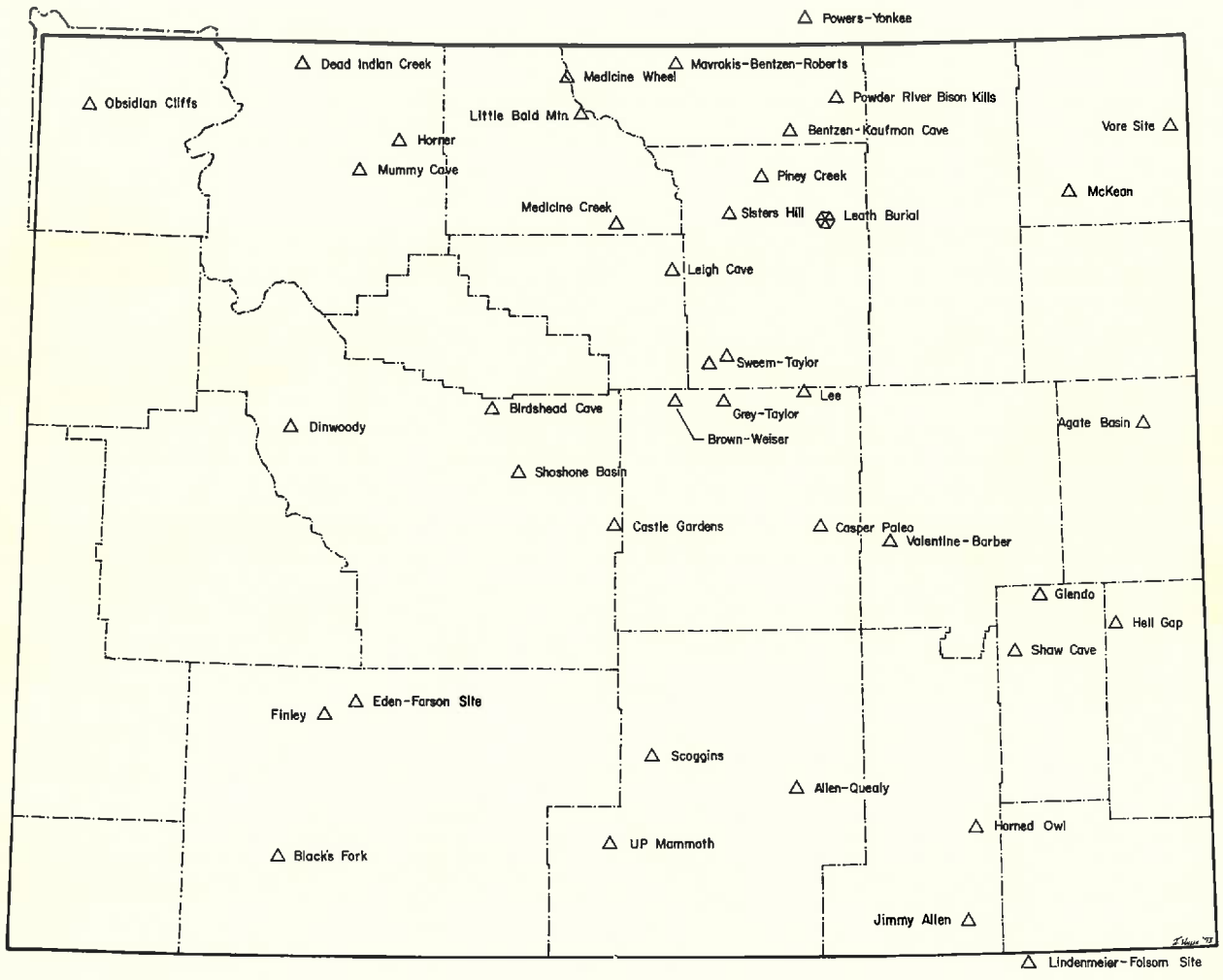
WYOMING
ARCHAEOLOGICAL
SOCIETY

THE WYOMING ARCHAEOLOGIST



JUNE 1973 VOL. XVI NO. 2

WYOMING ARCHAEOLOGICAL SOCIETY

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Librarian:	Helen Lookingbill, 111 East Park, Riverton, Wyo.	856-3561

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President		Secretary
Henry Jensen	237-3263	Jean Hanke
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MEETINGS: First Tuesday of each month, REA Building, Mountain View

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220 West Farm St.		P. O. Box 485	326-5605
Saratoga, Wyoming 82331		Saratoga, Wyoming 82331	

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Cheyenne, Wyoming 82001	Cheyenne, Wyoming 82001	

MEETINGS: Second Thursday of each month, Airport Gardener's Corner

FREMONT COUNTY

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735 Cliff Street	Route #1, Box 345
Lander, Wyoming 82520	Riverton, Wyoming 82501

MEETINGS: Second Wednesday, alternating between Lander and Riverton

NORTHERN BIG HORN BASIN

Joe Tyrell	Alice Stafford
P. O. Box 271	P. O. Box 824
Lovell, Wyoming 82431	Cody, Wyoming 82414

MEETINGS: First Monday of each month in the Faculty Lounge, Northwest Community College, Powell, Wyoming

APPENDIX A

GILLETTE

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Gillette, Wyoming 82716

Bill Barlow 682-9858
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Gillette, Wyoming 82716

MEETINGS: Stockmen's Bank Building at announced dates

SHERIDAN

Glen Sweem
1258 Victoria
Sheridan, Wyoming 82801

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1624 S. Thurmond
Sheridan, Wyoming 82801

MEETINGS: Second Monday of each month in the Bank of Commerce Hospitality Room

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310 Birch
Green River, Wyoming 82935

Mrs. E. Baker Port
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APPENDIX B

THE WYOMING ARCHAEOLOGIST is published quarterly by the Wyoming State Archaeological Society, Grant H. Willson, Editor. Address manuscripts and news items for publication to: The Editor, 1915 East 15th Street, Cheyenne, Wyoming 82001.

