5. SITE CHRONOLOGY and ANALYTIC UNITS *Stanley A. Ahler and Herbert Haas*

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Stanley A. Ahler

Establishing Relative Chronology

At one level, it is useful to present data for the Scattered Village site as a whole, and to compare this data set to other studied sites in the immediate area or surrounding region (e.g., comparing Scattered Village with materials of comparable age in nearby Mandan sites such as On-A-Slant, Boley, etc.). For many other purposes, however, it is useful to break various data sets down by some kind of internal organizational structure that is focused on answering particular questions specific to the site. We use "analytic units" to provide such a structure. Analytic units are sub-groupings applied to all materials studied from the site that are determined to have importance for certain data sets or interpretation. To determine the analytic unit structure for the site, we explore several kinds of variation that include *time* (precontact, postcontact, etc.), *location* within the site (east, west, Block 1 vs. Block 2, etc.), and *depositional context* (roof fall, pit fill, surface refuse pile, etc.).

Time is a fundamentally important part of the analytic unit structure and a dimension that must be well understood before questions of change in human activities at the site can be assessed. Initially, we are interested in developing a relative chronology for the site. That is, we wish to organize various samples from the site in two or more groupings that have a clear early-late relationship to each other, without immediate concern for calendrical dates tied to such groupings. After we establish the presence of units of relative chronology, we can address the question of the absolute or calendar age of those units. Two types of data are considered to be good indicators of relative chronology. One is the relative abundance of European-derived trade artifacts, and the other is ceramic rim form variation. Each will be discussed in turn.

Recent and Trade Artifacts

It became clear during fieldwork that trade artifacts such as glass beads and small pieces of shaped or scrap metal (iron, copper, and brass) occurred in very small numbers in some contexts. Subsequent lab work demonstrates that many contexts with fairly large excavated volume contain no such artifacts, while other contexts of similar volume do contain such items in very low to moderate frequencies. On this basis, it is assumed that some excavated parts of the village predate introduction of European-made artifacts, while other contexts postdate beginning of movement of trade items into the region. We can therefore initially divide the site contexts into those apparently precontact in age (an absence of trade items) and those postcontact in age (a presence of trade items).

On the postcontact side of this boundary, we can next explore further subdivision by looking at relative frequencies of trade items. We do this on the assumption that the amount of trade materials reaching the site is in some manner grossly time-dependent, regardless of mechanisms for exchange (direct or indirect). In other words, as time passed, trade items will generally have reached the site in greater and greater numbers as the European and Euroamerican presence in the continent grew in both scale and geographic proximity.

We conducted a thorough quantification of all *historic materials*, including materials deriving from the occupation of the city of Mandan as well as certain or possible trade items, in order to assess both the degree of recent historic disturbance as well as occurrence of trade materials. We separated historic items (meaning all materials non-native in origin) into classes that include *concrete*, *asphalt* (or asphalt stained pebbles), *clinker* or *slag* from coal fires, *glass* (plate or bottle), *plastic*, *patterned recent iron* ("recent" meaning post-AD 1860 or so), *unpatterned recent iron*, *aluminum*, *other recent metal*, *possible trade metal* (iron, copper, or brass) ("trade" meaning contemporaneous with village occupation), *definite trade metal* (iron, copper, or brass), and *glass trade beads*. The only difficult aspect of this classification was in distinguishing trade metal from recent metal (especially iron). Recent, patterned iron was usually easy to identify as recent because it often existed in the form of such things as wire nails and small fragments of tin cans. Unpatterned, recent iron was distinguished from trade iron by the degree of oxidation and the nature of the oxidation rind on the specimen. Often, trade iron pieces were found in direct association with patterned copper or brass trade pieces (such as rolled tubes or small beads) or glass beads, making its identification as "trade" relatively firm. We used attributes of iron pieces in such contexts as a guide for identification of other trade iron pieces in more isolated contexts or sometimes in association with recent artifacts.

Trade iron pieces are distinguished by both a high degree of oxidation as well as a thick oxidation rind that tends to have cemented up to four mm of the surrounding sediment onto the artifact. In contrast, *recent iron* pieces typically have no stained sediment adhering to them and have very scaly oxidized surfaces. Hence, trade iron usually occurred as an amorphous lump without clear shape and with the surface of the iron piece obscured by a thick cortex of cemented sediment. In recent iron, the shape of the piece was usually very clear, with a flaky or platy/scaly surface also being evident. For a number of pieces, we remained uncertain about a trade or recent iron distinction, and we coded these as "possible trade" metal. Definite trade metal items included a variety of shaped plate brass or copper pieces and a few iron beads. We will discuss the possible and certain trade artifacts (beads as well as metal) in greater detail in another section of the report; we do not discuss other recent, non-native artifacts further except to note their presence and abundance where pertinent to understanding the depositional history in a certain part of the site.

Preliminary Pottery Classification

The second source of relative chronological data we examined jointly with trade artifact frequency data was ceramic rim form variation. It is well documented that ceramic ware and type frequencies, as conventionally determined, have chronological import (e.g., Lehmer 1966, Thiessen 1995). It has also been demonstrated for North Dakota Plains Village collections that a large number of detailed ceramic attributes, in addition to ware and type classification, also change significantly through time (Ahler and Swenson 1993). Because we do not wish to bias the outcome of detailed ceramic studies we pursue in this project by defining temporal units on the basis of these same variables, we use only the most general assessment of ceramic *rim form variation* as an adjunct to trade artifact density for ordering Scattered Village contexts in time. The rim form classes we use for this purpose are in a sense ware and sub-ware groups, all being variants of the two major rim form classes recognized in the region (s-shaped rim and straight rim).

Prior to the detailed study of pottery discussed elsewhere in this volume, we conducted a preliminary vessel coding study to assess both the number of classifiable vessels from various contexts as well as basic information on rim form and decorative type. We use data only on vessels in size grades G1 or G2 (caught in a ½ inch screen). We attempted to match individual vessel fragments within a given catalog number, but did not attempt to match parts of individual vessels across catalog numbers. Thus, vessel counts may be somewhat higher than those made after a more thorough vessel-matching program, but lower than counts with size grade G3 data taken into account. We classified all mid to upper rim vessel parts according to eight possible rim form groups, and we recorded decorative technique data on the same vessel parts. We recognized several variants of Le Beau ware (sub-ware groups), with this general ware group conforming to the description in Breakey and Ahler (1985) and usage in Speakman et al. (1997). We elected not to use decorative technique in the analysis that follows. We can briefly describe the rim form classes according to the names we used.

Simple Le Beau Ware. This is S-rim pottery lacking an angular juncture between the upper part of the S and the neck area and lacking zone 4 or the recurved area on the upper part of the rim (hence, a "simple" or non-recurved rim form). The upper part of the rim (zone 3) is not particularly short or tightly curved relative to the lower part or neck area (zone 2). Any kind of decoration can occur, and an interior brace can occur.

Le Beau High Rim Ware. This is S-rim pottery lacking an angular juncture between the upper part of the S and the neck area and lacking a zone 4 or the recurved area on the upper part of the rim (hence, again "simple"). In addition, the upper part of the rim (zone 3) is noticeably tightly curved and short relative to the lower part or neck area (zone 2). Any kind of decoration can occur, and an interior brace can occur.

Recurved Le Beau Ware. This is S-rim pottery lacking angular junctures between the upper part of the S and the neck area and having a zone 4 or the recurved area on the upper part of the rim. The upper and lower rim parts (zone 3 and zone 2) are not disproportionate to one another in height. Any kind of decoration can occur, and an interior or exterior brace can occur.

Probable Le Beau Ware. These are fragments of an S-shaped rim lacking the uppermost rim and lip areas (these are zone 3 or zone 2+3 fragments), and hence being unclassifiable as to any one of the groups above. Frequently, the presence of cord decoration was instrumental in distinguishing a zone 3 fragment from a body sherd having a similar curvature. We used this group for more accurate accounting of all S-rim vessels in a sample.

Knife River Ware. This group includes straight to outflared rims having a distinctly thickened area or external brace (zone 5) just below the lip. In all ways, this class conforms to the description in Lehmer et al. (1978:190-1999) and Ahler and Swenson (1985:26).

Knife River Fine Ware. This group includes straight to outflared rims having a distinctly thickened area or external brace (zone 5) just below the lip, and being distinguished from Knife River ware (above) by better production technology, more extensive or varied decoration, and smaller vessel size. In all ways, this group conforms to the description in Ahler and Weston (1981:86-87) and Ahler and Swenson (1985:26). We can note that in the present collection, Knife River ware and Knife River Fine ware tend to grade into one another.

Transitional Ware. This is a very gently curved S-rim (viewed from the vessel interior) that has a prominent brace (zone 5) added to the exterior surface, and which appears from the exterior to be a braced, straight rim vessel. Hence, it shares features of Le Beau ware and Knife River ware. In all ways, this group conforms to the description in Ahler and Weston (1981:86-89) and Ahler and Swenson (1985:27).

Other. Included here are all vessels that conform to none of the above groups. For the most part, these are straight rims lacking a brace. Many kinds of decoration occur. While a small number of such vessels may reflect earlier occupations predating appearance of Le Beau and Knife River wares in the region, most vessels included here probably are in good association with the above groups.

Block-By-Block Assessment of Relative Chronology

Because of the complexity of excavations in different parts of the site (in terms of presence or absence of pit features, stratified deposits, architectural features, etc.), it was necessary to conduct a block-by-block study of recent artifacts, trade artifacts, and gross pottery content before assembling data for a site-wide assessment of relative chronology. We briefly take the reader through a discussion of each block investigation regarding these three material classes, with a focus on trade artifacts as an important indicator of relative chronology. In the following data tables, we use shading to highlight individual contexts or collapsed provenience units that have an excavated volume of about 90 liters (0.090 m^3) or greater. It is only in such contexts with larger excavated volume that sampling errors for rare items (such as trade artifacts) diminish, and we can have confidence that computed density measures can reasonably be compared across contexts.

In addition to excavated volume data, the tables contain information on counts of trade metal (with no distinction in the tables between “possible” or “certain”), counts of glass trade beads, totals of these two classes, and densities of trade artifacts by context as n per m^3. Pottery vessel counts (generally excluding the vessel class “other”) are also provided to give a picture of samples available for further study from some of the smaller, discrete within-block contexts (individual features, etc.). In general, we give only a brief summary of pottery variation, rather than detailed data, where such is relevant to chronological separation of one subcontext from another. We can note further that the vessel counts (and analysis we performed at this time in the study) do not include piece-plotted vessels, which were not ready for classification at the time this part of the study was conducted. Piece-plotted vessels make up a very small part of the total site sample, and, consequently, will not greatly affect patterns for preliminary vessel analysis we discuss below.

Block 1

Block 1 contains the deepest and potentially best-stratified midden deposits that were excavated. Trade artifacts are very sparse in all of Block 1, so we rely heavily on stratigraphy and pottery data to subdivide the deposits there into relative chronological units. We examined ware class frequencies by excavation level for each of the studied excavation squares. We noted that the lowermost several levels in the northwestern-most two squares (517NE568 and 517NE569) have pottery content clearly distinct from overlying levels -- containing much Recurved Le Beau and Probable Le Beau ware and little else. In higher levels, there is a tendency for Knife River ware to increase progressively through time. Hence, we divided each of these squares into three stratigraphic subdivisions (levels 1-4, 5-7, and 8 to bottom).

Profiles and excavation notes indicate that the deep refuse-filled basin penetrated by these two excavation units was absent in the northeast part of Block 1, in square 517NE571. Pottery there is somewhat similar to pottery in the upper two-thirds of the northwestern two units, and we chose to subdivide unit 517NE571 into two major parts (levels 1-5, 6-11). Finally, vessel frequencies were too low in the shallow midden in square 516NE570 to guide a definitive stratigraphic subdivision. Based on gross elevation, we divided this unit into two parts (levels 1-4, 5-9), the lower of which may be chronologically equivalent with sediments in the basin in the northwestern part of the block.

The first segment in Table 5.1 presents data for excavated volume, trade artifact frequency, trade density, and pottery vessel count data according to the subdivisions of squares just noted. Only four possible or definite trade items occur in the entire block, one each in the upper and middle part of square 517NE569 and in the upper and lower parts of 517NE571. Trade artifacts are absent in all of the features in Block 1, most of which occur relatively deep in the stratified midden. Thus, it appears that the lowermost, approximate one-third of sediments in the northwestern study squares are almost certainly precontact in age (the large refuse filled basin in that area), and that the overlying midden in all parts of the block may be early postcontact in age.

Stratigraphic profiles for Block 1 indicate that the deposits in the northeastern part of the block (Sq. 517NE571) cannot be physically correlated with deposits in the two squares in the northwestern part of the block (Sqs. 517NE568 and 517NE569). The pottery content in these two areas is similar, but not exactly the same. Thus, we will proceed for the time being by not collapsing artifacts in these two areas, even though trade artifact densities appear very similar. In the middle part of Table 5.1, we provide a summary of collapsed general level samples according to the provisional analytic units A through E, from latest to earliest. In the lower part of the table we present relevant data on Features in Block 1, noting that no trade artifacts occur in any feature context.

Block 2

Most of the excavation squares in Block 2 penetrated 60-80 cm of village midden, and the primary task is to determine if there is significant time depth reflected in this stratigraphy. A secondary task was to place individual features, known from field data to have originated at different times, in a relative chronological framework. The first part of Table 5.2 gives excavated volume, trade artifact, and pottery vessel count data summed by individual squares and features in Block 2. We begin by examining trade artifact vertical distributions as well as pottery content in general level samples in the six squares that were selected for study. Pottery proved to be relatively homogeneous from square to square and in vertical distribution, with the exception of a notable concentration of Recurved Le Beau pottery in the lowermost two to three levels in three excavation squares (516NE504, 516NE505, 517NE505). Because this ware is characteristic of the stratigraphically earliest component in Block 1, we decided to segregate these contexts (also at the base of the local sequence) in Block 2.

We then examined the distribution of trade items (Table 5.2). There were no trade items in the lowermost levels of the three mentioned squares, consistent with the absence of trade

Table 5.1. Excavation volume, trade artifact, and preliminary vessel count data for general level and feature contexts within Block 1, Scattered Village site (32MO31).

Block (Provis. AU)	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
General Level Samples										
1(A)	0	516	570	1-4	.214	0	0	0	.000	6
1(B)	0	516	570	5-8.2	.248	0	0	0	.000	5
1(C)	0	517	568	1-4	.220	0	0	0	.000	24
1(D)	0	517	568	5-7	.288	0	0	0	.000	33
1(E)	0	517	568	8-14	.361	0	0	0	.000	43
1(C)	0	517	569	1-4	.223	1	0	1	4.484	18
1(D)	0	517	569	5-7	.288	1	0	1	3.472	10
1(E)	0	517	569	8-12	.302	0	0	0	.000	22
1(D)	0	517	571	1-5	.355	1	0	1	2.827	15
1(E)	0	517	571	6-11	.561	1	0	1	1.783	11
Gen Level Subtotal					*3.060*	*4*	*0*	*4*		*187*
Further Collapsed General Levels (A-E above)										
A – upper part of Sq. 517NE571					.355	1	0	1	2.827	15
B – lower part of Sq. 517NE571					.465	1	0	1	1.783	11
C – upper NW squares					.443	1	0	1	2.257	42
D – mid NW squares plus upper 516NE570					.790	1	0	1	1.266	49
E – lower NW squares plus low 516NE570					1.007	0	0	0	.000	70
Gen Level Total					*3.060*	*4*	*0*	*4*		*187*
Feature Samples										
1	46	517	571	all	.018	0	0	0	.000	0
1	52	517	568	all	.099	0	0	0	.000	26
1	56	516	570	all	.076	0	0	0	.000	1
1	58	516	569	all	.020	0	0	0	.000	0
1	66	517	568	all	.342	0	0	0	.000	23
Block Total					*3.711*	*4*	*0*	*4*		*237*

Notes: Sq. 516NE569 was not listed because all of its excavated volume is previllage in age. Previllage volume in 516NE570 is omitted from the table, as well.

artifacts in association with similar pottery in Block 1. There is a notable concentration of trade items in the surface-most level in two adjacent squares, 516NE505 and 516NE506. Twenty-two of 38 trade items from all general level contexts occur in these two levels. Other than this, trade artifacts are widely dispersed, both vertically and spatially, among other general level samples.

An ash concentration (near F12) was mapped on the truncated surface near the two squares with high trade densities. From this we speculate that the base of a late feature containing much trade material may have been present there, but did not extend far into the excavated deposits. We felt it was reasonable to isolate the level 1 materials in these two squares and treat them separately from the remainder of the general level materials. To further explore stratigraphic variation in trade density, we combined all remaining level 1 through 4 samples from other squares and combined all level 5 through 9 samples from all squares, excluding the lower levels associated with Le Beau Recurved pottery. Trade density information for these isolates and combinations occurs in Table 5.2. Trade density is zero in deepest levels associated with Le Beau Recurved pottery, is lowest in the lower remaining part of the midden, slightly higher in the upper remaining part of the midden, and markedly higher in the two level 1 samples.

Table 5.2. Excavation volume, trade artifact, and preliminary vessel count data for general level and feature contexts within Block 2, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
Gen. Level Samples, by Square										
2	0	516	504	1-7	.561	3	0	3	5.348	9
2	0	516	504	8-9	.175	0	0	0	0.000	3
2	0	516	505	1-6	.510	10	0	10	19.608	27
2	0	516	505	7-9	.210	0	0	0	0.000	5
2	0	516	506	all	.745	15	0	15	20.134	27
2	0	516	507	all	.795	1	2	3	3.774	19
2	0	516	508	all	.831	6	0	6	7.221	36
2	0	517	505	1-7	.608	0	0	0	.000	28
2	0	517	505	8-9	.181	0	0	0	.000	5
GL Subtotal					*4.602*	*35*	*2*	*37*		*159*
Gen. Level Samples, Combined										
2	Level 1, Sqs. 516NE505, 506				.130	22	0	22	166.667	4
2	All Other Squares, L1-4				1.812	7	2	9	4.967	64
2	All Other Squares, L5-9, except below				2.094	6	0	6	2.865	78
2	516/504 – L8,9; 516/505 – L7-9; 517/505 – L8,9				.566	0	0	0	0.000	13
GL Subtotal					*4.602*	*35*	*2*	*37*		*159*
Features										
2	6	515	508		.044	0	0	0	.000	1
2	14	515	507		.837	8	15	23	24.479	45
2	30	515	508		.070	1	0	1	14.286	0
2	57	516	508		.129	0	0	0	.000	10
2	67	517	508		.210	7	0	7	33.333	9
2	68	517	505		.172	0	0	0	.000	10
2	97	517	508		.159	0	0	0	.000	4
2	178	517	508		.502	1	0	1	1.992	38
Block Total					*6.725*	*53*	*17*	*70*		*276*

Notes: Excavated volume for square 516NE506 excludes previllage deposits. All levels in F14 and F178 were completely sorted for trade artifacts and pottery, but were not fully sorted for other artifact classes.

Several pit or other features in Block 2 have volumes greater than 90 liters (Table 5.2). These contexts exhibit a wide range of trade densities, from absent in F57, F68, and F97, to moderate in F178 and substantially higher in F67 and F14. F30 has a relatively high trade artifact density, but a small volume, and therefore has a larger possibility of sampling error in the density measure. Of the three features lacking trade artifacts, F68 stands out as having pottery dominated by Recurved Le Beau and Probable Le Beau wares, just as occur in the stratigraphically deepest part of Block 1 where trade artifacts are absent (see earlier discussion). Thus, this pit feature definitely appears to be early in the site sequence. Pottery in F57 is less distinctive, but contains Knife River ware, a form that is definitely more prominent later in time (based on stratigraphic trends in Block 1). Thus, F57 could be postcontact in age, but lacking trade items due to small excavated volume. F97 contains too few vessels for evaluation, except to note that here, too, Knife River ware is present. Regarding features that contain larger amounts of trade items, Knife River ware is prominent (29% of the sample) in F14, and Le Beau High Rim ware is prominent in F67.

In sum, it appears that all general level samples in Block 2 reflect both precontact and possibly early postcontact periods, with one remnant of a stratigraphically higher deposit falling noticeably later in time. Pottery and trade artifact densities indicate that features in Block 2 reflect a similar span of time from precontact (F68) to well into the contact period (F14).

Block 3

Block 3 is a broad, shallow excavation area designed to sample a possible house floor and to expose features associated with the house. It will be remembered from discussion of fieldwork that in Block 3, one point of interest regarding chronology is the age and origin of the "fluffy" sediment unit that occurred in the southeastern part of the block, apparently filling an erosional cut that truncated part of the earthlodge and several other features in the block (see discussion about fieldwork in Block 3). We have speculated that this sediment package might be historic in origin, given its stratigraphic position above most other clear village features. The fact that a similarly soft sediment fills F108, the huge pit containing burials in this area, and also that the fluffy unit contained a tightly clustered group of river clam shells (F121) seem to argue against an historic age for this unit, and for an origin during the period of aboriginal occupation at the site. We selected for study several excavation squares within this sediment package as well as several squares clearly lying west of this sediment package boundary to provide a comparative analysis of recent and other artifact content that might be indicative of relative chronology. Because of these questions, we also tabulate data about the frequency and distribution of recent historic artifacts as well as trade items and pottery vessels.

