THESIS

5000 YEARS AT CROW'S ROOST IN EASTERN COLORADO

Submitted by

Robert A. McDonald

Department of Anthropology

In partial fulfillment of the requirements

for the Degree of Master of Arts

Colorado State University

Fort Collins, Colorado

Summer 1992

COLORADO STATE UNIVERSITY

April 14, 1992

WE HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER OUR SUPERVISION BY ROBERT A. McDONALD ENTITLED 5000 YEARS AT CROW'S ROOST IN EASTERN COLORADO BE ACCEPTED AS FULFILLING IN PART REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS.

Committee on Graduate Work

Adviser

Department Head

ABSTRACT OF THESIS

5000 YEARS AT CROW'S ROOST IN EASTERN COLORADO

Many areas on the high Plains of eastern Colorado have had little prehistoric research conducted on them. One of the areas where there is insufficient information about local prehistory is the area between the two major river drainages, the Arkansas and the Platte. Crow's Roost, a large sandstone cliff, located east of Colorado Springs, Colorado, is situated near this dividing line, known as the Palmer Divide.

A series of prehistoric sites at Crow's Roost has been investigated over a period of five years by the Anthropology Department, University of Colorado at Colorado Springs. These investigations indicate that there has been prehistoric occupation at this locality dating back at least 5400 years. This study presents an interpretation of the culture history, and of recent paleoclimatic fluctuations for this locality.

Robert A. McDonald
Anthropology Department
Colorado State University
Fort Collins, Colorado 80523
Summer 1992

ACKNOWLEDGEMENTS

There are many people that I would like to thank for their help and support in completing this project. First I would like to express my gratitude to Mike and Jan Bohart for giving us access to their ranch, and for providing information on the area. I would also like to thank Denise Bohart for her assistance with some of the photography associated with this project.

I would like to thank the members of my graduate committee, Dr. Jeffrey Eighmy, head of the committee, Dr. Cal Jennings, who kindly sat in as my committee chair while Jeff was in Australia, Dr. Christian Zier, Centennial Archaeology Inc., Dr. Robert Theodoratus, Department of Anthropology, and Dr. Liston Leyendecker, Department of History. Everyone on my committee has been very helpful and patient with the progress of this project. I am grateful for all of the advice and encouragement I received, especially from Jeff Eighmy, Cal Jennings, and Chris Zier, who were always available to answer questions.

I would like to thank several people from the University of Colorado at Colorado Springs (U.C.C.S.). I particularly want to thank Dr. Thomas Wynn from the Anthropology Department who got me started on this project, encouraged me to complete it, and helped me along the way. Tom has been my mentor and friend since I began my studies in archaeology (way back in 1980).

I would also like to thank Dr. Thomas Huber of the Geography Department at U.C.C.S. for all of the work that he contributed to this project, and for telling me that there are two kinds of theses, "brilliant ones and finished ones". I hope that this is both.

There are many other people that contributed significantly to the completion of this project. I want to thank Barbara Bogen for her analysis of the pottery from site 5EP2, Michelle Zupan for her work and analysis of the pottery from site 5EP935, and all of the members of the U.C.C.S. field schools from 1985 through 1990. The 1985 field school consisted of Bill Arbogast, Ron Brown, Nedra Bowman, Ted D'Arcy, Kathy Hare, Jerry Klemm, Mary Jo Kraus, Jane Johnson, Kim Neeley, and Rosemary Wolfe. Included in the 1986 field school were; Patti Allen, Dennis Anderson, Carol Clapper, Susan Doyle, Julie Plylar, Marsha Shaikhley, Becky Smoldt, and Helen Ogden. The 1987 field school members were; Barbara Bogen, Barbara Boyer, Greg Brunson, Danial Cooke, Cathy Dailey, Karen Greis, Larry Shaddy, Richard Snyder, Dave Verys, Stan Wilfong, and John Wilson. Members of the 1989 field school included Ioanna Archer, Seyhan Dwelis, Gary Gaines, Ed Hocker, David Laude, Mike Miller and, Marisa Neuzil. Finally, the 1990 field school members were; Lora Allison, Brandy Amsden, Chris Brake, Bill Clulo, Art Grundmann, Virginia Hochnadel, Robert Koller, Mike Larkin, Shawn Murray, Charles "Curly" Pettigrew, Dave Silcock, and Michelle Zupan. All of these people, as well as Sue and Joan, contributed their time and effort to this project.

Finally I would like to thank my entire family for their encouragement and support, especially my wife Michelle for her patience and assistance, and my two children Rebecca and Erick.

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF FIGURES (Continued)

CHAPTER 1

INTRODUCTION

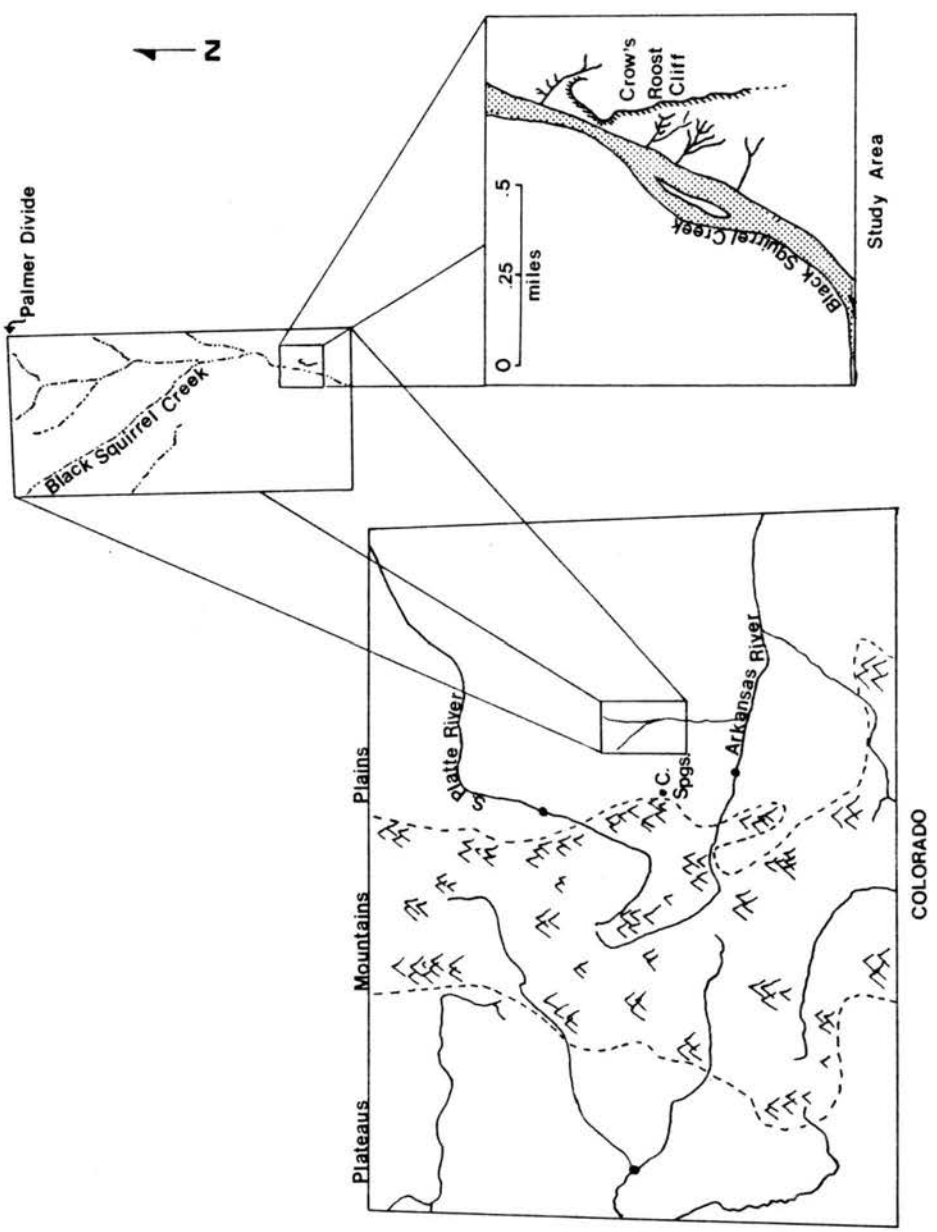
Project Description

The primary goal of this project is to analyze and describe the prehistoric use of a specific locality in the Black Squirrel Creek drainage basin in an area known locally as Crow's Roost. The goal is to produce a culture history of this locality, which has evidence for a relatively continuous occupation over the past 5000 years. This area is significant because of the long period of occupation, and for researchers better understanding of prehistoric occupation and subsistence strategies in this area of the Plains.

No comprehensive archaeological research has been reported for this part of the Colorado high Plains. This study should help fill the gap of information regarding prehistoric use of the area between the two major river drainages of eastern Colorado, the Platte and the Arkansas rivers. The study area lies approximately 22 miles south of the Palmer Divide, which separates the Platte and the Arkansas drainages (Figure 1.1).

The region has been defined by Eighmy (1984) as the southeast subarea of the Colorado Plains. This is based on its location within the Arkansas River drainage. Much archaeological research has been done south of El Paso County, (Nowak et al. 1984, 1988, 1989; Zier et al.1989, 1991; Lintz et al.1989; Anderson 1991), and while many

Figure 1.1 Map of Study area.


N
Palmer Divide
Black Squirrel Creek
0 .25 .5
miles
Crow's Roost Cliff
Black Squirrel Creek
Study Area
Plateaus
Mountains
Plains
Platte River
C. Spgs.
Arkansas River
COLORADO

cultural variations have been recognized south of Crow's Roost, no significant work has been pursued near the Black Squirrel Creek drainage.

During an initial survey of the Crow's Roost cliff in 1985, the University of Colorado at Colorado Springs (U.C.C.S.), archaeological field school found what appeared to be several potential stratified prehistoric sites. Given the location of these sites, along a protected cliff face near a creek, the area seemed to have good research potential (Figure 1.2).

This report will focus primarily on three sites, which were extensively tested and produced good information on the prehistoric culture history of the creek drainage. Many other sites were primarily surface scatters and produced little subsurface information. These sites will be discussed in the later part of this report. The three sites tested considered here, 5EP576, 5EP2, and 5EP935, range in age from Middle Archaic to Middle Ceramic, and are all stratified. One other site (5EP1735) produced protohistoric artifacts. Site 1735 was not excavated but the artifacts eroding from its deposit are considered significant to the understanding of the culture history of this area. There are very few Archaic and Paleo-Indian components reported on the central Colorado Plains (Zier et al. 1989:13-15), which is one reason these sites are significant in interpreting the prehistory of this area.

In addition to basic culture history, evidence from the three sites can help our understanding of subsistence strategies during and after the Archaic on the Colorado high Plains. Pollen samples taken from the sand dune at site 5EP935 give a fairly good picture of climatic fluctuations in this area for the last 2000 years. This climatic evidence will be discussed in the final section of this manuscript. Pollen samples from 5EP2 and 5EP576 also give some information about climatic conditions when those sites were

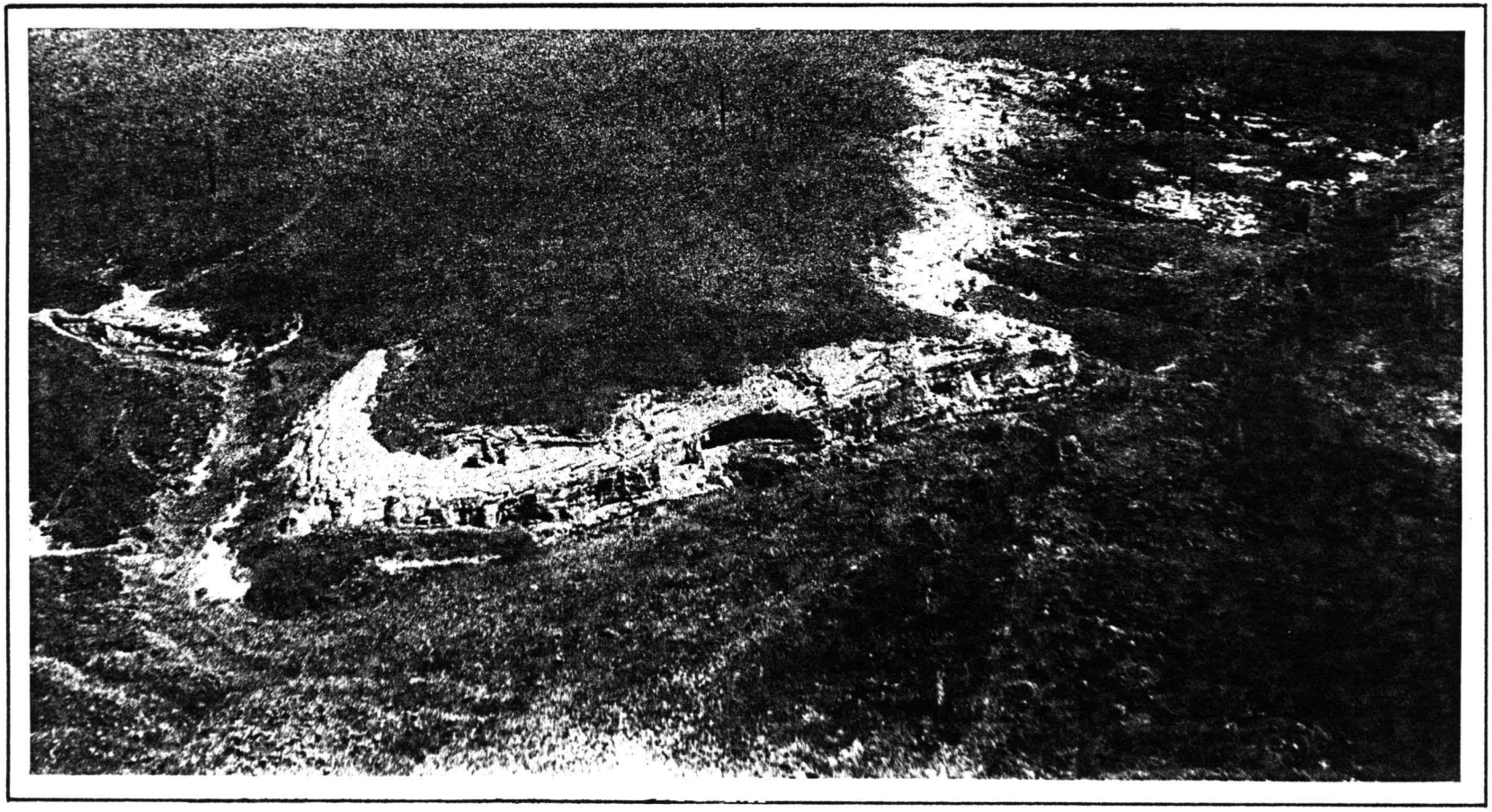


Figure 1.2 Infared aerial view of Crow's Roost. View to the southeast.

occupied, but are not as detailed as the sequence from the dune at site 5EP935.

Location

The research area for this project is located on the Plains of eastern Colorado, east of Colorado Springs. The area is known locally as Crow's Roost. Crow's Roost is a prominent sandstone cliff with a westerly facing scarp and a north-south orientation. It is located in eastern El Paso County, approximately seven miles south of Ellicott, Colorado. The cliff is located on the Black Squirrel Creek drainage. Black Squirrel Creek is presently an ephemeral stream that flows only in direct response to precipitation and drains south into the Arkansas River. A series of prehistoric sites has been located and tested along the face of this cliff.

Crow's Roost is located in the Colorado Piedmont section of the Great Plains Physiographic Province. The front range of the Rocky Mountains is located roughly 26 miles to the west, and the Black Forest, one of the only pure stands of ponderosa pine in the state (Larsen 1981:1), is 22 miles to the northwest (Figure 1.1).

The elevation of Crow's Roost is approximately 5700 feet above sea level. The Palmer Divide, which separates the Arkansas River drainage from the Platte River drainage, is located to the north. Black Squirrel Creek starts at the head of the divide in the Black Forest and runs past the cliff. In some areas the creek runs directly against the cliff (Figure 1.3).

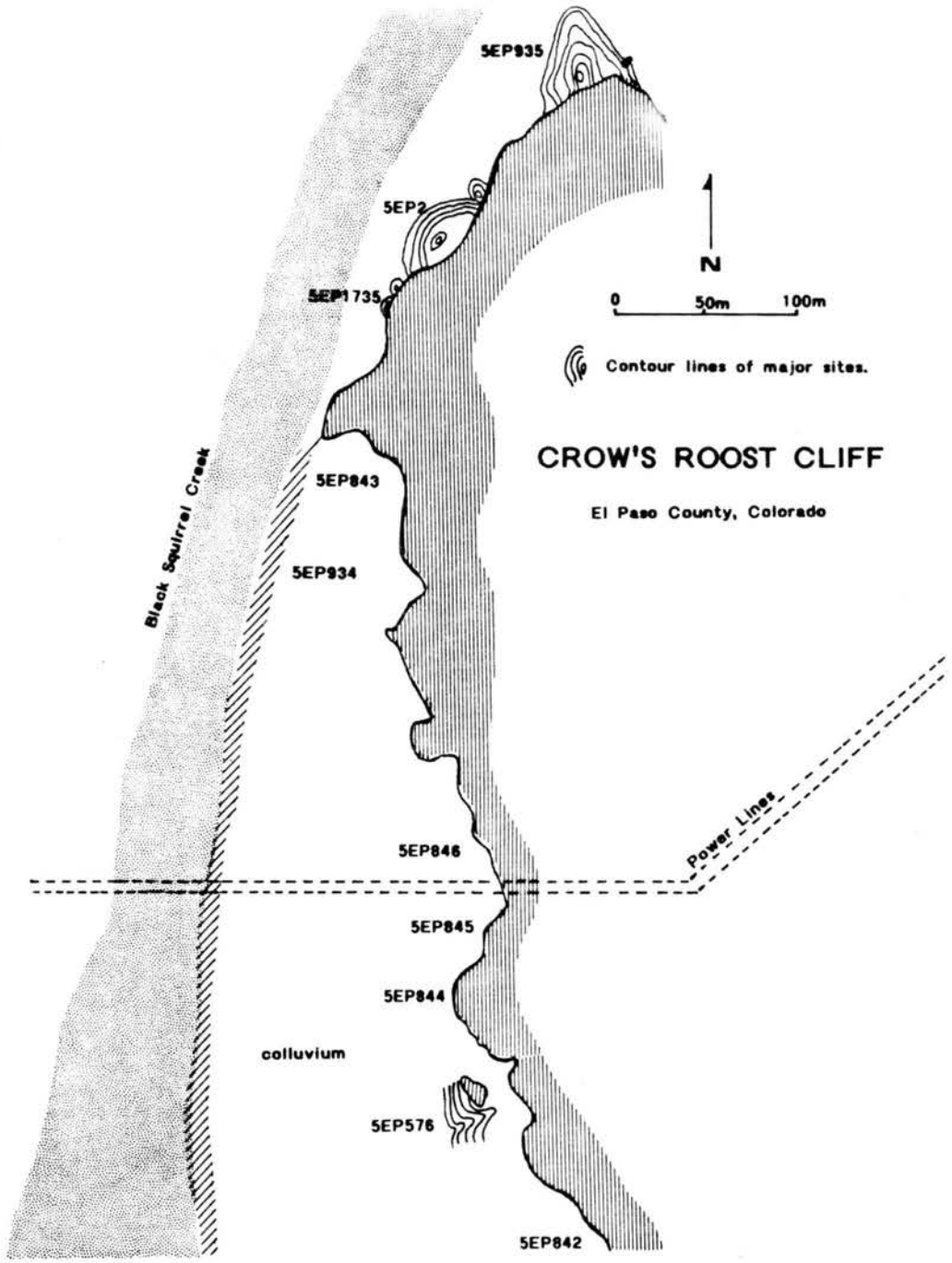


Figure 1.3 Map of Crow's Roost Cliff showing site locations.

CHAPTER 2

NATURAL ENVIRONMENT

Geology

The Crow's Roost cliff is composed primarily of Fox Hills and Laramie Formation sandstone. These formations are Cretaceous in age, 70-135 million years old. Fox Hills and Laramie Formation sandstone are found primarily east of the Front Range. They were formed toward the end of the Cretaceous as a sea receded from the area leaving beaches and sand bars (Chronic 1972:58; Scroggs 1971:13). Shale deposits are found interspersed between the sandstone members. These sandstone formations are easily eroded and tend to lend themselves to the formation of rockshelters.

Hydrology

Black Squirrel Creek drains into the Arkansas River. According to the landowner, prior to the flood in the area of 1965, which silted up the creek bed, and prior to the heavy groundwater pumping starting in the 1950s and 1960s, the creek contained water year round (Mike Bohart 1989 personal communication; Buckles and Watts 1988:5). All of the valley fill alluvial deposits in this area also drain to the Arkansas. The aquifer

composed of Laramie and Fox Hills sandstone is tilted toward the north and is part of the Denver aquifer and the Platte River drainage (Goeke 1970; Buckles and Watts 1988).

Of primary importance to this study is the fact that Black Squirrel Creek did contain year round water even historically and that the lowering of the water table in the area has made this stream ephemeral and has suppressed the flow of springs along the cliff base (Buckles and Watts 1988). Figure 2.1 is a east-west cross section across Black Squirrel Creek, south of the cliff. This figure shows the depositional composition of the area.

Present Climate

The region is located in a semi-arid continental environment. To the east of the Rocky Mountains a rain shadow is formed which keeps this area of the high Plains relatively dry. The average precipitation for El Paso County is 15.21 inches. Most of the precipitation (81%), occurs between the months of April and September, largely in the form of thunderstorms (Larson 1981:2).

The area is characterized by hot summers and fairly cold winters. The average maximum temperature in the summer is 82.3 degrees F.(27.9 degrees C.), and the average temperature in the summer is 68.4 degrees F.(20.2 degrees C.). In the winter the average temperature is 31 degrees F.(-.5 degrees C.), and the average daily minimum is 17.7 degrees F.(-7.9 degrees C.) (Larson 1981:2).

The present climate is dominated by Gulf air masses from the spring through the fall, and by Pacific air masses in the winter. Most precipitation occurs when Gulf air dominates. In the winter, when Pacific air is dominating, precipitation amounts are the lowest (Bryson and Hare 1974; Huber et al. n.d.)

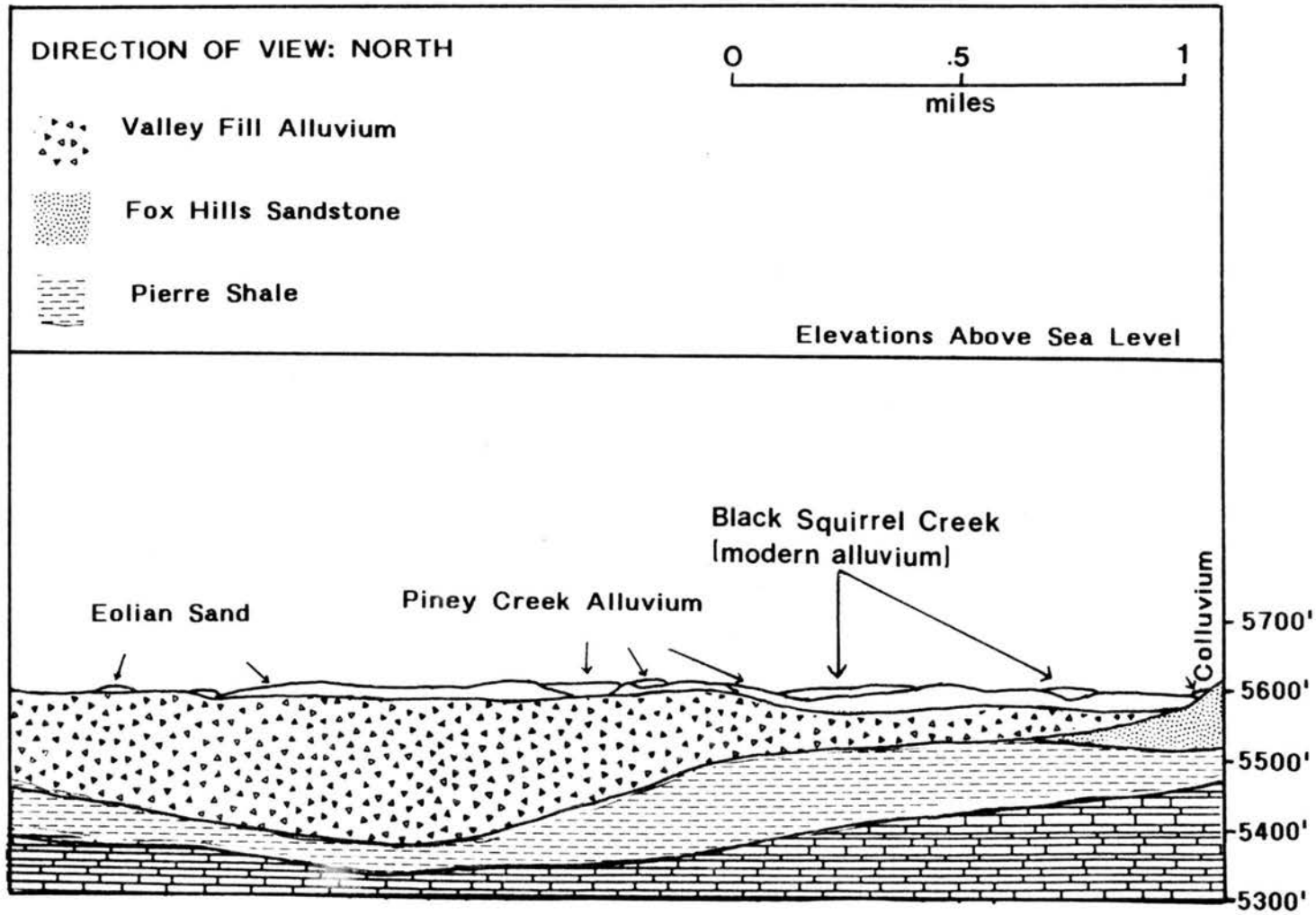


Figure 2.1 Deposits in Black Squirrel Creek Basin. Cross section at the south end of the cliff. Cross-section adapted from Soister (1968).

Flora

The vegetation of the region consists mainly of short grasses such as buffalo grass (Buchloe dactyloides), blue grama (Bouteloua gracilis), switchgrass (Panicum virgatum), needlethread (Stipa comata), Indian ricegrass (Oryzopsis hymenoides), and sandreed grass (Calamovilfa longifolia). Other plants that are common are lamb's quarters or goosefoot (Chenopodium berlandieri), sagebrush (Artemisia spp.), yucca (Yucca glauca), prickly-pear (Opuntia macrorhiza), and greasewood (Sarcobatus spp.) (Griffiths 1983; and Kindscher 1987). An abundance and diversity of floral resources are found in this area. The potential for human utilization of these resources is great. Historically, the Indians of the Plains utilized many of the plants mentioned above, for food and other purposes (Kindscher 1987).

Fauna

A variety of faunal species is present in this area today. Species include antelope (Antilocapra americana), mule deer (Odocoileus hemionus), jackrabbits (Lepus spp.), prairie dog (Cynomys spp.), badger (Taxidea taxus), and coyote (Canis latrans). Other species that lived in the area historically include bison (Bison bison), wapiti or elk (Cervus canadensis), plains grizzly (Ursus horribilis), and prairie wolf (Canis lupus)(Griffiths 1983; Wedel 1986; Zier et al. 1989). A assortment of snakes and lizards is present in the study area as well. Many species of avifauna also thrive in this area, the most notable being a nesting pair of golden eagles that make their home on the steepest section of the cliff face. These eagles usually raise a pair of young annually.

CHAPTER 3

OVERVIEW OF AREA PREHISTORY

Three major stages of prehistoric occupation are recognized in southeastern Colorado, the Paleo-Indian, the Archaic, and the Ceramic. This section will discuss these stages in some detail as an overview of the area's prehistory. There are no Paleo-Indian components recognized at Crow's Roost, and therefore the discussion will focus primarily on the Archaic and the Ceramic stages.

Paleo-Indian Stage

The earliest occupation of this region is known as the Paleo-Indian stage (12,000-7,000 B.P.). The Paleo-Indian stage is broken into three primary periods: The Clovis, Folsom, and Plano. The Clovis (or Llano) dates between 11,500-11,000 B.P./ 9,500-9,000 B.C., the Folsom is between 10,800-10,200 B.P./ 8,800-8,200 B.C., and Plano is between 10,200-7,500 B.P./ 8,200-5,500 B.C. (Zier et al. 1989:13; Wedel 1986:49). The Paleo-Indian stage is associated with the end of the Pleistocene climatic episode and with the Pleistocene/ Holocene transitional climatic period. The Pleistocene climate was significantly cooler and wetter than the present.

The economic strategies of the Paleo-Indians centered predominately around the acquisition of large animals. Many of the species hunted by these peoples are now

extinct. The extinct species include the mammoth, the giant bison, and the native horse. The primary quarry of the Clovis hunters was the mammoth (Mammuthus columbi). The principal species hunted by Folsom peoples were two, now extinct, species of bison Bison antiquus and Bison occidentalis. These groups also hunted smaller game and relied on a mixed economy, including the use of plant resources (Wedel 1986:49).

Clovis is the earliest recognized occupation of the Plains. Clovis technology is characterized by long, finely worked, lanceolate blades that are customarily fluted partially up the blade. Clovis is the only Paleo-Indian period associated with mammoth kills. They also hunted horse, camel, and bison (Johnson 1977). There are very few Clovis sites recorded in or near this region.

The Hahn site (5EP1) is recorded at the office of the Colorado Historical Society as a Clovis site. This site is located on a gravel bar along Big Sandy Creek, northeast of Crow's Roost. Animal remains have not been recovered from this site, and the site has been collected, by private collectors, for many years (Greiser 1985:57).

The Lamb Spring site, located in Douglas County, Colorado (Stanford et al. 1981), has a radiocarbon dated component which predates Clovis at 13,000+/-1000 BP. The Lamb Spring site contains evidence of Pleistocene fauna including mammoth, horse camel and bison. The relationship between the fauna and human activity has yet to be established.

The Dent site, located south of Greeley, Colorado along the South Platte River, has a radiocarbon date of 11,200+/-500 BP (Breternitz 1969:115; Butler 1981:27). The Dent site was discovered in 1932, and provided the first good association of early man artifacts with mammoth (Cassells 1983:39).

The Folsom hunters followed, and somewhat overlapped, Clovis in time. Many species relied upon by the Clovis hunters had become extinct by Folsom times. The primary game species that the Folsom hunters subsisted on was the bison. The key marker of the Folsom complex is also a fluted lanceolate point. This point is usually smaller than the Clovis point, has a distinctive shape, and is fluted the full length of the point.

The closest Folsom sites to this study area are Lindenmeier, north of Fort Collins, Colorado, with radiocarbon dates of 11,200+/-400 BP and 10,780+/-135 BP (Butler 1981:27), and the Stewart Cattleguard site near Alamosa, Colorado. Folsom points are often found in El Paso County, Colorado, but so far have only been isolated finds usually made by private collectors (Jepson 1988).

The final period of the Paleo-Indian stage, known as the Plano, is characterized by large lanceolate points that are not fluted. This lack of fluting is probably because new halfting techniques had been developed (Cassells 1983:57). Bison was still the major source of food for these people.

Plano sites are more common in the area than are Clovis or Folsom. This may be due to a higher population and more activity taking place in the area at this time, or it simply may have to do with better preservation of sites. The most likely reason is a combination of all of these factors. As the population increases there is an increase in prehistoric occupation and activity.

The nearest Plano site to this area of the Plains is Olsen-Chubbuck (Wheat 1972). At this site over 190 bison were stampeded across an arroyo. Olsen-Chubbuck is located directly east of Crow's Roost very near the Kansas border. Most of the Plano sites located in southeastern Colorado consist of surface finds (Zier 1987:2-5). Plano sites on

the central high Plains are also common and are generally associated with hunting. Some examples of these sites are Agate Basin (Frison and Stanford 1982) and Lamb Spring (Rancier, Haynes, and Stanford 1982:1-17).

Overall, the evidence of Paleo-Indian occupation in this area of southeastern Colorado is minimal. This is essentially due to geomorphic factors and not a lack of use by the Paleo-Indian groups. There is a notable absence of deposits in southern Colorado that date to the Pleistocene (Schuldenrein 1985; Christian Zier 1990 personal communication).

Most evidence of Paleo-Indian occupation in this region of southeastern Colorado comes from surface finds. Paleo- Indian points were found during the survey of the Pinon Canyon Maneuver Site (Lintz et al.1989:449), and Paleo-Indian points and tools are often found by local collectors (Jepson 1988). There was also some evidence of a Paleo-Indian occupation found in the Jimmy Camp Creek area during the survey of the Banning Lewis Ranch, east of Colorado Springs, Colorado (Jane L. Anderson 1991 personal communication).

Archaic Stage

Following the Pleistocene, the climate became hotter drier. Many of the large game species, relied upon by the Paleo-Indian hunters, had become extinct or had evolved into smaller forms, and had become less abundant on the Plains. Modern bison became the dominant large game species by about 5000 B.P.(J. McDonald 1981:260). This necessitated a change in social organization, resource utilization, and technological adaptation by the human groups living in this region. This change is reflected in the increased diversification of tool types found from this time. These tool types were used

to exploit more efficiently a wider range of both faunal and floral resources. There is also more regional variability found during the Archaic stage. One interpretation is that this indicates an increase in the population of the area and less movement of groups through the area.

The Archaic in Colorado is generally broken down into three periods: The Early, Middle, and the Late Archaic. The Archaic dates between 7,500-1,800 B.P.(5,500 B.C.-A.D.200)(Butler 1986:181-183; Zier et al.1989:14).

There are many sites in the region associated with the Archaic stage. The vast majority of these sites are Late Archaic, and a few are Middle Archaic. Some of the Archaic sites located near this area are, Recon John shelter (Zier et al.1989, and 1991), McEndree Ranch (Shields 1980), Cherry Gulch (Nelson 1981), and Willowbrook (Leach 1966).

Early Archaic

The Early Archaic is contemporaneous with a climatic episode known as the Altithermal. The Altithermal is hypothesized as a period of gradual warming and drying which lasted, in this area, as late as 5,000 B.P.(3,000 B.C.) (Antevs 1955; Eighmy 1984:13; Zier 1989:15). Early Archaic sites are rare in this area of the high Plains. This could be due to a cultural hiatus resulting from the hot dry climate (Benedict 1979:3; Wedel 1986), or it could be due to poor site preservation and geological processes (Zier et al. 1989:15).

Early Archaic tool kits consist of a high percentage of ground stone tools, as well as large corner notched or side notched projectile points (Frison 1978; Cassells 1983:73-75).

Middle Archaic

Middle Archaic sites are more common on the Plains but they are not at all abundant. The Middle Archaic dates from approximately 5,000-3,500 B.P. (3000-1500 B.C.)(Zier et al. 1989:15). The environmental evidence for this time shows that there were numerous climatic fluctuations (Christian Zier 1992 personal communication).

Technologically the Middle Archaic is characterized by an increase in the number of grinding stones found (Cassells 1983:73), and by the appearance of McKean complex projectile point types. These point types include: McKean, Duncan, Hanna, Mallory, and Scoggins (Greiser 1985:91; Zier et al. 1989:15).

Middle Archaic sites seem to be concentrated along the foothills of the Rocky Mountains at sites such as LoDaiska (Irwin and Irwin 1959), Cherry Gulch (Nelson 1981), and Magic Mountain (Irwin-Williams and Irwin 1966). This may in part reflect a preference for a specific habitat or it may reflect the relative ease, by archaeologists, of locating rockshelter sites along the Front Range compared to the difficulty of locating open sites further out onto the Plains. In other words, this may simply be a sampling bias (Cassells 1983:77).