NOTE: Membership period is from January through December and includes all issues published during current year regardless of the month the subscription commences. All subscriptions expire with the Winter issue and renewals are due the first of January each year.

NOTE: If you move or have a change of address, please notify the Executive Secretary, P. O. Box 122, Cheyenne, Wyoming 82001. Your WYOMING ARCHAEOLOGIST will not be forwarded unless a payment of 50¢ is received for return and forwarding postage.

NOTE: Checks for Chapter subscriptions and renewals should be sent to the Chapter Secretary involved. All other checks, subscriptions and renewals should be addressed to: Milford Hanson, Route #1 - Box 171, Cody, Wyoming 82414. Correspondence and orders for back issues should be addressed to Bill Sutton, P.O. Box 122, Cheyenne, Wyoming 82001.

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1973 MEMBERSHIP NOTICE
WYOMING ARCHAEOLOGICAL SOCIETY, INC.

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APPENDIX C

JUNE 1973 CONTENTS

EDITOR'S COMMENTS

I decided to complete the publication of Charles Reher's "Survey of Ceramic Sites" in just two instead of three parts in order to be able to make room in this year's Archaeologist for the report on the Scoggin Site by John Lobdell.

I must mention a most delightful trio of books just published by W. H. Freeman and Company, 660 Market Street, San Francisco. Consisting of selected readings from the Scientific American, these books present the most lucid and understandable picture of the progress of Anthropology during the past decade. These carefully selected readings by world renown anthropologists will rekindle your interest in the wide scope of the most interesting of the sciences - the science of man. Personally, I find cultural anthropology to be a most difficult subject but the articles in Biology and Culture did much to clarify and to arouse a new enthusiasm for further study. We amateur hobbiests need this background of information, but, more importantly, it needs to be as well organized as are these selections. I most enthusiastically recommend the following:

1. Biology and Culture in Modern Perspective
   452 pages, 324 illustrations, clothback $12.00; paperbound $5.95

2. Old World Archaeology: Foundations of Civilization
   260 pages, 244 illustrations, clothbound $10.00; paperbound $4.95

3. Early Man in America
   88 pages, 80 illustrations, clothbound $5.95; paperbound $2.95

WYOMING
ARCHAEOLOGICAL SOCIETY, INC.

May 31, 1973

Dear Fellow Members:

Anyone who tried to venture very far out of doors April 6th and 7th must surely believe that someone has been trying to fool "mother nature". Her wrath had a different affect on the attendance to the annual Archaeological Society Meeting.

However, despite the raging storm the atmosphere on the inside radiated a warmth and interest created only by those who are totally happy with what they are going.

In spite of being stuck on a hill for one hour, closed highways for five hours and a moderate car accident we finally arrived late Saturday afternoon in time to watch the very talented and accomplished, Bruce Bradley demonstrate the art of Flint Napping. One of the many beautiful items he created was a large knife which he gave to Mrs. Henry Jensen. She then used it to raise money for the foundation by selling chances for a drawing to be held that evening at the banquet. As a result of this enterprising lady the foundation became Thirty-five ($35.00) dollars richer and Charlie Ellis became the proud owner of a beautiful tool.

Congratulations to John Albanese recipient of the Lou Steege Award and to George Ziemens the recipient of the Mulloy Scholarship. Two very outstanding people.

Mike Wilson gave a preliminary report on the survey he and his Wife, Diane, did for the Pacific Power and Light Company last summer.

Dr. Frison reported that he will be spending the summer at Hyattville and in the surrounding Big Horn Mountains.

The summer meeting has been set for August 4th and 5th at Hyattville. This will be a camp out as Hyattville does not support any motels and hotels. The site has plenty of room, with trees, a good fishing stream, and all the ingredients for a good time. A special feature will be the preparation and serving of some Indian foods by Henry Jensen and his committee. The Northern Big Horn Basin Chapter will do all we can to insure you of a good time. Registration fee will include a banquet Saturday night and a few nice surprises. If possible, would the chapter secretaries please let me know by July 27th how many from your areas plan to attend. This will be a big help with our plans.

Since April I have been too involved with my nursing program to set down and constructively work out the goals I hope to achieve during the next year. By the time the next Archaeologist is published I will hope to have accomplished this.

Thank you for the honor to serve as your President.

Sincerely yours,

IMOGENE HANSON

MINUTES OF THE ANNUAL STATE
MEETING IN THE HOLIDAY INN
CASPER, WYOMING, APRIL 7, 1973

The meeting was called to order by President Willson at 9:45 A.M. There were 54 members and guests present. After a short welcoming address, the President called for an introduction of the Chapter Officers. He also stressed that the slate of officers for each Chapter be sent to the Executive Secretary as soon as possible after the election each year.

The Minutes of the last annual meeting were read and approved as read.

The following persons were appointed as temporary Committee Chairmen: Dr. A. L. Schoondermark - Credentials; Helen Bryant - Auditing; John Albanese - Nominating.

REPORTS FROM STANDING COMMITTEES

Henry Jensen of the Legislative Committee announced that the Wyoming Outdoor Recreation Commission had received enough funding from the last session of Legislature to include an assistant for the State Archaeologist.

Dave Baskett, Library Committee, read a few excerps from letters received from Mr. Roundy, Research Historian at the University of Wyoming. Mr. Baskett recommended that the Wyoming Archaeological Society Library be placed in the Historical Research Center at the University on a loan basis and that this material would be available to all members of the Wyoming Archaeological Society as well as University students. A motion was made by Dr. Schoondermark that Mr. Baskett pick up the Library materials from Mrs. Lookingbill and follow through with his recommendation. Motion was seconded and carried.

Mr. Carbone was not present and no report was available on the preservation of Rock Art.

John Albanese stated that the Wyoming Council for the Humanities had received a grant of $2000.00 for 1973. Three speakers will be available for each Chapter, and a schedule has been sent to all Chapter Presidents. Each Chapter is to keep a record as to time spent for all arrangements such as advertising, news releases, auditorium, etc. It is also necessary to have a count of persons in attendance at these lectures.

