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### 3. RESEARCH DESIGN

Stanley A. Ahler

The Data Recovery Plan for the project (Appendix A) discusses several particular problems to be addressed in the work at Scattered Village. The identified topics remain valid research goals, and our task is primarily to develop and execute means for addressing these questions:

1. Determine if the site impacted on First St NE is in fact Scattered Village (32MO31) as referenced in extant site files and literature.
2. Determine the period of occupation of the site.
3. Determine the cultural affiliation of the group or groups that occupied the site (given the possibility that both Mandans and Hidatsas may have lived at the site).

The Data Recovery Plan (Appendix A) goes on to specify a wide range of tasks to be conducted including feature excavation, block excavation, fine-screen and flotation recovery, and a rigorous program of detailed analysis of artifact collections. One broad and overriding goal of this program is to develop a comprehensive and detailed data base for the site that is comparable to other data sets generated in recent years for other excavated Plains Village samples from this and adjacent regions in the Missouri Valley. Therefore, we can add two additional research goals to the list above:

4. Develop appropriate databases and conduct studies of intra-site variation by time period and depositional context within excavated parts of the site.
5. Conduct inter-site comparative studies using appropriately collected samples from possible Mandan and Hidatsa villages in the Knife, Heart, and Cannonball regions.

We can address each of these research topics in greater detail.

#### **Is This “Scattered Village”?**

This question has been answered in the affirmative through the comparison of pottery collections housed at the State Historical Society of North Dakota under the designation “32MO31”, assigned to Will and Hecker’s “Scattered Village”, and pottery collections from the current excavations. Pottery samples in one accession lot in the SHSND collection are extremely comparable to pottery samples we have recovered, and each sample is internally distinct to the degree that there is little doubt that the two batches of pottery derive from the same location (see Chapter 1, herein). Although the legal designation for our excavation and project area (NE ¼ SE ¼, Sec. 26, Twp. 139, R. 81) differs from that published by Will and Hecker (1944:101) for Scattered Village (SE ¼, Sec. 27, Twp. 139, R. 81), their legal descriptions for confirmed sites have frequently been found in error. This discrepancy is therefore not cause to consider the First St NE site not to be Scattered Village. We can add that another accession lot among the old collections for site 32MO31 at the SHSND contains a ceramic assemblage unlike anything we encountered in our excavations. The best explanation for this is that this SHSND pottery sample

derives from a component spatially distinct from where we excavated. This is consistent with Will and Hecker's (1944:101-102) suggestion that Scattered Village may consist of more than one site in an area greater than perhaps 30 acres. This subsample at the SHSND also conforms to Will and Hecker's assertion that the site has an Archaic Mandan component, a component that we cannot confirm within our excavated sample.

The location we have excavated also conforms generally to the location of a village in the "east end of the City of Mandan" referenced in several Mandan and Hidatsa oral traditions. Therefore, it is reasonable to proceed with other aspects of the study using the assumption that the location we excavated comprises at least part of one extensive site or several sites collectively designated as Scattered Village, and that this location has potential linkages to traditions of both Mandan and Hidatsa residence in the vicinity during late prehistoric and/or early historic times.

### **Age of Scattered Village**

An accurate determination of the age of excavated components at Scattered Village is fundamentally important to pursuit of all other research questions. Oral traditions and historical data may give us a beginning answer to this question (see discussion in Chapter 1). Based on his interpretation of Awatixa migration traditions, and working in an era preceding development of radiocarbon dating, Bowers (1949:110, Figure 22) estimated that this subgroup of Hidatsas resided at Scattered Village in the interval of perhaps AD 1550-1600, thereafter moving to northward to the mouth of the Knife. Bowers (1949:110: Figure 22) placed the Awaxawi Hidatsa subgroup migration from the east as having occurred immediately after AD 1600, with the Hidatsa-proper subgroup migration occurring later than this. If traditions linking one or both of these subgroups to the site are accurate, then occupation in the AD 1600s and perhaps early AD 1700s is inferred. Mandan traditions are vague about the temporal linkage to the site, but local folklore (Fristad 1970) suggests a link between Mandan present at the site and the Verendrye expedition of AD 1738-1739. Thus, Mandan occupation in the AD 1700s postdating early Hidatsa occupation seems a possibility to be explored. Finally, we can note that Lewis and Clark failed to note a visible abandoned village at the spot we are investigating as Scattered Village (Moulton 1983:Map 28; Figure 4, Chapter 1), although they did accurately locate several other traditional Mandan villages such as On-A-Slant that were probably abandoned ca. AD 1785. This strongly suggests that Mandan or Hidatsa occupation at the Scattered Village location had ceased by the mid AD 1700s, and perhaps substantially earlier. Thus, traditional and historic information suggests occupation beginning at least as early as the AD 1500s and extending perhaps into the AD 1700s.

