Amateur and Professional
the 1997 Excavation of the M

Richard E. Martens

Foreword: This article is dedicated to Dr. Juliet (Julie) Morrow and Toby Morrow in recognition of their initiation and success in excavating the Martens Site using volunteers exclusively. Without their dogged determination and commitment to this effort, the information from this large Clovis upland habitation site would have been lost.

Introduction

Ten years ago, professionally led amateurs excavated one of the most important Clovis habitation sites in the Midwest. It has been estimated that this activity saved 80-90% of the available Clovis information. More than 38 Clovis tools and thousands of pieces of chert debitage were recovered as a result of the excavations. The spatial data and refit studies allowed for the definition of this Clovis habitation site. Unfortunately, this site has since been destroyed. The author presented a paper on this effort at the September, 2006, Missouri Archaeological Society (MAS) symposium "Saving the Past for the Future: Archaeology and Preservation in Missouri." This article was written to document the material presented at the symposium and to celebrate the 10th anniversary of the contributions of these amateurs and professionals to Missouri archaeology. Additional objectives were to document the approaches used to acquire and maintain an enthusiastic amateur workforce and the general public's interest in viewing and participating in archaeological activities.

Background

The Martens site was located near the Missouri River bluffs in St. Louis County, Missouri. This ideal location provided the Clovis people ready access to both the Missouri river floodplain and the uplands. The site occurred on the southeastern shoulder of the highest hill for several