Albanese also announced the Wyoming Archaeological Foundation Board of Directors would meet at 9:30 A.M. Sunday morning. All members of the Wyoming

Archaeological Society are invited to attend this meeting. Albanese stated that the Foundation was progressing well during the past few months. Several contributions had been made to the Foundation.

George Ziemens introduced the students from the University of Wyoming.

President Willson introduced Mr. Bates from the Bureau of Land Management Office in Casper. Mr. Bates spoke briefly and emphasized that it was necessary for the BLM and the Archaeological Society to continue to work together for the preservation of valuable archaeological sites.

Helen Bryant announced the recipient of the Mulloy Scholarship Award was George Ziemens.

Chapter Reports were given by the following: Casper, Henry Jensen; Cherokee Trail, Bob Randall; Cheyenne, Norbert Hasenkamp; Fremont, Ted Scoggans and Jim Adams; Sheridan, Margaret Powers; Sweetwater, Mrs. George Babel; Northern Big Horn Basin, Bob Edgar. Gillette Chapter was not represented.

NEW BUSINESS

Lou and Bee Steege were appointed to assist Dr. Frison with the Fall Workshop meeting.

The summer meeting will be held at the Medicine Lodge Creek Site near Hyattville on August 4th and 5th. Henry Jensen is the Food Committee chairman to arrange for an Indian style meal during the two days. Mr. Jensen, Helen Bryant, Jean Hanke, and Bob Ellis, all of the Casper Chapter, will assist June Frison with the arrangements.

Credentials Committee Chairman, Dr. Schoondermark reported the following certified voting delegates: Casper, Evelyn Albanese and Jean Hanke; Cherokee Trail, Bob Randall and Lois Flohr; Cheyenne, Norbert Hasenkamp and A. L. Schoondermark; Fremont County, Helen Lookingbill and Jim Adams; Northern Big Horn Basin, Bob Edgar; Sheridan, Margaret Powers and Glenn Sweem; Sweetwater, Mr. and Mrs. George Babel; Gillette, No representation.

Meeting adjourned at 11:50 A.M.

Meeting reconvened at 1:45 P.M.

Dr. George Frison, State Archaeologist, was introduced.

Dr. Frison spoke briefly on the Hyattville Site and stated that a grant had been received for an Ecological study of the entire area for this coming summer. He extended

an invitation for all the Society members to visit and participate with the crews when they are working in the area.

George Ziemens gave a slide presentation of the cultural sequence at the Medicine Lodge Creek Site to date. Mr. Ziemens also expressed his thanks for the Mulloy Scholarship Award for 1973.

Dr. George Frison introduced Mr. Bruce Bradley, world renouned Flint-knapper from Cambridge University, England. Mr. Bradley illustrated his theories in the art of flint-knapping on the chalk board and then deomonstrated his abilities with the percussor, soft hammer, and flaker. Flaking was accomplished by direct percussion, indirect percussion, and by pressure. Some of the examples produced were burin and burin spalls, fluting a Clovis point, and thinning a rather large bi-face. He also demonstrated the difficult "Levallois" technique from the old world. He had with him a collection of artifacts of both old world and new which he had made. This demonstration lasted for the balance of the afternoon.

Meeting adjourned at 5:20 P.M.

The banquet meeting began at 7:00 P.M. with a delicious buffet style dinner.

Due to the lengthy and interesting afternoon program, several items of new business had to be carried over in the evening. Mr. and Mrs. Milford Hanson arrived late after being snowbound at Thermopolis for most of the day.

The Treasurer's report was given by Milford Hanson. Helen Bryant reported the books to be in good order. The reports were accepted. A motion was made by Jim Adams to accept the reports. It was seconded and carried.

John Albanese gave the report of the nominating Committee: President, Imogene Hanson, Cody; First Vice President, Bob Randall, Saratoga; Second Vice President, Mrs. William Maycock, Gillette. A motion was made by Mrs. Babel to accept the report of the nominating committee and that the secretary cast a unanimous ballot for the slate of officers. The motion was seconded and carried.

A check for $300.00, the Mulloy Scholarship Award was presented to George Ziemens.

Chances were sold at $1.00 each for a raffle of the fine bi-face made by Bruce Bradley during the afternoon. The artifact was won by Bob Ellis of Casper. The $35.00 received on the sale of the chances was given to the Wyoming Archaeological Foundation.

The engraved trowel, the Lou Steege Award, was presented to John Albanese of Casper for outstanding achievements in the Society.

President Willson introduced the guest speaker, Mike Wilson from the University of Wyoming. Mike Wilson showed many interesting slides and spoke on his survey of archaeological sites in the area of the Jim Bridger Power Plant being constructed near the Green River. This survey was funded by the Pacific Power and Light Company through the Wyoming Archaeological Foundation. Many more of these surveys will be on the agenda for the next few years and hopefully the University of Wyoming will be able to cope with these.

Louis C. Steege,

Executive Secretary

INDEX (Continued from March Issue)

CONTINUED FROM MARCH ISSUE

A SURVEY OF CERAMIC SITES IN SOUTHEASTERN WYOMING

by

Charles A. Reher

A THESIS

SUBMITTED TO THE DEPARTMENT

OF ANTHROPOLOGY AND THE

GRADUATE SCHOOL OF THE UNIVERSITY OF WYOMING

IN PARTIAL FULFILLMENT OF REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

University of Wyoming

Laramie, Wyoming

May, 1971

The Petsch Springs Site, 48 LA 303

The Petsch Springs Site is located in sec. 6, R. 61 W., T. 17 W. and consists of a campsite in the bottom of a broad, grassy valley in the Horse Creek escarpment system. Several springs flow from the head of a large arroyo southeast of the site. The site is exposed along the side of another arroyo extending westward from the stream by these springs (Fig. 12). This side arroyo is about 200 feet long, 100 feet wide, and 25 feet deep (Fig. 12). A dark soil band containing bone, charcoal, and cultural material near the top of this arroyo demonstrated the existence of the site. Other cultural levels and paleosols occur below this, usually separated by several feet of light-colored, sterile sand.