Late Archaic

Late Archaic sites are much more abundant than Early or Middle Archaic sites on the Plains of eastern Colorado (Eighmy 1984:71-76; Zier et al.1989:16). This period lasted from approximately 3,500-1,800 B.P. (1500 B.C.- A.D. 200). In terms of climate and subsistence strategies, the Late Archaic is basically the same as the Middle Archaic but is more regional variation recognized during this time (Zier et al. 1989:16). Butler

believes that the Late Archaic may be a transitional time that reflects a wide range of internal development and increasing external relations (Butler 1986:206).

Recon John Shelter is the closest site with a Late Archaic Component that has been reported (Zier et al. 1991). Recon John is located along Turkey Creek on the Fort Carson Military Reservation southwest of Crow's Roost. This site has deposits from the Middle Archaic, the Late Archaic, and the Early Ceramic. The deposits date from 3000 B.C. to A.D. 1000. One significant aspect of the Recon John site is that there is a continuous record showing the transition from Archaic to Ceramic.

Another site located in southeastern Colorado that is representative of the Late Archaic is the McEndree Ranch site in Baca County, Colorado (Shields 1980). This site has radiocarbon dates of 2170 +-55 years BP, and 2350 +- 65 years BP. This site is probably associated with a nearby bison kill. The site contains several hearths, and a possible house floor. Moonshine Shelter (Tucker 1991:26) has a Late Archaic component associated with it. Moonshine Shelter is located in a small rockshelter in Fremont County, Colorado.

Ceramic Stage

The Ceramic stage in eastern Colorado (A.D. 200-1800) is also broken down into three periods: The Early, Middle, and Late Ceramic (Zier et al. 1989:16; Anderson 1986).

The Ceramic stage is characterized by many changes. Some of the changes that can be seen archaeologically are the introduction of ceramics, the bow and arrow, use of semi-permanent architecture, and some utilization of cultigens in areas that could support domestic plants (Butler 1986; Eighmy 1984:19; Zier et al. 1989:16).

Early Ceramic

The Early Ceramic period, also commonly known as the Plains Woodland period, dates from between approximately 1,800-1,000 BP (A.D. 200-1000)(Butler 1986; Eighmy 1984:79; Zier et al. 1989:17). Subsistence strategies did not change significantly from the Archaic to the Ceramic (Michlovic 1986). The changes that did occur were in technology. The atlatl was still important even though the bow and arrow was beginning to be more common. This transition from the atlatl to the bow and arrow is seen in the archaeological record as a gradual transition from the larger projectile points of the Archaic to smaller points in the Ceramic, with both points types being commonly found in Early Ceramic assemblages (Eighmy 1984:111). During the Early ceramic small corner-notched points replaced the large corner-notched points that characterized the Late Archaic (Zier et al. 1989:17). No examples of Early Ceramic Architecture are presently known on the Colorado Plains (Eighmy and Wood 1984). The people living in this area of the high Plains during this time seem to have been living a nomadic lifestyle, similar to that of the Archaic (Zier et al. 1989:17).

Michael Michlovic (1986:207-218) feels that there is no significant difference between the Archaic stage and the Ceramic stage in subsistence strategies on the Plains. Michlovic emphasizes that the basic foraging economy continued almost until contact with Europeans, and that the basic subsistence economy on the North American Plains was a stable adaptation over most of prehistory. The terms used in this manuscript will, therefore, refer to intervals of time and not to levels of cultural development. Some of the elements do change over time, such as the addition of pottery, or a reduction of point size, but the subsistence strategies and the economic system remained the same.

Many sites associated with the Early Ceramic are found near the Crow's Roost area. Again, this increase in site frequency could be a result of an increase in population, or the better preservation of these sites. The best explanation is that both of these factors play an important role in determining the number and distribution of Ceramic sites. Early Ceramic sites have been found in Douglas County, Colorado at Jackson Creek (Wynn et al. 1985), Bison Hump Shelter (Hollingsworth 1976), and Bayou Gulch (Ellwood 1987). Along the Front Range in Pueblo County, Colorado there are numerous Ceramic sites including Recon John Shelter (Zier et al. 1989, 1991). In El Paso County, Colorado there is Davis Rock Shelter, which was excavated by the Pikes Peak Chapter of the Colorado Archaeological Society. Davis Rock Shelter is located in northern El Paso County near the Palmer Divide (Mary Jo Kraus and Michelle Zupan 1992 personal communication). Other sites along the Colorado Front Range that have a good Early Ceramic component include Spring Gulch (Kainer 1976), Van Bibber Creek, George Lindsay Ranch, Hall Woodland Cave (Nelson 1969, 1971, 1967), Moonshine Shelter (Tucker 1991) and Torres Cave (Hoyt 1979).

Butler notes that there are only three artifact traits that can be associated with this time period in northeastern Colorado: Cord-marked pottery, small to medium diagonally corner-notched projectile points, and expanding base drills (Butler 1986:227;1988:459).

Middle Ceramic

The Middle Ceramic period dates from approximately 1,000-500 B.P. (A.D.100-1500). There is evidence on the Plains at this time for some reliance on cultigens. This occurs mainly along creek bottoms and along rivers in southeastern Colorado (Zier et al. 1989:19). The primary resource base was still a mixed economy centered on wild food

resources. Some of the species most commonly exploited in southeastern Colorado during this period include goosefoot (Chenopodium sp.), Juniper (Juniper cf. monosperma), Pinon pine (Pinus cf. edulis), hedgehog cactus (Echinocereus sp.), globe mallow (Spaeralcea cf. coccinea), chockcherry (Prunus cf. virginiana), sunflower (Helianthus), hackberry (Celtis), Indian ricegrass (Oryzopsis hymenoides), and purslane (Portulaca). The above list of wild exploited plants is a partial inventory of species recovered from flotation samples at Avery Ranch (Zier et.al. 1990:161). Cultigens, such as maize, were used only marginally at this time. Middle Ceramic sites are common in eastern Colorado (Zier et al. 1989:20).

In southeastern Colorado the Middle Ceramic often is regarded as synonymous to the Apishipa focus (Withers 1954; Zier et al. 1990:171). This focus exhibits a range of characteristics, such as cord marked ceramics with specific rim markings, small side notched projectile points, and various types of architecture (Zier et al. 1989:19). Stephen Kalasz conducted an overview of architectural styles within Pinon Canyon (Lintz and Anderson 1989:86-110). In this overview Kalasz describes Apishipa style architecture as generally having continuous walls constructed of horizontal and vertical stone slabs. These structures are dry laid and are usually circular in shape. The Apishipa focus lies at the extreme western edge of the Plains Village tradition of western Kansas and Nebraska. The Plains Village tradition is also characterized by local variations in ceramics, point types and architecture. This tradition is found over much of the Plains. It started at about the same time in most areas. There is little indication of a Plains Village component in the vicinity of Crow's Roost. The Apishipa Focus dates between A.D. 1000 to 1400 (Zier et al. 1990:171).

Ones site in eastern Colorado that is attributed to the Apishipa Focus is the Avery Ranch Site on the Fort Carson military reservation (Watts 1975; Zier et al.1988 and 1990). Cliff Swallow Cave in Elbert County, Colorado (Morton 1954) exhibits many characteristics of the Apishipa Focus. Lintz (1984:46-52) and Gunnerson (1989) describe attributes associated with Apishipa Focus sites. Cliff Swallow Cave contains several of these attributes such as small side notched projectile points, globular cord marked pottery, use of bone tools, and an estimated date between A.D. 1000 to 1300. Morton compared Cliff Swallow Cave to Upper Republican sites in Nebraska based on the projectile point typologies, but he was perplexed that the pottery looked more "Woodland". Comparing Morton's data to current data associated with the Apishipa, it is possible that Cliff Swallow Cave may be more closely associated with the Apishipa focus of the Middle Ceramic period than with The Upper Republican. Another site with a possible Apishipa or Upper Republican component is Davis Rock Shelter (5EP986). Davis Rock shelter is located in northern El Paso County, Colorado near the Palmer Divide. Davis Rock shelter has uncalibrated radiocarbon dates of 1810 +/- 60 b.p.(Beta 28510) and 1070 +/- 60 b.p.(Beta 28511). This site also has a single rimsherd that is cord roughened with an incised rim (Mary Jo Kraus and Michelle Zupan 1992 personnel communication).

The Upper Republican is another element of the Middle Ceramic in eastern Colorado that is commonly represented. The Upper Republican is dated to between A.D. 1000 to 1400, and is associated with small side notched projectile points, globular pots that were commonly round shouldered with a round bottom and a collared, often incised, rim (Wedel 1986:106). East of Colorado the Upper Republican is part of the Plains Village tradition. In Colorado, Upper Republican sites are generally small camp sites that

are often referred to as hunting camps (Wood 1990:5). Other researchers feel that these sites do not represent just hunting camps, but represent a full time adaptation to the high Plains (Roper 1990:16). Some of the most notable Upper Republican sites in Colorado include Agate Bluff (Irwin and Irwin 1957), and the Buick and Smiley sites near Limon, Colorado (Wood 1971). Raymond Wood (1990:3-7) notes that most of the sites in Colorado that are associated with the Upper Republican are located along the South Platte River drainage in northeastern Colorado, that all of these sites are located at elevations of less than 6000 feet, and are in grassland environments. Wood hypothesizes that these sites represent either the westernmost extension of the Upper Republican, and these are western hunting camps, or that these sites represent western adaptations of an Upper Republican base, and these people were living in the area full time (Wood 1990:6). Whichever theory is the most reasonable concerning the nature of the Upper Republican in Colorado, it is reasonable to conclude that during the latter part of the Middle Ceramic there were two distinct manifestations occurring in eastern Colorado. The upper Republican is found primarily in northeastern Colorado, and Apishipa is found primarily in southeastern Colorado.

Late Ceramic

The Late Ceramic is also known as the Protohistoric period. At this time Europeans first began to make contact with the Native Americans on the Plains. This period dates from approximately 500-200 B.P. (A.D. 1500-1800) (Wedel 1986:134-135; Zier et al. 1989:20). This late period is not as well documented as the earlier Ceramic Periods (Eighmy 1984:145). Late Ceramic sites in southeastern Colorado are characterized by small triangular unnotched and side notched projectile points, and

smoothed micaceous ware pottery. These archaeological units are often attributed to the Apache Indians. Protohistorically this manifestation is known as the Dismal River Aspect (Gunnerson 1960). Dismal River gray ware has been reported from western Nebraska and Kansas to eastern Colorado (Baugh and Eddy 1987: 795), and may be represented in southeastern Colorado. Similar pottery styles known as Cimmaron and Taos Micaceous, may also be related to the Dismal River pottery styles (Lintz et al. 1989:354). Baugh and Eddy include four types of micaceous ware under the term Sangre de Cristo Micaceous Ware. These types include Ocate Micaceous, Cimarron Micaceous, Perdido Plain, and San Miguel Micaceous. Sites that are representative of this time period in southeastern Colorado include several recorded by the University of Denver in Pueblo, Cheyenne, Costilla, and Las Animas counties, Colorado (Gunnerson 1960:233-235). Colorado College has done extensive research on the Carrizo Ranches in extreme southeastern Colorado. During their survey they have recorded many stone circles (Nowak et al. 1984:7-10; Nowak et al. 1988:32), that have been interpreted as protohistoric 'tipi' rings. Several of these sites were tested and found to contain polychrome pottery traded from the pueblos of New Mexico, some micaceous gray ware, and small triangular projectile points, both unnotched and side notched (Kingsbury et al. 1983:321-322). All of these artifacts point to a possible protohistoric Apache habitation. It is well documented that the Apache Indians traded with the Pueblo Indians of New Mexico (Thomas 1960, and Hyde 1959). Mica tempered pottery is commonly found at protohistoric Apache sites (Gunnerson 1960, and Wedel 1986). A single radiocarbon date obtained by Colorado College from a hearth in a stone circle at site 5LA1052 had a date of A.D. 1350 +/- 55 years (Kingsbury 1983:324). Kingsbury (1983) feels that this date places the Apache in the area at approximately the same time the Apishipa vanished.

Other researchers contend that this date and associated stone circle more likely represents the Apishipa (Christian Zier 1992 personal communication). Dark mica tempered potsherds were also found by Jane Anderson (1991 personal communication) in the Jimmy Camp Creek area during the survey of the Banning Lewis Ranch, east of Colorado Springs, Colorado.

Along the Arkansas River, during this time, the Apache were practicing a limited form of horticulture and raising maize, beans and squash. The Apache groups were also living in small villages along the tributaries of the Arkansas River (Thomas 1960).

CHAPTER 4

SITE 5EP576

Excavation Strategies

Site 5EP576 was first located by the U.C.C.S. field school in the summer of 1985. During this time U.C.C.S. was conducting a series of archaeological surveys throughout eastern El Paso County Colorado. Permission was obtained from the landowner (Mike Bohart) to do survey work along the Black Squirrel Creek drainage in the area of a large sandstone cliff known as Crow's Roost. During the course of the survey, a large upstanding sandstone remnant was observed at the southern edge of the cliff. This sandstone outcrop faces the southwest and provides some marginal shelter. The sandstone also absorbs and re-emits the sun's heat from the southern sky (Figure 4.1 and 4.2).

The deposit is colluvium washed down from above the cliff (Soister 1968). Site 5EP576 is located adjacent to the sandstone outcrop and within this colluvial deposit. The southern part of the site's deposit has been eroded by the formation of a large gully. Possibly as much as two-thirds of the original occupation area may have been lost to this erosion. The site was first recognized because a large amount of bone and lithic debris was eroding into this gully.

Figure 4.1 View to the south of site 5EP576.

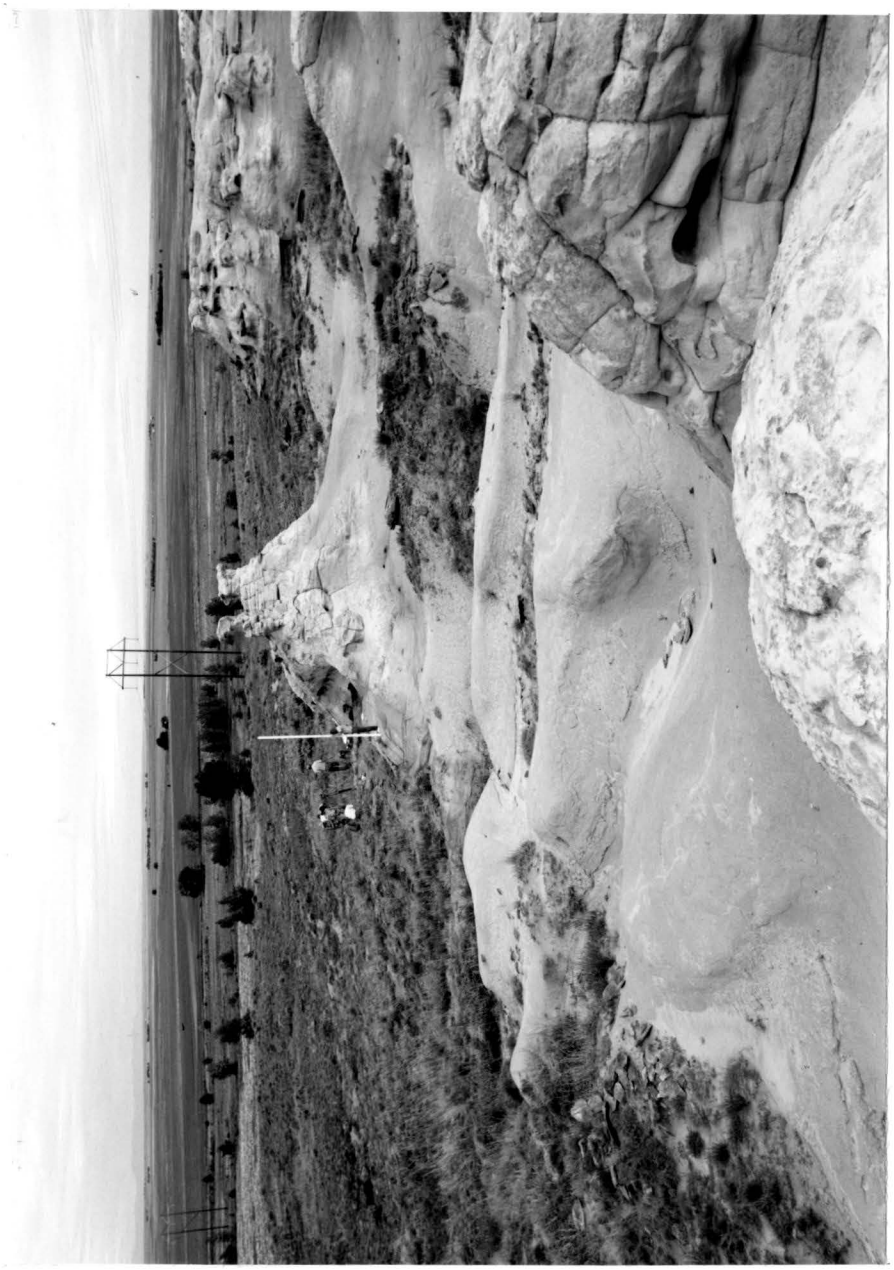
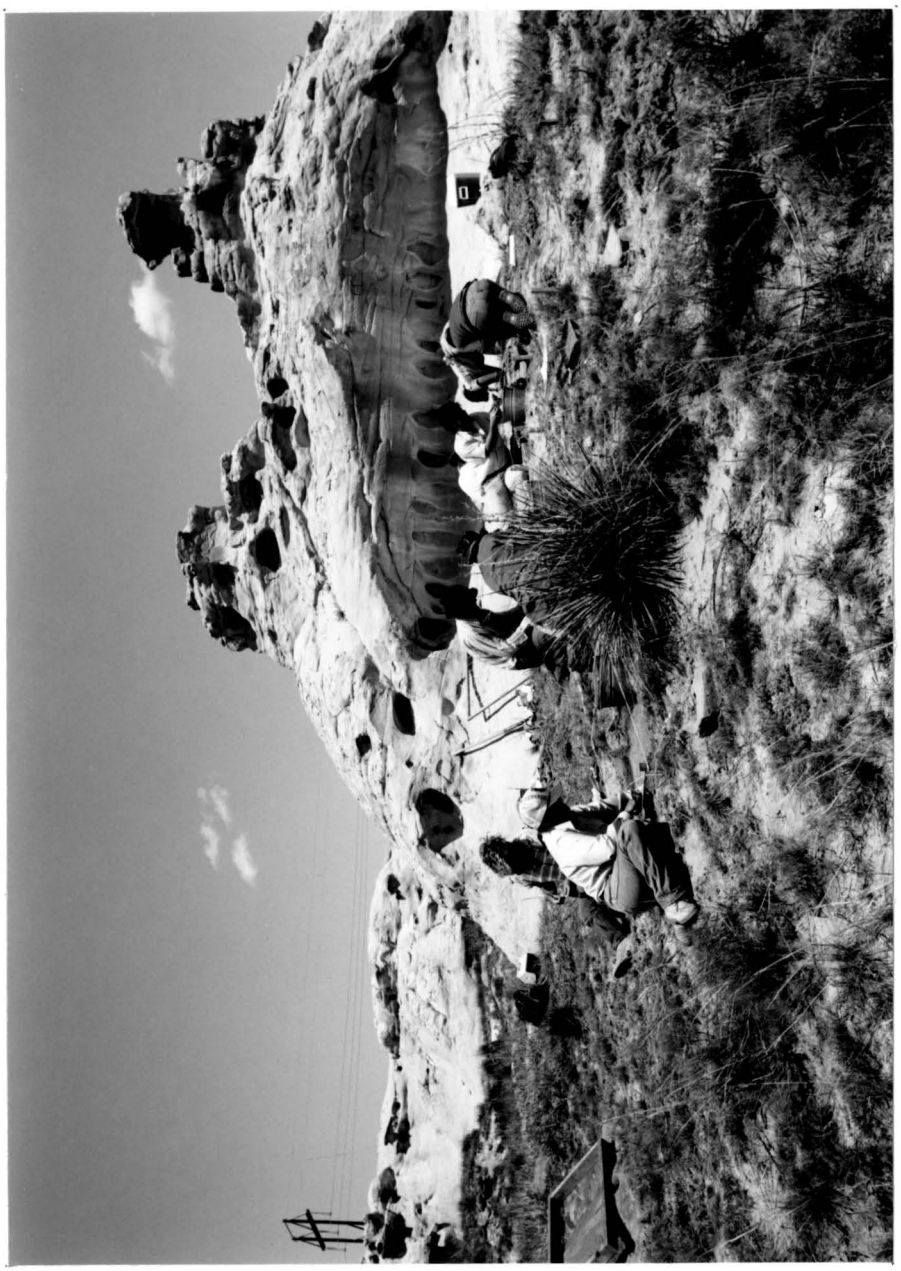


Figure 4.2 Excavations at site 5EP576.



Test excavations were begun in 1985 in the deposit directly adjacent to the sandstone outcrop. Datum was established out of the excavation area north of the outcrop. A datum point was permanently chiseled into a large stone. The base line was established on a north-south line, using true north as the reference. A grid was then established using one by one meter squares in a north-south/east-west direction. All of the units were labeled based on their relation to datum (eg. 15S-2W, 17S-4W, etc.). A nail was driven into the sandstone outcrop in the excavation area at a known point to simplify horizontal measurements.

Another nail was driven into the sandstone outcrop near the level of the colluvium to establish a vertical control point. This nail was defined as level zero, and all vertical measurements were recorded as being below zero.

Excavations were conducted during the summers of 1985, 1986, and 1989. A total of ten 1mX1m units was opened (Figure 4.3). These units are located directly adjacent to the outcrop. To determine the extent of the occupation area, two other test units were opened away from this concentration, one unit to the north and one to the west. To the east lies the cliff, and to the south the land is so heavily eroded that most prehistoric evidence would have been greatly disturbed. The test units were unit 12N-5W and 13N-75W. Both of the outlying units were found to be sterile. All of the efforts were then confined to the concentration of resources adjacent to the outcrop.

Natural stratigraphic units were never recognized, therefore, 10 cm units were used throughout the excavation. All units were excavated using trowels and back dirt was screened through a 1/4" mesh hardware cloth.

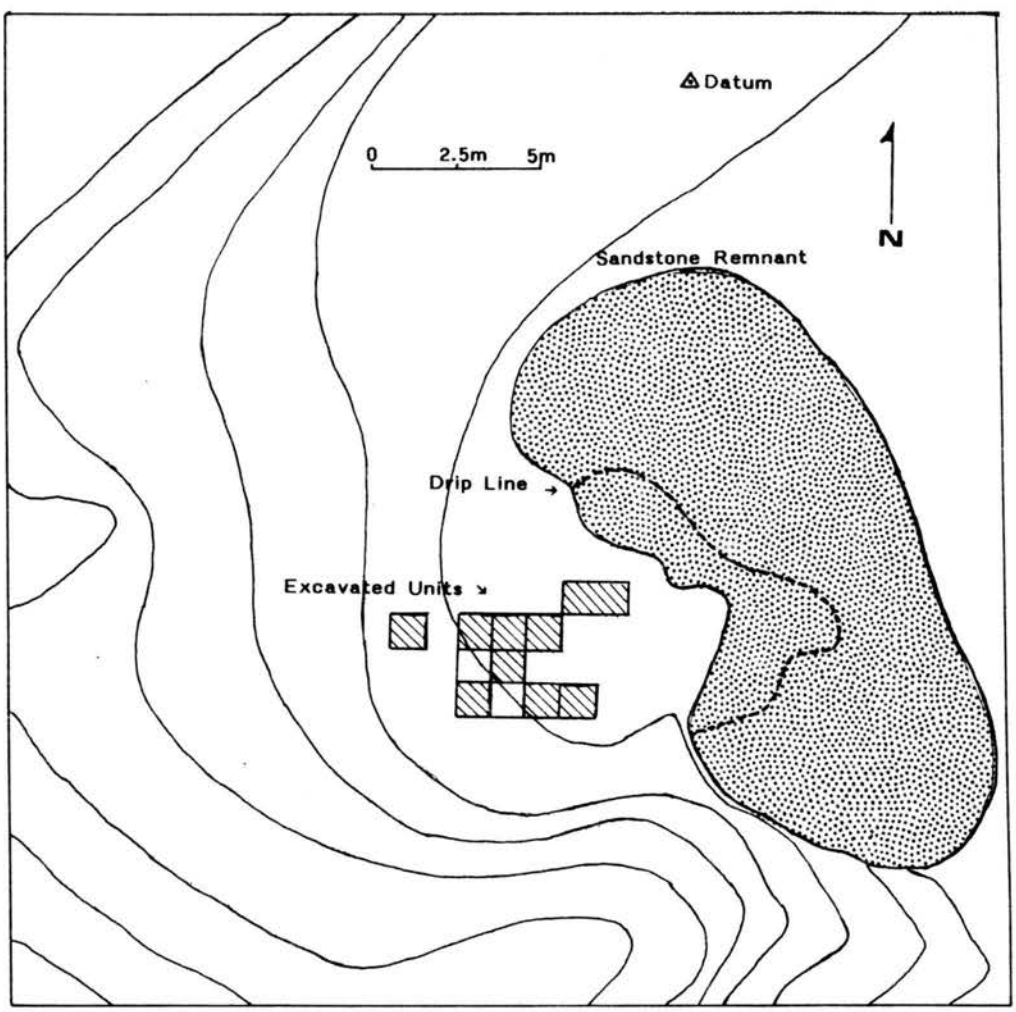


Figure 4.3 Map of site 5EP576.

Excavation depths varied according to depth of bedrock. The farther away from the outcrop a unit was located, the lower the unit generally was. All units were backfilled at the conclusion of each field season.

Stratigraphy

There were no noticeable natural stratigraphic distinctions in the colluvial fill. The color and texture was very uniform throughout the deposit. Two different levels of artifact concentrations were recognized in the field. The two levels were separated by approximately 20 cm of sterile sand. These two zones of artifact concentration represent different cultural components. The upper level will be referred to as level A and the lower level will be referred to as level B. Figure 4.4 shows the stratigraphic profile of the site.

Radiocarbon Dates

Two radiocarbon dates were obtained from site 5EP576. There was no significant amount of charcoal recovered from any level of the site. There was, however, an abundance of bone and bone fragments recovered from both levels. The undiagnostic bone fragments from both levels A and B were submitted to Beta Analytic Inc. in Coral Gables, Florida for dating. The dates have been calibrated according to the guidelines set by Stuiver and Becker (1986) for a two sigma range. The dates are as follows:

Beta-26579 5EP576 Level A B.P. 2922 (2754) 2403

Uncalibrated 2640 +/- 80 b.p.

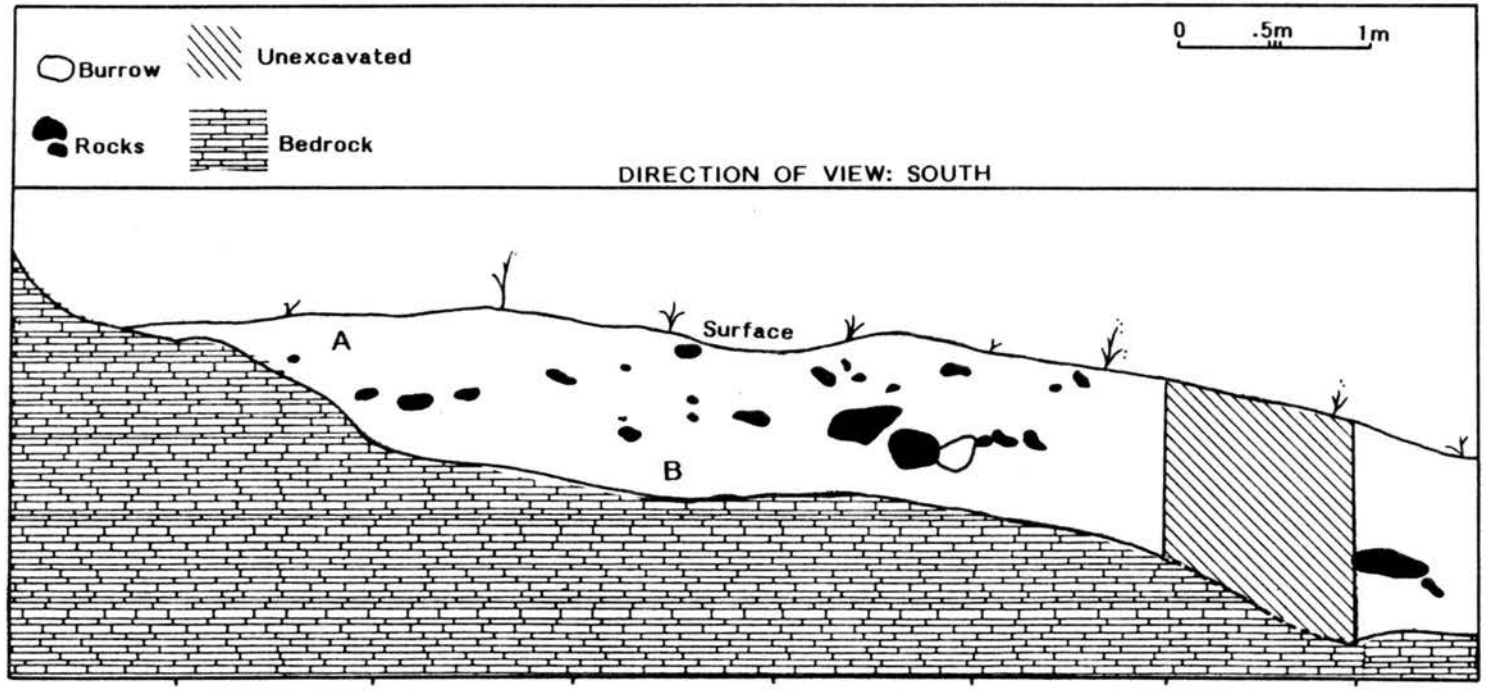


Figure 4.4 Stratigraphic profile of site 5EP576.

Beta-26578 5EP576 Level B B.P. 5985 (5450, 5360, 5331) 4619

Uncalibrated 4690 +/- 270 b.p.

These dates indicate that there are two separate components representing the Middle and Late Archaic. It is rare in southeastern Colorado to have good radiocarbon dates in association with artifact assemblages for the Archaic. This site should add to the interpretive data base regarding Archaic occupations in southeastern Colorado. There was an occupational hiatus between the upper and lower component. It is difficult to determine if this is an indication of less occupation of the entire region, or if occupation shifted to other areas of the cliff. Cummings (1991a:3) indicates that the more sterile level coincides with a warmer and drier climate than the level below it.

Lithics

The lithic material, from both levels, has been divided into four categories: Chipped tools, ground stone, debitage and miscellaneous. By far the largest category is debitage, consisting of 85% of all lithic material. The fourth category includes miscellaneous lithics, such as cobbles, battered cobbles, and problematical objects.

Debitage

A total of 489 waste flakes were recovered in the excavation units. Eleven cores or fragments of cores were also recovered. This is a total of 500 pieces of lithic debitage from this site. Tables 4.1 and 4.2 show the lithic debitage by cultural level, quantity, size, and raw material. Tables 4.3 and 4.4 show the mean size data and the percentage of cortex on the complete flakes in each cultural level.

5EP576 CULTURAL UNIT A
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	2	15	30	7	54	17.20%
Chert/Chalcedony	25	38	77	32	172	54.78%
Jasper	2	5	13	6	26	8.28%
Quartz	0	3	5	10	18	5.73%
Quartzite	1	6	5	6	18	5.73%
Limestone	2	0	0	3	5	1.59%
Obsidian	1	0	0	1	2	0.64%
Unidentified	1	1	5	12	19	6.05%
Total	34	68	135	77	314	
Percentage	10.83%	21.66%	42.99%	24.52%		

n=314

Table 4.1 Flake types and Raw Materials, Level A, 5EP576.

5EP576 CULTURAL UNIT B
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	9	17	29	3	58	32.95%
Chert/Chalcedony	7	26	45	7	85	48.30%
Jasper	0	1	2	0	3	1.70%
Quartz	0	4	4	6	14	7.95%
Quartzite	0	0	2	0	2	1.14%
Limestone	2	2	1	2	7	3.98%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	1	0	6	7	3.98%
Total	18	51	83	24	176	
Percentage	10.23%	28.98%	47.16%	13.64%		

n=176

Table 4.2 Flake types and raw materials, level B, 5EP576.

DATA FOR COMPLETE FLAKES
LEVEL A
5EP576

n=34

Mean flake length: 1.85 cm
Mean flake width: 1.37 cm
Mean flake thickness: .33 cm

Range of flake size, Length: .4 to 5.5 cm
Range of flake size, Width:.3 to 3.4 cm
Range of flake size, Thickness: .1 to 1.5 cm

Number of cortical flakes: 8 (23.5%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	1
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	4
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	1
# flakes with 90-100% cortex	2

Table 4.3 Data on complete flakes from site 5EP576, level A.

DATA FOR COMPLETE FLAKES
LEVEL B
5EP576

n=18

Mean flake length: 2.16 cm
Mean flake width: 1.5 cm
Mean flake thickness: .34 cm

Range of flake size, Length: .7 to 4.3 cm
Range of flake size, Width:.6 to 2.5 cm
Range of flake size, Thickness: .1 to 1 cm

Number of cortical flakes: 4 (22.2%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	1
# flakes with 20-30% cortex	1
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	1
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	1
# flakes with 90-100% cortex	2

Table 4.4 Data on complete flakes from site 5EP576, level B.

Level "B" shows a higher percentage of local petrified wood usage than does level "A". This may be due to a heavier reliance on local raw materials during the Middle Archaic, and more use of raw materials gathered or traded from other regions during the Late Archaic. This difference may also be a consequence of the small sample size.

All of the flake debris recovered is large enough not to have passed through a 1/4" mesh screen, unless it was recovered in situ. Therefore, the debitage recovered is probably associated with core reduction and intermediate stages of tool production. The very small flakes, which would represent the final stages of tool production, are under-represented in this assemblage.

The low percentage of cortical flakes in this assemblage is also an indicator that the tool manufacturing at this site was most likely associated with intermediate stages of tool production rather than with extensive core reduction.