Table 5.3 provides a summary of excavated volume, recent historic artifacts (broken into coarse items such as concrete/asphalt versus metal and glass), trade artifacts, and pottery vessels according to individual excavated square. The data are organized according to whether the square penetrated the "fluff" sediment or was in the western part of the block. No trade artifacts of any kind occur in any square. This may indicate that the majority of the sediment excavated in the "west" is precontact in age, but it does not preclude historic age disturbance of precontact age sediments in the "fluff" area. A fairly strong contrast is evident in the frequency of recent artifacts in the fluff versus western parts of the block, respectively. Recent items occur in low numbers in many western squares, but have high occurrences in a few squares in that area. In contrast, all fluff squares have high occurrences of recent artifacts. On average, recent historic items are about three times as common in the fluff sediment package as in the western squares. These patterns alone do not confirm a historic period origin for the fluff sediment units, but they do indicate a higher level of historic intrusion in the eastern part of the block.

Table 5.3. Summary of excavated volume, recent artifacts, trade artifacts, and vessel occurrences for general level samples by individual excavation squares and according to the western area and the fluffy sediment area, in Block 3, Scattered Village site (32MO31).

Block	Feat No.	Area	Sq. N	Sq. E	Excv. Vol. m^3	Recent Coarse	Recent Gl./Met.	Total Recent	Total Trade	Total Vess
Squares in the Fluff Area										
3	0	fluff	495	571	.360	29	86	115	0	8
3	0	fluff	496	570	.351	85	8	93	0	12
3	0	fluff	497	570	.225	46	30	76	0	7
3	0	fluff	498	570	.268	109	9	118	0	0
Fluffy Area Subtotal					*1.204*	*269*	*133*	*402*	*0*	*27*
Squares in the Western Area										
3	0	west	496	562	.146	1	1	2	0	2
3	0	west	496	563	.173	1	1	2	0	0
3	0	west	496	564	.146	1	1	2	0	0
3	0	west	496	565	.137	1	0	1	0	0
3	0	west	496	566	.106	1	1	2	0	1
3	0	west	497	564	.114	3	0	3	0	0
3	0	west	497	565	.113	8	0	8	0	1
3	0	west	497	566	.093	12	19	31	0	0
3	0	west	497	567	.140	8	31	39	0	1
3	0	west	497	568	.129	0	0	0	0	2
3	0	west	498	566	.134	3	1	4	0	0
3	0	west	498	568	.041	17	72	89	0	3
Western Area Subtotal					*1.472*	*56*	*127*	*183*	*0*	*10*

As mentioned, no trade artifacts of any kind occur in general level samples in Block 3 -- neither in the western area nor in the eastern, fluff sediment area (Table 5.3). Yet, trade artifacts do occur in several feature contexts in Block 3. The distribution of both trade artifacts and recent artifacts in features, as indicated in Table 5.4, helps us understand the nature of the fluff sediment unit. Two features that were discovered after removal of the fluff sediment layer, F106 and F108, contain modest amounts of trade artifacts. F108, the large deep pit containing multiple burials, is most informative. Trade items are scattered through the pit fill, from top to base, at about 2.3 meters pit depth, while small numbers of recent artifacts occur in roughly the upper 60% of the pit fill but not in the lower 40%. The fact that F108 pit fill contains several widely dispersed trade items, while the overlying fluff sediment unit (sq. 496NE570) contains no trade items strongly indicates that, regardless of appearance, these are two different sediment units, and that F108 was not filled with deposits having the same age and origin as the fluffy units that capped this area. In addition, recent artifacts are much more common in the overlying fluffy sediment unit (density of ca. 265 items/m^3 in sq. 496NE570) than within the pit (density of about 8 items/m^3), also indicating a different origin for the two fill units. It is best to regard the recent artifacts in F108 as intrusions, probably through animal burrowing into the pit fill from horizons above.

Table 5.4. Summary of excavated volume, recent artifacts, trade artifacts, and vessel occurrences for individual features, according to feature location in the western area or the fluffy sediment area in Block 3, Scattered Village site (32MO31).

Block	Feat No.	Area	Sq. N	Sq. E	Excv. Vol. m^3	N Recent Coarse	N Recent Gl./Met.	N Total Recent	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
Features in Fluff Area													
3	11	fluff	496	567	.042	0	0	0	0	0	0	.000	0
3	104	fluff	496	567	.438	0	0	0	0	0	0	.000	24
3	106	fluff	497	570	.171	1	1	2	1	0	1	5.849	6
3	107	fluff	498	570	.012	0	0	0	0	0	0	.000	0
3	108	fluff	495	570	2.796	15	7	22	8	1	9	3.219	65
3	111	fluff	496	567	.114	0	0	0	0	0	0	.000	0
3	116	fluff	497	569	.020	0	0	0	0	0	0	.000	0
3	117	fluff	497	569	.039	0	0	0	0	0	0	.000	0
Fluff Area Subtotal					*3.632*	*16*	*8*	*24*	*9*	*1*	*10*		*95*
Features in Western Area													
3	4	west	499	559	.215	132	0	132	0	0	0	.000	12
3	7	west	498	567	.071	8	14	22	0	0	0	.000	4
3	8	west	497	561	.058	171	8	179	0	0	0	.000	0
3	19	west	496	565	.014	0	0	0	0	0	0	.000	0
3	26	west	498	565	.519	12	0	12	4	16	20	38.539	30
3	47	west	498	562	.784	1	0	1	3	1	4	5.102	24
3	55	west	498	561	.166	0	0	0	0	1	1	6.024	5
3	73	west	497	561	.324	6	43	49	1	1	2	6.173	19
3	98	west	498	566	.077	1	0	1	0	0	0	.000	1
3	101	west	498	567	.481	0	0	0	0	0	0	.000	21
3	179	west	498	568	.099	7	301	308	0	0	0	.000	2
Western Area Subtotal					*2.808*	*338*	*366*	*704*	*8*	*19*	*27*		*118*
Total for all Features					*6.440*	*354*	*374*	*728*	*17*	*20*	*37*		*255*

The question of the age of the fluffy sediment unit can be partially resolved. On stratigraphic grounds, it must postdate all of the pits it truncates and caps over (features listed in the upper part of Table 5.4). The fluff unit is therefore later than F106 and F108 that contain the highest densities of trade artifacts in this area. The fact that the fluff unit itself contains no trade artifacts, while pits beneath it do, suggests that most artifacts in the fluff probably come from redeposited matrix that originally formed during an earlier (precontact) time period. From the point of view of analytic unit definitions and relative chronology, the fluffy sediment unit is best considered a sample apart from all others within Block 3. It contains artifacts predominantly precontact in age, but also specimens that are in reality a composite of artifacts from several periods as late as the age of F106 and F108.

Several features in the central and western part of Block 3 contain substantial numbers of recent historic artifacts. For the most part, these do not alter the basic integrity of the features and their ability to contribute data to the overall analysis. Notable concentrations of recent artifacts occur in F4, F7, F8, F73, and F179. F179 is an apparent historic pothole that penetrated both the central hearths (F7 and F17). F179 contained a large amount of recent metal and glass; intersection of F179 and F7 almost certainly accounts for the recent items in F7. F4 and F26 were exposed along the curbface trench, and the concentration of coarse historic items in these samples reflect the intersection of the pits by recent street construction on their north sides. Likewise, the western margins of both F8 and F73 were intruded by a recent utility trench that was the source for recent items in the two pits.

Trade artifacts (see Table 5.4) are absent in several pit features having substantial excavated volume (F4, F101, F104, and F111), occur in modest densities in several others (F47, F55, F73, F106 and F108), and are much more dense in one pit (F26). This indicates that the occupation span captured in Block 3 spans the precontact as well as postcontact periods, and that the postcontact period can perhaps be broken into two subparts.

Pottery information supports the idea of time depth within Block 3 features. F101 and F4, which lack trade artifacts, have much higher than average frequencies of Recurved Le Beau ware, and F104 (also lacking trade artifacts) has a high frequency of occurrence of Probable Le Beau ware. These ware groups are distinctive of the lowermost stratified deposits in the northwest part of Block 1, a part of the site also lacking trade artifacts and designated as early in the site sequence on the basis of stratigraphy.

Features with moderate densities of trade material exhibit contrastive pottery content patterns expressed by higher than average occurrences of Transitional ware (F73 and F106), Knife River Fine ware (F55 and F108), or Knife River ware (F47). F26, with the highest trade artifact density, stands out among all features with a much higher than average occurrence of Le Beau High Rim ware.

In summary, we can conclude several things regarding relative chronology in Block 3 and potential analytic units. Precontact period deposits are confirmed by lack of trade items and pottery content, and are best expressed in F4, F101, and F104 contexts. Several postcontact age features occur and reflect some degree of time depth as indicated both by relative densities of trade items as well as pottery content. General level samples in the western part of the block reflect a composite of sediments that are predominantly precontact age in origin and artifact content. The fluffy sediment unit to the east and south in the block is stratigraphically the youngest unit in the area, but lacks trade artifacts, and may therefore also contain a composite of artifacts mostly redeposited from precontact age sediments elsewhere in the site.

Central hearths in Block 3 indicate that two earthlodges stood in this location. The stratigraphically earliest hearth (F17) had only a very small excavated volume, but given the precontact age of features in the vicinity, it is probable that this hearth and lodge were also used in precontact times. We can suggest that a nearby pit, F101, was used in part as a receptacle for ash cleaned from the hearth and also has a precontact age association. Feature 26 also contains dense ash deposits that appear to reflect cleaning and dumping from a nearby central hearth. It is possible that F26 is closely linked to use of the latest central hearth in the area, F7, or perhaps to a yet higher and younger hearth removed by historic disturbance. Tentatively, then we would link F7 and F26 together as chronologically related and functionally associated. Much of the trade artifact content within F26 is comprised of glass beads (16 of 20 items), which are, overall, very rare in the site and are absent in many contexts having trade metal occurrences. Thus, the relatively large number of glass beads in this feature may be a sampling anomaly, and its chronological position might better be assessed on the basis of metal artifacts rather than glass beads. The density of trade metal in F26 is 7.7 items per m^3, a value very similar to most other features in Block 3 producing any amount of trade artifacts. Thus, it is possible that F26 is little different in age from the other features in the block that contain modest amounts of trade items. This possibility should be considered when working out the final analytic unit structure for the site.

Block 4

In Block 4, studied waterscreened samples occur primarily in three excavation squares with six or seven excavated levels and a single pit feature (F99) that is clearly overlain by the artifact-bearing sheet midden in the area. As noted in the discussion of fieldwork and stratigraphy, artifact-bearing, village age deposits appear to be a continuation of similar deposits that occur in Block 2, nearby and immediately upslope from Block 4. Thus, with Block 2 as a model, we might expect some time depth and stratigraphic variation within the non-feature samples in Block 4, and for the overall time frame to be similar in the two blocks.

Relevant data for Block 4 occur in Table 5.5. We first organize the data for general level samples by individual excavation square (n = 3). We examined preliminary pottery data and found that Recurved Le Beau ware occurs in relatively high frequency and other wares in low frequency in level 6 and below in each square. On this basis, we segregated general level 6 + 7 deposits in each square. Trade items occur in small numbers and at varying depths in all three squares, but not in level 6 or 7. Because these general level samples are broadly horizontally stratified, we also present in Table 5.5 data for combined general levels 1-3 (upper half), levels 4-5 (deeper), and levels 6-7 (deepest) for the three squares. The middle and upper units, which contain trade items, exhibit stratigraphically reversed densities (based on the expectation of increasing trade occurrence through time), in which the middle unit has a higher density than the upper unit. This probably reflects a sampling anomaly. We believe it is most useful to consider the density value for the upper unit to be the most representative of both units in regard to overall temporal placement.

Table 5.5. Excavation volume, trade artifact, and preliminary vessel count data for general level and feature contexts within Block 4, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
Gen. Level Samples, by Square										
4	0	497	472	1-5	.479	0	1	1	2.088	18
4	0	497	472	6	.094	0	0	0	0.000	3
4	0	497	474	1-5	.485	3	0	3	6.186	22
4	0	497	474	6,7	.189	0	0	0	0.000	1
4	0	498	473	1-5	.470	5	1	6	12.766	12
4	0	498	473	6	.096	0	0	0	0.000	7
Subtotal General Levels					*1.813*	*8*	*2*	*10*		*63*
General Levels Combined by Depth										
4		Levels 1-3 all squares			.872	3	2	5	5.734	29
4		Levels 4-5 all squares			.562	5	0	5	9.997	23
4		Levels 6-7 all squares			.379	0	0	0	0.00	11
Feature Samples										
4	99		Feature 99		.271	0	0	0	.000	7

The single pit feature in Block 4 with substantial waterscreened excavated volume (F99) produced no trade artifacts. Thus, it appears earlier in time, apparently precontact in age, compatible with its stratigraphic position relative to the overlying sheet midden. The pottery sample in the pit is too small for a definitive comparison with pottery in the overlying midden, but it does exhibit some differences such as a much higher relative frequency of Recurved Le Beau ware in the pit. This is compatible with larger amounts of such pottery in other contexts lacking trade artifacts (in Blocks 1, 2, and 3). In sum, there is time depth within Block 4. F99 is probably precontact in age, the lowest part of the midden is probably the same age, and the remaining overlying midden is generally postcontact in age.

Block 5

Six squares were excavated in Block 5 that penetrated a massive bone-rich midden, with these units placed in subgroups of three in the eastern and western parts of the midden. Three squares were selected for complete analysis, two in the eastern subarea (498NE449 and 498NE451) and one in the western subarea (498NE445). Close inspection of stratigraphy reveals that most of the thickness of deposit in Block 5 is composed of midden that is horizontally stratified, dipping generally both to the west and to the south. The dip of stratigraphy in the midden is so sharp that there is probably little direct correlation in layers or excavation levels from any one of these squares to the next. Thus, within this bone-packed midden, sampled materials in square 498NE445 are most recent in age, materials in 498NE449 somewhat older, and in 498NE451 the oldest.

From a close look at stratigraphy, it can be noted that there is a deeper cultural unit, particularly in square 498NE449, that is completely overlain by the bone-rich midden. In addition, a basin containing artifacts occurs in the western subarea, particularly in square 497NE444, which was not one of the Priority 1 sample squares. To assess the potential early age of materials in this basin in square 497NE444, we re-designated materials in the lowermost four excavation levels (8 – 11) as Priority 1 samples, as well, for the purpose of examining trade artifact and pottery content.

Table 5.6 presents relevant data according to individual excavation squares in Block 5 and also separated according to midden and sub-midden contexts within relevant squares. Within the midden proper, trade artifacts occur in low numbers in two of three squares, but there is no relationship between age based on horizontal stratification and the density of trade items. We attribute this to the vagaries of sampling and overall very sparse occurrence of trade items, and suggest that the midden is essentially of a single age with respect to trade items. On this basis, we can combine the midden samples in the three squares, and derive an overall trade artifact density of 2.408 items/m^3 for the midden as whole.

The sub-midden samples from squares 497NE444 and 498NE449, respectively, lack trade artifacts but they differ in pottery content. The sample from square 498NE449 is small but contains a relatively high frequency of Recurved Le Beau ware rims, a feature shared with other apparent precontact age or stratigraphically early contexts in Blocks 1, 2, and 3. Thus, it seems appropriate to isolate this subsample and treat it as potentially precontact in age. The pottery sample in square 497NE444, though quite small, gives no indication of being different in character or age than most of the pottery within the overlying midden. Thus, there is no compelling reason to isolate this sample from the remainder of the midden in Block 5 for analytic purposes. The single feature in Block 5 (F105, Table 5.6) contains too little volume for meaningful analysis.

Table 5.6. Excavation volume, trade artifact, and preliminary vessel count data for general level contexts within Block 5, Scattered Village site (32MO31).

Block	Strati-graphic Position	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
Gen. Level Samples, by Horizon										
5	sub-midden	497	444	8-11	.231	0	0	0	.000	8
5	late midden	498	445	all	.751	1	0	1	1.332	129
5	middle midden	498	449	1-6	.481	0	0	0	.000	135
5	sub-midden	498	449	7-10	.257	0	0	0	.000	19
5	early midden	498	451	all	.840	4	0	4	4.762	83
All Midden Combined										
5	0	all	all		2.076	5	0	5	2.408	
Features										
5	105	498	451	all	.004	0	0	0	.000	0

Block 6

Block 6 was designed to sample contexts both within and immediately outside a burned earthlodge, and also to sample deposits stratigraphically underneath the lodge. It was apparent from testing work and stratigraphy exposed in curbface trenches that cross-cut the burned lodge that there was a substantial midden with associated pits and other features that predated the earthlodge. Due to time constraints, these pre-lodge deposits were only minimally sampled, and they will not figure heavily into the artifact analysis. Final selection of Priority 1 samples included a number of squares inside the lodge in which roof fall and immediately sub-roof fall sediments were penetrated, several squares to the west, northeast, and east of the lodge that penetrated outside lodge debris, and only two squares within the lodge that were excavated deep enough to sample pre-house midden. Because the situation in Block 6 is very complex, we will address the content of general level samples first and feature samples later.

Trade artifact frequency and density data are arrayed by excavation square in Table 5.7. Two things are immediately apparent from this: First, trade artifacts are, overall, very sparse throughout the Block 6 excavation. Second, trade items occur more often in squares outside and east of the earthlodge, and less commonly in a few squares in the house, and not at all in squares outside the house and to the northeast or west. Based on this, we examined both pottery content and trade frequency by excavation level outside the house to the east, as well as in Feature 123, an apparent pit in that area. In one square, 513NE447, apparently early pottery (Recurved Le Beau ware) occurred in Levels 2-4 lacking of trade artifacts and beneath Level 1 that had five trade items. In other squares in this area, apparently early pottery occurs in some frequency, but trade artifacts were found with and deeper than this pottery. Reexamination of the field records indicated that there are probably some later intrusions into earlier midden in this area, but it was not clear that F123, as excavated, isolated this intrusion. It is also likely that the upper levels of F123 were mixed with surrounding and potentially earlier midden in the area. Thus, except for stratified deposits in square 513NE447, all deposits outside and east of the house probably reflect a mixture of earlier and later materials.

Table 5.7. Excavation volume, trade artifact, and preliminary vessel count data for general level contexts within Block 6, Scattered Village site (32MO31).

Block	Inside / Outside Lodge	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
Gen. Level Samples, by Square										
6	out, w	513	433	all	.069	0	0	0	.000	5
6	in	513	435	all	.120	0	0	0	.000	1
6	in	513	436	all	.106	0	0	0	.000	4
6	in	513	443	all	.061	0	0	0	.000	4
6	in	513	445	all	.122	0	0	0	.000	2
6	out, e	513	447	all	.187	5	0	5	26.744	23
6	out, w	514	433	all	.197	0	0	0	.000	3
6	in	514	435	all	.292	0	0	0	.000	7
6	in	514	436	all	.214	0	0	0	.000	2
6	in	514	439	all	.210	0	0	0	.000	4
6	in	514	441	all	.179	0	0	0	.000	3
6	in, deep	514	443	all	.425	0	1	1	2.353	14
6	in, deep	514	445	all	.247	1	0	1	4.049	8
6	out, e	514	447	all	.293	1	0	1	3.413	21
6	out, w	515	433	all	.121	0	0	0	.000	5
6	out, w	515	434	all	.153	0	0	0	.000	6
6	in	515	436	all	.115	0	0	0	.000	1
6	in	515	439	all	.144	0	2	2	13.889	5
6	in	515	441	all	.195	0	0	0	.000	3
6	in	515	443	all	.207	0	0	0	.000	4
6	in	515	445	all	.210	0	0	0	.000	10
6	out, e	515	447	all	.354	0	1	1	2.825	36
6	out, e	515	448	all	.036	0	0	0	.000	3
6	out, w	516	435	all	.080	0	0	0	.000	1
6	in	516	439	all	.169	1	1	2	11.834	3
6	in	516	442	all	.063	0	0	0	.000	0
6	in	516	443	all	.149	0	0	0	.000	6
6	out, ne	517	444	all	.166	0	0	0	.000	5
6	out, ne	517	445	all	.255	0	0	0	.000	10
Total					*5.139*	*8*	*5*	*13*		*199*

We decided to segregate trade artifact data according to seven subcontexts for general level samples in Block 6; data are summarized in Table 5.8. (1) The roof fall horizon within the house contained very low numbers of both metal and glass trade items. (2) The immediately sub-roof fall horizon for squares within the house exhibited a similar trade artifact density and also contains both metal and glass trade items. (3) The volumetrically small sample of midden from definite pre-house and sub-house floor context within the earthlodge produced no trade items. While pottery content is too low for meaningful assessment, on stratigraphic and trade content grounds, this remains a potential precontact age deposit. (4) Deposits outside the house and to the northeast and west also produced no trade items, and these also are good candidates for precontact age sediments. The previllage A horizon was exposed in these areas, a good sign that the earliest village age contexts at the site were being encountered there. (5) We combined sediments in F123 with apparently mixed deposits in adjoining squares east and outside of the house. This unit has a modest trade frequency and density, but its analytic integrity is in doubt given the mixed nature of pottery in these samples and the confused relationship of feature and non-feature sediment units evident in the field records. (6) The uppermost level in square 513NE447, east of the house, produced a relatively large number of trade artifacts in a very small volume. The associated density value suggests that this sample is much later in time than many other samples in the Block 6 area. (7) A small sediment unit in the lower part of square 513NE447, outside and east of the house, stands out as a precontact age unit based on both pottery content and lack of trade items. In summary, general level samples indicate that the midden on which the lodge in Block 6 was built is precontact in age, for the most part, but that the house itself is postcontact in age. Yet later postcontact age activities may have occurred in the area, but materials of this age are isolated only in one general level context east of the house.

