	-.2	-.6	
Finger-Imprinted	2.2	-1.4	-1.7	
Total	220	205	62	487
	100.0%	100.0%	100.0%	100.0%

River ware. Transitional ware was first used in the study of Knife River Village collections that contained relatively large numbers of Knife River ware, Le Beau ware, and what appeared to be a hybrid of the two. This class has utility in the present sample, where this hybrid ware category also occurs in some frequency, with 50 vessels comprising 2.8% of the sample.

Typical examples of Transitional ware vessels are illustrated in Figure 11.13 and Figure 11.14. Transitional ware is predominantly cord-impressed in decoration (94%), as can be seen in the illustrations. The most characteristic decorative pattern for Transitional ware consists of parallel cord impressions (usually diagonal) on a broad and bold brace, with a row of bold fingertip impressions occurring along the lower margin of the brace (Figure 11.13a,c,d,e,g; Figure 11.14a,b,e,h). This same pattern occurs occasionally in Knife River ware (Figure 11.3d, Figure 11.4e, Figure 11.5f) in the present collection, and is characteristic of Transitional ware in several Hidatsa sites (e.g., Ahler and Weston 1981:89). Transitional ware vessels are typically large and heavy in construction and execution. Measurable orifice diameters range from 10 cm to 34 cm in the present collection, and average 23.0 cm, which is slightly larger than the mean for Large Knife River subware vessels (Table 11.14). Cord impression spacing (mean=3.067 +/- .6766) and diameter (mean=1.636 +/- .3465) are comparable to means for Knife River Indeterminate subware vessels (Table 11.14).

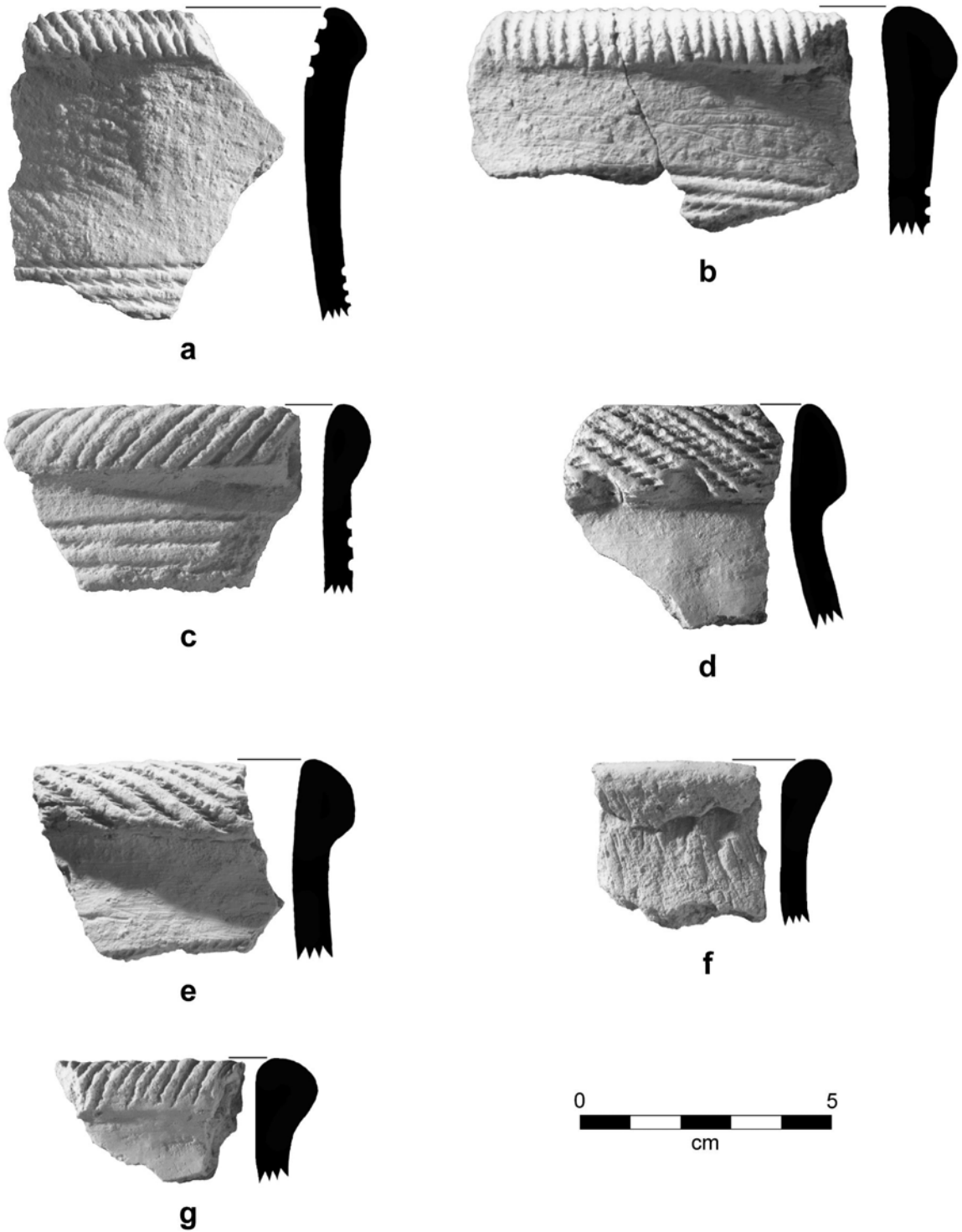


Figure 11.3. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-e,g: Large Knife River subware, cord-impressed; f: Large Knife River subware, plain.

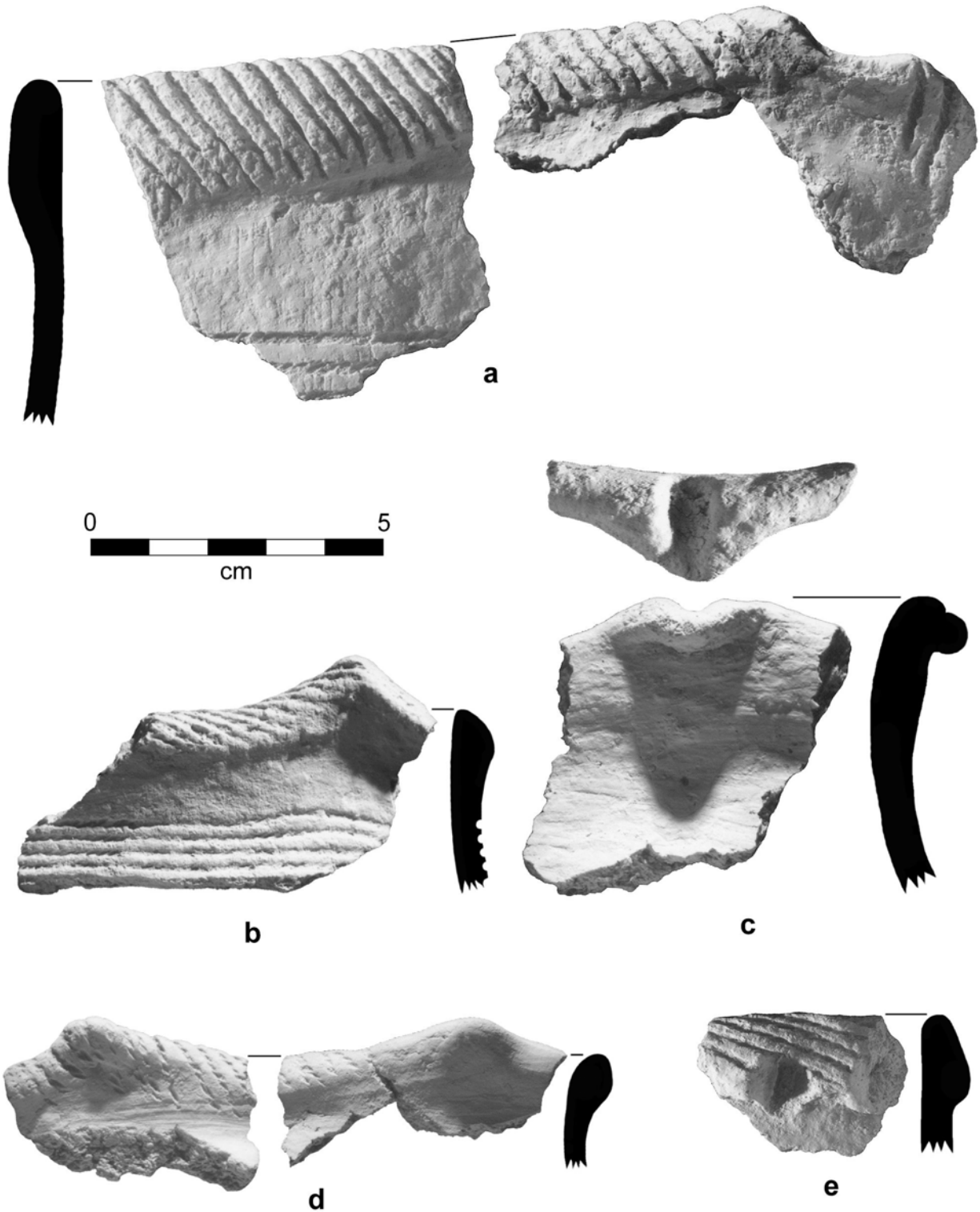


Figure 11.4. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a,b,d,e: Large Knife River subware, cord impressed, illustrating spouts (a) and castellations (b,d); c: Large Knife River subware, plain, with spout.

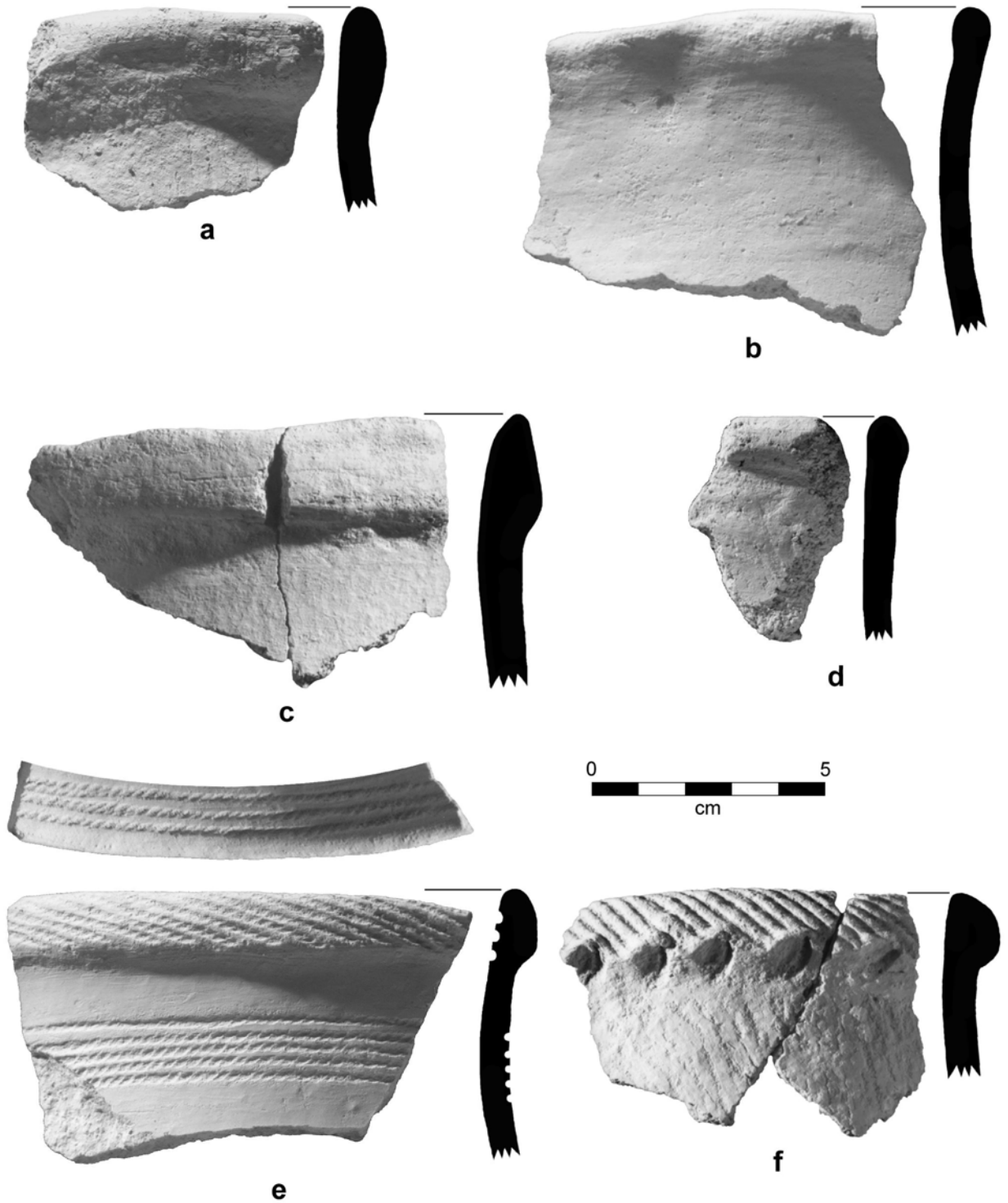


Figure 11.5. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-f: Large Knife River subware; a: pinched or wavy rim; b,c: finger-impressed; d: plain; e,f: cord-impressed.



Figure 11.6. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Large Knife River subware, finger-impressed. Refitted vessel fragment.



a

V6.255 CN-2911
W-6.0 S-2 T-1



b

V2.278 CN-2935
W-6.0 S-1 T-1

Figure 11.7. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Knife River Indeterminate subware, cord-impressed with spout-handle; b: Large Knife River subware, cord-impressed. Specimen in (a) is from a mixed context (priority 3), not in database.

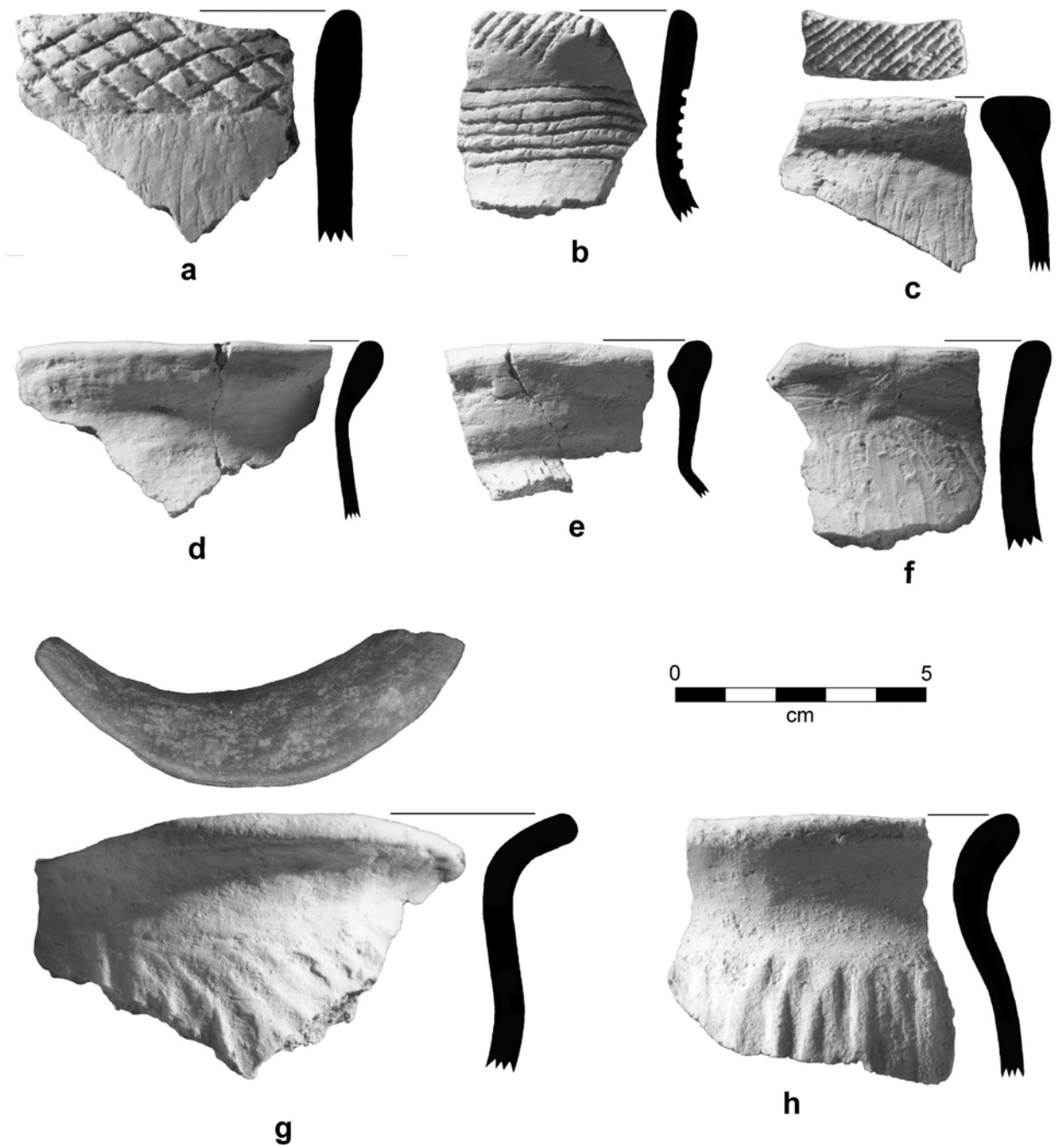


Figure 11.8. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-h: Knife River Indeterminate subware; a-c: cord-impressed; d-h: plain; note flange in (g).



Figure 11.9. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Knife River Indeterminate subware, plain. Note spout; rim is only slightly thickened, not braced.

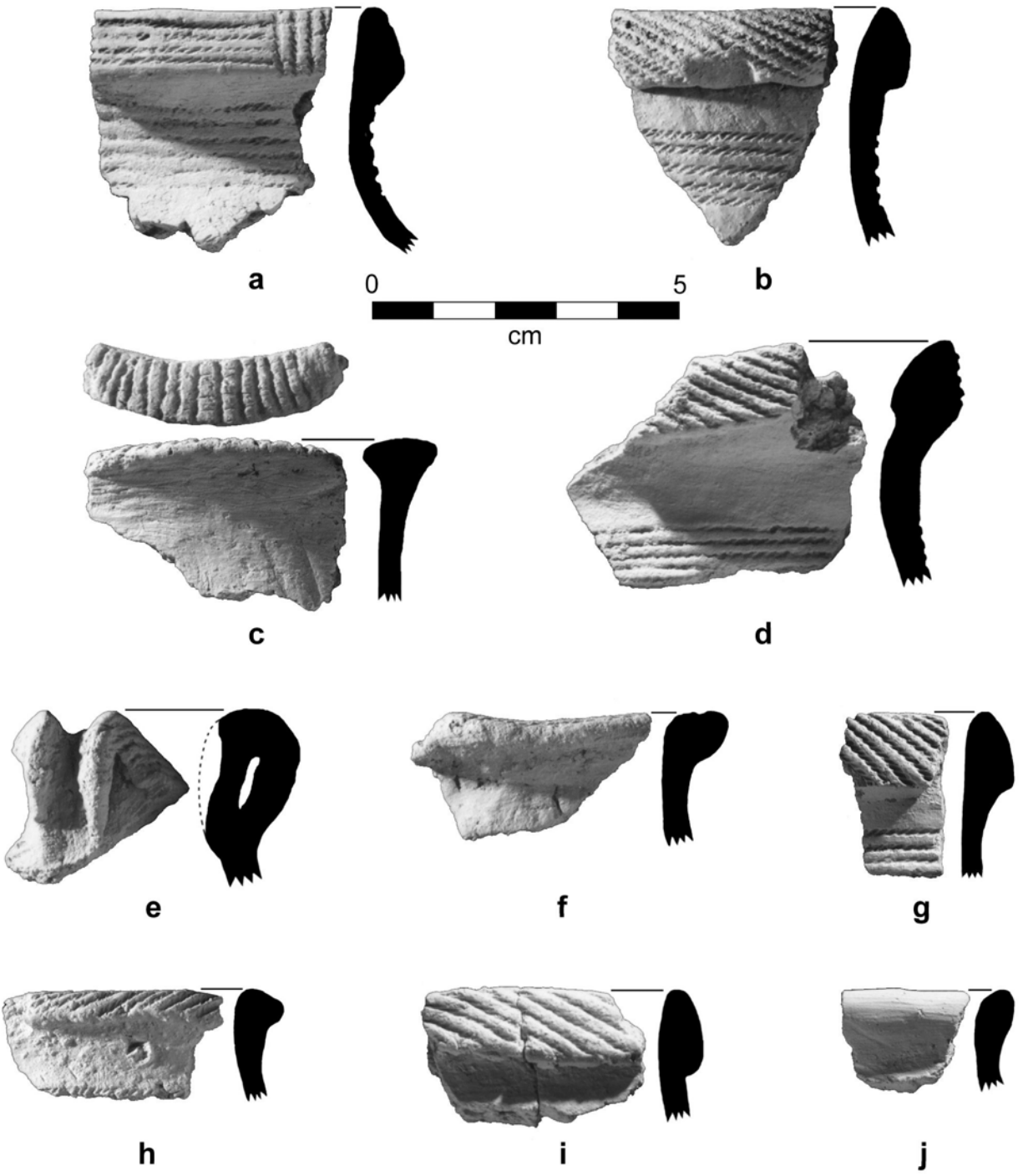


Figure 11.10. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-f: Knife River Fine subware, cord-impressed.

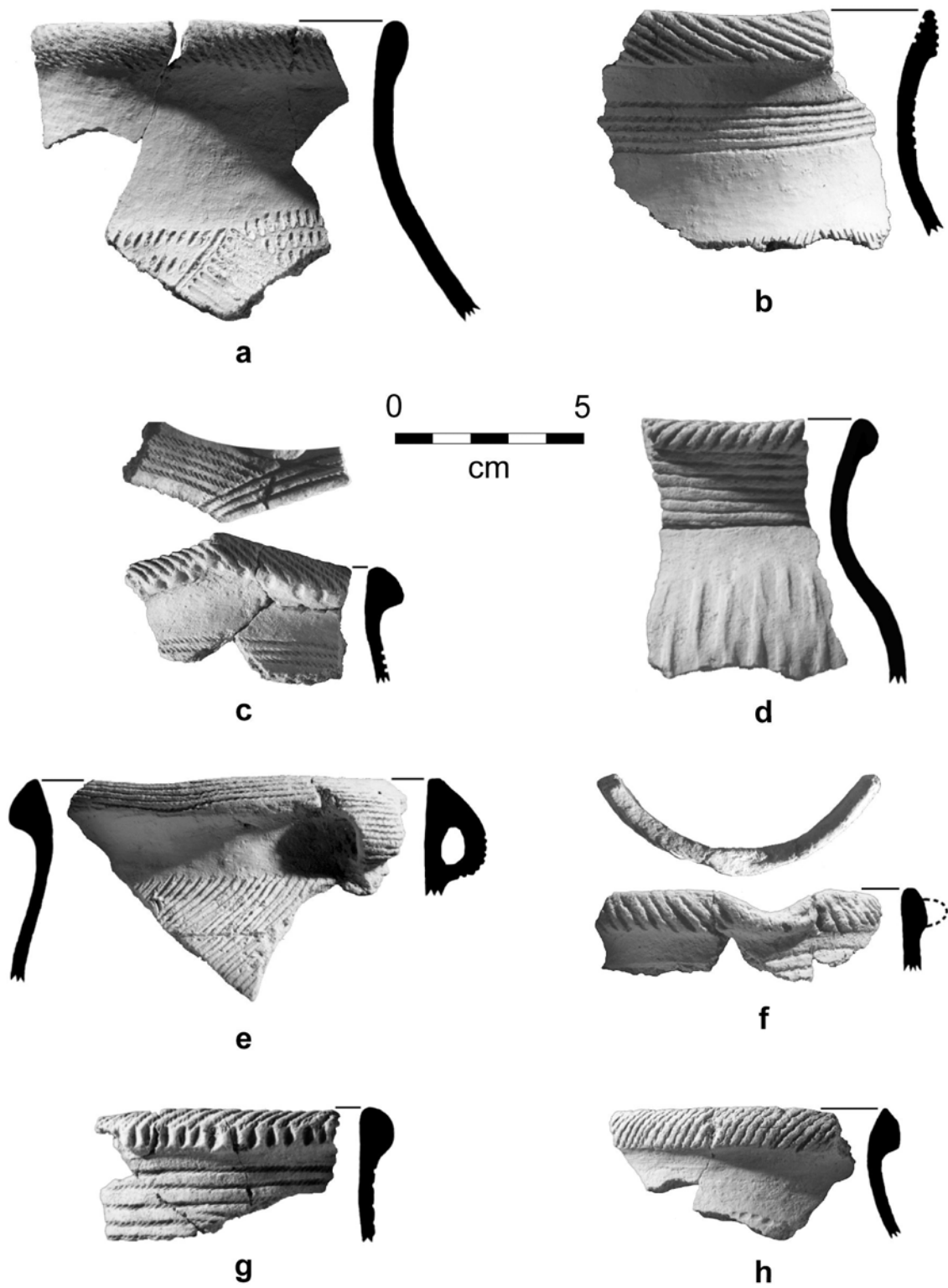


Figure 11.11. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-h: Knife River Fine subware, cord-impressed.



a

V9.302 CN-2740
W-8.0 S-3 T-1



b

V9.298 CN-2927
W-8.0 S-3 T-1

Figure 11.12. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a,b: Knife River Fine subware, cord-impressed. Note raised effigy face on the bulge in the decorated shoulder in (a).