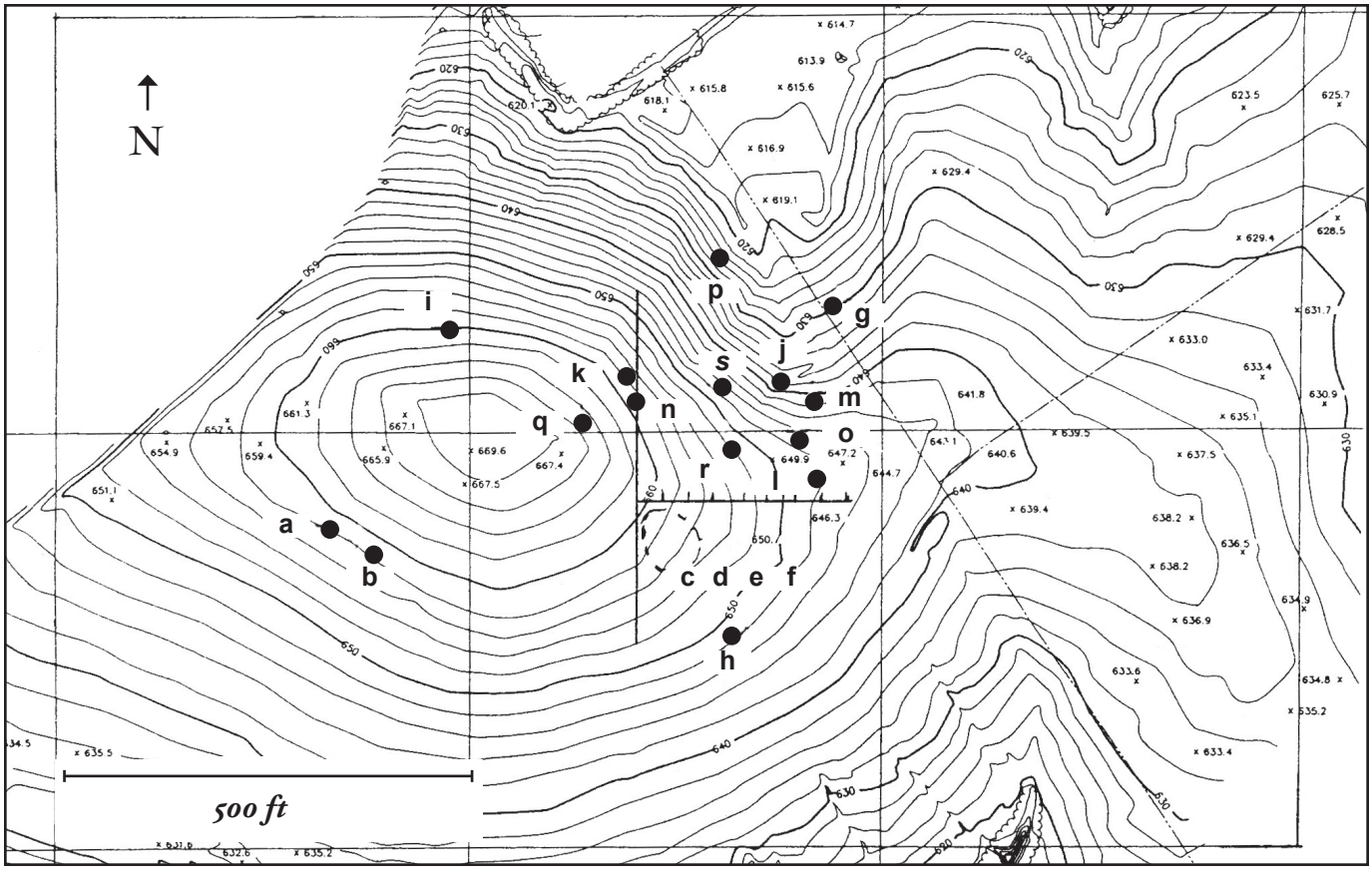

Figure 1. Topographic map indicating the surface find locations of 19 Clovis artifacts relative to the placement of the excavation grid.

Accomplishments During Martens Clovis Site (23SL222)

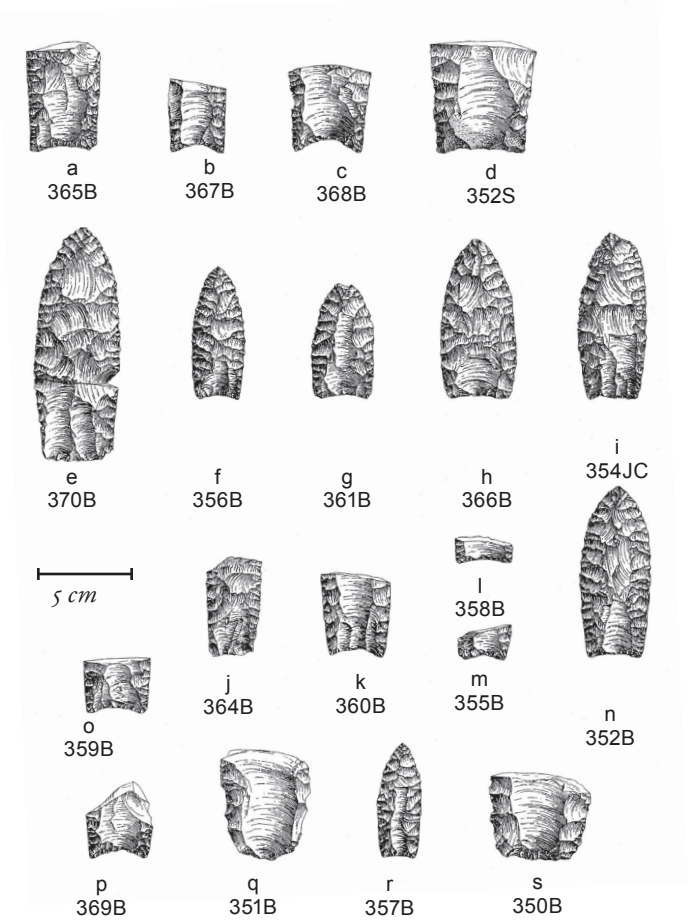

Figure 2. Clovis artifacts; find locations marked on Figure 1.

miles around, providing a dry, relatively warm area for a campsite. The hill blocked the line-of-sight to a water-filled sinkhole located 300 m upwind.

The author first found Clovis artifacts in this farm field in 1968 (Koldehoff et al. 1995; Martens 1976; Martens et al. 2004). The location of these artifacts was plotted on a topographic map. In 1995, the author was contacted by Julie Morrow who wanted to study the surface collection in preparation for her dissertation (Morrow 1996). Julie later initiated contact with the owners of the site property to obtain permission to excavate the site before it was destroyed by a planned housing development.

The developer, Nooning Tree Partnership, allowed Julie and Toby Morrow to conduct excavations and were supportive of the project. They kept two acres of the 80+ acre field out of crops and back-filled the excavations at the completion of the project. Mr. C. R. Aselage of the Partnership also provided a detailed topographic map of their property (Figure 1). The map's contour lines are at 2-ft intervals and the elevation at the top of the hill was 669.6 ft (204 m) above mean sea level. Property boundaries are represented by the clear portions of the map; the northwest boundary is the right-of-way of Olive Boulevard (State Road 340).