Table 5.8. Excavation volume, trade artifact, and preliminary vessel count data for collapsed general level contexts within Block 6, Scattered Village site (32MO31).

Unit	General Context of Unit	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
1	roof fall inside house	2.004	1	3	4	1.996	52
2	sub-roof fall in house	1.003	1	1	2	1.994	28
3	subfloor midden in house	.254	0	0	0	.000	7
4	outside house, W and N	1.041	0	0	0	.000	36
5	outside, E, mixed + F123	.683	1	1	2	2.928	58
6	513NE447, L1	.040	5	0	5	125.00	2
7	513NE447, L2-4	.147	0	0	0	.000	16
Total		*5.172*	*8*	*5*	*13*		*199*

Trade artifact distribution and density data are shown for features in Block 6 in Table 5.9. Few features with substantial volume exist in the block, and two of the three largest features (by volume) produced trade artifacts. The smallest of these (F144) has the highest trade artifact density, but it was apparently covered by burned roof fall, indicating that it is no more recent than the burning of the house. Thus, the high trade artifact density in F144 may be a sampling anomaly. F142 was also overlain by burned roof fall, and it probably relates closely to the period of house occupation (postcontact in age). Only the largest pit within the block, F119, lacks trade artifacts. The cross-section through this pit clearly indicates that it had filled and settled well before the lodge burn event, with a depression in the lodge floor marking the pit location. Thus, this pit may predate the house by a significant amount of time. The pottery content in the pit is not sufficiently distinct from that associated with the house floor, however, to unequivocally assign it to a precontact time period. Other features in Block 6 lack trade artifacts, but also have very small excavated volumes. It is probable that most or all of these are also associated with the burned earthlodge that is postcontact in age. In sum, most if not all of the features in Block 6 are likely associated with the burned lodge in that location. Only F119 appears on the basis of stratigraphy to possibly predate the lodge by a significant amount of time. Although it is clear from certain small samples of pottery and stratigraphic information in excavation squares and curbface trenches that a precontact age component occurs in Block 6, it appears that our excavation only minimally sampled this component and that it may not be represented at all in feature samples.

Block 7

Relevant data for Block 7 are summarized for general level and feature contexts in Table 5.10. The amount of excavation in Block 7 was not sufficiently large for trade items alone to be definitive regarding temporal placement. Pottery samples in all contexts are too small for meaningful analysis. The single excavation unit with sizeable volume produced no trade items, yet the small hearth basin nearby (F125) produced several trade artifacts. From this, we can reasonably conclude that F125 is truly later in time than some of the surrounding features and deposits, perhaps contemporaneous with the burned earthlodge in Block 8 (see below) where a relatively high trade artifact content is recorded. A pit containing a burial, F122, is capped by the massive clay unit penetrated by square 427NE425; deposits in this pit feature therefore predate the massive clay unit and are probably precontact in age.

Table 5.9. Excavation volume, trade artifact, and preliminary vessel count data for feature contexts within Block 6, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
6	115	515	434		.095	0	0	0	.000	4
6	119	515	436		.508	0	0	0	.000	18
6	140	515	443		.061	0	0	0	.000	5
6	142	513	435		.342	1	0	1	2.924	19
6	144	514	444		.134	1	2	3	22.388	0
6	149	515	441		.016	0	0	0	.000	2
6	150	515	444		.039	0	0	0	.000	0
6	155	513	435		.080	0	0	0	.000	2
6	161	514	441		.009	0	0	0	.000	0
6	162	514	445		.011	0	0	0	.000	1
6	163	514	439		.083	0	0	0	.000	4
All Features					*1.378*	*2*	*2*	*4*	*2.903*	*55*

Block 8

Block 8 consists of a burned earthlodge exposure in a wide but shallow backhoe trench. Patches of burned roof fall exposed in the floor of the backhoe trench were excavated as four discrete "segments", numbered 1 to 4 from west to east; after excavation and screening of the burned roof material, a 5 cm thick layer of floor material was excavated from each segment. A few of the several features exposed in the floor of the house were excavated. The largest of these was F127, a huge cache pit that had been abandoned and filled with refuse, perhaps during the period of use of the house but definitely before the house burn event.

Table 5.10. Excavation volume, trade artifact frequency, trade artifact density and preliminary vessel count data for general level and feature contexts within Block 7, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
General Level Contexts										
7	0	497	425		.360	0	0	0	.000	4
7	0	497	427		.047	0	0	0	.000	3
Feature Contexts										
7	122	498	423		.182	0	0	0	.000	0
7	125	497	427		.052	8	0	8	153.85	0
7	126	497	427		.018	0	0	0	.000	0

Relevant data for Block 8 are summarized in Table 5.11. It is immediately clear that trade artifacts were relatively common in all excavated contexts in Block 8, with densities one order of magnitude higher than most other contexts in the site. Data for general level samples are presented in two ways: one according to individual square (segment) with the two stratigraphic levels combined, and the second according to separate roof fall and floor excavation levels in each segment. From this it can be seen that trade items are consistently slightly more abundant or dense in the roof fall zone than in the house floor deposits. Of significance is that F127, which was filled prior to house burning, has higher trade artifact densities than any other context in Block 8. Thus, it is reasonable to consider all of these contexts to be approximately contemporaneous, and clearly postcontact in age.

Block 9

The term "Block 9" is used to designate features and other contexts lying outside areas designated as Blocks 1-8 and excavated with waterscreened recovery. Relevant data for Block 9 are summarized in Table 5.12. For contexts with sizeable excavated volumes, a wide range in trade artifact densities occurs, varying from zero for F133 to greater than 32.6 n/m^3 for F168. Regarding pottery content, F133 stands apart from all others as having a notably high percentage of Recurved Le Beau ware. No particular relationship is apparent, however, between pottery content and trade artifact density in the other features with trade occurrences. Two features with relatively high frequencies of Knife River ware (F120 and F175), thought to potentially be late in time, have intermediate level trade densities (Table 5.12). Because several of these contexts have fairly large excavated volume, we will rely on trade densities as the primary measure of their relative temporal placement.

Summary of Trade Content Across Blocks

From the foregoing discussion, it is readily apparent that there is substantial variation in trade artifact occurrence in several discrete contexts within blocks as well as across blocks. In addition, based on preliminary vessel classification, ceramic content is also variable, with a high percentage of Recurved Le Beau ware occurring in some contexts lacking trade artifacts. Pottery content is much more variable and less clearly patterned in contexts having trade artifacts.

Table 5.11. Excavation volume, trade artifact, and preliminary vessel count data for general level and feature contexts within Block 8, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
General Level Contexts, Roof and Floor Combined										
8	0	514	414	all	.220	10	0	10	45.459	9
8	0	514	416	all	.441	5	0	5	11.338	1
8	0	514	419	all	.144	2	1	3	20.836	8
8	0	514	423	all	.466	4	2	6	25.752	3
General Level Contexts, by Segment and Roof or Floor										
8	Roof fall Segment 1				.110	7	0	7	63.636	4
8	Roof fall Segment 2				.351	4	0	4	11.396	0
8	Roof fall Segment 3				.072	2	0	2	27.777	6
8	Roof fall Segment 4				.230	4	1	5	21.739	3
8	Floor fill, Segment 1				.110	3	0	3	27.272	5
8	Floor fill, Segment 2				.090	1	0	1	11.111	1
8	Floor fill, Segment 3				.072	0	1	1	13.888	2
8	Floor fill, Segment 4				.230	0	1	1	4.348	0
Total, All General Level Contexts					*1.265*	*21*	*3*	*24*	*18.972*	*21*
Feature Samples										
8	127	514	417		1.635	66	1	67	40.980	37
8	131	514	417		.001	0	0	0	.000	0
8	147	514	423		.001	0	0	0	.000	0
Total, Feature and General Level					*2.908*	*87*	*4*	*91*	*34.019*	*58*

It is instructive to bring together data from all contexts having substantial excavated volume in order to observe the range of trade densities within the site as a whole. On the assumption that there is a correlation between relative density of trade materials and passage of time, we may be able to subdivide contexts having trade materials into earlier and later subgroups having lesser and greater relative numbers of trade items, respectively.

In addition, we can observe that glass trade beads occur, overall, in much lower frequency (n=53) than trade metal (n=214), and that the frequency of beads tends to be more erratic and subject to some type of sampling influence. There are many contexts with trade metal but with no glass beads, but when beads do occur, they sometimes far outnumber metal items (e.g., F14 in Block 2 and F26 in Block 3). Thus, we might propose that metal items are more randomly and evenly distributed among contexts on a single time frame, while the distribution of beads may be influenced by other factors, such as the possibility that several beads may occur together because they were attached to a discarded garment or object. For these reasons, it may be instructive to examine the range in densities of all trade items as well as the range in densities of metal artifacts alone, excluding beads.

Table 5.13 provides an ordering of all contexts listed in the Table 5.1 – Table 5.12 sorted according to increasing metal trade artifact density and further organized according to pottery content. Contexts that lack trade artifacts and that have unusually high percentages of Recurved Le Beau ware

Table 5.12. Excavation volume, trade artifact, and preliminary vessel count data for contexts within Block 9, Scattered Village site (32MO31).

Block	Feature Number	Sq. North	Sq. East	Levels	Excv. Vol. m^3	N Trade Metal	N Trade Beads	N Total Trade	Dens. Trade n/ m^3	N Pott. Vess.
General Levels										
9	0	513	400	all	.225	0	0	0	.000	3
Features										
9	9	0	0	all	.099	0	0	0	.000	8
9	120	517	511	all	1.109	6	1	7	6.312	44
9	124	514	545	all	.433	5	1	6	13.857	31
9	130	515	541	all	.688	7	0	7	10.175	11
9	132	516	541	all	1.462	11	0	11	7.524	66
9	133	516	548	all	.375	0	0	0	.000	21
9	168	0	0	all	.092	3	0	3	32.609	6
9	169	0	0	all	.044	0	0	0	.000	2
9	170	0	0	all	.016	0	0	0	.000	3
9	171	0	0	all	.015	0	0	0	.000	0
9	172	0	0	all	.003	0	0	0	.000	0
9	173	0	0	all	.096	0	0	0	.000	2
9	174	0	0	all	.034	0	0	0	.000	1
9	175	0	0	all	.803	4	3	7	8.717	34
9	176	0	0	all	.003	1	0	1	333.33	1
Total					5.272	37	5	42		230

pottery are italicized and listed first in the table. Contexts that lack trade artifacts but which do not have so clearly a distinctive pottery content are listed next in the table. Following this are contexts with metal trade artifacts in order of increasing metal trade density values. Figure 73 provides a histogram of metal trade artifact densities in the range from zero to 12.0. It can be seen that there is a distinct cluster of contexts having trade densities in the range between 0.4 and 4.5 items/m^3, and that contexts with densities greater than 4.5/m^3 are much less uniformly distributed.

On the basis of this information we have segregated the studied contexts into four provisional time units, from latest to earliest: (1) contexts with metal trade density values > 4.5 items/m^3; (2) contexts with metal trade artifact density values in the range 0.4 to 4.5 items/m^3; (3) contexts lacking trade artifacts and in which preliminary percentages of Recurved Le Beau ware are not particularly high; and (4) contexts lacking trade artifacts and having pottery with high preliminary percentages of Recurved Le Beau ware. Unit 4 is possibly older than all others based on stratigraphic position in Block 1, although unit 3 does not occur in Block 1. The initial separation of site contexts into these four units is indicated by line divisions in Table 5.13 that separate the table into four subparts. We recognize inconsistencies in the working temporal arrangement in Table 5.13, particularly regarding some contexts that contain glass beads but do not contain metal trade items. Several instances where glass bead occurrences cause density values to be disjunct with the density ordering based on metal artifacts alone are noted by shading in Table 5.13. In addition, there are other instances where stratigraphic or spatial association information suggests that the strict ordering or temporal placement of a context based on

Table 5.13. All site contexts with excavated volumes greater than 0.090 m^3 sorted according to increasing density of metal trade artifacts. Contexts with high percentages of Recurved Le Beau ware pottery are italicized. Shading indicates contexts where glass bead occurrences cause significant disjunctures in the order of sorting.

Block	Feat	Square(s) or Other Data	Excv. Vol.	Trade Metal	Metal Density	Glass Beads	Metal/ Beads	Met+Bd Density
1	*0*	*low NW + low 516NE570*	*1.007*	*0*	*.000*	*0*	*0*	*.000*
2	*0*	*3 squares, deepest levels*	*.566*	*0*	*.000*	*0*	*0*	*.000*
2	*F68*	*517NE505*	*.172*	*0*	*.000*	*0*	*0*	*.000*
3	*F4*	*499NE559*	*.215*	*0*	*.000*	*0*	*0*	*.000*
3	*F101*	*498NE567*	*.481*	*0*	*.000*	*0*	*0*	*.000*
4	*0*	*levels 6-7 all squares*	*.379*	*0*	*.000*	*0*	*0*	*.000*
4	*F99*	*497NE474*	*.271*	*0*	*.000*	*0*	*0*	*.000*
5	*0*	*498NE449, sub-midden*	*.257*	*0*	*.000*	*0*	*0*	*.000*
6	*0*	*513NE447, L2-4*	*.147*	*0*	*.000*	*0*	*0*	*.000*
9	*F133*	*516NE548*	*.375*	*0*	*.000*	*0*	*0*	*.000*
1	F52	517NE568	.099	0	.000	0	0	.000
1	F66	517NE568	.342	0	.000	0	0	.000
2	F57	516NE508	.129	0	.000	0	0	.000
2	F97	517NE508	.159	0	.000	0	0	.000
3	0	all squares west of fluff	1.472	0	.000	0	0	.000
3	F104	496NE567	.438	0	.000	0	0	.000
3	F111	496NE567	.114	0	.000	0	0	.000
3	F55	498NE561	.166	0	.000	1	1	6.024
6	0	subfloor midden in house	.254	0	.000	0	0	.000
6	0	outside house, W and N	1.041	0	.000	0	0	.000
6	F115	515NE434	.095	0	.000	0	0	.000
6	F119	515NE436	.508	0	.000	0	0	.000
7	0	497NE425	.360	0	.000	0	0	.000
7	F122	498NE423	.182	0	.000	0	0	.000
8	0	floor fill, segment 4	.230	0	.000	1	1	4.348
9	0	513NE400	.225	0	.000	0	0	.000
9	F9	salvage	.099	0	.000	0	0	.000
9	F173	salvage	.096	0	.000	0	0	.000
6	0	roof fall inside house	2.004	1	.499	2	3	1.497
6	0	sub-roof fall in house	1.003	1	.997	1	2	1.994
1	0	mid NW + up 516NE570	.790	1	1.266	0	1	1.266
1	0	lower 517NE571	.561	1	1.783	0	1	1.783
2	F178	517NE508	.502	1	1.992	0	1	1.992
1	0	upper NW squares	.443	1	2.257	0	1	2.257
5	0	midden, all squares	2.076	5	2.408	0	5	2.408
1	0	upper 517NE571	.355	1	2.827	0	1	2.827
3	F108	495NE570	2.796	8	2.861	1	9	3.219
2	0	6 squares, L5-9 (except deepest)	2.094	6	2.865	0	6	2.865
6	F142	513NE435	.342	1	2.924	0	1	2.924
3	F73	497NE561	.324	1	3.086	1	2	6.173
4	0	levels 1-3 all squares	.872	3	3.440	2	5	5.734
3	F47	498NE562	.784	3	3.826	1	4	5.102
2	0	6 squares, L1-4	1.812	7	3.863	2	9	4.967

Table 5.13. All site contexts with excavated volumes greater than 0.090 m^3 sorted according to increasing density of metal trade artifacts (completed). Contexts with high percentages of Recurved Le Beau ware pottery are italicized. Shading indicates contexts where glass bead occurrences cause significant disjunctures in the order of sorting, (completed).

Block	Feat	Square(s) or Other Data	Excv. Vol.	Trade Metal	Metal Density	Glass Beads	Metal/ Beads	Met+Bd Density
9	F175	salvage	.803	4	4.981	3	7	8.717
9	F120	517NE511	1.109	6	5.410	1	7	6.312
3	F106	497NE570	.171	1	5.849	0	1	5.849
6	F144	514NE444	.134	1	7.463	2	3	22.388
9	F132	516NE541	1.462	11	7.524	0	11	7.524
3	F26	498NE565	.519	4	7.707	16	20	38.539
6	0	outside E upper + F123	.723	6	8.299	1	7	9.682
2	F14	515NE507	.837	8	9.558	15	23	24.479
4	0	levels 4-5 all squares	.562	5	9.997	0	5	9.997
9	F130	515NE541	.688	7	10.175	0	7	10.175
8	0	floor fill, segment 2	.090	1	11.111	0	1	11.111
8	0	roof fall, segment 2	.351	4	11.396	0	4	11.396
9	F124	514NE545	.433	5	11.547	1	6	13.857
8	0	roof fall, segment 4	.230	4	17.391	1	5	21.739
8	0	floor fill, segment 1	.110	3	27.272	0	3	27.272
9	F168	salvage	.092	3	32.609	0	3	32.609
2	F67	517NE508	.210	7	72.917	0	7	33.333
8	F127	514NE447	1.635	66	40.367	1	67	40.980
8	0	roof fall segment 1	.110	7	63.636	0	7	63.636
6	0	513NE447, L1	.040	5	125.00	0	5	125.00
2	0	L1, Sqs. 516NE505, 506	.130	22	166.67	0	22	166.67
Site Total				*214*		*53*	*267*	

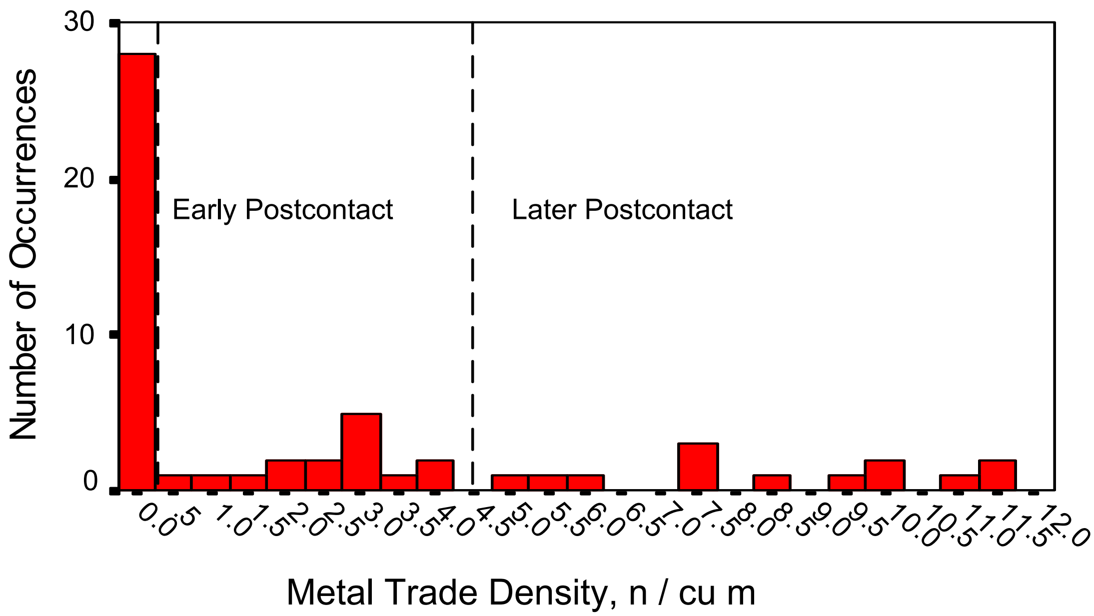

Figure 5.0. Histogram of metal trade artifact density values at Scattered Village (32MO31).

metal trade artifact density needs to be adjusted. For example, the floor fill in segment 4 in Block 8 should probably be placed in the latest time period unit based on such placement of all other floor fill and roof fall samples from Block 8; this, even though this sample produced no metal trade artifacts and a moderate trade density when glass beads are considered.

Table 5.14 reflects the *working* temporal ordering of analyzed site contexts having volumes > 0.090 m^3 after adjustments for occurrences of glass beads where metal does not occur (shifting a context from Period 3 to Period 1 or 2) and after adjustments based on spatial location or stratigraphic position. In this table we show the working time period association assigned to each context, and we separate the time units by triple lines. We used a similar procedure for organization of excavated contexts at Slant Village (32MO26) into three time units.