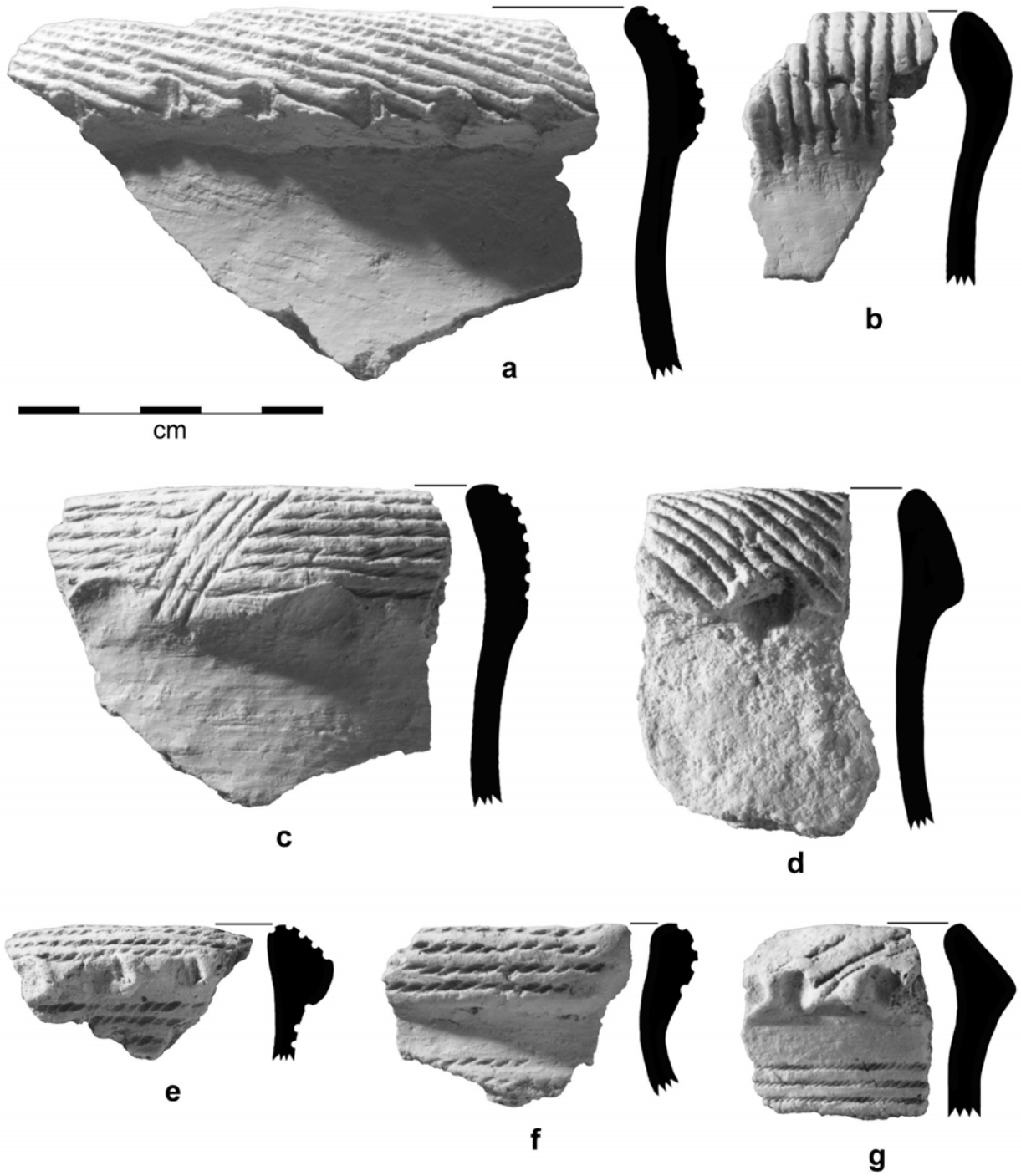


Figure 11.13. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-g: Transitional ware, cord-impressed.

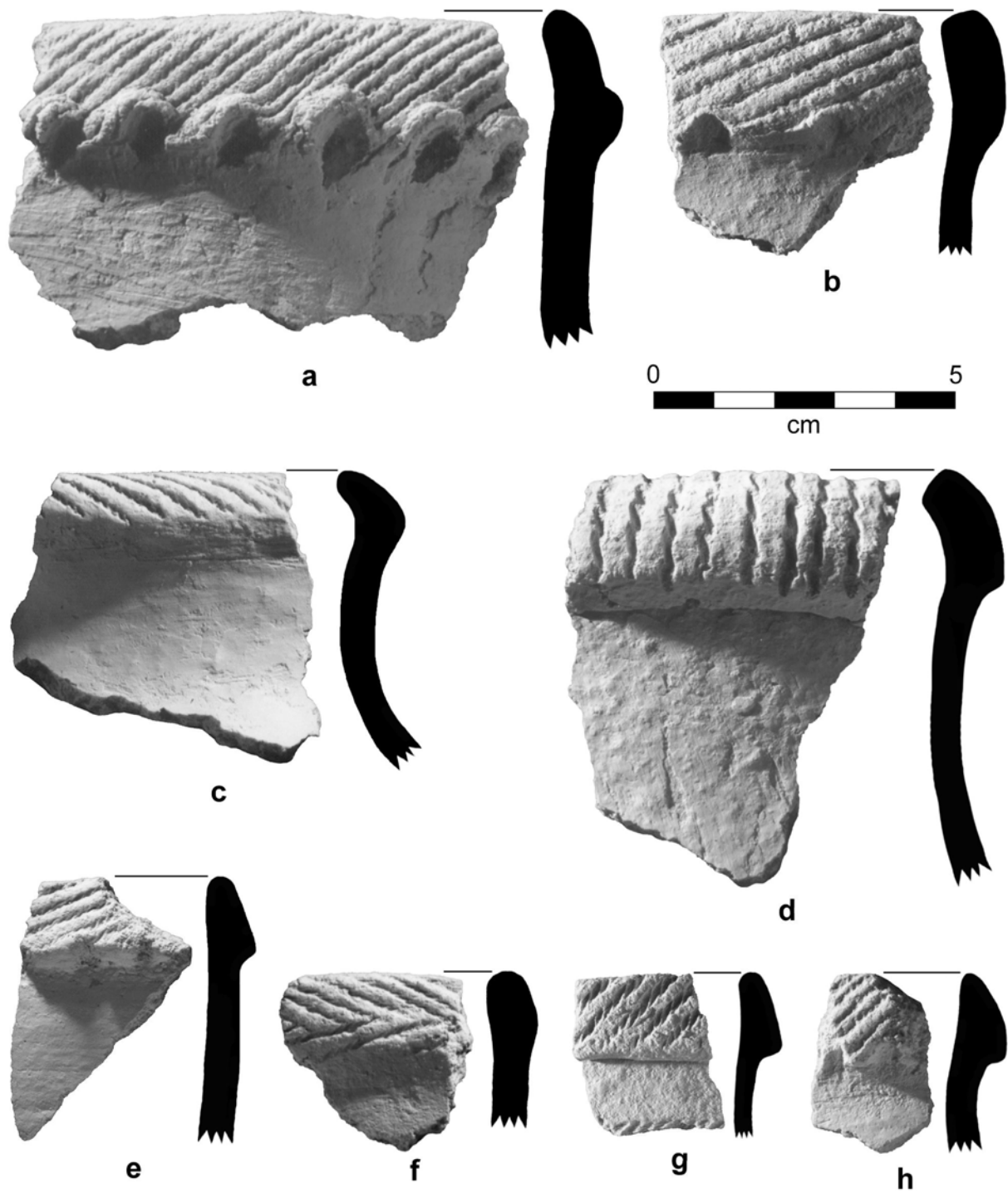


Figure 11.14. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-h: Transitional ware, cord-impressed.

Unnamed Straight Rim Late Ware

This general ware group is, in effect, a catch-all class used to accommodate all straight and straight braced rim vessels that cannot comfortably be classified according to previously named wares such as Knife River ware or Knife River Fine ware, and which we have no reason to believe differ in age from the balance of the collection (hence, the term “Late”). These are simply aberrant vessels, some of which may someday be classified according to more specifically defined wares.

In the current study we subdivided this general category into two parts. We recognized a very distinctive vessel form in the collection that we called *rolled-rim jars*, and we treat this as a subware classification of the Unnamed Straight Rim Late ware group. By making this distinction, we also are placing all other vessels in a second subware group termed simply *other straight/braced rim* vessels. We can describe and illustrate each of these subware level groups.

Rolled-rim jars are a very distinctive vessel type characterized by very small overall size, fairly elaborate decoration (in most cases), and the presence of a very short everted and often thickened rim and lip placed directly on the body of the small globular pot. The vessel form resembles a small gourd with a hole cut into it for an orifice, and with a short rim or lip placed on this opening. The name we use for this subgroup is based on common usage for description of vessels with similar form in many upper Midwestern sites in Minnesota and Wisconsin where this vessel shape is thought to indicate Mississippian influence. We are presently unsure about the meaning of this vessel form at Scattered Village (in terms of upper Midwestern or Mississippian connections), but feel it is worthwhile to emphasize the presence of such vessels for purposes of continuing study of regional collections.

Thirteen such vessels occur in the collection (only 0.7% of the collection), and all are illustrated in Figure 11.15 and Figure 11.16. Most vessels are comprised of quite small rim fragments which make recognition of overall vessel form very difficult; one partially refitted vessel (Figure 11.16) clarifies the form a great deal. The refitted vessel is about 15 cm in body diameter with an orifice about 10-11 cm in diameter. This size is probably typical of all of the very fragmentary specimens. Seven rolled-rim jars are classified as having unbraced rims; four have braces, and one is classified as a rimless bowl (Figure 11.15). As noted, with one exception decoration is prominent, typically occurring on both the lip and vessel exterior (shoulder). Despite a focus on decoration, technical quality in these vessels is variable. The partially reconstructed vessel is particularly crumbly, perhaps having been under-fired.

The balance of the vessels placed in this general ware group are considered simply as ***Other Straight Rim*** vessels on a subware level. Twenty-three such examples occur in the collection (1.3% of the sample), and nearly all of these are illustrated in Figure 11.17 - Figure 11.19. As noted, these vessels generally do not conform to any variant of Knife River ware and are not rolled-rim jars. Four vessels are rather heavy, thick straight rim vessels with unusual squared or flattened lips (Figure 11.17a-d). Two of these (Figure 11.17a,b) are fired a distinct buff color (unusual in the collection as a whole), and were thought on this basis to possibly be

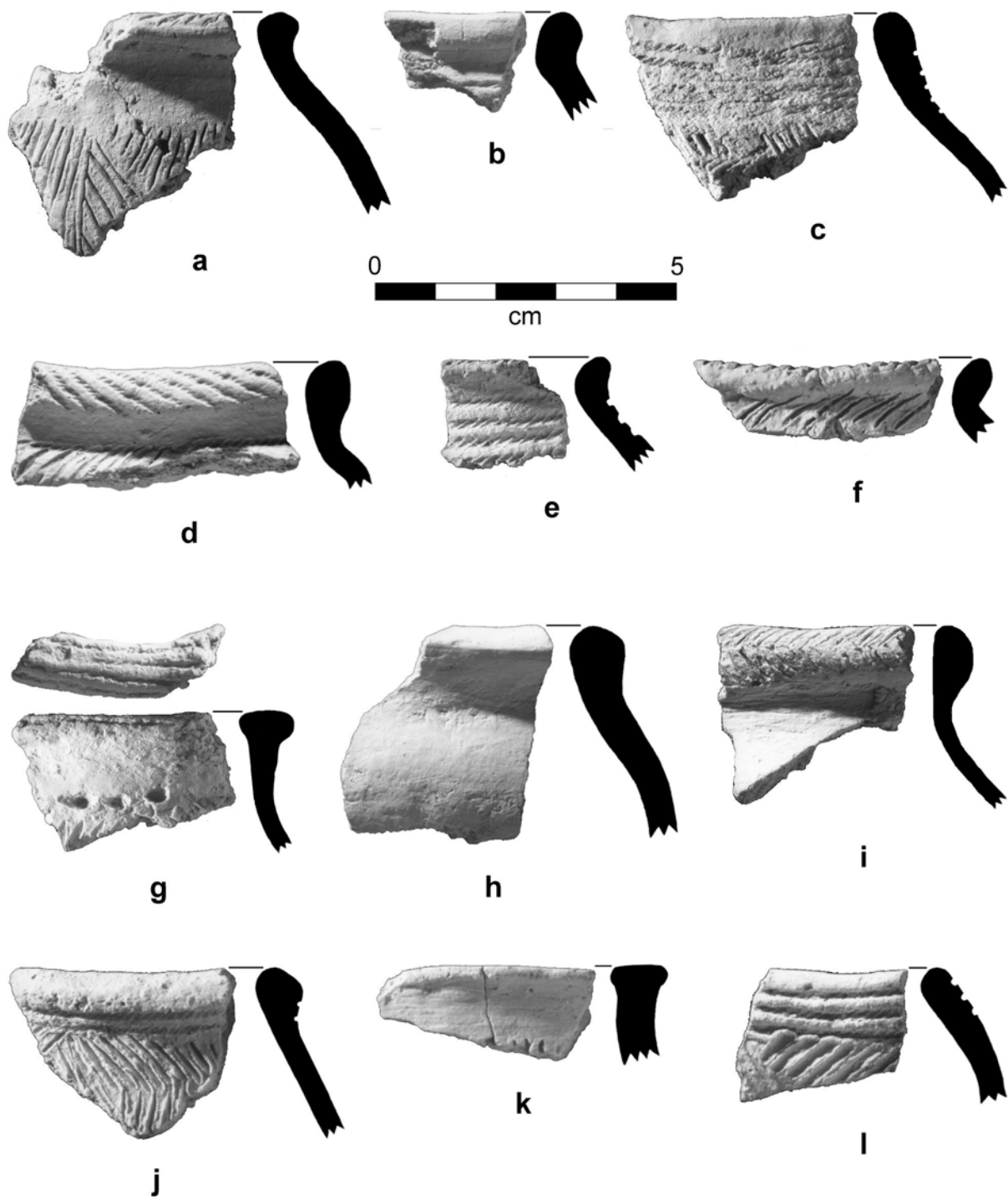


Figure 11.15. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-l: Rolled-Rim Jar subware, various decorative types. Example (l) has a bowl form (lacks zone 2).

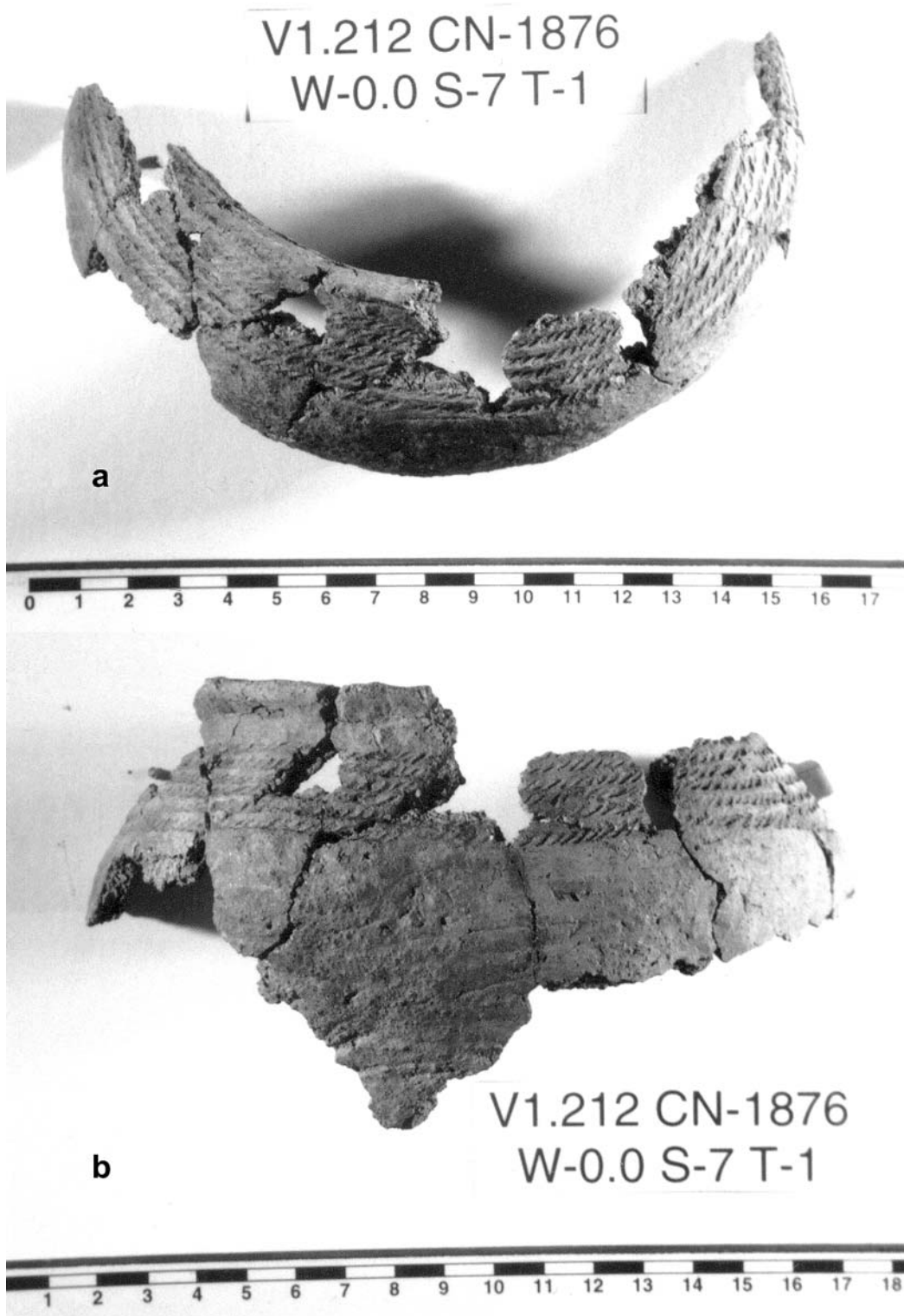


Figure 11.16. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Rolled-Rim Jar subware, cord-impressed. Top and facial view of partially refitted vessel.

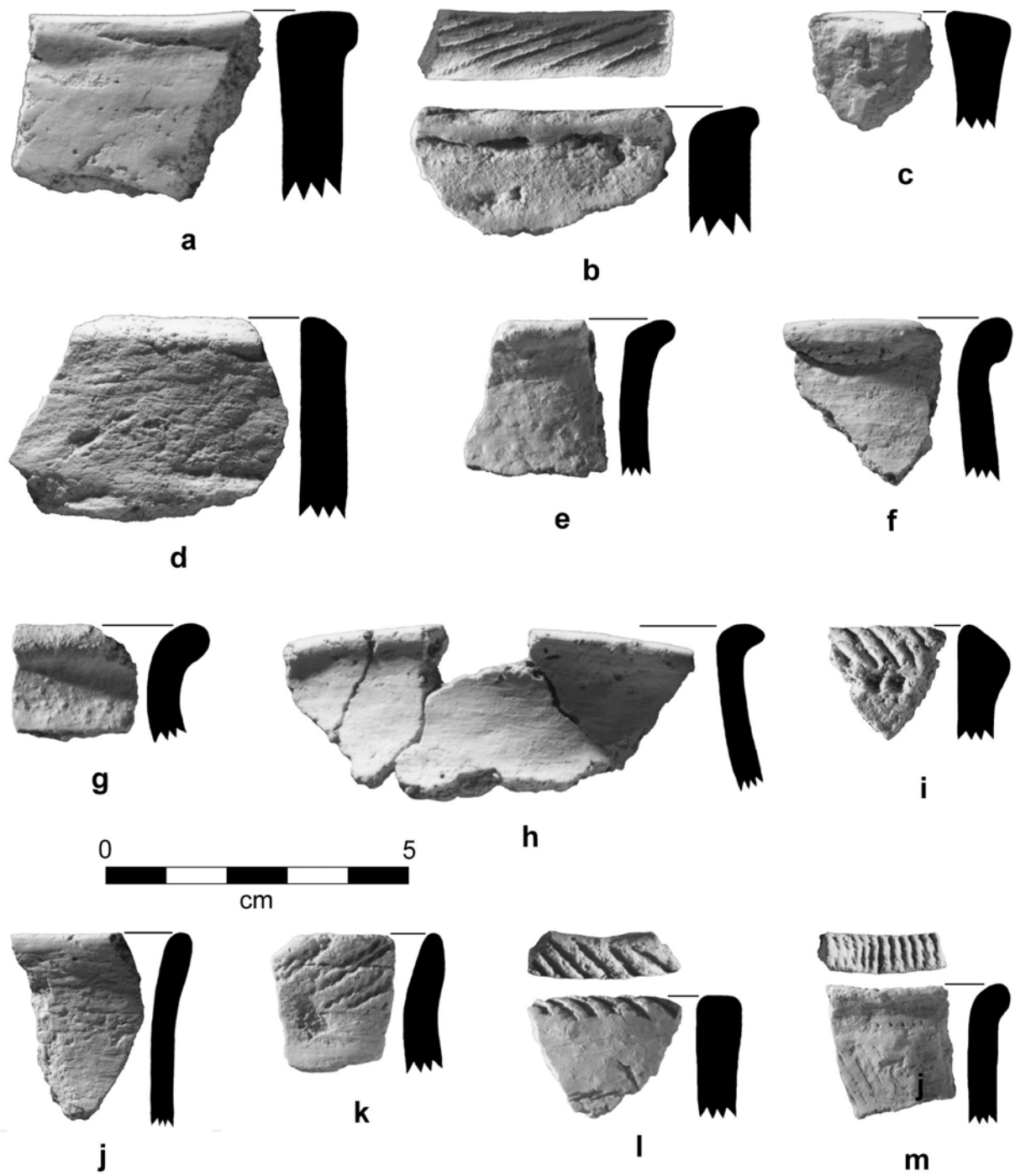


Figure 11.17. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Other Straight Rim subware, various decorative types.