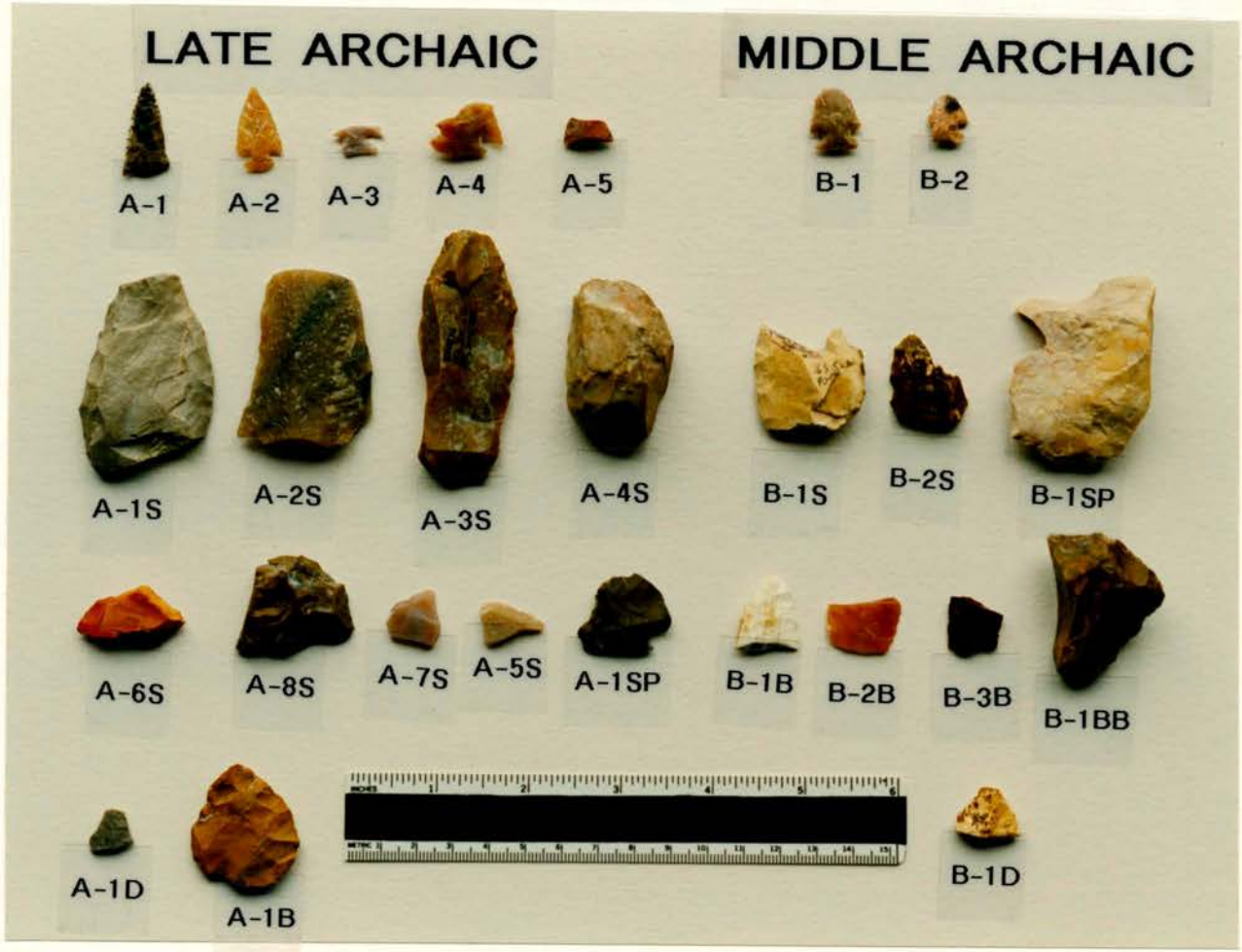
Chipped tools

The second lithic category of analysis, for both components, is chipped or modified tools. This category includes points, scrapers, blades, drills, knives, and utilized flakes.

Thirty-one chipped tools were identified from the excavated units. Seven of these are projectile points or point fragments, 10 are scrapers, 4 are bifaces, 2 are drills, 2 are spokeshaves, 4 are utilized flakes, and 1 is a battered large biface. The complete assemblage is shown in Figure 4.5.

The small size of the assemblage does not warrant the division of the artifacts into smaller units of analysis based on similar attributes before they are described. Each artifact will be described individually based in its tool type. The artifacts will be

Figure 4.5 Chipped tool assemblage from site 5EP576.


LATE ARCHAIC
MIDDLE ARCHAIC
A-1
A-2
A-3
A-4
A-5
B-1
B-2
A-1S
A-2S
A-3S
A-4S
B-1S
B-2S
B-1SP
A-6S
A-8S
A-7S
A-5S
A-1SP
B-1B
B-2B
B-3B
B-1BB
A-1D
A-1B
B-1D

described using methods and terms derived and modified from a variety of researchers working near the study area (Lintz and Anderson 1989; Zier et al. 1989; Irwin 1959; Irwin-Williams and Irwin 1966). Methods and terminology are being emphasized that will make data comparison between sites in this area as easy as possible. The numbers assigned to each of the artifacts have either the letter A or B in the number. This is to indicate which component that artifact is associated with.

Points

There are seven tools in the assemblage identified as projectile points or fragments of projectile points. Level A will be described first, followed by level B.

Point # A-1 (Figure 4.5)

Material: Petrified wood

Description: This point is a small triangular point with a very sharp tip, a straight, serrated blade edge, barbed shoulders; the stem has been broken off. The point has a plano- convex cross section.

Point #A-1 is similar to point type II at Willowbrook, (Leach 1966:33), type B at Hall-Woodland Cave (Nelson 1967:3-4), and type bb at LoDaiska (Irwin et. al. 1959:34-35). This point is also similar to small serrated corner notched points found in the Woodland levels of the Lindsay Ranch Site (Nelson 1971:7). This style of projectile point is usually associated with Early Ceramic occupations.

Point # A-2 (Figure 4.5)

Material: Translucent yellow chert or chalcedony.

Description: Point A-2 is a small point with a very sharp tip, straight to slightly convex edges, weakly barbed shoulders, expanding stem, and pointed tangs. The shape of the base is convex and the point has a plano-convex cross section.

This point is similar to point type P59 from Pinon Canyon (Lintz et al. 1989:296-297), MM35 at Magic Mountain (Irwin-Williams et al. 1966:93-94), type # 14 at Recon John Shelter (Zier et al. 1989:141-142) and point type #10 at Cherry gulch (Nelson 1981:16-17). All of the sources cited classify this point type as appearing during the Early Ceramic period. Anderson (Lintz and Anderson 1989:233), places this point type between the years A.D. 200 to A.D. 1000.

Point # A-3 (Figure 4.5)

Material: White chert

Description: This specimen is only the base of a projectile point. The tip and the blade edge are totally absent, there is one barbed shoulder with a deep corner notch, an expanding stem, a pointed tang and a concave base. The cross section of this point is bi-convex.

Point #A-3 is similar to point type P62 from Pinon Canyon (Lintz and Anderson 1989:298-299), type #14 at Recon John Shelter (Zier et al. 1989:141-142), and the small corner notched point found at the Lindsay Ranch site (Nelson 1971:7-8). It is more difficult to find comparable points based on only a base. This point does look much like other small corner-notched points associated with Early Ceramic sites.

Point # A-4 (Figure 4.5)

Material: Yellow chert

Description: This point consists of the stem, one tang and part of one edge. The blade edge is straight, the shoulder is extended barbed with a deep corner notch and a sharp tang. The stem is expanding and the base is slightly convex. This point has a bi-convex cross section.

This point is larger than the other points recovered from this site and resembles point type P41 from Pinon Canyon (Lintz and Anderson 1989:282-283), and MM23 from Magic Mountain (Irwin-Williams et al. 1966:84).

Point # A-5 (Figure 4.5)

Material: Pink Chert

Description: This point is a broken fragment of a point that consists of the central body of the point only. The base and the tip are both missing on this specimen. The edge is straight to slightly convex, and the cross section is bi-convex. This point is difficult to compare to other artifacts from the region due to its fragmentary nature, but it is a small point similar to most of the other points associated with this site.

Point # B-1 (Figure 4.5)

Material: Tan chert with speckles of black.

Description: This specimen is a small triangular projectile point. This point has a broken tip, a straight, unserrated blade edge, barbed shoulders, an expanding stem, pointed tangs, and a straight base. The point is bi-convex in cross section.

This point is similar to type aa at LoDaiska (Irwin et al. 1959:34-35), Type 14 at Recon John Shelter (Zier et al. 1989:141-142), and Scallorn type points (Bell 1985:84-

85). This type of point has been generally estimated to date from approximately A.D. 500 to A.D. 1500 and is usually associated with Early Ceramic sites (Bell 1985:84).

Point # B-2 (Figure 4.5)

Material: Pink chert

Description: This is a very small triangular point with a broken tip, a straight, unserrated, blade edge, abrupt shoulders with shallow notches, a slightly expanding stem, and a straight base. This point has a bi-convex cross section.

This point is similar to type 16 at Recon John Shelter (Zier et al. 1989:142-143),and type P81 from Pinon Canyon (Lintz and Anderson 1989:292-293). This point type is often dated to between 100 B.C. and A.D. 900 (Zier et al. 1989:143), in the transitional period between Late Archaic and Early Ceramic.

It is interesting to note that most of the projectile points were recovered from level A. This level has an uncalibrated radiocarbon date of 2640 +/- 80 years b.p. All of the projectile points associated with this site, with the possible exception of #A-4, are most similar to points associated with Early Ceramic components from the high Plains (Irwin-Williams et al. 1966; Irwin 1959; Nelson 1981; Anderson 1989; Zier et al.1989). Point #A-4 is the largest point recovered and looks more similar to points associated with Late Archaic components on the Plains. Similar points were found at Magic Mountain (Irwin-Williams 1966), in zone C or what they term as the Apex Complex. The Apex Complex is a Late Archaic component.

Site 5EP576 has a mixture of projectile point types that are similar to point types commonly associated with Late Archaic and Early Ceramic components. The radiocarbon dates on the two components are most likely accurate; bone dates have a tendency to be

too young rather than too old (Beta Analytic 1991 personal communication). It is possible that there has been some mixing of artifacts between level A and level B. Factors that could lead to mixing include the sandy soil, rodent activity and the slope of the site. Mixing may help to explain the association of Ceramic stage points with the early date of level B, but it does not explain the association of Ceramic stage points with the Late Archaic date of level A. Points #A-2 and #A-3 are very similar in size and style to points normally associated with the Early Ceramic period, yet they were found associated with the hearth from which the radiocarbon date was obtained. These point are also associated with point #A-4, a style most often associated with the Early Archaic. The implication may be that small projectile point styles typically associated with the Early Ceramic period may have been introduced onto the Plains during the Late Archaic, and preceded the introduction of pottery.

Scrapers

Scrapers are defined as having unifacial retouch and edge modification. This tool category is also referred to as non-bifacial tools. The term scraper is being used as a typological term only, no functional assumption is intended. These tools were manufactured on flakes, and cobbles. The small size of the assemblage does not warrant further subdivisions, since all specimens will be described individually. Most of the scrapers recovered are manufactured from flakes. One scraper is on a prismatic flake and one is on a core. This technology is similar to that described by Irwin (1959), at LoDaiska in complex C, an Archaic component at that site. Side scrapers are also very common at Magic Mountain (Irwin-Williams 1966:192), in the Apex Complex. This complex is dated in the Late Archaic. Although it is difficult to date components based

on tool typologies, especially typologies based on scrapers. Scrapers styles found at 5EP576 are similar to those found in the Late Archaic components of the Magic Mountain and LoDaiska sites. Scrapers from level A will be described first, followed by scrapers from level B. A total of eight tools identified as scrapers were recovered from level A, and two were recovered from level B.

Scraper #A-1S (Figure 4.5)

Material: Gray chert

Size: L=52mm

W=38mm

T=10mm

Description: This specimen is a large, thick prismatic flake, that is plano-convex in cross section with flaking on both lateral edges. This tool is similar to non-bifacial types 2 and 3 from Recon John (Zier 1989:122) and, Magic Mountain type MM 57 (Irwin-Williams and Irwin 1966:109), described as a side scraper retouched on both sides and convergent to form an ovoid. This type is primarily associated with zone E at Magic Mountain. Zone E is interpreted as the period between Late Archaic and Early Ceramic (Irwin-Williams and Irwin 1966:216).

Scraper A-2S (Figure 4.5)

Material: Quartzite

Size: L=48mm

W=34mm

T=11mm

Description: This is a side scraper on a prismatic blade. It is unifacially retouched, and plano-convex in cross section. This scraper shows retouch on both lateral edges. The retouch on this specimen is not as pronounced as it is in A-1S, and it is difficult to distinguish this specimen from a utilized flake. Quartzite, being more grainy than chert, does not flake as finely. The graininess could be one reason why the retouch scars are not as evident as they are in other samples. Scraper A-2S is most similar to Scraper type 5 at Spring Gulch (Kainer 1976:98), non-bifacial type 2 at Recon John (Zier et al. 1989:122), and MM 57 at Magic Mountain (Irwin-Williams and Irwin 1966:109).

Scraper A-3S (Figure 4.5)

Material: Yellow Chert

Size: L=71

W=27

T=10

Description: Scraper A-3S is a side scraper on a long flake. It is plano-convex in cross section, and has light retouch along only one side. The striking platform is intact. This specimen is similar to non-bifacial type 2 at Recon John (Zier et al. 1989:122), Magic Mountain type MM 58 (Irwin-Williams and Irwin 1966:109). MM 58 is described as a side scraper on an irregular elongated thick flake with retouch on one edge only. Scraper type A-3S is also similar to Spring Gulch type 4 (Kainer 1976:97-98).

Scraper A-4S (Figure 4.5)

Material: Tan Chert

Size: L=47mm

W=30mm

T=23mm

Description: This scraper was manufactured on a chert core or cobble. It has a very steeply flaked edge, and it has approximately 20% cortex on the dorsal surface. This specimen is ovoid in shape and is retouched around the entire diameter of the tool. This scraper shows a plano-convex cross section. This specimen is most similar to Type 6 from Spring Gulch (Kainer 1976:98-99), and MM 43 and MM 44 at Magic Mountain (Irwin-Williams and Irwin 1966:98-99).

Scraper A-5S (Figure 4.5)

Material: Quartzite

Size: L=18mm

W=12mm

T=3.5mm

Description: This specimen is the smallest scraper in the assemblage. It was manufactured on a thin flake, is flat on both the ventral and dorsal surfaces, and shows steep retouch along one edge. This specimen is a small broken fragment and does not represent a complete tool. Comparisons to tool types from other sites are difficult to make because of the fragmentary nature of the specimen.

Scraper A-6S (Figure 4.5)

Material: Yellow-Orange Chert

Size: L=30mm

W=16mm

T=6mm

Description: This scraper is similar in style to scraper A-5S, except that it is slightly larger. Scraper A-6S is flat on both the ventral and dorsal surface, exhibits steep retouch along one edge, and was manufactured on a flake. This scraper is also broken, and therefore does not represent a complete tool. It is difficult to compare with other assemblages.

Scraper A-7S (Figure 4.5)

Material: Tan Chert

Size: L=16mm

W=15mm

T=3mm

Description: Scraper A-7S was manufactured on a flake of very fine grained chert. This scraper is also very similar to scrapers A-5S and A-6S. It is fragmentary, flat on both the ventral and dorsal edges, and has steep retouch on one edge.

Scraper A-8S (Figure 4.5)

Material: Petrified Wood

Size: L=32mm

W=26mm

T=9mm

Description: This scraper was manufactured on petrified wood common to this area. The specimen is rather crudely manufactured, but this is most likely the result of a poor piece of raw material. This scraper was made on a thick flake and shows a plano-convex cross

section. This specimen is also broken and only represents a partial tool. However, scraper A-8S does show steep retouch along one side, and at the remaining end of the tool. Similar tools found near the study area include, type 3 unifacially thinned and edge modified flakes from Recon John (Zier et al. 1989:122).

Scraper B-1S (Figure 4.5)

Material: Tan Chert

Size: L=34mm

W=30mm

T=10mm

Description: This scraper was manufactured on a thick flake and is bi-convex in cross section and has steeply flaked edges on opposite and reverse faces. One end has been broken off, and the remaining end shows no sign of retouch. This is a unique specimen, and I could find no similar tool in the comparative literature.

Scraper B-2S (Figure 4.5)

Material: Petrified Wood

Size; L=28mm

W=21mm

T=6.5mm

Description: This scraper manufactured on a medium thick flake out of local petrified wood. It is flat on both the ventral and dorsal surface, and exhibits steep retouch along one edge. This specimen is broken so any good comparisons to samples from other sites in the area would be difficult.

A total of ten scrapers was recovered from site 5EP576. Eight are associated with level A, the Late Archaic component, and two are associated with level B, the Middle Archaic component. It is difficult to draw conclusions about prehistoric cultural affiliations based on the tool typology of scrapers or other unifacially retouched tools. Scrapers do not generally show as much stylistic change through time as projectile points. In this assemblage the styles exhibited by the scrapers do fit comfortably within the range of types that would be expected during the Middle and the Late Archaic periods on the high Plains.

Bifaces

Bifaces, in this study, are defined as tools which show evidence of retouch on both the ventral and dorsal surface. These are also tools which cannot easily be identified as points, drills, or other tools distinguished by functional typologies. The most likely purpose of these bifaces would be for cutting. The resources to conduct extensive residue or use wear analysis to determine the exact function were not available for this project. A single biface was recovered from level A, and three bifaces were recovered from level B.

Biface A-1B (Figure 4.5)

Material: Petrified Wood

Size: L=34mm

W=29mm

T=5mm

Description: This tool is a medium sized, roughly triangular, biface manufactured on a flake of petrified wood. The raw material is common and available in and around the Black Forest area. The specimen has a bi-convex cross section. Similar bifaces found near the study area include type 7, Medium complete unstemmed biface from Recon John (Zier et al. 1989:128). This style of biface at Recon John is associated with a transitional level between Archaic and Early Ceramic, and with Early Ceramic levels (Zier et al. 1989:149). The style does correlate with the Late Archaic dates associated with level A at 5EP576.

Biface B-1B (Figure 4.5)

Material: White Chert

Size: L=20mm

W=17mm

T=5mm

Description: This biface was manufactured on a flake of high quality white chert. The tip and the base are broken off, but it does show a triangular shape, and a bi-convex cross section. This biface is fairly small in size and could be part of a knife or part of a projectile point. It is finely worked on both lateral edges and probably had a fairly sharp tip.

Biface B-2B (Figure 4.5)

Material: Pink Chert

Size: L=13mm

W=20mm

T=3mm

Description: This biface seems to be the base only of a projectile point or a small knife. It is manufactured on a thin flake of high quality chert, and shows evidence of very fine pressure flaking on the lateral and distal edges. This biface is not stemmed, but there is some indication of edge grinding which suggests that it was halfted. The specimen has a plano-convex cross section, and a convex base.

Biface B-3B (Figure 4.5)

Material: Red Jasper

Size: L=15mm

W=15mm

T=5mm

Description: This specimen is a fragment of a biface with only a single lateral edge remaining. The edge shows evidence of fairly fine bifacial retouch, and the tool has a bi-convex cross section.

Suggesting dates of occupation based on biface typologies is risky. However, the biface from level A does fit within the range expected for a Late Archaic component. The bifaces from level B also fit within the range that would be expected from a Middle Archaic component. If bifaces B-1B and B2-B represent projectile points, then those also are consistent with the size and the types of points that are commonly found at Middle Archaic sites. The Fourth of July Valley Complex, occupied during the Early Archaic (Benedict 1979:6-8), and located in the mountains along the Front Range, is associated with medium sized lanceolate and stemmed points. These styles would pre-date the styles found in component B at 5EP576 by approximately 1000 years. This site does not contain

a large enough sample to draw any conclusions about possible relationships between these two groups, but there is enough similarity to suggest that the bifaces from component B are consistent with the dates associated with this component.

Drills

Only two drills were recovered during the excavation of site 5EP576, one from each level.

Drill A-1D (Figure 4.5)

Material: Gray Chert

Description: This artifact is a bifacially retouched section of a stone drill. The surviving section is the neck and part of the base. This drill has a constricted neck and an expanding base. It also exhibits a bi-convex cross section.

Drill B-1D (Figure 4.5)

Material: Petrified Wood

Description: This drill is larger and cruder looking than the previous one from level A. This may have to do with the raw material rather than manufacture techniques. It is bifacially retouched with a constricting neck, expanding base, and a bi-convex cross section. This drill is also broken; all that survives is part of the base and part of the neck.

Drills can show stylistic variation through time, but more of the tool is needed to make that comparison. Therefore, no attempt will be made to compare these drills to others in the area based on style.

Spokeshaves

Spokeshaves are traditionally defined as tools with a small concave edge that shows evidence of unifacial flaking. Two spokeshaves are included in this assemblage. One from level A, and one from level B.

Spokeshave A-1SP (Figure 4.5)

Material: Petrified Wood

Size: L=25mm

W=20mm

T=5mm

Description: This artifact was manufactured on a medium sized flake of petrified wood. It has two concave indentations that are steeply retouched. The larger indentation measures 12mm across, and the smaller one measures only 6mm across. The tool is unifacially retouched, and has a plano-convex cross section.

Spokeshave B-1SP (Figure 4.5)

Material: Chert

Size: L=57mm

W=39mm

T=12mm

Description: This spokeshave was manufactured on a large flake of chert. It has a roughly bi-convex cross section, and a single concavity, unifacially retouched at one end. The width of this concavity is 16mm across.

Spokeshaves are generally made on large to medium sized flakes, and they all have similar indentations. The size of the flake and the concavity will vary, but the fundamental manufacturing process does not. Spokeshaves are found in most levels at Spring Gulch (Kainer 1976:105).

Battered Biface B-1BB (Figure 4.5)

Material: Petrified Wood

Size: L=39mm

W=28mm

T=18mm

Description: A single artifact was recovered from level "B" that shows evidence of pounding or battering along its entire edge. This artifact is a large, thick, bifacially retouched piece of petrified wood. It has been broken, and is not a complete specimen. The most probable use of this artifact was for chopping.

Utilized Flakes

A total of four utilized flakes were identified in this assemblage. All of these are associated with level A. Utilized flakes show no sign of tool manufacture, but they do show signs of use as indicated by edge wear. Edge wear can take the form of edge crushing, or step flaking.

Cores and Core Fragments

A total of ten cores or fragments of cores were recovered during the excavation of site 5EP576. Five are associated with level A and five with level B. Three of the

cores from level A are chert and two are petrified wood. From level B, four are petrified wood and one is chert. All of the cores except one, indicate that flakes were taken off arbitrarily (dependent upon the shape of the nodule and location of any imperfections) similar to the "discoidal cores" described at Magic Mountain (Irwin and Irwin-Williams 1966:59), and by Kainer (1976:112) at Spring Gulch. One Core from level B has a prepared platform and long blade-like flakes were struck from this. This core is made of local, fine grained petrified wood, and has a conical shape.

Ground Stone

The third major category of lithic artifacts is ground stone artifacts. This category includes grinding slabs (metates), and hand stones (manos). A total of 20 ground stone artifacts is represented in this assemblage. Some of the tools in this category are too small to identify their function. These small pieces are recognized as grinding tools on the basis of exhibiting a polished surface. The larger specimens are distinguished based on size, shape, and the presence of a polished surface. There are no complete grinding stones from this assemblage.

Manos

Nine pieces of manos or hand stones come from level A. Seven of these are made out of quartzite, one is a piece of a quartz stream cobble, and one is made from fine grained sandstone. Three of the fragments show evidence of two grinding surfaces. The other six only have a single grinding surface intact. None of the specimens shows any evidence of secondary use wear such as battering, or pecking.

There were no distinguishable mano fragments recovered from level B.

Metates

A single broken metate was found in level A (Figure 4.6). This metate is a single sided thin sandstone slab. It measures 31mm thick. The original dimensions cannot be determined due to the fragmentary nature of the specimen. A single section of the edge of the metate remains, and this shows that it was possibly round or ovoid in shape. This metate was manufactured out of local sandstone and shows signs of oxidation as a result of heating. The ground surface is very smooth, with no indication of a depression.

Level B also contained a single metate fragment. This fragment is a section from the center of a double faced metate. This artifact is also thin (25mm), and does show evidence of thinning toward the center. This metate is made of locally available, fine grained sandstone.

Unidentifiable Ground Stone

All of the specimens of unidentifiable ground stone are made of sandstone. In level A eight small sandstone fragments contain single ground surfaces. In level B one sandstone fragment has a single ground surface. Due to the incomplete nature of these artifacts it is impossible to ascertain their use.

Ground stone artifacts are represented more in level A (Late Archaic) than in level B (Middle Archaic). This distribution could be due to many factors, such as length of occupation of the site, function of the site, disturbance, as well as many other reasons. All artifact categories are more abundant in level A. It is interesting to note that at Recon John Shelter (Zier et al.1989:159), Zier found that the Late Archaic component contained

Figure 4.6 Broken metate, level A, 5EP576.

more grinding stones than the Early Ceramic. It may be possible that the Late Archaic on the southeastern Plains of Colorado is distinguished by this increase in reliance on foods that need extensive processing.

Cobbles, Battered Cobbles, and Problematical Objects

This category has become a catch-all for miscellaneous items that were recovered during the excavation. There were several stream cobbles found in the excavation that would not normally occur in this colluvial deposit. Most of these cobbles show no evidence of use such as battering or grinding, but were probably transported to this location by the prehistoric inhabitants. These cobbles may have been used as cooking or boiling stones as is suggested by Nowak and Jones (1984:30-47). Some of the cobbles have definite battered surfaces, from use as percussion tools, that are consistent with percussion flintknapping (Zier et al. 1989:155). Other objects that are included in this category are two pieces of petrified wood that do not seem to occur naturally in the area, show no sign of retouch or use, and are not of the quality material associated with the other tools.

Battered Cobbles

Three cobbles with evidence of battering or pecking were recovered from this site. All of the specimens are from cultural level A.

Battered Cobble A-1BC

Material: Quartz

Description: This specimen is a small white cobble of quartz. It shows evidence of battering along most of its high ridges and protrusions. This pattern of battering is similar to that described by Zier et al. (1989:155), on a specimen found at Recon John Shelter, that is regarded as a flintknapping tool. Similar items were also found at Spring Gulch (Kainer 1976:129-131), and are referred to as hammerstones.

Battered Cobble A-2BC

Material: Quartz

Description: This specimen is a fragment of a quartz stream cobble. The end that remains shows evidence of pecking or battering. This specimen may have also been used as a boiling stone because of evidence of being cracked by heat.

Battered Cobble A-3BC

Material: Quartzite

Description: This specimen is a large cortical flake from a quartzite cobble. The dorsal surface shows heavy battering on a single raised edge. It is possible that this cobble fractured during use.

Cobbles

A total of ten broken stream cobbles was located at site 5EP576. Nine of these were found in association with Level A, and only one in level B. None was found in direct association with the hearth. However, most of these cobbles do show signs of heat fracturing. All of the cobbles are quartz, quartzite, or granite. They were most likely used as cooking stones.

Problematical Objects

Two pieces of light colored petrified wood were found in the excavations, one from each level. This is not the same petrified wood often found in tools, or is it of adequate quality for stone tools. These may have occurred naturally, or they may have been picked up and carried to the site as curiosities.

Feature

Although fire-cracked and charred sandstone were commonly found scattered throughout the excavation, only a single rock filled hearth was found (feature 1)(Figure 4.7). The hearth is situated in level A, at a depth of between 30-45cm. The hearth is roughly oval in plan, measuring approximately 50X60 cm. It is comprised of fire-reddened chunks of sandstone, and does not appear to have been an excavated pit. Many of the artifacts from the A level and most of the bones were found in or around this hearth.

Most of the bone recovered from the vicinity of the hearth was highly fragmented. This is commonly associated with the process of bone grease manufacture (Vehik 1977). A similar feature found at McEndree Ranch Site, dated at 2350 +/- 65 years B.P., also has abundant splintered bone and some charred bone associated with it. Shields (1980:4-5) has interpreted this hearth as possibly a boiling pit used in the preparation of bone grease. This feature (Fire Feature 3) is similar in its age as well as its possible function.

Figure 4.7 Hearth, Feature 1, 5EP576.


BOWART RS
15S-2W

Faunal Remains

Animal bones and fragments of bone were abundant at site 5EP576. No bone tools were recovered from this site. Faunal identification was conducted by comparing the identifiable bones and fragments of bone to the faunal collection at the Denver Museum of Natural History, Zoology Department. This identification was only conducted on the medium to large mammal bones from the collection. Numerous rodent bone were recovered from the site. These bones are thought to be intrusive and are not included in the archaeological assemblage. Evidence of rodent activity in this site is extensive. There are numerous old and new rodent burrows, as well as indications of rodent gnawing on prehistoric bone.

Most of the bone material recovered from this site is highly fragmentary and therefore unidentifiable. This highly fragmentary but abundant collection of bone is consistent with the manufacture of bone grease (Greiser et al. 1985:859). Bone grease was manufactured by smashing bone into very small pieces and then boiling these pieces to remove all of the grease. After the boiled mixture cooled, the grease could easily be removed for later consumption (Witkind 1971:74).

Numerous fragments of long bones from medium and large mammals were also abundant at this site. These bones often show evidence of spiral fractures and are often charred. These attributes are generally attributed to the extraction of bone marrow (Greiser et al. 1985:858).

Identified Fauna

A total of 42 bones or fragments of bones of medium to large mammals were identifiable. Table 4.5 shows the distribution of species by cultural level, and the body parts identified. From level A there were a minimum of two deer, one elk and one bison present in the assemblage. Level B contained a minimum of two pronghorn and one bison.

A limited number of body parts is represented at this site from all species and from both levels. The assemblage is dominated by mandibles, leg bones, and foot bones. This may be evidence of secondary butchering practices. Units of meat and hides were carried to this site from a nearby kill site, consumed and processed. There are many examples of sites with similar faunal body parts. For instance, the bone bed at area 3 at The Jurgens site had a "... preponderance of rear and front leg units..." (Wheat 1978:86). This site has been interpreted by Wheat as a butchering site or station. Many of the long bones at the Jurgens Site have been broken, presumably to get at the marrow, and the abundance of foot bones is explained by the premise that the foot makes an excellent carrying handle when transporting a hind or fore-quarter of an animal (Wheat 1978:88).

At the Williamson Site, a Late Archaic site in eastern Kansas, the faunal assemblage consists predominately of lower leg elements and some teeth. This incidence of body parts has been interpreted as an indication, in regard to the larger game species, that they were butchered elsewhere and the fore and hind limbs were brought to the site for additional processing (Schmits 1987:164).

5EP576 FAUNAL DISTRIBUTION BY SPECIES AND BODY PART

BODY PART	BISON	ANTELOPE	ELK	DEER	TOTAL	PERCENTAGE
PHALANGES	2	2	4	3	11	26.19%
TARSALS	1	0	2	3	6	14.29%
CARPALS	0	0	2	3	5	11.90%
HUMERUS	0	3	0	0	3	7.14%
RADIUS	1	0	0	0	1	2.38%
TIBIA	0	0	0	1	1	2.38%
METAPODIALS	0	0	4	0	4	9.52%
MANDIBLES	1	0	0	0	1	2.38%
TEETH	4	0	0	6	10	23.81%
TOTAL	9	5	12	16	42	
PERCENTAGE	21.43%	11.90%	28.57%	38.10%		

n=42

Table 4.5 Faunal body parts represented at site 5EP576.

The Spring Gulch Site yielded the same kind of faunal evidence. Bison bone was dominated by forelimb and hindlimb units (88.8%), and deer bone showed similar abundance of forelimb and hindlimb units (70.13%)(Kainer 1976:152). Kainer also interprets this prevalence of faunal lower leg units and the absence of axial skeletal units as an indication that the animals were being butchered elsewhere, quartered and transported to other sites for additional processing (Kainer 1976:152).

The majority of the bone recovered at site 5EP576 has been identified as being from either medium or large game species. The smallest animal identified (other than intrusive rodents) was pronghorn, and the largest was bison. This predominance of larger species demonstrates that this site was predominately used to process meat from kills that probably occurred nearby.

Floral Remains

No seeds or other floral evidence was recovered during the excavation of 5EP576. Soil samples were taken from a single trench during the 1989 field season. These samples were taken at 10cm intervals until bedrock was encountered at 100cm deep. Due to budget constraints the samples were analyzed for pollen only; no flotation analysis was conducted at this site. All of the samples were submitted to PaleoResearch in Golden, Colorado, and were analyzed by Linda Cummings. The results of that data will be summarized in this section.

Pollen

Figure 4.8 shows the pollen diagram from 5EP576. The pollen record does not give a precise indication of plants being utilized at this site, but it does give some

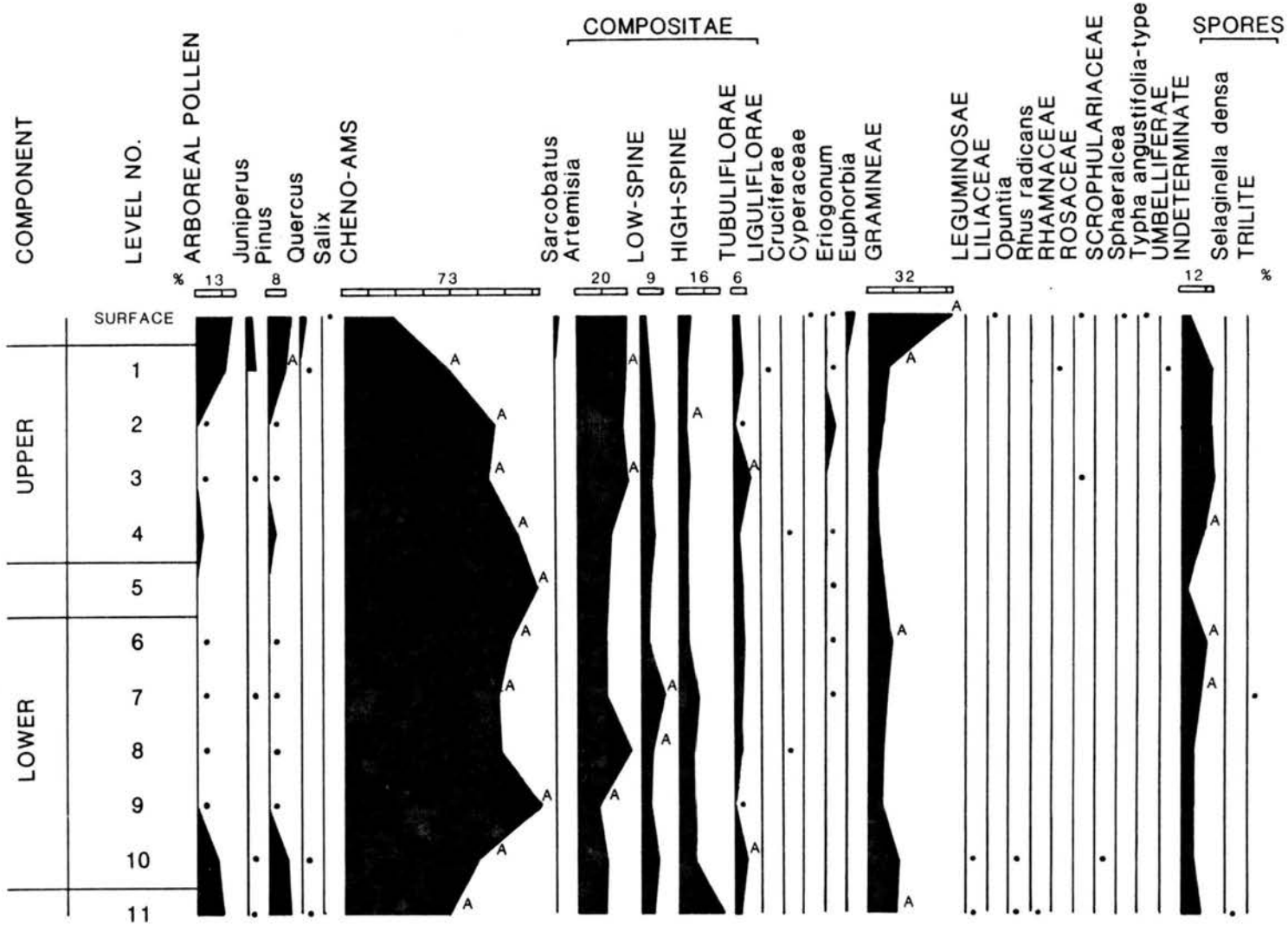


Figure 4.8 Pollen diagram from 5EP576. "A" indicates aggregates.

indication of the climatic conditions that were present during the occupation of this site. Some of the pollen found in the samples may be the result of human interaction, especially the Cheno-am pollen. Although Chenopodium grows wild all over the area today, and did so in the past, it is a species that was exploited commonly by prehistoric peoples (Kindscher 1987:80-81).