The locations of 19 Clovis tools found by the author between 1968 and 1978 are denoted by circles and letters (a-s). The Morrows used these locations, as well as the location of an artifact "hot spot" in the region between letters n and s (Figure 1) to determine the placement of the approximately 1-acre initial excavation grid. The 19 tools are illustrated in Figure 2. The identification numbers in this figure, e.g., a-365B, represent the map location (a), the artifact number (365), and the material type (B for Burlington, S for Salem, and JC for Jefferson City). These and other artifacts in Figure 2 are described fully in Martens et al. (2004). Three of these artifacts (Figure 2d, 2q, and 2s) are Stage 4 point preforms exhibiting failure during the fluting process. Two artifacts (Figure 2d and 2s) failed in end shock and the other (Figure 2q) exhibits an end overshot, also called a reverse-hinge fracture. One artifact (Figure 2h) is a Stage 5 point preform, which requires only edge retouch and haft grinding for completion. The other 15 tools represent completed Clovis points.

Excavation

Excavations began in mid-June when 20 1-x-1-m test units were laid out over the approximately 1-acre grid. The northwest portion of this grid yielded debitage and Clovis artifacts in and below the plowzone. Consequently, it was decided that the limited excavation resources should be concentrated in this promising area. All subsequent excavation efforts

Figure 3. Juliet Morrow shovel skimming Square 29 early in the excavation while Toby Morrow flags surface finds.

were expended on what became known as the Big Block (96 1-x-1-m squares) and the Small Block (12 1-x-1-m squares) (Morrow 1998b). The Big Block was located northeast of the axis intersection (Figure 1). The Small Block was northwest of the Big Block.

The plowzone, measuring approximately 15 cm in thickness, was removed with shovels and subsequent 5-cm levels below the plowzone were excavated by trowel. Every artifact, including debitage larger than 2 cm, was piece plotted. A surprisingly large amount of chipping debris covered the site surface and the locations of hundreds of these artifacts were flagged and recorded (Figure 3). Five 10-x-20-cm and one 50-x-50-cm stratified soil columns were also removed for future analysis. The analyses of these samples may provide additional information on the local environment, site integrity, and site function.

The age of volunteers ranged from two to 80 years. Families with children as young as five months joined in the effort (Figures 4-5). When there was room, two people worked in one square. All of the excavated soil was sifted through ¼-in hardware cloth to ensure the systematic collection of artifacts. The sifting was difficult work and wooden blocks were used to coax the hard clumps through the screens (Figure 6).

An average of 10 dedicated volunteers (and sometimes as many as 20) worked each day from 8:00 AM to 6:00 PM, or later. Typically, these were not the same people. Some volunteers started early and worked until 3:00 or 4:00 PM. Others would work for a couple of hours and still others would stop by after their jobs and work until 7:00. Toby was there from start to finish every day!

In just 31 days, 139 m^2 were excavated. This was an average of 4.5 1-x-1-m squares per day. A conservative estimate of the volume of dirt that was excavated and sifted is 55 m^3 (~2,000 ft^3). This weighs more than 90,718 kg (200,000 lbs). Over 70% of this volume of dirt was from the "Big Block," shown at the completion of the excavation in Figure 7.

Preliminary Results

This excavation allowed for the location of a relatively intact Clovis habitation area. Clovis tools and debitage were found below the plowzone in the "Big Block." More than 38 Clovis tools were recovered from the excavations. The numbers and types of artifacts are based on the identifications made in 1997. These descriptions may change slightly once analysis is complete and documented in the final report. Overall, the types of excavated tools largely mirrored the surface collection (Figures 8-9).

Nearly two-thirds of the excavated Clovis artifacts, including both fluted points (Figure 8b-c), were found in the Big Block. A Clovis point preform base (Figure 8a) is unique in that it retains the platform nipple prepared for subsequent fluting. No preforms exhibiting this step in the manufacturing process occur in the surface collection. The beak was a tool used to work on hard material, such

Table 1. Comparison of Clovis Tool Types From the Surface and Excavation Collections.