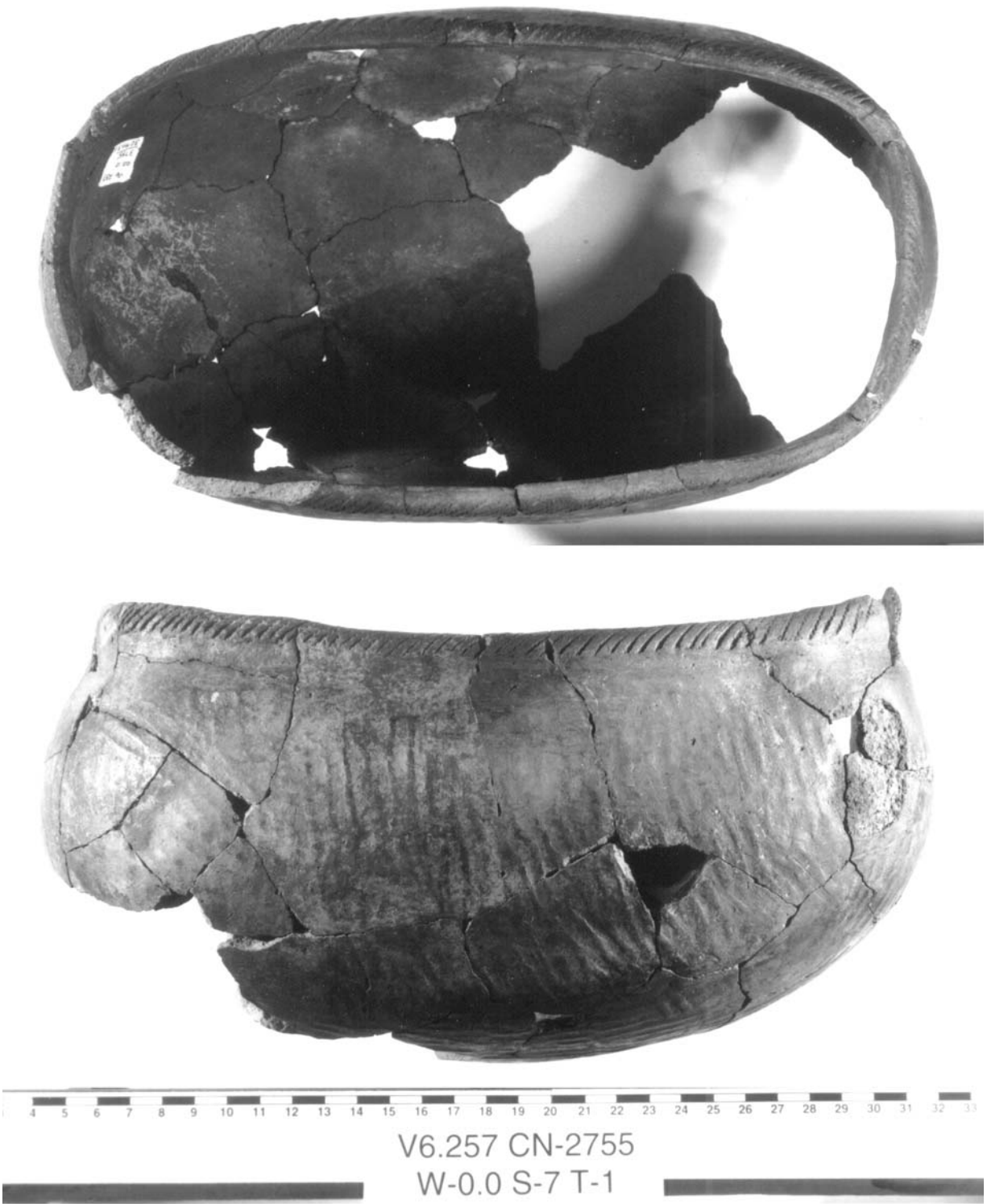


Figure 11.18. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Other Straight Rim subware, cord-impressed. Unique vessel with boat-shaped form.

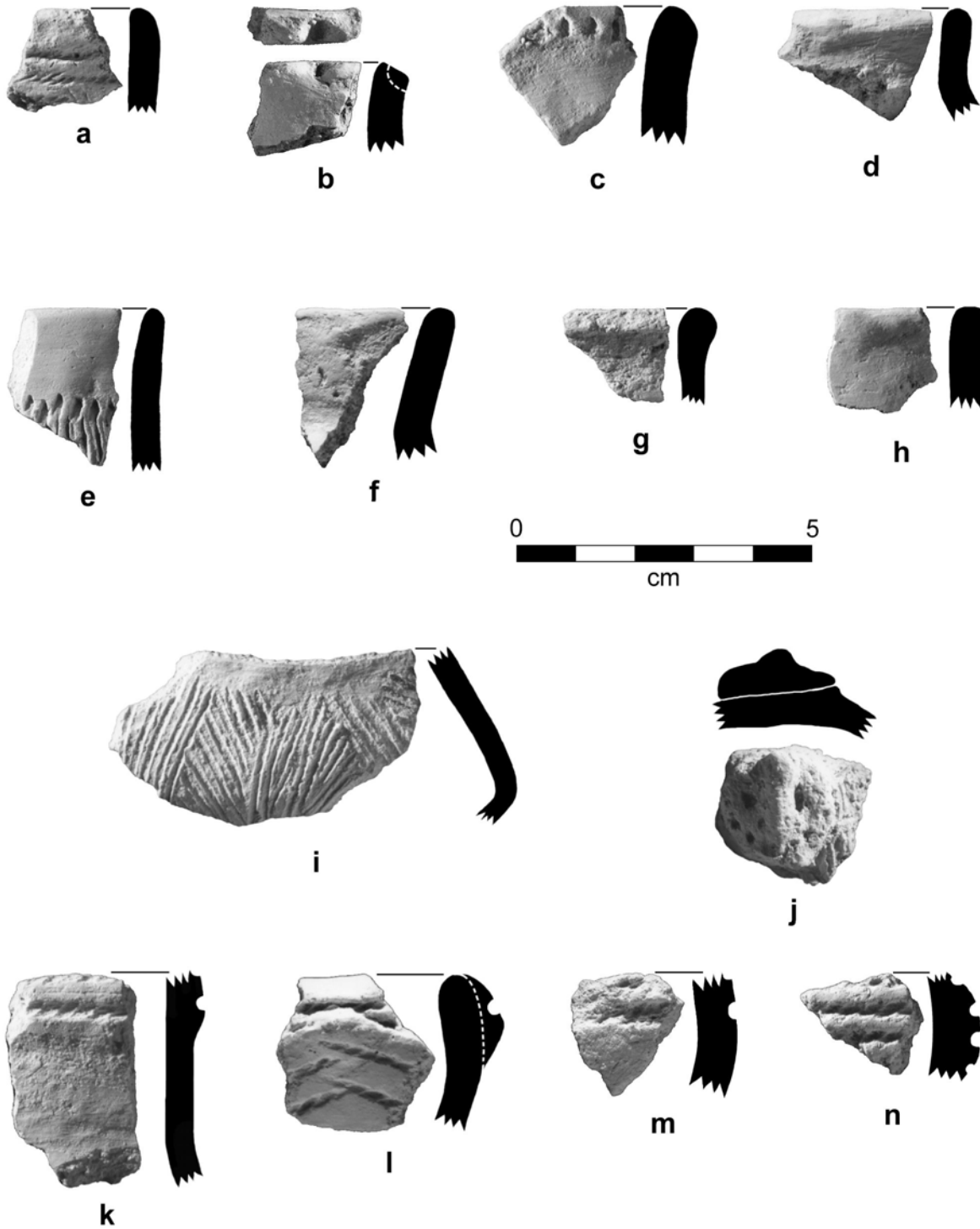


Figure 11.19. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-h: Other Straight Rim subware, various decorative types; i: incised, angular shoulder sherd; j: effigy face with eyes, nose (vertical ridge in photo), and mouth created on a node welded onto a vessel shoulder or zone 3 area; k-n: Unnamed S-Rim Early ware, cord-impressed.

chronologically early vessels. Nothing about their contexts suggests an early placement, however. The majority of the vessels in this loosely defined subware group are very small in overall size (specimens in Figure 11.17 and Figure 11.19), and this small size in combination with unusual lip and rim form typically contributed to our unwillingness to classify these as some form of Knife River ware. Overall, nearly all vessels in this group probably are special function pots, as probably are Knife River Fine subware vessels and the rolled-rim jars.

A single reconstructed vessel in this subware group deserves special attention (Figure 11.18; vessel No. 6.257). This is a very unusual pot of unknown purpose that has been variously described by colleagues as a “planter,” a “casserole dish,” and a possible construction mistake; it is probably best described simply as a subrectangular boat-shaped pot. Its body is slightly larger than its orifice, measuring 26.5 cm long by 15.0 cm wide. The mouth measures 23.0 x 12.5 cm. The orifice does not lie in a single plane, but is raised or higher on either end (hence, boat-shaped; Figure 11.18 top); the vessel is about 12.5 cm high near its center. Smoothed-over simple-stamping occurs over the entire body of the pot. The pot appears to be very carefully made but is not delicate; temper is very finely ground, and vessel walls vary from 4.8 to 7.7 mm in thickness. Two exterior firing spalls, each about 4 cm in maximum dimension, occur at one end of the vessel (Figure 11.18 bottom); these do not appear to have interfered with use of the vessel. The vessel was classified as having a bowl rim form (lacking zone 2), but one could as easily document a very short zone 2 or neck area just below the rim that stands out due to a lack of simple-stamping. A brace or exterior thickened area about 12 mm high occurs at the vessel lip, and the exterior surface of this zone is decorated with fine diameter, widely spaced diagonal cord impressions.

This vessel was recovered in roof fall debris in the burned earthlodge in Block 6 (assigned to TP2). A significant portion of the vessel was recognized as a sherd concentration designated Feature 135 (see Chapter 2). Additional parts of the vessel were found in roof fall debris in nearby excavation units. The sherds in F135 were definitely intermingled with partially fired earth in the roof fall zone, and did not lie directly on the house floor. Therefore, this vessel is thought to have been deposited on the roof of the house or to have been incorporated, perhaps in already fragmented form, into the roof earth cover at the time the house burned.

Photographs of this vessel have been distributed to several persons who study pottery in the Middle Missouri subarea as well as the upper Midwest, and no one contacted has stated that they have seen similar vessels in known collections. It is possible that this vessel is not unique, however, even among Middle Missouri samples. While analysts immediately recognized this vessel as having a bowl-like form, we did not realize that its shape was oval or subrectangular in outline until refitting of vessel fragments was well along. Thus, less complete vessels than this one, having a similar overall form, could easily exist unrecognized in previously studied collections. It is possible that the flanged rim piece recovered from Scattered Village (Figure 11.8g) is an end fragment from a pot of similar shape; a few odd, angled, flanged, and asymmetric vessels from Slant Village may be the same (Speakman et al. 1997:Figures 35a,d; 38d).

Unnamed S-Rim Early Ware

Four small vessel fragments are classified to the Unnamed S-Rim Early ware group, this based primarily on the robust nature of cord impressions on zone 3 that distinguish these pieces from typical Le Beau ware. All four vessels are illustrated in Figure 11.19. One specimen occurs in mixed temporal context (TP0) and does not occur in the study sample tabulations; among the remaining three, two are found in TP4 contexts and one in TP2 context. Mean cord impression diameter is 3.05 mm and impression spacing is 5.10 mm for these specimens, compared to 1.72 mm and 3.26 mm, respectively, for Le Beau ware as a whole. Based on time-trend data published by Ahler and Swenson (1993:Fig. 17.14) for Knife region samples, these values would place these few vessels in the late AD 1300s or early AD 1400s. These small vessel scraps appear to be the only ceramic evidence in the entire collection for a component completely distinct from and earlier than the primary TP1-TP4 occupation at the site.

Le Beau Ware and Its Subwares

Comprising more than 1100 vessels and about 66% of the collection, Le Beau ware is the dominant ware group in the site sample. In general, Le Beau ware is used to capture S-rim pottery which has three salient features: (1) the zone 3 or upper part of the S is very short in proportion to the height of zone 2, or the lower part of the S; (2) the lower margin of zone 3 is smoothly curved and blends into zone 2 below; and (3) cord-impression, when it occurs, is characterized by small diameter cordage, closely spaced impressions, and (often) six or more parallel lines of impressions. The first feature is compatible with Wood's (1967) concept of Le Beau ware, while the latter features have been consistently used for definition of Le Beau ware in Knife and Heart region studies by Ahler and others, especially for the purpose of setting Le Beau S-rim pottery apart from earlier wares such as Unnamed S-Rim Early and Fort Yates ware. The decorative type distribution of Le Beau ware in general is illustrated in Table 11.12. In keeping with the approach used in the Slant Village study (Speakman et al. 1997), we also recognized Le Beau Fine ware (or subware) in the Scattered collection. Le Beau Fine ware is similar to Le Beau ware in form, but is simply scaled down in vessel size. In this sense, Le Beau Fine ware is analogous to Knife River Fine ware in our intent to use it to isolate small, possibly special function vessels within a general form group. Only 15 Le Beau Fine ware vessels occur in the collection, making up 0.8% of the sample.

As noted previously, we saw value in the current study in subdividing Le Beau ware into three named subwares, with a fourth residual or indeterminate group being necessary due to fragmentation that made specific subware classification impossible. In the following paragraphs and pages, we focus on discussing and illustrating salient features of the differences among these subware groups. Table 11.16 and Table 11.17 provide comparative data on rimform classification and decorative type classification, respectively, for the various subwares of Le Beau ware. The subwares differ significantly in those features, and the following discussion will draw on the data in those tables for relevant descriptive information.

Le Beau High Rim subware is characterized by a relatively short zone 3 area distinguished by asymmetrical curvature in the vertical direction. That is, the upper part of the S

Table 11.16. Distribution of rimform classification according to subware within Le Beau ware, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, standardized cell residual values bottom. Cell residual values >+1.0 are shaded.

Rim Form and Zones Present	Le Beau Subware				Total
	Le Beau High Rim	Le Beau Normal	Le Beau Recurved	Le Beau Indeter.	
S-rim	136	232	0	37	405
S-rim w/ext. brace	22	75	1	11	109
S-rim w/int. brace	130	99	0	10	239
S-rim w/fillet (int)	0	2	0	0	2
recurved S-rim	0	1	88	2	91
recur. S-rim w/extbrace	0	0	44	0	44
recur. S-rim w/intbrace	0	0	2	0	2
zone 2-3 frag.	2	0	0	165	167
zone 3 frag.	7	0	0	126	133
lip frag. w/extbrace	0	2	0	2	4
S-rim	45.8%	56.4%	.0%	10.5%	33.9%
S-rim w/ext. brace	7.4%	18.2%	.7%	3.1%	9.1%
S-rim w/int. brace	43.8%	24.1%	.0%	2.8%	20.0%
S-rim w/fillet (int)	.0%	.5%	.0%	.0%	.2%
recurved S-rim	.0%	.2%	65.2%	.6%	7.6%
recur. S-rim w/extbrace	.0%	.0%	32.6%	.0%	3.7%
recur. S-rim w/intbrace	.0%	.0%	1.5%	.0%	.2%
zone 2-3 frag.	.7%	.0%	.0%	46.7%	14.0%
zone 3 frag.	2.4%	.0%	.0%	35.7%	11.1%
lip frag. w/extbrace	.0%	.5%	.0%	.6%	.3%
S-rim	3.5	7.9	-6.8	-7.5	
S-rim w/ext. brace	-1.0	6.1	-3.2	-3.7	
S-rim w/int. brace	9.2	1.9	-5.2	-7.2	
S-rim w/fillet (int)	-.7	1.6	-.5	-.8	
recurved S-rim	-4.8	-5.4	24.3	-4.8	
recur. S-rim w/extbrace	-3.3	-3.9	17.5	-3.6	
recur. S-rim w/intbrace	-.7	-.8	3.7	-.8	
zone 2-3 frag.	-6.1	-7.6	-4.3	16.5	
zone 3 frag.	-4.5	-6.8	-3.9	13.8	
lip frag. w/extbrace	-1.0	.5	-.7	.8	
Total	297	411	135	353	1,196
	24.8%	34.4%	11.3%	29.5%	100.0%

is quite short, and it also is unevenly curved such that the arc of curvature is progressively tighter at the top of the rim or the lip. Figure 11.20 through Figure 11.23 illustrate examples of Le Beau High Rim subware. Additional features often associated with this subware include an interior brace that occurs in ca. 44% of the examples in this subware (Table 11.18)(Figure 11.20a,c,g; Figure 11.21a,b,e,f). This interior brace tends to accentuate the appearance of tightened curvature toward the vessel orifice. The narrow height of zone 3 in comparison to the much greater height of zone 2 or the neck area is illustrated in the refitted large rim fragments (Figure 11.22 and Figure 11.23). A diverse array of decoration is evident in Le Beau High Rim subware

Table 11.17. Distribution of decorative types according to subware within Le Beau ware, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, standardized cell residual values bottom. Cell residual values $>+1.0$ are shaded.

Decorative Type	Le Beau Subware				Total
	Le Beau High Rim	Le Beau Normal	Le Beau Recurved	Le Beau Indeter.	
Plain	48	99	19	43	209
Cord-Imprinted	190	203	93	286	772
Tool-Imprinted	3	7	1	2	13
Incised	4	1	1	7	13
Pinched	0	1	1	0	2
Punctuate	0	5	0	0	5
CWTI	0	0	2	1	3
Finger-Imprinted	45	60	13	13	131
Simple-Stamped	6	29	5	1	41
Brushed	0	2	0	0	2
Plain	16.2%	24.3%	14.1%	12.2%	17.5%
Cord-Imprinted	64.2%	49.9%	68.9%	81.0%	64.8%
Tool-Imprinted	1.0%	1.7%	.7%	.6%	1.1%
Incised	1.4%	.2%	.7%	2.0%	1.1%
Pinched	.0%	.2%	.7%	.0%	.2%
Punctuate	.0%	1.2%	.0%	.0%	.4%
CWTI	.0%	.0%	1.5%	.3%	.3%
Finger-Imprinted	15.2%	14.7%	9.6%	3.7%	11.0%
Simple-Stamped	2.0%	7.1%	3.7%	.3%	3.4%
Brushed	.0%	.5%	.0%	.0%	.2%
Plain	-.5	3.3	-1.0	-2.4	
Cord-Imprinted	-.1	-3.7	.6	3.8	
Tool-Imprinted	-.1	1.2	-.4	-.9	
Incised	.4	-1.6	-.4	1.6	
Pinched	-.7	.4	1.6	-.8	
Punctuate	-1.1	2.5	-.8	-1.2	
CWTI	-.9	-1.0	2.8	.1	
Finger-Imprinted	2.2	2.3	-.5	-4.1	
Simple-Stamped	-1.3	4.0	.2	-3.2	
Brushed	-.7	1.6	-.5	-.8	
Total	296	407	135	353	1191
	24.9%	34.2%	11.3%	29.6%	100.0%

(Table 11.19), and High Rim is distinguished from other subwares by a particularly high occurrence of finger impressions. Finger impressions almost always occur as broadly spaced, elongated, parallel, diagonal indentions placed in the interior lip surface or on the interior brace surface. A substantial number of High Rim vessels are plain and lack decoration (16%). When cord impression occurs, it is on the exterior and is placed in a narrow band very high on the exterior near the lip. Typically, parallel horizontal cord impressions are fewer in number on High Rim subware than on other Le Beau subwares. Mean number of parallel lines is 4.85 for High Rim compared to 5.02 for Normal and 7.33 for Recurved. The modal number of lines is 3 for High Rim, 4 for Normal, and 7 for Recurved.

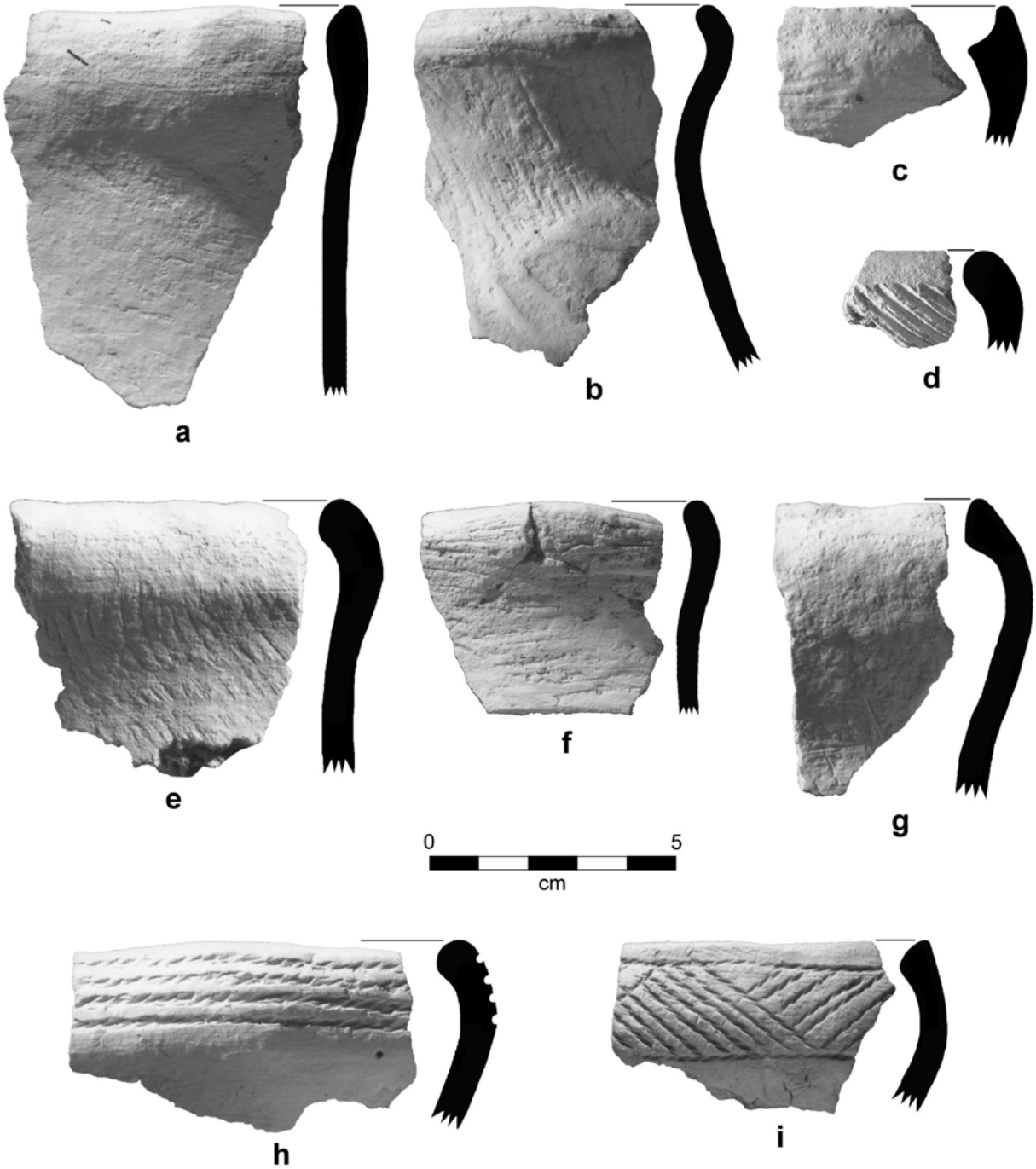


Figure 11.20. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau High Rim subware. a,e-g: finger-impressed; b,c: plain; d: trailed; h,i: cord-impressed.

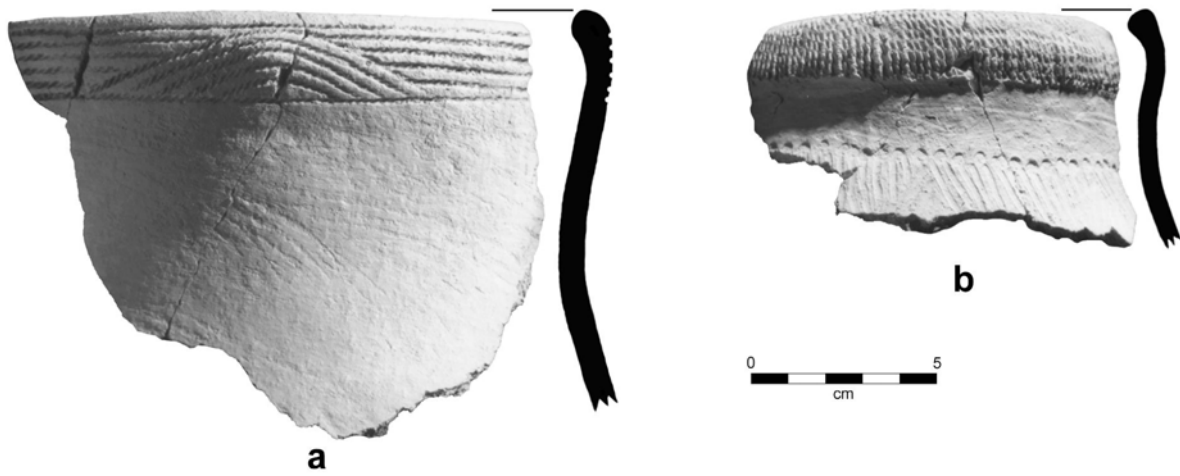


Figure 11.21. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a-f: Le Beau High Rim subware, cord-impressed.