Most of the pollen record at 5EP576 is dominated by saltbush. Level B is dominated by saltbush and comparatively few grasses. Cummings (1991a:3) suggests that this may be an indication that the climate in level B was somewhat drier than that of today. The occupation of level B, radiocarbon dated at over 5000 years old, corresponds to the end of the Altithermal climatic episode. The relatively higher amounts of pine and grass pollen associated with the two lowest levels suggest that the Altithermal may have been less severe at this time, although it was still drier than the present environment. Cummings (1991a:2-3) suggests that level B shows a warming trend because of the increase of Artemisia pollen and the decrease of pine and grass pollen. Level 5 in figure 4.8 represents the sterile layer that separates components. In her analysis of the pollen sequence, Cummings indicates that the increase in Cheno-am pollen in conjunction with the absence of arboreal pollen signifies a period even warmer and drier than the period represented by component B (Cummings 1991a:3).

Component A is characterized by generally declining Cheno-am pollen, and somewhat increasing levels of Gramineae (grass), and Artemisia pollen. This signifies a climate that is becoming slightly cooler and moister (Cummings 1991a:3). The upper levels of the pollen samples show an increase in Pinus, Juniperus, and Quercus pollen. This increase late in the record are typical of deposits that occur during the Little Ice Age (400-100 BP.)(Cummings 1991a:3).

The vegetation at this site during the level B occupation was dominated by saltbush, and the climate was relatively warm and dry. The vegetation during the level A occupation was still dominated by saltbush, but there was a higher incidence of sagebrush and grasses. The climate became somewhat cooler and wetter during this time (Cummings 1991a:4).

Summary/Conclusions

Based on the archaeological evidence recovered from site 5EP576, some inferences can be made regarding this site and the activities that occurred there. 5EP576 was a temporary camp site and a meat processing site. Pieces of butchered animals were carried to this location for processing and consumption. There were probably several nearby kill sites utilized over time. This site was utilized periodically over a span of approximately 2000 years, with a brief hiatus of use due to severe climate. The proximity of Black Squirrel Creek and of the cliff undoubtedly had a considerable influence on the choice of this location. The creek area is a ideal place to encounter game, and the cliff offers shelter and opportunities for traps and blinds.

The types of tools recovered at 5EP576 indicate that this site was probably used for short term camping as well as for meat processing. Most of the points recovered are bases. This high incidence of bases, especially in and around a hearth, is an indication that the people were re-halfting their projectiles. The presence of spokeshaves is another indication that the repair and manufacture of tools was occurring. Also, the abundance of lithic debris, and battered cobbles, shows that there was considerable tool making activity taking place. The presence of grinding stones is evidence that these people were utilizing local plant resources while at this location.

The Jurgens Site near Kersey, Colorado, although a Paleo-Indian site, has an area interpreted as a short term camp site (Wheat 1978:89). It is similar to 5EP576 in the tools and faunal elements. Jurgens area 2 contained parts of two bison including mandibles but no skulls. Also located in the faunal debris were mainly front and rear leg bones, a few vertebrae and some scattered ribs. The proximal end of a pronghorn tibia was also recovered. The long bones were broken to extract marrow (Wheat 1978:89). Tools at this site included scrapers, projectile points, point bases, and abundant debitage (Wheat 1978:89). Jurgens area 2 has elements that are very similar to those found at 5EP576, and most likely similar types of activities were occurring at both sites.

CHAPTER 5

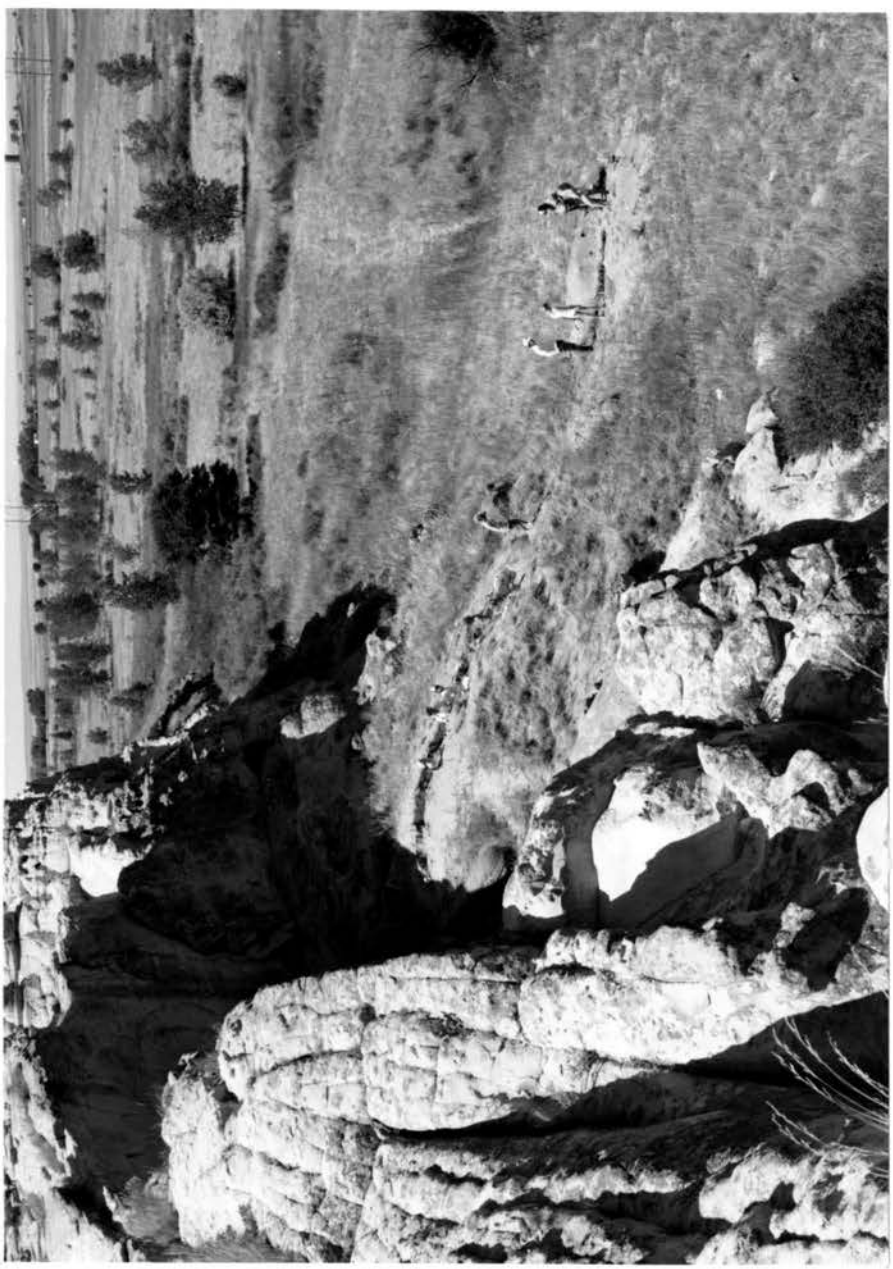
SITE 5EP2

Excavation Strategies

In the process of surveying the area around the Crow's Roost cliff, a large, relatively deep rockshelter near the northernmost section of the cliff face was observed. This shelter (Figure 5.1) is beneath the highest part of the cliff and has an eolian deposit extending from the mouth of the shelter to the edge of the creek. Upon close examination of this dune, a lithic scatter and small cord impressed potsherds were found eroding out of the base.

The site was first reported in 1964 to the Colorado Historical Society. At that time the site was described as being located at the base of the Crow's Roost cliff, and the recorder observed bones eroding from the deposit. Since this location is the only culture bearing deposit at the base of the high and steep section of the cliff, it was concluded that this was the recorded site of 5EP2. Although the description of the site was specific regarding the site location, the site was accidentally recorded in the section to the north. Since the cliff is not in that section, site survey forms were resubmitted to the Colorado Historical society with precise and updated information on this site. The site was also originally reported as a bison jump site. Given the site's proximity to the cliff, and the height of the cliff at this point (approximately 50 feet) it is easy to

Figure 5.1 View of site 5EP2 looking north.



understand how that assumption could be made. However, extensive tests were conducted at this site and no evidence of a bison jump was found.

The rockshelter is approximately 45 meters in width and 8 meters deep. There are no deposits in the back of the shelter due to erosion from runoff from the cliff, and erosion from a spring at the back of the shelter.

The spring is presently inactive, but there is evidence that it was flowing perhaps 80-90 years ago (Thomas Huber 1989 personal communication). The area water tables have dropped significantly over the past 100 years due to the exportation of water to areas around Colorado Springs, and local wells and irrigation (Buckles and Watts 1988:45-47).

The remaining deposit consists of a truncated sand dune that projects from the front of the rockshelter down to the creek bed. Test excavations were begun in this deposit in the summer of 1986. A single 2mX1m test trench was laid out and excavated. Datum was established by driving a nail permanently into the sandstone at the back of the shelter. The baseline was established parallel to the orientation of the deposit, and the rockshelter (N.E. to S.W.). An alpha-numeric grid was then set up to simplify the location of the trenches (Figure 5.2).

After the test trench was excavated in 1986, the site was revisited in the summer of 1987 for the purpose of conducting more extensive investigations. A total of 13 square meters was excavated at this site during the field seasons of 1986 and 1987. This total includes a 1mX2m trench excavated in the modern alluvium of the creek bed. Initially units were excavated in arbitrary 10cm levels parallel to the surface. After the natural stratigraphy was recognized units were excavated by natural levels. The trench shown in figure 5.2, excavated perpendicular to the deposit, was initially dug in alternate one

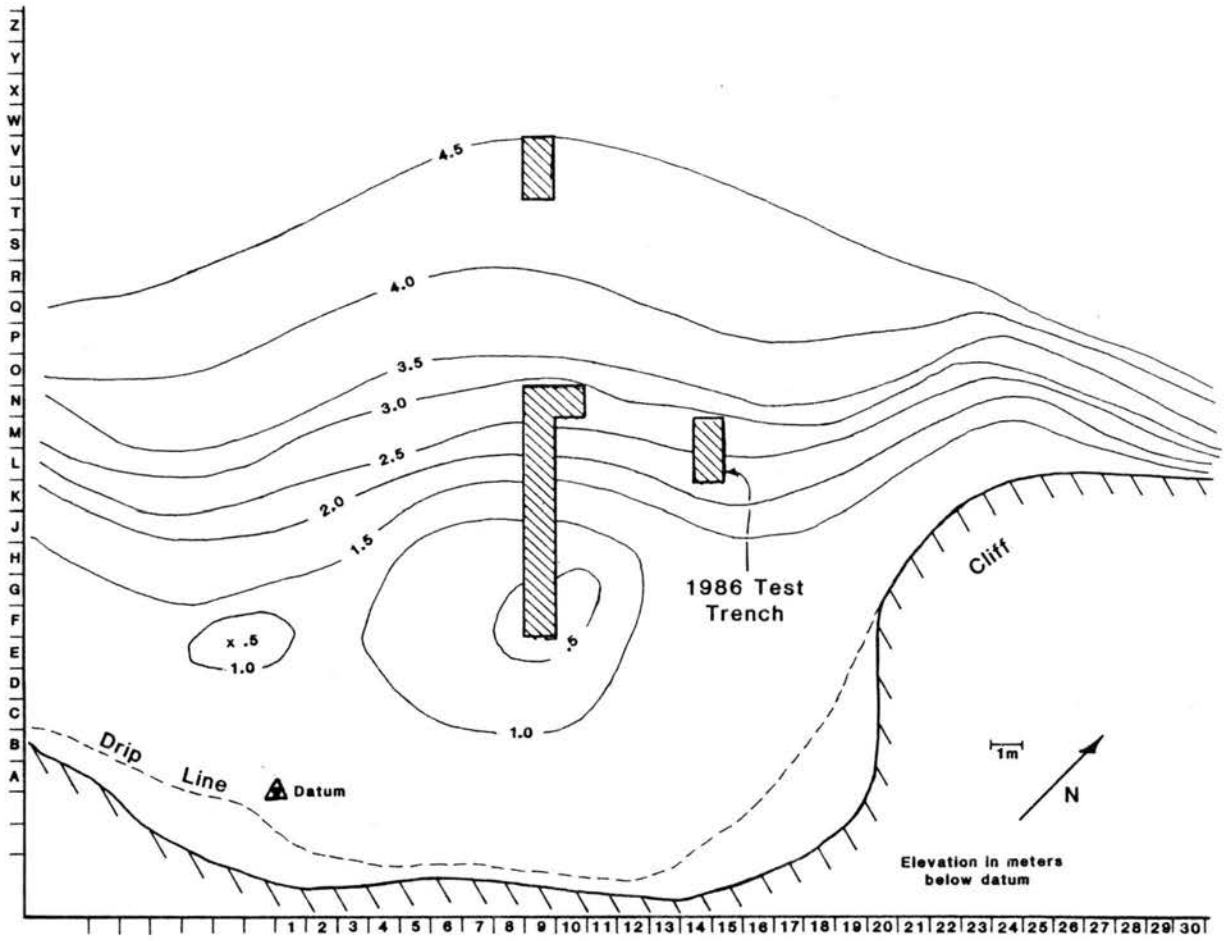


Figure 5.2 Map of site 5EP2.

meter units to identify the natural stratigraphy. After the stratigraphy was established, the remaining units were removed to complete the trench. All of the excavated deposits were screened through 1/4" mesh screen, and all of the units were backfilled at the conclusion of each field season.

Stratigraphy

An in depth analysis was conducted on the dunal deposits at site 5EP2 by Thomas Huber of the Geography Department at the University of Colorado at Colorado Springs. The description of the stratigraphy of this site draws heavily from this work.

Figure 5.3 shows the stratigraphic profile of site 5EP2. Huber submits (Wynn et al. n.d.) that the dunal deposit was laid down during two separate cycles, and that the cross-bedding in levels A, B, and C is typical of dune deposition.

Depositional Chronology

According to Huber, the earliest deposit, levels E, and F, appear to date from the Neoglacial Interstade period between the deposits of the Piney Creek Alluvium and the Post-Piney Creek Alluvium. This was a very dry period which dates between 1800 B.P. and 1300 B.P. (Wynn et al. n.d.:4; Scott 1965). Levels A, B, C, and possibly D were deposited following the Post-Piney Creek Alluvium Cycle between 800 B.P. and 300 B.P.(Wynn et al. n.d.:4).

Radiocarbon Dates

Four radiocarbon dates were acquired from site 5EP2. These dates were obtained from three different levels. Two of the dates were obtained from level E/F, one from

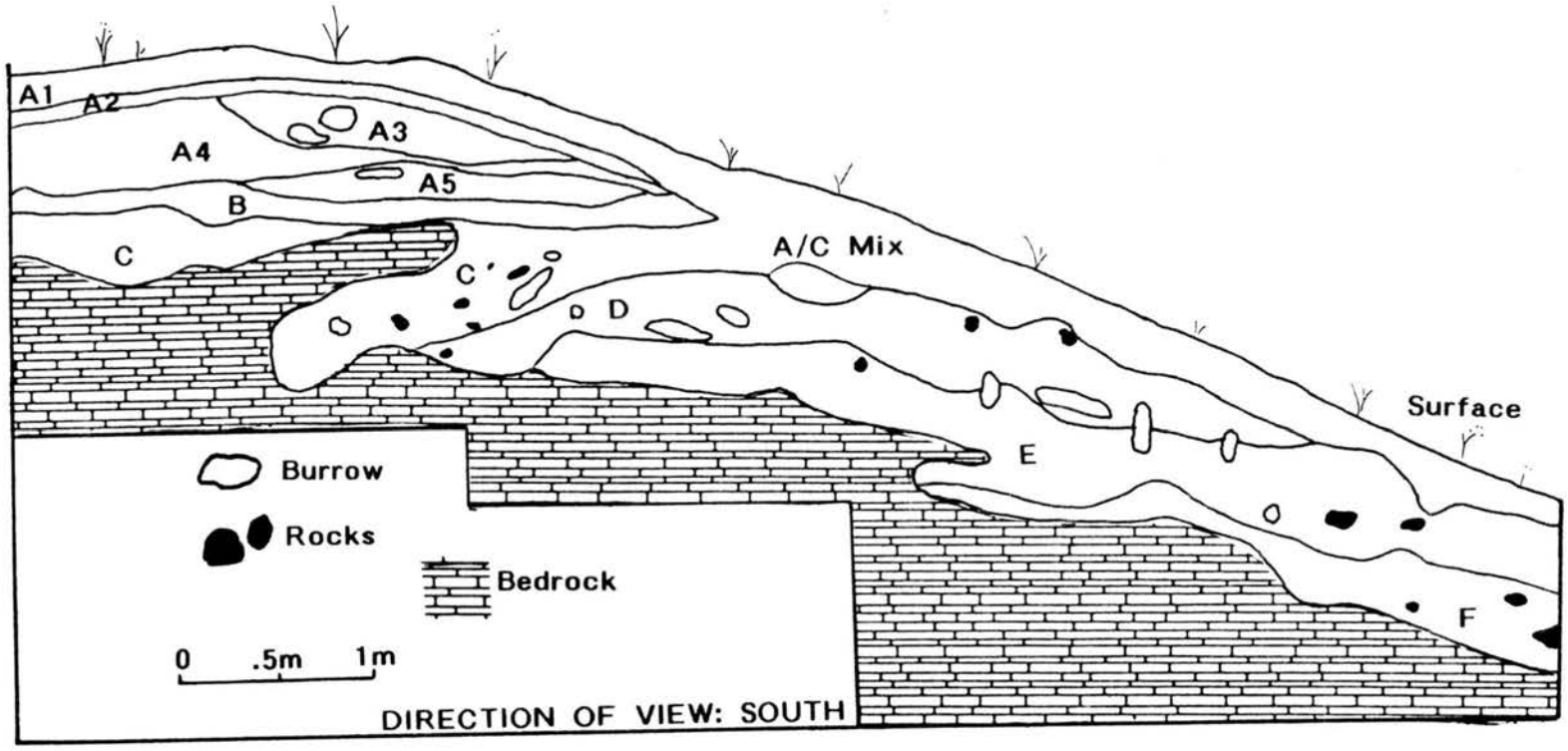


Figure 5.3 Stratigraphic profile of site 5EP2.

level D, and one from level A5/B. All of the dates were obtained from samples of charcoal. Samples were submitted to Beta Analytic Inc. in Coral Gables, Florida for analysis. The dates have been calibrated according to Stuiver and Becker (1986) to a two sigma range. The dates are as follows:

Beta-26576 5EP2 Level A5/B B.P. 520 (460) 300
Uncalibrated 360 +/- 60 b.p.

Beta-26577 5EP2 Level D B.P. 948 (817, 814, 794) 690
Uncalibrated 900 +/- 50 b.p.

Beta-19348 5EP2 Level E/F B.P. 1370 (1289) 1152
Uncalibrated 1350 +/- 60 b.p.

Beta-19347 5EP2 Level E/F B.P. 1530 (1386) 1290
Uncalibrated 1490 +/- 60 b.p.

The two dates from the earliest occupational level (E/F) both easily represent the Early Ceramic period on the Plains. An average of these two dates was calculated while calibrating them (Stuiver and Becker 1986). There is always the possibility that charcoal from these levels has become mixed due to external disturbances over time. This average date is:

B.P. 1407 (1310) 1279

This sequence represents a prehistoric occupation of this site spanning the Early Ceramic period, through the Middle Ceramic, and into the Late Ceramic or Protohistoric. Cultural materials were found associated with all levels. with the most abundant materials located in the two lowest components. Level A/B/C represents the most recent occupation, although this level has the fewest artifacts associated with it. Level D represents a Middle Ceramic occupation, and level E/F represents a Early Ceramic occupation. The amount of cultural material associated with level D is very little. Level E/F (Early Ceramic) contains the largest number of artifacts, and shows the most intensive period of occupation.

Lithics

The lithic material from this site has been divided into four categories: chipped tools, ground stone, debitage, and miscellaneous. These categories are the same as those used on the previous site (5EP576).

Debitage

A total of 123 waste flakes were recovered from the excavation units. This represents 84% of the total lithic assemblage. Tables 5.1, 5.2, and 5.3 show the debitage by cultural level, quantity, size, and raw material. Tables 5.4, 5.5, and 5.6 show the mean size data and the percentage of cortex on all of the complete flakes in each cultural level.

The debitage represented in this assemblage was large enough not to have passed through a 1/4" mesh screen, or was recovered in situ. The debitage in this sample,

5EP2 LEVEL A/B/C
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	2	4	2	0	8	28.57%
Chert/Chalcedony	5	4	2	1	12	42.86%
Jasper	0	0	3	0	3	10.71%
Quartz	0	0	2	0	2	7.14%
Quartzite	1	0	0	0	1	3.57%
Limestone	0	1	0	0	1	3.57%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	1	0	0	1	3.57%
Total	8	10	9	1	28	
Percentage	28.57%	35.71%	32.14%	3.57%		

n=28

Table 5.1 Flake types and raw material, level A/B/C, 5EP2.

5EP2 LEVEL D
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	5	5	12	1	23	46.00%
Chert/Chalcedony	2	3	6	1	12	24.00%
Jasper	0	2	4	0	6	12.00%
Quartz	1	0	2	1	4	8.00%
Quartzite	1	0	3	0	4	8.00%
Limestone	0	1	0	0	1	2.00%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	0	0	0	0	0.00%
Total	9	11	27	3	50	
Percentage	18.00%	22.00%	54.00%	6.00%		

n=50

Table 5.2 Flake types and raw material, level D, 5EP2.

5EP2 LEVEL E/F
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	1	4	8	2	15	33.33%
Chert/Chalcedony	5	5	7	3	20	44.44%
Jasper	1	0	5	0	6	13.33%
Quartz	0	0	0	1	1	2.22%
Quartzite	1	0	1	0	2	4.44%
Limestone	0	0	0	0	0	0.00%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	0	0	1	1	2.22%
Total	8	9	21	7	45	
Percentage	17.78%	20.00%	46.67%	15.56%		

n=45

Table 5.3 Flake types and raw material, level E/F, 5EP2.

DATA FOR COMPLETE FLAKES
LEVEL A/B/C
5EP2

n=8

Mean flake length: 1.2 cm
Mean flake width: 1.13 cm
Mean flake thickness: .23 cm

Range of flake size, Length: .6 to 1.7 cm
Range of flake size, Width: .7 to 1.9 cm
Range of flake size, Thickness: .1 to .5 cm

Number of cortical flakes: 1 (12.5%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	0
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	0
# flakes with 90-100% cortex	1

Table 5.4 Data on complete flakes for site 5EP2, level A/B/C.

DATA FOR COMPLETE FLAKES
LEVEL D
5EP2

n=9

Mean flake length: 1.46 cm
Mean flake width: .97 cm
Mean flake thickness: .25 cm

Range of flake size, Length: .7 to 2.4 cm
Range of flake size, Width: .6 to 1.5 cm
Range of flake size, Thickness: .1 to .5 cm

Number of cortical flakes: 1 (11%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	0
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	1
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	0
# flakes with 90-100% cortex	0

Table 5.5 Data on complete flakes from 5EP2, level D.

DATA FOR COMPLETE FLAKES

LEVEL E/F
5EP2

n=7

Mean flake length: 1.6 cm
Mean flake width: 1.18 cm
Mean flake thickness: .21 cm

Range of flake size, Length: .9 to 3.6 cm
Range of flake size, Width: .6 to 2.4 cm
Range of flake size, Thickness: .1 to .3 cm

Number of cortical flakes: 0 (0%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	0
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	0
# flakes with 90-100% cortex	0

Table 5.6 Data on complete flakes from site 5EP2, level E/F.

therefore, is likely the result of core reduction and intermediate tool manufacture. Many of the very small flakes, commonly associated with the final stages of tool manufacture, would be underrepresented in this sample.

A single grey chert core fragment was recovered on the surface. This chert core fragment was made from a stream cobble and about 60% of the surface area is cortex.

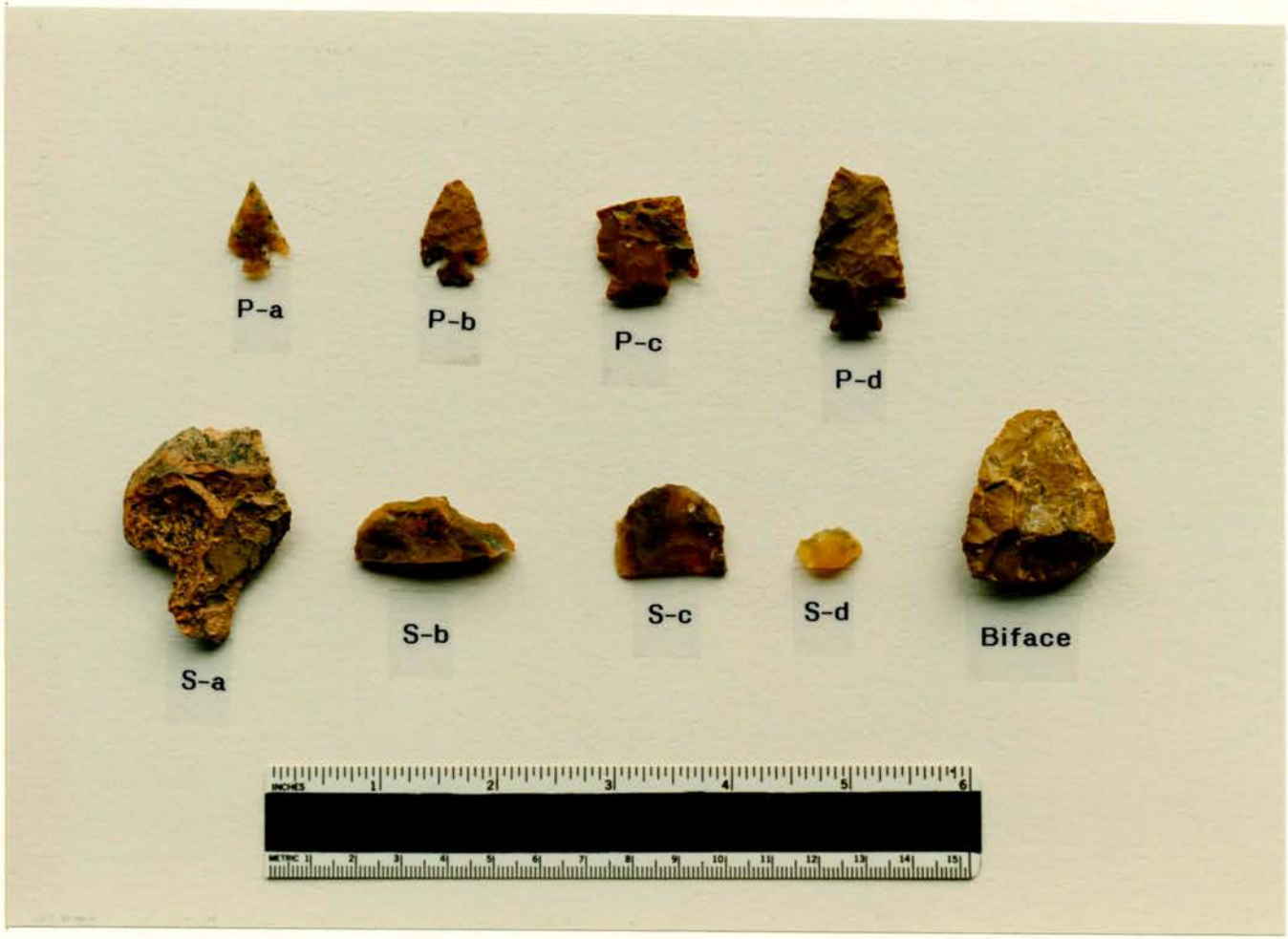
Chipped Tools

The second category in the lithic analysis is chipped tools. This category includes points, scrapers, bifaces, and utilized flakes.

A total of 13 chipped tools was identified from site 5EP2. There are four projectile points, four scrapers, one biface, one chopper, and three utilized flakes. The complete assemblage is shown in figures 5.4, and 5.5.

Site 5EP2 has a very small assemblage. Because of this, each artifact will be described individually instead of sorting the artifacts into categories based on similar attributes. The extremely small size of this assemblage would make the latter type of classification impossible. Each artifact will be described based on methods and terms that have been derived and modified from a variety of researchers working near this area (Lintz and Anderson 1989; Zier et al. 1989, 1990; Irwin 1959; Irwin-Williams and Irwin 1966). Each artifact will be described based on tool type, and stratigraphic association, and each artifact will be assigned a letter (e.g. Point #a, Scraper #a, etc.). The analysis will follow the same basic format as that of 5EP576.

Figure 5.4 Chipped tool assemblage from 5EP2.


P-a
P-b
P-c
P-d
S-a
S-b
S-c
S-d
Biface

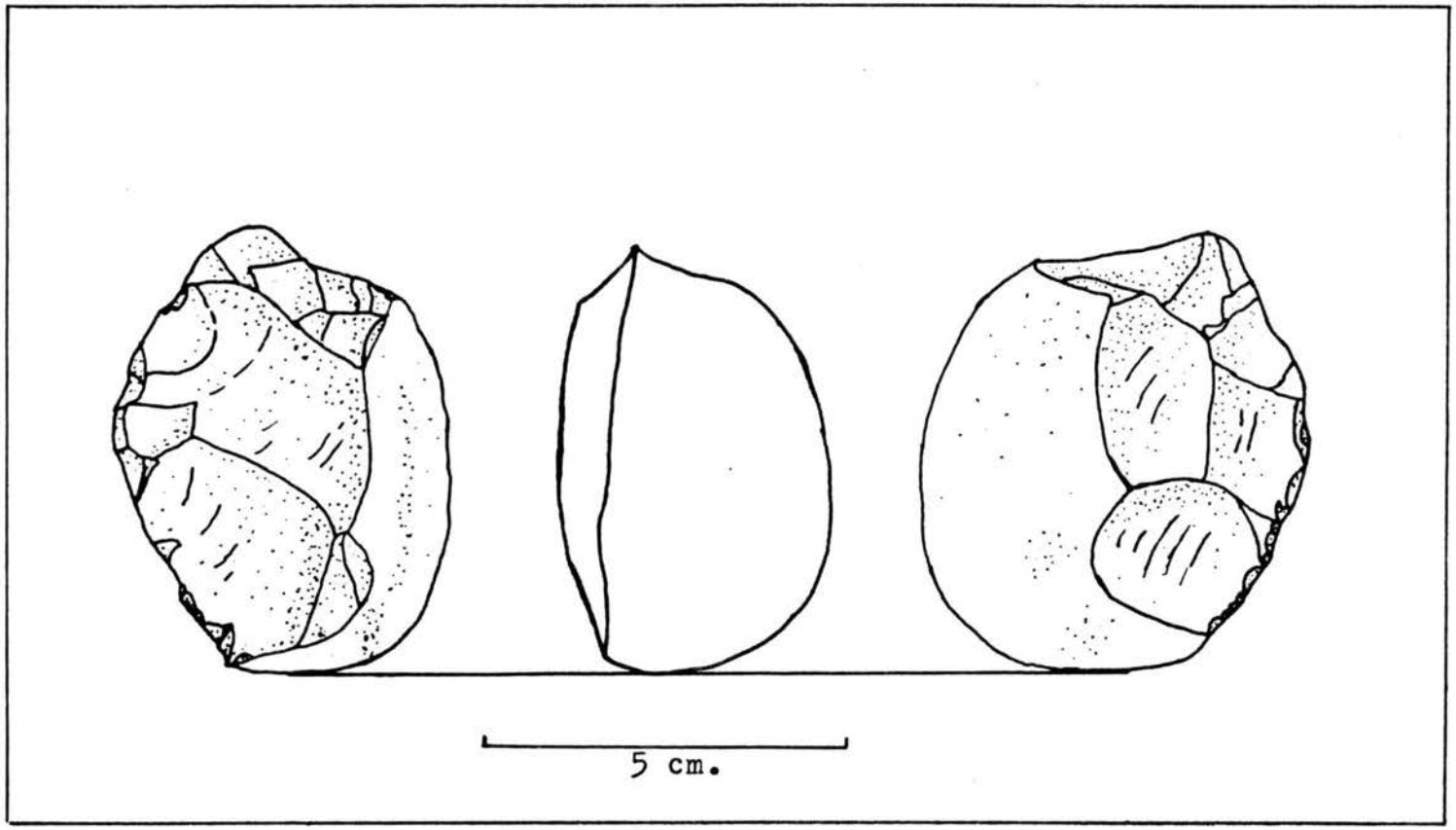


Figure 5.5 Surface chopper from site 5EP2.

Points

A total of four tools in the assemblage were identified as projectile points. No points were recovered from level A/B/C, two points were recovered from level D, one point was recovered from level E/F, and one point was found on the surface eroding out of the deposit.

Point #a (Figure 5.4)

Material: Translucent amber chert or chalcedony

Description: This is a small triangular, corner notched point, with a very sharp tip, a straight serrated blade edge, barbed shoulders, an expanding stem and a slightly convex base. This point is extremely thin (2mm), and has a bi-convex cross section. This point was recovered from the 1986 test trench (Figure 5.2), and is associated with level D.

Point #a is very common throughout the Colorado foothills and Plains, northeastern New Mexico, and western Oklahoma. (Lintz and Anderson 1989:237). This point is similar to point type P62 at Pinon Canyon (Lintz and Anderson 1989:298-299), Recon John type 14 (Zier et al. 1989:141), and points d, n, and o from Torres Cave (Hyde 1979:11). This is most commonly referred to as a Scallorn point and dates between A.D. 500 and A.D. 1400 (Zier et al. 1989:141).

Point #b (Figure 5.4)

Material: Petrified Wood

Description: This specimen is a small corner notched projectile point with straight to slightly convex edges. This point has an expanding stem, a straight base, barbed shoulders, a sharp tip, and has a bi-convex cross section.

Point #b was recovered from trench M9 in cultural level D.

Point #b is similar to point type A at Van Bibber Creek (Nelson 1969:98), and point type P60 at Pinon Canyon (Lintz and Anderson 1989:190-191). This point type is commonly found over much of the region and probably dates between A.D. 500 and A.D. 1300 (Lintz and Anderson 1989:192).

Point #c (Figure 5.4)

Material: Petrified Wood

Description: Point #c consists of the base and one side of a large corner notched projectile point. This point has a straight edge, a straight base, a expanding stem, a barbed shoulder, and a bi-convex cross section.

This point is significantly larger than points #a and #b. This specimen was recovered from trench N9 and is associated with level E/F.

Projectile point #c is most similar to points dated from the Late Archaic in this region. This point was recovered from a deposit dated from the Early Ceramic period. This is most likely an indication of a transitional stage between the dominance of large points in the Archaic and smaller points in the Ceramic. It also shows the overlap in point types that occurs throughout the region, and the difficulty researchers encounter when trying to date a site or a component based on point typology alone.

Similar point types from nearby areas include types P21 and P26 from Pinon Canyon (Lintz and Anderson 1989:236).

Point #d (Figure 5.4)

Material: Petrified Wood

Description: Point #d is a large corner notched point with a broken tip. This point has a bi-convex cross section, a straight edge, barbed shoulders, an expanding stem, a pointed tang, and a straight to slightly concave base.