Artifact Type	Surface Collection (SC)	Excavation Collection (EC)	Difference= (SC)-(EC)
Point Preform	+15.2%	+18.4%	-3.2%
Fluted Point	+12.8%	+5.3%	+7.5%
End Scraper	+9.6%	+2.6%	+7.0%
Side Scraper	+9.6%	+10.5%	-0.9%
Limace	+1.6%	0.0%	+1.6%
Blade Core	+1.6%	0.0%	+1.6%
Blade	+20.8%	+23.7%	-2.9%
Crested Blade	+0.8%	+2.6%	-1.8%
Blade-like Flake & Worked Flake	+25.6%	+23.7%	+1.9%
Graver	0.0%	+5.3%	-5.3%
Beak Tip	0.0%	+7.9%	-7.9%
End Scraper Preform	+1.6%	0.0%	+1.6%
End Scraper (?)	+0.8%	0.0%	+0.8%
Total Number	125	38	

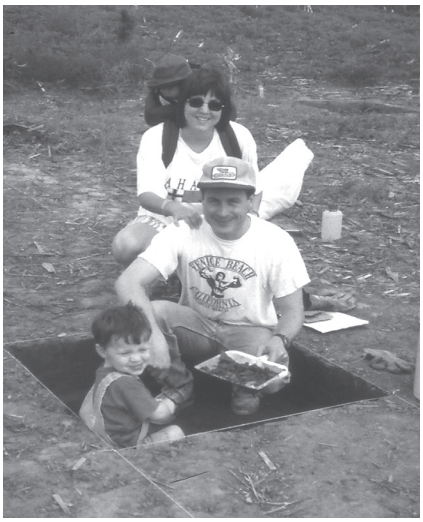

Figure 4. The Chisholm family. John, Stacey with Megan in a backpack-carrier, and Matthew. This picture was taken 12 days into the dig and shows the beginning of the Big Block.

as wood, bone, or ivory. It is apparent that the tip of this tool often broke during use (Figure 8e, upper and lower). They were most likely manufactured on the end of a specially prepared blade similar to the one represented in Figure 8f.

The blades illustrated in Figure 8i-l are of approximately the same length and are made of Burlington chert. Of particular interest is a blade tip excavated from the plowzone that refits with a broken blade collected from the surface (Figure 8l).

Two crested blades found at the site are also illustrated (Figure 8g-h). Crested blades are one of the first blades struck from a new or rejuvenated blade core. Only one end scraper was excavated, and it is quite similar to a surface find (Figure 8m-n, respectively). One of the two gravers excavated is shown here (Figure 8o); these tools were used for graving and perforating.

Side scrapers are illustrated in Figure 9. The term side scraper is considered a misnomer by some because the relatively shallow retouch angles are 10-20 degrees less steep than those on end scrapers. Dr. Stanley Ahler analyzed these scrapers and found that, due to the even fine retouch over the convex margins, they were precision cutting tools. They were probably used for butchering and meat cutting. Three of these tools occurred in the excavated collection and five occurred in the surface collection. Another excavated Clovis tool was classified as a side scraper but it was not used for precision cutting. This tool, which also had a counterpart in the surface collection, was apparently used to work a hard material such as wood.

The lithic materials in the excavated and surface collections are the same. High-quality Burlington chert was predominant and would have been available approximately 2 km from the site. The second most common material was Salem chert, available in ravines adjacent to the site. Salem chert was used predominately for fluted and unfluted bifaces.

Table 1 provides a percentage comparison of the tool types in the surface collection with those in the excavation collection. There are 125 Clovis tools in the surface collection and 38 in the excavation collection. Consequently, a variation of +/- 1 artifact represents +/- .8% and +/- 2.6% in the surface and excavation collections, respectively. When examining differences between the two collections, this variance becomes +/-3.4%. It was decided to use this variance to identify potentially significant differences between the two collections in Table 1.

The four artifact types that show the greatest differences are fluted point, end scraper, beak tip, and graver. A higher percentage of fluted points and end scrapers occur in the surface collection. The surface collection could represent habitation and work areas across the complete site, while most of the excavated material could represent a single habitation area. If so, it implies that more fluted point refurbishment and hide working (i.e., end scraper usage) areas are represented in the surface collection. However, a higher percentage of gravers and beak tips occur in the excavation collection. Excavation does, however, favor the recovery of very small artifacts, i.e., beak tips and flakes with small working surfaces like gravers.