The main site area seems to be on the north side of this arroyo, although material occurs on the other side as well. The bottom of the valley is covered with a good growth of various grasses, scattered yucca, and prickly pear. A lone box elder tree grows on the site area, and numerous box elder, juniper, bushes, and cottonwood trees grow along the stream below the site. Clumps of juniper and ponderosa pine (Pinus ponderosa) cover the hills to either side of the valley containing the site.

The springs southeast of the site flow year-around, as does the stream below them. Several seeps cause the bottom of side arroyos to be marshy in the spring, but these are usually dry during summer and fall.

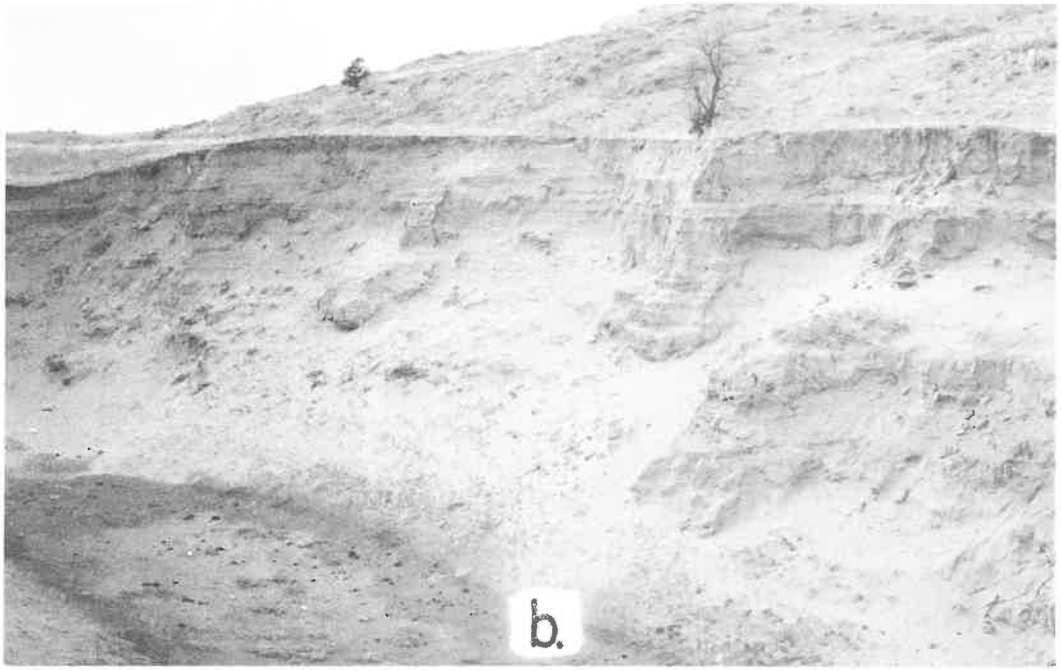
Excavation, Stratigraphy, and Features

Ceramic material seems to be confined to the upper two feet in the arroyo profile. A layer of sterile sand separates this cultural level from the next one, which is about five feet deep. Diagnostic material found protruding from the five-foot level indicates that it is probably Middle Prehistoric Period in age. Several less distinct cultural levels occur below this to the bottom of the arroyo. The base of an Eden point was found on the surface near the bottom of the arroyo (Frison, personal communication, 1970) so occupation at this site could go back 7,000 years. Much of the sides of the arroyo consist of steep slopes covered by material that has slumped from the upper levels. Most surface material comes from these slumped deposits.

Excavation to any depth in this sand would be a major undertaking, requiring stepped-trenches and other methods for stabilizing profiles. Testing at this site was therefore restricted to only the upper three feet, or, through the ceramic levels.

Figure 12. The Petsch Springs Site, 48 LA 303:
a. looking south, site exposed in arroyo in center of photograph;

b. looking northwest of stratified arroyo wall.



A datum point was established on the north of the site, and a topographic map with a contour interval of two feet was made. Three trenches, oriented east-west, were excavated on the north edge of the arroyo (Fig. 13). These were placed so as to include three charcoal and ash lenses which were exposed along the arroyo side. Shovels and screens were used until flakes and bone were exposed. Excavation then proceeded with trowels and whisk brooms, while still screening all dirt.

Stratigraphy in the initial test unit, designated here as Unit 1 (E010-020, S065-070) consisted of two inches of sandy sod, then homogeneous sand to a depth of about twelve inches. Fire-blackened sand and charcoal lenses, concentrations of bone, and lithic material began at this depth, though flakes were sometimes found up to three inches above this. This material was concentrated from twelve inches to sixteen inches. A few scattered flakes and sherds one to two inches below this might represent a separate cultural level, but no definite separation was visible. The homogeneous sand continued below the cultural level (Fig. 14).

Stratigraphy was the same in Unit 2 (E080-090, S020-025) and in Unit 3 (E110-12, S020-025) except that here the cultural level begins about sixteen inches below the surface.

Features were of two types. Each unit contained a fire hearth, as mentioned above. These contained small particles of charcoal, ash, fire-blackened sand, and burned fragments of locally occurring rocks. These rocks do not occur through the rest of the level, and were apparently deliberately placed in the fire. These hearths were from one-fourth to three-fourths eroded away. When complete they would have been roughly circular and lenticular, with a diameter of about two feet and a depth of up to four inches.

The other type of feature occurred in Unit 1 and Unit 2, and consisted of concentrations of bone fragments and some fire-blackened rock. No definite outline was visible in the sandy fill, but the shape of the concentrations suggests the fragments were contained in a depression or pit about two feet across and eight inches deep, with other fragments scattered around the edge of the feature. Also suggesting a pit is the fact that these concentrations were not visible above a depth of fourteen or fifteen inches, while other bone and stone material occurred two or three inches above this (Fig. 14).