Figure 11.22. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau High Rim subware, cord-impressed. Refitted vessel part.

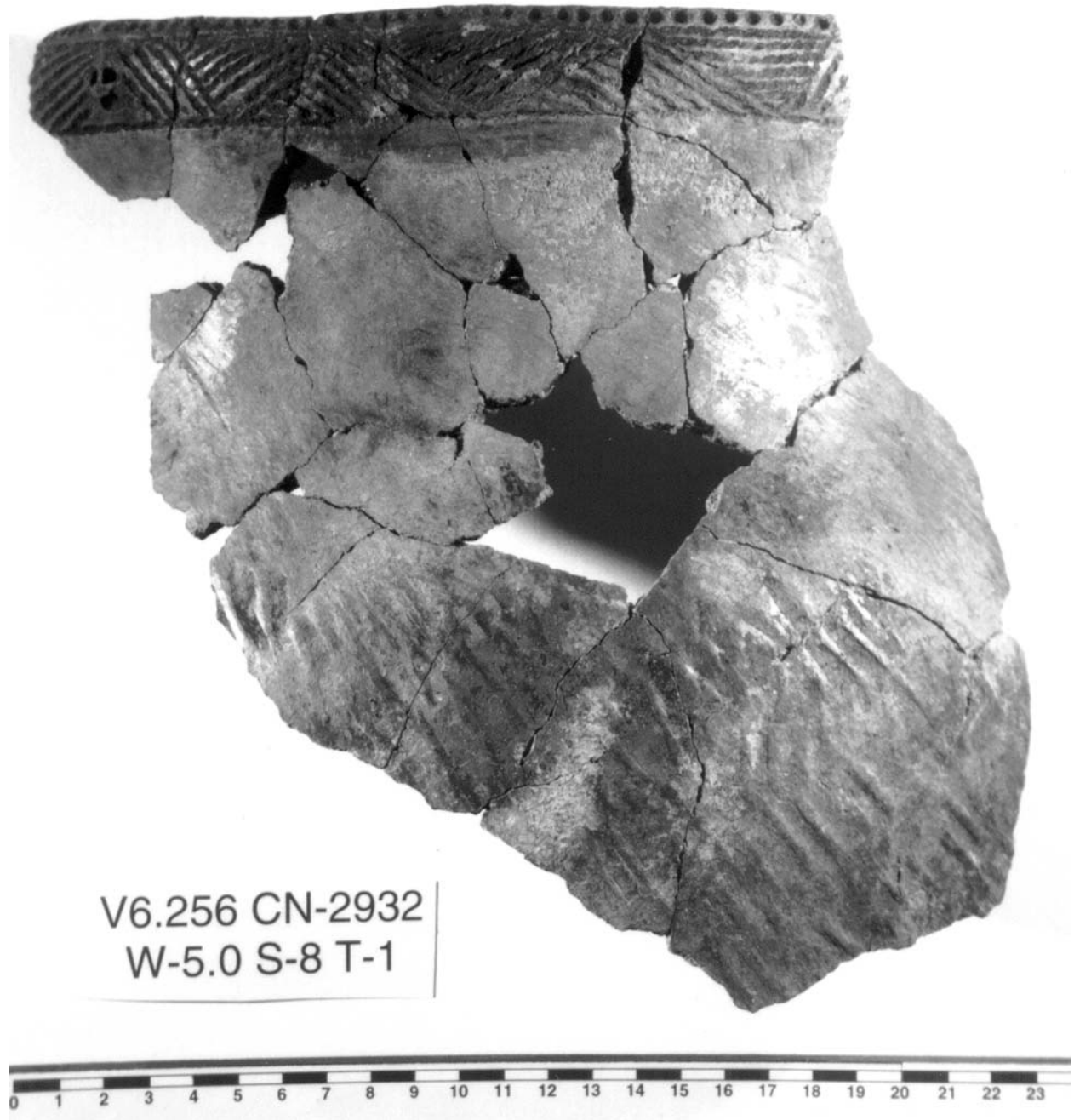


Figure 11.23. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau High Rim subware, cord-impressed. Refitted vessel part; decorative pattern is uncommon.

Le Beau Normal subware (sometimes called Le Beau Simple) is the most common subware in the collection, comprising about 34% of the Le Beau ware sample. This subgroup is characterized by a lack of asymmetrical vertical curvature (less tightening toward the lip) characteristic of Le Beau High Rim and by a lack of zone 4, characteristic of Le Beau Recurved (see data on rim form in Table 11.16). Typical examples are illustrated in Figure 11.24 through Figure 11.29. It is frequently difficult to draw a clear distinction between Le Beau Normal and the two companion groups. Interior bracing occurs both in Le Beau Normal and Le Beau High Rim ware, and the presence of this feature tends to give the appearance of a vertically tightened rim form when none may exist on the exterior of the zone 3 (e.g., Figure 11.24e, Figure 11.27c,e). The nearly complete reconstructed vessel in Figure 11.26 could, for example, just as readily be classified as Le Beau High Rim as Le Beau Normal. To confound the matter further, and illustrate the blending of rimform features across wares and subwares, we can note that this particular vessel even bears a pair of small spouts, a feature usually associated with Knife River ware.

In the other direction of subware blending, we can note that exterior bracing is used on a substantial number of Le Beau Normal vessels (18%, Table 11.16). These braces are typically narrow and round, and do not overlap far onto the exterior of zone 3. This pattern distinguishes these vessels from Transitional ware in which an exterior brace laps completely onto zone 3, giving a very different appearance (Figure 11.14 and Figure 11.15). However, this narrow brace often mimics the appearance, from the exterior, of the occurrence of a zone 4 or recurved element on the S-rim. Examples of this are in Figure 11.24d,e, Figure 11.25c,d, and Figure 11.27b. If the interior vessel surface does not demonstrate the occurrence of a point of inflection and the addition of zone 4, then such vessels are classified as Le Beau Normal (or Simple, meaning without zone 4) rather than as Le Beau Recurved (see discussion following).

A wide variety of decorative types occur in Le Beau Normal. Compared to other subwares, it is distinguished by higher relative frequencies of plain, tool-impressed, and finger-impressed (see Figure 11.25, Figure 11.26, and Figure 11.29). A distinctive decorative type is called simple-stamped or paddle-stamped (Figure 11.27, Figure 11.28). This is a very distinctive pattern in which vertically oriented simple-stamping, generally not smoothed over, is extended from the vessel body across the neck area and directly to the vessel orifice or lip. Sometimes, small punctates made with a round tool tip occur just below the lip on the exterior (creating the type punctate). Punctate and simple-stamped types together make up more than 8% of the Le Beau Normal sample. This decorative type constitutes a very distinctive subgroup within Le Beau ware that was recognized at Slant Village (Speakman et al. 1997: Fig. 31c, 33a) and which can be isolated in several other late ceramic collections from sites near the Heart River.

Le Beau Recurved is a distinctive subware characterized almost solely by occurrence of zone 4, creating a recurved S-rim form. Table 11.16 indicates the presence of a single S-rim with exterior brace and lacking a zone 4 among 135 vessels, and this is likely a data coding error that found its way through to the final data set. Examples of Le Beau Recurved subware are illustrated in Figure 11.30 and Figure 11.31. A substantial number of vessels in this group exhibit use of a small or narrow exterior brace, attached to the exterior of zone 4 below the lip

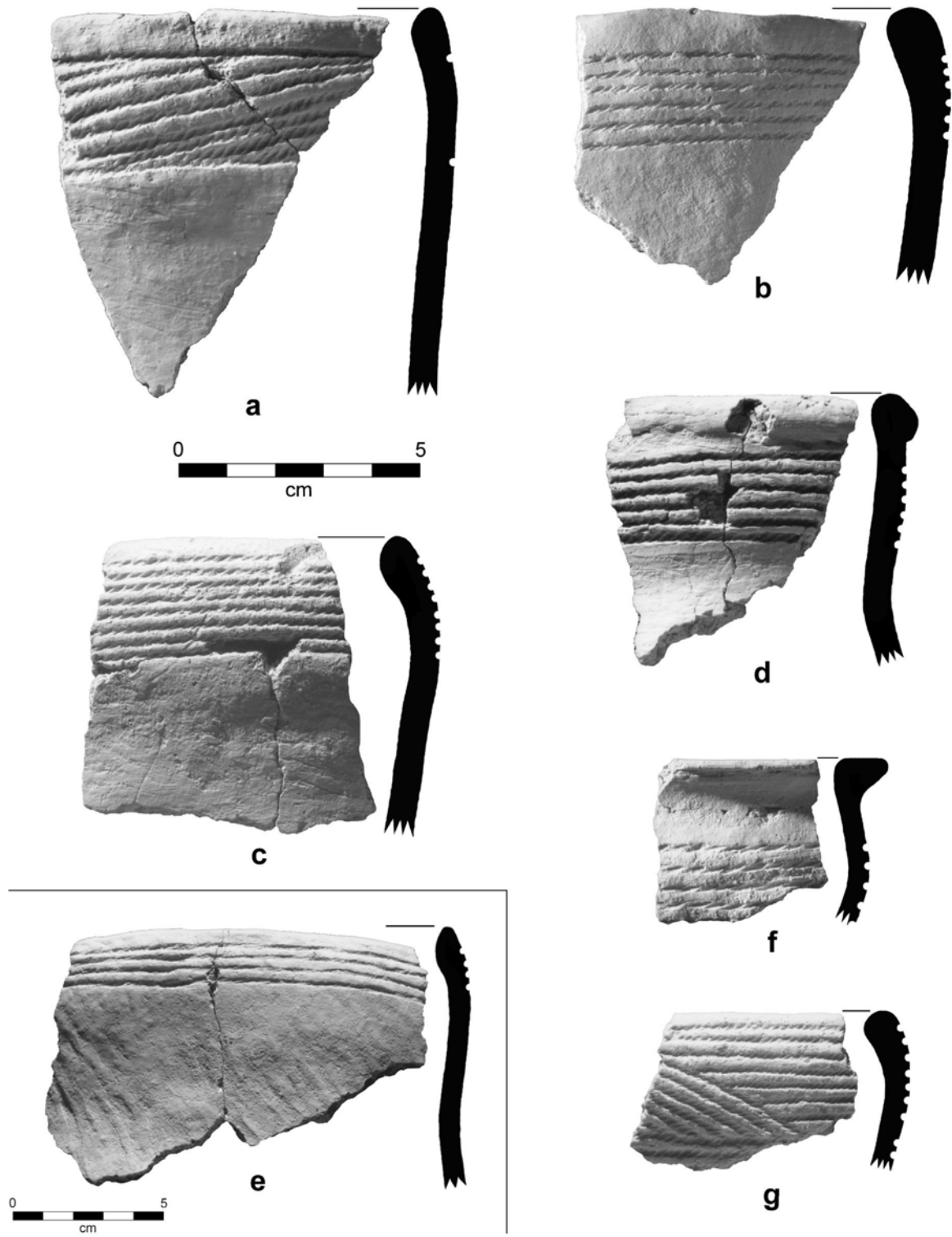


Figure 11.24. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware, cord-impressed.

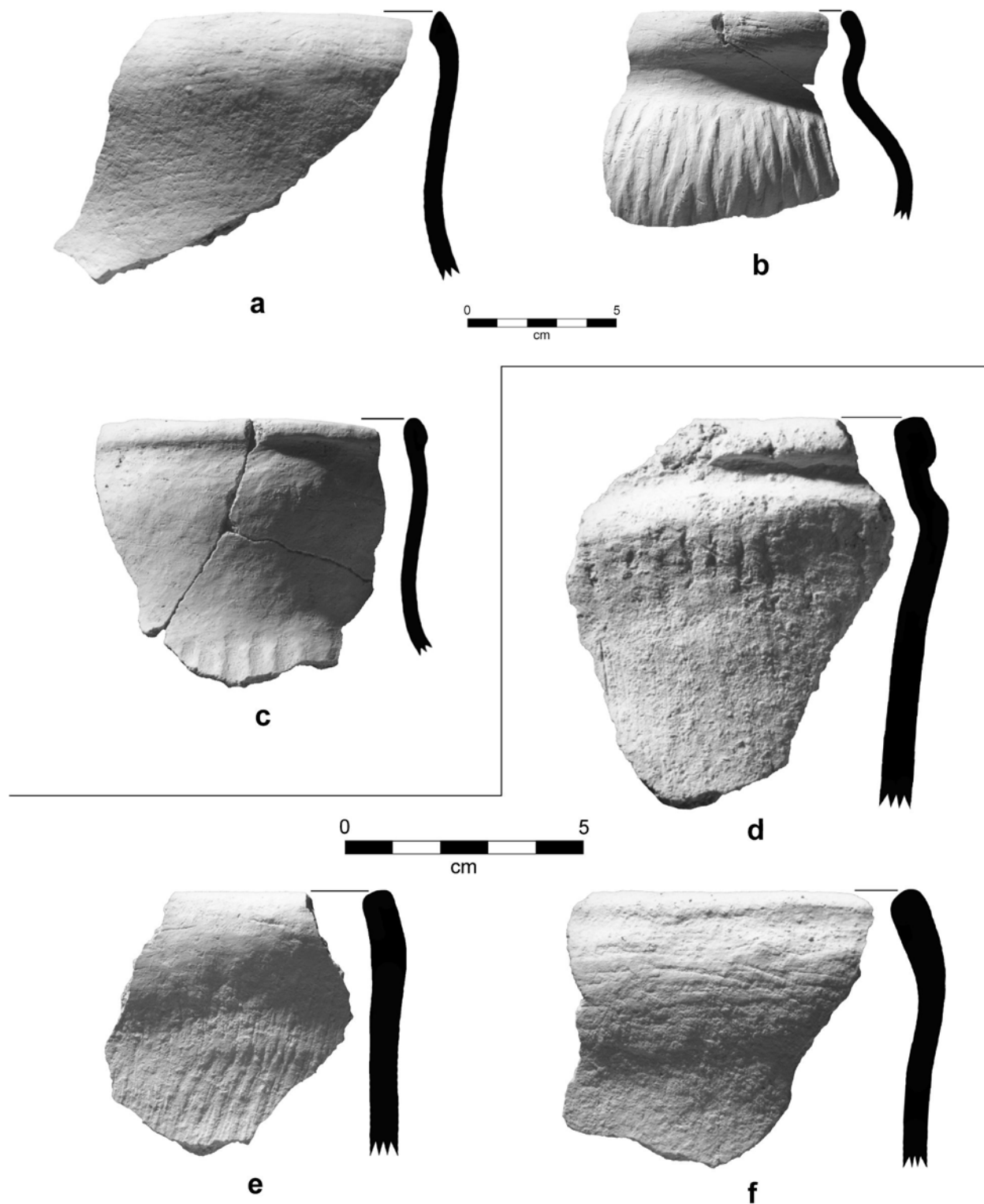


Figure 11.25. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware, plain.



Figure 11.26. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware, plain. Nearly complete reconstructed vessel from Feature 26, TP1, Block 3. Note lateral asymmetry of neck and body area, unevenness of lip in horizontal plane.

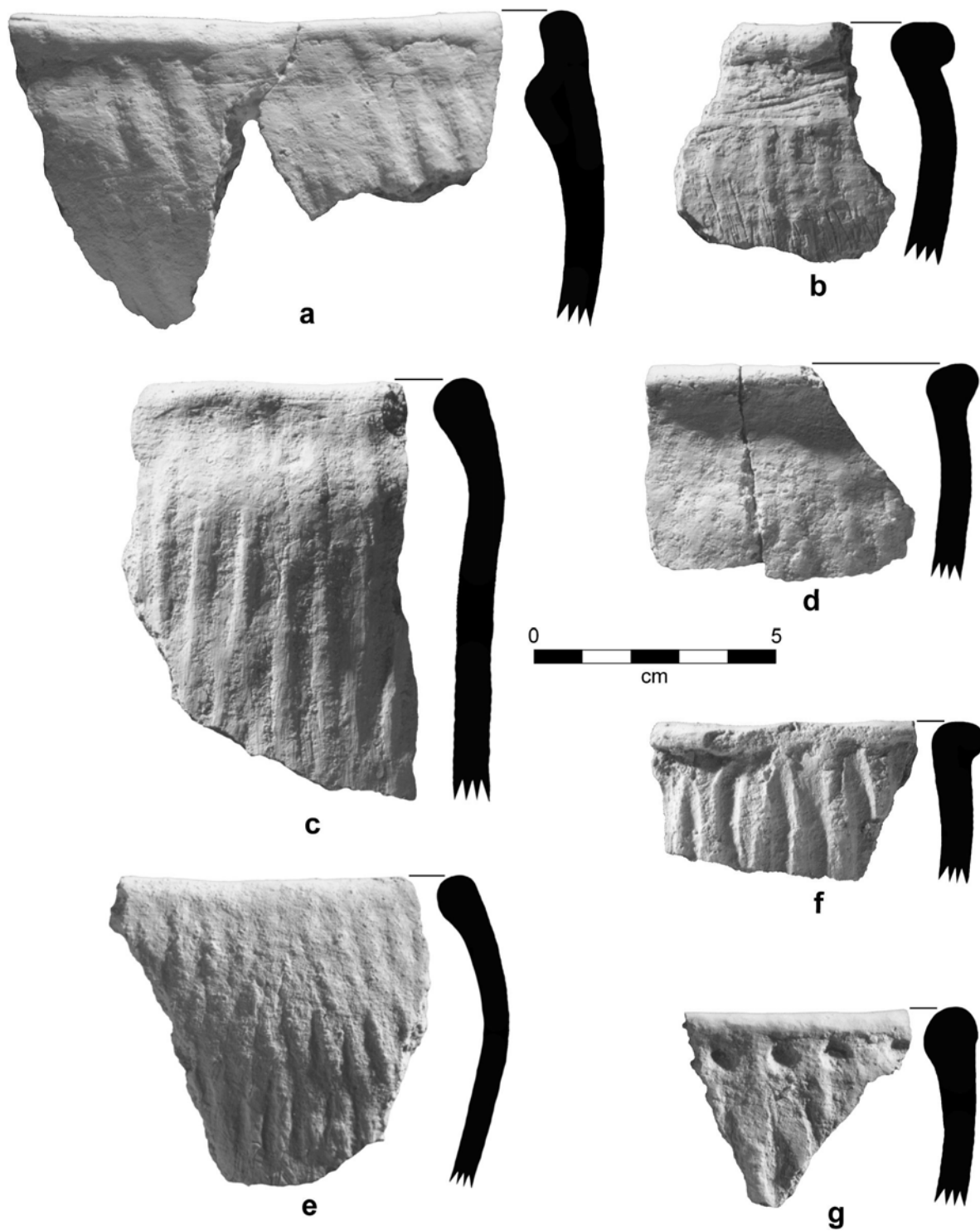


Figure 11.27. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware. a-f: simple- or paddle-stamped type; g: punctate (with simple-stamping).



Figure 11.28. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware, simple-stamped. Note continuous simple-stamping from body across the neck to the vessel lip. Refitted vessel fragment.

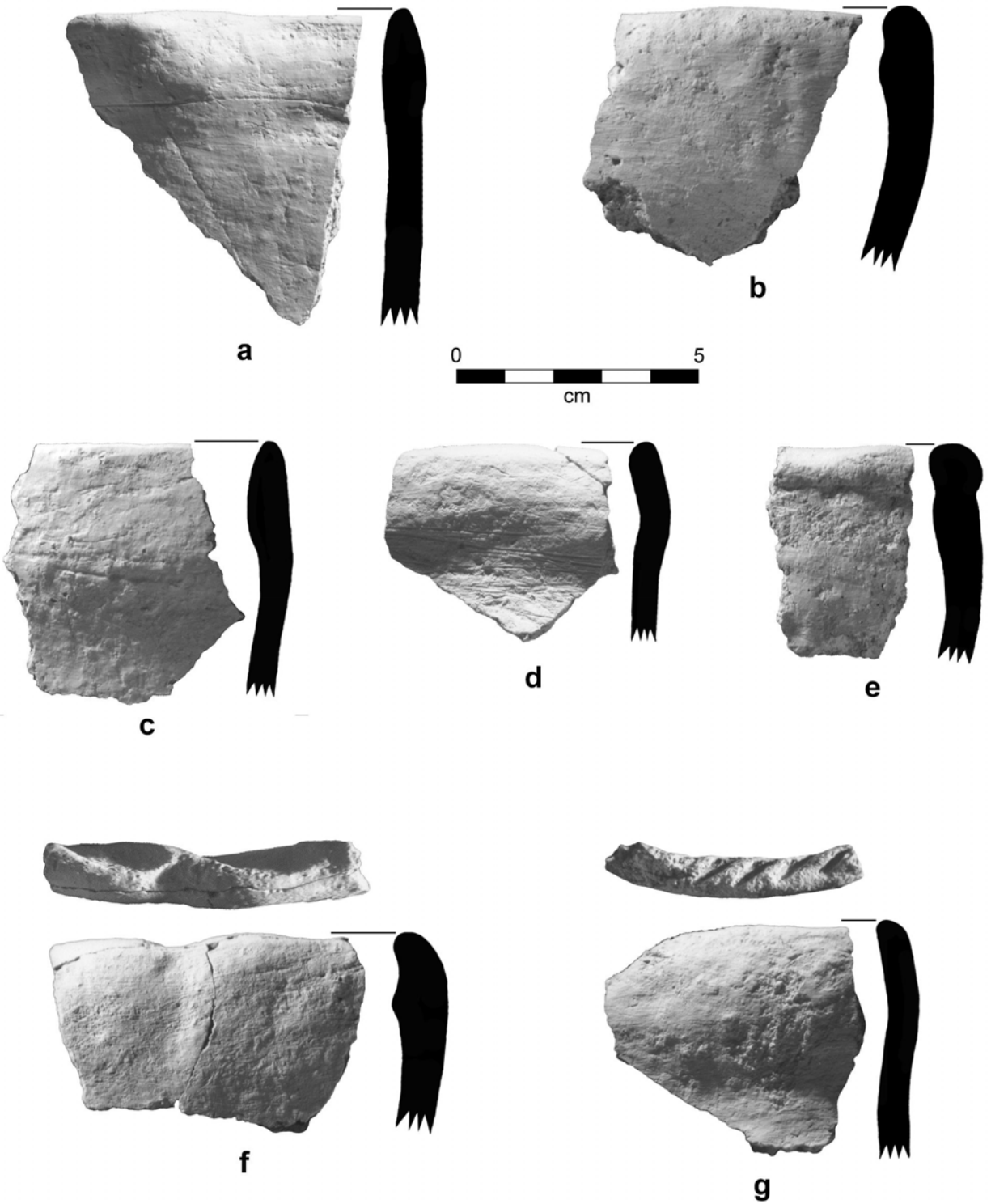


Figure 11.29. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Normal subware. a-b: pinched or wavy rim; c,d: plain; e,f: finger-impressed; g: tool-impressed.