Three types of artifacts were not represented in the excavated material and were rare in the surface collection—limace (a slug-shaped tool used as a chisel, awl, or shaver), blade core, and end scraper preform. All three would be expected to be found in their respective tool use or manufacturing areas. These artifact occurrence differences also support the theory that the surface collection is representative of a larger number of work places than the excavated material.

At this point it would seem reasonable to discuss the trace-wear analyses that Dr. Stanley Ahler conducted on 25 of the excavated Clovis tools (Ahler et al. 2000). Stud-

Figure 5. Eighty-year-old Eric Schuldt (in straw hat) as the Big Block is enlarging.

ied artifacts consisted of 10 utilized flakes/blades, four side scrapers, three retouched flakes/blades, three stout beaks, one simple graver, one coronal graver, one end scraper, one reworked biface, and one intact Clovis point. Excerpts from his initial report follow:

> Among cutting tools, worked materials include bone/antler/ivory (N=1), medium hardness wood or similar plant material (N=8), and material as soft as hide or flesh (N=7). Among scraping tools, three were used on bone/antler/ivory, two on soft plant material, and one on wet or fresh hide (no dry hide scraping occurs). Several planing/wedging tools are specialized implements for shaping or splitting wood. All beaks were apparently used to slot or groove wood or harder material, and five graver tips were used in several dragging, grooving, and rotary motions. The Clovis point was resharpened but lacks use-wear or impact damage.
>
> Regarding worked materials, seven tools can be linked to soft or woody plant materials, nine to animal parts such as meat, hide, and/or bone/antler/ivory, and seven to either plant or animal material. Site activities were therefore only partially oriented towards hunting and processing of game products, while substantial effort was given to manipulating woody or other plant products. Martens' data clearly indicate diversified rather than specialized activities.

Figure 6. Mary Martens, left, with Karen and Dale Meyer sifting soil in the hot sun.

Work in Progress

Analysis and documentation for a final report integrating the surface collection and excavation results have been ongoing. A variety of sources have provided funding (Morrow 2006), including the MAS (which provided $7,500 for artifact illustrations and other publication activities), the Greater St. Louis Archaeological Society (provided $1,500 for Dr. Stanley Ahler to analyze the wear traces on 25 Clovis artifacts from the excavation), and the Illinois State Archaeological Society (provided $1,500 toward photographs of the excavated artifacts and analysis of the residue found on the Clovis point).

Several analyses have been completed or are in progress. They include microscopic studies of artifact use wear, analysis of soil samples, analysis of residue on the Clovis point, and material source identification. Soil column samples may provide information on past site environment and usage. Piece plots and artifact refits will refine our understanding of the human and environmental factors that resulted in the spatial occurrence of artifacts at the site. The results are expected to provide new insights into upland Clovis habitation activities.

Through funding provided by the MAS, Dr. Marvin Kay analyzed 13 artifacts from the surface collection (Kay and Martens 2004). The final report will present additional information from these analyses. This report will also include excellent

Figure 7. The Big Block, at the completion of the excavation. The powerlines in the background parallel Olive Boulevard right-of-way, the northwest boundary of the farm.