Excavated and Surface Materials

Chipped Stone

Projectile Points: One nearly complete projectile point, one classifiable fragment, and two unclassifiable tips were recovered during excavation. Both classifiable points are side-notched and well made (Fig. 15a, 3). One broken and

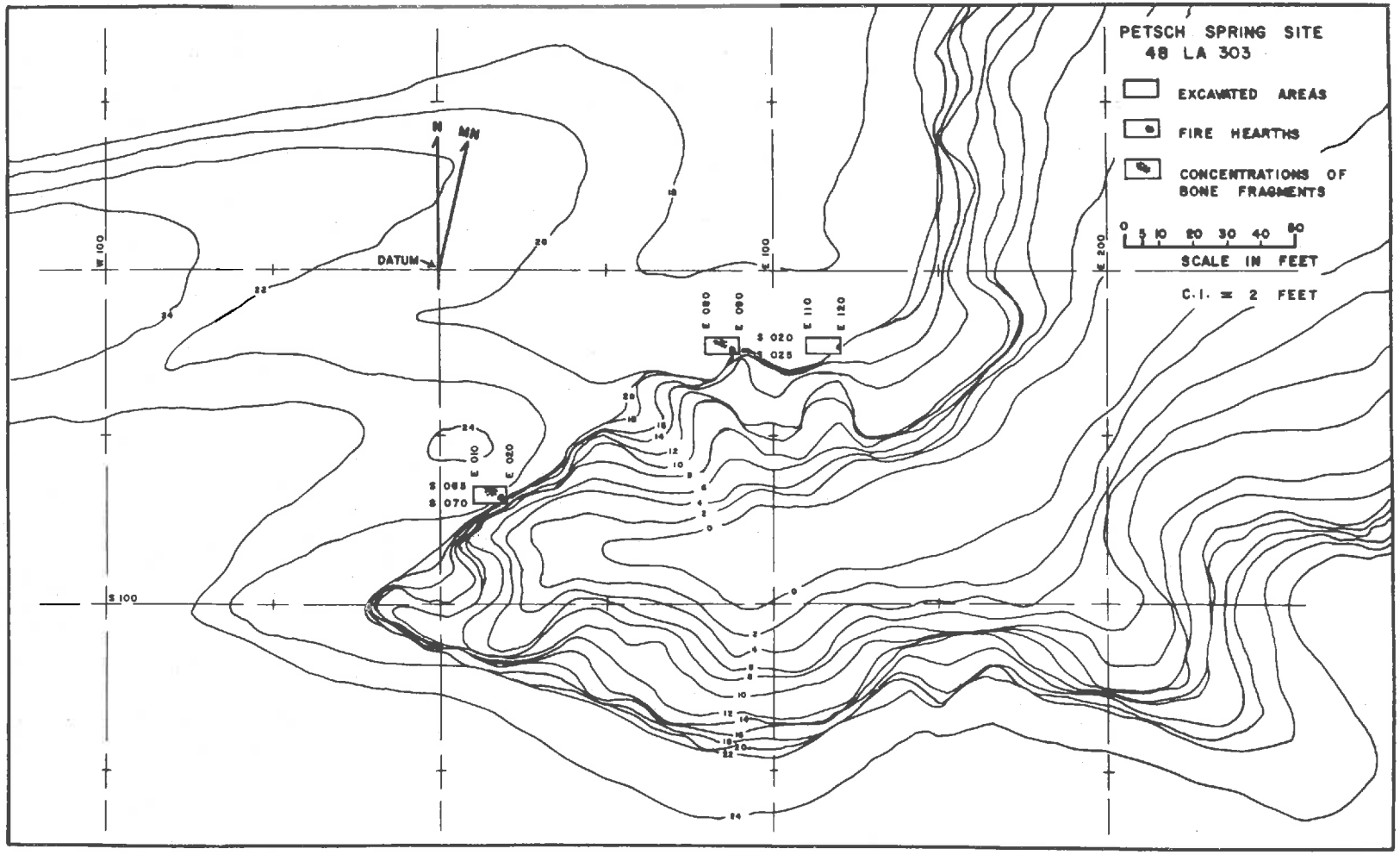
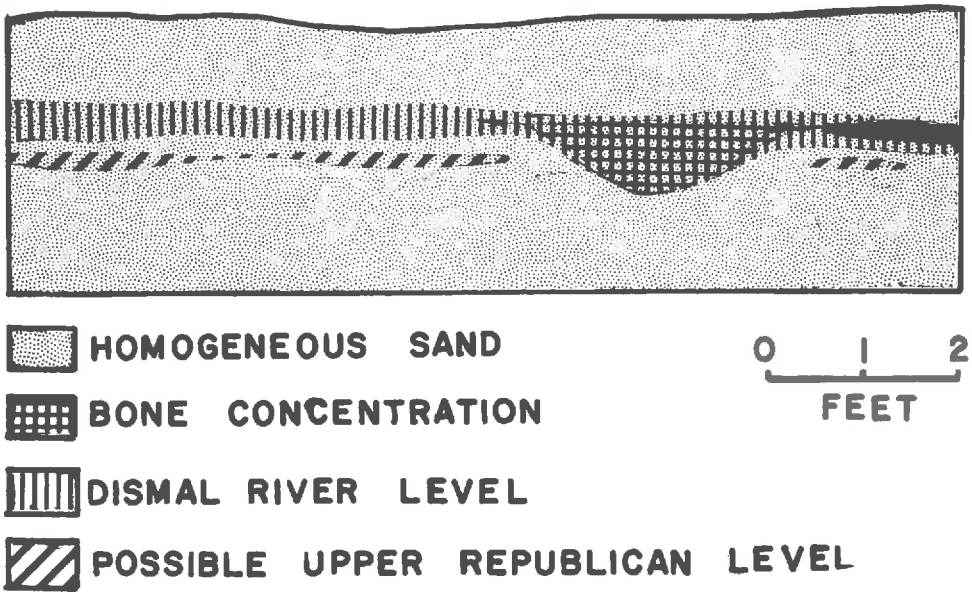


Figure 13. Map of the Petsch Springs Site, 48 LA 305

Figure 14. Unit 1, partially excavated (note projectile point in foreground) (a); generalized profile of ceramic levels (b).

b



two complete triangular, unnotched points were found on the slope below the excavations (Fig. 15b, c, d). These are believed to have come from the ceramic level. One large corner-notched point was found sticking out from the level five feet deep on the south side of the arroyo (Fig. 15f). This is one of the main reasons for believing this level represents a Middle Period occupation. Two unclassifiable fragments were also found on the surface. Data on projectile points are summarized (Table XV).