This point was found on the surface of 5EP2. Other points found in this area that have similar characteristics to this point are, type P26 at Pinon Canyon (Lintz and Anderson 1989:142-143), and type A at Van Bibber Creek (Nelson 1969:Figure 3). Points of this type are generally associated with the Archaic, although they are found as late as A.D. 1400 (Lintz and Anderson 1989:143).

Scrapers

Scrapers are defined as having unifacial retouch and edge modification. These tools were manufactured primarily on large flakes. This tool category is also often referred to as non-bifacial tools. Due to the extremely small sample of this assemblage, an attempt will not be made to subdivide this category further. Each specimen will be described individually.

Four tools have been identified as scrapers from this assemblage. Two of these were recovered from level D, one was found on the surface, and one was found in level E/F.

Scraper #a (Figure 5.4)

Material: Pink Chert

Size: L=46mm

W=36mm

T=10mm

Description: This specimen was manufactured on a poor quality chert that seems to fracture erratically. This scraper is on a thick flake and shows retouch along approximately two thirds of one lateral edge. The retouch may have extended to the end, but is now fractured. Scrapers similar to this specimen are common throughout the area and throughout much of the past. Plano-convex scrapers are generally non-diagnostic when viewed alone. Scrapers that are common throughout many periods need to be evaluated in the context of their assemblage. This scraper was recovered from level D.

Scraper #b (Figure 5.4)

Material: Tan Chert

Size: L=35mm

W=14mm

T=7mm

Description: This scraper was manufactured on a large flake. It is bi-planar in cross section, and shows steep retouch along the entire length of one side. The opposite side has been fractured. This scraper is probably only a section from a larger specimen that was broken. The retouched edge of this scraper exhibits both convex and concave sections. These sections are separated by a small protrusion. This tool was also found in level D.

It is possible that this tool might have been used for several different functions, including scraper, graver, and spokeshave. Considering that the primary function of a graver and a spokeshave is most likely for woodwork, and that scrapers were often used

for woodwork also, it is probable that this was a tool used for woodworking. This implement could have been a tool for working on arrow shafts.

Irwin-Williams and Irwin (1966:105) describe a similar scraper from the Magic Mountain site. Scraper number MM50 is described as a combination scraper that was used as a scraper and a spokeshave. They attribute this style of tool to the Magic Mountain Complex, circa 3000 B.C. That is much too early to compare to this sample, which dates from approximately A.D. 1140.

Scraper #c (Figure 5.4)

Material: Chert

Size: L=25mm

W=19mm

T=2mm

Description: This scraper was manufactured on a very thin flake. It is bi-planar in cross section, is shaped in a half circle, and exhibits unifacial retouch along the end and one side. This scraper is an end scraper that was fractured 19mm below the end. There is one small protrusion along the retouched edge below the end that resembles a graver tip. This scraper may also have had a dual function. Scraper #c was located on the surface of 5EP2.

Scraper #d (Figure 5.4)

Material: Light Yellow Chert

Size: L=14mm

W=10mm

show no sign of tool manufacture, but they show signs of use as indicated by edge wear. Edge wear takes the form of edge crushing or step flaking.

Ground Stone

One mano fragment was recovered from level D and two mano fragments were recovered from level E/F. All of the manos show evidence of being charred and fire-cracked. The manos were all manufactured from locally available sandstone, and all exhibit a single grinding surface (Figure 5.6).

Cobbles

Three broken, milky quartz stream cobbles were retrieved during the excavation. None of the cobbles shows any evidence of battering, yet all are fractured. One was found in level D, and the other two were found in level E/F. These cobbles do not occur naturally in a dune deposit so they were most likely carried into the location to be used as boiling stones.

Problematical Lithics

Three small pieces of gray petrified wood were recovered in level E/F. These pieces show no evidence of cultural alteration and are of poor quality material. These may have been brought into the site as curiosities.

Miscellaneous

A .22 caliber shell and lead bullet were recovered from level A/B/C. These are obviously intrusive and the result of recent hunting or target shooting in the area.

Figure 5.6 Grond stone artifacts from 5EP2.


INCHES
1
2
3
4
5
6
METRIC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Level D produced a very small scrap of brown leather. This is most likely intrusive and the result of rodent burrowing into the site. No other perishable materials were recovered.

Pottery

In considering pottery descriptions and analysis, the article by Johnson et al. (1991) on Guidelines for Reporting Prehistoric Plains Ceramics was extensively consulted. In this article the authors attempt to set guidelines by which all pottery found on the Plains should be described. Their conclusions about reporting ceramics are generally logical and straightforward. It is important to try to keep some common terminology and methodology in artifact analysis, at least on a regional level. The small size and the fragmentary nature of the ceramic sample from 5EP2 makes it difficult to provide all of the information about the sherds that the article recommends. The potsherds will be described as thoroughly as possible. Barbara Bogen from the Colorado State University, Anthropology Department did extensive work in analyzing the pottery from site 5EP2.

All of the pottery associated with site 5EP2 was recovered from the surface. Given the steepness of the slope of the site it is difficult to determine from which level or levels the pottery was eroding. All of the levels date to Ceramic periods, so the pottery could belong to any or all occupation levels. All of the potsherds found are body sherds. No rim sherds were recovered that would aid in identification.

Seven potsherds constitute the entire sample from site 5EP2 (Figure 5.7). Two sets of these sherds are conjoinable. Most of the potsherds show evidence of cord roughening, which is very common in Early and Middle period ceramics found on the

Figure 5.7 Surface pottery from site 5EP2.


INCHES
1
2
3
4
5
6
METRIC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Plains. On two of the conjoinable sherds the surface is pock-marked.

Sherd #1 (Figure 5.7)

Sherd #1 consists of two conjoinable pieces. The sherd measures 50 x 22mm, and the wall thickness varies between 6.5 to 8.5 mm. The dry color is light yellowish brown (10YR6/4). The temper consists of sand. The nonplastic inclusions include quartz, feldspar olivine and mica. The surface is dappled or pock-marked, consisting of irregular elliptical marks. This most resembles cord roughening that has been obliterated while still wet (Johnson et al. 1991:15).

Sherd #2 (Figure 5.7)

Sherd #2 measures 22 x 19mm, and the wall thickness varies from 4 to 5.5mm. The dry color is very dark grayish brown (10YR3/2). Incomplete oxidation is indicated by the brown-gray paste color (Bogen n.d.). The temper is sand, and the nonplastic inclusions include quartz feldspar and mica. The surface is cord impressed. This sherd is similar to Ellwood's Type 1a Cord Impressed (Ellwood 1987:119-120).

Sherd #3 (Figure 5.7)

Sherd #3 measures 22 x 21mm, and the wall thickness is between 5 and 5.5mm. The exterior surface is very dark gray (10YR3/1), and the interior surface is reddish brown (5YR5/4). The temper is similar to that in sherd #2. The surface shows smoothed over/obliterated cord impressions.

Sherd #4 (Figure 5.7)

Sherd #4 measures 24 x 33mm, and the wall thickness varies between 5 and 6mm. This sherd consists of two conjoined sherds. The color of the exterior of this sherd is black (10YR2/1). The interior surface is yellowish red (5YR5/6). The temper is similar to sherds #2 and #3. Surface manipulations consist of smoothed over/obliterated cord impressions. Sherds #3 and #4 are similar to Ellwood's type IIIb Obliterated-Cord Roughened (Ellwood 1987:125-126).

Sherd #5 (Figure 5.7)

Sherd #5 is a very small potsherd measuring 8 x 14mm. It is only 4mm thick. It is similar in color and temper to sherd #3. This sample is far too small to allow any conclusions about type, but cord marks are evident on the surface.

Since all of the pottery from site 5EP2 was found eroding from the deposit and none was located during the excavation of the site, it is impossible to determine if the pottery is associated with the Early Ceramic occupation, or the Middle Ceramic occupation, or both. Due to the lack of diagnostic ceramic materials, such as rim sherds, no attempt will be made to draw conclusions about cultural affiliations based on pottery.

Feature

Only one feature was discovered in the excavation. During test excavations in 1986 a hearth was uncovered at the bottom of the test trench (see Figure 5.2 for approximate location). The hearth was resting on bedrock (level E/F), and consists of thermally oxidized sandstone and other fire-cracked rocks (Figure 5.8).

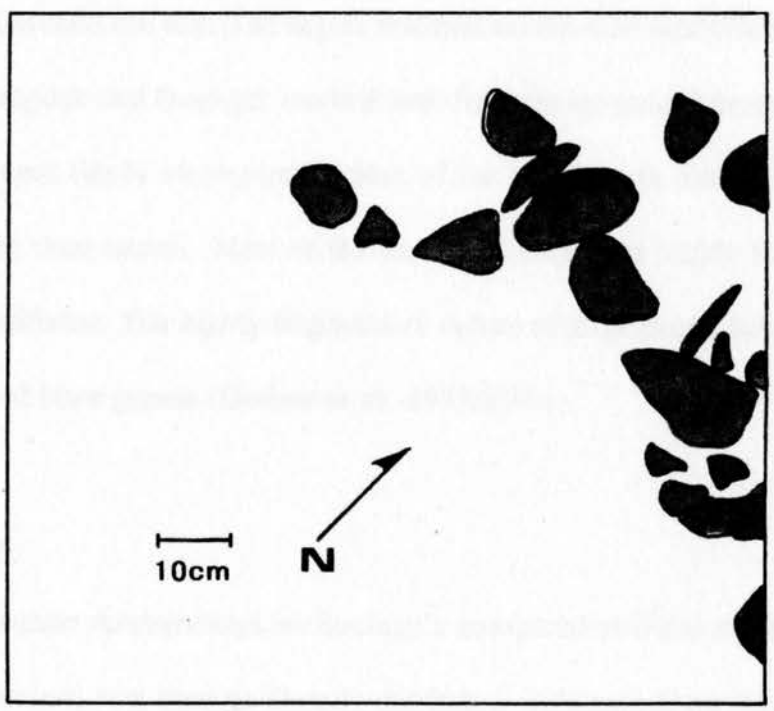


Figure 5.8 Feature on bedrock at site 5EP2.

Faunal Remains

A quantity of animal bones was recovered from this site. Many bones from various smaller animals such as rodents and rabbits were found at this site. This analysis will necessarily exclude the identification of rodents. The time and expertise needed to sort and analyze all of the rodent bone was not available for this project. Due to the nature of this deposit (sand dune), rodent burrows and bones are common at all levels. Many of the smaller animal bones are likely to be intrusive. Rabbit bones are also abundant in and around the site. The eagles that nest on the cliff face often scatter rabbit bones over the deposit and these get worked into the dune by natural processes. Smaller animals were most likely an important part of the prehistoric diet at this site, and evidence of them does occur. Most of the recovered bone was highly fragmented and therefore unidentifiable. The highly fragmentary nature of large bones is consistent with the preparation of bone grease (Greiser et al. 1985:859).

Identified Fauna

The Colorado Archaeological Society's comparative bone collection, at the University of Denver, was used to identify the faunal collection from site 5EP2. Level D yielded a single bison astragalus and an articulated bison joint consisting of a distal humerus and proximal radius. A highly eroded section of a bison skull, with a partial eye socket intact, was found in level D, as was a fragment of a long bone from an animal the approximate size of a deer. A single tibia from a jackrabbit was also recovered from level D.

Most of the bone was found in level E/F. The majority of this bone was highly fragmented as discussed above. A distal metapodial and a distal left humerus from a pronghorn were recovered from level E/F. A single bison carpal was also recovered from this level. There were also several fragments of rabbit bones from level E/F.

The identifiable faunal assemblage at this site is rather small. The only species identified are pronghorn, jackrabbit and bison. Level A/B/C had only rabbit bones and these are most likely intrusive due to the activity of the eagles in the area. Level A/B/C contained very little evidence of any cultural activity, therefore it is unlikely that the rabbit bones are associated with human activity. The minimum number of individuals (M.N.I.) from level D is one bison, one jackrabbit, and one possible deer bone. Level E/F had one pronghorn, one bison, and rabbit bone fragments.

The small nature of the faunal assemblage does not lend itself well to extensive interpretation of subsistence strategies. The evidence indicates that the prehistoric inhabitants were exploiting any game that became available.

Floral Remains

Pollen and flotation samples were taken from all natural levels after those levels had been identified. These samples were sent to Linda Cummings at PaleoResearch in Denver for analysis. The following interpretation is a summary of those results.

Pollen

Figure 5.9 shows the pollen record for site 5EP2. Pollen samples were collected from the natural stratigraphic levels after those levels were identified. A surface sample

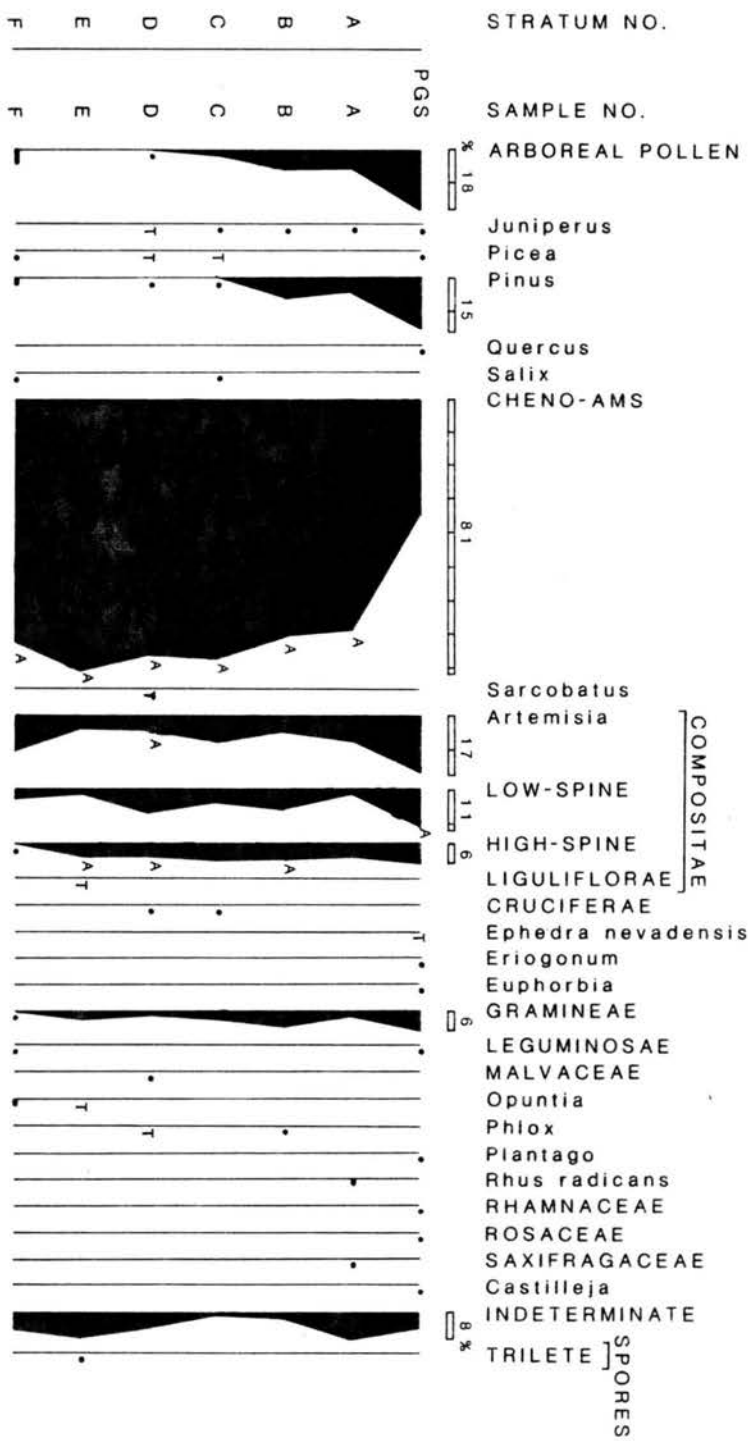


Figure 5.9 Pollen diagram from site 5EP2. "A" indicates aggregates.

was collected from an area of the dune well away from locality disturbed by the excavation activities.

The relative abundance of Pinus pollen at the surface indicates that there is a pinon/juniper community within a few miles of the site (Cummings 1988:2). As noted earlier, this site lies below the Palmer Divide and the Black Forest. The pine pollen is either coming from this area or the mountains to the west. The incidence of pine pollen is highest at the surface. This could be attributed to many factors including slightly warmer conditions in the past, recent fire management practices, or past cultural activities acting to mask some aspects of the pollen profile (Cummings 1988; Wynn et al. n.d.:6).

Other pollen types represented in the modern sample include, Quercus (Gabel oak), Cheno-am pollen (saltbush, shadscale, goosefoot and pigweed), Artemisia (sagebrush), Low-spine Compositae (ragweed and cocklebur), High-spine Compositae (rabbitbush, aster, snakeweed and sunflower), Gramineae pollen (grasses), and small quantities of Eriogonum (wild buckwheat), Euphorbia (spurge), Leguminosae (Legume or pea family), Plantago (plantain), Rhamnaceae (buckthorn family), Rosaceae (rose family), Castilleja (Indian paintbrush), and Ephedra (Mormon tea)(Cummings 1988:5-6). Considering that this is a dunal deposit, many of these pollen types could have been transported a great distance. Both the quantity and the presence or absence of pollen aggregates help determine whether or not these plants grow locally. Pollen aggregates are a good indication that the pollen was locally available. Aggregates are indicated by an "A" on figure 5.9.

The subsurface pollen samples are very similar to the surface sample in pollen content but quite different in pollen frequencies. Subsurface samples are dominated by

Cheno-am pollen. This is possibly an indicator of cultural activity. The presence of abundant Cheno-am pollen, high levels of charcoal, charred seeds (to be discussed in the following section), and cultural material indicate the presence of a midden area. Goosefoot (Chenopodium) and pigweed (Amaranthus), both Cheno-ams, are weedy annuals that thrive in disturbed ground such as middens. Goosefoot and pigweed were both exploited prehistorically and ethnohistorically for their greens and seeds (Cummings 1988:6; Kindscher 1987:81-83). The greens on both of these plants are best collected in the spring and can be eaten raw or boiled as a potherb. These plants also produce abundant quantities seeds that can be harvested in the fall. These seeds can be ground into a flour and made into a bread or mush (Kindscher 1987:81; Cummings 1988:6). Saltbush was also exploited by Native Americans. The greens and shoots could be collected year round and have a salty taste. These were used for spice and for teas. The ashes of the plant were used for leavening (Kindscher 1987:65).

Other subsurface pollens represented that may be a result of prehistoric exploitation include Cruciferae (mustard family), found only in levels C and D, and Malvaceae (mallow family), found only in level D. Both of these plants are edible and were exploited ethnohistorically (Cummings 1988:7). It is interesting to note that these two families of plants were only found in levels C and D. Level C produced little cultural evidence, but level D is attributed to the Middle Ceramic Period at approximately A.D. 1140. The incidence of these plant families in level D may only be an indication of a slight change in diet at this site between the Early Ceramic and the Middle Ceramic Periods. All levels are dominated by Cheno-am pollen.

Opuntia (prickly pear) pollen was identified from levels E and F only. Prickly pear has been used as a food source by Native Americans and others for centuries. The

fruit, pads, bud and flowers can all be eaten raw, cooked or dried. The Cheyenne, Comanche, Kiowa, and most other Plains groups have been observed collecting, drying, storing, and processing prickly pear for food (Kindscher 1987:154-156).

Subsurface pollens identified with no subsistence relationship include Salix (willow) found in levels C and F, Phlox (phlox), and Rhus radicans (poison ivy), both found in level A. A stand of poison ivy is presently growing along the northern edge of the site.

It is difficult to determine the paleoenvironmental conditions at this site based on only seven pollen samples. The indications are that the environment has changed little in this area over the past 1500 years. The crudeness of this sample and the possibility that Cheno-am pollen is masking other pollens makes it difficult to draw any concrete conclusions about climate from this site. A more complete, longer, and better detailed pollen sequence was obtained from site 5EP935 and will be discussed later.

Macrofloral Remains

One liter of soil from each level was floated to recover and identify macrofloral remains. Charred seeds are the most widely accepted indicator of prehistoric utilization of plant resources (Minnis 1981:147). Charred and uncharred remains from all levels are shown in Table 5.7. Levels A, B, and C produced no charred seeds. Charred seeds were abundant in levels D, E, and F.

By far the most abundant charred seeds recovered from the lower three levels were Chenopodium (goosefoot) seeds. As was mentioned earlier, the exploitation of goosefoot by Native Americans, both historically and prehistorically, has been well documented (Cassells 1983:78; Kindscher 1987:79-83; Cummings 1988:6).

LEVEL	SEED I.D.	#CHARRED	#UNCHARRED
A/B/C		0	0
D	Chenopodium	1	51
	Cheno-am	2	32
E/F	Chenopodium	33	455
	Cheno-am	12	20
	Gramineae	1	0
	Portulaca	2	0

Table 5.7 Macrofloral remains from site 5EP2.

Level F also produced two other types of charred seeds. Portulaca (moss rose and purslane) and Gramineae (grass). The fact that these seeds were charred suggests that these plants were also utilized as resources.

The identified charcoal recovered from the flotation samples indicates that hardwood trees and shrubs from local drainages, namely cottonwood, saltbush, and conifer wood, were utilized as fuel (Cummings 1988:17).

The pollen and flotation samples from site 5EP2 give an excellent picture of floral exploitation patterns in this area of the high Plains between the Early and Middle Ceramic Periods. A wide variety of plants was exploited including various Cheno-ams, grasses, mustards, mallows, prickly pear, and Portulaca. The most abundant plant resource utilized throughout this time was Chenopodium.

Only within the last twenty years have pollen and flotation analysis become common in the interpretation of prehistoric sites. Even with this surge in popularity and technology, comparative data are scarce. Because the technology is readily available to all researchers, the main factor to explain this lack of data is most likely financial. Most research projects of this nature do not have the funding to do all of the analyses that the researchers would like. Researchers must spend their limited funds on the types of analyses that will best answer the questions that they are asking. In this project two of the major research questions deal with subsistence strategies and paleoenvironment. A significant amount of funding was used analyzing pollen and flotation samples to help answer these questions.

Some similar analysis has been done on nearby archaeological sites. Recon John Shelter (Zier et al. 1991) is the most similar to this study. In the Early Ceramic

component at Recon John Shelter the most common macrofloral remains were, by far, Chenopodium. Other common plants included Portulaca and juniper (Zier et al. 1991:122-123). Zier also found some indication of maize at Recon John Shelter. Other than the incidence of maize, the frequency of utilized non-domestic plants is very similar to that at Crow's Roost. The difference in location of these sites (Crow's Roost on the Plains and Recon John Shelter at the east edge of an uplifted area between the foothills and the Plains) can explain the differences in the utilization of plant species. Goosefoot was a primary food source at both sites during the same time period. Other food sources utilized varied with locally available resources. Mike Nowak has also found abundant evidence for Chenopodium utilization at several sites in extreme southeastern Colorado (Nowak et al. 1988:47; Nowak et al. 1989:43).

Summary/Conclusions

Based on the evidence recovered from this site some inferences can be made as they relate to site activity. Site 5EP2 was occupied at least in the Early Ceramic period (approximately A.D.640), and possibly into the Late Ceramic (approximately A.D. 1490). Archaeological evidence for a Late Ceramic occupation at this site is minimal. The evidence of a Middle Ceramic occupation is not much better. The most intensive occupation of this site occurred during the latter part of the Early Ceramic period. Earlier occupational episodes at site 5EP2 are likely, given the proximity to shelter and water. The erosion caused by the old spring at the back of the rockshelter, and the dunal deposit not beginning until after 1300 to 1400 years ago, would leave no evidence of earlier occupations.

Based on floral remains it is likely that site 5EP2 was occupied predominately during the fall. All of the seeds that were recovered in flotation ripen during the late summer and early fall. This site was most likely a temporary seasonal campsite occupied during the fall and used to take advantage of seasonally available resources. The evidence of pronghorn, rabbit and bison in the faunal assemblage indicate that they were also hunted while this site was occupied.

The tool assemblages support these conclusions. Points. scrapers, and bifaces are both hunting and processing tools. The flakes recovered indicate that some primary as well as secondary tool manufacture was taking place. Grinding stones and the evidence of charred seeds show plant utilization. The occurrence of pottery also shows that this may have been a site used longer than just a hunting camp.

Due to the small size of this site and the small number of artifacts recovered here, it is likely that the site was most often used by small groups.

CHAPTER 6

SITE 5EP935

Excavation strategies.

Site 5EP935 was identified during the summer of 1987 while excavations were ongoing at site 5EP2. Site 5EP935 is located in a sand dune that is banked against the extreme northern end of the Crow's Roost cliff (Figures 6.1 and 6.2). It is located less than 100m north of 5EP2, next to a deep arroyo that extends to the east. The site was first recognized when pottery and fire-reddened sandstone were discovered eroding from the steep west side of the dune. A test trench was opened in 1987 and a hearth was encountered in association with pottery. More extensive excavations were then undertaken during the summers of 1989 and 1990.

A total of thirteen 1mX1m units was excavated at site 5EP935 including the 1X2m test trench opened in 1987 (Figure 6.3). Nine 1mX1m units were partially excavated around the main units to give access to those units. The top 2 meters of culturally sterile sand were removed from the nine partially excavated units as a safety precaution to reduce the danger of a collapse in the test trench. During test excavations it was discovered that the top two meters of sand on the dune were sterile. The deepest fully excavated unit was excavated to bedrock at a depth of over four meters. To insure the safety of the students and to provide an area to work from, the nine partially

Figure 6.1 View of site 5EP935, looking to the south.

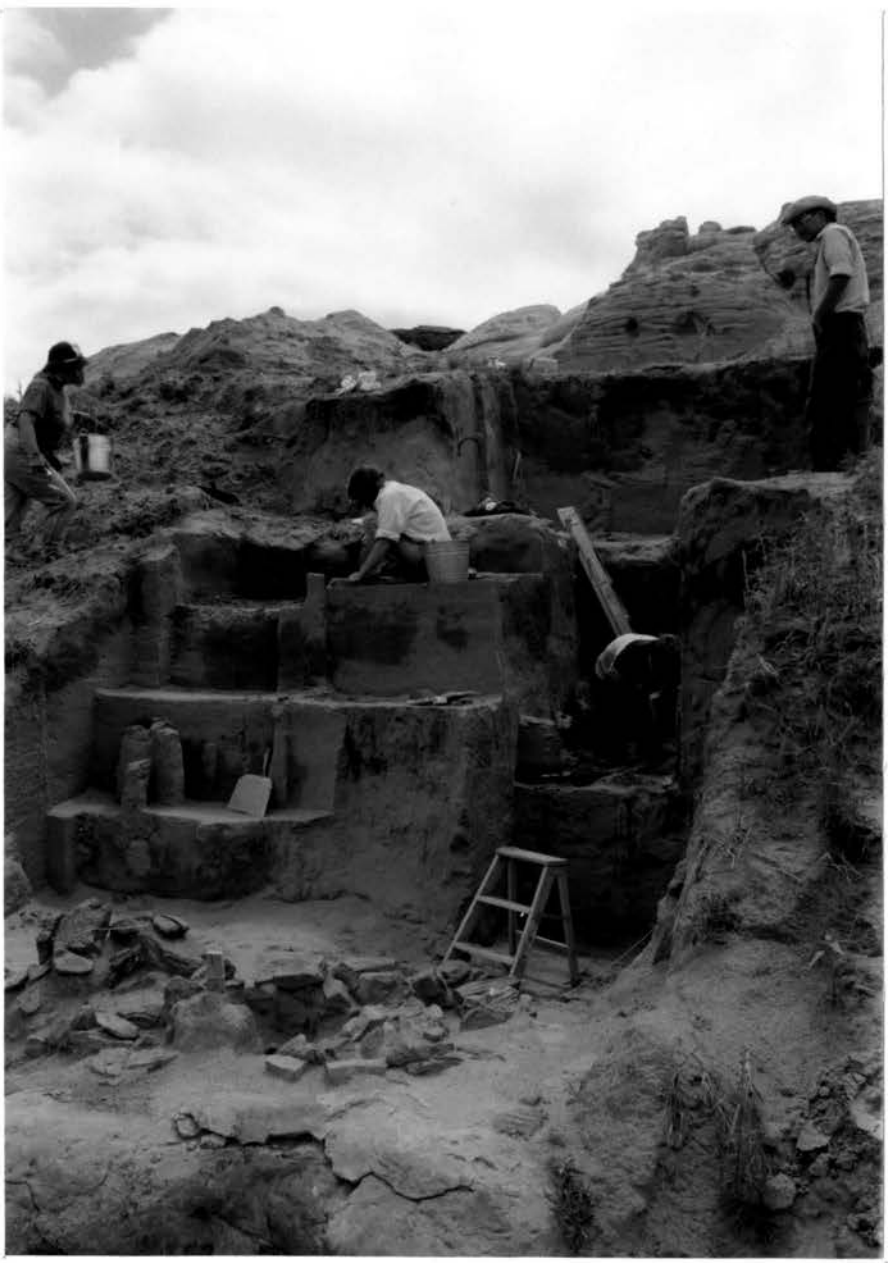


Figure 6.2 Excavations at site 5EP935.

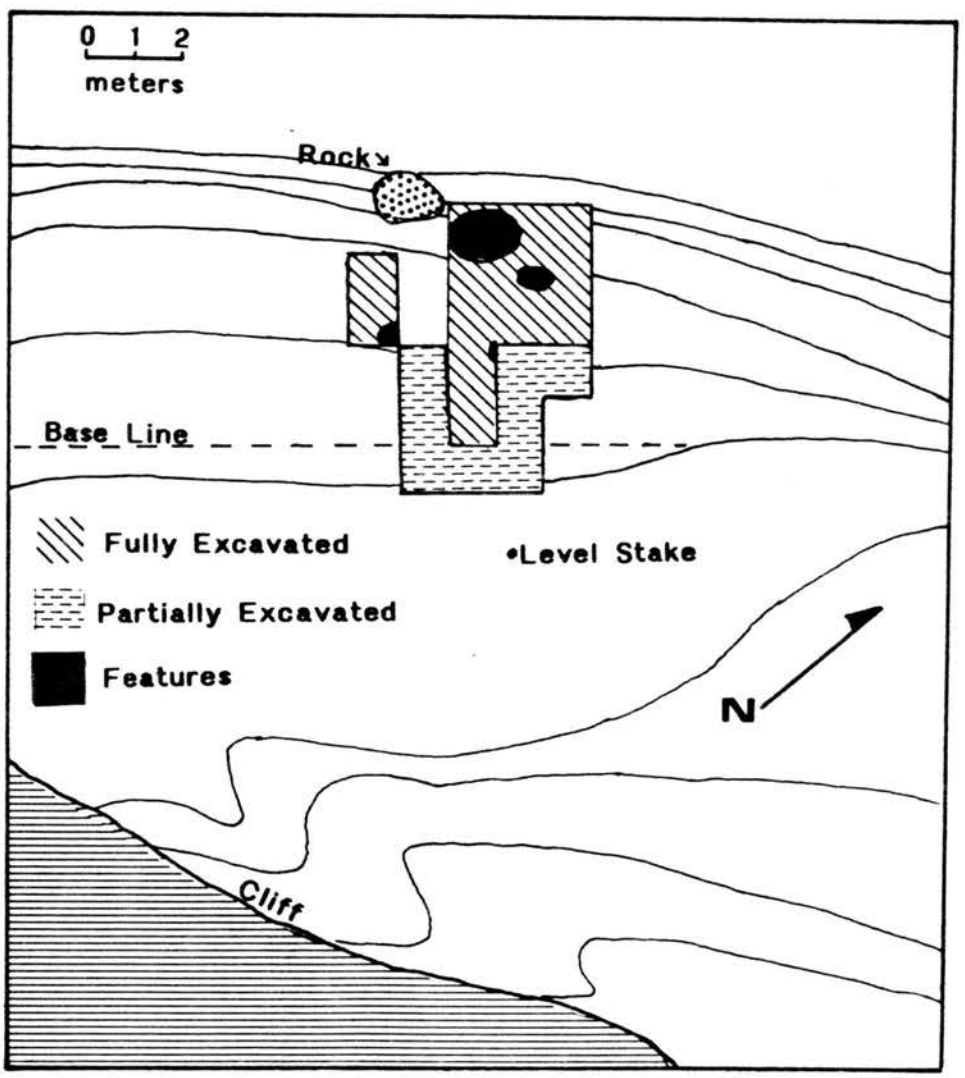


Figure 6.3 Map of site 5EP935. Contour interval .5m.

excavated units were placed around this deep excavation (see Figure 6.3). Only the sterile soil was removed from these units.

The grid that was originally established at this site in 1987 was an extension of the grid from site 5EP2. The baseline at 5EP2 is parallel to the cliff face and runs northeast to southwest. Because this deposit has the same orientation, the baseline at 5EP935 is also oriented northeast to southwest. In order to minimize confusion in the recording of data the units were all labeled with the more general north, south, east, and west terminology. The map (Figure 6.3) shows the orientation of the grid. Datum was established by driving a nail into the face of the cliff less than 20m south of the site area.

All measurements were recorded in relation to datum, and their depth was recorded below a stake, designated as zero, which was driven into the top of the dune. All excavations were conducted using arbitrary 10 cm units. The exception to this was the sterile soil at the top of the dune. This soil was removed with shovels and screened until the culture bearing levels were encountered.

Stratigraphy

The dunal deposit at 5EP935 seems to be somewhat different than the dune at 5EP2 (Figure 6.4). The stratigraphic units are less well defined. The top layer of deposit, natural level a, is a slightly coarser sand than most of the deposit (yellow, 10YR 7/6). This layer is culturally sterile. The next level is also sterile, natural level b, (dark yellowish brown, 10 YR 3/4-4/4). The cultural material begins to occur in the third layer, (natural level c, and cultural level A). This layer of deposit is more sooty in color (brown, 10YR 5/3) than the sand above it. Below this deposit the sand becomes

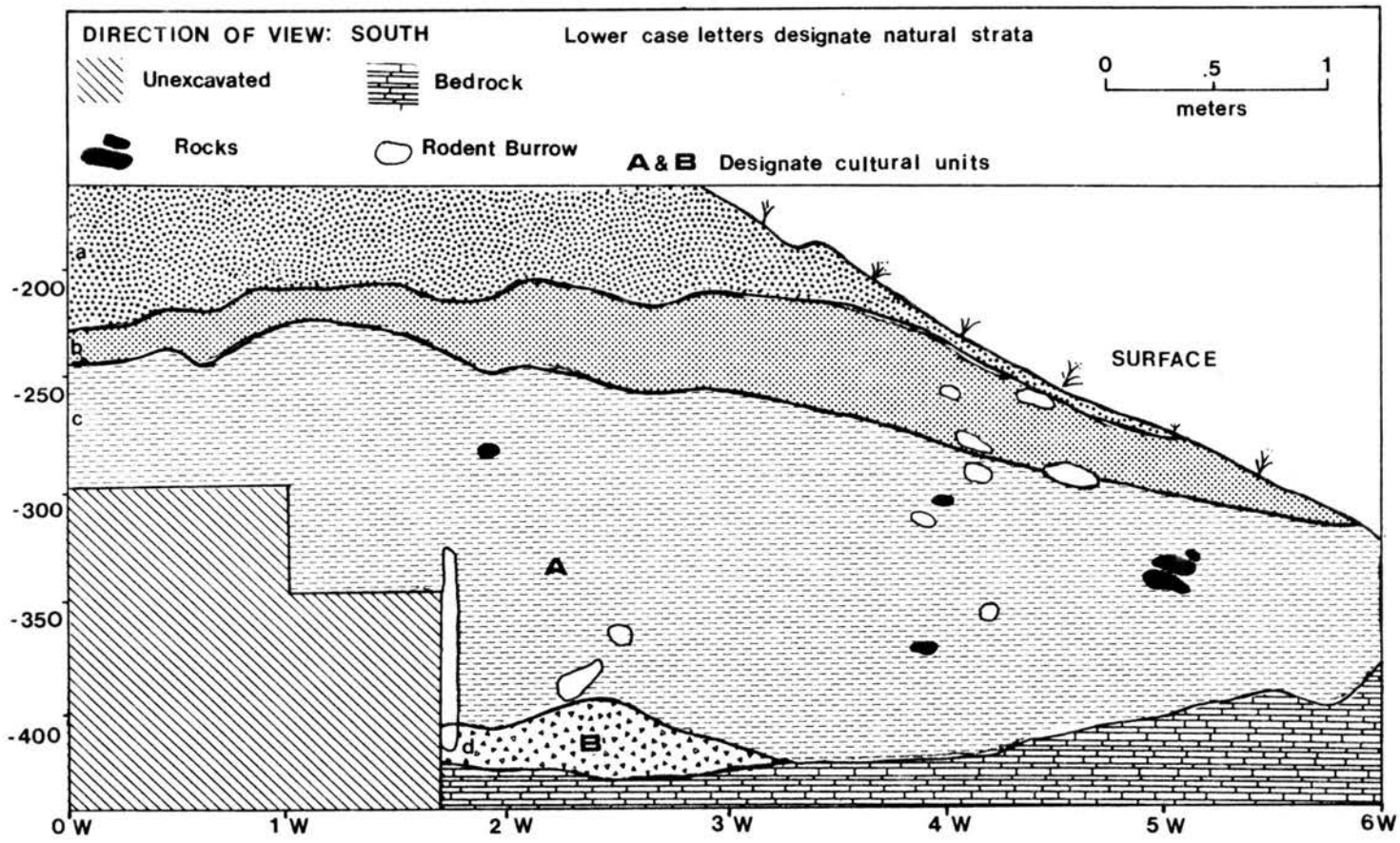


Figure 6.4 Stratigraphic profile of site 5EP935.

noticeably more yellow (10YR 7/6-10YR 8/6). The bottom level also contains cultural material (natural level d, and cultural level B).