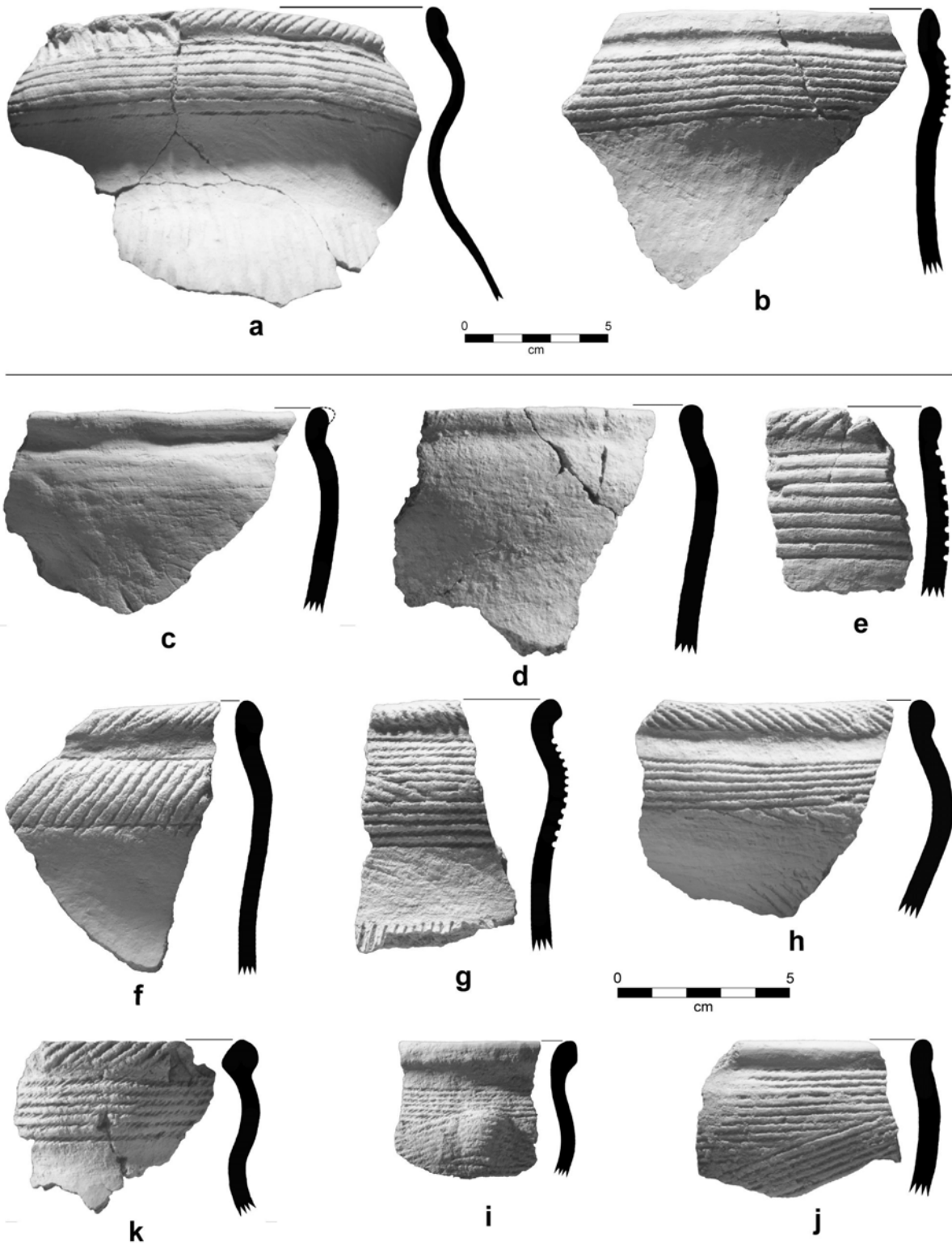


Figure 11.30. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Recurved subware. a,b,e-j: cord-impressed; c: finger-impressed; d: plain.

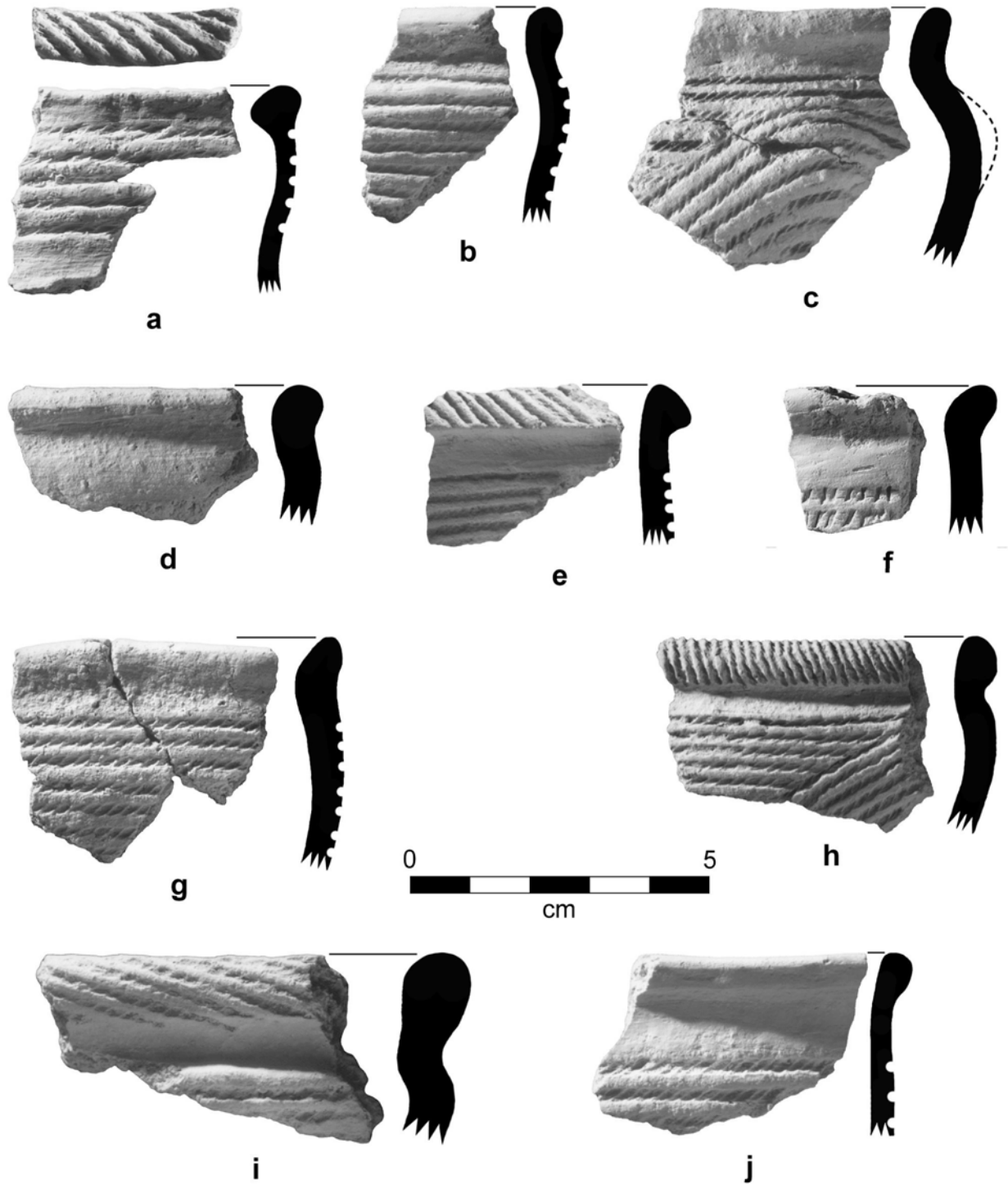


Figure 11.31. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Le Beau Recurved subware. a-c,e,g-j: cord-impressed; d: plain; f: cord-wrapped-tool-impressed.

(many examples in the figures). Because of this common use of exterior bracing, an examination of the vessel interior provides the critical information about the presence of zone 4 and classification into this subware. The exterior zone 4 surface or the brace surface attached to it creates a visually distinctive zonal element that was almost always decorated in a technique or pattern that contrasted with zone 3 decoration (Figure 11.30 and Figure 11.31). Decoration in Le Beau Recurved subware is predominantly by cord impression (69%), and the typical pattern for zone 3 is multiple horizontal lines interrupted by curvilinear rainbow features. Finger-impressed (Figure 11.30c), plain (Figure 11.30d and 31d), and several other decorative types occur less commonly (Table 11.17). As noted previously, Le Beau Recurved stands apart from the other subwares not only in the complexity of zonation, but also in such details as the much greater number of lines of parallel cord impressions generally applied to zone 3 in the recurved variant. In all of these details, Le Beau Recurved subware is highly similar to much of the Le Beau ware pottery that has been studied from Slant Village (e.g., several figures in Speakman et al. 1997). A comparison of vessel size as measured by orifice diameter indicates no difference among the three subwares just described. Mean orifice diameter is 21.9 cm, 22.0 cm, and 22.4 cm for Le Beau High Rim, Normal, and Recurved subwares, respectively.

Due to fragmentation, we recognize yet another subware category for Le Beau ware, this being Le Beau Indeterminate. Indeterminate in this case means that the vessel is probably Le Beau ware but is too fragmentary to assess zone 3 curvature or possible use of zone 4. About 82% of the vessels in this group are zone 3 or zone 2+3 fragments that lack the uppermost part of the vessel (Table 11.16). The remainder are small fragments of upper rim pieces that can be classified regarding zonation and rimform, but which are still too small for confident and more specific subware classification. Cord-impressed decoration occurs in exceptionally high frequency in this residual subware group, due in large measure to the fact that the presence of cord-impression is frequently used as signal that a small sherd is a zone 3 fragment rather than a body sherd (curvature in zone 3 is the same as in the body, zone 1). Thus, high cord-impression occurrence with Le Beau Indeterminate is somewhat spurious.

When the vessel coding occurred, analysts recognized, at the ware level, both Le Beau ware and Le Beau fine ware. Le Beau Fine ware is essentially an S-rim vessel very small in size and apparently a scaled-down version of Le Beau ware. Fifteen vessels comprising 0.8% of the site study sample occur in the collection. Examples are illustrated in Figure 11.32a-h. When classification according to subware occurred, these 15 vessels were classified into one of the three determinate Le Beau subware groups according to details of rimform, effectively ignoring the distinction made on the basis of size. We did this because these vessels are very few in number and, contrary to Knife River Fine ware, they do not particularly seem to reflect a focus on higher technical quality and more elaborate decoration than occurs in normal-sized Le Beau ware vessels (note the very poorly made vessel in Figure 11.32a). In terms of subware classification, four are Le Beau High Rim, eight Le Beau Normal, and three Le Beau Recurved. Data for these vessels are incorporated into the summary data for these three subware groups in Table 11.16 and Table 11.17.

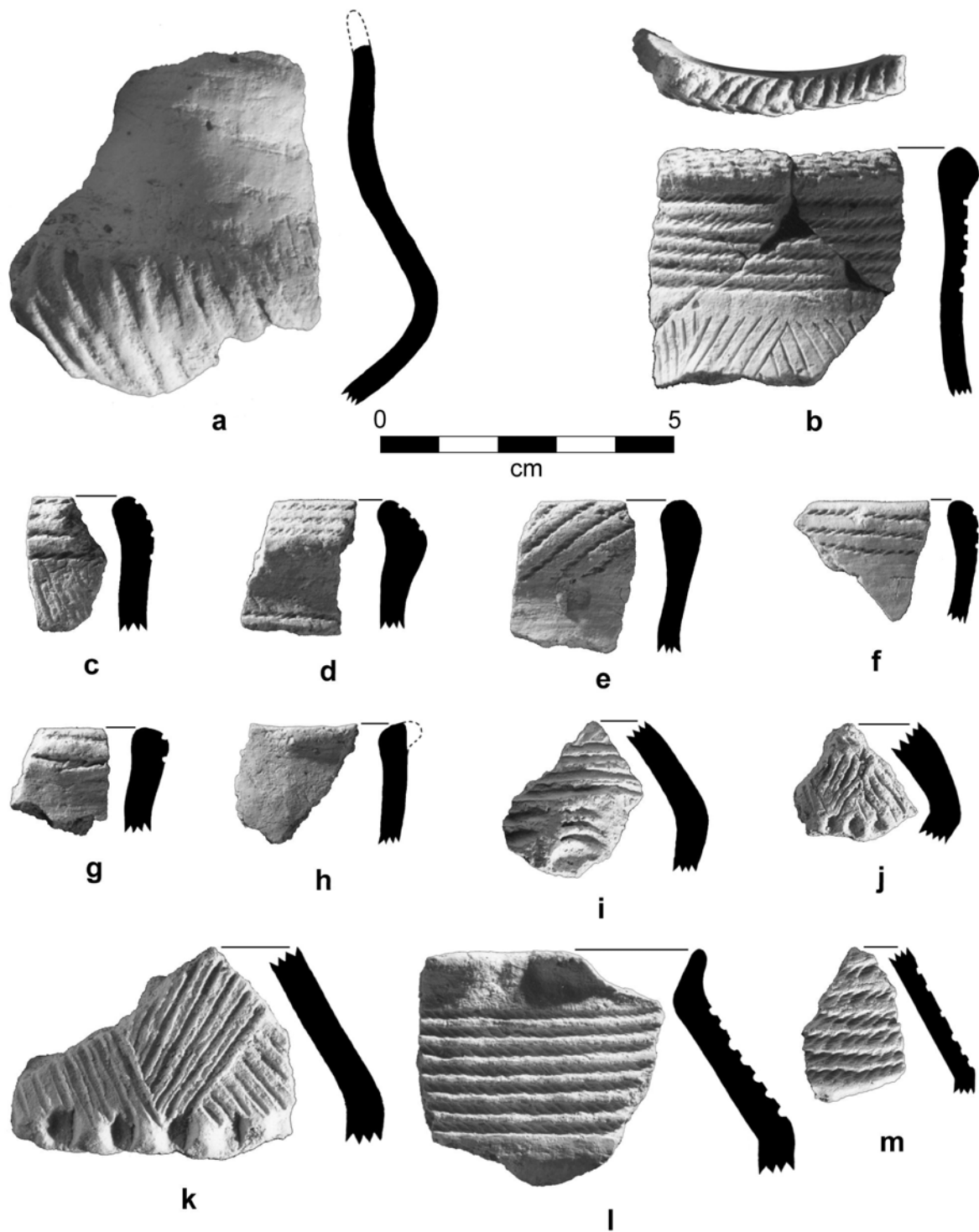


Figure 11.32. Pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Le Beau Fine ware, plain; b-g: Le Beau Fine ware, cord-impressed; h: Le Beau Fine ware, finger-impressed; i-m: Composite S-Rim subware fragments, cord-impressed.

Unnamed S-Rim Late Ware

This ware is again a sort of catch-all group that includes virtually any vessel expressing rimform or decorative features distinct from the variants of Le Beau ware just discussed and illustrated. When subware classification occurred, we separated a small subset distinguished by *Composite S-Rim* or zone 3 form, and left the balance in a group called *Other S-Rim*.

Composite S-Rims are all highly fragmentary specimens that appear to be portions of angular, highly decorated S-rim or zone 3 elements. Six such specimens occur in the sample (Table 11.13), and five of them are illustrated in Figure 11.32. Our model for these specimens and this group is a fairly large refitted vessel fragment found at Slant Village (Speakman et al. 1997:Fig. 40a). In that context it was surmised that this vessel predated the primary occupation at Slant Village and was indicative of an earlier, ephemeral component. The Scattered Village examples occur in several contexts and time periods (TP1, TP2 and TP4 have counts of 2, 3, and 1, respectively), and we no longer believe that these vessels are indicative of a component predating AD 1550. These vessel fragments appear to consist of a very angular, outward projecting zone 3 area that has either cord-impressed or incised decoration above the angle, and line of the angle. It is possible that some of the fragments so classified are part of an angular shoulder of a fairly small and highly decorated pot. Regardless, these are thought to be special function vessel fragments worthy of separate classification.

The final subware group is *Other S-Rim* vessels that have features that dissuade us from classifying them as Le Beau ware. Seventeen such vessels occur in the sample, and all but two are illustrated in Figure 11.33. Distinctive features include flattened or otherwise oddly shaped lips uncharacteristic of Le Beau ware, decoration confined to the lip, brushing apparently used as decoration, and cord-wrapped-tool-impressed decoration in combination with odd lip form. The meaning of such vessels is presently unclear. Some of them may be incidental combinations of form and decoration created by Scattered Village potters; some could also be vessels made in other communities or social/ethnic contexts that found their way to the site by processes of artifact exchange or human relocation.

Vessels in Burned Context in Block 8

A large and dramatic cluster of pottery sherds was found on the floor of the burned lodge in excavation Block 8, and this group of sherds warrants additional discussion. The burned lodge in Block 8 was only minimally exposed in a backhoe trench. A large concentration of crushed and burned pottery was found on the house floor, and this was designated as Feature 127 (Figure 11.34a). Curiously, the pottery was concentrated in a visible depression in the house floor more than a meter in diameter. Hand coring revealed that a large pit, filled with earth and trash, lay directly under the sherd concentration. It was inferred that the depression in the house floor formed when people walked over the filled pit, and that several pottery vessels were placed in this slight depression at the time the house the burned.

Upon excavation, it was clear that portions of several vessels occurred in the concentration labeled F127. Batches of sherds that appeared to refit were removed in discrete subsets that were lettered in the field and later given separate catalog numbers. It was also clear

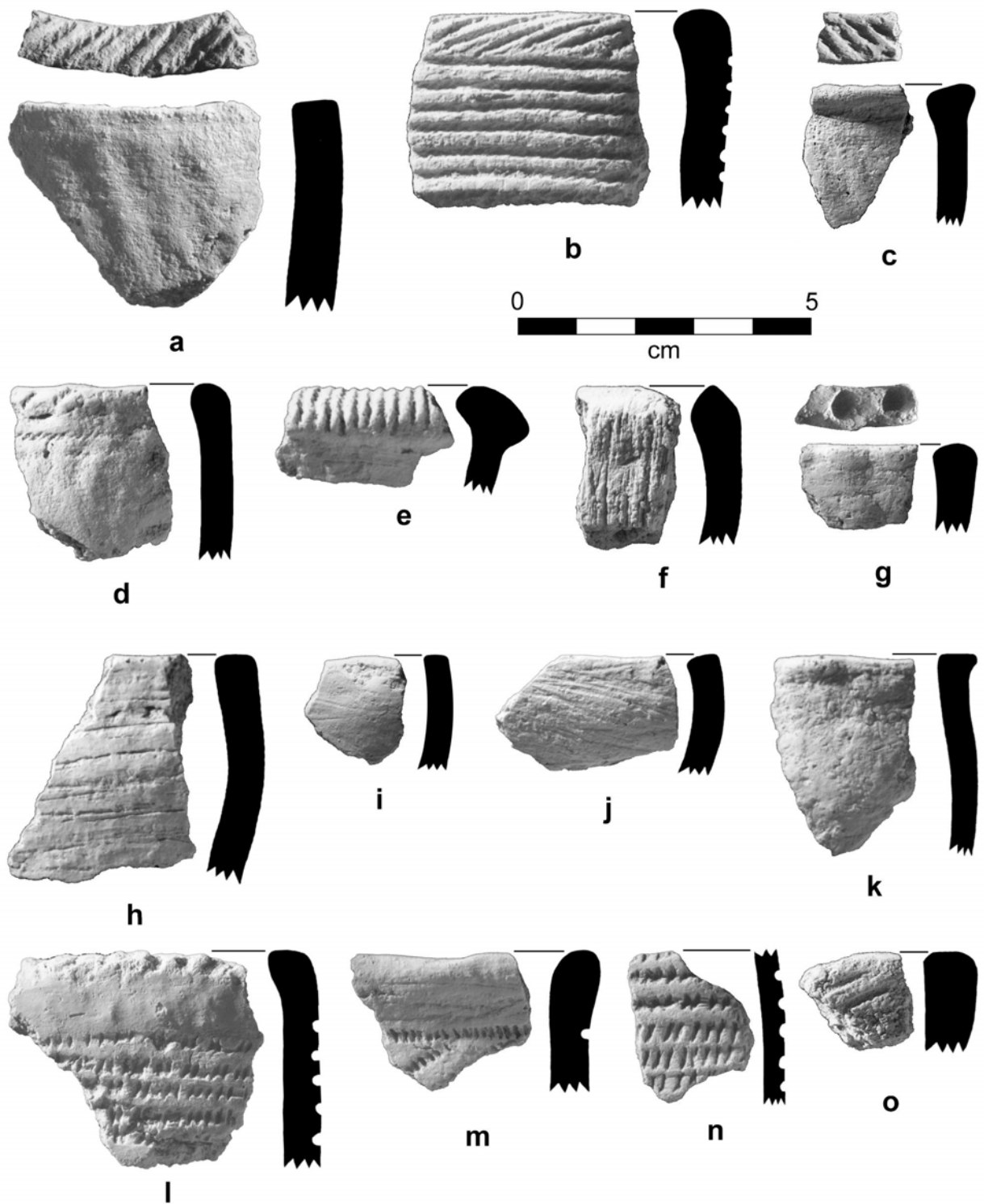


Figure 11.33. Pottery photographs, Scattered Village (32MO31), 1998 excavations. Other S-Rim subware vessels. a-e: cord-impressed; f: brushed; g: tool-impressed; h-k: plain; l-n: cord-wrapped-tool-impressed; o: incised.

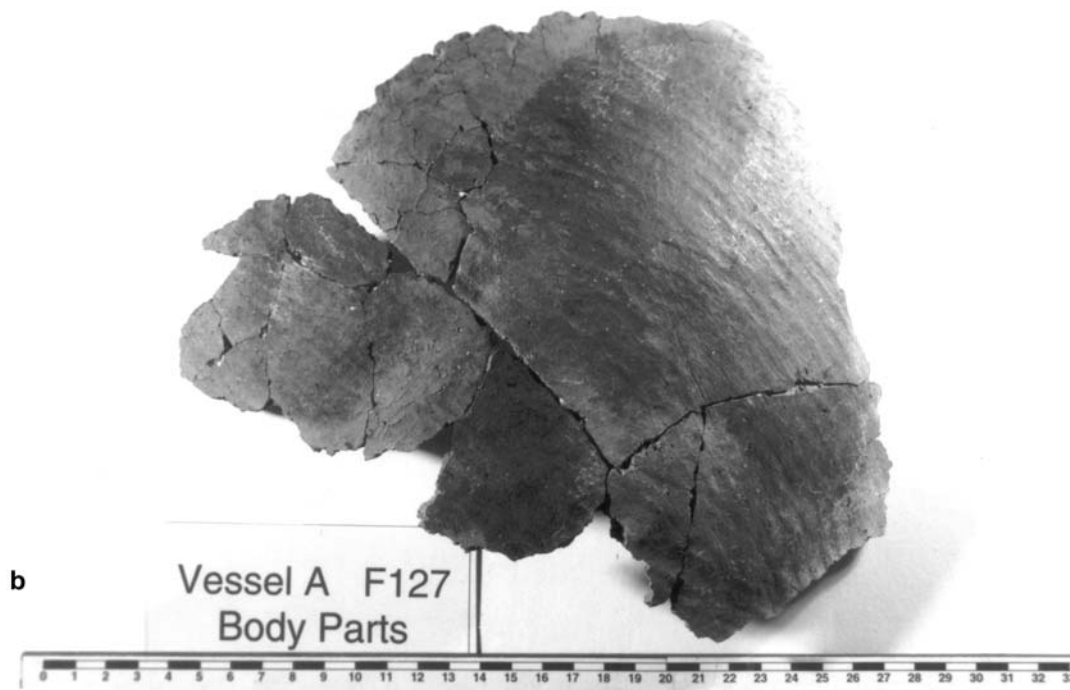


Figure 11.34. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Pottery concentration in Feature 127 as exposed in the field and within Block 8; the concentration extends north, into wall at bottom of photo; b: Vessel A body part.

during excavation that a large part of the concentration extending eastward was destroyed by an errant swipe by the backhoe operator, and that we would have only a part of the vessels that once lay in this area. In addition, the concentration extended into the north wall of Block 8, and a portion of the pottery layer was removed hastily from this area just before backfilling occurred. Thus, it was clear that several vessels occurred in F127, but that we probably did not recover all of any single pot.

Several person-days of effort were devoted in the lab to refitting and reconstruction of the vessels from F127. We felt this might be particularly informative because it was clear in the field and from even cursory examination of the sherds that large portions of the concentration were visibly distorted by the high temperature of the house fire. These vessels provided graphic testimony to the heat of the conflagration and some details regarding circumstances of abandonment. Meaningful portions of five vessels were identified and partially reconstructed in this refitting effort. Despite the intensive effort, perhaps 25% by weight of the sherds recovered as part of F127 could not be refitted into larger vessel pieces within the time available. Roughly 9% of the sample by weight could not be assigned to a specific vessel. Data about the vessels are summarized in Table 11.18. Each vessel will be described and illustrated in turn.