Table 5.14. All site contexts with excavated volumes greater than 0.090 m^3 arranged according to the four working time period units for Village age deposits, Scattered Village (32MO31), 1998 excavations.

Time Unit	Block	Feat	Square(s) or Other Data	Excv. Vol.	Metal Density	MetBd Density	Basis for Time Assignment
4	*1*	*0*	*low NW + low 516NE570*	*1.007*	*.000*	*.000*	0 trade + pottery
4	*2*	*0*	*3 squares, deepest levels*	*.566*	*.000*	*.000*	0 trade + pottery
4	*2*	*F68*	*517NE505*	*.172*	*.000*	*.000*	0 trade + pottery
4	*3*	*F4*	*499NE559*	*.215*	*.000*	*.000*	0 trade + pottery
4	*3*	*F101*	*498NE567*	*.481*	*.000*	*.000*	0 trade + pottery
4	*4*	*0*	*levels 6-7 all squares*	*.379*	*.000*	*.000*	0 trade + pottery
4	*4*	*F99*	*497NE474*	*.271*	*.000*	*.000*	0 trade + pottery
4	*5*	*0*	*498NE449, sub-midden*	*.257*	*.000*	*.000*	0 trade + pottery
4	*6*	*0*	*outside, E, lower levels*	*.147*	*.000*	*.000*	0 trade + pottery
4	*9*	*F133*	*516NE548*	*.375*	*.000*	*.000*	0 trade + pottery
4	1	F52	517NE568	.099	.000	.000	0 trade + stratigra
4	1	F66	517NE568	.342	.000	.000	0 trade + stratigra
4	6	0	subfloor midden in house	.254	.000	.000	0 trade + stratigra
4	6	0	outside house, W and N	1.041	.000	.000	0 trade + spatial
4	9	F9	salvage	.099	.000	.000	spatial + stratigra
3	3	0	all squares west of fluff	1.472	.000	.000	0 trade + pottery
3	2	F57	516NE508	.129	.000	.000	0 trade + pottery
3	2	F97	517NE508	.159	.000	.000	0 trade + pottery
3	3	F104	496NE567	.438	.000	.000	0 trade + pottery
3	3	F111	496NE567	.114	.000	.000	0 trade + pottery
3	6	F115	515NE434	.095	.000	.000	0 trade + pottery
3	6	F119	515NE436	.508	.000	.000	0 trade + pottery
3	7	0	497NE425	.360	.000	.000	0 trade + pottery
3	7	F122	498NE423	.182	.000	.000	0 trade + pottery
3	9	F173	salvage	.096	.000	.000	0 trade + pottery
2	3	F55	498NE561	.166	.000	6.024	trade w/ beads
2	6	0	roof fall inside house	2.004	.499	1.497	trade density
2	6	0	sub-roof fall in house	1.003	.997	1.994	trade density
2	1	0	mid NW + up 516NE570	.790	1.266	1.266	trade density

Table 5.14. All site contexts with excavated volumes greater than 0.090 m^3 arranged according to the four working time period units for Village age deposits, Scattered Village (32MO31), 1998 excavations, (completed).

Time Unit	Block	Feat	Square(s) or Other Data	Excv. Vol.	Metal Density	MetBd Density	Basis for Time Assignment
2	1	0	lower 517NE571	.561	1.783	1.783	trade density
2	2	F178	517NE508	.502	1.992	1.992	trade density
2	1	0	upper NW squares	.443	2.257	2.257	trade density
2	5	0	midden, all squares	2.076	2.408	2.408	trade density
2	1	0	upper 517NE571	.355	2.827	2.827	trade density
2	3	F108	495NE570	2.796	2.861	3.219	trade density
2	2	0	6 squares, L5-9 (except deepst)	2.091	2.865	2.865	trade density
2	6	F142	513NE435	.342	2.924	2.924	trade density
2	3	F73	497NE561	.324	3.086	6.173	trade density
2	4	0	levels 1-3 all squares	.872	3.440	5.734	trade density
2	3	F47	498NE562	.784	3.826	5.102	trade density
2	2	0	6 squares, L1-4	1.812	3.863	4.967	trade density
2	4	0	levels 5-6 all squares	.562	9.997	9.997	stratigra + density
2	6	F144	514NE444	.134	22.388	22.388	stratigra + spatial
1	9	0	513NE400	.225	.000	.000	spatial
1	8	0	floor fill, segment 4	.230	.000	4.348	spatial + trade
1	9	F175	salvage	.803	4.981	8.717	trade density
1	9	F120	517NE511	1.109	5.410	6.312	trade density
1	3	F106	497NE570	.171	5.849	5.849	trade density
1	9	F132	516NE541	1.462	7.524	7.524	trade density
1	3	F26	498NE565	.519	7.707	38.539	trade density
1	2	F14	515NE507	.837	9.558	24.479	trade density
1	9	F130	515NE541	.688	10.175	10.175	trade density
1	8	0	floor fill, segment 2	.090	11.111	11.111	trade density
1	8	0	roof fall, segment 2	.351	11.396	11.396	trade density
1	9	F124	514NE545	.433	11.547	13.857	trade density
1	8	0	roof fall, segment 4	.230	17.391	21.739	trade density
1	8	0	floor fill, segment 1	.110	27.272	27.272	trade density
1	9	F168	salvage	.092	32.609	32.609	trade density
1	2	F67	517NE508	.210	33.333	33.333	trade density
1	8	F127	514NE447	1.635	40.367	40.980	trade density
1	8	0	roof fall, segment 1	.110	63.636	63.636	trade density
1	6	0	513NE447, L1	.040	125.00	125.00	trade density
1	2	0	L1, Sqs. 516NE505, 506	.130	166.66	166.66	trade density

At Slant Village, an early postcontact age unit was defined in which trade density values (metal and beads combined) ranged from 2.53 to 23.33 n/m^3 for both feature and general level samples, and a later postcontact period was defined in which density values ranged from 37.59 to 237.86 n/m^3 for feature and general level contexts having substantial excavated volume. Thus, a density value of about 30 n/m^3 was a meaningful dividing point at Slant Village for an earlier and later postcontact age units. For comparative purposes, we use a dashed line in Table 5.14 to mark such a segregation in the Scattered Village samples. Only five contexts have density values greater than 30 n/m^3 at Scattered. Four of these have relatively small excavated volumes in comparison to many other analyzed contexts at the site; on this basis, the computed density values could be high because of sampling variance. The fifth context in this group, F127, contains a large number of very small and highly similar copper/brass beads or ornamental fixtures (several in size grade G4 and G5). These were likely attached at one time as decorative pieces to a single item or garment, yielding an artificial clustering of trade metal in this context. In sum, while we believe that the temporal unit at Slant Village defined by contexts with trade densities >30 n/m^3 was valid for that site, we do not believe that the few occurrences of density values in this same range at Scattered Village is the basis for defining an equivalent chronological unit for this site. That is, we feel it is appropriate to subdivide the postcontact age deposits as shown in Table 5.14, but not to create a third postcontact age unit comparable to that at Slant Village.

Final Assessment of Period 3 versus Period 4

The previous discussion was developed on the basis of preliminary vessel classification and a few months prior to completion of pottery analysis. Following the refined pottery vessel refitting, classification, and analysis it was necessary to recheck the time period assignments for the working time Period 3 and Period 4 contexts. These contexts lack trade artifacts and are therefore precontact in age, with the distinction between the two based solely on pottery content.

We began the process of checking this period distinction by examining the frequencies of common rim form classes in coded pottery vessels according to working time periods, excluding lip and brace fragments, simple straight rims, and unusual forms such as bowls. We generated these data, as shown in Table 5.15, both for the whole site by working time period, and also for Block 1 only where Period 4 was first identified as having both a distinctive ceramic content and an early stratigraphic position. The chi square analysis and the standardized cell residuals with high positive values indicate clearly that the distinctiveness of the Period 4 samples still holds following more refined pottery classification. In particular, for the site as a whole, Period 4 is distinguished by unusually high relative frequencies of recurved S-rims in several different braced and unbraced varieties, and by larger numbers of zone 2 and 2-3 fragments (fragments from the face of the upper rim, usually identifiable by curvature in combination with cord-decoration). In contrast, later time periods (1,2,3) are distinguished by various forms of simple S-rims (braced and unbraced, but lacking zone 4) as well as braced straight rim forms. For Block 1 (Table 5.15), these distinctions also generally hold true. The distinctive cell residual values are not so marked, but the percentage trends are the same as for the site as a whole except for a single class, zone 3 fragments.

The patterns shown in Table 5.15 confirm that several contexts can still be isolated as having pottery content very distinctive from much of the remainder of the site. This confirms that it is valid to continue to isolate what we have called Period 4 samples based on rim form content alone. The goal at this point is to recheck and recompare, using final ceramic classification, the pottery makeup for contexts previously assigned to Period 3 versus Period 4. To simplify this checking process, we reduce the nine rim form classes in Table 5.15 to four classes that highlight differences between Period 4 and all other working time periods. These four rim form groups are demarcated by dashed lines in Table 5.15 and are: (1) braced straight rims; (2) all simple braced and unbraced S-rims (*not recurved*); (3) all braced and unbraced *recurved* S-rims [distinctive in Period 4]; and (4) combined zone 3 and zone 2-3 fragments [also distinctive in Period 4].

Table 5.15. Finalized rim form class frequencies according to working time periods for the whole site assemblage and for Block 1 only, as a check on time-sensitive rim form classes for Period 4. Standardized cell residual values > +1.0 are emphasized by shading.

	Time Periods for Whole Site					Block 1 Only		
Rim Form Class	1 Late Post-contact	2 Early Postcontact	3 Precontact A	4 Precontact B	Total	2 Early Postcontact	4 Precontact B	Total
Straight Rim w/ Exterior Brace	115 *27.3%* *.7*	250 *27.4%* *1.1*	25 *24.5%* *-.2*	41 *16.1%* *-3.0*	431 *25.5%*	23 *24.5%* *1.2*	14 *14.0%* *-1.2*	37 *19.1%*
S-Rim, No Brace	115 *27.3%* *1.2*	231 *25.3%* *.5*	28 *27.5%* *.6*	39 *15.4%* *-2.9*	413 *24.4%*	17 *18.1%* *.8*	12 *12.0%* *-.8*	29 *14.9%*
S-Rim w/ Exterior Brace	38 *9.0%* *-.3*	90 *9.9%* *.4*	13 *12.7%* *1.1*	18 *7.1%* *-1.2*	159 *9.4%*	7 *7.4%* *.3*	6 *6.0%* *-.3*	13 *6.7%*
S-Rim w/ Interior Brace	79 *18.8%* *2.4*	133 *14.6%* *.2*	5 *4.9%* *-2.5*	26 *10.2%* *-1.7*	243 *14.4%*	10 *10.6%* *1.0*	5 *5.0%* *-1.0*	15 *7.7%*
Recurved S-Rim w/ No Brace	10 *2.4%* *-2.5*	30 *3.3%* *-2.5*	4 *3.9%* *-.6*	44 *17.3%* *8.5*	88 *5.2%*	4 *4.3%* *-2.3*	21 *21.0%* *2.3*	25 *12.9%*
Recurved S-Rim w/ Exterior Brace	7 *1.7%* *-1.3*	21 *2.3%* *-.8*	7 *6.9%* *2.5*	11 *4.3%* *1.6*	46 *2.7%*	3 *3.2%* *-.7*	6 *6.0%* *.6*	9 *4.6%*
Recurved S-Rim w/ Interior Brace	0 *.0%* *-.7*	0 *.0%* *-1.0*	0 *.0%* *-.3*	2 *.8%* *3.1*	2 *.1%*	0 *.0%* *-.7*	1 *1.0%* *.7*	1 *.5%*
Zone 2-3 Fragment	31 *7.4%* -1.7	80 *8.8%* -1.2	12 *11.8%* .6	46 *18.1%* 4.1	169 *10.0%*	11 *11.7%* -1.0	20 *20.0%* 1.0	31 *16.0%*
Zone 3 Fragment	26 *6.2%* *-1.5*	78 *8.5%* *.3*	8 *7.8%* *-.1*	27 *10.6%* *1.3*	139 *8.2%*	19 *20.2%* *.6*	15 *15.0%* *-.6*	34 *17.5%*
Column Total	421 *24.9%*	913 *54.0%*	102 *6.0%*	254 *15.0%*	1690 *100.0%*	94 *48.5%*	100 *51.5%*	194 *100.0%*
	X2 = 171.99492	DF = 24	p = .00000			X2 = 21.27312	DF = 8	P = .00646

The ceramic makeup for the site as a whole, expressed in these four collapsed rim form groups, is shown in Table 5.16. We can use data in this table as a guide as to how to interpret the content of individual features. Of particular note is the fact that Period 4 samples are distinguished by the highest percentage of recurved S-rim vessels in the site, with such vessels being twice as common than in Period 3 contexts. In addition, collapsed rim form groups 3 and 4 together make up 51.1% of all pottery in Period 4, but only 30.4% in Period 3 and lesser amounts in Periods 2 and 1. From these data, any specific sample that has 15-20% or more recurved s-rim ware and that has a combined 40% or more S-rim and zone 2/3 fragments will be considered as a very likely assignment to Period 4. Using these

Table 5.16. Collapsed rim form group frequency distribution according to the for working time period units for the site as a whole. Standardized cell residual values > +1.0 are emphasized by shading.

	Working Time Period	1 Straight Braced	2 Simple S-Rim	3 Recurved S-Rim	4 Zone 2,3 Pieces	Total
		Collapsed Rim Form Groups				
1	Later Postcontact	115	232	17	57	421
		27.3%	*55.1%*	*4.0%*	*13.5%*	*24.9%*
		.7	*2.0*	*-2.9*	*-2.3*	
2	Earlier Postcontact	250	454	51	158	913
		27.4%	*49.7%*	*5.6%*	*17.3%*	*54.0%*
		1.1	*.7*	*-2.6*	*-.7*	
3	Precontact A	25	46	11	20	102
		24.5%	*45.1%*	*10.8%*	*19.6%*	*6.0%*
		-.2	*-.5*	*1.0*	*.3*	
4	Precontact B	41	83	57	73	254
		16.1%	*32.7%*	*22.4%*	*28.7%*	*15.0%*
		-3.0	*-3.6*	*8.1*	*3.9*	
	Column Total	431	815	136	308	1690
		25.5%	*48.2%*	*8.0%*	*18.2%*	*100.0%*

X2 = 130.71081 DF = 9 P = .00000

guidelines, we conduct a context-by-context assessment both for features with moderately large excavated volume (greater than ca. 0.90 m3) previously assigned to working time Period 3 or Period 4 and for the few non-feature, general level excavation contexts previously assigned to Period 4.

Table 5.17 presents results of final feature assignments to Period 3 and Period 4 based on collapsed rim form group data. As can be seen, a substantial number of features have time period assignment changes based on use of fully studied pottery data. Four features with substantial volume (F4, F99, F101, and F133) were changed from working Period 4 to final Period 3. Two features were changed in the opposite manner (F97, F119), from working Period 3 to final Period 4. We include the two central hearths in Block 3 in this table (F7 and F17). Vessel counts in both features are quite low, but the content of F7 appears to be Period 4-related, and that in F17 is decidedly not like Period 4 (is Period 3 or later). A difficulty here is that, in the field, we believed that F7 was stratigraphically superimposed upon F17, and therefore later. In deference to the extremely small sample sizes, we have given both central hearths Period 3 final assignments, largely because this is most consistent with the existence of several storage pits having larger volume near these hearths that have now been given similar, Period 3 assignments. It can be noted that pottery information from F101 and F104 in Block 3 makes their time assignment very uncertain. If the current assignment to Period 3 is accurate, then no large pit features in Block 3 have Period 4 assignments, making it all the more probable that the two hearths in the block are no different than the nearby pit features. One pit feature in Block 6

Table 5.17. Collapsed rim form class frequencies for features having substantial volume and lacking trade artifacts and previously assigned to Period 3 or 4, with final decision regarding time period assignments. Cells with standardized residual values =>1.0 are shaded for emphasis.

	Collapsed Rim Form Class							
	Period 3 Diagnostics		Period 4 Diagnostics					
Feature Number (Block)	1 Straight Braced	2 Simple S-Rim	3 Recurved S-Rim	4 Zone 2,3 Pieces	Total	Working Time Period	Final Time Period	Basis for Decision
4 (3)	6	5	2	2	15	4	3	low Per. 4 %
	40.0%	*33.3%*	*13.3%*	*13.3%*	*7.4%*			
	1.5	*-.3*	*-.2*	*-.9*				
7 (3)	0	3	1	3	7	1	3	spatial assoc. w/ nearly pits
	.0%	*42.9%*	*14.3%*	*42.9%*	*3.5%*			
	-1.2	*.2*	*.0*	*.9*				
9 (9)	2	6	0	2	10	0	3	low Per. 4 %
	20.0%	*60.0%*	*.0%*	*20.0%*	*5.0%*			
	-.1	*1.2*	*-1.2*	*-.4*				
17 (3)	2	3	0	0	5	4	3	spatial assoc. w/ nearby pits
	40.0%	*60.0%*	*.0%*	*.0%*	*2.5%*			
	.9	*.8*	*-.9*	*-1.1*				
52 (1)	3	6	7	4	20	4	4	high Per. 4 % + stratigraphy
	15.0%	*30.0%*	*35.0%*	*20.0%*	*9.9%*			
	-.6	*-.6*	*2.3*	*-.5*				
57 (2)	4	6	0	0	10	3	3	no Per. 4 %
	40.0%	*60.0%*	*.0%*	*.0%*	*5.0%*			
	1.2	*1.2*	*-1.2*	*-1.6*				
66 (1)	3	3	4	11	21	4	4	high Per. 4 % + stratigraphy
	14.3%	*14.3%*	*19.0%*	*52.4%*	*10.4%*			
	-.7	*-1.7*	*.5*	*2.4*				
68 (2)	1	0	4	8	13	4	4	high Per. 4 %
	7.7%	*.0%*	*30.8%*	*61.5%*	*6.4%*			
	-1.1	*-2.2*	*1.5*	*2.5*				
97 (2)	2	1	1	2	6	3	4(?)	slightly high Per. 4 %
	33.3%	*16.7%*	*16.7%*	*33.3%*	*3.0%*			
	.6	*-.8*	*.1*	*.4*				
99 (4)	2	5	1	1	9	4	3	low Per. 4 %
	22.2%	*55.6%*	*11.1%*	*11.1%*	*4.5%*			
	.0	*.9*	*-.3*	*-.9*				
101 (3)	4	5	3	2	14	4	3(?)	slightly low Per. 4 %
	28.6%	*35.7%*	*21.4%*	*14.3%*	*6.9%*			
	.5	*-.1*	*.6*	*-.8*				
104 (3)	2	9	2	5	18	3	3(?)	a toss-up
	11.1%	*50.0%*	*11.1%*	*27.8%*	*8.9%*			
	-1.0	*.9*	*-.4*	*.2*				
115 (6)	0	5	0	3	8	3	3	no recurved S-rim
	.0%	*62.5%*	*.0%*	*37.5%*	*4.0%*			
	-1.3	*1.1*	*-1.1*	*.7*				

Table 5.17. Collapsed rim form class frequencies for features having substantial volume and lacking trade artifacts and previously assigned to Period 3 or 4, with final decision regarding time period assignments. Cells with standardized residual values =>1.0 are shaded for emphasis (completed).

	Collapsed Rim Form Class							
	Period 3 Diagnostics		Period 4 Diagnostics					
Feature Number (Block)	1 Straight Braced	2 Simple S-Rim	3 Recurved S-Rim	4 Zone 2,3 Pieces	Total	Working Time Period	Final Time Period	Basis for Decision
119 (6)	4	6	3	6	19	3	4	high Per. 4 %
	21.1%	*31.6%*	*15.8%*	*31.6%*	*9.4%*			
	-.1	*-.4*	*.1*	*.5*				
133 (9)	6	10	2	1	19	4	3	low Per. 4 %
	31.6%	*52.6%*	*10.5%*	*5.3%*	*9.4%*			
	.9	*1.1*	*-.5*	*-1.8*				
155 (6)	1	1	0	0	2	2	2	no Per. 4 %
	50.0%	*50.0%*	*.0%*	*.0%*	*1.0%*			
	.9	*.3*	*-.5*	*-.7*				
163 (6)	1	1	0	2	4	2	2	small sample floor assoc?
	25.0%	*25.0%*	*.0%*	*50.0%*	*2.0%*			
	.1	*-.4*	*-.8*	*1.0*				
173 (9)	1	1	0	0	2	3	3	no Per. 4 %
	50.0%	*50.0%*	*.0%*	*.0%*	*1.0%*			
	.9	*.3*	*-.5*	*-.7*				

(F163) has a moderately large volume but low vessel count, and its working Period 2 assignment is maintained on the basis of its association with the house floor in Block 6 and because we have no clear basis for changing it.