Table XV. Projectile Points

Description	Provenience	Length (mm.)	Width (mm.)	Thickness (mm.)	Width between notches (mm.)	Weight (grams)	Fig.	Material
1. side-notched	Unit 1	41	16	3.5	8	1.9	15a	chert
2. side-notched	Unit 2	-	13	3.0	3	1.0	15e	jasper
3. fragment (2)	Unit 2	-	-	-	-	-		jasper chert
4. fragment	Unit 1	-	-	-	-	-		chert
5. unnotched	Surface	35	17	3.0	-	2.1	15b	quartzite
6. unnotched	Surface	31	15	3.0	-	1.6	15c	quartzite
7. unnotched	Surface	28*	14	3.0	-	1.1	15d	quartzite
8. corner-notched	Surface	39	19	6.0	15	4.8	15f	agate
9. fragments (2)	Surface	-	-	-	-	-		quartzite, agate

Bifaces: One complete biface and two broken bifaces were excavated from Unit 1. The complete one is small and ovate (Fig. 15g), and the other broken one is a small fragment from the middle of an obsidian tool. One complete biface and four fragments were surface finds. The complete one was closely associated with the Middle Period level and may have come from it (Fig. 15h). Two surface finds are ends of bifaces (Fig. 15j, 16b) and one mid-section is from a large quartzite biface (Table XVI).

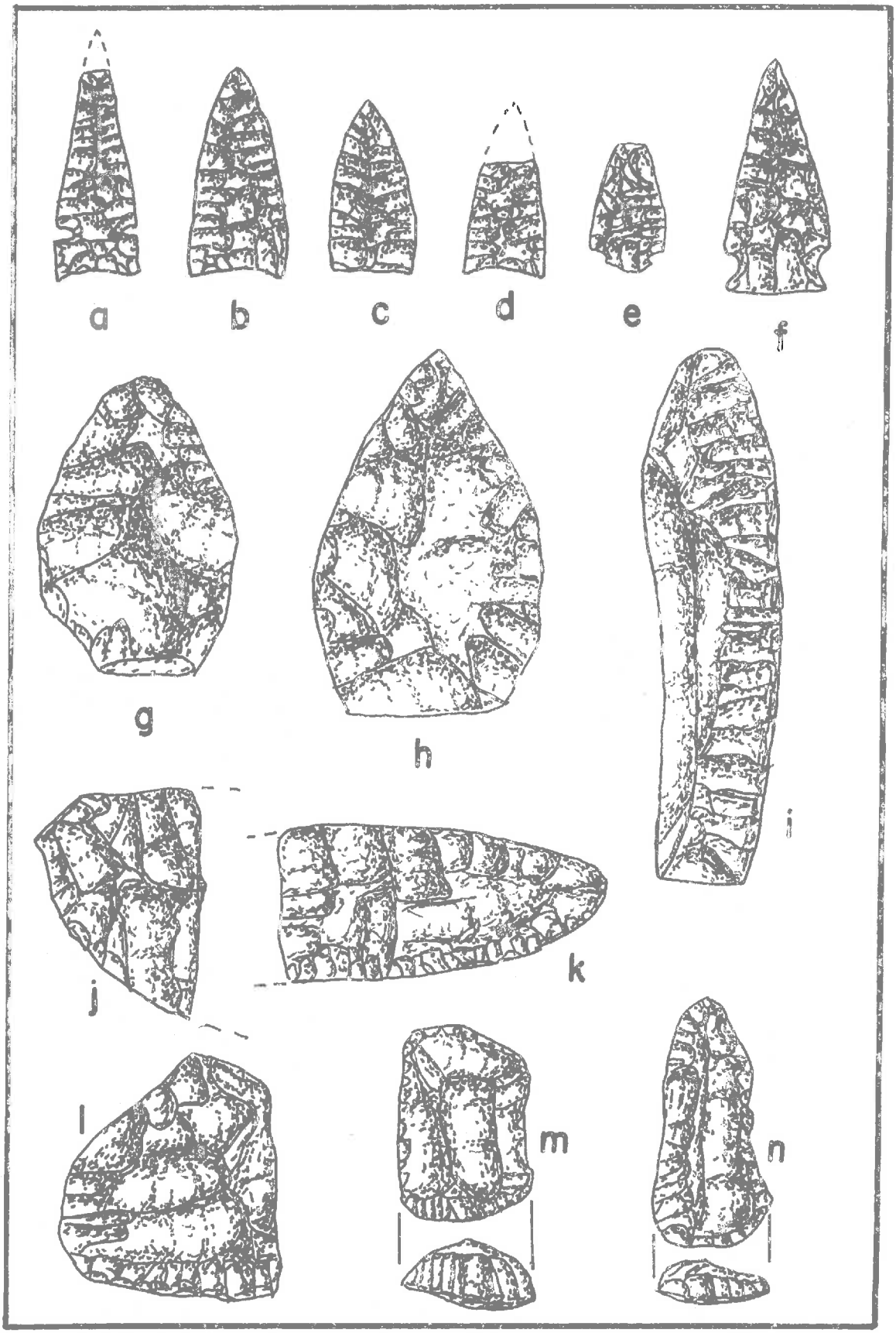


Figure 15. Artifacts from the Petsch Springs Site: a-f projectile points; g,h,j,k bifaces; i, l, side scrapers; m, n end scrapers.