Two cultural components have been identified from this site. Cultural unit A is the upper component and is found in the level with the darker (10YR 5/3) soil. Component B is found in the more yellow sand below this level, and on the bedrock.

Radiocarbon Dates

Two radiocarbon dates were obtained at this site. Both of these dates are from charcoal. A small hearth located on bedrock in unit B produced enough charcoal for a date, and a large roasting oven located stratigraphically in unit A also produced enough charcoal for a date. The dates are as follows:

Beta-39964 5EP935 Level A B.P. 2037 (1870, 1836, 1824) 1635
Uncalibrated 1890 +/- 60 b.p.

Beta 39965 5EP935 Level B B.P. 2359 (2308, 2235, 2233, 2220, 2210, 2190, 2184) 2023
Uncalibrated 2230 +/- 80 b.p.

These dates show that the two components represent a transitional stage between the Late Archaic and the Early Ceramic periods. Few stratified sites in this area show this transitional time. Recon John (Zier et al. 1991) is another site in the region that has stratified Late Archaic and Early Ceramic components. Site 5EP935 should add to the interpretation of this transitional time.

Lithics

The lithic material has been divided into four categories: chipped tools, ground stone, debitage and miscellaneous. These categories are the same as those used on all of the sites in this report.

Debitage

A total of 113 waste flakes were recovered in the excavated units. The debitage accounts for 83% of all of the lithic material from site 5EP935. Tables 6.1 and 6.2 show the lithic debitage assorted by quantity, size and raw material. Each cultural component is on a separate table. Tables 6.3 and 6.4 show the mean size data and the percentage of cortex on the complete flakes in each cultural level.

All of the flake debris that was not recovered in situ is large enough not to have passed through a 1/4" mesh screen. The debitage recovered is most likely associated with core reduction and intermediate stages of tool production. The very small flakes, representing the final stages of tool production, should be underrepresented in this assemblage.

One core was recovered from level A. This core exhibits a striking platform and several flake scars. The core is made of limestone. One core fragment was also found in level A. The fragment is made of Black Forest petrified wood.

Chipped Tools

The second lithic category of analysis is chipped or modified tools. This category includes points, scrapers, bi-faces, and utilized flakes.

5EP935 LEVEL A
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	7	6	14	5	32	31.07%
Chert/Chalcedony	3	5	8	6	22	21.36%
Jasper	4	2	9	2	17	16.50%
Quartz	0	1	1	2	4	3.88%
Quartzite	3	3	9	6	21	20.39%
Limestone	0	1	0	2	3	2.91%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	0	0	4	4	3.88%
Total	17	18	41	27	103	
Percentage	16.50%	17.48%	39.81%	26.21%		

n=103

Table 6.1 Flake type and raw material, level A, 5EP935.

5EP935 LEVEL B
CORRELATIONS BETWEEN RAW MATERIAL TYPE AND FLAKE TYPE

	#COMPLETE FLAKES	#BROKEN FLAKES	#FLAKE FRAGMENTS	DEBITAGE	TOTAL	PERCENTAGE
Petrified Wood	1	1	0	0	2	18.18%
Chert/Chalcedony	3	1	0	1	5	45.45%
Jasper	0	0	0	0	0	0.00%
Quartz	0	0	0	0	0	0.00%
Quartzite	0	1	1	2	4	36.36%
Limestone	0	0	0	0	0	0.00%
Obsidian	0	0	0	0	0	0.00%
Unidentified	0	0	0	0	0	0.00%
Total	4	3	1	3	11	
Percentage	36.36%	27.27%	9.09%	27.27%		

n=11

Table 6.2 Flake type and raw material, level B, 5EP935.

DATA FOR COMPLETE FLAKES
LEVEL A
5EP935

n=16

Mean flake length: 1.7 cm
Mean flake width: 1.41 cm
Mean flake thickness: .33 cm

Range of flake size, Length: .7 to 5.3 cm
Range of flake size, Width: .5 to 5.1 cm
Range of flake size, Thickness: .1 to .1.5 cm

Number of cortical flakes: 1 (6%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	1
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	0
# flakes with 90-100% cortex	0

Table 6.3 Data on complete flakes from site 5EP935, level A.

DATA FOR COMPLETE FLAKES
LEVEL B
5EP935

n=4

Mean flake length: .87 cm
Mean flake width: .7 cm
Mean flake thickness: .1 cm

Range of flake size, Length: .8 to 1 cm
Range of flake size, Width: .6 to .8 cm
Range of flake size, Thickness: .1 to .1 cm

Number of cortical flakes: 0 (0%)

# flakes with 1-10% cortex	0
# flakes with 10-20% cortex	0
# flakes with 20-30% cortex	0
# flakes with 30-40% cortex	0
# flakes with 40-50% cortex	0
# flakes with 50-60% cortex	0
# flakes with 60-70% cortex	0
# flakes with 70-80% cortex	0
# flakes with 80-90% cortex	0
# flakes with 90-100% cortex	0

Table 6.4 Data on complete flakes from site 5EP935, level B.

Twenty one chipped stone tools were identified from the excavated units. Seven of these are projectile points, eight are scrapers, three are fragments of bifaces, and five are utilized flakes. Figure 6.5 shows the chipped stone assemblage.

As with the other sites, each artifact will be described individually, based on tool type. The terms and methods are the same as those described in the report on 5EP576 and 5EP2. Because two components are represented at this site, numbers and letters have been assigned to each artifact based on the artifact type and cultural level it is associated with. In each artifact category, items from level A will be described first, followed by the items from level B.

Points

A total of seven projectile points or fragments of points are represented in this assemblage. Six of these are from level A, and one is from level B.

Point # 1-A (Figure 6.5)

Material: Pink Chert

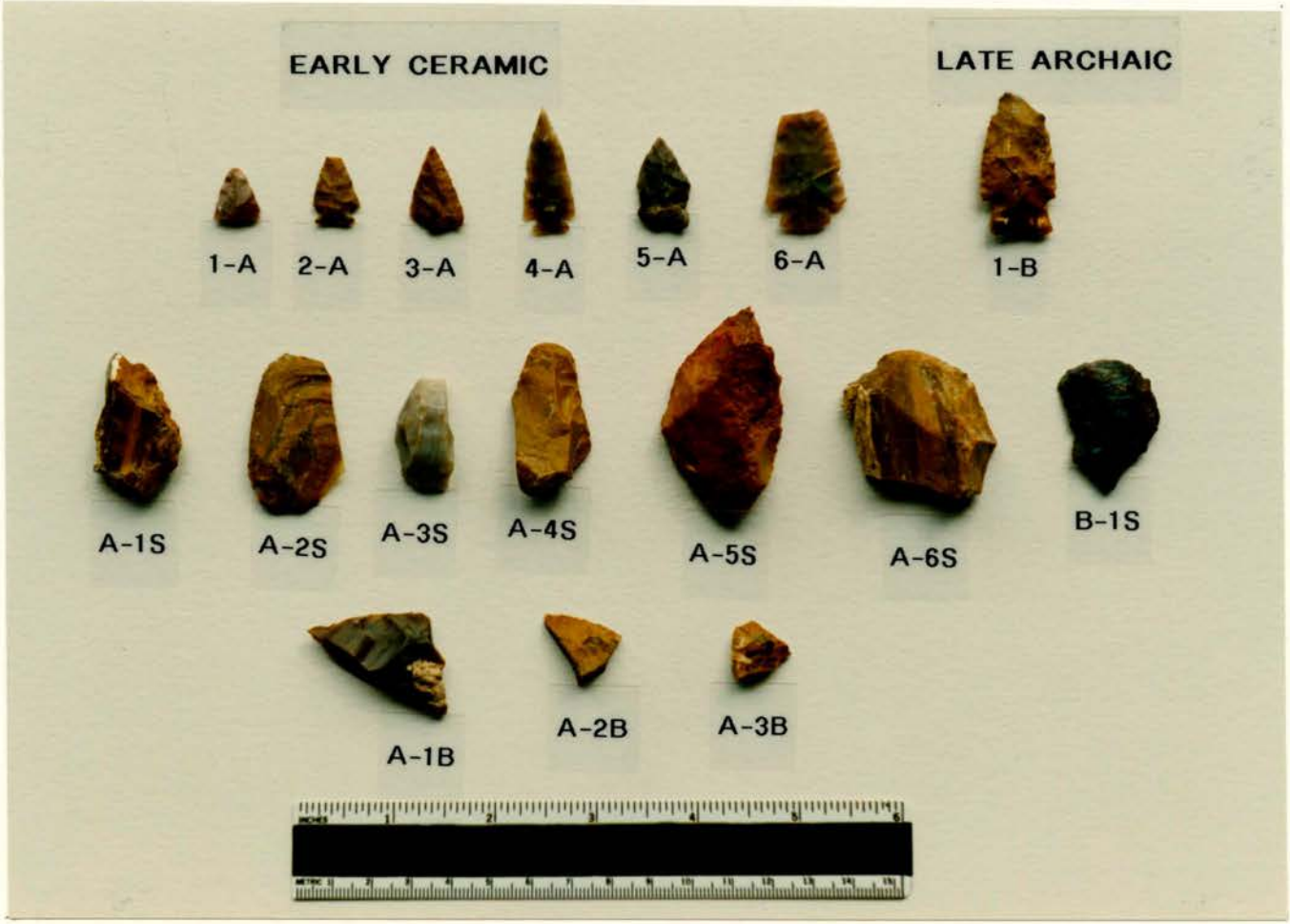
Description: This point is a tip of a broken point. It has a straight blade edge, a very sharp tip (broken off), and a bi-convex cross section.

Point 1-A is a small triangular point similar to most of the other points found in this component. This artifact consists of the tip of the point only and it is therefore difficult to compare this to points from other sites.

Point 2-A (Figure 6.5)

Material: Petrified Wood

Figure 6.5 Chipped tool assemblage from site 5EP935.


EARLY CERAMIC
LATE ARCHAIC
1-A
2-A
3-A
4-A
5-A
6-A
1-B
A-1S
A-2S
A-3S
A-4S
A-5S
A-6S
B-1S
A-1B
A-2B
A-3B

Description: This point is a very small triangular corner notched projectile point. The extreme tip has been broken off, but it is likely that it had a very sharp tip. The blade edge is straight, with abrupt to weakly barbed shoulders, an expanding stem, a slightly concave base, and a bi-convex cross section.

This type of point is very common in this area during the Early Ceramic. It is similar to Type A corner notched projectile points from Van Bibber Creek (Nelson 1969:98), small corner notched points from Torres Cave (Hoyt 1979:11), Type 16 biface from Recon John Shelter (Zier et al. 1989:143), and Type P-58 from Pinon Canyon (Lintz and Anderson 1989:294-295).

Point #3-A (Figure 6.5)

Material: Petrified Wood

Description: This is a small triangular corner notched point with a broken base and only one partial tang remaining. This point has a straight to slightly convex edge, a very sharp tip, and a bi-convex cross section.

This point is typical of a scallorn type projectile point (Bell 1960:84-85). Points of this style are also found at Willowbrook (Leach 1966:32-33), Torres Cave (Hoyt 1979:11), Recon John Shelter (Zier et al. 1989:141-142), and at the Carrizo Ranch sites (Nowak et al. 1984, 1988, 1989). Scallorn points typically range in age from A.D. 500 to A.D. 1400 (Zier et al. 1989:141; Lintz and Anderson 1989:185-186).

Point #4-A (Figure 6.5)

Material: Speckled Tan Chert

Description: This point is the only complete specimen found in the assemblage. It has straight to slightly convex serrated edges, a very sharp tip, barbed shoulders, an expanding stem, a pointed tang, a straight base, and a bi-convex cross section.

Point #4-A is narrower than point #3-A but otherwise quite similar. This point represents another example of a scallorn type point described above.

Point # 5-A (Figure 6.5)

Material: Banded Chert

Description: This point is distinctively different than any others in the assemblage. It is much cruder looking, and is slightly side notched. The edge is straight, with a sharp tip, a notched base, a straight to contracting flange, and a bi-convex cross section.

Similar points found in this area include Type P-83 at Pinon Canyon (Lintz and Anderson 1989:217-219) and Point h at Torres Cave (Hoyt 1979:11). This point looks very similar to a Reed point (Bell 1958:76-77). Bell estimates the age of this point type to between 500 A.D. to 1500 A.D..

Point #6-A (Figure 6.5)

Material: Light Pink Chert

Description: This is the largest corner notched point from level A. It has a broken tip and a complete base. The edge is straight, with barbed shoulders, a slightly expanding stem, a straight base, and a bi-convex cross section.

Similar points in the area include Type P-26 from Pinon Canyon (Lintz and Anderson 1989:142-143) and Type 13 at Recon John Shelter (Zier et al. 1989:140). The

age of this type of point is estimated to be between 1000 B.C. and A.D. 500 (Lintz and Anderson 1989:143).

Point # 1-B (Figure 6.5)

Material: Petrified Wood

Description: This is the only projectile point found in cultural level B. It is generally larger and somewhat cruder looking than the points from component A. This point has a slightly convex edge, a broken tip, slightly rounded shoulders, an expanding stem, a very slight concave base, and a bi-convex cross section. This artifact was manufactured with locally available Black Forest petrified wood.

Points in this area that are similar to this point include MM18 from Magic Mountain (Irwin-Williams and Irwin 1966:80-81) and Type 12 at Recon John Shelter (Zier et al. 1989:138-140). The estimated age for this point type is between 1000 B.C. and A.D. 1 (Zier et al. 1989:140). Irwin-Williams and Irwin (1966) place this point in the Apex Complex which dates to the Late Archaic.

The projectile point types found at 5EP935 correspond well with the radiocarbon dates associated with each component. The small triangular Scallorn points are associated with the Early Ceramic period, and the larger point from level B is similar to other points found in association with Late Archaic components.

Scrapers

The scrapers found at 5EP935 are all manufactured on flakes of various sizes. Each scraper is designated by a number and the letter which corresponds with component

where it was found. A total of seven scrapers are represented in this assemblage. Six are from level A, and one is from level B.

Scraper #A-1S (Figure 6.5)

Material: Petrified Wood

Size: L=33mm

W=23mm

T=9mm

Description: This scraper is on a large flake of Black Forest petrified wood and has a bi-planar cross section. this specimen exhibits unifacial retouch along one side, and the opposite side is cortex. This tool would be called a small side scraper.

Scraper #A2-S (Figure 6.5)

Material: Petrified Wood

Size: L=40mm

W=25mm

T=4mm

Description: This specimen is a side scraper manufactured from a large very thin flake of petrified wood. It displays steep retouch along the entire edge of one side. No retouch is evident on either end. The ventral surface of the flake is intact, including the striking platform and bulb of percussion. The lateral margin opposite the retouch has been broken off. This scraper has a plano-convex cross section.

Scraper #A3-S (Figure 6.5)

Material: White Chert

Size: L=28mm

W=14mm

T=11mm

Description: This specimen is broken section of a scraper manufactured from a thick flake. All edges except for the fractured side show very steep retouch. It is impossible to determine whether this tool was intended to be a side scraper, end scraper, or both. The cross section of this tool is bi-planar.

Scraper #A4-S (Figure 6.5)

Material: Petrified Wood

Size: L=39mm

W=20mm

T=10mm

Description: This scraper was made on a broken, thick flake of local petrified wood. Unifacial retouch is evident on the distal end of the flake and along both lateral margins. The cross section of this tool is plano-convex.

Scraper # A5-S (Figure 6.5)

Material: Chert

Size: L=54mm

W=29mm

T=13mm

Description: This scraper was made from a reddish yellow chert on a large thick cortex flake. Steep unifacial retouch is evident along one side of the long axis. The top of the scraper and the side opposite the retouch is primarily cortex. This scraper has a bi-planar cross section.

Scraper #A-6S (Figure 6.5)

Material: Petrified Wood

Size: L=40mm

W=40mm

T=12mm

Description: This scraper was made from a large thick flake of local petrified wood. Steep unifacial retouch is along one end only. The opposite end of this tool has been broken off, and one lateral margin is cortex. This tool is an end scraper. The cross section of this scraper is unique. The ventral surface is planar, while the dorsal surface shows a dished or concave profile. This concavity was produced by the removal of a thin flake from the core, parallel to the long axis of this flake, prior to the removal of this flake from the core.

Scraper #B-1S (Figure 6.5)

Material: Dark Chert Banded with Red Jasper

Size: L=33mm

W=24mm

T=5mm

Description: This scraper is an end scraper manufactured on a thin flake. It has a plano-convex cross section, and shows unifacial retouch on one end only. The flake is fairly complete except that the retouch has removed the bulb of percussion. This is the only scraper recovered from Level B, and it was found directly on bedrock.

The scrapers found at site 5EP935 are typical of scrapers found throughout much of prehistory in this area. One interesting aspect of the scrapers from this site is the predominant use of locally available petrified wood. Out of the six scrapers represented in level A, four were manufactured from petrified wood and two were manufactured from chert. This trend is reversed when looking at the projectile points from level A. Four of the six projectile points from level A are made with chert while two are made with petrified wood. There is no evidence that one material is better than the other. The tools made from petrified wood are just as fine as those of chert. This correlation may be simply a bias produced by the small sample size.

Bifaces

Bifaces in this study are defined as tools that show evidence of retouch on both the dorsal and ventral surfaces. These are also tools that cannot be identified by other functional aspects, such as projectile points or drills. The most likely function of these bifaces is a cutting function. All of the bifaces from this assemblage were found in level A.

Biface A1-B (Figure 6.5)

Material: Brown Chert

Size: L=40mm

W=20mm

T=7mm

Description: This tool is a broken section of a biface with only one retouched edge intact. It was manufactured from a large flake and has a bi-convex cross section. This tool most likely functioned as a knife. Not enough of this tool remains to make any useful comparisons to other specimens in the area.

Biface A2-B (Figure 6.5)

Material: Petrified Wood

Size: L=20mm

W=15mm

T=6mm

Description: This is a small fragment of a biface with only one edge intact. This tool was manufactured from a flake and has a bi-convex cross section. This biface may have functioned as a small knife, or as a projectile point. The piece of petrified wood that this tool was manufactured from has a distinct coloring and banding. This material is identical to the material that point #A-3 was made from.

Biface #A-3B (Figure 6.5)

Material: Petrified Wood

Size: L=15mm

W=13mm

T=5mm

Description: This specimen is a very small fragment of a bifacially retouched flake. The retouch is evident along one edge only. It is difficult to distinguish this tool from a utilized flake due to its fragmentary nature. This tool has a plano-convex cross section.

The extremely small and fragmentary nature of the bifaces in this assemblage make it hard to draw any conclusions about this aspect of the assemblage. Bifaces are generally like unifacial tools in that they are often similar throughout much of prehistory. Any stylistic differences are not evident from this sample.

Utilized Flakes

A total of five utilized flakes was identified from the lithic assemblage at site 5EP935. All of these flakes are from level A. None of these examples shows evidence of tool manufacture, but they all show edge wear. Two of these flakes are chert, two are petrified wood, and one is red jasper.

Ground Stone

The third major category of lithic artifacts is ground stone artifacts. This category includes metates (grinding slabs), and manos (hand stones). A total of five ground stone artifacts was recovered from 5EP935; four of these were found in level A, and one was recovered from the surface of the site.

Mano

A single mano was found in level A (Figure 6.6). This mano shows evidence of pecking around the edges to form a small oval shape. The mano is made from fine grained, locally available sandstone, and has a single grinding surface.

Figure 6.6 Mano from level A of site 5EP935.

Metate Fragments

Three metate fragments are represented in this assemblage (Figure 6.7). Two are from level A, and one was found on the surface. The metate fragment from the surface has one intact lateral edge that shows curvature. It may have been ovoid or round. There is evidence of grinding on both surfaces. It was manufactured from coarse sandstone that is available locally.

The metate fragments from level A are made of fine grained sandstone, and are interior fragments only. The lighter colored fragment has evidence of grinding surfaces on both sides, and the darker fragment has a single grinding surface only.

Unidentifiable Ground Stone

One ground stone fragment from level A is too small to identify as a mano or metate. It was made from fine grained, locally available sandstone, and has grinding surfaces on opposite sides.

All of the ground stone artifacts came from the surface, or from cultural level A. No ground stone was recovered from level B. This is likely the result of a sampling bias. Little artifactual evidence was recovered from level B. Level B was not as fully excavated as level A, and level B is much thinner stratigraphically than A.

At Recon John Shelter (Zier et al. 1989:159), evidence was found that ground stone tools were more common in the Late Archaic than they were in the Early Ceramic Period. At 5EP935, it is just the opposite. This may reflect a difference in resource utilization on the Plains when compared to the areas adjacent to the foothills, or it could be that the Archaic evidence at 5EP935 is poorly represented.

Figure 6.7 Metate fragments from site 5EP935.

Cobbles and Battered Cobbles

Four cobbles or battered cobbles were recovered from level A only. Two cobbles or broken cobbles showed evidence of battering, and two do not. The two cobbles with no battering may be boiling stones.

Battered Cobble #A-1BC

Material: Quartz

Description: This specimen is a long thin milky quartz cobble that shows evidence of some battering at one end. This pattern is consistent with flintknapping tools, often referred to as hammerstones (Zier et al. 1989:155; Kainer 1976:129-131).

Battered Cobble #A2-BC

Material: Quartz

Description: This cobble is a broken rounded stream cobble. There is evidence of battering at one end along the highest ridge. There is also some fracturing at that point indicating that the cobble was probably broken during use. This tool is also typical of a hammerstone as described above.

Pottery

Site 5EP935 produced an abundant amount of pottery. Over 190 sherds were recovered during the excavation, many of which are highly fragmented. Eight sherds were recovered on the slope of the dune eroding from the deposit. Due to the abundance of pottery recovered it is impossible to analyze each sherd separately. The pottery will

be analyzed as a group, and the range of variables associated with it will be described. Of the 190 sherds recovered, thirteen are rim sherds. All of the rim sherds are fairly small and straight. There is no indication of any curvature on any rim sherds. Figure 6.8 is a photograph of a representative sample of the pottery found. The pottery from 5EP935 has been analyzed by Michelle Zupan at the University of Colorado at Colorado Springs, and much of this analysis is based on her work.

The sherds were found scattered throughout the A cultural level. Depths ranged between 185cm below the surface of the dune to 363cm below the surface. Sixty percent of the sherds were found between the depths of 260 to 290cm below the top of the dune (Zupan 1990:3).

The potsherds range in size from 5mm to 7.5cm long and 3mm to 4.5cm wide. Wall thickness varies from 4mm to 8mm with most averaging around 5mm thick. The rim sherds are all smoothed at the top edge only, not on the exterior, and are straight. None of the rim sherds show any evidence of decoration. The paste consists of medium to fine grained sand. The surfaces of the sherds range from cord impressed to obliterated cord impressed with five to ten impressions per centimeter. The exterior colors range from reddish brown to black. Most of the sherds are 10YR 7/2-7/3 (light gray to very pale brown). Colors vary according to clay, and degrees of oxidation in firing. Some pots were burned during or after they were used and exhibit a darker color. The interiors of the sherds are smooth with occasional irregular scratches. The colors are generally the same as the exterior, but some are darker on the interior due to charring.

The pottery at site 5EP935 is typical of the type of pottery that would be expected at a Early Ceramic site. The pottery is generally plain, with no decorations on the rims, and with cord roughened or impressed exteriors.

Figure 6.8 Representative pottery from 5EP935.


INCHES
1
2
3
4
5
6
METRIC
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Similar pottery is found throughout eastern Colorado during the Early Ceramic (Woodland) period. Other sites in the area with similar pottery from this period include Bayou Gulch (Ellwood 1987), Recon John Shelter (Zier et al. 1989), Spring Gulch (Kainer 1976), Wilbur Thomas Shelter (Gillio 1971), Jackson Creek (Wynn et al. 1985), Hall-Woodland Cave (Nelson 1967), Pinyon Canyon (Andrefsky 1990), the Lindsay Ranch Site (Nelson 1971), and Van Bibber Creek (Nelson 1969).

Much attention has been paid to Colorado "Woodland" pottery over the years, especially in northeastern Colorado. Pottery from this time is generally assumed to be conical based with external vertical to oblique cord marking (Butler 1988:454). Butler notes that the typical pots from this period in Colorado have rims that are generally straight but sometimes have a tendency to be outcurving or incurving. Rim decoration is extremely rare. Temper is usually sand or crushed rock, and thickness and color vary.

The variability that can occur within a component and even within the same pot in terms of color, rim, and surface treatment is considerable. For this reason there will be no attempt to place the pottery from any of the Crow's Roost sites into any current taxonomic system. The pottery at 5EP935 is cord marked and has straight rims. The cord markings vary considerably within a single component. It is reasonable to agree with Butler (1988:455), that no type distinctions are recognizable within the ceramics of the Early Ceramic period in eastern Colorado. The different types only serve to help archaeologists sort collections. It is not likely that the people making the pottery would recognize any such distinctions, although they were manufacturing all of the variants.

Features

Four features were found during the excavation of this site, three hearths and a large roasting pit. Two of the hearths and the roasting pit are associated with level A, and one small hearth was found on bedrock in level B. The radiocarbon date for level B was obtained from charcoal associated with this hearth. The radiocarbon date for level A was obtained from charcoal associated with the large roasting oven.

Feature #1 (Figures 6.9 and 6.10)

Feature #1 is much too large to be called a hearth. Literature from the region describes similar features and refers to them as roasting pits (Frison 1978:355; Kainer 1976). This feature was located at the extreme western edge of the dune, and fire reddened sandstone was observed eroding out of the dune at this point. The feature is quite large in area (160cm X 135cm), and fairly deep (35cm). It was probably excavated into the dune and filled with rocks. Because it was located at the western edge of the dune it did not intrude into the lower stratigraphic unit (stratigraphic unit d, cultural unit B). Burned rock, charcoal, burnt soil, some bone, and a few lithics were found associated with this feature. Feature type 2 at Spring Gulch (Kainer 1976:38-39) is very similar to this feature.

Feature #2 (Figure 6.11)

Feature #2 is a small group of burned sandstone found on bedrock associated with cultural level B. This feature was located in the sidewall of the excavation. Enough

Figure 6.9 Feature 1 at site 5EP935.

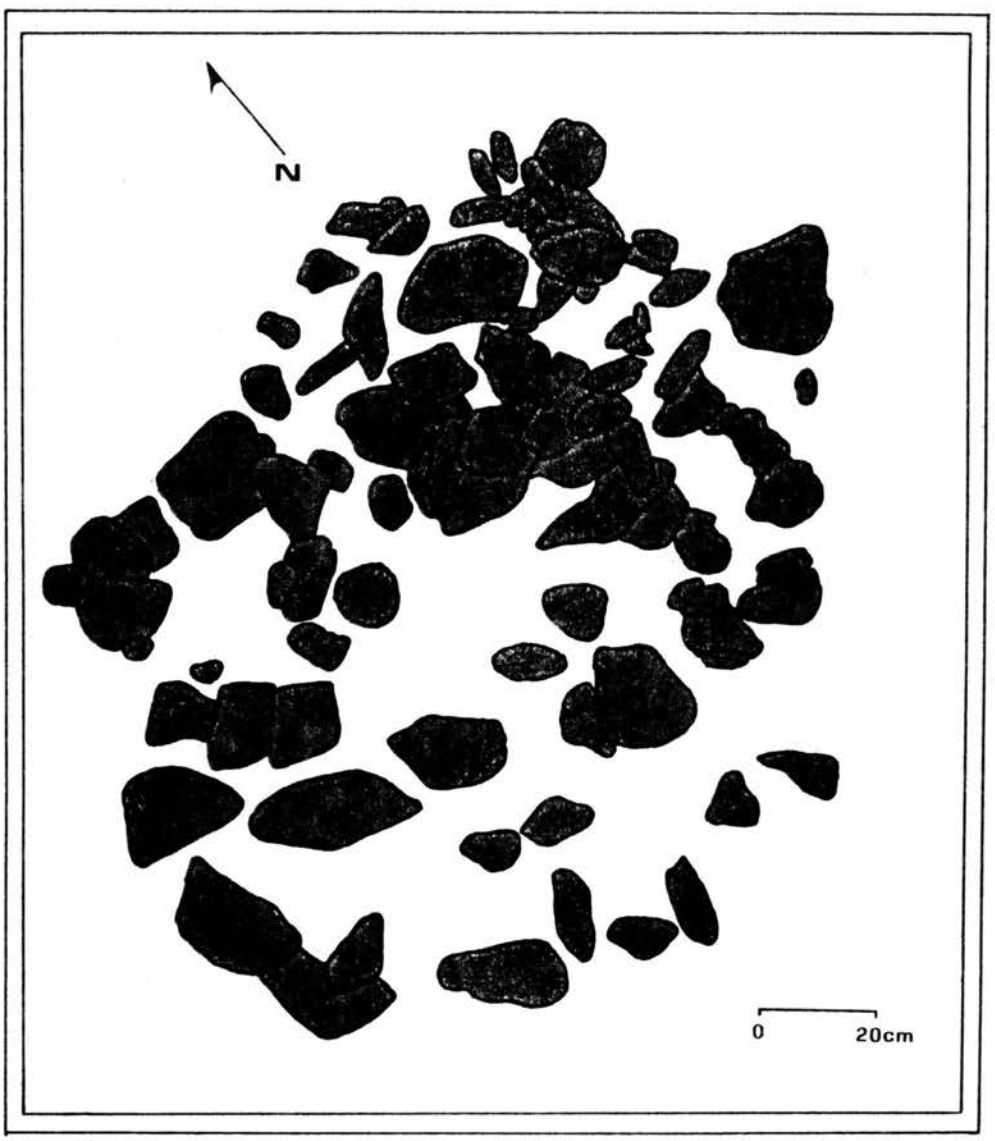


Figure 6.10 Drawing of Feature 1 at 5EP935.

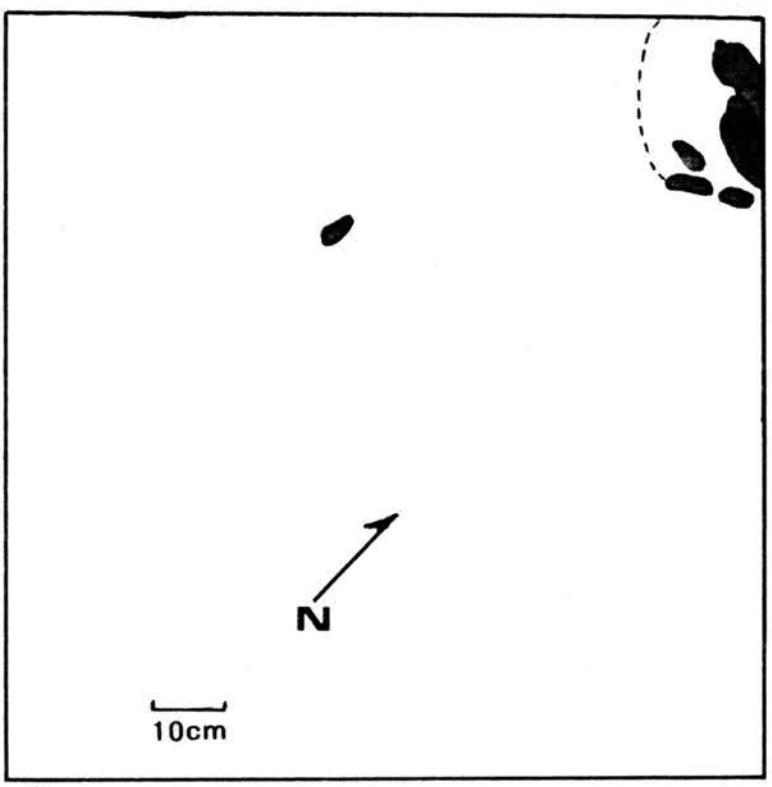


Figure 6.11 Feature 2 at site 5EP935.

charcoal was recovered from this feature to get a radiocarbon date. The feature measures approximately 20cm along one side and was associated with some bone fragments.

Feature #3 (Figure 6.12)

Feature #3 is a thin association of burned rocks. Little charcoal was found associated with this feature, but numerous lithics and potsherds were found in its vicinity. The feature measures 65cm X 50cm and was found in level A at a depth of 287cm below the top of the dune.