Collapsed rim form group data are displayed in Table 5.18 for general level samples from seven block units previously assigned to either Period 3 or Period 4 based on stratigraphic information, lack of trade artifacts, and preliminary pottery data. Two changes in final time period assignment derive from this analysis, this being a shift from Period 4 to Period 3 for lowermost stratigraphic horizons in Block 4 and Block 5. As noted previously, the highly distinctive nature of the Period 4 sample at the base of Block 1 is maintained (and is still the basis for definition of Period 4 pottery makeup, in general), and small deposits of midden with characteristic Period 4 pottery content are still identified as occurring in the deepest parts of Block 2 and Block 6.

Block-by-Block Final Time Period Summary

Because the data in Table 5.14 deal only with contexts having moderately large excavated volumes (>0.090 m^3), many smaller features and a few other contexts are not included in this list. If included in the overall project analysis (designated as Priority 1 samples), these contexts are generally given a time period assignment based on stratigraphic position or spatial association with other contexts for which time period assignments are indicated in Table 5.14. In this manner, we have given

Table 5.18. Collapsed rim form class frequencies for general level contexts from various blocks, previously assigned to Period 3 or 4, with final decision regarding time period assignments. Cells with standardized residual values =>1.0 are shaded for emphasis.

	Collapsed Rim Form Class							
	Period 3 Diagnostics		Period 4 Diagnostics					
Block	1 Straight Braced	2 Simple S-Rim	3 Recurved S-Rim	4 Zone 2,3 Pieces	Total	Working Time Period	Final Time Period	Basis for Decision
1	8 *15.4%* *.0*	11 *21.2%* *-1.8*	15 *28.8%* *1.1*	18 *34.6%* *1.0*	52 *30.6%*	4	4	very high Per 4 %
2	1 *7.1%* *-.8*	7 *50.0%* *.9*	4 *28.6%* *.5*	2 *14.3%* *-.9*	14 *8.2%*	4	4	high recurved S-rim
3	5 *31.3%* *1.6*	6 *37.5%* *.1*	3 *18.8%* *-.3*	2 *12.5%* *-1.1*	16 *9.4%*	3	3	low Per. 4 %
4	0 *.0%* *-1.0*	5 *83.3%* *1.9*	1 *16.7%* *-.3*	0 *.0%* *-1.3*	6 *3.5%*	4	3	low Per 4 %
5	4 *28.6%* *1.3*	6 *42.9%* *.4*	2 *14.3%* *-.6*	2 *14.3%* *-.9*	14 *8.2%*	4	3	low Per 4 %
6	7 *10.9%* *-.9*	24 *37.5%* *.2*	12 *18.8%* *-.5*	21 *32.8%* *.9*	64 *37.6%*	4	4	high Per 4 %
7	1 *25.0%* *.5*	2 *50.0%* *.5*	0 *.0%* *-.9*	1 *25.0%* *-.1*	4 *2.4%*	3	3	low Per. 4 %

working time period assignments to all samples incorporated into the full analysis. In addition, we created a fifth time unit (Period 5) that isolates screened and studied samples from deeper contexts within the site, beneath the previllage A horizon that was encountered in several excavation blocks. We also apply a time assignment of Period 0, meaning unknown, to potentially mixed contexts that we will continue to include in the analysis (still Priority 1) and to contexts where small sample size and spatial association provide no basis for assignment. The final time period assignments for studied site contexts are summarized in tabular fashion by block in Table 5.19 and in narrative fashion in the following paragraphs.

Two XUs penetrated previllage deposits in **Block 1** and also encountered a small hearth (F181), all of which are assigned to the previllage time Period 5. Block 1 contains the thickest and best stratified of all deposits within site excavations. Lower excavation levels in three XUs and all features contained therein are assigned to Period 4 on the basis of pottery content and lack of trade artifacts (see discussion above and Table 5.15), and overlying deposits are assigned to Period 2 based on very sparse numbers

Table 5.19. Summary of specific context assignments to the final time periods (Periods 0-5) for Scattered Village, 32MO31.

Block	Period 5 (previllage)	Period 4	Period 3	Period 2	Period 1	Mixed or Uncertain
1	516NE569, L14-19 516NE570, L9-19 F181	516NE570, 5-8.2 517NE568, L8-14 517NE569, L8-13 F52,56,58,66	-	516NE570, L1-4 517NE568, L1-7 517NE569, L1-7 517NE571, L1-11 F46	-	-
2	516NE506, L11-17	516NE504, L8-9; 516NE505, L7-9; 517NE505, L8-9; F68,97	F57	516NE506, L2-10; 516NE504, L1-7; 516NR505, L2-6; 517NE505, L1-7; 516NE507, L1-9; 516NR508, L1-10; F6,12,65,178	516NE505, L1 516NE506, L1 F14,30,67	-
3	F182	-	all squares west of fluff F4,7,17, 27,101, 104,111	F8,47,55,73,108	F26,106	all squares in fluff F11,15,19,25,28,98, 107,116,117,121
4	-	-	Levels 6-7, all squares; F99	Levels 1-5, all squares; F60	-	-
5	-	-	498NE449, L7-11	497NE444, L8-11 498NE445, all levs 498NE449, L1-6 498NE451, all levs F105	-	-
6	-	513NE433, all levs 513NE447, L2-4 514NE433, all levs 514NE443, L4-5 514NE445, L5 515NE433-434 all levs; 516NE435, all levs; 517NE444-445, all levs F119	F115	514NE443, L1-3 514NE445, L1-4 All other squares in house, all levels F134,135,136,140, 142,143,144,149,150, 155,161,162,163	513NE447, L1	514NE447, all levs 515NE447, all levs 515NE448, all levs F123
7	-	-	497NE425, all levs F122	-	497NE427, all levs F125,126	-
8	-	-	-	-	Roof and floor, all sqs F127,131,146,147	-
9	-	-	F9,133,173	-	513NE400 all levs F120,124,130,132 168,175	F169,170,171,174, 172,176

of trade artifacts and stratigraphic position. Deposits in the NE part of the block receive a similar Period 2 designation for the same reasons. More refined stratigraphic trends in pottery content within Block 1 are not adequately reflected in the gross time divisions applied to these contexts (the latter derived from site-wide trade artifact density values). For this reason, it will be very worthwhile to use Block 1 as a test context for stratigraphic, and therefore, temporal markers in the material culture of the site. For example, we believe it worthwhile to examine raw material content in flaking debris for strong stratigraphic trends or disjunctures that can be used to more clearly define temporal boundaries or subunits here or elsewhere in the site.

In **Block 2**, one XU penetrated well into previllage age sediments, and these contexts are assigned to the previllage age Period 5. A small number of features in Block 2 can be assigned to precontact Period 4 (F68, 97) and Period 3 (F57) based on stratigraphic position and pottery content. A small amount of general level material at the base of this local sequence is assigned to Period 4 based on pottery and absence of trade artifacts. The vast bulk of excavated sediment and several features in Block 2 are assigned to the earliest postcontact Period 2 based on trade artifact densities. A few features (F14, 30, 67) and minor general level contexts are assigned to Period 1, again based on trade densities and stratigraphic position. In sum, deposits encountered in Block 2, although not particularly deep, contain artifacts representing the complete recognized temporal sequence for the site.

In **Block 3** a small remnant of a hearth or FCR concentration (F182) was salvaged from deep within the previllage sediment package and is assigned to Period 5. Based on pottery data, Period 4 deposits are not clearly represented in Block 3, while Period 3 is well represented by several pit features (F4, 101, 104, 111). Largely on the basis of physical association, the two overlapping central hearth features (F7, 17), an artifact cluster (F27), and all house floor levels west of the fluff zone are also assigned to Period 3. We are therefore suggesting that the structure that stood in this location was built during Period 3; most unassigned postmold features probably also belong to this period, although they have too little content for meaningful study. Based on presence and density of trade artifacts, we believe that several features attest to early and later postcontact period use (Periods 2 and 1). Period 2 features include two pits in the western end of the block (F47, 73) each having burials intruded into them (F55, 8), as well as the very unusual burial pit (F108) about eight meters to the east (Figure 38). Two large undercut pits (F26, 106) are assigned to Period 1 based on trade artifact density. All contexts in the fluffy fill unit and a few other features with small volume and minor artifact content are assigned an uncertain Period 0 designation.

In **Block 4** the lowermost part of the general level sequence is assigned to Period 3 based on pottery content and absence of trade artifacts. Remaining general level samples are assigned to Period 2 based on trade artifact content in the upper part of this sequence (presuming the higher density value for the middle stratigraphic unit is a sampling anomaly). Thus, the sheet midden in this area is similar both in appearance and in age to physically similar deposits in Block 2, which lies upslope from Block 4. One pit (F99) at the base of the Block 4 sheet midden is given an earlier, Period 3 assignment based on pottery content and stratigraphic position. Nearby **Block 5** (a very short distance west of Block 4) penetrated two distinct depositional units having the same age assignments as those in Block 4. The bulk of excavation in Block 5 penetrated a dense and rapidly accumulated midden that is assigned to Period 2 based on sparse trade artifact content. Beneath this, we excavated a small part of a depositional unit that lacks trade items and has pottery characteristic of Period 3 elsewhere in the site.

Periods 4 and 2 are best represented in **Block 6**. The dominant feature in this block is a burned earthlodge and floor zone, with several associated interior posts and other features. Roof fall and subroof fall contexts in the burned lodge structure are assigned to Period 2 based on sparse trade artifact content. It is clear that a substantial midden and some features (including F119) associated with early precontact Period 4 also exist in Block 6, in part beneath the burned lodge, even though our excavations sampled this time unit only sparingly. Several contexts outside the lodge are assigned to Period 4 based on pottery as well as spatial association. One feature with sizeable volume but no trade artifacts (F115) is assigned to Period 3. One very minor general level context was assigned to the latest, Period 1, based on trade artifact density and stratigraphic position.

The small hearth basin (F125) and the associated subhearth pit (F126) in **Block 7** are assigned to Period 1 based on relatively high trade artifact density in the hearth. Bone-rich clayey deposits penetrated by one XU in this block, and a feature overlain by this clayey horizon (F122), were assigned to Period 3 on based absence of trade artifacts. We consider the latter designations extremely tentative, given the minor amount of excavation in this area.

Nearly all discrete contexts in **Block 8** of any size produced relatively large numbers of trade artifacts. A later postcontact, Period 1 designation is therefore given to all excavated samples in Block 8. Three features of modest or large size in **Block 9** (F9 [containing a burial], F133, 173) are assigned to Period 3 based pottery content and on lack of trade artifacts. Several other large, salvaged pit features in Block 9 are assigned to Period 1 based on relatively high trade artifact densities. One general level sample at the far eastern edge of the site (east of Block 8) is assigned to Period 1 based on spatial location. Several features in Block 9 are given an uncertain period 0 assignment because of small excavated volume and small artifact samples.

To summarize, precontact village age activities (Period 3 and Period 4) are documented in virtually all excavated areas of the site except Block 8, farthest to the west. Period 3 and Period 4 deposits are not stratified in any particular location, and for the most part, contexts assigned to these to units are mutually exclusive according to block excavation area. Period 4 deposits are most prominent in Blocks 1, 2, and 6 (all on the north side of First Street), while Period 3 deposits are more prominent in Blocks 3, 4, and 5 (on the south side of First Street). We do not know, based on ceramic data alone, that these two units are in fact different in age, and the spatial segregation of the samples suggests that factors other than age may be involved in their distinction. Period 4 is distinguished largely by higher frequencies of recurved S-rim pottery forms; because this is a vessel shape that occurs much more prominently at nearby On-A-Slant Village, it is possible that Period 4 material content may simply reflect closer linkages to Mandan peoples at Slant Village, or perhaps direct ethnic tradition differences within Scattered Village proper (see Chapter 3).

Postcontact age deposits assigned to Periods 2 and 1 also occur in all block areas, and there is some indication of physical stratification of these two periods in several locations (particularly in block 2 and to a minor degree in Block 6). The latest, Period 1, contexts are widespread in the site, but are nowhere more prominent than in Block 8, in the burned earthlodge at that location where evidence of earlier occupation is lacking. Thus, there is some suggestion that the village may have expanded slightly to the west later in time. While the lodges in Block 8 and Block 6 are in close proximity, there appears to be little question from trade artifact density data that these two houses were built and used at different times, with the Block 8 lodge being the later of the two.

Radiocarbon Dating

Radiocarbon dating was conducted in two phases. The dating process was not originally planned to occur in that manner, but a second phase of dating proved necessary to resolve uncertainties in the results of the first round of dating. In this section we discuss sample selection and dating results for each phase of dating somewhat separately, then we integrate all results and provide an interpretation of site chronology based on radiocarbon studies as a whole.

First Round of Dating

The project scope of work, written before the general content and structure of the site were known, indicated that at least 25 samples and preferably that every pit or feature context should be dated. In the first round of dating (at the time, presumed to be the only dating that would be conducted), we modified this general guideline with the following two goals in mind: (1) to do sufficient dating in each block excavation to understand or document the general chronology within each block and to enhance understanding of how blocks may relate to one another in time; and (2) to date several, but not all, of the large pit features, focusing specifically on contexts that contained sufficient artifacts and excavated volume for individual chronological placement through use of artifact content data (normally, pottery is the artifact type most heavily relied upon).

A consideration, not known when the scope of work was written, was that many of the excavated contexts are postcontact in age judging from presence of minor or modest amounts of trade metal and glass beads. Based on work at Knife River (Ahler and Haas 1993), AD 1600 is thought to be the approximate date for first appearance of trade artifacts in the Knife region. This same date is, coincidentally, close to the upper or recent age limit for practical radiocarbon dating (ca. AD 1650), due to abruptly erratic fluctuations in the C-14 reservoir due to *de Vries effects* after about that date (Taylor 1987:35-36). Thus, experience at KNRI had shown that radiocarbon could not be used to *precisely* date contexts that contain modest or greater amount of trade materials. Therefore, once the trade content of the site was established, we expected radiocarbon to be of somewhat limited use for accurate dating of many contexts at Scattered Village – specifically those known to produce trade materials. On this basis, we implemented a dating program targeting slightly fewer than 25 samples.

Regardless of this limitation, the relationship between radiocarbon chronology and trade materials has been worked out only at KNRI, and has not been demonstrated elsewhere. It should prove useful to radiocarbon date some contexts at Scattered Village containing varying amounts of trade artifacts to confirm the *approximate* age of these deposits and to verify that the extremely small numbers of trade items in some of these contexts have not intruded into older cultural units. On this basis, we decided to focus the present dating program on contexts lacking trade artifacts (within both block and pit features as noted above), but also to date several contexts with varying amounts of trade materials.

Single dates from single contexts are always subject to interpretive problems that derive from uncertainties about accuracy or precision of the results. The reliability of the chronology can be enhanced by dating several contexts that have closely similar ceramic content, and which therefore should be very similar in age, and by dating multiple samples from single, important contexts. Another element in the sample selection strategy was therefore to select multiple samples from specific contexts so that the statistical test of contemporaneity of multiple dates from single locations could be used as a test of the reliability of the date results (Ahler et al. 1996). Our ability to meet this goal was moderated by the need to date samples from several spatially separate blocks within the site, and practical limitations of funding available for radiocarbon work in general. When the second round of dating was planned and executed with assistance of supplemental funding, we brought this selection requirement more directly into play. Finally, we can note that all sample selection (first and second round) focused on short-lived materials such as cultigens for which date of growth is very closely associated with the cultural event under study.

With all of these considerations in mind, we can briefly discuss the rationale behind sample selection in each excavation block, looking specifically at 22 samples that were selected in the first round of dating. This first set of samples was selected prior to full study of trade artifact densities and working out even the provisional time units as discussed in the preceding sections. Thus, specifically which working time periods were being dated was not fully clear when the first sample set was chosen. Context, provenience, and sample type information is provided for these 22 samples in Table 5.20 and Table 5.21. In Table 5.21 we indicate the working (rather than final) time period assignment for each selected sample. All samples were submitted to Dr. Herbert Haas of RC Consultants, Inc., who conducted pretreatment for both conventional and AMS samples and who coordinated the dating process from that point forward. Two conventional samples were dated by the University of Arizona Radiocarbon Laboratory, and the remaining 20 AMS samples were dated at the ETH dating facility in Zurich, Switzerland.

Block 1 appears to contain some of the earliest pottery in the site at the base of the sequence in the two excavation units in the NW part of the block, with stratigraphic change being evident in the relatively deep sequence in this part of the block. Trade artifacts occur in low frequency in the upper part of this stratified deposit (Table 5.1). The entire column in the NE corner of this block contains pottery that appears to be as late as any in the NW part of the block, and also contains low numbers of trade artifacts (Table 5.1). We selected samples from Block 1 to clarify the time depth in the stratified deposits and chronological relationships between NW and NE parts of the block. We selected two samples from deep within the NW block column (as a crosscheck on each other) (Period 4, samples **05** and **04**) and two samples from progressively higher locations in the same square (samples **03** and **02,** Period 4 and 2). We submitted one sample (**01**) from a level associated with possible trade metal in the NE part of the block, also potentially post-AD 1600 in age (Period 2).

Table 5.20. Summary of sample provenience and context information for 22 samples submitted in the first round of radiocarbon dating for the Scattered Village site (32MO31), 1998 excavations.

Scattered Sample Number	Block	Catalog Number	North Coord	East Coord	Gen. Level	Feature No.	Feature Level	Datum Depth, cm	Pit Depth, cm	Recov.	Excavator	Date
01	1	1219/ 32MO31	517	571	6.00	.		068-078		WS	Lawrence	24-JUL-98
02	1	1205/ 32MO31	517	569	5.00	.		059-068		WS	Speakman	24-JUL-98
03	1	1238/ 32MO31	517	569	8.00	.		088-098		WS	Speakman	24-JUL-98
04	1	1742/ 32MO31	517	569	10.00	.		108-118		WS	Lawrence	06-AUG-98
05	1	1794/ 32MO31	517	569	11.00	.		118-128		WS	Lawrence	07-AUG-98
06	2	2026/ 32MO31	517	508	9.90	178	5.00	198-213	053-068	WS	C. Haakenson	11-AUG-98
07	2	1933/ 32MO31	517	505	8.90	68	2.00	145-160	020-035	WS	Muldoon	10-AUG-98
08	3	2749/ 32MO31	496	569	6.90	108	14.00	300-318	216-234	WS	Picha	01-SEP-98
09	3	1997/ 32MO31	498	565	.90	26	5.00	070-085	052-067	WS	W. Haakenson	11-AUG-98
10	3	2247/ 32MO31	496	567	2.90	104	3.00	070-085	030-045	WS	Runge	17-AUG-98
11	3	2257/ 32MO31	496	567	2.90	104	4.00	085-100	045-060	WS	Runge	17-AUG-98
12	4	2211/ 32MO31	497	474	5.90	99	4.00	170-185	045-060	WS	Stevens	14-AUG-98
13	5	2271/ 32MO31	498	451	6.00	.		060-070		WS	C. Haakenson	17-AUG-98
14	5	2093/ 32MO31	498	449	7.00	.		080-090		WS	Muldoon	12-AUG-98
15	5	2112/ 32MO31	498	449	10.00	.		110-120		WS	Muldoon	13-AUG-98
16	6	2571/ 32MO31	515	436	3.90	119	4.00	105-120	045-060	WS	Levine	26-AUG-98
18	6	2864/ 32MO31	514	443	5.00	.		070-075		WS	Jenson	04-SEP-98
19	8	2746/ 32MO31	514	417	3.10	127	8.00	138-153	083-098	WS	W. Haakenson	01-SEP-98
20	1	3042/ 32MO31	515	569	15.90	hearth	bulk	190-195		float	Metcalf	AUG-98
21	6	2730/ 32MO31	513	446	2.00	134	1.00	043-052	000-009	US	Jenson	01-SEP-98
22	8	2812/ 32MO31	514	414	1.00	.		058-078		WS	Christenson	03-SEP-98
23	6	2520/ 32MO31	513	447	3.0	-	-	040-050	-	WS	Lawrence3	25-AUG-98

Most general level contexts in **Block 2** are associated with sparse amounts of trade artifacts (Table 2) and appear to be relatively homogeneous from the perspective of pottery. We submitted one sample from F68 (sample **07**) in an attempt to date the earliest precontact deposits in this area (Period 4) and another from F178 (sample **06**) in an attempt to date the earliest part of the postcontact period (Period 2) (Table 5.20, Table 5.21).

Table 5.21. Summary of sample content information for 22 samples submitted in the first round of radiocarbon dating for the Scattered Village site (32MO31), 1998 excavations.