Table XVI. Bifaces

Description	Provenience	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (grams)	Fig.	Material
1. ovate	Unit 1	52	34	8	14.6	15g	jasper
2. end section	Unit 1	56	28	6	10.9	15k	quartzite
3. fragment	Unit 1	28	15	7	2.1		obsidian
4. end section	Surface	29	42	10	10.6	15j	agate
5. end section	Surface	47	25	9	10.1	16b	jasper
6. mid section	Surface	50	51	19	60.4		quartzite
7. ovate	Surface	64	41	8	10.0	15h	chert

End scrapers: Two complete end scrapers were excavated from Unit 3. Typically, these are based on large, thick flakes with the bulb of percussion opposite the steeply-beveled working face. One is retouched on all four sides (Fig. 15m), and the other retains the striking platform and is retouched only on the working face. Both have extensive scalar retouch on the working edge. Two other complete end scrapers were surface finds. One is similar to those described above and the other is thinner and narrower (Fig. 15n) (Table XVII).

Side scrapers: One complete side scraper came from Unit 3, and one end section came from Unit 1. The complete specimen is long and narrow, retaining a striking platform on one end, and chipped to a rounded point of the other end. This is rather unusual in having its working edge retouched by a fine percussion technique (Fig. 15i). This working edge is still sharp and functional, but the tool had probably become too narrow to be comfortably held in the hand. The end fragment is rounded in outline with one face retouched to a beveled scraping edge. Two fragments of side scrapers came from the surface in the arroyo. One is a mid-section fragment, and the other is another end fragment (Fig. 15 l) (Table XVIII).

Cores: One quartzite nodule from Unit 1 has had several flakes removed from each of its sides. The dimensions of this core are, length - 7.8 cm., width - 5.4 cm., and thickness - 2.5 cm., and its weight is 131.4 grams. Another irregular piece of quartzite appears to be a core. It is 7.7 cm. long, 4.7 cm. wide, 2.3 mm. wide, and its weight is 71.1 grams.

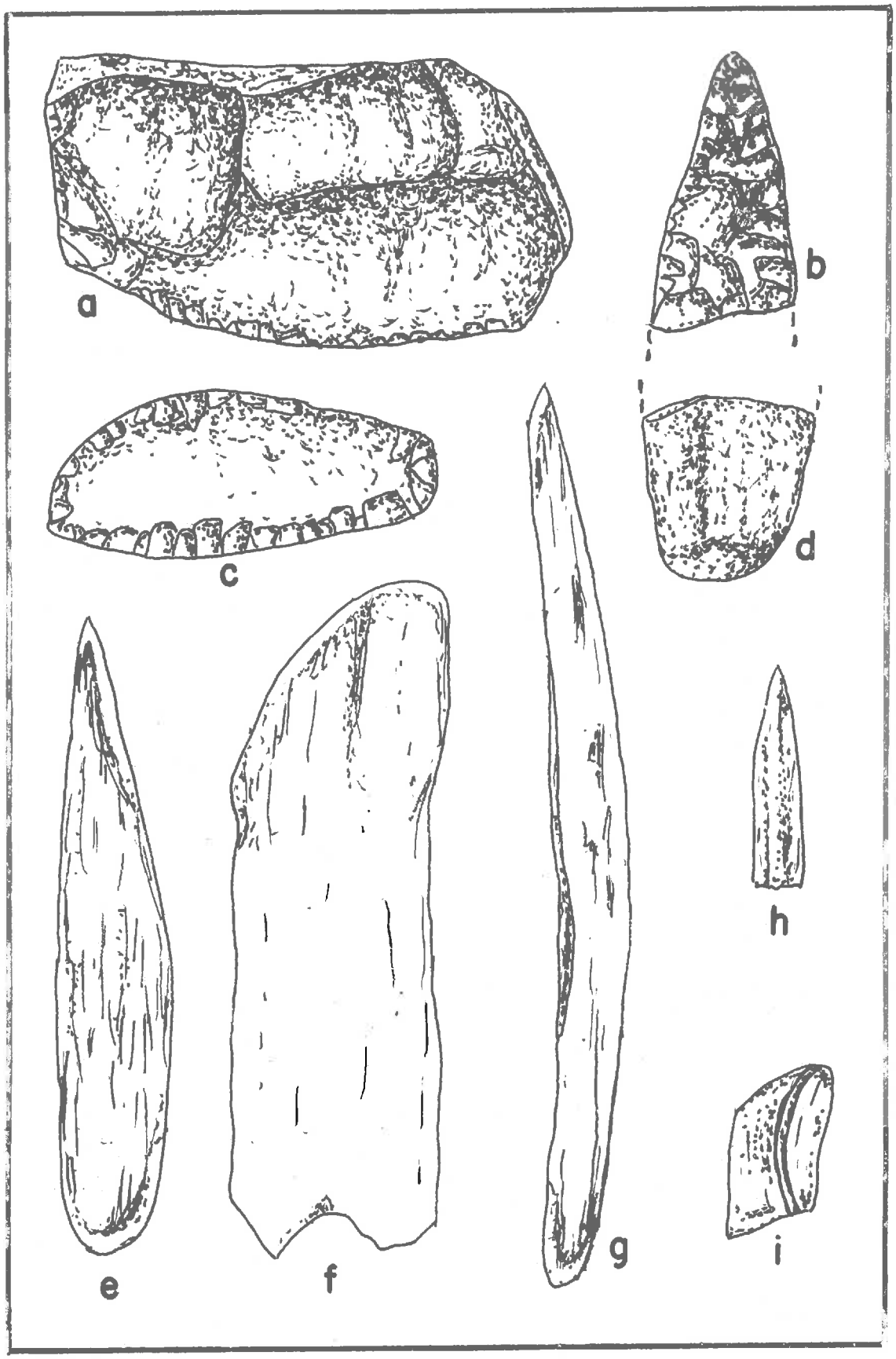


Figure 16. Artifacts from the Petsch Springs Site: a,c retouched flakes; b biface tip; d abrading stone; e-h bone tools; i incised, polished bone.