Table 11.18. Summary data for pottery vessels identified in the sherd cluster designated F127 in Block 8, Scattered Village (32MO31), 1998 excavations.

Vessel No.	Classification	Parts Present	Weight	Est. Portion
A	-	body	357 gm	~ 12%
B	-	body	291 gm	~ 10%
V8.075	Le Beau High Rim Plain	rim	304 gm	~ 10%
V8.077	Knife River Large Tool-Imprinted	rim and body	2020 gm	~ 66%
V8.079	Knife River Large Cord-Imprinted	rim and body	2512 gm	~ 80%
V8.080	Knife River Fine Cord-Imprinted	rim	6 gm	< 1%
V8.081	Knife River Large Cord-Imprinted	rim	110 gm	~ 4%
unassigned	-	body	~ 543 gm	-
Total			~ 6143 gm	

Vessel A is represented by a large body section (Figure 11.34b) that differs in details of simple-stamped surface treatment from other vessels in F127. The illustrated vessel fragment was recovered in the portion of F127 in the north profile of the Block 8 trench, and it cannot be determined if more of this vessel was in the area of F127 when the house burned. Differential coloration indicates that the large section shown in the figure was in three pieces when the house fire reached its greatest intensity. The largest segment was exterior surface facing downward on the floor. The interior surface, facing upward, was partially vitrified and distorted around its perimeter. Smaller fragments exhibit oxidation shadows and patterns indicating partial shielding from most intense heat. In sum, Vessel A was broken before the fire reached its most intense level.

Vessel B is represented by a large reconstructed section of a pot body shown in Figure 11.35a and a few smaller sherds. This vessel is distinguished from the others by its bold and broad simple-stamp pattern and paste with a high mica content. Parts of this vessel were found

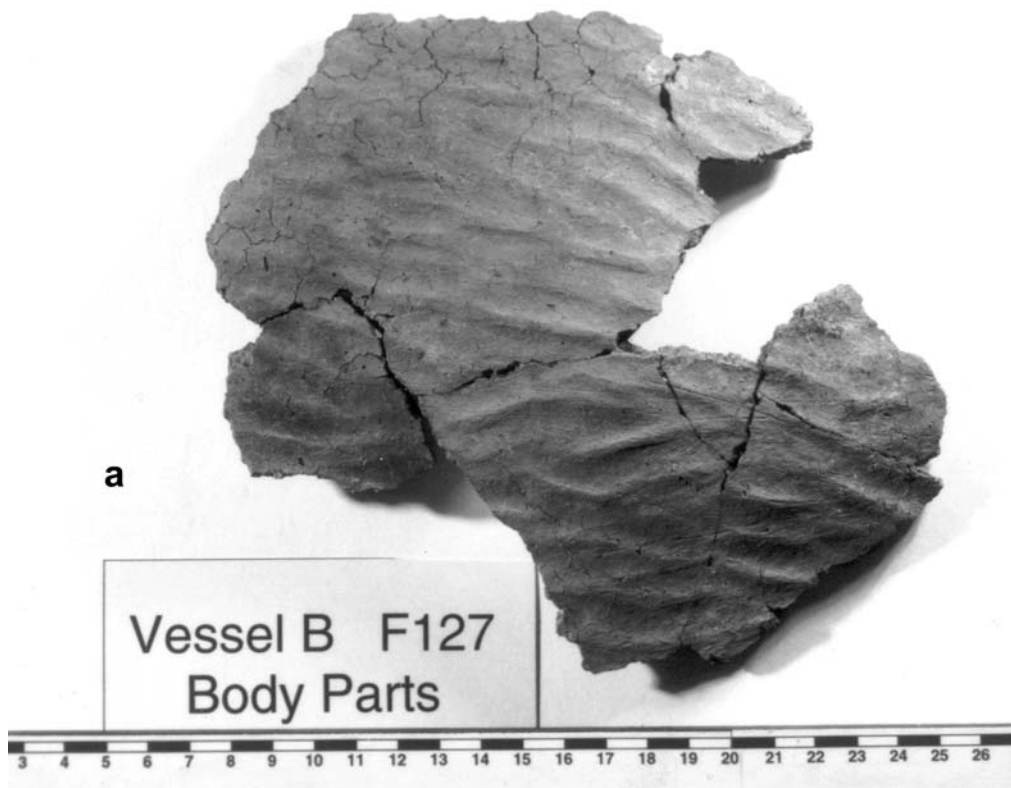


Figure 11.35. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations.
a: Vessel B body part; b: Vessel 8.075 rim part.

in the profile north of the Block 8 trench, and it cannot be determined if more of this vessel was present in the vicinity of F127. The single large illustrated vessel fragment was at the time of the lodge fire a single large sherd that was lying on the house floor exterior surface down and interior surface up. During the fire, intense heat caused the perimeter of the sherd to vitrify and droop downward in a rather symmetrical pattern, taking on the form of a shallow plate or saucer with a horizontal flange or rim. As with Vessel A, this fragment of Vessel B indicates that the pot was broken prior to the time the fire reached its most intense level.

Vessel 8.075 is represented primarily by two large refitted rim sherds (Figure 11.35b). Few body parts could be matched with confidence to this vessel, although additional body portions may exist within the sherd concentration. Vessel 8.075 is a Le Beau High Rim plain pot bearing an interior brace. The two refitted rim fragments shown in the illustration had differential exposures to the heat of the fire. The fragment on the right was largely shielded from the fire (it still has a black color) except for extreme heating and vitrification of the margin where the two sherds refit. This sherd was found within Block 8 next to the north wall profile. The sherd on the left was completely oxidized (uniform gray color) and partially vitrified in the fire. This sherd was found at an unrecorded location within the profile north of the Block 8 trench. Thus, the parts of this vessel spell out a history of fragmentation before the fire reached its peak intensity that shielded some part of this pot from most intense heat.

Vessel 8.077 is a substantial part including much of the rim and body of a Knife River Large, tool-impressed vessel. Portions of the vessel were found both within the Block 8 trench as well as north of this area in the profile. Perhaps half of the circumference of the rim area was recovered. One refitted rim section (Figure 11.36a-c) shows moderate distortion and the effects of extreme heat. The refitted pieces are differentially distorted, with orifice curvature altered considerably (top view). The interior surface of this rim section shows severe shrinkage cracking, an effect of vitrification (Figure 11.36a).

A large portion of the vessel base was reconstructed (Figure 11.36d). The interior surface also shows extensive shrinkage cracking from vitrification. Part of this large basal section was shielded from the heat (is black in color), but most was heavily oxidized (gray in color). The base shape is not heavily distorted and is mildly subconoidal. An area about 3 cm in diameter with a heavily eroded exterior surface occurs near the vessel bottom; this probably reflects wear from contact with a rock or other hard object used as a pot support (perhaps of trio of rocks). The spatially restricted extent of this use-wear indicates that the vessel was not often lifted and repositioned during its use-life. Body thickness is greatest at the base of the vessel, at ca. 10.1 mm, and within this large section, wall thickness varies to a minimum of 2.6 mm.

Several large sections of the vessel body were reconstructed (Figure 11.37), but these could not be refitted into a larger part of the pot. Some of these show color patterns that result from heat shadowing (Figure 11.37b), but most are heavily oxidized and moderately distorted from extreme heat. These body parts occurred primarily within the cluster in the Block 8 trench, but also in the north profile area. One large section of rim and body was reconstructed (not illustrated), about 28 cm in height from the lip to the midpoint or lower on the vessel body. This section was moderately distorted from the heat, but its orientation during the fire cannot be readily determined due to uniform oxidation. Vessel wall thickness within this section varies

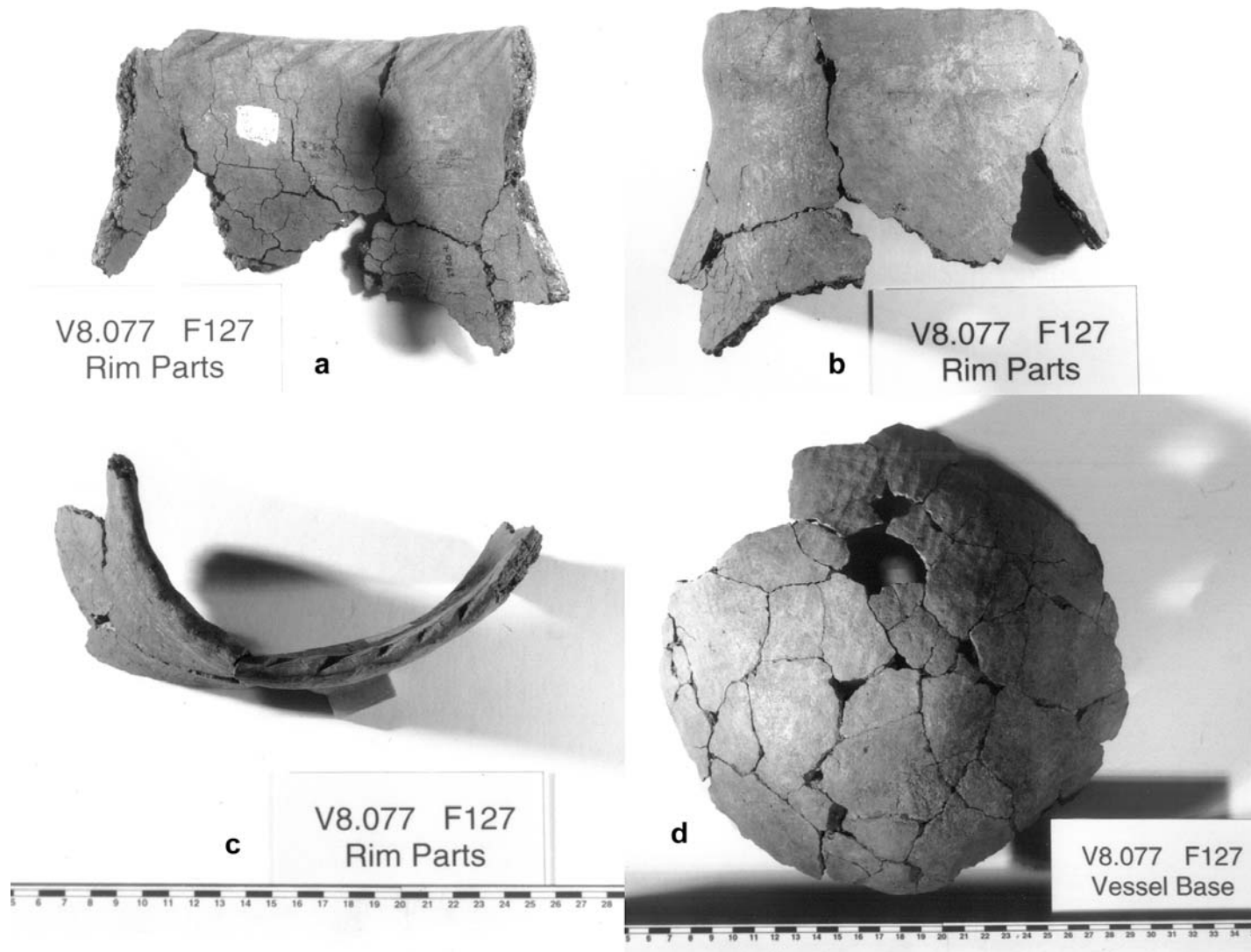


Figure 11.36. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a-c: different views of Vessel 8.077 rim part, showing distortion and shrinkage cracks; d: Vessel 8.077 base.

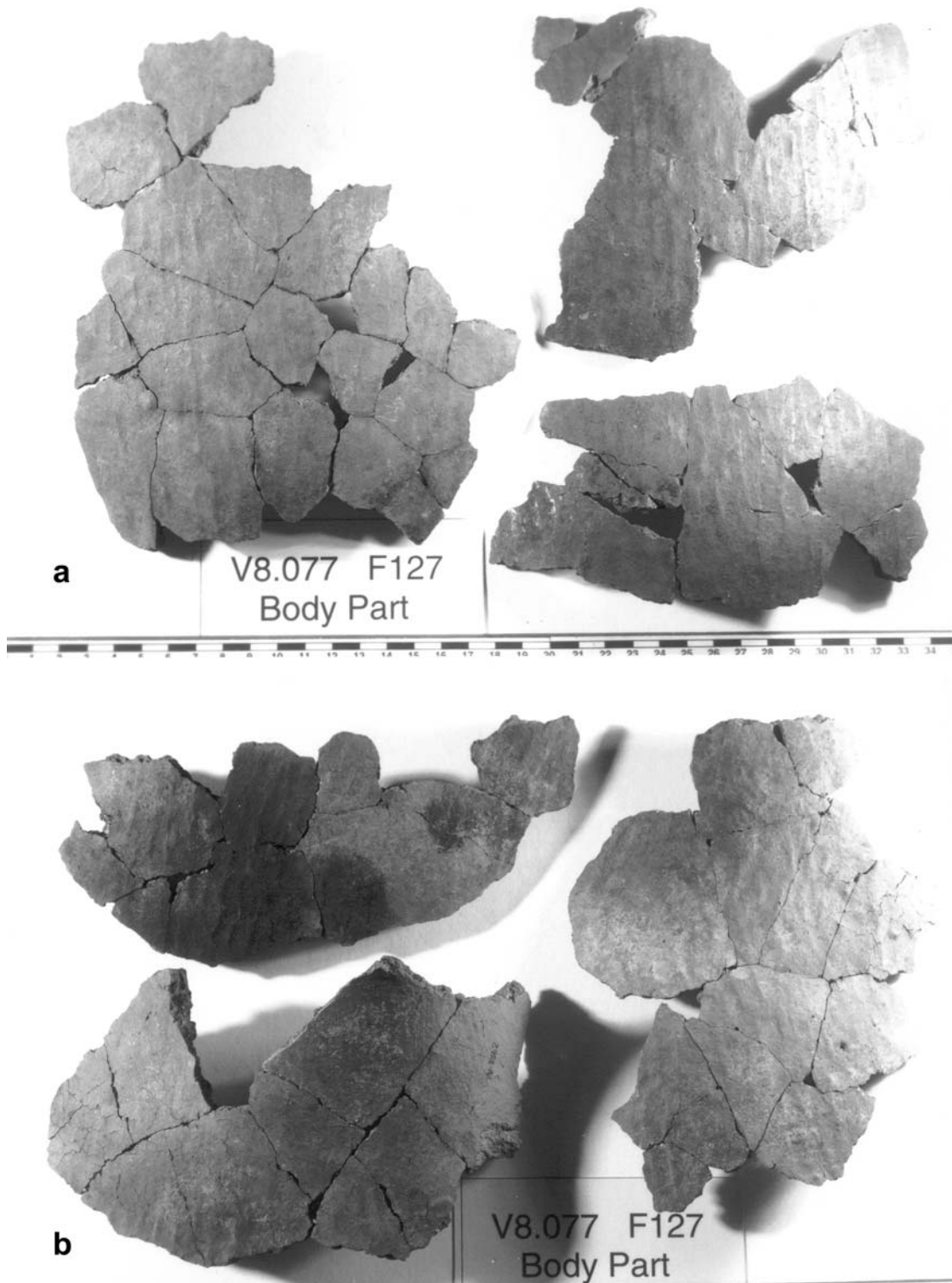


Figure 11.37. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a,b: large sections of the body of Vessel 8.077, exterior surfaces; note color variation in (b).

from 8.0 mm in the neck area to a minimum of 2.6 mm on the vessel body at a point near its maximum diameter. In sum, it is likely that Vessel 8.077 was broken into several large pieces somewhat dispersed from one another before the lodge fire reached its maximum intensity.

Vessel 8.079 is a Knife River Large, cord-impressed pot that was recovered in several large, reconstructable pieces within F127. Major parts of the vessel were recovered within the trench for Block 8, and lesser parts within the profile to the north. Refitting studies allow some degree of reconstruction of the burning event and its effects on the pot. A large, dramatically distorted section of the upper vessel was reconstructed (Figure 11.38). Several smaller articulating pieces of the rim area of the pot were also recovered (Figure 11.39), and the entire circumference of the vessel mouth appears to be present. The largest reconstructed piece is heavily distorted from the effects of heat. It is clear that this entire pot section melted as a unit. It was lying horizontally with the exterior surface of the pot facing upward, and it gradually sagged into a flattened form due to the effects of gravity and plasticity at high temperature. The cluster of rim pieces shown in Figure 11.39 articulate with each other and those in Figure 11.38, but they were not all recovered in articulated position. The single triangular rim section in the center in Figure 11.39a, darker in color, was shielded from the heat in some manner, and was recovered under the north wall profile. The remaining rim sherds in figure 11.39a were found a fraction of a meter away within the Block 8 trench. These facts indicate that Vessel 8.079 was broken before the peak of the fire occurred. The triangular rim piece became separated after fracture and was shielded from the fire to some degree. The larger part of the upper vessel, constituting what is shown in Figure 11.36 and most of that in Figure 11.19, lay on its side as the fire burned and sagged, laterally, into a flattened mass. All this occurred before the house roof collapsed, crushing the pot and smothering the fire.

A small section near the base of Vessel 8.079 was recovered. Just as with Vessel 8.077, an area of a heavily eroded exterior surface 3 cm in diameter occurs near the vessel bottom. Again, this probably reflects wear from contact with a rock or other hard object used as a pot support (perhaps of trio of rocks). The spatially restricted extent of this use-wear indicates, as with V8.077, that this vessel, too, was not often lifted and repositioned during its use-life. Vessel wall thickness is relatively great near the base, at ca. 7.5 mm, and varies from ca. 7.4 mm at the vessel neck to as little as 2.4 mm at some points on the body near the maximum diameter of the pot. Several large sections of the vessel body were reconstructed, but these could not be refitted into pieces larger than those illustrated in Figure 11.39. All are distorted to varying degrees by heat and melting. The two body parts on the right in the illustration have similar color patterns in which the exterior surface is darkest near the center of each section. This reflects the cooling effect of contact between this surface and the house floor. That each piece is fully fired and vitrified around its perimeter indicates that each section was broken from the pot and lay on the floor, with interior facing upward, prior to the fire reaching its peak. In sum, several lines of evidence in Vessel 8.079 indicate that it was broken into several large pieces before the fire reached its peak. The largest of these was apparently an upper vessel part that lay on its side, melting and sagging as the fire progressed.

Vessel 8.080 is a very small fragment of the rim of a Knife River Fine, cord-impressed vessel. It is probably an incidental inclusion in the area we excavated as the pottery concentration in F127.

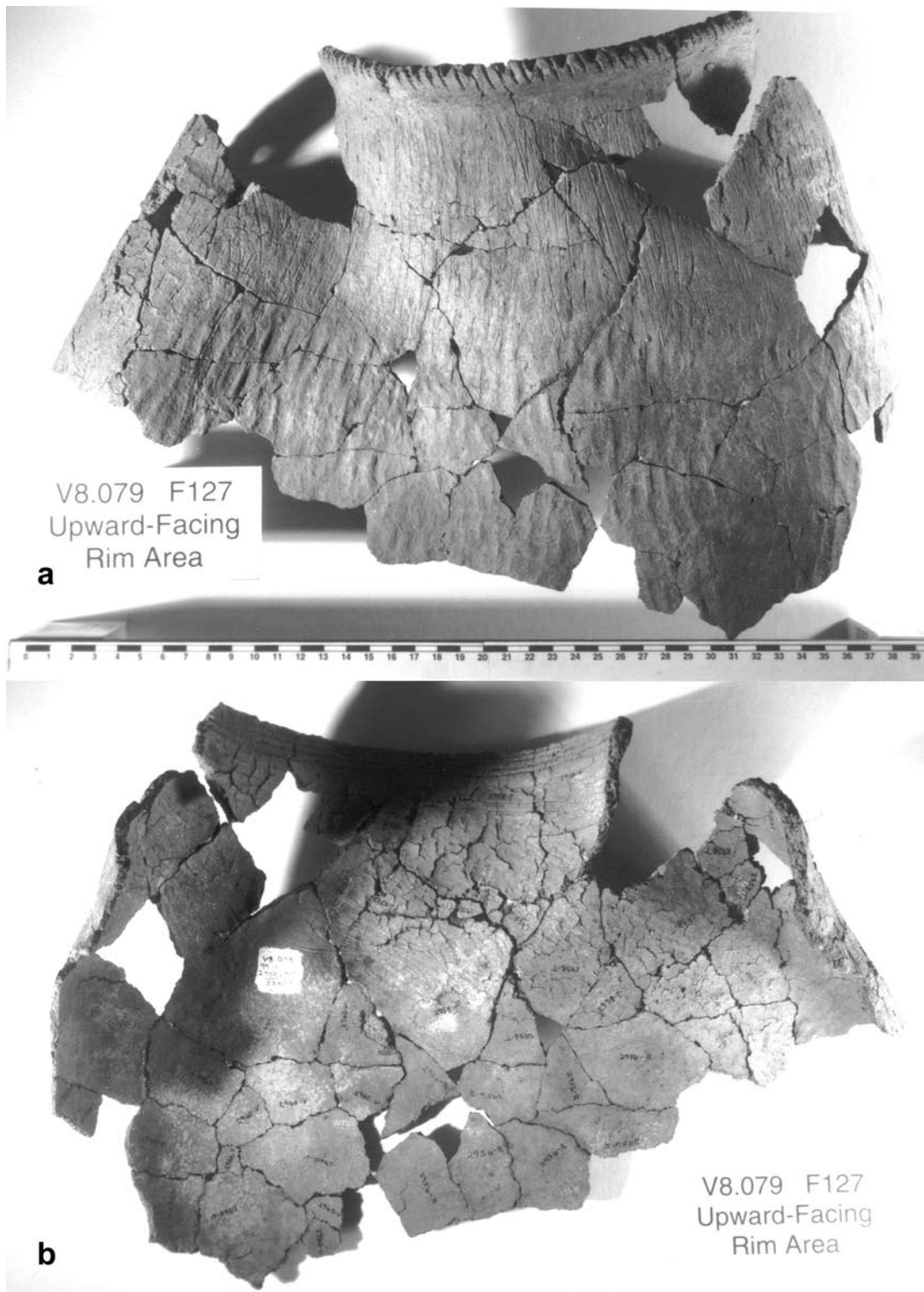


Figure 11.38. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Vessel 8.079, view of exterior surface of a large upper vessel section heavily distorted by heat; b: Vessel 8.079, view of interior surface of a large upper vessel section heavily distorted by heat, showing shrinkage cracks due to vitrification.