We explore the question of site age and chronology in much greater detail in Chapter 5. Three data sources are used extensively to secure an accurate age determination for samples from Scattered Village. Trade artifacts were noted in small numbers during excavation and have been sorted from some contexts during lab work. Under the assumption that the overall frequency of trade artifacts increased through time in regional village sites, we use the *densities of trade artifacts* as a measure of relative chronology. This assumption has been supported in study of several sites and components at the Knife River Villages that can be bracketed in time by radiocarbon dating and historic documentation and can in some cases be temporally ordered by

physical superposition (Ahler and Haas 1993; Ahler and Drybred 1993). At Knife River, it was concluded that earliest evidence for indirect Euroamerican contact in the form of trade artifacts occurred around AD 1600 (Ahler and Drybred 1993:290). Several components at Knife River can be dated accurately from historic records, as can the end-point of occupation at On-A-Slant Village (Ahler 1997:17), not distant from Scattered Village. We will therefore use this beginning date for contact (AD 1600) in combination with comparative study of trade artifact densities at several sites to provide reasonably precise calendar age estimates for post-contact components at Scattered Village (see Chapter 5).

Several contexts at Scattered Village with substantial excavated volumes lack evidence of trade artifacts, and on this basis, are thought to pre-date AD 1600. For these contexts we will use *radiocarbon dating* as a primary chronometric tool. We also apply radiocarbon dating to some contexts having trade artifact associations, as a means for assessing the temporal integrity of such deposits, but we focus  $^{14}\text{C}$  analysis on apparent pre-contact contexts where calibrated results are more readily interpretable. In addition, we make use of AMS dating of smaller but most suitable samples, typically short-lived specimens such as cultigens, having firm cultural association and freedom from “old wood” effects. Finally, we bring into play physical stratigraphy in developing the age structure for the site. Several excavated areas contain stratified deposits (most notably in Block 1, but elsewhere, as well), and we make maximum use of physical stratigraphy and superpositioning to both check as well as add precision to calendar age assessments derived from trade artifact densities and radiometric analysis.

In the Knife River Village study, it was demonstrated that many pottery attributes, ranging from surface treatment to body sherd thickness, decorative technique, and rim form, demonstrate strong chronological trends (Ahler and Swenson 1993). In an appropriate regional context, study of these attributes could in fact be used as a dating tool. Such is possibly the case, also, for earlier components (Extended Middle Missouri variant, in particular) in the Cannonball region to the south (cf. Lehmer 1966:62, Thiessen 1995:168-169). In the present study, we will not attempt to use pottery data directly as a dating tool. One overriding reason for this is because the temporal trends in ceramic attributes demonstrated for the Knife region have not yet been demonstrated to exist in the Heart region, and we do not think it is wise to transfer without question ceramic trends developed from other regions. A second reason is that study of Mandan versus Hidatsa presence at Scattered Village is a primary research question, and one that must depend for its solution in large measure on study of ceramic data. That is, much of the variation within ceramics in the present study sample from Scattered Village may be attributable to social or ethnic affinity rather than temporal variation, and we are not willing to assume at this point that one source of variation is dominant over the other. Incorrectly assuming that most ceramic variation is a reflection of time rather than social group distinction can have major consequences for related interpretations of the archaeological record. A case in point is the markedly different interpretations from two different analyses of pottery and other data from the Medicine Crow site complex (Deetz 1965; Ahler and Toom, eds. 1995).

While we avoid direct use of ceramic data as a dating tool for the collection, we do in fact use such information (in combination with stratigraphy and context) to help identify discrete components within the excavated sample (Chapter 5). Once such components are isolated, we

then rely on independently developed data sets in the realm of radiocarbon and trade density analysis to establish the calendrical position of such samples.