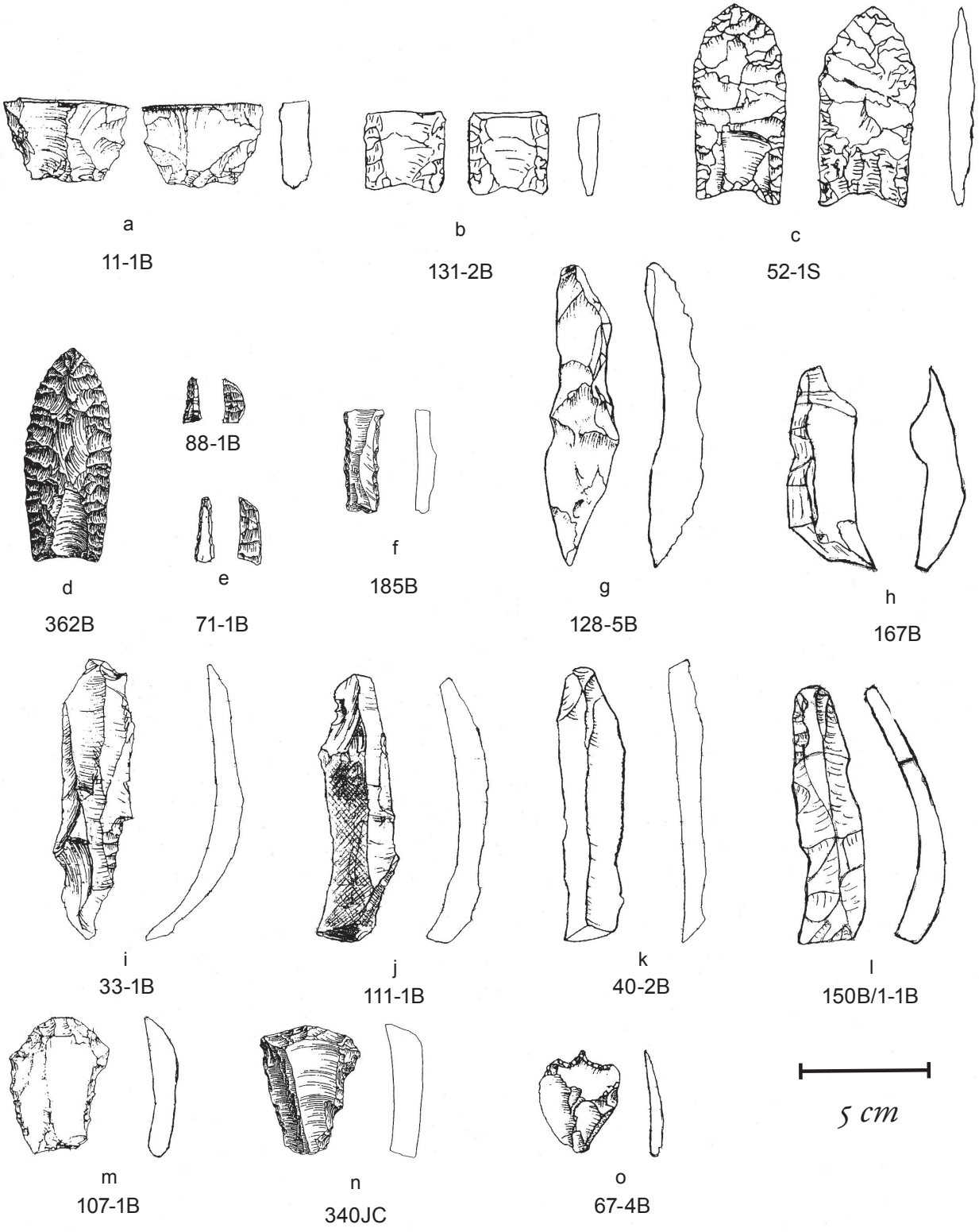

Figure 8. Clovis artifacts from excavations and the surface. (a) Preform; (b-d) points; (e) distal beak fragments; (f) basal beak fragment; (g-h) crested blades; (i-l) blades; (m-n) end scrapers; (o) graver. All above artifacts are of Burlington chert except for c which is of Salem chert and n which is of Jefferson City chert.

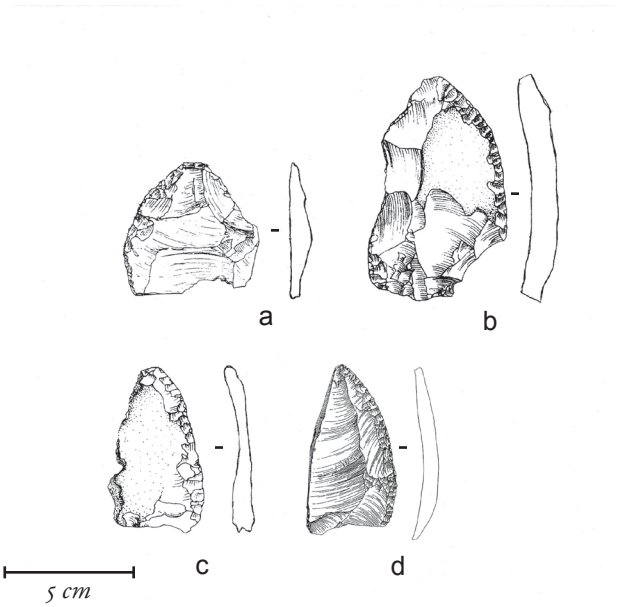

Figure 9. Side scrapers. All above artifacts of Burlington chert except for c, which is composed of an unidentified red chert.

illustrations by Toby Morrow (~90 Clovis artifacts from the surface collection and ~30 from the excavation) as well as 30 color photographs by Mr. Pete Bostrum.