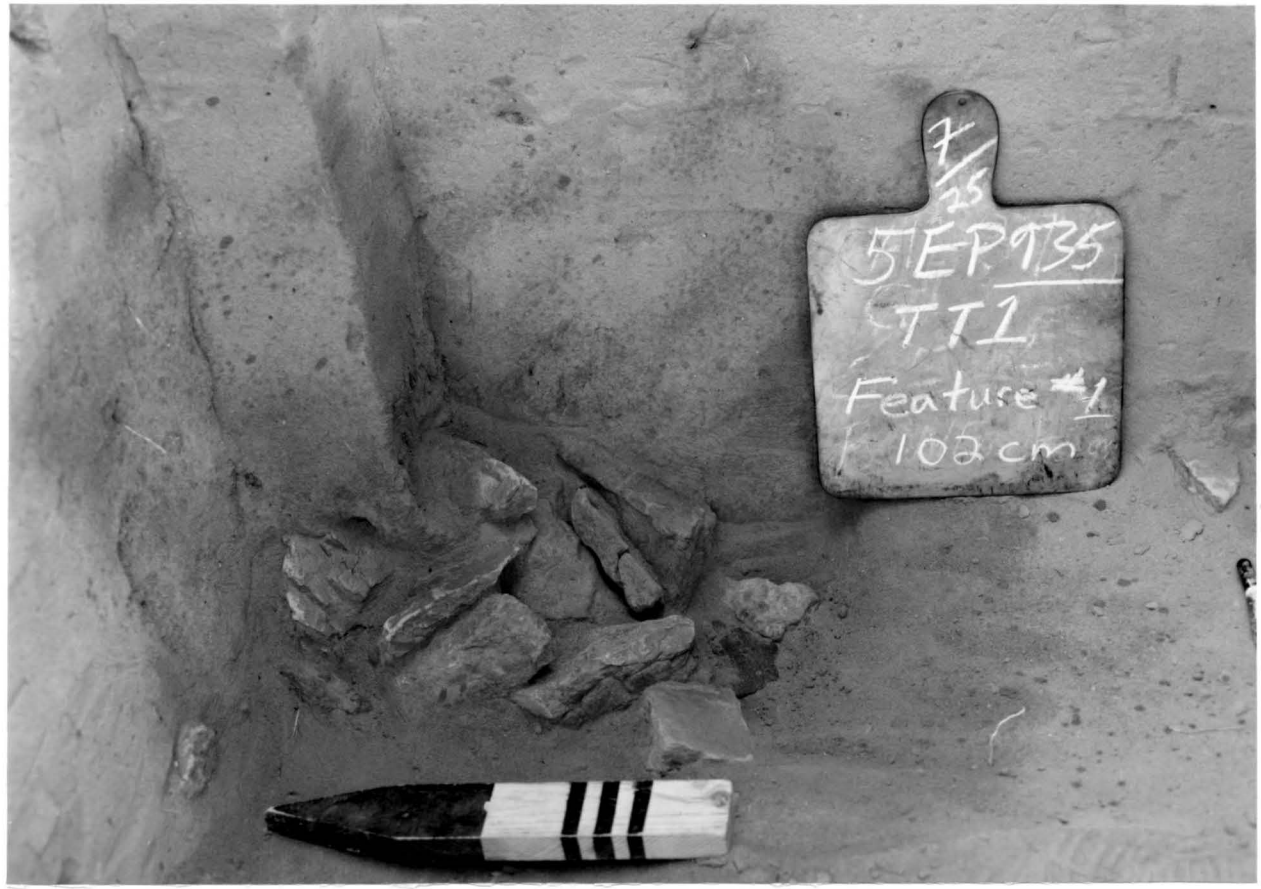
Feature #4 (Figure 6.13)

Feature #4 was the first feature found at 5EP935. This feature was excavated in 1987 while testing the site. It was found in the northeast corner of the test trench, and consists of a collection of burnt rocks and that were associated with charcoal fragments and a single pot sherd. The portion of the hearth that was uncovered in the excavation measured approximately 30cm X 40cm. The full size of this hearth is unknown because it was never fully excavated. Feature #4 was encountered between 102cm and 120cm below the surface of the excavation trench. Because this was a test trench, the zero level at the very top of the dune was not yet established. The hearth was located in stratigraphic unit c, and cultural unit A.

Features from 5EP935 and other sites in this area are usually aggregations of burned rocks. Almost all of the rocks associated with hearths at Crow's Roost are sandstone that has been reddened by exposure to extreme heat.

Figure 6.12 Feature 3 at site 5EP935.

Figure 6.13 Feature 4 at site 5EP935.


7/25
5EP135
TT1
Feature 1
102cm

Faunal Remains

Animal bones and fragments of animal bones were rather common at site 5EP935. No bone tools were recovered from this or any other site at Crow's Roost. Faunal identification was done by comparing the diagnostic bones recovered from this site to the Colorado Archaeological Society's bone collection at the University of Denver. The identification was conducted on only the medium and large mammal bones. Although rodent bones were commonly encountered during the course of excavation, they will not be included in this discussion for the same reasons discussed earlier in this text.

Most of the bone recovered was highly fragmented and therefore unidentifiable. Much of this fragmentary bone consists of split sections of long bones. Fracturing of long bones is consistent with the removal of bone marrow for consumption (Wheat 1972).

Identified Fauna

Bone was commonly encountered in cultural level B, but all of the bone recovered from this level was highly fragmentary and eroded. None of the bone from cultural level B was identifiable. Fractured pieces of long bones that were found at this level are large enough to be from bison. These fragments were broken while still fresh and show evidence of spiral fracture.

Cultural level A also had a significant amount of bone associated with it. Some of the bones from this level are large enough to identify. A distal humerus and a femoral head from a pronghorn were recovered from this level. A broken bison rib and an intact right mandibular third molar of a bison were also found.

The small size of the identifiable faunal collection makes it difficult to draw any major conclusions about the prehistoric subsistence practices at site 5EP935. The Archaic level has unidentified bone from medium sized animals as well as a probable bison. The Early Ceramic level shows evidence of the use of bison and antelope. The most likely interpretation is that the prehistoric inhabitants of this site were exploiting any species of animal that they could obtain.

Floral Remains

Soil samples were taken at 10 cm intervals from the top of the dune until bedrock was encountered at approximately 440 cm deep. Twenty samples starting at a depth of 70 cm below the top of the dune were analyzed. The twenty samples submitted for testing occurred every 20 cm. A surface sample was also included in these samples. The surface sample was taken well away from any disturbance caused by the excavation. Two flotation samples were submitted for analysis. These samples were taken from soil within two of the features, Feature #1 and feature #3. Both of these features occur in cultural unit A.

Pollen

Figure 6.14 shows the pollen sequence for 5EP935. The pollen record does give a good indication of prehistoric climatic conditions. This record, coupled with the radiocarbon dates, provide a detailed picture of regional climatic fluctuations over the past 2000 years.

Samples 18 and 19 are from stratigraphic unit d and cultural unit B. The pollen at these levels indicates a relatively warmer and drier period. The Cheno-am (amaranth

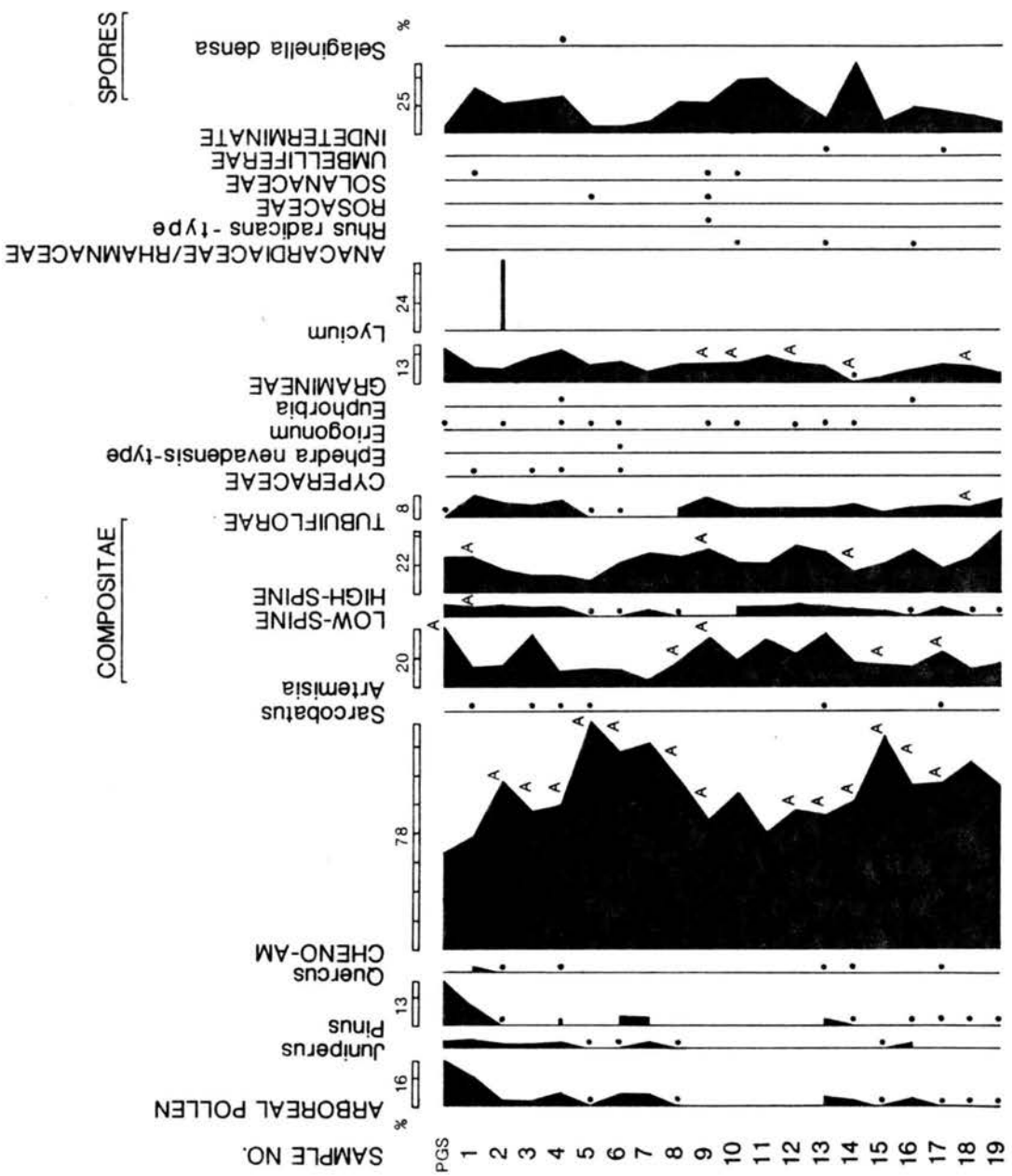


Figure 6.14 Pollen diagram from site 5EP935. "A" indicates aggregates.

and pigweed) frequencies are high, while the Artemisia (sagebrush), and Gramineae (Grasses) are relatively low. This dry period continues through sample 14 in cultural level A (Cummings 1991b:3).

Samples 13 through 9 show a period that is slightly more mesic. This is the upper section of stratigraphic unit c and cultural level A. At this time the Cheno-am frequencies decline while sagebrush and grasses increase (Cummings 1991b:3).

Samples 8 through 5 represent a period that is once again warmer and drier. This is also when the occupation at this site ceased. At this time the Cheno-am frequencies increase rapidly, sagebrush declines rapidly, and grasses decline slightly (Cummings 1991b:4). It is interesting to note that the beginning of this period (sample 8) seems to correspond to the beginning of the pollen sequence and occupation of 5EP2. Site 5EP2 as noted earlier is located in a rockshelter less than 100 meters south of 5EP935. The rockshelter may have had a spring running at the back at this time. This may represent a slight shift in occupation to a site that was more hospitable. The lower quantity of cultural material at 5EP2 may also indicate a less intense occupation during this dry spell. The radiocarbon dates obtained at the base of the 5EP2 deposit demonstrates that this dry spell began around 1400 B.P..

The climate began to get somewhat cooler and wetter in samples 3 and 4 as grass increases. In level 2 Cheno-am again increases and grasses and sage decrease, indicating a warmer drier period again (Cummings 1991b:4).

The top of the sample indicates a return to more modern conditions. The increase in pine pollen occurs throughout the western United states and is generally associated with the Little Ice Age (400-100 B.P.) (Cummings 1991b:5). This increase becomes

evident in sample 1 which is 70 cm below the surface. This increase in pine pollen probably indicates the beginning of this climatic episode.

Macrofloral Remains

Two samples of sand were submitted for flotation analysis. Table 6.5 shows the results of this analysis. Sample #20 was taken from the area of Feature #3. Sample #21 was taken from the sand within Feature #1. Both of these features are associated with cultural level A. Feature #3 yielded a large quantity of charred Chenopodium seeds and charcoal from sagebrush. Feature #1 yielded a few charred Chenopodium seeds and charcoal from sagebrush also (Cummings 1991b:4). The primary fuel source at this site during the Early Ceramic period seems to be locally available sagebrush, while the primary plant species exploited was Chenopodium (goosefoot).

This pattern of Chenopodium exploitation in this area of the Plains is fairly common. Site 5EP2 also yielded an abundance of goosefoot seeds. Zier et al. notes that at Recon John (Zier et al. 1989:214-244), 66% of all the macrobotanical remains were goosefoot seeds, and 89% of the possible cultural macrobotanical assemblage comprised goosefoot seeds. Goosefoot dominates the macrobotanical assemblages from comparable sites in southeastern Colorado (Zier et al. 1989:254).

Summary/Conclusions

Site 5EP935 represents a probable campsite occupied intermittently between the Late Archaic and the Early Ceramic. The site was abandoned approximately 1400 B.P., likely in favor of an area with better water and more protection. This site was used for

SAMPLE #	FLORAL I.D.	PART	CHARRED	UNCHARRED
20	Chenopodium	Seed	39	0
	Leguminosae	Seed	0	1
	Artemisia	Dominant	7	0
21	Chenopodium	Seed	3	0
	Artemisia	Dominant	25	0
22	Artemisia	Dominant	17	0
	Charcoal			

Table 6.5 Macrofloral remains from site 5EP935, level A.

the exploitation of certain floral resources (mainly goosefoot) and faunal resources. Goosefoot seeds are available for harvest in the late summer and early fall.

Abundant quantities of broken pottery were found in cultural level A. This amount of pottery coupled with the three major features at this level and the number of artifacts indicates an intensive and/or rather regular occupation of this site in the Early Ceramic period.

One point, one scraper and a single hearth were recovered from this level. There is good evidence of a Late Archaic occupation at this site. The lack of a larger assemblage limits the amount of interpretation that can be done with these data. The stratigraphy indicates that more evidence of this occupation is likely to be found farther east under the deepest section of the dune. More extensive excavation would be warranted to recover this information in order to clarify our understanding of the Archaic/Ceramic transition on the Plains.

Recon John Shelter (Zier et al. 1991) also yielded information on this transitional interval between the Archaic and the Ceramic periods. The conclusions that Zier et al. reaches about this transition is that the technology does show a stylistic shift from large to small projectile points with the introduction of the bow and arrow, and pottery was introduced at this time. The basic subsistence strategies and socioeconomic systems remained the same (Zier et al. 1991:136). Michlovic stresses this in his argument about Plains evolutionism (Michlovic 1986). He emphasizes that technological changes on the Plains do not necessarily reflect changes in economic or social systems. The basic pattern of hunting and gathering remained relatively constant throughout Plains prehistory.

CHAPTER 7

OTHER RECORDED SITES

In addition to the three prehistoric sites excavated and described in this text, seven additional sites were recorded in the vicinity of the cliff. All of the recorded sites are prehistoric in nature, and were identified on the basis of concentrations of lithics and bone on the surface or eroding out of deposits. This chapter will briefly list and describe each site. This section will also describe those artifacts that were recovered from areas around Crow's Roost that were not associated with a lithic scatter. Figure 1.3 shows the position of the cliff in relation to the creek bed and all of the recorded sites.

Site 5EP843

Site 5EP843 is located in the colluvial deposits south of the steep section of the cliff face. The northern section of the cliff where sites 5EP935, 5EP2, and 5EP1735 are located is very high and steep. The height of the cliff in this area ranges from approximately 10 to 20 meters high. The southern section of the cliff has a deep colluvial deposit below it and the cliff's vertical rise is much lower. In this section the cliff face ranges from 3 to 6 meters in height.

Site 5EP843 was named the "oven site" due to its southern exposure and the protection it gave from any breezes. This site was identified on the basis of lithic debris and scattered bone fragments on the surface.

Site 5EP934

This site is located slightly south of 5EP843. It was discovered in an exposed bank of an erosional gully. Numerous long bone fragments, lithic debris, and a small corner-notched projectile point were found eroding out of this bank. This site is also located in the colluvial deposit and was test excavated in the summer of 1990. This site is not described further in this report because it is being analyzed and reported by Seyhan Dwelis, an anthropology student at the University of Colorado at Colorado Springs, as her senior thesis. The material recovered from this site is very similar to that recovered from level A at 5EP576.

Sites 5EP844, 5EP845, and 5EP846

All of these sites are represented by concentrations of lithic debris, bone fragments, and an occasional surface grinding stone. These sites occur near the cliff face, in the colluvial deposits, and south of 5EP934.

Some of these sites that occur along the southern section of the cliff may represent a larger, continuous site with concentrations of artifactual materials scattered along the cliff. These scatters may be the result of individual activity areas or living areas of a larger group. These sites may also be the result of smaller groups using the cliff over a period of time and simply locating their camps in varying areas along the cliff.

Site 5EP842

Site 5EP842 is the most southerly site recorded. The cliff face becomes lower the further south one proceeds along its face. This site is located at this southern extreme. Lithics and bone were observed in this location. The terrain surrounding site 5EP842 is extremely eroded and the dimensions of the site are difficult to determine.

5EP1735

This site is one of the most significant sites located in the Crow's Roost area, but one the most difficult to study. Site 5EP1735 is located very near 5EP2 to the south (Figure 1.3). It is composed of two small erosional remnants of sand dunes banked against the highest section of the cliff. These remnants are full of boulders that have fallen from the cliff face. The small size of the remaining deposit, coupled with the occurrence of large boulders throughout the deposit, makes it difficult to excavate.

What makes this site so interesting are the artifacts that have been found eroding out of the deposit (Figure 7.1). These artifacts are consistent with artifacts that would be expected from a protohistoric site in southeastern Colorado (Lintz and Anderson 1989:234). Wedel (1986:134) notes that small triangular points, including stemmed and side notched examples, occur in this area at the time of the first European contact. There are five small side-notched projectile points, a single white glass trade bead, and a battered quartz cobble included in this assemblage.

Figure 7.1 Surface assemblage of site 5EP1735.


a
b
c
d
e
INCHES
1
2
3
4
5
6
METRIC
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

Lithics

The lithic artifacts recovered from this site include five small points and the battered cobble mentioned above, as well as three broken flakes of petrified wood and a utilized flake of light tan chert.

Point #a (Figure 7.1)

Material: Petrified Wood

Description: This point is a very small triangular side-notched point with slightly serrated convex edges. The tip is very sharp and the base is concave. It has a slightly expanding flange, and a bi-convex cross section.

Similar points occur in Dismal River sites (Gunnerson 1960), at tipi ring sites interpreted as eastern Apache campsites on the Carrizo Ranches in southeastern Colorado (Kingsbury et al. 1983:322), and in the Pinon Canyon area (Type P83) (Lintz and Anderson 1989:310-311). Dates of points of this type date between A.D. 750 to A.D. 1650 or later (Lintz and Anderson 1989:220).

Point #b (Figure 7.1)

Material: Petrified Wood

Description: This point consists of the base only. The top portion has been broken off. It is a small side-notched point with an expanding flange, a concave base and a bi-convex cross section.

This point is very similar to the Washita type point (Bell 1958:98-99) that is common throughout Oklahoma and most parts of the Plains. Bell gives a date for this

point type at A.D. 1100 to A.D. 1600. This type of point was also found on the Carrizo Ranches (Kingsbury et al. 1983:322-323) and in Pinon Canyon (Type P79) (Lintz and Anderson 1989:308-309). Similar points were also found in this area at the Avery Ranch site (Watts 1975:26).

Point #c (Figure 7.1)

Material: White Chert

Description: Point #c is a small triangular point with shallow side notches. It has a sharp tip, a slightly convex edge, an expanding flange, a notched base and a bi-convex cross section.

Bell (1958) calls this type of point a Harrell point. Harrell points are commonly associated with Washita points and date between A.D. 1100 and A.D. 1500 (Bell 1958:30-31). P82 Type points from Pinon Canyon are also similar to this point. Lintz and Anderson (1989:216), estimate that the age of this type of point is between A.D. 750 and A.D. 1725.

Point #d (Figure 7.1)

Material: Chert

Description: This point is very similar to point #c, except that the tip of the point has been broken off. It has shallow side notches, a notched base, and an expanding flange. The cross section is bi-convex.

Point #e (Figure 7.1)

Material: Petrified Wood

Description: This is a small example of a Washita point similar to point #b. It has side notches, a sharp tip, an expanding flange, a concave base, a convex blade edge, and a bi-convex cross section.

Battered Cobble (Figure 7.1)

A single battered cobble was found on the surface of this site. The cobble is a oval shaped quartz stream cobble, and is easily held in one hand. Both ends show extensive battering. A raised ridge along one side is also battered. This kind of battering is consistent with flintknapping as shown in a similar tool at Recon John Shelter (Battered stone, Specimen 3) (Zier et al. 1989:155).

Glass Bead (Figure 7.1)

A single glass trade bead was found in 1990, eroding out of the deposit that comprises site 5EP1735. This bead measures 10mm long and 6.5mm in diameter. The diameter of the orifice is 2mm. The bead was produced using the wire-wound or wound bead method as described by Anderson (Lintz and Anderson 1989:375), where a thread of molten glass is wrapped around a chalk coated wire. The wire is later removed. The overlapping sections of glass are evident when examining the end of the bead.

The occurrence of a European trade bead in association with the Washita and Harrell points dates this site to a post contact time. The earliest direct European contact in this area of the Plains was in 1541-42 by Coronado (Hyde 1959:7). Coronado probably did not enter Colorado, but passed to the east into western Kansas. The Indians that he described on this expedition into the Plains were Apache.

The bead may have been acquired directly from Europeans or indirectly through other groups. The evidence that this site was occupied by an Apache group is consistent with evidence from known Apache (Dismal River) sites east of this area (Gunnerson 1960) and south of this area (Kingsbury 1983).

CHAPTER 8

ISOLATED FINDS

Fourteen artifacts were found or obtained from the area of Crow's Roost Cliff that are not associated with a site. Some of these artifacts are quite unique and all of them should be described. There are five projectile points, two ovoid scrapers, a stone disk, four bifaces, a large chopper, and a small micaceous potsherd.

Point #IF-1 (Figure 8.1)

Material: Chert

Description: The very tip and the base of this point are broken. This point likely was corner notched with a sharp tip. The edges are slightly convex, the tang is sharp, and the cross section is bi-convex.

This point is similar to small points common from Early Ceramic times. Not enough of the base of this point survives to compare it to other examples. This point was found on top of the cliff near the northern end.

Point #IF-2 (Figure 8.1)

Material: Chert

Figure 8.1 Isolated finds from Crow's Roost.


IF-1
IF-2
IF-3
IF-9
IF-10
IF-11
IF-12
IF-13
IF-14
IF-4
IF-5
IF-7

Description: This is the largest point found associated with Crow's Roost. It has a sharp tip, straight edges, abrupt shoulders, rounded tangs, a contracting convex stem and base, and a bi-convex cross section.

A similar point type is P7 from Pinon Canyon. Anderson gives this point type a temporal range of between 3000 B.C. and 1000 B.C.(Lintz and Anderson 1989:122).

This point was obtained from a collector who stated that it was found in 1964 at the top of the cliff.

Point #IF-3 (Figure 8.1)

Material: Petrified Wood

Description: This point has a sharp tip, straight edges, sloping shoulders, a straight flange, a concave base, and a bi-convex cross section. The base has been ground.

Point #c is similar to the Duncan or Hanna type points (Perino 1971:26-27 and 44-45). These points date to the Middle Archaic, and range in age from 2500 B.C. to 850 B.C. (Perino 1971:27 & 45). This point was found in the bottom of the arroyo, north of the cliff.

Point #IF-9 (Figure 8.1)

Material: Red Jasper

Description: This specimen consists of the base of a small triangular corner-notched point. It has straight edges, a straight base, barbed shoulders, slightly expanding stem, and a bi-convex cross section.

This point is a common type found throughout the area. Point IF-9 looks similar to a Scallorn point (Bell 1960:84-85), and ranges in age between 700 A.D. to 1500 A.D.. The exact provenience for this point is unknown.

Point #IF-10 (Figure 8.1)

Material: Petrified Wood

Description: This point is a large, broad bladed projectile point with a slightly serrated convex edge. It has a sharp tip, a straight base, a slightly expanding stem, and plano-convex cross section.

Point #IF-10 resembles the Williams type point (Bell 1960:96-97) that dates from 4000 B.C. to A.D. 1000. This point is also similar to type P31 at Pinon Canyon (Lintz and Anderson 1989:148-149). This point probably dates to sometime in the Archaic. The exact provenience for this point is unknown.

Scrapers #IF-4 and #IF-5 (Figure 8.1)

Material: Petrified Wood

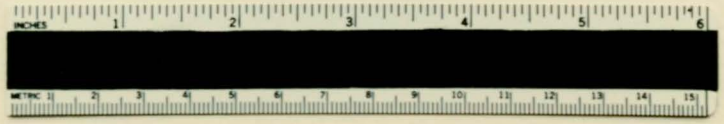
Description: These two scrapers are described together because they are so similar. Both are made of petrified wood, are generally circular in shape, and are unifacially retouched around the entire circumference of the tool. Both show very steep retouch. The exact location where these were found is unknown.

Chopper #IF-6 (Figure 8.2)

Material: Petrified Wood

Figure 8.1 Isolated find, chopper.

IF-6



Description: This tool was made of a large piece of Black Forest petrified wood. This tool has a single bifacially retouched edge. Impact damage is evident along the retouched edge. The most likely use of this tool would have been for heavy chopping. This chopper was located below the cliff face at the edge of a deep erosional gully.

Stone Disk #IF-7 (Figure 8.1)

Material: Limestone

Description: The function of this tool is unknown. It is a round disk of limestone that has been bifacially retouched. The edge on one side is sharper than the other side. This may mean that this had a cutting function. This tool was found north of the cliff and north of the arroyo.

Disks made of stone or pottery are common throughout the Southwest. These disks are either perforated or unperforated. The function of these disks is unknown. Some believe that they were used as spindle whorls for weaving (Barnett 1973:47).

Biface #IF-11 (Figure 8.1)

Material: Light tan banded chert

Size: L= 39mm

W= 24mm

T= 8mm

Description: Biface #IF-11 is a small bifacially retouched tool, retouched around the entire perimeter of the implement. One edge of this biface has been broken off. The probable function of this tool was for cutting. The exact provenience for this tool is unknown.

Biface #IF-12 (Figure 8.1)

Material: Petrified Wood

Size: L= 51mm

W= 38mm

T= 8mm

Description: This biface is larger than IF-11 and has a sharp tip. The bottom of this tool has been broken off. The edges are convex and finely retouched on both sides. The probable function of this tool was for cutting. Biface #IF-12 was recovered from a wash north of site #5EP934.

Biface #IF-13 (Figure 8.1)

Material: Tan Quartzite

Size: L= 49mm

W= 26mm

T= 8mm

Description: This tool was manufactured on a thin blade. The end is rounded and bifacially retouched. The sides are unifacially retouched, and have the appearance of a scraper edge. This tool was likely used for both cutting and scraping. The provenience of this tool is unknown.

Biface #IF-14 (Figure 8.1)

Material: White Banded Chert

Size: L= 43mm

W= 21mm

T= 12mm

Description: This biface was manufactured on a thick flake. Most of the tool is broken off and has been lost. A single edge remains. The edge shows fine retouch on both sides. The function of this tool was probably for cutting. This biface was found north of the cliff across the arroyo.

Potsherd #IF-8 (Figure 8.3)

A single micaceous potsherd was found in a wash south of site 5EP576. The color of the sherd is very dark gray (10YR 3/1). Both sides are smooth and the temper is sand and mica. The potsherd is small, measuring 27mm long, 18mm wide, and 7mm thick. This sherd was found in a wash at the extreme southern end of the cliff.

Micaceous smooth pottery is generally associated with Late Ceramic occupations. Dismal River pottery is similar (Gunnerson 1960:246-247) and is associated with prehistoric Apache groups. Similar pottery found at Pinon Canyon has been compared to Cimarron Micaceous and Taos Micaceous. The dates for these micaceous types of pottery is considered to between A.D. 1000 or A.D. 1300 to historic contact (Lintz and Anderson 1989:354).

Figure 8.3 Isolated find, micaceous pottery.

IF-8

CHAPTER 9

PALEOCLIMATE

Pollen and sedimentary analysis of the 5EP935 sand dune have provided a picture of climatic fluctuations over the last 2000 years. This information, coupled with the pollen samples from sites 5EP576 and 5EP2, gives a local indication of past climatic conditions. Evidence from this analysis indicate that local conditions tend to fluctuate more than regional models indicate.

The Pre-Boreal and Boreal climatic episodes follow the Pleistocene Late Glacial climatic episode (ca. 10,000 B.P.) where the climate was wetter with cool summers and warm winters (Wendland 1978).The Pre-Boreal and Boreal episodes are characterized by warm summers and cold winters, and by the replacement of boreal forests on the Plains by grasslands and riparian forests (Wendland 1978; Greiser 1985:19).

The Atlantic climatic episode, lasting from about 8500 to 5500 B.P., was a time marked by warming and drying on the Plains. The Atlantic is divided into four episodes. The first two, Atlantic I and II, were periods of warming and drying. These periods lasted until approximately 7000 B.P.(Wendland 1978). The Atlantic III episode coincides with Antev's (1955) altithermal period. The altithermal is hypothesized as a time of extreme drought. Benedict (1979) proposes a "two drought altithermal". The first drought occurred during the Atlantic III episode and lasted from 7000 to 6500 B.P.. The second

drought occurred during the Atlantic IV episode and lasted between 6000 to 5500 B.P. The 500-year interval between 6500 and 6000 B.P. is thought to be a time of increased effective moisture (Benedict 1979:9). Benedict has long proposed that the period represented by the altithermal was a time when prehistoric inhabitants of the Plains abandoned those areas in favor of mountainous areas with more moisture (Benedict 1979).

Between 5500 and 5000 B.P. is another period with increased effective moisture (Benedict 1979; Markgraf and Scott 1981). After 5000 B.P., the Plains began to become cooler and moister again. This period is known as the Sub-Boreal, and lasted from approximately 5000 B.P. to 3000 B.P. (Wendland 1978; Greiser 1985:22).

Following the Sub-Boreal was an episode known as the Sub-Atlantic. This episode began approximately 2760 B.P. and lasted until about 1600 B.P.(Wendland 1978:281; Wedel 1986:43). This period was characterized by as being wetter on the central Plains (Wendland 1978:281; Wedel 1986:43).

Evidence from the pollen samples taken at site 5EP935 indicate that local climatic conditions differed from the model suggested by Wendland (1978) on Plains climate at this time. The pollen sequence from 5EP935 is long and therefore fairly detailed in its relation to local climatic fluctuations. The pollen at this site indicates that during the Sub-Boreal period in this area, the climate was relatively dry, not wetter as indicated above (Huber et al. n.d.). This dry period lasted until approximately 1800 B.P..

The Scandic episode on the Plains lasted between 1600 and 1200 B.P., and was characterized as a period of warmer and drier conditions (Wendland 1978; Wedel 1986:43). Local conditions during the Scandic also differ from the general Plains model. Evidence from 5EP935 indicate that cooler conditions were present from

approximately 1900 B.P. until 1400 B.P.(Huber et al. n.d.). Other areas of the southern Plains support these findings. Recon John Shelter (Zier et al. 1989:275) shows evidence of a cooler climate during this time. Also, Hall (1982:403) indicates that this period was cooler on the southern Plains than it was considered to be on the central Plains.

The time period between 1200 B.P. and 800 B.P. is known as the Neo-Atlantic. This climatic is characterized on the Plains as a time of increasing temperatures and increasing precipitation (Wendland 1978; Wedel 1986:43).

Hall states that on the southern Plains conditions became much drier after 1000 B.P. (Hall 1982:405). Evidence from Crow's Roost suggests that this drying trend started much earlier on the Plains of eastern Colorado. After 1400 B.P., the pollen evidence suggests a much drier period (Huber et al. n.d.). This drier period is indicated by a significant increase in Cheno-Am populations, and a decrease in Artemisia (Cummings 1991b). It might be argued that the abundance of Cheno-Ams in the pollen profile is simply the result of human utilization of resources. This may in fact have some bearing at site 5EP2 at Crow's Roost, where the occupation levels coincide with this increase. However, at site 5EP935, the increase in Cheno-Ams correlates with the abandonment of this site. Chenopodium seeds are abundant in the earlier occupied levels, but are not associated with the high pollen count. It is reasonable to associate the abandonment of site 5EP935 with the deteriorating climatic conditions. The prehistoric inhabitants most likely shifted their occupation to 5EP2 where a spring was located. Soon after 5EP2 was occupied, it too was largely abandoned.

Evidence from the San Juan mountains in southwestern Colorado also support the climatic evidence from Crow's Roost. Between 1400 and 800 B.P. was a period of increased moisture in the San Juans (Andrews et al. 1975). When the dominant source

of moisture is from the Pacific Ocean, the San Juan mountains experience increased moisture. On the Plains, Pacific air dominance is characterized by dry weather (Huber et al. n.d.).

Between 800 B.P. and the present the climate on the Plains continued to fluctuate, but not as dramatically. Generally modern conditions have dominated during this period of time (Wedel 1986:43). The pollen sequence from Crow's Roost supports this interpretation.

It is important to note that climatic fluctuations on the Plains are most dramatic at a local level. Using general climatic models as an indicator of Plains environment is only useful as a measure against local paleoenvironmental information. Most of these models are derived from data surrounding the Plains and not from sites on the Plains (Vickers 1986:56). To understand the chronology and extent of environmental change, and the relationship between this change and human adaptations, we must carefully examine paleoenvironmental data on a local or regional level (Bamforth 1990:364; Vickers 1986:55).

CHAPTER 10

PREHISTORY AND HISTORY OF CROW'S ROOST

Prehistory

The earliest recorded occupation of this area of the Plains was by the people known as Paleo-Indians. Paleo-Indians lived in on the Plains at least as far back as 12,000 years ago. Evidence from El Paso county of Paleo-Indian occupation is scarce at best. The Hahn site (5EP1) along the Big Sandy Creek is the only recorded Paleo-Indian site in El Paso County (Greiser 1985:57), although it has never been formally investigated. Some researchers in this area feel that this lack of Paleo-Indian evidence is more a reflection of geologic processes than of prehistoric site choices (Christian Zier personnel communication). It is likely that depositional conditions during the Pleistocene were not good in southern Colorado, and that Pleistocene sites have simply not been preserved.

Soister's geologic map of the Hanover N.W. Quadrangle (Soister 1968) in which Crow's Roost is located, shows Pleistocene gravels occurring at the extreme western edge of the map. It also shows that Black Squirrel Creek was located much farther to the west during the Pleistocene, and that it has migrated east to its present position. Studies conducted in the area of the Pleistocene creek bed might be able to locate evidence of Paleo-Indian occupations in this region.

The Archaic is the earliest occupational stage represented at Crow's Roost. There is no evidence of occupation in the region during the Early Archaic, but as this time correlates with the Altithermal climatic episode, the Plains may have been too hot and dry an area to support people (Benedict 1979).

There is good evidence of a Middle Archaic occupation at Crow's Roost (site 5EP576, with a radiocarbon date of approximately 5400 B.P.). This occupation at site 5EP576 is contemporaneous with the end of Benedict's "two drought Altithermal". The second drought is hypothesized to have lasted between 6000 and 5500 B.P. (Benedict 1979:9). The occupation of 5EP576 began soon after this drought is thought to have ended.

The second component at 5EP576 dates to the Late Archaic at approximately 2700 B.P. Evidence from these occupation levels at this site indicate that Crow's Roost was used primarily for animal procurement and processing. The tool kits and the faunal elements present indicate a subsistence strategy that relied heavily on faunal resources. Some of the fragmentary bone and presence of possible boiling stones indicate that bone grease manufacture may have occurred at this site.