Scattered Sample Number	Block	Catalog Number	AMS or Conv.	Sample Material	Size	Approx. Weight	Approx. Age	Working Time Period	Reason for Selection
01	1	1219/ 32MO31	AMS	charred maize cob fragment	G3	<0.1 gm	post-AD 1600	2	latest midden in NE pt of Bk. 1
02	1	1205/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	post-AD 1600?	2	higher layer in NW pt of Bk. 1
03	1	1238/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	pre-AD 1600	4	mid layer in NW pt of Bk. 1
04	1	1742/ 32MO31	AMS	charred maize cob fragment	G3	<0.1 gm	pre-AD 1600	4	lower layer in NW Bk. 1, = #5
05	1	1794/ 32MO31	AMS	charred maize kernel fragment	G3	<0/1 gm	pre-AD 1600	4	lower layer in NW Bk. 1, = #4
06	2	2026/ 32MO31	AMS	charred maize cob fragment	G3	<0.1 gm	post-AD 1600	2	pit dating start of Bk. 2 midden
07	2	1933/ 32MO31	AMS	uncharred squash seed fragment	G5	<<0.1 gm	pre-AD 1600	4	early pit, prior to Bk. 2 midden
08	3	2749/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	post-AD 1600	2	from bottom of late pit Bk. 3
09	3	1997/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	post-AD 1600	1	from latest pit in Bk. 3 = house
10	3	2247/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	pre-AD 1600	3	early, prehouse pit, Bk. 3; = #11
11	3	2257/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	pre-AD 1600	3	early, prehouse pit, Bk. 3; = #10
12	4	2211/ 32MO31	AMS	charred pit or seed; to be identified	G4	<0.1 gm	post-AD 1600	4	pit in Bk. 4 at base of midden
13	5	2271/ 32MO31	AMS	charred maize cob fragment	G3	<0.1 gm	post-AD 1600	2	general date for Bk. 5
14	5	2093/ 32MO31	AMS	charred maize cob fragment	G3	<0.1 gm	pre-AD 1600??	4	basal date Bk. 5; w/ early pottery
15	5	2112/ 32MO31	AMS	uncharred squash seed	G4	<<0.1 gm	pre-AD 1600??	4	basal Bk. 5; check on # 14
16	6	2571/ 32MO31	AMS	charred maize kernel fragment	G3	<0.1 gm	?; pending pottery study	3	pit filled prior to house burn
18	6	2864/ 32MO31	AMS	charred maize cob fragment	G4	<0.1 gm	?; pending pottery study	4	midden predating house floor
19	8	2746/ 32MO31	AMS	charred pit or seed; to be identified	G4	<0.1 gm	post-AD 1600	1	pit filled before house burned
21	6	2730/ 32MO31	CONV	charred small dia. branches; roof fall	G2	~16 gm	post-AD 1600	2	will date house constr. in Bk. 6
22	8	2812/ 32MO31	CONV	charred small dia. branches; roof fall	G2,3	~10 gm	post-AD 1600	1	will date house constr. in Bk. 8
20	1	3042/ 32MO31	AMS	charred roots??, unidentified	<G5	<<0.1 gm	>2000 BP	5	geologic date on alluvial fan
23	6	2520/ 32MO31	AMS	charred maize cob fragment	G4	<0.1 gm	pre-contact	4	early in outside house midden

Block 3 contains one or more earthlodges and pit features that appear to vary widely in age (within the apparently narrow time period for the site as a whole) based on preliminary ceramic analysis and trade artifact densities (Table 4). We chose to try to bracket this potential time range by dating both early and clearly later contexts. We submitted one sample (**09**) from within F26, a pit with the highest density of trade items in the block. F108 is a very unusual pit, being extremely large and deep and containing multiple burials. We have concluded that it probably dates in the early postcontact period (Period 2), and we submitted one sample (**08**) from the lowest level of this pit. On the earlier end of the spectrum, we submitted two samples (as a crosscheck against each other) (**10 and 11**) from F104, a pit containing no trade artifacts.

A single pit feature in **Block 4** (F99) lacks trade artifacts and contains pottery that resembles pottery in the lowermost, stratified contexts in Block 1 (see previous discussion and Table 5). We selected a single sample for dating (**12**, working Period 4, Table 5.20, Table 5.21) from this feature, anticipating that it would be precontact in age and may date the earliest component at the site.

In **Block 5** one sample (**13**, Period 2, Table 5.20, Table 5.21) was selected in the heart of the bone-rich midden in a context that produced trade materials. A second sample (**14,** working Period 4) was selected from a context with apparently early pottery, and a third (**15,** working Period 4) was selected from the stratigraphically deepest location immediately beneath these sherds. We expected the latter two samples to be precontact in age.

Four samples (**16-18, 21**, Table 5.20, Table 5.21) were initially submitted from Block 6, being chosen to reflect greatest possible time depth in the block. Ongoing artifact analysis indicated that one sample (**17**), from F123 east of the burned lodge in this area was from an area with substantial historic disturbance. Consequently, sample **17** was withdrawn from study and sample **23** was substituted in its place (Table 5.20, Table 5.21). Two samples (**18** and **23**) were selected from deep general level contexts that appear to predate the house and to be associated with this early pottery component (Period 4). One sample (**16**) was selected from F119, a large pit feature containing a human burial but lacking trade artifacts; preliminary study of associated pottery indicated that this feature may belong to Period 3. Finally, a single sample of charred, small diameter wood pieces in the burned roof fall (**21**) was submitted for conventional dating. This should provide a good date for the earthlodge, considered postcontact in age.

Minimal excavation was conducted in **Block 7**, and we submitted no samples from this excavation area. **Block 8** was known to have penetrated primarily a postcontact age earthlodge, based on consistent occurrence of trade artifacts in excavated deposits (Table 11). We selected two samples from this block for dating. One (**19**) came from F127, a very large subfloor pit (Period 1), and the second (**22**, also Period 1) consisted of a mass of small-diameter twigs in the roof fall zone sufficiently large for conventional dating (Table 5.20, Table 5.21).

In the first round of radiocarbon dating, no samples were selected from salvaged pit features or other contexts assigned to **Block 9**, artifacts from which had not been sorted at the time of sample submittal.

A single, previllage age and presumably preceramic age hearth feature (F181) was cross-sectioned in one of the two deep excavation units in Block 1. A bulk sediment sample collected from this hearth, in the unit profile, was floated for charcoal. Two extremely small fragments of apparent charcoal were initially submitted to Herbert Haas for dating. Haas reported that these specimens nearly disappeared upon pretreatment and could not provide sufficient material for dating. Washed materials from this bulk sample were reexamined and small numbers of what appeared to be very small charred, dense plant rootlets were submitted under this same sample number. It is suspected that these items are naturally occurring rootlets in the soil that were inadvertently burned by the hearth. Although small, these dense objects withstood the pretreatment process and were dated by the AMS method.

Assessment of First Round Results

Dates were produced for 21 of 22 samples submitted in the first round of dating. One sample, an uncharred squash seed from F68 in Block 2, yielded too little material for an adequate date. First round dating results are organized in Table 5.22 by excavation block and in Table 5.23 by increasing corrected (but uncalibrated) radiocarbon age (roughly from most recent to oldest). In each of these tables, we provide the working as well as final time period assignments based on the foregoing discussion of pottery analysis and density of associated trade artifacts (data summarized in Table 5.14 and Table 5.19).

Dating results for Block 1 are internally consistent (Table 5.22). Feature 181, the previllage age hearth, is dated in the fourteenth century BC (sample **20**), an age compatible with its stratigraphic position beneath a well developed paleosol that caps the landform on which the village rests. The village midden dates fall into a consistent stratigraphic progression. The three dates (**05, 04, 03**) for deposits not associated with trade artifacts have calendar crosspoints ranging from the mid AD 1400s to the early AD 1600s. Higher deposits in the NW part of the block associated with sparse trade artifacts postdate this slightly, with a crosspoint for sample **03** in the mid-AD 1600s. Deposits in the NE part of the block, also containing sparse trade artifacts, are slightly later than this, but the date (**01**) falls in the period when precise interpretation is not possible (post-AD 1650 or so). The only interpretive difficulty presented by the five village dates in Block 1 is that the three samples we have assigned to Period 4 based on pottery analysis indicate a calendar age span of perhaps 150 years (mid AD 1400s through the AD 1500s). This seems far too long a period given what appear to be fairly homogeneous material remains and deposition in what appears to be a rapidly filled trash dump.

The single date (**06**) from a context in Block 2, F178, has a calendar age cross-point of AD 1656 (Table 5.22); this is highly compatible with its temporal assignment to Period 2 based on sparse trade artifact associations.

The date for F26 in Block 3 (sample **09**) falls sometime after AD 1650, in a calendar range where radiocarbon is of little interpretive value (Table 5.22); this finding is entirely consistent with this feature's assignment to Period 1 based on higher trade artifact density. The date for F108, the deep burial pit in this block (sample **08**), has three crosspoints in the AD 1500s and early AD 1600s; the latter crosspoint and the 2-sigma age range reaching to AD 1658 is compatible with this feature's assignment to Period 2 based on sparse numbers of associated trade artifacts.

Both dates for F104 in Block 3 (**10** and **11**), assigned to Period 3 based on pottery analysis and absence of trade artifacts, can be interpreted as compatible with a precontact age for this context (AD 1400s and 1500s). These two dates are not internally consistent, however, reflecting up to 200 years of time depth for a pit feature that was probably filled over a brief period of time. These two dates (**10, 11**) fail the test of contemporaneity ($T' = 9.59$ where critical $X^2 = 3.84$ at $P = .05$) which means that they are not drawn from a single sample and should not be averaged. Several possibilities exist. One or both of these dates may simply be in error, subject to some form of laboratory error or contamination from unknown sources. Alternately, each date may be accurate, but one of the dated items may be intrusive into the pit

Table 5.22. Results of first round radiocarbon dating of 22 samples from the Scattered Village site (32MO31), 1998 excavations, organized according to excavation block.

No.	Block, Context	Catalog Number	Lab Number for Date	δ12/13C	Corrected 14C Age	Calendar Age, AD or BC 2 sigma range & crosspoints	Working Period	Final Period
Block 1								
01	late NE midden	1219/ 32MO31	ETH-21561	-10.8±1.2%	105 ± 50	cal AD 1666 (1705, 1720, 1818, 1829, 1882, 1913, 1949) 1955	2	2
02	late NW midden	1205/ 32MO31	ETH-21562	-9.3±1.2%	280 ± 55	cal AD 1474 (1642) 1946	2	2
03	mid NW midden	1238/ 32MO31	ETH-21563	-12.5±1.2%	345 ± 55	cal AD 1439 (1517, 1597, 1619) 1658	4	4
04	earlyNW midden	1742/ 32MO31	ETH-21564	-11.6±1.2%	390 ± 50	cal AD 1428 (1476) 1640	4	4
05	earlyNW midden	1794/ 32MO31	ETH-21565	-8.4±1.2%	435 ± 50	cal AD 1409 (1444) 1625	4	4
20	previllag e hearth	3042/ 32MO31	ETH-21579	-17.8±1.2%	3045 ± 55	cal BC 1429 (1368, 1362, 1315) 1128	5	5
Block 2								
06	F178	2026/ 32MO31	ETH-21566	-11.5±1.2%	240 ± 50	cal AD 1519 (1656) 1948	2	2
07	F68	1933/ 32MO31	ETH-21567		TOO SMALL TO DATE		4	4
Block 3								
09	F26	1997/ 32MO31	ETH-21569	-11.8±1.2%	160 ± 50	cal AD 1648 (1679, 1741, 1752, 1757, 1804, 1936, 1947) 1952	1	1
08	base of F108	2749/ 32MO31	ETH-21568	-8.9±1.2%	335 ± 50	cal AD 1443 (1520, 1587, 1625) 1658	2	2
10	F104, Lev. 3	2247/ 32MO31	ETH-21570	-11.9±1.2%	315 ± 50	cal AD 1449 (1528, 1551, 1633) 1786	3	3
11	F104, Lev. 4	2257/ 32MO31	ETH-21571	-6.8±1.2%	550 ± 55	cal AD 1299 (1406) 1443	3	3
Block 4								
12	F99	2211/ 32MO31	ETH-21572	-20.6±1.2%	350 ± 50	cal AD 1440 (1516, 1599, 1616) 1652	4	3
Block 5								
13	massive midden	2271/ 32MO31	ETH-21573	-5.2±1.2%	335 ± 50	cal AD 1443 (1520, 1587, 1625) 1658	2	2
14	L 7 pre-midden	2093/ 32MO31	ETH-21574	-13.3±1.2%	345 ± 50	cal AD 1441 (1517, 1597, 1619) 1654	4	3
15	L 10 pre-midden	2112/ 32MO31	ETH-21575	-12.3±1.2%	520 ± 60	cal AD 1302 (1416) 1472	4	3
Block 6								
21	Blk 6, roof fall	2730/ 32MO31	A-10610	-26.2±1.2%	115 ± 35	cal AD 1672 (1695, 1725, 1813, 1835, 1876, 1917, 1949) 1953	2	2
23	outside house	2520/ 32MO31	ETH-21580	-12.8±1.2%	300 ± 50	cal AD 1465 (1637) 1796	4	4
16	F119	2571/ 32MO31	ETH-21576	-9.7±1.2%	475 ± 50	cal AD 1332 (1436) 1485	3	4
18	sub-house	2864/ 32MO31	ETH-21577	-9.9±1.2%	455 ± 50	cal AD 1403 (1440) 1613	4	4
Block 8								
22	Blk. 8, roof fall	2812/ 32MO31	A-10611	-26.1±1.2%	120 ± 45	cal AD 1665 (1693, 1726, 1812, 1853, 1858, 1919, 1949) 1954	1	1
19	Blk 8, F127	2746/ 32MO31	ETH-21578	-24.9±1.2%	130 ± 50	cal AD 1659 (1689, 1729, 1810, 1922, 1948) 1954	1	1

Table 5.23. Results of first round radiocarbon dating of 22 samples from the Scattered Village site (32MO31), 1998 excavations, organized according to increasing corrected but uncalibrated radiocarbon age.

No.	Block, Context	Catalog Number	Lab Number for Date	δ12/13C	Corrected 14C Age	Calendar Age, AD or BC 2 sigma range & crosspoints	Working Period	Final Period
01	Blk. 1, NE late midden	1219/ 32MO31	ETH-21561	-10.8±1.2%	105 ± 50	cal AD 1666 (1705, 1720, 1818, 1829, 1882, 1913, 1949) 1955	2	2
21	Blk 6, roof fall	2730/ 32MO31	A-10610	-26.2±1.2%	115 ± 35	cal AD 1672 (1695, 1725, 1813, 1835, 1876, 1917, 1949) 1953	2	2
22	Blk. 8, roof fall	2812/ 32MO31	A-10611	-26.1±1.2%	120 ± 45	cal AD 1665 (1693, 1726, 1812, 1853, 1858, 1919, 1949) 1954	1	1
19	Blk 8, F127	2746/ 32MO31	ETH-21578	-24.9±1.2%	130 ± 50	cal AD 1659 (1689, 1729, 1810, 1922, 1948) 1954	1	1
09	Blk 3, F26	1997/ 32MO31	ETH-21569	-11.8±1.2%	160 ± 50	cal AD 1648 (1679, 1741, 1752, 1757, 1804, 1936, 1947) 1952	1	1
06	Blk 2, F178	2026/ 32MO31	ETH-21566	-11.5±1.2%	240 ± 50	cal AD 1519 (1656) 1948	2	2
02	Blk 1, late NW midden	1205/ 32MO31	ETH-21562	-9.3±1.2%	280 ± 55	cal AD 1474 (1642) 1946	2	2
23	Blk 6, pre-house	2520/ 32MO31	ETH-21580	-12.8±1.2%	300 ± 50	cal AD 1465 (1637) 1796	4	4
10	Blk 3, F104	2247/ 32MO31	ETH-21570	-11.9±1.2%	315 ± 50	cal AD 1449 (1528, 1551, 1633) 1786	3	3
08	Blk 3, F108	2749/ 32MO31	ETH-21568	-8.9±1.2%	335 ± 50	cal AD 1443 (1520, 1587, 1625) 1658	2	2
13	Blk 5, midden	2271/ 32MO31	ETH-21573	-5.2±1.2%	335 ± 50	cal AD 1443 (1520, 1587, 1625) 1658	2	2
14	Blk 5, pre-midden	2093/ 32MO31	ETH-21574	-13.3±1.2%	345 ± 50	cal AD 1441 (1517, 1597, 1619) 1654	4	3
03	Blk 1, mid NW midden	1238/ 32MO31	ETH-21563	-12.5±1.2%	345 ± 55	cal AD 1439 (1517, 1597, 1619) 1658	4	4
12	Blk 4, F99	2211/ 32MO31	ETH-21572	-20.6±1.2%	350 ± 50	cal AD 1440 (1516, 1599, 1616) 1652	4	3
04	Blk 1, early NW mid	1742/ 32MO31	ETH-21564	-11.6±1.2%	390 ± 50	cal AD 1428 (1476) 1640	4	4
05	Blk 1, early NW mid	1794/ 32MO31	ETH-21565	-8.4±1.2%	435 ± 50	cal AD 1409 (1444) 1625	4	4
18	Blk 6, sub-house	2864/ 32MO31	ETH-21577	-9.9±1.2%	455 ± 50	cal AD 1403 (1440) 1613	4	4
16	Blk 6, F119	2571/ 32MO31	ETH-21576	-9.7±1.2%	475 ± 50	cal AD 1332 (1436) 1485	3	4
15	Blk 5, pre-midden	2112/ 32MO31	ETH-21575	-12.3±1.2%	520 ± 60	cal AD 1302 (1416) 1472	4	3
11	Blk 3, F104	2257/ 32MO31	ETH-21571	-6.8±1.2%	550 ± 55	cal AD 1299 (1406) 1443	3	3
20	Blk 1, early hearth	3042/ 32MO31	ETH-21579	-17.8±1.2%	3045 ± 55	cal BC 1429 (1368, 1362, 1315) 1128	5	5
07	Blk 2, F68	1933/ 32MO31	ETH-21567		TOO SMALL TO DATE		4	4

context. Under this scenario, the younger date (**10**) may more accurately date the context, with the older date (**11**) being derived from older cultural material inadvertently included in the matrix that filled the pit. Thus, the crosspoints in the early and mid AD 1500s may provide the most reasonable estimation of the age of this pit. Sample **11** can be accepted as indicating that cultural materials as old as the early AD 1400s are a valid part of site deposits. How we interpret these two dates and which (if either) we accept as most useful, must depend on results from other dated contexts in the site.

The date for F99 in Block 4 (**12**), with calendar crosspoints in the AD 1500s and early AD 1600s, is compatible with the absence of trade artifacts in this location (initially assigned to Period 4). The reported date is in agreement with one (sample **03**) but not all of the dates from Period 4 samples from Block 1 (samples **04** and **05** date substantially earlier).

The three dates from Block 5 (**13, 14, 15**) (Table 5.22) are stratigraphically consistent but are inconsistent according to time period assignments. Dates **14** and **15**, assigned to final Period 3, reflect up to two centuries of difference in calendar age. Dates **13** and **14** are similar in age but are supposedly associated with different time periods based on ceramic associations. There is insufficient pottery associated with sample **15**, the earliest, to resolve the question of true time depth in this location. Regardless of these difficulties, sample **13**, for the massive bone-rich midden in this location, provides a reasonable age estimate (ranging into the early AD 1600s) for deposits with sparse trade artifacts in association.

The dates for four contexts in Block 6 are again consistent with stratigraphic relationships but are not very consistent with time period assignments (Table 5.22). Roof fall debris dates to some undefined time after ca. AD 1672. This suggests that the dated roof elements may slightly postdate artifacts in the earth used for roof covering and most of the artifacts on the house floor (locations with sparse trade artifacts). The three remaining dates from the block were expected to be earlier, based on a lack of associated trade artifacts, and they are. A difficulty is that these three dates (**16, 18, 23**), all assigned to Period 4 contexts, reflect 150 radiocarbon years and 200 calendar years of temporal variation.

The two dates from Block 8 (**19, 22**, Table 5.18) are internally compatible and highly consistent with the presence of moderate amounts of trade artifacts in these contexts and assignment of both samples to Period 1. The date results indicate a calendar age after ca. AD 1650, but a specific age must remain poorly defined based on the difficulties of interpreting radiocarbon determinations in this time range.

A method exists for examining groups of radiocarbon dates that perhaps should not be averaged but which are thought to represent a common cultural unit having some potential time depth (see Eighmy and LaBelle 1996). This involves calculating a probability distribution for each date in such a group, then summing the probability distributions of all dates in the group in a single graph on the calendar scale. For a given date, a probability value can be computed as the likelihood that the sample date actually falls with a specified calendar interval of time. For a single date the probability values for all of the decades will sum to 1.00 or 100%. We used the program CALIB 4.1.2 (Stuiver and Reimer 1993) to compute probabilities for time intervals of a single decade, and we rescaled the individual probability values in the summed distribution curve so that the maximum value for a single decade equaled 1.00.

Summed probability distributions for dates produced for Period 1 and Period 2 samples are shown graphically in Figure 5.1. Similarly, summed probability distributions for all dates assigned to Periods 3 and 4 are shown in Figure 5.2. We can make several observations about these distributions.

The calendar age distribution shown for Period 1 samples seems realistic, given the association of these samples with contexts having the highest densities of trade artifacts. Period 1 dates fall distinctly later in time than do the six Period 2 dates. The Period 2 dates as a group reflect a much wider possible calendar age, with highest probabilities in the period AD 1500 to AD 1650 – a not unreasonable estimate for several dates associated with very low densities of trade artifacts. Thus, the Period 1 and Period 2 radiocarbon dates appear to support the relative chronology based on trade artifact densities. We can even suggest that the crossing point of the two cumulative distribution graphs (bottom of Figure 5.1), at ca. AD 1660, provides a reasonable estimate of the break point between the calendar age of Period 2 and Period 1.