The primary authors are Dr. Julie Morrow and Toby Morrow. Contributors will include Dr. Stanley A. Ahler, Dr. Marvin Kay, Brad Koldehoff, and Richard Martens. The book is to be published by the MAS, but a definite publication date has not been set.

Public Participation and Interest in Archaeology

Due to the initial lack of federal or state funding, the success of this excavation was highly dependent on public participation. In the course of this effort it became clear that the general public was also very interested in archaeology.

In late 1996 Julie placed a brief note in the *MAS Quarterly* asking for help at a Paleoindian site in St. Louis County. The request was a huge success and resulted in volunteers from across the state. The Missouri Archaeological Society (MAS) was well represented with at least 20 members volunteering. Individuals from the Marion-Ralls, Mound City, Ozarks, St. Joseph, and Three Rivers chapters of the MAS participated in the dig.

More than 150 interested people contributed their time to the Martens site excavation. The vast majority of the work was done by 125 volunteers who each contributed between 100-250 hours. Either Julie or Toby trained (as required) and assigned each volunteer to a task, and their enthusiasm and commitment were contagious. Many volunteers used vacation time so they could come and excavate. Others joined us after work, often staying as late as 7:00 PM.

It is worth mentioning why these volunteers were willing to put in long hot hours of hard work. It certainly wasn't the high pay! Many of the volunteers said it was because it offered them the chance to: (1) learn while doing something meaningful, (2) join in the camaraderie with the other workers and the Morrows, and (3) become a part of the endeavor of digging, recording, and sifting.

A complete listing of all of the volunteers will be included in the report. The following people were cited by Julie Morrow (1998a) for their dedication and perseverance in the field:

> Dick and Mary Martens, Eric Schuldt, Shirley Townsend, Pam Croci, B. J. Larsen, Larry Kinsella, Chris Bury, Dian Simons, Joe Harl, Judy Caito, Eric Menzel, Jack Eastman, Joann Kluba, Dot Anton, Barb Hubick, Annette Scallia, Carol Rabanus, Bob Corder, Michael and Marge Fisher, Karen Poole, Larry Reynolds, John Saunders, Nick Osbourne, Laura Harper (found the complete Clovis point), Julieann Van Nest, Gordon White, Henry Pecherski, Randy Wimmer, and Steve Wyatt.

Even though the volunteers and the Morrows donated personal time, there were many costs associated with travel and meals, the excavation, recording materials, and, of course, the Porta-Potty. These costs were partly defrayed through sales of a poster with Toby's excellent drawings of Clovis artifacts from the Martens site surface collection. Equipment and supplies were loaned to the project by Larry Kinsella, Joe Harl, Pete Bostrum, and the University of Iowa's Office of the State Archaeologist in Iowa City.

It is estimated that over 400 visitors came to see the excavations on the hill overlooking the Missouri River, and the numbers increased as the dig progressed. Visitors often stayed and sifted dirt for an hour or two. Visitors included a Girl Scout troop, families, and the mayor of Chesterfield, among others. A lot of these visitors also joined the MAS, and some went on to support excavations at Big Eddy.

The local ABC, CBS, and NBC television stations sent teams to cover the activity. Reporters from the St. Louis Post-Dispatch and Chesterfield newspapers also visited the site. A Kansas newspaper also published pictures of Marge and Mike Fischer (past MAS president) working at the site.

The general public was very interested in and supportive of local archaeology and the chance to save our history. It is clear that we need more opportunities for avocational archaeologists and the general public to participate in or visit Missouri archaeological activities similar to the Martens site excavation.

Summary

Fortunately, records of artifact surface finds permitted the rapid location of one of the largest Clovis habitation sites in the Midwest. More than 38 Clovis tools also were

recovered from levels as deep as 40 cm. Furthermore, thousands of pieces of chert debitage were collected and piece plotted. The representative percentages of excavated and surface-collected tool types were compared and found to be essentially the same (although minor differences between the collections were noted). With little or no funding, important Clovis material and information was saved from destruction. This required the combined efforts of both professional and amateur archaeologists. It is clear that the success of this unfunded excavation can be attributed to the joining of committed amateurs with like-minded professionals and their generous donations of time. Further details of the Martens site excavation, including photographs of the activity, will be presented in the final report. Once complete, this report will provide new insights into Clovis habitation sites in the Midwest.

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