### **Intra-Site Behavioral Variation**

After the establishment of a chronological structure for the site through the methods just discussed, one important aspect of intra-site analysis will be study of variation in data set content and implied behavioral patterns according to time unit. The depth to which this subject can be explored will depend in part on the extent of time depth in the site.

Excavation results discussed in detail in Chapter 2 make it clear that widely varying depositional and activity contexts have been sampled at the site. One aspect of this variation has to do with intentional trash disposal (secondary refuse, either in pits or in open dumps) versus inadvertent refuse accumulations (sheet middens and similar slowly accumulating deposits) versus artifacts abandoned in storage or use context (*de facto* refuse from specific behavioral events, artifacts catastrophically abandoned within houses, and abandoned stored items) (see Schiffer 1987). Several different kinds of features were encountered during excavation, and these provide an organizational structure for exploration of this kind of intra-site variation. For example, the fill of hearth features might generally be considered primary refuse linked to specific activities occurring in close proximity to the hearth, while the fill of storage pits is generally a secondary refuse accumulation conceivably linked to both broad and narrow ranges of activities occurring elsewhere in the village. Pits containing human burials comprise a special category of depositional context that may have been treated differently than other pits by site inhabitants. Another dimension of intrasite variation that conceivably was correlated to some degree with human behavior was simply the spatial dichotomy between inside versus outside of dwellings (intramural versus extramural).

The cross-cutting array of temporal and depositional contexts in existence at the site is discussed in greater detail in Chapter 5 that deals with the concept of analytic unit structure. Variables for the specific artifact and material sets that should be explored for intrasite variation include such things as:

- a) artifact size and degree of fragmentation (a measure of degree of processing and the past history of an artifact class) (relevant for bone debris, pottery remains, FCR, and a few other classes in which there is a correlation between artifact size and intensity and type of processing);
- b) relative frequency or abundance of burning (a measure of processing and artifact history) (evident especially in vertebrate remains, shell, and chipped stone remains);
- c) use-phase classification (a direct measure of the contrast between manufacturing processes and artifact use processes) (especially in stone tools, modified bone and antler, and modified shell remains);
- d) technological classification (a direct measure of selection among alternate methods for alteration and fabrication of raw materials; can reflect continuity or discontinuity in learning traditions) (especially for modified bone and antler, chipped stone flaking debris, and stone tools; also for pottery);

- e) functional classification (a direct measure of specific activities linked to a broad array of subsistence and maintenance activities pursued by site inhabitants) (especially for stone tools and modified bone and antler specimens);
- f) raw material variation (correlated closely with technological variation and a measure of the extent and direction of territorial contacts outside the site proper; also possibly a means for cross-linking spatially separated contexts through matching of raw material types) (especially for chipped stone debris and stone tools);
- g) taxonomic makeup of biotic and subsistence remains (a direct measure of subsistence preferences; a means for studying differential use of taxa condition by space within the site) (vertebrate and invertebrate remains, botanical remains)
- h) fragmentation patterns within specific artifact classes (a measure of degree of selection and transport of elements or units [material types]) (especially vertebrate remains and stone flaking debris);
- i) relative abundance or correlations in abundance of several artifact classes (some such as ash reflecting specific behaviors such hearth-linked activities; co-occurring artifact classes reflecting materials used together in extraction events) (basic artifact classes such as FCR, pottery, flaking debris, ash, burned earth, fired clay, etc.);
- j) stylistic variation (an imbedded expression of the social context of manufacturing events when functional, technological, and raw material variation is held constant; the strength of association among stylistic attributes across many examples with a specific artifact type can also measure cultural stability and cohesiveness of the social community) (especially in pottery and certain patterned stone tools).

This listing reflects many but not all the kinds of intrasite studies that will be of relevance for various artifact sets. Additional studies along these same lines will be pursued during analysis of certain artifact classes.

### **Inter-Site Variation and Cultural (Ethnic) Group Identification**

The topic of cultural or ethnic group identification for Scattered Village is a complex one, and one that cannot readily be addressed without comparative study of data sets from other sites. In fact, this topic gives some very specific focus for intra-site comparisons, beyond mere listing of parallel data for the sole purpose of noting similarities and contrasts. Because both Mandan and Hidatsa traditions (see Chapter 1) claim direct associations with a village at the approximate location of the study area, our comparative analysis must focus on available data sets that can be assigned with some assurance to either of these cultural groups.