Period 3 and Period 4 dates present more perplexing problems, as can be seen in the summed probability distributions for these two groups of dates (Figure 5.2). While these graphs are based on the final time period designations, rather than on working period assignments, the perceived difficulties in interpretation remain the same regardless of which period assignment we use. On the positive side, it is gratifying that the vast majority of each distribution curve falls prior to AD 1600, supporting the idea that all of these contexts are precontact in age and predate the probable introduction of trade artifacts at around AD 1600. The chronological relationship of these two units is not well understood, but Period 4 is thought to be the earliest based on stratigraphic information in Block 1. Yet, dates from Period 3 contexts suggest that samples assigned to this period may be as early or earlier than Period 4 contexts. A particularly long time span of at least 200 years and perhaps greater is indicated for both periods. This does not seem realistic given the nature of the pottery in association. Several Period 3 and Period 4 dates have calendar age crosspoints in the mid to early AD 1400s (Table 5.23), and both of these period groups exhibit probability distributions that indicate a high likelihood of calendar age in the mid to early AD 1400s (Figure 5.2). This is especially perplexing because several other relatively well studied Plains Village collections in the region have produced what are considered reliable radiocarbon dates in the mid-to early AD 1400s (site 32MO291, Ahler et al. 2000; 32MO11, Ahler and Kvamme 2000), and these sites contain pottery assemblages that are highly unlike the pottery from either Period 3 or Period 4 contexts at Scattered Village.

When we add to this the fact that F104 produced two dates that are internally inconsistent, plus the apparent wide age range for Period 3 and Period 4 samples taken as a whole (at least two centuries), it is clear that additional dating is needed, focused specifically on Period 3 and Period 4 contexts. This was the goal of the second round of radiocarbon dating for Scattered Village.

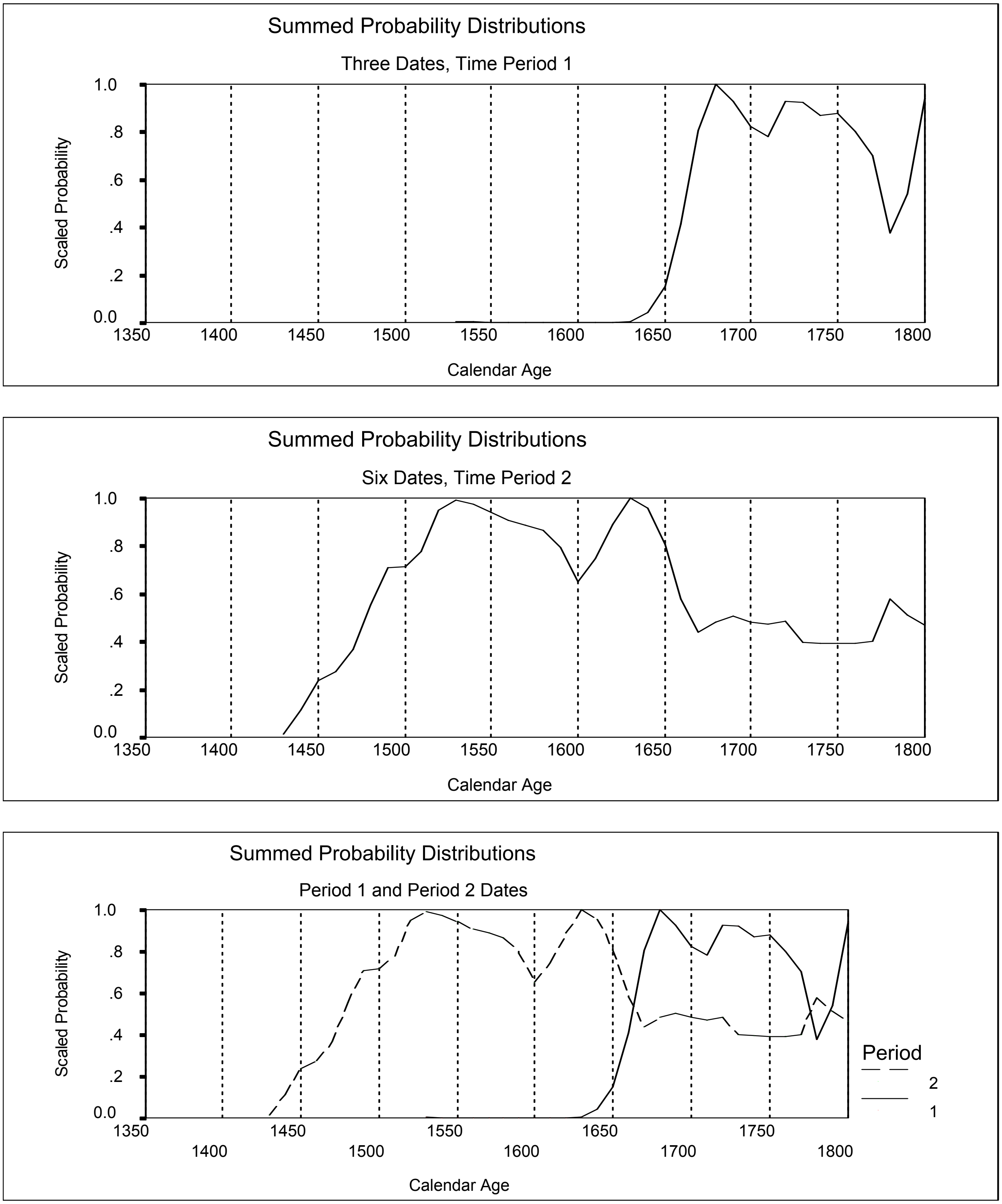

Figure 5.1. Summed probability distributions for Period 1 (top) and Period 2 (middle) radiocarbon samples, with overlaid graphs at the bottom, Scattered Village (32MO31).

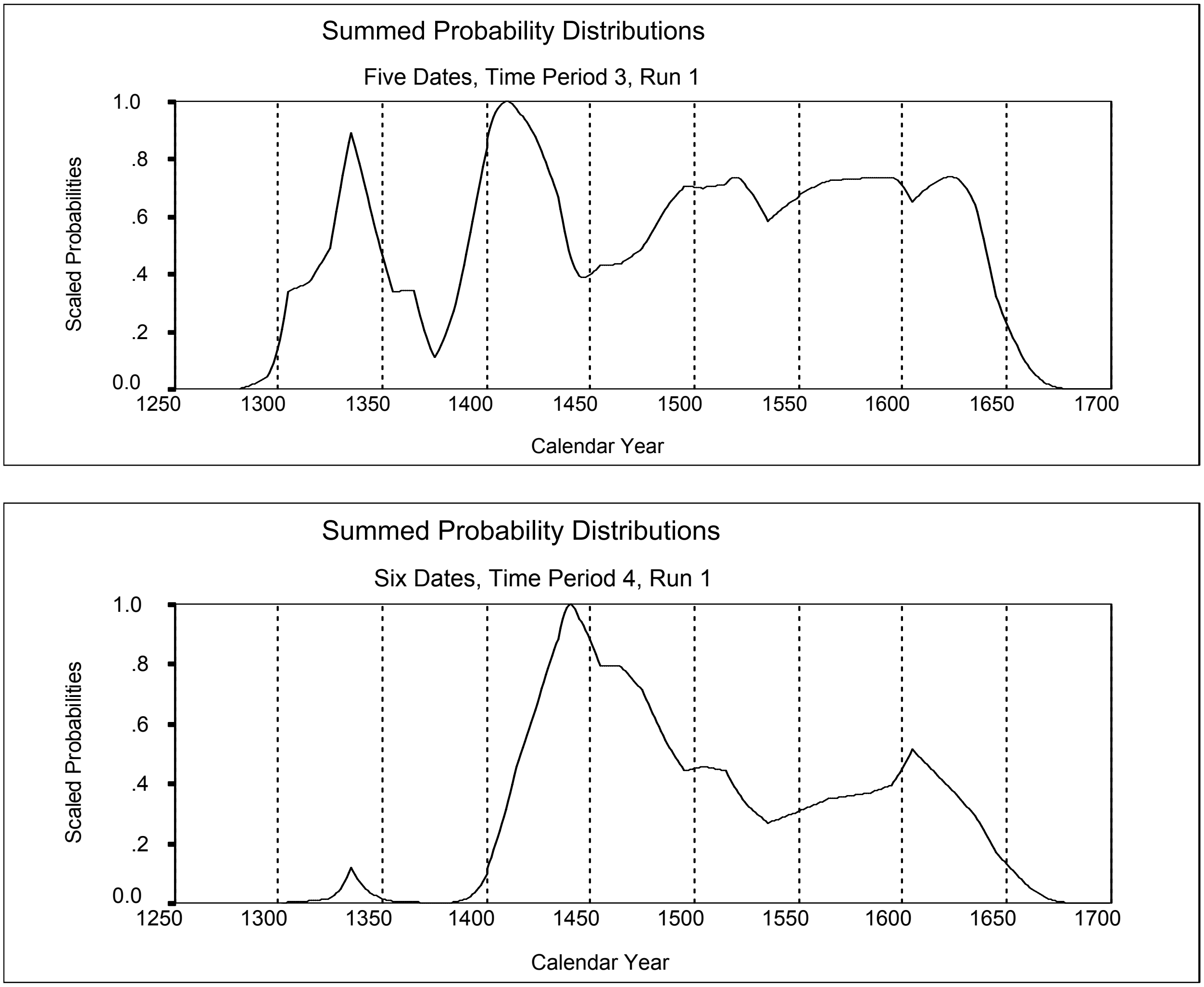

Figure 5.2. Summed probability distributions for Period 3 (top) and Period 4 (middle) radiocarbon samples, Scattered Village (32MO31).

Second Round of Dating

Ten additional radiocarbon samples were submitted for AMS radiocarbon dating, all from Period 3 and Period 4 contexts based on lack of trade artifacts and particulars of ceramic associations. Provenience information for these samples is given in Table 5.24 and sample content information is provided in Table 5.25. When these samples were selected for dating we had not yet completed the ceramic analysis and development of final time periods. When submitted, we thought we had selected three samples from Period 3 contexts and seven from Period 4 contexts. After final time period assignments, however, these samples are distributed in just the opposite fashion – seven from Period 3 and three from Period 4. Final time period

Table 5.24. Summary of sample provenience and context information for 10 samples submitted in the second round of radiocarbon dating for the Scattered Village site (32MO31), 1998 excavations.

Sample Number	Block	Catalog Number	North Coord	East Coord	Gen. Level	Feature No.	Feature Level	Datum Depth, cm	Pit Depth, cm	Recov.	Excavator	Date
24	6	2596/ 32MO31	515	436	3.90	119	5.00	120-135	060-075	WS	Levine	27-AUG-98
25	4	2217/ 32MO31	497	474	5.90	99	5.00	185-200	060-075	WS	Lawrence	17-AUG-98
26	2	1744/ 32MO31	516	508	8.9	57	3.00	170-185	055-070	WS	C. Haakensen	06-Aug-98
27	2	1756/ 32MO31	516	508	8.9	57	4.00	185-200	070-085	WS	C. Haakensen	06-Aug-98
28	3	2203/ 32MO31	498	567	1.9	101	4.00	075-090	045-060	WS	W. Haakensen	14-Aug-98
29	3	2223/ 32MO31	498	567	1.9	101	5.00	090-101	060-071	WS	W. Haakensen	17-Aug-98
30	9	2742/ 32MO31	516	548	-	133	4.00	-	070-085	WS	R Christensen	01-Sept-98
31	9	2765/ 32MO31	516	548	-	133	5.00	-	085-100	WS	R. Christensen	02-Sept-98
32	2	1965/ 32MO31	517	505	8.90	68	4.00	175-189	050-064	WS	B. Muldoon	10-Aug-98
33	2	1967/ 32MO31	517	505	8.90	68	5.00	189-193	064-067	WS	B. Muldoon	10-Aug-98

Table 5.25. Summary of sample content information for 10 samples submitted in the second round of radiocarbon dating for the Scattered Village site (32MO31), 1998 excavations.

Sample Number	Block	Catalog Number	AMS or Comv.	Sample Material	Size	Approx. Weight	Approx. Age	Final Time Period	Reason for Selection
24	6	2596/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	4	cross check on # 16 from same feat.
25	4	2217/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	cross-check on # 12 from same feat.
26	2	1744/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature lacking trade
27	2	1756/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature lacking trade
28	3	2203/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature w early pottery
29	3	2223/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature w early pottery
30	9	2742/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature w early pottery
31	9	2765/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	3	period 3 feature w early pottery
32	2	1965/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	4	period 4 feature w early pottery
33	2	1967/ 32MO31	AMS	charred maize kernel fragment	G4	<0.1 gm	pre-AD 1600	4	period 4 feature w early pottery

associations are indicated in Table 5.24. Therefore, some of the details of sample selection are now irrelevant, except for the fact that both Period 3 and Period 4 are represented. In addition, we chose samples that allowed statistical comparison of results from single contexts, providing an independent check on the reliability of the results. After the second round of dating, we would potentially have paired date results for six pit features – F57, F68, F99, F101, F119, and F133 (Table 5.21 and Table 5.24).

Table 5.26. Results of second round radiocarbon dating of 10 Period 3 and Period 4 samples from the Scattered Village site (32MO31), 1998 excavations.

Sample No.	Context	Catalog Number	Lab No. for Date	δ12/13C	Corrected ^{14}C Age	Final Time Period
24	Blk. 6, F119	2596/ 32MO31	ETH-22664	-10.0±1.2%	265 ± 50	4
25	Blk. 4, F99	2217/ 32MO31	ETH-22665	-9.4±1.2%	345 ± 55	3
26	Blk. 2, F57	1744/ 32MO31	ETH-22666	-10.3±1.2%	285 ± 55	3
27	Blk. 2, F57	1756/ 32MO31	ETH-22667	-8.9±1.2%	360 ± 50	3
28	Blk. 3, F101	2203/ 32MO31	ETH-22668	-12.0±1.2%	360 ± 50	3
29	Blk. 3, F101	2223/ 32MO31	ETH-22669	-8.5±1.2%	240 ± 50	3
30	Blk. 9, F133	2742/ 32MO31	ETH-22670	-10.3±1.2%	285 ± 50	3
31	Blk. 9, F133	2765/ 32MO31	ETH-22671	-11.4±1.2%	155 ± 50	3
32	Blk. 2, F68	1965/ 32MO31	ETH-22672	-12.7±1.2%	280 ± 50	4
33	Blk. 2, F68	1967/ 32MO31	ETH-22673	-10.7±1.2%	300 ± 50	4

Table 5.27. Comparison of dating results for Period 3 and Period 4 samples from Run 1 and Run 2 in the radiocarbon dating program, Scattered Village (32MO31), 1998 excavations. Failed test of contemporaneity is shaded for emphasis.

Dating Run	Period 3 Dates	Period 4 Dates	CALIB Test of Contemporaneity Between Means
Run 1 Dates	315 ± 50 345 ± 50 350 ± 50 520 ± 60 550 ± 55	300 ± 50 345 ± 55 390 ± 50 435 ± 50 455 ± 50 475 ± 50	All 11 Dates: T'=24.37 Critical X^2=18.30 at P=.05
Run 1 Mean	401 ± 24	400 ± 21	T'=0.00 Critical X^2=3.84 at P=.05
Run 2 Dates	345 ± 55 285 ± 55 360 ± 50 360 ± 50 240 ± 50 285 ± 50 155 ± 50	265 ± 50 280 ± 50 300 ± 50	All 10 Dates: T'=13.17 Critical X^2=16.90 at P=.05
Run 2 Mean	287 ± 20	282 ± 29	T'=0.04 Critical X^2=3.84 at P=.05
CALIB Test of Contemporaneity Between Means	T'=10.81 Critical X^2=3.84 at P=.05	T'=9.14 Critical X^2=3.84 at P=.05	
CALIB Test of Contemporaneity Among All Samples	T'=42.01 Critical X^2=19.70 at P=.05	T'=19.57 Critical X^2=15.50 at p=.05	

Results for the second radiocarbon dating run are provided in Table 5.26. The first task in evaluating these results is to broadly and specifically compare results from the first run with the second run, given the range of problems identified above with the Period 3 and Period 4 dates from the first round of analysis. The basis for such a comparison is provided in Table 5.27, where individual dates from each time period (final period assignments in all cases) as well as weighted average dates for each period are organized by dating run. Inspection of the mean values for each period/run indicate immediately that the second run dates appear to be substantially more recent that the first run dates. The run 2 mean for Period 3 is 114 years more recent that the mean for run 1; the run 2 mean for Period 4 is 118 years more recent than the mean for run 1. The statistical significance of these differences can be measured by the test of contemporaneity routine provided in the program CALIB (version 4.3, Stuiver and Reimer 1993), the results of which are provided in Table 5.27. When the means within a single period for run 1 and run 2 are compared, they are found to be statistically different for each time period. When all dates for each period are considered together within a single time period (12 dates for Period 3; nine dates for Period 4), the test is failed, indicating that the dates are dispersed sufficiently within a period to consider them not to have been drawn from a single population. Therefore, we are not justified in combining run 1 with run 2 dates for Period 3, or run 1 with run 2 dates for Period 4. Because the run 2 dates are substantially more recent for each period, and because one of our concerns with run 1 dates was that they appeared unreasonably old based on dates for other sites, the most reasonable conclusion for us to draw is that the run 1 dates are systematically in error and should be ignored in any further analysis.

On this basis, we have continued to focus only on run 2 dates for Period 3 and Period 4. Within this series, four pairs of dates exist from single contexts. If these dates are reliable, then each pair from a single context should pass the test of contemporaneity. Such is the case for all pairs: F57 (T'=1.00, critical X^2=3.84 at P=.05); F101 (T'=2.82, critical X^2=3.84 at P=.05); F133 (T'=3.32, critical X^2=3.84 at P=.05); F68 (T'=0.08, critical X^2=3.84 at P=.05). This is further evidence that the run 2 dates are reliable.

Next, we tested the dates by period for contemporaneity. The seven Period 3 dates do not pass this test (T'=12.89, critical X^2=12.60 at P=.05), while the three period 4 dates do (T'=0.24, critical X^2=5.95 at P=.05). When all ten dates are considered together, they also pass the test of contemporaneity (Table 5.27) (T'=13.17, critical X^2=16.90 at P=.05), indicating that it is statistically valid to treat the ten dates as having been drawn from a single population. This is also indicated by the fact that the means for the two periods differ by only seven years (Table 5.27), with Period 3 being slightly older than Period 4. Together, these sources of information indicate that radiocarbon analysis has not been able to distinguish a difference in age for Period 3 and Period 4. On this basis it is meaningful to consider a weighted average age for the 10 Period 3 + 4, second run samples, which is 286 ± 16 RCYBP.

The calendar age of the Period 3 and Period 4 samples is determined by calibrating the mean radiocarbon date, which yields a crosspoint of AD 1641 and a 2-sigma range of AD 1525-1651. The probability distribution for this single mean date expression for Period 3 and Period 4 combined is shown graphically in Figure 5.3 (top). This indicates a calendar age for the mean date having a high probability of falling around either ca. AD 1530-1555 or ca. 1630-1650.

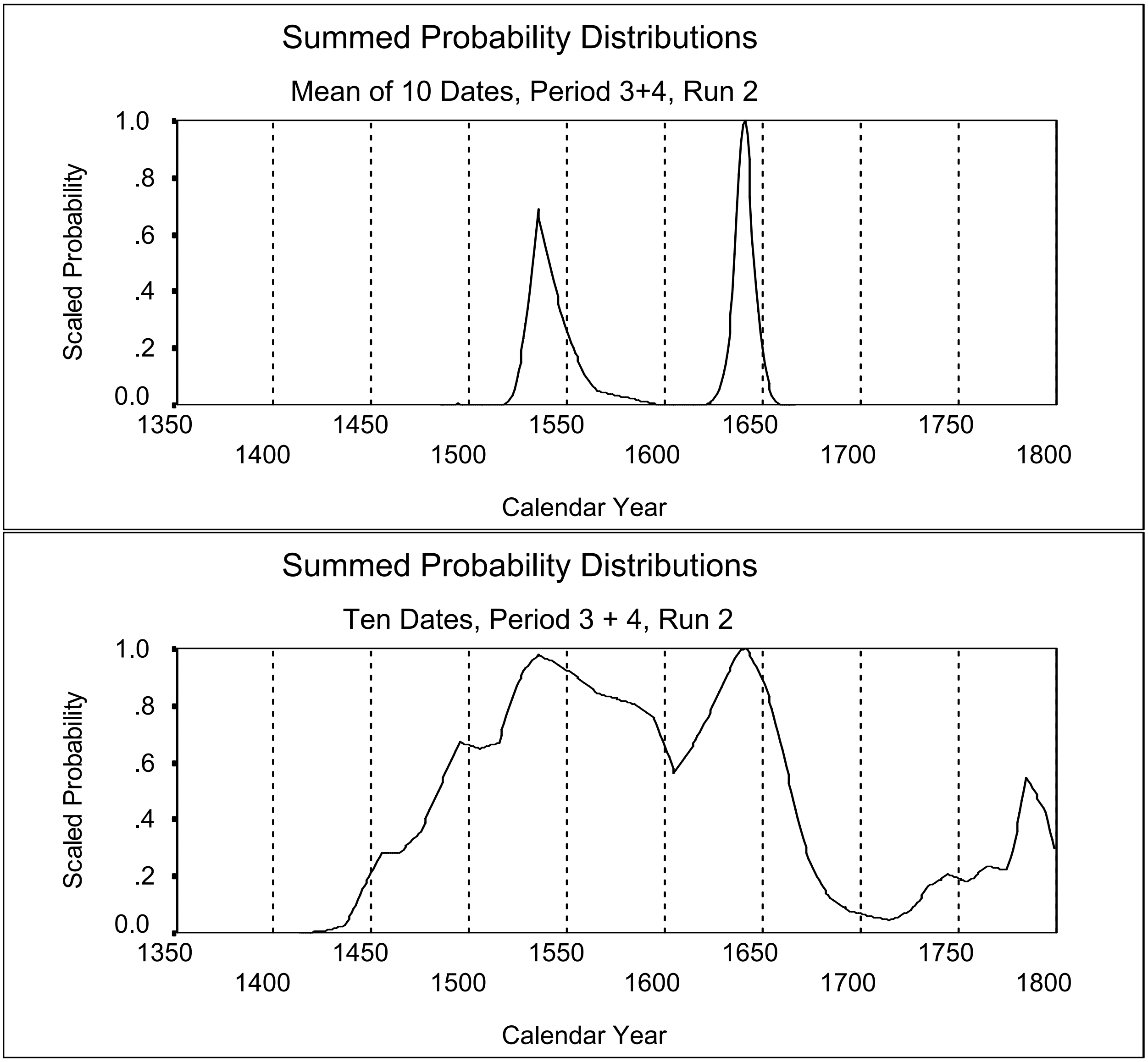

Figure 5.3. Summed probability distribution for the mean of 10 Period 3 and Period 4, run 2, dates (top) and for all 10 dates combined (bottom), Scattered Village (32MO31), 1998 excavations.