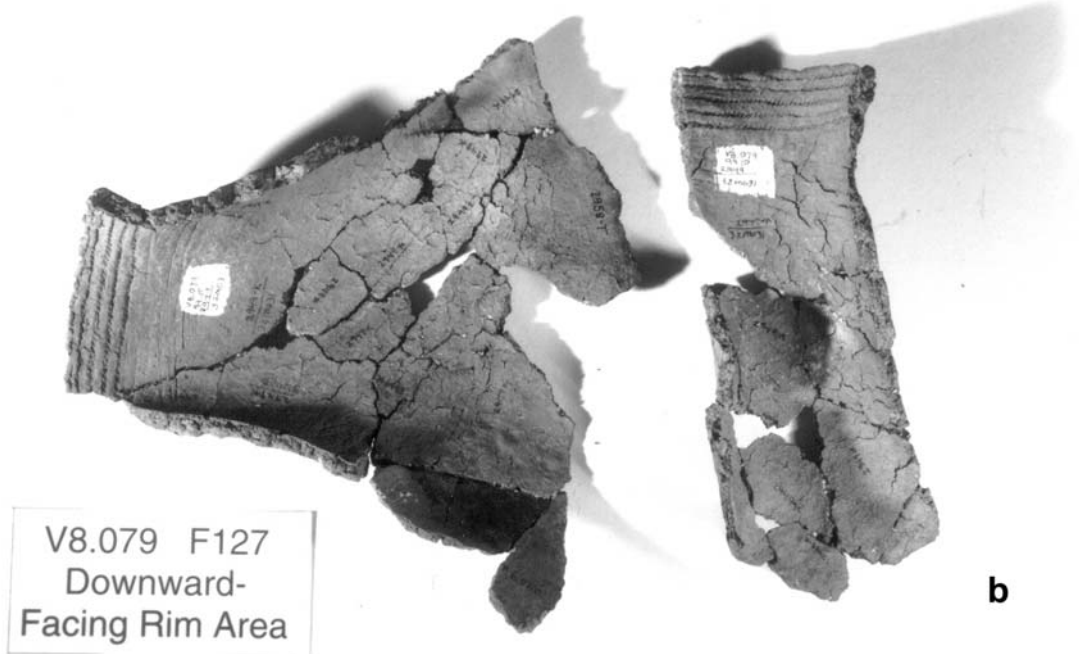
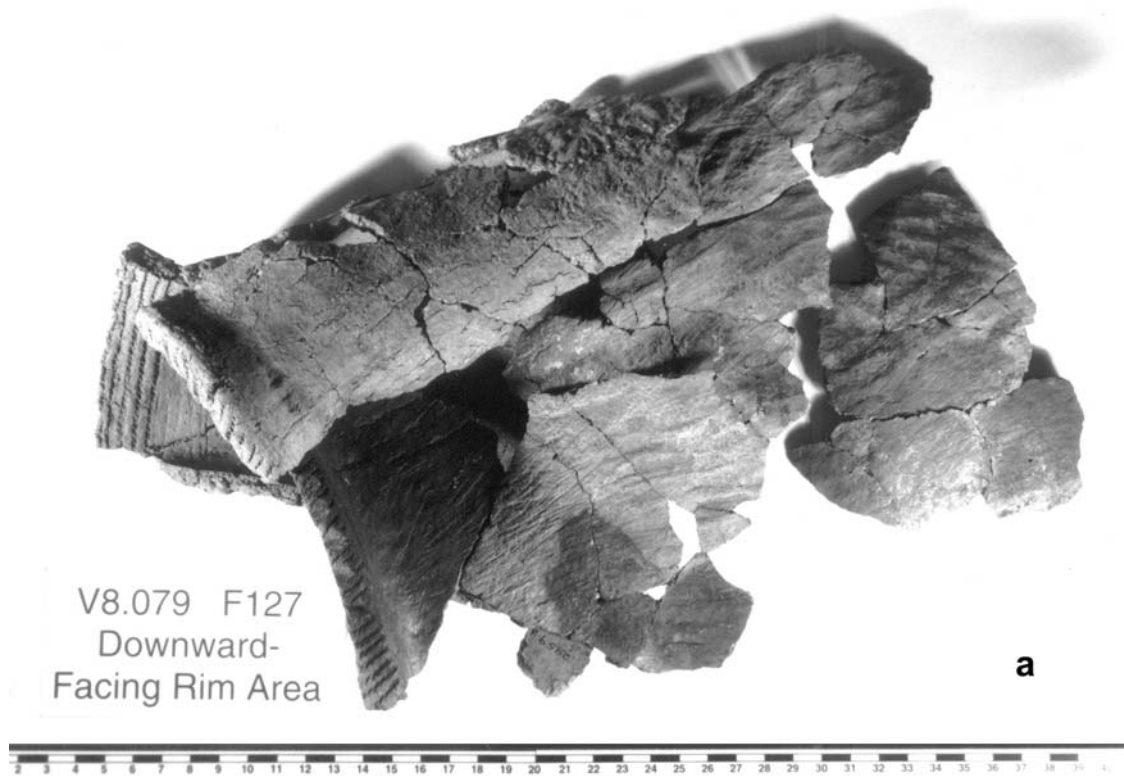


Figure 11.39. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Vessel 8.079, articulating sections of rim, neck and upper body areas heavily distorted by heat; note blistering of exterior surface in uppermost fragment; b: Vessel 8.079, view of interior surfaces of rim and neck pieces illustrating extreme distortion and shrinkage cracks from vitrification.

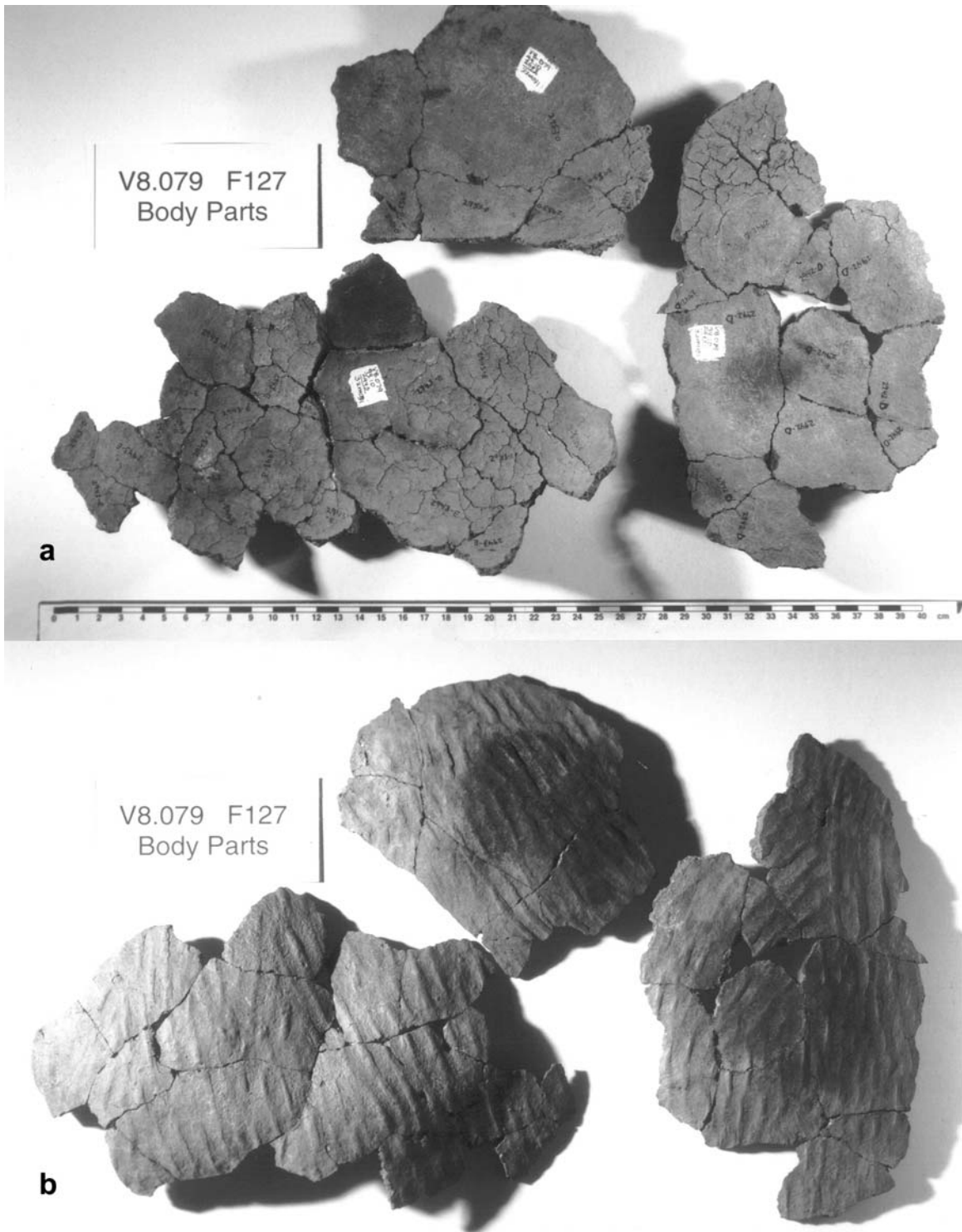


Figure 11.40. Feature 127 pottery photographs, Scattered Village (32MO31), 1998 excavations. a: Vessel 8.079, view of interior surface of large sections of vessel body showing extensive shrinkage cracks due to vitrification; b: Vessel 8.079, view of exterior surface of large sections of vessel body showing cooler (dark) area on two sections where these pieces contacted the lodge floor at the time of burning.

Vessel 8.081 is a small rim piece from a Knife River Large, cord-impressed pot. The part we recovered includes a few small refitted rim sherds and little else. It is oxidized but not vitrified (no cracks, distortion, or apparent decrease in density). It appears to be an incidental inclusion within the sherd concentration we excavated as F127.

In summary, the reconstructed pottery found on the house floor in F127 tells us something about the circumstances surrounding abandonment and burning of the house. Several vessels and large vessel parts confirm that most if not all of the pots we uncovered had been broken into large sections prior to the period of most intense heat from the lodge fire. Had they been broken a significant time before house burning, it is likely that most of the pieces would have been much smaller than the several sections 20 to 30 cm in maximum size. We surmise that a cluster of vessels was placed in this part of the house while in use, and that they were apparently all broken and partially dispersed just before the house burned. This suggests intentional destruction, by the lodge residents or other persons, just before the house fire.

Intrasite Variation in Pottery Vessels

In this section, we investigate two aspects of intrasite variation in the vessel assemblage: functional variation by context, and temporal variation. In the foregoing analysis, we noted several classes of vessels that appear to be smaller than others and decorated either more extensively or in different manners. The suggestion is that there is a general class of small, differentially decorated pots in the site that likely functioned in a different way from larger vessels. We will call one *small, special function* pots, and the other *large utilitarian* pots. This difference in function is largely speculative at this point, but may be confirmed and clarified to some degree if we discover that such vessels are distributed in non-random ways within various excavated contexts.

For purposes of this analysis, we will define the two groups as follows. Small, special function pots include the classes: Knife River Fine ware (subware); Rolled Rim Jar/Bowl subware; Other Straight Rim subware; Composite S-Rim subware; Other S-Rim subware; and Le Beau Fine ware (as a subpart of all Le Beau ware). Large utilitarian vessels include all other vessels. We will call these groups simply “small” and “large,” for short. Defined in this manner, there are 136 small vessels in the collection and 1698 large vessels. In contexts with an assigned temporal period, there are 133 small and 1655 large vessels. Contingency table analysis involving vessel function by depositional context (pit type, midden type, etc.) and involving vessel functional by inside/outside house indicates no significant relationship between function and context (probability levels for chi-square analysis are $p=.258$ and $p=.893$, respectively). Therefore, contextual analysis does not support the idea that these are functionally distinct vessel classes, in the sense that function is correlated with final context of disposal. Because none of these vessels occurs in unbroken condition, this approach is not a particularly good test of the context of use of pottery vessels of different sizes. Except for the occurrences of several large vessels in an apparent cluster on the floor of the house in Block 8, the excavation data do not allow study of this question.

We examined variation across time periods within the site primarily by means of contingency table analysis of several vessel classification schemes and other attributes according to the four main time periods (TP4 – TP1, AD 1550-1700; see Chapter 5). We compare, successively, using data in Table 11.19 – Table 11.26, data on vessel rimform classification, ware and subware classification, decorative type within Le Beau Ware and Knife River ware, brace (zone 5) usage and placement within Le Beau ware and Knife River ware, and details of cord-impression spacing and diameter.

Rimform varies significantly according to time period (Table 11.19)($X^2=232.55$, $df=45$, $p=.000$). TP4 stands apart from the others in high relative frequencies of recurved S-rims of all variations, zone 2 and zone 2/3 fragments. This is not surprising, because these are the identifying features used to isolate samples assigned to TP4. TP3 is distinctive for a high percentage of S-rim with exterior brace and recurved S-rim with exterior brace. TP2 has a moderately high occurrence of straight rim with exterior brace. TP1, the latest, is about as distinctive as TP4, being distinguished by exterior braced straight rims, simple S-rims, and S-rims with interior bracing. Two strong time trends are of note, extending across all time periods: a gradual increase in S-rims with interior brace through time, and a continuous decrease in recurved S-rims through time. Many of these patterns are mirrored or accentuated in ware and subware classifications that are directly based on rimform features.

Ware classification varies significantly by time period (Table 11.20)($X^2=52.97$, $df=21$, $p=.000$). TP4 is distinguished by high frequencies of Knife River Fine ware, Unnamed Straight and S-Rim Late, and Le Beau ware, as well as Early S-rim vessels. These patterns continue for Le Beau ware and Knife River Fine ware in TP3. TP2 is distinguished by a high percentage of Knife River ware, and TP1 by the highest percentage of Transitional ware. Consistent temporal trends of note include a tendency for Knife River ware to increase through time and to covary with Le Beau ware, a general decrease in Knife River Fine ware through time, and a gradual increase in Transitional ware through time (although it only comprises 2.8% of the sample, overall).

As might be predicted, subware classification also varies significantly through time (Table 11.21)($X^2=195.98$, $df=33$, $p=.000$). TP1 and TP4 are distinguished most strongly from the others, with TP4 marked by high percentages of Le Beau Recurved and Le Beau Indeterminate (largely fragments of the recurved vessels), and with TP1 marked by especially high percentages of Le Beau High Rim subware. The subwares distinctive of TP4 were integral to its definition, and come as no surprise. General temporal patterns of note include a general increase in Knife River Large subware through time (more than 2-fold from AD 1550 to AD 1700), a gradual increase in Le Beau High Rim through the sequence, and dramatic fallout of Le Beau Recurved through time (From 11.3% in TP3 to 3.7% in TP1).

Decorative type within Le Beau ware does not vary significantly through time (Table 11.22)($X^2=36.15$, $df=27$, $p=.112$). The only temporal trend that may be of note is a tendency for plain vessels to increase through time while cord-impressed vessels exhibit the opposite trend. Other distinctions among time periods are sporadic and insignificant. Similarly, decorative type within Knife River ware does not vary significantly according to time (Table 11.23)($X^2=18.09$, $df=15$, $p=.258$). Meaningful time trends are not apparent.

Table 11.19. Vessel rimform classification by time period, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values >+1.0 are shaded.

rim form and zones present	Time Period				Total
	TP1	TP2	TP3	TP4	
bowl / jar (no Zn2)	0	2	0	0	2
straight rim	15	41	0	11	67
str. rim w/ext. brace	115	249	38	29	431
str. rim w/int. brace	2	6	1	2	11
s-rim	113	232	40	32	417
s-rim w/ext. brace	35	90	19	14	158
s-rim w/int. brace	79	133	18	15	245
s-rim w/fillet (int)	2	0	0	0	2
recurved s-rim	9	31	9	42	91
recur. s-rim w/extbrace	7	21	9	9	46
recur. S-rim w/intbrace	0	0	0	2	2
zone 2-3 frag.	28	80	14	47	169
zone 3 frag.	26	78	10	27	141
appendage only	0	5	0	2	7
lip frag. w/extbrace	27	60	8	6	101
lip w/int. brace	1	3	1	2	7
bowl / jar (no Zn2)	.0%	.2%	.0%	.0%	.1%
straight rim	3.3%	4.0%	.0%	4.6%	3.5%
str. rim w/ext. brace	25.1%	24.2%	22.8%	12.1%	22.7%
str. rim w/int. brace	.4%	.6%	.6%	.8%	.6%
s-rim	24.6%	22.5%	24.0%	13.3%	22.0%
s-rim w/ext. brace	7.6%	8.7%	11.4%	5.8%	8.3%
s-rim w/int. brace	17.2%	12.9%	10.8%	6.3%	12.9%
s-rim w/fillet (int)	.4%	.0%	.0%	.0%	.1%
recurved s-rim	2.0%	3.0%	5.4%	17.5%	4.8%
recur. s-rim w/extbrace	1.5%	2.0%	5.4%	3.8%	2.4%
recur. S-rim w/intbrace	.0%	.0%	.0%	.8%	.1%
zone 2-3 frag.	6.1%	7.8%	8.4%	19.6%	8.9%
zone 3 frag.	5.7%	7.6%	6.0%	11.3%	7.4%
appendage only	.0%	.5%	.0%	.8%	.4%
lip frag. w/extbrace	5.9%	5.8%	4.8%	2.5%	5.3%
lip w/int. brace	.2%	.3%	.6%	.8%	.4%
bowl / jar (no Zn2)	-.7	.9	-.4	-.5	
straight rim	-.3	.8	-2.4	.9	
str. rim w/ext. brace	1.0	1.0	.0	-3.5	
str. rim w/int. brace	-.4	.0	.0	.5	
s-rim	1.2	.4	.5	-2.9	
s-rim w/ext. brace	-.5	.4	1.4	-1.3	
s-rim w/int. brace	2.6	.0	-.8	-2.9	
s-rim w/fillet (int)	2.2	-1.0	-.4	-.5	
recurved s-rim	-2.8	-2.6	.3	9.0	
recur. s-rim w/extbrace	-1.2	-.8	2.5	1.3	
recur. S-rim w/intbrace	-.7	-1.0	-.4	3.5	
zone 2-3 frag.	-2.0	-1.2	-.2	5.5	
zone 3 frag.	-1.4	.2	-.7	2.2	
appendage only	-1.3	.6	-.8	1.2	
lip frag. w/extbrace	.5	.7	-.3	-1.9	
lip w/int. brace	-.5	-.4	.5	1.2	
Total	459	1,031	167	240	1,897
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 11.20. Ware classification by time period, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values $>+1.0$ are shaded.

Ware	Time Period				Total
	TP1	TP2	TP3	TP4	
Knife River	113	258	30	25	426
Knife River Fine	16	26	9	11	62
Transitional	18	25	3	4	50
Unnamed Straight Rim Late	9	20	0	7	36
Unnamed S-Rim Early	0	1	0	2	3
Le Beau	274	618	115	174	1181
Le Beau Fine	4	7	1	3	15
Unnamed S-Rim Late	4	10	1	5	20
Knife River	25.8%	26.7%	18.9%	10.8%	23.8%
Knife River Fine	3.7%	2.7%	5.7%	4.8%	3.5%
Transitional	4.1%	2.6%	1.9%	1.7%	2.8%
Unnamed Straight Rim Late	2.1%	2.1%	.0%	3.0%	2.0%
Unnamed S-Rim Early	.0%	.1%	.0%	.9%	.2%
Le Beau	62.6%	64.0%	72.3%	75.3%	65.9%
Le Beau Fine	.9%	.7%	.6%	1.3%	.8%
Unnamed S-Rim Late	.9%	1.0%	.6%	2.2%	1.1%
Knife River	.9	1.9	-1.3	-4.0	
Knife River Fine	.2	-1.3	1.5	1.1	
Transitional	1.7	-.4	-.7	-1.0	
Unnamed Straight Rim Late	.1	.1	-1.8	1.1	
Unnamed S-Rim Early	-.9	-.5	-.5	2.6	
Le Beau	-.9	-.7	1.0	1.8	
Le Beau Fine	.2	-.4	-.3	.8	
Unnamed S-Rim Late	-.4	-.2	-.6	1.5	
Total	438	965	159	231	1,793
	100.0%	100.0%	100.0%	100.0%	100.0%

The presence and shape of the brace (zone 5) varies significantly according to time period for both Le Beau ware (Table 11.24)($X^2=39.97$, $df=24$, $p=.044$) and for Knife River ware (Table 11.25)($X^2=29.92$, $df=18$, $p=.038$). Regarding Le Beau ware, the brace is little used during TP4, then there is a trend toward a shift from exterior bracing to interior bracing through TP3 to TP1 in the collection. This is probably closely correlated with the general increase in Le Beau High Rim subware through time. For Knife River ware, only two time trends are apparent. One is for interior bracing to drop out completely through time, and the second is for there to be a marked increase in use of an inverted wedge brace late in time.

Table 11.26 summarizes data on cord-impression spacing and diameter for all major ware groups and according to time period. This comparison is perhaps most meaningful only for Le Beau ware in which spacing refers to mean distance between horizontal parallel impressions placed on zone 3. Study of a long time sequence for many components predominantly within the Knife region indicates a strong tendency for cord diameter to decrease steadily and for cord spacing to decrease steadily through time, reaching minimum values in the AD 1500s. Our

Table 11.21. Subware classification by time period, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values >+1.0 are shaded.

Subware	Time Period				Total
	TP1	TP2	TP3	TP4	
Knife River Large	68	128	11	14	221
Knife River Indet.	45	130	19	11	205
Knife River Fine	16	26	9	11	62
Transitional	18	25	3	4	50
Other Straight/Braced	4	14	0	5	23
Rolled Rim Jar/Bowl	5	6	0	2	13
Le Beau High Rim	94	154	21	28	297
Le Beau Normal	107	236	43	25	411
Le Beau Recurved	16	48	18	53	135
Le Beau Indet.	61	187	34	71	353
Other S-Rim	2	8	1	6	17
Composite Zone 3	2	3	0	1	6
Knife River Large	15.5%	13.3%	6.9%	6.1%	12.3%
Knife River Indet.	10.3%	13.5%	11.9%	4.8%	11.4%
Knife River Fine	3.7%	2.7%	5.7%	4.8%	3.5%
Transitional	4.1%	2.6%	1.9%	1.7%	2.8%
Other Straight/Braced	.9%	1.5%	.0%	2.2%	1.3%
Rolled Rim Jar/Bowl	1.1%	.6%	.0%	.9%	.7%
Le Beau High Rim	21.5%	16.0%	13.2%	12.1%	16.6%
Le Beau Normal	24.4%	24.5%	27.0%	10.8%	22.9%
Le Beau Recurved	3.7%	5.0%	11.3%	22.9%	7.5%
Le Beau Indet.	13.9%	19.4%	21.4%	30.7%	19.7%
Other S-Rim	.5%	.8%	.6%	2.6%	.9%
Composite Zone 3	.5%	.3%	.0%	.4%	.3%
Knife River Large	1.9	.8	-1.9	-2.7	
Knife River Indet.	-.7	1.9	.2	-3.0	
Knife River Fine	.2	-1.3	1.5	1.1	
Transitional	1.7	-.4	-.7	-1.0	
Other Straight/Braced	-.7	.5	-1.4	1.2	
Rolled Rim Jar/Bowl	1.0	-.4	-1.1	.3	
Le Beau High Rim	2.5	-.5	-1.0	-1.7	
Le Beau Normal	.7	1.0	1.1	-3.8	
Le Beau Recurved	-3.0	-2.9	1.7	8.5	
Le Beau Indet.	-2.7	-.2	.5	3.8	
Other S-Rim	-1.1	-.4	-.4	2.6	
Composite Zone 3	.4	-.1	-.7	.3	
Total	438	965	159	231	1,793
	100.0%	100.0%	100.0%	100.0%	100.0%

interest here is to learn if the same time trend is apparent within the sequence for Le Beau ware at Scattered Village. Data are summarized by time period in the uppermost section of Table 11.26. ANOVA data are summarized at the end of the table, specific to Le Beau ware across four periods only. As can be seen, there is a significant difference in both cord diameter and

Table 11.22. Distribution of decorative type according to time period for Le Beau ware only, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values $>+1.0$ are shaded.

Type	Time Period				Total
	TP1	TP2	TP3	TP4	
Plain	59	106	22	19	206
Cord-Impressed	168	384	77	133	762
Tool-Impressed	0	11	1	1	13
Incised	2	8	1	2	13
Pinched	0	2	0	0	2
Punctuate	2	3	0	0	5
CWTI	0	2	0	1	3
Finger-Impressed	28	76	14	11	129
Simple-Stamped	14	21	0	6	41
Brushed	1	1	0	0	2
Plain	21.5%	17.3%	19.1%	11.0%	17.5%
Cord-Impressed	61.3%	62.5%	67.0%	76.9%	64.8%
Tool-Impressed	.0%	1.8%	.9%	.6%	1.1%
Incised	.7%	1.3%	.9%	1.2%	1.1%
Pinched	.0%	.3%	.0%	.0%	.2%
Punctuate	.7%	.5%	.0%	.0%	.4%
CWTI	.0%	.3%	.0%	.6%	.3%
Finger-Impressed	10.2%	12.4%	12.2%	6.4%	11.0%
Simple-Stamped	5.1%	3.4%	.0%	3.5%	3.5%
Brushed	.4%	.2%	.0%	.0%	.2%
Plain	1.6	-.1	.4	-2.1	
Cord-Impressed	-.7	-.7	.3	2.0	
Tool-Impressed	-1.7	1.6	-.2	-.7	
Incised	-.6	.5	-.2	.1	
Pinched	-.7	.9	-.4	-.5	
Punctuate	.8	.2	-.7	-.9	
CWTI	-.8	.3	-.5	.8	
Finger-Impressed	-.4	1.1	.4	-1.8	
Simple-Stamped	1.4	-.1	-2.0	.0	
Brushed	.8	.0	-.4	-.5	
Total	274	614	115	173	1,176
	100.0%	100.0%	100.0%	100.0%	100.0%

spacing in Le Beau ware. Examination of means indicates that this difference is probably related in each variable to substantially lower values in TP1, the latest time unit.