Another site, at the northern end of the cliff face, contains evidence of a Late Archaic occupation. Cultural Level B at 5EP935 dates to approximately 2200 B.P., 500 years later than component A at 5EP576. The cultural material recovered from 5EP935 was minimal due to the small area excavated from this level. The evidence consists of a single hearth, one point, one scraper and some long bone fragments, probably from bison. Little can be concluded from this evidence, except that there was prehistoric occupation at Crow's Roost during this time.

Cultural component A at site 5EP935 contains the earliest evidence for a Ceramic Period occupation at Crow's Roost. The ceramics found from this early period at Crow's Roost are cord marked and have straight rims. In a situation similar to that of Recon John Shelter (Zier et al.1989; Zier and Kalasz 1991), there is evidence here of a transitional period between the Archaic and the Ceramic stages. The date of Cultural Level A at 5EP935 is approximately 1850 B.P., about 350 years younger than level B. There do not seem to be any major differences in subsistence strategies in this region between the Late Archaic and the Early Ceramic. The fauna recovered from both periods is similar in size and species. Plant utilization is also evident at all of the sites regardless of the time period. Chenopodium was the most utilized plant resource at Crow's Roost during all periods. Today, goosefoot plants are still abundant near the cliff.

Michlovic (1986) argues that the basic subsistence strategy on the Plains did not change significantly until the arrival of Europeans. Some elements of the technology changed, such as the addition of pottery and the bow and arrow in the Early Ceramic, but the hunter-forager economy continued to persist. Zier and Kalasz (1991) agrees with this idea, that even though there is technological change through time, modes of adaptation did not significantly change (Zier and Kalasz 1991:136).

For reasons discussed earlier, 5EP935 was probably abandoned between 1300 and 1400 B.P.. Site 5EP2, less than 100 meters north of 5EP935, continues the occupational sequence at Crow's Roost. The earliest component at 5EP2 dates to approximately 1300 B.P.. This date places the earliest component at this site near the end of the Early Ceramic Period. This component yielded information on both floral and faunal resource exploitation, for this period of time, in the region. Goosefoot was the main floral species found from this time. The remains of pronghorn, bison and jackrabbit were also found

associated with this level. According to the pollen record from Crow's Roost, this was a time of warmer and drier conditions in this area. The amount of cultural material recovered from 5EP2 is considerably less than that recovered from the Early Ceramic component at 5EP935. This looks to be an indication that the prehistoric occupation at this locality was becoming less intense.

The Middle Ceramic period at Crow's Roost is represented by level D at site 5EP2. This level has been dated to approximately 800 B.P.. The Middle Ceramic cultural remains are very minimal. This is the only site in the area with a Middle Ceramic date and the evidence for an occupation during this period is sparse. The cliff was utilized during the Middle Ceramic, but very little.

Few potsherds were recovered at site 5EP2, and all of them were found eroding from the deposit. Because all of the pottery was in poor context, and all were body sherds, no pottery style changes are evident in this area.

The upper levels of site 5EP2 contained very few cultural remains, and the rabbit bones at these levels are most likely associated with the golden eagle that frequents the site with its dinner. Between the Early Ceramic and the 17th century, there is little evidence of occupation at Crow's Roost. Several researchers hypothesize that the high Plains were abandoned sometime between A.D. 1400 and A.D. 1450 (Gunnerson 1987:90; Zier and Kalasz 1991:114), and were not repopulated until the 17th century by the Apache. The exact date that Crow's Roost was abandoned is difficult to determine, but it was largely abandoned after the Early Ceramic.

Site 5EP1735, located south of 5EP2, contains evidence of a 17th century occupation. Even though the site could not be extensively tested, the tool typologies are consistent with early Apache styles (Gunnerson 1960, 1968, 1981; Kingsbury 1983;

Wood 1971). The single glass trade bead found eroding out of this site is a good age marker. There is no doubt that this site was occupied after European contact. The bead was not necessarily acquired directly from Europeans, but could have been traded from another indigenous group. The single micaceous potsherd recovered at the southern end of the cliff is also evidence of a protohistoric occupation.

History

The earliest recorded inhabitants of this area were the Apache Indians (Hyde 1959:4). In 1541 Coronado set out to discover the city of Quivira, located in eastern Kansas. Coronado did not pass through Colorado on this expedition, but it is the first recorded contact with Apaches on the high western Plains (Hyde 1959; Thomas 1935). The Apaches controlled this area of the Plains until the early 1700's. During the early 18th century the Utes and their allies the Comanches began raiding the Apaches of eastern Colorado. By the middle of the 18th century the Apaches were displaced to the south. The area of eastern Colorado that they had once controlled became dominated by the Utes and Comanches (Cassells 1983:186-196; Thomas 1935; Hyde 1959).

While the Apaches were still occupying this region, the first direct European contact was made in eastern Colorado. In the summer of 1706, Juan de Ulibarri set out from New Mexico with an expedition of forty Spaniards and one hundred allied Indians to find and recover some Pueblo Indians that had revolted in 1680 and fled to an Apache stronghold, north of the Arkansas River, known as El Cuartelejo (Thomas 1935). Janet Lecompte (Anderson et al. 1991:69) thinks that there is a very strong possibility that Ulibarri came as far north as Jimmy's Camp (5 miles east of Colorado Springs,

Colorado) before turning east to El Cuartelejo. If this is true, Ulibarri would have passed just to the north of Crow's Roost on his way east to El Cuartelejo.

In the year 1719 Antonio de Valverde y Cosio pursued a group of Utes and Comanches down Ute Pass, west of Colorado Springs, Colorado, onto the Plains and then south to the Arkansas River. According to the interpretation of Lecompte (Anderson et al. 1991:70-71), this expedition almost certainly came into contact with Crow's Roost. After Valverde passed the area of Jimmy's Camp, the group headed southeast into the Black Squirrel Creek basin. Although there is no mention in Valverde's journal (Thomas 1935:124-125) of a cliff in the area they almost certainly passed the Crow's Roost Cliff.

In the year 1787 the Spanish decided that the best way to control the Comanches in this region was to teach them to farm and build them a permanent settlement. The settlement was constructed near the Arkansas River east of Pueblo, Colorado. This settlement did not last long, and the Comanche abandoned the area by 1788 (Thomas 1929).

French traders are also thought to have been in this area during the early to middle 18th century. Lecompte (Anderson et al. 1991:76-79) outlines several instances of French traders working in the area. It is likely that these traders came into contact with the area of Crow's Roost on their travels, but their activity seems to have centered along the Fountain Creek drainage.

By the year 1820 the Utes and Comanches had been forced to the south of the Arkansas River by the Arapaho and the Cheyenne (Cassells 1986:197; Hyde 1959:196). These were the last of the aboriginal groups to occupy the area before the influx of the American traders and settlers.

There is not much specific information regarding the history of Crow's Roost. The origin of the name is even a point of some contention. An early pioneer of the area, Judge Baldwin, referred to the origin of the name "Crow's Roost" as being an area where crows used to roost in the rocks (Cragin 1921:3). Others think the name came from the Crow Indians (although they never occupied this area) or to a single Crow Indian who used to live near the cliff (Robert Leisure personal communication).

The earliest historical reference found about Crow's Roost was in April of 1863. Apparently some law officials had a shootout at Crow's Roost with some "renegades" who had been stealing horses in the area. One of the renegades was killed and another was wounded (Whittemore 1967:27).

The first person to file on the land was William B. Young in 1873. The following year, a man by the name of Henry Gatchell filed a claim on the same property. In 1881 the property was purchased by F.L. Martin (Whittemore 1967:28). Martin started a ranch known as the Diamond Tail Ranch (officially known as the Colorado Springs Livestock Company). The ranch grazed cattle as far north as Big Sandy Creek, south to the Arkansas river, west to the Garden of the Gods, and east onto the open range (Whittemore 1967:28).

In 1898 the Colorado Springs Livestock Company went out of business. The ranch was then taken over by the Alfalfa Land and Cattle Company. The ranch was sold to Weaver & Bond in 1903, who then sold it to the Cox family in 1909. Finally, Field Bohart bought it in 1914 (Whittemore 1967:33-34). The Bohart family still owns and operates the ranch.

In 1915 there was a post office at Crow's Roost. The post office was not located on the ranch or at the cliff, but was on the road across from the cliff. The 1915 Colorado

Business Directory describes the Crow's Roost post office this way: "A new post office in El Paso County, 28 miles east of Colorado Springs (the county seat), 20 miles from Fountain (the nearest railroad and banking point)." (Colorado Business Directory 1915:309).

During the 1920s and 1930s Crow's Roost was a popular picnic and riding area for the local residents. Every Sunday people from the area would picnic at the cliff. On weekdays, after school was over at the Drennon School, the teachers would often take walks or horseback rides around the cliff (Mrs. Dixon 1986 personal communication).

Crow's Roost cliff has been a focal point in this area of eastern Colorado for thousands of years. The prehistory and the history of the region are rich and diversified. The land presently is located within a working cattle ranch and is well protected. These sites and the integrity of the cliff should always be preserved.

CHAPTER 11

SUMMARY

The archaeological evidence at Crow's Roost shows that there is cultural consistency on this area of the Plains even in the presence of environmental fluctuations. The local paleoclimatic conditions coupled with the archaeological evidence indicate that the prehistoric inhabitants maintained their basic technological and economic strategies from the Middle Archaic into the Middle Ceramic. The intensity of occupation varied with the climate, but the basic subsistence economy changed little.

The establishment of a local chronology for this portion of the Plains is difficult. In the absence of radiocarbon dates, there is no reliable system available to date sites or components of sites. The projectile point typology used in this area has been borrowed from the surrounding regions. Even the pottery typologies are inadequate. While the presence or absence of pottery can help determine age, the types and styles are still poorly understood. Similar pottery is associated with both the Early and Middle Ceramic periods in this region. Further work on local typologies related to stylistic elements within prehistoric technologies would be warranted for this region.

Crow's Roost has the potential to help with this and other prehistoric research questions concerning the high Plains of southeastern Colorado. The abundance of deeply buried, stratified sites in both colluvial and eolian deposits makes this locality invaluable

for prehistoric research. The three sites tested for this project are only a small percentage of the cultural resources preserved at Crow's Roost.

Crow's Roost is in no present danger of being destroyed or developed. The rancher who owns the land, Field Bohart, limits access to the site. The area should be preserved and protected for future historic and prehistoric research.

REFERENCES CITED

Alexander, Robert K., John D. Hartley, and Thomas F. Babcock
1982 A Settlement Survey of the Fort Carson Military Reservation. Grand River Consultants: Grand Junction, Colorado.

Anderson, Jane L., Janet Lecompte, and Christopher Lintz
1986 A Literature Review and Limited Archaeological Reconnaissance of Cultural Resources on the Banning Lewis Project Area, El Paso County, Colorado. Prepared for Aries Properties, Inc. Colorado Springs, Colorado. Pioneer Archaeological Consultants, Inc., Longmont, Colorado.

Anderson, Jane L.
1991 Cultural Resources Inventory of Proposed Expansion Areas for Peterson and Falcon Air Force Bases, El Paso County, Colorado. Vol. I. Prepared for U.S. Air Force AFRCE-BMS, Norton Air Force Base, California. Centennial Archaeology, Inc., Fort Collins, Colorado.

Andrefsky, William, Jr.,ed.
1990 An Introduction to the Archaeology of Pinon Canyon, Southeastern Colorado. Vol.11:Prehistory National Park Service, Rocky Mountain Regional Office, Denver.

Antevs, Ernst
1955 Geologic-Climatic Dating in the West. American Antiquity 20:317-355.

Bambrey, Lucy H.
1987 Cultural Investigations for The U.S. Air Force Academy Auxiliary Airfield, El Paso County, Colorado. Prepared Under Contract for U.S. Air Force Academy Civil Engineering Division Colorado Springs, Colorado. Prepared by IT Corporation, Englewood, Colorado.

Bamforth, Douglas B.

1988 Ecology and Human Organization on the Great Plains. Plenum Press, New York.

1990 An Empirical Perspective on Little Ice Age Climatic Change on the Great Plains. Plains Anthropologist 35(132):359-366.

Barnett, Franklin

1973 Dictionary of Prehistoric Indian Artifacts of the American Southwest. Northland Press, Flagstaff, AZ.

Bell, Robert E.

1958 Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin No.1. Oklahoma Anthropological Society, Norman.

1960 Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin No. 2. Oklahoma Anthropological Society, Norman.

Benedict, James B.

1979 Getting Away From It All: A Study of Man, Mountains, and the Two-Drought Altithermal. Southwestern Lore 45(3):1-11.

Breternitz, David A.

1969 Radiocarbon Dates: Eastern Colorado, Plains Anthropologist 14(44):113-124.

Buckles, David R. and Kenneth R. Watts

1988 Geohydrology, Water Quality, and Preliminary Simulations of Ground Water Flow of the Alluvial Aquifer in the Upper Black Squirrel Creek Basin, El Paso County, Colorado. Water-Resources Investigations Report 88-4017. U.S. Geological Survey, Denver, Colorado.

Butler, William B.

1981 Eastern Colorado Radiocarbon Dates, Southwestern Lore 47(2):12-31.

1986 Taxonomy in Northeastern Colorado Prehistory. Unpublished Ph.D. Dissertation, University of Missouri-Columbia, University Microfilms, Ann Arbor.

1988 The Woodland Period in Northeastern Colorado, Plains Anthropologist 33(122):449-465.

Cassells, E. Steve
1983 The Archaeology of Colorado. Johnson Books,Boulder, Colorado.

Chronic, John , and Halka Chronic
1972 Prairie Peak and Plateau, A Guide to the Geology of Colorado. Colorado Geological Survey, Bulletin No. 32. Denver, Colorado.

Colorado Business Directory
1915 Colorado Heritage Center, Denver. p.309.

Cragin, Francis W.
1921 Notes of an Interview with Sebastian Greenway. April 3, 1921. Cragin Collection, Pioneers' Museum, Colorado Springs, Colorado.

Cummings, Linda Scott
1988 Pollen and Macrofloral Analysis at 5EP2, Southeastern Colorado. Prepared for, Department of Anthropology, University of Colorado at Colorado Springs, Colorado Springs, Colorado. PaleoResearch Laboratories, Denver.

1991a Pollen Analysis at 5EP576, Southeastern Colorado. Prepared for, Department of Anthropology, University of Colorado at Colorado Springs, Colorado Springs, Colorado. PaleoResearch Laboratories, Denver.

1991b Pollen and Macrofloral Analysis Near Crow's Roost, (5EP935) Eastern El Paso County, Colorado. Prepared for, Department of Anthropology, University of Colorado at Colorado Springs, Colorado. PaleoResearch Laboratories, Denver.

Eighmy, Jeffrey L.
1984 Colorado Plains Prehistoric Context for Management of Prehistoric Resources of the Colorado Plains. Office of Archaeology and Historic Preservation, Colorado Historical Society, Denver, Colorado.

Eighmy, Jeffrey L. and Carol Wood
1984 Dated Architecture on the Southern Colorado Plains. In Paper of the Philmont Conference on the Archaeology of Northeastern New Mexico, edited by C.J. Condic, pg. 273-292. New Mexico Archaeological Council Proceedings, Vol. 6(1).

Ellwood, Priscilla B.
1975 Pottery Distribution East of the Rockies. All Points Bulletin 12 (2 and 3). Colorado Archaeological Society, Denver.

1987 Bayou Gulch (5DA265) Ceramics. Plains Anthropologist 32(116):113-139.

Frison, George C.
1978 Prehistoric Hunters of the High Plains. Academic Press:New York.

Gillio, David
1971 Ceramics. Southwestern Lore 36(4) 83-84.

Goeke, James W.
1970 The Hydrogeology of Black Squirrel Creek Basin, El Paso County, Colorado. Unpublished M.A. Thesis, Department of Geology , Colorado State University, Fort Collins, Colorado.

Grady, J.
1971 The Wilbur Thomas Shelter and Its Relationship to Other Sites in the Rocky Mountains and the Plains. Southwestern Lore 36(4):85-88

Greiser, Sally T.
1985 Predictive Models of Hunter-Gatherer Subsistence and Settlement Strategies of the Central High Plains. Plains Anthropologist, Memoir 20,30 (110 Pt.2).

Greiser, Sally T., T. Weber Greiser, and Susan M. Vetter
1985 Middle Prehistoric Period Adaptations and Paleoenvironment in the Northwestern Plains: The Sun River Site. American Antiquity 50(4):849-877.

Griffiths, M. and L. Rubright
1983 Colorado: A Geography. Westview Press, Boulder.

Gunnerson, James H.
1960 An Introduction to Plains Apache Archaeology-The Dismal River Aspect. Anthropological Papers No. 58, Bureau of American Ethnology Bulletin 173, Washington D.C.

1968 Plains Apache Archaeology: A Review. Plains Anthropologist 13(41):167-189.

1981 Overview of the Central High Plains. Draft Overview for the U.S. Forest Service. Ms. on file at the Colorado Preservation Office, Denver.

1987 Archaeology of the High Plains. United States Department of Agriculture, Forest Service, Denver, Colorado.

1989 Apishipa Canyon Archaeology: Excavations at the Cramer, Snake Blakeslee and Nearby Sites. Reprints in Anthropology Vol. 41, J&L Reprints, Lincoln, Nebraska.

Hall, Stephen A.
1982 Late Holocene Paleoecology of the Southern Plains. Quaternary Research 17:391-407.

Haug, James D.
1968 Prehistory of Eastern Colorado, Southwestern Lore 34(1):1-10.

Hollingsworth, Alma
1976 Bison Hump Shelter. Southwestern Lore 42(1&2):27-32.

Hoyt, Steven D.
1979 Archaeological Investigations of Torres Cave (5LA1310), Las Animas County, Colorado, 1977. Southwestern Lore 45(1&2):1-21.

Huber, Thomas, Robert McDonald and Thomas Wynn
in review Recent Climatic Fluctuations in Eastern Colorado. Quaternary Research 1992.

Hyde, George E.
1959 Indians of the High Plains, From the Prehistoric to the Coming of Europeans. University of Oklahoma Press, Norman.

Irwin, Cynthia, and Henry Irwin
1957 The Archaeology of the Agate Bluff Area, Colorado. Plains Anthropologist 8:15-38.

Irwin Henry J. and Cynthia C. Irwin
1959 Excavations at LoDaisKa Site. Proceedings No. 8, Denver Museum of Natural History, Denver, Colo.

Irwin-Williams, C.C., and H.T. Irwin
1966 Excavations at Magic Mountain: A Diachronic Study of Plains-Southwest Relations. Proceedings No. 12. Denver Museum of Natural History, Denver, Colorado.

Jepson, Daniel A.
1988 A Method for Recording and Analyzing Private Artifact Collections in Eastern Colorado. M.A. Thesis. Department of Anthropology, Colorado State University, Fort Collins, Colorado.

Johnson, Ann M., William B. Butler, Stephen A. Chomko, and J.J. Hoffman
1991 Guidelines for Reporting Prehistoric Plains Ceramics. Southwestern Lore 57(1):9-29.

Johnson, Eileen
1977 Animal Food Resources of Paleoindians. The Museum Journal 17:65-77.

Kainer, Ronald
1976 Archaeological Investigations at the Spring Gulch Site, (5LR252). M.A. Thesis. Department of Anthropology, Colorado State University, Fort Collins, Colorado.

Kindscher, Kelly
1987 Edible Wild Plants of the Prairie. University Press of Kansas, Lawrence, Kansas.

Kingsbury, Lawrence A. and Lorna H. Gabel
1983 Eastern Apache Campsites in Southeastern Colorado: A Hypothesis. Plains Anthropologist 28(102, Pt. 2) 319-325.

Kvamme, K.L.
1979 Settlement Variability on the High Plains and Northeastern Colorado: The South Platte River. Southwestern Lore 45(4):18-28.

Larsen, Lynn S.
1981 Soil Survey of El Paso County, Colorado. United States Department of Agriculture, Soil Conservation Service. U.S. Government Printing Office, Washington, D.C.

Leach, Larry L.
1966 Excavations at Willowbrook: A Stratified site near Morrison, Southwestern Lore 32(2):25-46.

Lintz, Christopher and Jane L. Anderson
1989 Temporal Assessment of Diagnostic Materials From the Pinon Canyon Maneuver Site: Towards the Development of a Cultural Chronology for Southeastern Colorado. Memoirs of the

Colorado Archaeological Society. No. 4, Colorado Archaeological Society, Denver, Colorado.

Lintz, Christopher, ed.
1985 A Chronological Framework of the Fort Carson Pinon Canyon Maneuver Site, Las Animas County, Colorado. U.S. Army Fort Carson Pinon Canyon Cultural Resources Project, Contribution No. 2. Center for Archaeological Research, University of Denver, Denver.

Markgraf, Vera, and Louis Scott
1981 Lower Timberline in Central Colorado During the Past 15,000 Years. Geology 9:231-234.

McDonald, Jerry N.
1981 North American Bison, Their Classification and Evolution. University of California Press, Berkeley.

McDonald, Robert A.
1986 Archaeological Investigations in Southeastern El Paso County, Colorado. Ms. on file at the University of Colorado at Colorado Springs, Anthropology Department, Colorado Springs, Colorado.

Metcalfe, Duncan, and Keven T. Jones
1988 A Reconsideration of Animal Body-Part Utility Indices. American Antiquity 53(3):486-503.

Michlovic, Michael G.
1986 Cultural Evolutionism and Plains Archaeology. Plains Anthropologist 31(113):207-218.

Minnis, Paul E.
1981 Seeds in Archaeological Sites: Sources and Some Interpretive Problems. American Antiquity 46(1):143-152.

Morton Harry C.
1954 Excavation of a Rockshelter in Elbert County, Colorado. Southwestern Lore 32(2):30-41.

Nelson, Charles E.
1967 The Archaeology of Hall-Woodland Cave. Southwestern Lore 33(1):1-13.

1969 Salvage Archaeology on Van Bibber Creek, Site 5JF10. Southwestern Lore 34(4): 47-54.

1971 The George W. Lindsay Ranch Site, 5JF11. Southwestern Lore 37(1):1-14.

1981 Cherry Gulch Site (5JF63): A Projectile Point Study. Southwestern Lore 47(2): 1-27.

Nelson, Charles E., and Jessie M. Graeber
1966 Excavation of Graeber Cave, North Turkey Creek. Southwestern Lore 32(2):47-54.

1984 Graeber Cave Radiocarbon Date. Southwestern Lore 50(4):1-2.

Nowak, Michael and Lawrence A. Kingsbury
1981 Archaeological Investigations in Southeastern Colorado. Colorado College Publications in Archaeology No. 4. Department of Anthropology,The Colorado College: Colorado Springs, Colorado.

Nowak, Michael and Carol A. Berger
1982 Archaeological Investigations in Southeastern Colorado. Colorado College Publication in Archaeology No. 5. Department of Anthropology, The Colorado College: Colorado Springs. Colorado.

Nowak, Michael and Christopher A. Jones
1984 Archaeological Investigations in Southeastern Colorado. Colorado College publication in Archaeology No. 7. Department of Anthropology, The Colorado College: Colorado Springs, CO.

Nowak, Michael and Susan Fiore
1988 Archaeological Investigations in Southeastern Colorado. Colorado College publication in Archaeology No.13. Department of Anthropology, The Colorado College: Colorado Springs, Colorado.

Nowak, Michael and Kimberly Spurr
1989 Archaeological Investigations in Southeastern Colorado, 1988 Field Season. Colorado College Publications in Archaeology No. 14. Department of Anthropology, The Colorado College, Colorado Springs, Colorado.

Pearl, Richard M.
1972 Colorado Gem Trails and Mineral Guide. The Swallow Press Inc., Chicago.

Perino, Gregory
1968 Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin No. 3. Oklahoma Anthropological Society, Norman.

1971 Guide to the Identification of Certain American Indian Projectile Points. Special Bulletin No. 4. Oklahoma Anthropological Society, Norman.

Rancier, James, Gary Haynes, and Dennis Stanford
1982 1981 Investigations of Lamb Spring. Southwestern Lore 48(2):1-17.

Renaud, E.B.
1947 Archaeology of the High Western Plains: Seventeen Years of Archaeological Research. Department of Anthropology, University of Denver: Denver, Colorado.

Roper, Donna C.
1990 Artifact Assemblage Composition and the Hunting Camp Interpretation of High Plains Upper Republican Sites. Southwestern Lore 56(4):1-19.

Schmits, Larry J.
1987 The Williamson Site and The Late Archaic El Dorado Phase in Eastern Kansas. Plains Anthropologist 32(116):153-174.

Scott, Douglas D.
1973 Preliminary Analysis of Location Strategies of Plains Woodland Sites in Northern Colorado. Southwestern Lore 39(3):1-11.

Scott, Linda J.
1982 Pollen and Fiber Analysis of the McEndree Ranch Site, 5BA30, Southeastern Colorado, Southwestern Lore 48(2):18-24.

Scroggs, Doyle L.
1971 Bedrock Stratigraphy in Black Squirrel Creek Basin, El Paso County, Colorado. M.A. Thesis, Department of Geology, Colorado State University, Fort Collins, Colorado.

Shields, W. Lane
1980 Preliminary Investigations at the McEndree Ranch Site, 5BA30, Southwestern Lore 46(3): 1-17.

Smith, Craig S.
1988 Seeds, Weeds, and Prehistoric Hunters and Gatherers: The Plant Macrofossil Evidence from Southwest Wyoming. Plains Anthropologist 33(120):141-158.

Soister, Paul E.
1968 Geologic Map of the Hanover N.W. Quadrangle, El Paso County, Colorado. Map # GQ-725. Department of the Interior, U.S. Geological Survey, Washington D.C.

Stanford, Dennis, Waldo R. Wedel, and Glenn R. Scott
1981 Archaeological Investigations of the Lamb Spring Site. Southwestern Lore 47(1):14-27.

Sullivan, Alan P. and Kenneth C. Rozen
1985 Debitage Analysis and Archaeological Interpretation. American Antiquity 50(4):755-799.

Thomas, Alfred B.
1929 San Carlos: A Comanche Pueblo on the Arkansas River, 1787. Colorado Magazine 6(3):79-91.

1935 After Coronado; Spanish Exploration Northeast of New Mexico, 1696-1727. University of Oklahoma Press, Norman.

Tucker, Donald C.
1991 Moonshine Shelter. Southwestern Lore 57(4):1-29.

Van Ness, Margaret A., Stephen M. Kalasz, Christian J. Zier, Daniel A. Jepson, Mollie S. Toll, Richard F. Madole, and Richard F. Carrillo.
1990 Archaeological Survey and Test Excavation in The Turkey Canyon Area, Fort Carson Military Reservation, Pueblo and El Paso Counties, Colorado. Prepared by Centennial Archaeology, Inc. Fort Collins, for national Park Service, Rocky Mountain Regional Office, Branch of Interagency Archaeological Services, Denver, and United States Army, Office of Environment, Energy, and Natural Resources, Fort Carson, Colorado.

Vehik, Susan C.
1977 Bone Fragments and Bone Grease Manufacturing: A Review of Their Archaeological Use and Potential. Plains Anthropologist 22(77)169-182.

Vickers, J. Roderick
1986 Alberta Plains Prehistory:A Review. Occasional Paper No. 27, Archaeological Survey of Alberta, Alberta Culture, Edmonton.

Watts, Howard
1975 The Avery Ranch Site. Southwestern Lore 41(1):15-27.

Wendland, Wayne M.
1978 Holocene Man in North America: The Ecological Setting and Climatic Background. Plains Anthropologist 23(82):273-287.

Wheat, J.B.
1972 The Olsen Chubbuck Site: A Paleo-Indian Bison Kill. Society for American Archaeology. Memoirs 26, Washington D.C.

1978 Olsen-Chubbuck and Jurgens Sites: Four Aspects of Paleo-Indian Economy. Memoir 14. Plains Anthropologist. 23(82, pt.2) 84-89.

Whittemore, Loren R.
1967 An Illustrated History of Ranching in the Pikes Peak Region. Gowdy Printcraft Press, Colorado Springs, Colorado.

Witkind, Max
1971 An Archaeological Interpretation of the Roberts Buffalo Jump Site, Larimer County, Colorado. Unpublished M.A. Thesis, Department of Anthropology, Colorado State University. Fort Collins, Colorado.

Wood, W.R.
1971 Pottery Sites near Limon, Colorado, Southwestern Lore 37(3): 53-85.

1990 A Query on Upper Republican Archaeology in Colorado. Southwestern Lore 56(3):3-7.

Wynn, T., T. Huber and R. McDonald
1985 Early Woodland Occupation at Jackson Creek,Southwestern Lore 51(1):3-13.

Wynn, Thomas, Thomas Huber, Robert McDonald, and Barbara Bogen
1988 Preliminary Report on 5EP2. Unpublished Ms., on file at the University of Colorado at Colorado Springs, Department of Anthropology.

Zier, Christian J.,ed.
1987 Historic Preservation Plan for Fort Carson Military Reservation, Colorado. Report prepared for National Park Service-Rocky Mountain Regional Office. Centennial Archaeology, Inc. Fort Collins, Colorado.

1989 Archaeological Excavation of Recon John Shelter (5PE648) on the Fort Carson Military Reservation, Pueblo County, Colorado. Prepared by Centennial Archaeology, Inc., Fort Collins, for National Park Service, Rocky Mountain Regional Office, Branch of Interagency Archaeological Services, Denver, and United States Army Office of Environment, Energy and Natural Resources, Fort Carson Military Reservation, Colorado.

Zier, Christian J., Stephen M. Kalasz, Margaret A. Van Ness, Anne H. Peebles, and Elaine Anderson

1990 The Avery Ranch Site Revisited. Plains Anthropologist 35(128):147-173.

Zier, Christian J. and Stephen M. Kalasz

1991 Recon John Shelter and the Archaic-Woodland Transition in Southeastern Colorado. Plains Anthropologist 36(135):111-138.

Zupan, Michelle

1990 5EP935 Ceramics:An Analysis. Manuscript on file at The University of Colorado at Colorado Springs.

APPENDIX A

METHODOLOGY

The archaeological procedures used in the development of this research project were compatible with current professional archaeological techniques. Care was taken that all excavations survey activities and excavations were conducted in a professional manner. All of the work was supervised by Dr. Thomas Wynn of the University of Colorado at Colorado Springs, Anthropology Department, and myself.

Recording in the field

Each excavator recorded all data in a field notebook. Scientific notebooks were used by all excavators. Each page represented a different 10 cm level and each level was mapped on the graph paper opposite the note page. All artifacts, rocks and bones were measured and mapped according to horizontal measurements from datum and vertically below the zero level.

All cultural material was bagged on the site according to the trench and the level. Small plastic coin bags were used for individual artifacts, bone, and debitage. Screened materials were bagged separately. All of the small bags were placed into a larger level bag to be transported to the anthropology laboratory at U.C.C.S..

Laboratory Procedures

All of the excavated materials have been washed, numbered, counted and cataloged by anthropology students at U.C.C.S. and myself. The collections are being permanently stored in the anthropology lab at U.C.C.S..

APPENDIX B

LITHIC TYPOLOGY AND ANALYSIS

Lithic Classification

The lithic artifactual material recovered from all sites has been divided into four categories: chipped tools, ground stone tools, debitage, and miscellaneous. Chipped tools are any tools that show retouch or obvious use wear; these include points, scrapers, knives, blades, drills, spokeshaves, and utilized flakes. Ground stone tools are those tools which exhibit evidence of grinding or polishing. These generally include manos, and metates. Debitage consists of all of the waste flakes that remain as a by-product of tool manufacture. The final category, miscellaneous, is everything else. This group includes cobbles, hammerstones, and problematical objects.

Debitage Analysis

The debitage is classified using a system developed by Sullivan and Rozen (1985:759), and used by Zier et al.(1989:97). This system uses observations of attributes and is based on their presence or absence. The attributes observed are ventral surface, striking platform, and flake margins. The system is being used in this study to keep some standardization in reporting styles within this region. By using a system comparable to Zier et al. (1989) and Zier and Kalasz (1991), it should be easier to compare and

evaluate data between sites in this region. These definitions will be used for the lithic analysis of all of the sites in this report. There are four types of debitage associated with this type of study (Zier et al. 1989:97).

Complete Flakes: A complete flake must have a striking platform, a ventral surface, and intact distal and lateral margins. A ventral surface is defined as an interior flake surface which exhibits characteristics resulting from the force generated to dislodge it, such as bulb of percussion, lines of force or ripple marks.

Broken Flakes: Broken flakes have a striking platform and a ventral surface, but the distal and lateral margins have been broken.

Flake Fragments: Flake fragments have a recognizable ventral surface, but lack a striking platform.

Debris: Debris does not exhibit a ventral surface.

Raw Material

The raw materials used by the prehistoric inhabitants can be divided into distinct groups. It is beyond the scope of this work to provide a detailed analysis of lithic sources, but there are some indications based on comparative literature of probable local sources of much of the lithic materials used. Before an attempt to describe possible sources of lithic resources is made, some brief definitions of the types of materials found archaeologically at Crow's Roost will be given.

Chert: A dense cryptocrystalline , usually opaque, rock composed primarily of silica with possible minute amounts of dolomite and calcite. Chert can be found in a wide range of colors. It is characteristically brittle ,breaks conchoidally, and has a waxy luster.

Chalcedony: Chalcedony is very similar to chert except it is usually transparent or translucent. It is also a cryptocrystalline quartz. Chalcedony varies in structure from that of chert. It is fibrous instead of crystalline, this difference can only be seen under a microscope.

For the purpose of this study there will be no distinction made between chert and chalcedony.

Jasper: Jasper is a variety of chert which is characteristically reddish or brown in color.

Petrified wood: Petrified wood is similar to chert except that it is formed by the replacement of organic cells with silica. This material has the appearance of wood but the properties of chert.

Quartz: Quartz is a silicon dioxide. It is a crystallized mineral. In the study area it is usually found in an opaque variety which fractures in an angular manner. Two varieties of quartz have been located in the study area: the opaque or translucent variety known as milky quartz, because of its milky appearance; and a transparent quartz with very glasslike characteristics of fracture.

Sandstone: Sandstone is a sedimentary rock primarily composed of grains of quartz cemented together. The study area has an abundant amount of sandstone, which was primarily used for grinding tools.

Granite: Granite is an igneous rock composed primarily of quartz, feldspar, and mica. Particle sizes range from less than 1cm to more than 3cm. Granite occurs in

abundance along most of the front range of the Rocky Mountains. When it is found in artifact form it is usually associated with grinding or pecking tools.

Limestone: Limestone is a bedded sedimentary rock composed primarily of calcium carbonate (CaCO3), formed by the secretion of calcium carbonate from organisms or precipitated from saturated water.

Possible local sources of lithic raw material are wide ranging. Sandstone is the easiest to acquire because it occurs in various densities throughout the Crow's Roost area. There are also numerous outcrops throughout the eastern part of Colorado, and along the Front Range of The Rocky Mountains. Granite can be acquired in abundance and of excellent quality almost anywhere in the mountains. Granite also occurs as stream cobbles in the eastern drainages. Good quality chert and other minerals suitable for tool knapping occur in abundance throughout the region. Richard Pearl (1972:181-184), describes this area of the Plains as having abundant sources of agate, jasper, and petrified wood. The Black Forest has always been an excellent source of petrified wood as well as many areas of eastern El Paso County, Colorado. While conducting archaeological surveys near Horse Creek, north of Rush, Colorado, vast quantities of Black Forest petrified wood were found scattered across a wide area. These concentrations of petrified wood are natural occurrences in many areas near Black Forest, Colorado. In 1906 a single collector collected and sold over 5000 pounds of petrified wood from the region for gem and ornamental use (Pearl 1972:181).