Because archaeological evidence suggests that Period 3 and Period 4 contexts may have several decades of time duration, it may be more realistic to consider the ten individual dates as providing a better measure of the time duration of all contexts combined. Accordingly, the summed probability distribution for all 10 samples shown in Figure 5.3 (bottom) provides an alternate graphic expression of the calendar age of the several dated contexts. This graph suggests the highest likelihood of calendar age falling between AD 1500 and 1650. In reality, the duration of occupation represented by Period 3 and Period 4 is probably much less that this 150-year span. All of these contexts are precontact in age, and if our estimated date of first evidence of contact having occurred around AD 1600 is correct, then a calendar date range of ca. 1550-1600 probably captures Period 3/4 contexts reasonably well.

Calendar Ages for Time Periods

Preceding discussions involving radiocarbon dates, trade artifacts densities, and current understanding of regional chronology indicate (1) that Periods 3 and 4 cannot be chronologically differentiated from each other and date in the late AD 1500s (Figure 5.3), (2) that contact occurred around AD 1600 (the separation date between Periods 3/4 and Period 2), and (3) that the separation between Period 2 and Period 1 can be estimated at ca. AD 1660. In the spirit of not fooling ourselves with false precision, we can round this to the mid-century point. Additionally, the single Period 5 radiocarbon date is ca. 1430 BC. From this, we can summarize calendar age information specific to the excavated part of Scattered Village as follows:

Period 1.	Later Postcontact.	AD 1650-1700
Period 2.	Earliest Postcontact.	AD 1600-1650
Period 3.	Latest Precontact.	AD 1550-1600
Period 4.	Latest Precontact.	AD 1550-1600
Period 5.	Middle to Late Plains Archaic.	2000 BC – AD ??
Period 0.	Mixed or undifferentiated Plains Village.	

In studies that follow in later chapters, we will continue to explore variation in content between Period 3 and Period 4 contexts. For study of change through time, it will be acceptable to collapse the content of Period 3 and Period 4 if useful for purposes of increasing sample size.

Individual site chronologies have been worked out using information from radiocarbon dating and trade artifact densities for a small number of villages in the Knife and Heart Regions. Table 5.28 summarizes trade artifact density data and time period / calendar age designations for other village sites. We draw comparative information from Ahler and Drybred (1993:Tables 21.2, 21.8) and Ahler (1997:83-97). Trade artifact density data are combined densities of metal artifacts plus glass trade beads. Density values for Scattered Village are based on a total of 48 metal occurrences and 14 glass beads from Period 2 contexts having a total excavated volume of 18.830 m^3, and a total of 179 metal occurrences and 39 glass beads from Period 1 contexts having a total excavated volume of 9.625 m^3 (data summed over all priority 1 excavated contexts, regardless of individual context volume). Data in Table 5.28 illustrate approximate correlation of time units defined for several sites that have been studied in recent years. The dashed line in the table separates components having trade density values >~25.0 (above the maximum at Scattered Village) from those with values <~25.0. This indicates a fairly accurate temporal correlation between units at Scattered Village, Slant Village, and Big Hidatsa Village, with a bit of a disjuncture in chronology based on trade density data for Lower Hidatsa Village. Data in Table 5.27 will be used to guide comparisons among time-based analytic units at various sites. For example, the record at Scattered Village is broadly comparable to the earlier two-thirds of the record at Slant Village and can be broken down more finely than can Slant Village. The record at Scattered Village is temporally comparable to the earliest three components at Lower Hidatsa, and the two latest time units at Scattered Village equate chronologically with the earliest two components at Big Hidatsa Village.

Table 5.28. Trade artifact density data (metal and beads per cubic meter) according to defined time periods within several village sites in the Knife and Heart regions.

Scattered Village		Slant Village		Lower Hidatsa Village		Big Hidatsa Village	
Period	Density	Period	Density	Period	Density	Period	Density
		1. 1725-1785	**72.7**	72. 1740–1785	**26.8**	72. 1745–1790	**93.3**
				71. 1700-1740	**11.1**	71. 1700-1745	**37.5**
1. 1650-1700	**22.6**	2. 1625-1725	**10.3**	62. 1650-1700	**4.5**	62. 1650-1700	**15.7**
2. 1600-1650	**3.3**			61. 1600-1650	**1.6**	61. 1600-1650	**1.8**
3/4. 1550-1600	**0.0**	3. 1575-1625	**0.0**	50. 1525-1600	**0.0**		

Site Area

It is conceivably useful to control broad spatial context in comparative study of the archaeological remains in order to examine intra-village variation in data sets such as ceramic form, lithic raw materials, etc. Such variables may be subject to influence according to family unit, household, or perhaps some other spatially reflected social subset of the community. Horizontal location of actual sampled contexts was in large measure dictated by the happenstance of site preservation and the linear spatial framework imposed on the project by the street right-of-way. Thus, our excavated materials do not necessarily allow systematic study of variation from household to household, nor between village margin and interior, nor south, east or west portion of the whole community. For the most part, our samples come from what appears to have been the southern margin of the village during most of its period of use. Most precise spatial control is best exercised simply in the Block designations, which for Blocks 1-8 reflect small locales where deposits were opportunistically preserved.

Nonetheless, we do have samples from a linear transect that, moving from east to west, extends from near the apparent village margin slightly into its interior and then to the village margin again on the west while progressing from 10th Ave NE to 8th Ave NE. In addition, north-south variation to some degree reflects proximity to the southern margin of the village. We decided that, for simplicity, a practical spatial division of the excavated samples could be obtained by reference simply to the north and south sides of the two city blocks from which the samples derive. This spatial division, designated as Areas 1 through 4, is expressed in greater detail in Table 5.29.

Depositional Context

It is important in the analytic and intra-village comparative process to maintain control over the depositional context of the sample. By this, we mean providing some measure of control regarding (1) degree of apparent containment for the sample under study (for example, materials found with a spatially confined context such as a subsurface pit versus artifacts found in an open area), (2) containment type (e.g., in an undercut pit, hearth basin, or other pit), (3) degree of intentionality in dumping (e.g., transported and intentionally created secondary refuse deposits, versus refuse that accumulated in place), and (4) relationship to lodge structures (e.g., in lodge roof material; on or beneath an existing lodge floor, or outside any known lodge). To provide such control, we have developed the classification of depositional context types as shown in Table 5.30, and also a distinction between inside, outside, or uncertain relationship to identified earthlodge structures, which we apply to all excavated, studied samples. We can elaborate briefly on the meaning of various context types.

Table 5.29. Site area designations for excavated samples from Scattered Village (32MO31), 1998 investigations.

Spatial Area	City Blocks	Excavation Blocks	Comment
Area 1	North 9th to 10th Ave NE (N910)	1, 2, most features in 9	village interior closer to its center
Area 2	South 9th to 10th Ave NE (S910)	3	village interior closer to its southern margin
Area 3	North 8th to 9th Ave NE (N89)	6, 8, a few features in 9	village interior near the SW village margin
Area 4	South 8th to 9th Ave NE (S89)	4, 5, 7	village margin on the southwestern side

Several different kinds of pit features or other contained contexts are distinguished from one another. A *cache pit* is any pit feature with a depth approximately as great as its general diameter and with slightly or sharply undercut side walls. Cache pits are typically constructed as storage facilities for usable tools, raw materials, and particularly, food-stuffs. Nearly all cache pits we encountered have been abandoned as storage facilities and reused as loci for intentional trash disposal. Such pits usually have internally layered and structured, artifact rich fill, indicating that they were filled through several episodes of trash-dumping with debris brought from some other location. Thus, most cache pits are receptacles for secondary, or transported refuse.

Several cache pits contained human burials within them or near their base. We believe it is probable that such cache pits used opportunistically for a human burial would have been filled quite rapidly with sediment intended to cover and seal over the corpse. Thus, the fill in a cache pit containing a human burial probably does not represent so much secondary refuse deposit as it reflects an earthmoving event involving whatever fill was available in the nearby area. Such fill may contain recently accumulated trash, and it might also reflect a greater mix of sediment from preexisting deposits in the vicinity. For these reasons, we expect the fill of *cache pits without human burials* to be different from the fill of *cache pits containing human burials* from a behavioral perspective, and we expect the artifact content in these fills to be contrastive. For this reason, we distinguish these as to discrete context types (Table 5.30).

In our context type codes, we make no distinction regarding the size of the cache pit, and indeed a wide range of pit volume is represented. Numerous cache pits are found inside house perimeters, outside of apparent houses, and in locations where the relationship to possible house remains is unclear (e.g., many of the salvaged features) (Table 5.30). Cache pits containing human burials are found in outside house contexts and in contexts where house association is unclear (Table 5.30).

Table 5.30. Identification of context types applied to analyzed samples for Scattered Village (32MO31), 1998 investigations. Listed applications are restricted to contexts designated as Priority 1 and included in artifact studies, listed in Table 5.15.

Context Type	Code	Discussion	In- or Out-side House	Applications
Contained				
Cache Pit	01	any undercut pit w/o burial	in	F26,101,104,106,111,127,140,142,155,163
			out	F4,14,30,57,67,68,97,99,115, 178,
			?	F47,73,132,133,168,175
Cache Pit / Burial	02	any undercut pit with burial	out	F119
			?	F8,9,55,120,124,130,173
Human Burial Pit	03	cylindrical pit with burial	out	F108, F122
Central Hearth	04	large ashy, burned basin	in	F7,17
Other Hearth	05	small burned area or basin	in	F146,147
			out	F12,60,65,125,170,171,181,182
Other Pit	06	any other pit form	in	F144,174,176
			out	F126
Postmold	07	post mold of any size	in	F11,15,19,25,28,29,98,107,116,117,131,149,150,161,162
Artifact Cluster	08	grouped, isolated artifacts	out	F121
Uncontained:				
House Roof Fall	10	burned roof fall horizon	out	all roof fall GLs in Block 6 and Block 8; F134,135,136
House Floor	11	floor use and trample zone; zone beneath burned roof fall	in	western GLs in Block 3; all floor zone GLs in Block 6 and Block 8; F27,143; uppermost F127
Midden Dump	12	layered or structured artifact and debris-rich midden	out	all GLs in Block 1; Period 1 GLs in Block 2; Period 2 GLs in Block 5; subfloor and east Period 4 GLs in Block 6; Period 1 GL in Block 6; F6,46,52,56,58,66,105,169
Sheet Midden	13	unstructured or bedded alluvial accretion deposit	out	all Period 2 GLs in Block 2; Period 5 GLs in Block 1 and Block 2; all GLs in Block 4; Period 4 GLs in Block 5; north and west Period 4 GLs in Block 6
Basin Fill	14	clay-rich accretional unit	out	all GLs in Block 7
Massive In-Fill	15	unstructured fluffy sediment	out	all fluffy GLs in Block 3

Two *pits containing single or multiple human burials* (F108 in Block 3 and F122 in Block 7) are not noticeably undercut in form but rather are best described as cylindrical in shape. Based on their form and a relative scarcity of artifacts in the fill, these are thought to be pits intentionally constructed for the purpose of human burial. Thus, these are not recycled cache or storage pits, but are interment chambers. These two features are distinguished as a separate context type (Table 5.30), and both apparently occur in outside house locations.

Two general kinds of hearth features were encountered. One is the *central hearth* within a house structure that is distinctive for its large size (greater than a meter in diameter) and structure consisting of dense ash fill overlying a heavily burned basin-shaped floor. *Other hearths* are grouped in a second class (Table 5.30). These have in common generally smaller size, with proportionately lesser amounts of ash and a less heavily burned floor in the hearth. These hearths occur primarily in outside house context, but two such features were encountered in the floor of the burned lodge in Block 8.

Some *other pits* occur in the excavated sample, so few in number that they are lumped together into a single context type. F144 is a basin shaped feature in the house floor in Block 6; F174 and F176 are both small salvaged features, one being cylindrical and the other basin in form.

All *postmolds* are lumped together in a single context type. Nearly all of the postmolds listed in Table 5.30 are either within the house in Block 3 or the house in Block 6 and were included in the study sample because of their relatively large size and apparent function as lodge support members. Many other postmolds were encountered during excavation in outside house contexts, particularly in Block 2 and Block 4, but were not included in the artifact analysis because of their very sparse artifact content.

The *artifact cluster,* not an obvious part of some other, larger-scale depositional context, comprises one additional, contained context type. Only one such cluster occurs, this being a concentration of bivalve shells (F121) in Block 3. This cluster of specimens was "suspended" in the fluffy sediment unit in that block, it presumably being a group of shells placed in a small pit beneath the ground or perhaps a batch of shells once contained in a bag that has since disintegrated.

This concludes the context types that may be considered contained, or physically constrained, within the boundaries of a pit or similar facility. Several uncontained context types are identified, with distinctions among them based largely on relationship to defined earthlodge structures or the degree of intentionality we infer regarding accumulation of artifacts in those locations.

A *house roof fall* zone was identified during excavation in Block 6 and Block 8, consisting generally of a massive sediment layer heavily charged with lumps of burned earth and charred twigs, branches, and larger wood pieces. This context type is thought to represent earth that was heaped in a layer on the roof of a lodge structure, and which subsequently was partially burned and tumbled onto the floor of the house when the structure burned. Artifacts incorporated into this roof fall zone can be expected to include those fortuitously incorporated into the earth fill used to cover the roof of the house, artifacts used and left lying on the roof of the house when it burned, and possibly, artifacts stored above the house floor and in the superstructure at the time the house burned. Artifacts stored in the superstructure can be expected to be burned as the house burned; most artifacts incorporated into the roof fill and on the house roof at the time of burning will not exhibit effects of burning due to earth insulation. Most excavation contexts assigned to this type (Table 5.30) include general and natural level samples defined in the field as roof fall material; a few artifact concentrations in the Block 6 house are also thought to be belong to the roof fall horizon, being specimens in or on the roof of the house.

The *house floor* zone consists of sediments lying immediately underneath the roof fall layer in Block 6 and Block 8, or sediment interpreted to be at the elevation of the house floor (at the top of the pre-Village A horizon) in the earliest structure in Block 3. This context presumably contains artifacts trampled into the house floor while it was occupied, and also a few specimens that were cached in the floor or in use on the floor such as the stone tool cache (F27) in Block 3 and the cluster of broken pots (uppermost F127) in Block 8.

Several outside-house, artifact bearing deposits are broken into separate context types based on the mechanisms apparent in their accumulation. *Midden dump* contexts consist of structured and internally stratified accumulations of artifact and debris-rich sediment. These are thought to represent intentional and focused trash disposal locations, where refuse was carried and dumped in discrete loads on the existing ground surface. Repeated dumping actions often resulted in a midden heap or pile, although such heaps were largely undetectable at the existing surface of the site due to surface leveling during historic development. Midden dumps are therefore deposits of secondary refuse. Based on field evidence, we identify such deposits principally in Block 1 (including several features in that block that consist of discrete layers of refuse) and in the upper two-thirds of sediments in Block 5. Small remnants of such deposits were encountered in Block 6 directly east of the burned lodge and directly beneath the house floor zone, and in a near-surface context in Block 2.

We identify a different context type that we call *sheet midden*, this consisting of a layer of sediment of varying thickness, containing artifacts, but lacking evidence of having accumulated through discrete refuse dumping episodes. These deposits probably reflect in part primary refuse, or waste materials left lying where used on the ground surface and eventually covered over by natural or culturally induced accretional processes. Such a deposit is most evident in Block 2 and Block 4 where the cultural layer consists almost entirely of rapidly accumulated colluvial fan or local slope-wash sediments with a sparse artifact content but high feature content consisting of numerous postmolds. We also include in this context type all excavated previllage age sediments (Blocks 1 and 2), the lowermost artifact-bearing horizon in Block 5, and Period 4 samples from north and west of the house in Block 6.

We thought it might be interesting to distinguish *basin fill* as a distinct context type, this consisting of the clayey, alluvial sediment that accumulated in low-lying areas within Block 7. We envision this as a large basin probably created by borrowing activities, lying at the village margin, and subsequently filled in by flooding and occasional trash disposal. Deposits here appear to be rich in large bone remains but do not have the structured, and debris-rich character of midden dumps. It may prove useful to isolate this context because of its spatial position on the very village margin, apparently lying beyond the midden dump encountered in Block 5

One last uncontained context type consists of *massive in-fill*, which is the processually descriptive term we use for the "fluffy" sediment unit encountered in Block 3. This is a soft, spongy, apparently organic-rich but otherwise featureless and structureless sediment package that uniformly filled an expansive erosional feature in Block 3 that had previously eroded away part of the earthlodge and sub-lodge sediments in that area. This sediment unit contains apparently small-sized and uniformly dispersed artifacts, and no indication of alluvial action or dump-loading by human activity. Its origin remains a mystery, and as discussed above, it apparently contains a mixture of artifacts from all time periods at the site.

Summary of Analytic Unit Information

The majority of discussion in this chapter has been devoted to determination of relative and absolute chronology within the village-age deposits encountered during excavation. Studies of ceramic rim form demonstrate that the pottery aggregate from the site is relatively, but not completely, uniform, and that pottery variation in combination with stratigraphic information can be used to isolate at least one analytic subunit within the site (designated Period 4). Presence, absence, and relative densities of European-derived trade artifacts provide the most robust data set for further subdivision of the excavated deposits according to relative chronology. In keeping with several previous studies of regional trade artifact densities and radiocarbon-based chronologies, we will continue to use AD 1600 as the approximate temporal dividing line between contexts lacking trade artifacts (Periods 3 and 4) and those having trade materials in extremely low frequencies (Period 2). Radiocarbon analysis received substantial attention in the present study, with 31 dates having been produced. This extensive dating program yielded very little useful information about site chronology, however. This is due to two factors: (1) systematic dating error from an unknown laboratory source that affected at least 11 of the 21 dates processed in the first analytic run, and (2) the calendar age of the village occupation that overlaps the period beginning around AD 1650 after which radiocarbon dating ceases to be useful for developing accurate chronological information.

Based on all of the discussion in this chapter, four cross-cutting variables have been identified that, together, comprise the analytic unit structure for the site:

Time Period

Period 1. Later Postcontact.
Period 2. Early Postcontact.
Period 3. Late Precontact.
Period 4. Late Precontact (with atypical pottery)
Period 5. Pre-Village.

Site Area

Area 1. North 9^{th}-10^{th}.
Area 2. South 9^{th}-10^{th}.
Area 3. North 8^{th}-9^{th}.
Area 4. South 8^{th}-9^{th}.

Context Type

14 Combinations of Feature Type and
Contained vs. Uncontained contexts (Table 5.30)

Inside vs. Outside House (Table 5.30)

Code values assigned to each of these variables in the site provenience database are summarized in Table 26 in Chapter 4. Various analysts working with different data sets will emphasize comparisons to varying degrees in accordance with certain of these analytic structures (see discussion of the project research design in Chapter 3). Comparisons across time period will probably receive the greatest amount of attention by all analysts regardless of data set or subject matter. Control by time period will allow detailed comparisons among data sets from other village sites where comparable temporal precision has been discerned (Table 5.28). Given that the time depth within village components at Scattered Village is probably no greater than 150 years, in many situations it will prove useful to combine site data across time periods for comparison between Scattered Village as a whole and other village samples.