A few other attributes and details of vessel construction and decoration were examined according to time. Decorative technique applied in zone 3 in Le Beau ware only showed no significant variation through time. Interior cord-impressed decoration is common in Knife River ware in the collection (19% overall). This feature does not vary significantly by time period. S-twist cordage is always a minority feature in pottery decoration. S-twist cordage occurs at 5.9%

Table 11.23. Distribution of decorative type according to time period for Knife River ware only, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values >+1.0 are shaded.

Type	Time Period				Total
	TP1	TP2	TP3	TP4	
Plain	22	46	7	4	79
Cord-Imprinted	85	193	18	18	314
Tool-Imprinted	1	3	0	0	4
Incised	1	1	0	1	3
Pinched	0	3	0	0	3
Finger-Imprinted	3	12	5	2	22
Plain	19.6%	17.8%	23.3%	16.0%	18.6%
Cord-Imprinted	75.9%	74.8%	60.0%	72.0%	73.9%
Tool-Imprinted	.9%	1.2%	.0%	.0%	.9%
Incised	.9%	.4%	.0%	4.0%	.7%
Pinched	.0%	1.2%	.0%	.0%	.7%
Finger-Imprinted	2.7%	4.7%	16.7%	8.0%	5.2%
Plain	.3	-.3	.6	-.3	
Cord-Imprinted	.2	.2	-.9	-.1	
Tool-Imprinted	-.1	.4	-.5	-.5	
Incised	.2	-.6	-.5	2.0	
Pinched	-.9	.9	-.5	-.4	
Finger-Imprinted	-1.2	-.4	2.8	.6	
Total	112	258	30	25	425
	100.0%	100.0%	100.0%	100.0%	100.0%

in Le Beau ware and 5.4% in Knife River ware, and the choice between S-twist and Z-twist cordage does not vary significantly by time period. Type of appendage, controlled for ware, does not vary significantly by time period. We noted the occurrence of visible mica in pottery paste. For Knife River ware, this does not vary by time period, being present in about 40% of the vessels overall. For Le Beau ware, this attribute does vary significantly by time period. Overall, 33.4% of Le Beau ware vessels have mica in the paste; this attribute has much higher values of 44.3% in TP3 and 33.7% in TP1. While the differences are not great, mica is overall more common in Knife River ware than Le Beau vessel paste (40% vs. 33%); this difference between wares is statistically significant ($X^2=5.42$, $df=1$, $p=.020$).

In summary, the most prominent variation according to time period within the site involves, primarily, a decrease in the occurrence of recurved S-rim pottery through time (Le Beau Recurved subware) and corresponding increases in the occurrence of Knife River Large subware (and Knife River ware in general) and Le Beau High Rim subware (characterized by increasing use of interior bracing through time). The ceramic content of TP4 stands out from the other periods, but this is not unexpected because its definition was based on a distinctive pottery make-up. When we examine the pottery content and variation within the samples assigned to TP1, TP2, and TP3, we see little variation among these units and we gain a picture of a relatively homogeneous pottery aggregate. All of the ceramic wares, subwares, and types recognized in

Table 11.24. Distribution of condition and shape of the brace (zone 5) according to time period for Le Beau ware, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values >+1.0 are shaded.

Condition and Shape Zone 5	Time Period				Total
	TP1	TP2	TP3	TP4	
zone not used	119	252	48	69	488
prsnt ext curved	22	63	23	13	121
prsnt interior	74	127	17	16	234
prsnt int and ext	1	2	0	0	3
prsnt ext collared	0	4	0	1	5
prsnt ext wedged	2	2	0	0	4
prsnt invr wedge	0	3	0	2	5
prsnt int flat collar	0	1	0	0	1
prsnt ext shp unk.	3	9	2	2	16
zone not used	53.8%	54.4%	53.3%	67.0%	55.6%
prsnt ext curved	10.0%	13.6%	25.6%	12.6%	13.8%
prsnt interior	33.5%	27.4%	18.9%	15.5%	26.7%
prsnt int and ext	.5%	.4%	.0%	.0%	.3%
prsnt ext collared	.0%	.9%	.0%	1.0%	.6%
prsnt ext wedged	.9%	.4%	.0%	.0%	.5%
prsnt invr wedge	.0%	.6%	.0%	1.9%	.6%
prsnt int flat collar	.0%	.2%	.0%	.0%	.1%
prsnt ext shp unk.	1.4%	1.9%	2.2%	1.9%	1.8%
zone not used	-4	-4	-3	1.5	
prsnt ext curved	-1.5	-.1	3.0	-.3	
prsnt interior	2.0	.3	-1.4	-2.2	
prsnt int and ext	.3	.3	-.6	-.6	
prsnt ext collared	-1.1	.8	-.7	.5	
prsnt ext wedged	1.0	-.1	-.6	-.7	
prsnt invr wedge	-1.1	.2	-.7	1.8	
prsnt int flat collar	-.5	.6	-.3	-.3	
prsnt ext shp unk.	-.5	.2	.3	.1	
Total	221	463	90	103	877
	100.0%	100.0%	100.0%	100.0%	100.0%

the collection are common to all time period units, and the difference among these are relatively small across measurable time (recognizing that TP3 and TP4 are chronologically indistinguishable). Therefore, it is reasonable to conclude from ceramic data that during the period AD 1550-1600 the community had within it a modest degree of ceramic heterogeneity, and that this heterogeneity rapidly dropped from the picture as site occupation continued through the seventeenth century. Whatever social, ethnic, or traditional forces may have yielded the overall ceramic character for the site, they changed little during the full period of occupation of the settlement.

Table 11.25. Distribution of condition and shape of the brace (zone 5) according to time period for Knife River ware, Scattered Village (32MO31), 1998 excavations. Counts top, percentages middle, and standardized cell residual values bottom. Residual values >+1.0 are shaded.

Condition and Shape Zone 5	Time Period				Total
	TP1	TP2	TP3	TP4	
zone not used	7	25	0	4	36
prsnt ext curved	89	189	25	17	320
prsnt interior	0	4	1	2	7
prsnt ext collared	3	4	0	1	8
prsnt ext wedged	3	21	3	1	28
prsnt invr wedge	4	1	0	0	5
prsnt ext shp unkn.	7	11	1	0	19
zone not used	6.2%	9.8%	.0%	16.0%	8.5%
prsnt ext curved	78.8%	74.1%	83.3%	68.0%	75.7%
prsnt interior	.0%	1.6%	3.3%	8.0%	1.7%
prsnt ext collared	2.7%	1.6%	.0%	4.0%	1.9%
prsnt ext wedged	2.7%	8.2%	10.0%	4.0%	6.6%
prsnt invr wedge	3.5%	.4%	.0%	.0%	1.2%
prsnt ext shp unkn.	6.2%	4.3%	3.3%	.0%	4.5%
zone not used	-.8	.7	-1.6	1.3	
prsnt ext curved	.4	-.3	.5	-.4	
prsnt interior	-1.4	-.1	.7	2.5	
prsnt ext collared	.6	-.4	-.8	.8	
prsnt ext wedged	-1.6	1.0	.7	-.5	
prsnt invr wedge	2.3	-1.2	-.6	-.5	
prsnt ext shp unkn.	.9	-.1	-.3	-1.1	
Total	113	255	30	25	423
	100.0%	100.0%	100.0%	100.0%	100.0%

Table 11.26. Summary data on cord impression spacing and cord impression diameter or width compared across time periods and controlling for major ceramic wares, Scattered Village (32MO31), 1998 excavations.

Ware	Time Period	Cord Impression Spacing on Rim			Cord Impression Width on Rim		
		Mean Thickness	N	Standard Deviation	Mean Thickness	N	Standard Deviation
Le Beau							
	TP1	3.165	154	.6624	1.634	159	.3489
	TP2	3.213	369	.8149	1.746	376	.4059
	TP3	3.426	73	.8555	1.738	77	.3866
	TP4	3.388	128	.8192	1.755	130	.3397
	Total	3.255	724	.7939	1.723	742	.3833
Knife River							
	TP1	3.275	81	.7300	1.635	81	.3421
	TP2	3.080	181	.6527	1.604	187	.3395
	TP3	3.183	18	.6061	1.611	18	.4114
	TP4	3.339	18	.8023	1.685	18	.3673
	Total	3.155	298	.6849	1.617	304	.3452
Knife River Fine							
	TP1	2.552	16	.5633	1.375	16	.2978
	TP2	2.660	25	.5859	1.444	25	.2631
	TP3	3.044	9	.7108	1.644	9	.4246
	TP4	3.044	9	.8278	1.411	9	.3887
	Total	2.748	59	.6554	1.451	59	.3240
Transitional							
	TP1	2.913	16	.3030	1.512	16	.2705
	TP2	3.209	22	.8970	1.741	22	.3813
	TP3	2.633	3	.2082	1.400	3	.2000
	TP4	3.225	4	.3096	1.725	4	.3500
	Total	3.067	45	.6766	1.636	45	.3465
Total							
	TP1	3.147	267	.6823	1.612	272	.3447
	TP2	3.149	597	.7714	1.690	610	.3888
	TP3	3.327	103	.8064	1.699	107	.3923
	TP4	3.359	159	.8075	1.727	161	.3517
	Total	3.195	1,126	.7635	1.677	1,150	.3756

ANOVA table for cord measurements by time period controlling for **Le Beau ware only**.

Cord Impression Spacing on Rim * time period	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	6.285	3	2.095	3.356	.019
Within Groups	449.415	720	.624		
Total	455.699	723			
Cord Impression Width on Rim* time period	1.608	3	.536	3.688	.012
Between Groups (Combined)					
Within Groups	107.257	738	.145		
Total	108.865	741			

External Comparisons

External comparisons involve use of relevant ware, type, and other data for ceramic assemblages recorded in compatible fashion and thought to be contemporaneous with the occupation at Scattered Village. In the interest of simplicity, and because the foregoing analysis does not demonstrate dramatic internal changes in pottery composition at Scattered Village through time, we will use a composite of data from all time periods at Scattered Village in these comparisons (TP1-TP4 combined). Relevant comparative data include samples from Time Periods 2 and 3 at nearby Slant Village (32MO26), a traditional Mandan community (ca. AD 1575-1725)(data from Speakman et al. 1997), from Periods 61 and 62 at Big Hidatsa (32ME12), a traditional Hidatsa-proper settlement at Knife River, and Periods 50, 61, and 62 from Lower Hidatsa (32ME10), a traditional Awatixa settlement at Knife River (data for the latter two sites were developed by Ahler and Swenson 1993). In all instances, we utilized computerized data files developed in a format according to Ahler and Swenson (1985) and generally compatible with the Scattered Village database.

Table 11.27. Comparison of ceramic ware classification among contemporaneous vessel samples from Scattered Village, Slant Village, and two villages at Knife River.

Ware	Site				Total
	1 Lower Hidatsa	2 Big Hidatsa	3 Scattered	4 Slant	
.0 Other Straight	7	0	36	4	47
1.0 Other S-Rim	12	2	20	8	42
5.0 Le Beau	264	21	1,180	312	1,777
6.0 Knife River	43	33	425	16	517
8.0 Knife River Fine	14	4	62	15	95
9.0 Transitional	23	22	50	2	97
.0 Other Straight	1.9%	.0%	2.0%	1.1%	1.8%
1.0 Other S-Rim	3.3%	2.4%	1.1%	2.2%	1.6%
5.0 Le Beau	72.7%	25.6%	66.6%	87.4%	69.0%
6.0 Knife River	11.8%	40.2%	24.0%	4.5%	20.1%
8.0 Knife River Fine	3.9%	4.9%	3.5%	4.2%	3.7%
9.0 Transitional	6.3%	26.8%	2.8%	.6%	3.8%
.0 Other Straight	.1	-1.2	.6	-1.0	
1.0 Other S-Rim	2.5	.6	-1.7	.9	
5.0 Le Beau	.9	-4.7	-1.2	4.2	
6.0 Knife River	-3.5	4.1	3.7	-6.6	
8.0 Knife River Fine	.2	.6	-.4	.5	
9.0 Transitional	2.5	10.8	-2.1	-3.1	
Total	363	82	1,773	357	2,575
	100.0%	100.0%	100.0%	100.0%	100.0%

A comparison of ware classification among the four sites is presented in Table 11.27. Differences among sites are striking and significant ($X^2=277.55$; $df=15$, $p=.000$). Le Beau ware constitutes 20% more of the sample at Slant than at Scattered, and Scattered Village has five times as much Knife River ware than occurs at Slant. Regarding a comparison between Scattered and Big Hidatsa (both are possible communities used by the Hidatsa-proper subgroup), the collections are strikingly different. Knife River ware is the most common group at Big

Hidatsa (40% compared to 24% at Scattered), and Transitional ware is next most common at Big Hidatsa and nine times as common as it is at Scattered. These assemblages appear to have little in common. Lower Hidatsa and Scattered Village are most similar in terms of ware classification, although they too are statistically distinct regarding less Knife River ware and more Transitional ware at Lower Hidatsa.

Because Le Beau is the dominant ware group in three sites, and it is relatively common in the fourth, we can focus on this subgroup for purposes of finer-grained comparison. Table 11.28 illustrates highly significant variation among sites in terms of decorative type for Le Beau ware ($X^2=169.54$, $df=18$, $p=.000$). The two types simple-stamped and plain recorded at Scattered Village are combined into a single group, because the first type was not isolated in any of the other samples. Scattered Village stands well apart from all other samples in its high content of plain/simple-stamped Le Beau ware, with percentages three to five times higher than any other site. A relatively high frequency of finger-impression and pinching (collapsed together) also

Table 11.28. Comparison of decorative type classification for Le Beau ware only among contemporaneous vessel samples from Scattered Village, Slant Village, and two villages at Knife River.

Decorative Type	Site				Total
	1 Lower Hidatsa	2 Big Hidatsa	3 Scattered	4 Slant	
0 Plain/Simple-Stpd.	11	1	246	18	276
1 Cord-Imprinted	248	16	762	277	1,303
2 Tool-Imprinted	1	0	13	0	14
3 Trailed/Incised	0	0	13	0	13
4 Finger/Pinched	0	4	131	11	146
5 Punctate	0	0	5	1	6
6 CWTI	4	0	3	0	7
0 Plain/Simple-Stpd.	4.2%	4.8%	21.0%	5.9%	15.6%
1 Cord-Imprinted	93.9%	76.2%	65.0%	90.2%	73.8%
2 Tool-Imprinted	.4%	.0%	1.1%	.0%	.8%
3 Trailed/Incised	.0%	.0%	1.1%	.0%	.7%
4 Finger/Pinched	.0%	19.0%	11.2%	3.6%	8.3%
5 Punctate	.0%	.0%	.4%	.3%	.3%
6 CWTI	1.5%	.0%	.3%	.0%	.4%
0 Plain/Simple-Stpd.	-4.7	-1.3	4.6	-4.3	
1 Cord-Imprinted	3.8	.1	-3.5	3.3	
2 Tool-Imprinted	-.8	-.4	1.2	-1.6	
3 Trailed/Incised	-1.4	-.4	1.5	-1.5	
4 Finger/Pinched	-4.7	1.7	3.4	-2.9	
5 Punctate	-.9	-.3	.5	.0	
6 CWTI	2.9	-.3	-.8	-1.1	
Total	264	21	1,173	307	1,765
	100.0%	100.0%	100.0%	100.0%	100.0%

distinguishes Scattered Village from the other three sites. In effect, Scattered has little in common with the other sites regarding the manner in which Le Beau ware is decorated.

Table 11.29 provides information on rimform classification within Le Beau ware for the four sites. We revised the rimform classification for the other three comparative sites, in a manner compatible with that used for Scattered Village, by adjusting code values in instances of interior bracing. The four sites are significantly different ($X^2=276.29$, $df=27$, $p=.000$). Scattered differs from all the others in its high percentage of S-rim with interior brace; this feature is one-quarter as common at Slant Village and is absent in both of the Hidatsa sites at Knife River.

Table 11.29. Comparison of revised rimform classification for Le Beau ware only among contemporaneous vessel samples from Scattered Village, Slant Village, and two villages at Knife River.

Rimform	Site				Total
	1 Lower Hidatsa	2 Big Hidatsa	3 Scattered	4 Slant	
7 s-rim	173	8	397	79	657
8 s-rim w/ext. brace	3	1	107	27	138
9 s-rim w/fillet (int)	0	0	2	0	2
11 recurved s-rim	9	0	89	53	151
12 recur. s-rim w/extbrace	2	0	43	12	57
15 zone 2-3 frag.	50	6	167	57	280
19 lip frag. w/extbrace	0	0	4	1	5
20 zone 3 frag.	17	6	133	64	220
24 s-rim w/int. brace	0	0	236	15	251
25 recur. S-rim w/intbrace	0	0	2	4	6
7 s-rim	68.1%	38.1%	33.6%	25.3%	37.2%
8 s-rim w/ext. brace	1.2%	4.8%	9.1%	8.7%	7.8%
9 s-rim w/fillet (int)	.0%	.0%	.2%	.0%	.1%
11 recurved s-rim	3.5%	.0%	7.5%	17.0%	8.5%
12 recur. s-rim w/extbrace	.8%	.0%	3.6%	3.8%	3.2%
15 zone 2-3 frag.	19.7%	28.6%	14.2%	18.3%	15.8%
19 lip frag. w/extbrace	.0%	.0%	.3%	.3%	.3%
20 zone 3 frag.	6.7%	28.6%	11.3%	20.5%	12.5%
24 s-rim w/int. brace	.0%	.0%	20.0%	4.8%	14.2%
25 recur. S-rim w/intbrace	.0%	.0%	.2%	1.3%	.3%
7 s-rim	8.1	.1	-2.0	-3.4	
8 s-rim w/ext. brace	-3.8	-.5	1.5	.5	
9 s-rim w/fillet (int)	-.5	-.2	.6	-.6	
11 recurved s-rim	-2.7	-1.3	-1.2	5.1	
12 recur. s-rim w/extbrace	-2.2	-.8	.8	.6	
15 zone 2-3 frag.	1.5	1.5	-1.5	1.1	
19 lip frag. w/extbrace	-.8	-.2	.4	.1	
20 zone 3 frag.	-2.6	2.1	-1.1	4.0	
24 s-rim w/int. brace	-6.0	-1.7	5.3	-4.4	
25 recur. S-rim w/intbrace	-.9	-.3	-1.0	2.9	
Total	254	21	1,180	312	1,767
	100.0%	100.0%	100.0%	100.0%	100.0%

Slant Village stands apart from all others in terms of high percentages of recurved S-rim form and variants of this form. A relatively high frequency of S-rim with exterior brace occurs at Scattered Village, and it has been noted that this form often presents the appearance of a recurved S-rim when viewed from the exterior. Even if we collapsed rimform 8 and 1 into a group with appearance of being recurved, the percentages are much higher at Slant (26%) than at Scattered (16%). As noted, the two Hidatsa sites are quite different from those at Heart River in their lack of interior bracing and low frequency of recurved S-rim form.

One additional comparison is of note. Subware classification was used for the first time in the Scattered Village analysis, primarily to describe and document the varieties within Le Beau ware. During November 2000, the first author had the opportunity to reexamine a fraction of the pottery collection from Slant Village reported in Speakman et al. (1997) with the purpose of assigning subware classification to Le Beau ware and reassessing the classification in general. About 183 vessels were examined and among these, 155 Le Beau and Le Beau Fine ware vessels were classified as to subware. This study was done without attention to context or chronological assignment. Table 11.30 presents the results of the subware classification for Slant Village, with data organized by the three recognized time periods for that site, and also the table provides comparative data from Scattered Village. Within Slant Village, apparently strong temporal patterns are evident, with High Rim becoming more common through time, and with Recurved subware becoming markedly less common through time. These same patterns are evident in the chronological analysis of Scattered Village data. The differences between Scattered Village and Slant Village in terms of Le Beau subware makeup are very great and do not require chi-square analysis for evaluation. Le Beau High Rim ware is 12 times as abundant at Scattered Village as at Slant. Conversely, Le Beau Recurved subware is three times as abundant at Slant as at Scattered, within contemporaneous collections and in sites only 6 miles apart.

Table 11.30. Le Beau subware classification by time period for an opportunistic sample of vessels from Slant Village (32MO26), 1980 excavations, and Scattered Village (32MO31), 1998 excavations.

Subware Class	Slant Village By Time Period				Total	Slant Early/ Middle	Scattered All Periods
	Late 1725 – 1785	Middle 1625 – 1725	Early 1575 - 1625				
Le Beau High Rim	n	4	2	0	6	2	297
	%	7.4	2.7	0.0	3.9	2.0	24.8
Le Beau Normal	n	25	21	7	53	28	411
	%	46.3	28.8	25.0	34.2	27.7	34.3
Le Beau Recurved	n	13	23	14	50	37	135
	%	24.1	31.5	50.0	32.3	36.6	11.3
Le Beau Indeterm.	n	12	27	7	46	34	353
	%	22.2	37.0	25.0	29.7	33.7	29.5
Column	n	54	73	28	155	101	1196
<i>Total</i>	%	34.8	47.1	18.1	100.0	100.0	99.9

Summary and Conclusions

1. The ceramic collection is large and highly informative regarding variability that can be expected to occur at many sites in the Heart region.
2. The body sherd sample is marked by little internal variation other than an increase in brushed surface treatment late in the site temporal sequence. External comparisons indicate a much stronger affinity between Scattered Village and Slant Village than between Scattered Village and Hidatsa sites at Knife River.
3. Analysis of ceramic vessels is challenging due to complexities of rimform details and intermixing of attributes involving brace placement and decorative treatments among rimforms. The standard ware / type hierarchical classification proved insufficient for fully capturing and organizing variation within the assemblage. This classificatory challenge has been solved in part by application of a subware classification applied specifically to Le Beau S-rim ware and Knife River braced rim ware.
4. The subware approach also serves to isolate categories such as rolled-rim jars and composite S-rim vessels. The former group was isolated because it resembles a vessel form frequently recognized at sites in the upper Midwest, in the possible region of origin for the eastern Hidatsa subgroups. Until the occurrence of roll-rim jars can be more systematically assessed in many other sites, its meaning cannot be interpreted.
5. An extremely unusual elongated, boat-shaped vessel was found in the collection. This, and other large reconstructed sections of pots altered in the fire that burned the lodge in Block 8, could readily be the basis of museum displays and other public interpretations.
6. Three and probably four distinct subware variants of Le Beau ware (High Rim, Normal, Recurved, and, probably, Simple-Stamped) occur in the sample, and we can expect these to be widely recognizable in other Heart region sites.
7. Technical quality of the sample is highly variable. There are clear occasional examples of well-made pottery, with abundant examples of haphazard and less precise construction and attention to decorative detail.
8. TP4 appears to represent potters drawing on a slightly separate potting tradition and/or cultural background characterized in part by production of Recurved Le Beau subware. In this regard, TP4 potters may have been influenced by potters at nearby Slant Village where this subware is the dominant form. As far as we can tell, these potters coexisted with potters we assign to TP3 (contemporaneous analytic units), and the village as a whole rapidly gravitated toward a more homogeneous pottery tradition fully distinct from that at Slant Village.
9. Meaningful but not especially strong changes occur through time in the vessel collection. This probably indicates, above all else, the short time depth associated with the collection.

10. External comparisons indicate that Scattered Village and Slant Village are quite distinct, from the perspective of pottery. If the residents of Scattered Village were Mandans, they belonged to a subtradition or subgroup very different from that of the residents at Slant Village.
11. The ceramic aggregate at Scattered Village has little in common with collections from contemporaneous Hidatsa sites at Knife River. The ceramic data provide no direct or compelling support for the hypothesis, originating in oral traditions, that members of the Hidatsa-proper subgroup migrated directly from Scattered Village to Big Hidatsa Village at Knife River.
12. Residents at Scattered Village could well have called themselves Hidatsas. If so, they were a subgroup distinct from residents of villages that have been studied at Knife River.