The Heart region, extending from about Square Buttes southward along the Missouri valley to just below the mouth of the Heart River, is the traditional homeland of the Mandans and the appropriate source for comparative data sets in the domain of Mandan archaeology. There has been extremely little prior archaeological work conducted in the Heart Region using methods comparable to those at Scattered Village. One notable exception is the 1980 test excavation work at On-A-Slant Village recently reported in Ahler, ed. (1997). This is an important comparative example, constituting a collection from an indisputable traditional Mandan village that was probably occupied at the same time as was Scattered Village. Data sets from On-A-Slant have been organized into three time periods, with estimated dates (without aid of <sup>14</sup>C dates

analysis) of AD 1575-1625; AD 1625-1725, and AD 1725-1785. Other important comparative samples exist from salvage excavations at sites along the Highway 1806 By-Pass Project, particularly from site 32MO291 dated by <sup>14</sup>C to the interval AD 1415-1460 (Ahler, Graham, and Metcalf 2000). A small sample of recently collected material from Huff Village (32MO11) (Ahler and Kvamme 2000) is available and is dated by <sup>14</sup>C to AD 1443-1465. Most scholars would agree that Huff Village lies squarely at the center of the archaeological tradition leading to historic Mandan culture, although it may predate the occupation at Scattered Village.

Comparative information from traditional Hidatsa sites exists due to recent studies of small samples from several villages in the Knife region (upstream from Square Buttes), with this program linked to development of the Knife River Indian Villages National Historic Site near Stanton, North Dakota (Thiessen, ed. 1993:Vol. I,III,IV). Most significant are data sets from Big Hidatsa Village (32ME12), the traditional central settlement of the Hidatsa-proper subgroup in the period AD 1600-1845, and from Lower Hidatsa Village (32ME10), the traditional primary village of the Awatixa subgroup during the period AD 1525-1785. For these two sites we have available substantial data sets for ceramics, stone artifacts, and trade artifacts. More limited data sets, confined largely to ceramics and patterned stone tools, exist for other traditional Hidatsa sites such as Molander Village (32OL7) and Amahami (32ME8), both considered to be Awaxawi settlements dating in the AD 1700s and early AD 1800s, respectively. Several other sites treated in the Knife River program have less specific Mandan and/or Hidatsa traditional associations and also contain limited data sets of potential value for comparative study; these include Hensler (32OL18), Mahhaha (32OL22), Alderin Creek (32ME4), and White Buffalo Robe (32ME7).

The traditional information reviewed in some detail in Chapter 1 clearly indicates that both Mandans and Hidatsas express traditional linkages to a village in the approximate location we are studying on First St NE in Mandan. Traditional as well as prior archaeological information variously suggest: (a) Mandan occupation followed by Hidatsa-proper and/or Awaxawi Hidatsa subgroup occupations (Will and Hecker 1944); (b) Awatixa Hidatsa subgroup occupation followed by Mandan occupation (Bowers 1949); and/or (c) predominantly Hidatsa-proper and Awatixa subgroup occupation (Wilson 1909,1910,1913). Rather than use the specifics of each of these bits of traditional information to develop an elaborate series of alternate hypotheses about the possible permutations of ethnic group occupations at Scattered Village, and then try to test these through a deductive approach, we choose to diminish the emphasis on traditional data for formation of specific hypotheses (see Mason 2000) but still use the general content of these traditions as a guide for overall research in this program. In Chapter 5 we use various sources of information, not directly based in ethnic association, to divide the site collections into four discrete temporal units. Our analytic goals in the domain of ethnic association will therefore be (1) to individually compare the content of each temporal unit to one another to elucidate possible disjunctures in content that may be indicative of changes in ethnic association during the history of site occupation, and (2) to compare the content of each of these time units to the respective, firmly associated Mandan and Hidatsa subgroup archaeological data sets identified in the above paragraphs in order to assess the strength of a specific ethnic association for Scattered Village at any single point in time. Through this process, decidedly inductive in nature, we expect to develop a reasonable and supportable model of ethnic association(s) for the site and changes in such association(s) through time.