Table XVII. End Scrapers

Description	Provenience	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (grams)	Fig.	Material
1. retouched working edge	Unit 3	34	29	12	11.7g	-	agate
2. retouched on four sides	Unit 3	34	24	11	10.6	15m	jasper
3. thick	Surface	37	30	17	19.4	-	jasper
4. thin, narrow	Surface	44	20	6	6.5	15n	jasper

Table XVIII. Side Scrapers

Description	Provenience	Length (mm.)	Width (mm.)	Thickness (mm.)	Weight (grams)	Fig.	Material
1. narrow, pressure retouch	Unit 3	93	23	10	13.9g	15i	jasper
2. end fragment	Unit 1	21	30	9	4.5		chert
3. mid section	Surface	31	23	12	8.9		jasper
4. end fragment	Surface	38	45	13	11.7	15l	agate

Retouch flakes: Two retouch flakes recovered from excavations have been chipped on both sides along the edges, making them almost a biface (eg. Fig. 16c). Six other small, irregular flakes from 3.5 to 5.0 cm. in length, are chipped along only one side (Fig. 16a).

Unmodified flakes: Manufacturing flakes from this site are similar in characteristics to those reported for the Gurney Peak Bench Site. There seem to be proportionately more bifacial cores at this site, but smaller samples prevent statistically significant data on this and other aspects of flake analysis. Local agates and cherts again had more rough cortex adhering to them, materials from a distance apparently having been prepared before transporting them (Table XIX).

Retouch flakes from biface knives and side scrapers were also present (Tables XX, XXI). No retouch flakes were found from the flat side of side scrapers, but this also may be a result of smaller samples. Retouch flakes unclassifiable because of breakage below the diagnostic striking platform are summarized in Table XXII. Three end scraper retouch flakes were also found in excavated units.

Table XIX. Manufacturing Flakes

Material	No. of Flakes	Total Wt. of Flakes	Ave. Wt. Per Flake
1. local chert, agate	70	138.9 g	1.9 g
2. quartzite	54	92.0	1.7
3. non-local cherts	8	16.8	2.1
4. jasper	25	57.3	2.0
5. obsidian	6	3.9	0.7
Totals	163	308.9	

Table XX. Flakes from Biface Retouch

Material	No. of Flakes	Weight of Flakes	Ave. Wt. Per Flake	Minimum Number of Tools Represented
1. local chert, agate	17	5.3 g	0.2 g	2
2. quartzite	24	10.4	0.4	4
3. non-local chert	3	2.5	0.8	2
4. jasper	12	4.6	0.4	4
5. obsidian	2	1.5	0.7	1
Totals	58	24.3		13

Table XXI. Flakes from Side Scraper Retouch, Class 1

Material	No. of Flakes	Weight of Flakes	Ave. Wt. Per Flake	Minimum Number of Tools Represented
1. local chert, agate	18	4.5 g	0.3 g	4
2. quartzite	17	4.8	0.3	5
3. non-local chert	11	5.6	0.5	3
4. jasper	28	8.0	0.3	5
Totals	74	22.9		17

Table XXII. Unclassifiable Retouch Flakes

Material	No. of Flakes	Weight of Flakes	Ave.Wt. Per Flake
1. local chert, agate	7	1.3 g	0.2
2. quartzite	25	6.0	0.2
3. non-local chert	7	1.4	0.2
4. jasper	12	2.7	0.2
5. obsidian	2	0.3	0.1
Totals	53	11.7	

Table XXIII. Flakes from End Scraper Retouch

Material	No. of Flakes	Weight of Flakes	Ave.Wt. Per Flake	Minimum Number of Tools Represented
1. jasper	3	0.1 g	0.03 g	

Ground Stone

Two sandstone fragments recovered from Unit 2 show evidence of shaping and use. One fragment of an elongate abrading tool is made from local sandstone. It is round in cross section and tapers to a blunt point on the unbroken end (Fig. 16d). Dimensions are 31 mm. in diameter, 30 mm. long, and the weight is 31 grams. The other fragment is a roundish lump of non-local reddish sandstone 20 mm. in diameter and weighing 6 grams. Other than being rounded, no definite signs of wear occur on this fragment. At first glance it would appear to be only a small weathered fragment of some larger artifact. However, similar pieces occur at other sites and it is believed they might represent a functional tool.

Hammerstones

One pink quartzite pebble from Unit 3 was used as a hammerstone, probably for flaking purposes. The pebble is amorphous in shape and numerous peck marks are concentrated on the more angular parts of its surface. Measurements are, length - 45 mm., width - 42 mm., thickness - 37 mm., and weight - 93.4 grams.

Bone Artifacts

Four fragments of buffalo bone (Bison bison) show use on fortuitous breaks. These include a long bone fragment, a rib fragment, and a distal fragment of a metacarpal from Unit 3, and a long bone fragment from Unit 2. The later is flat, with polish on either side of a concave break, and would be suitable as a skinning tool (Fig. 16f). All appear similar to butchering tools described from buffalo kill sites by Frison (1970:26-33).

The bone tools from Unit 1 show more preparation. A rib fragment 11.5 cm. long has one end ground to a blunt point and the other end ground to a narrower, rounded point (Fig. 16g). This would appear to be a knapping tool, but no wear as evidence for this is present. Another tool is the broken off tip of an awl (Fig. 16h) deliberately ground to shape from a rib fragment.

One round, polished bone bead was found in Unit 1. It has a maximum outer diameter of 7 mm., a length of 6 mm., and the diameter of the hole is 3 mm. One fragment of a small, unidentifiable long bone is polished on all surfaces and has a curving line incised across the exterior surface (Fig. 16i). Another tool from a buffalo rib fragment was found in a gopher mound on the north edge of the site. One end is ground to a blunt, rounded point, and the other end is ground to a very sharp point and is highly polished (Fig. 16e). One fragment of the proximal articulatory surface of a buffalo humerus appears flattened on the inner cancelous bone and may have been used as some sort of abrading devise .

Miscellaneous

Two fragments of crystalline quartz were excavated from Unit 2. Those have been broken but show no other modification. Two small pieces of red ocher, 10 mm. and 7 mm. across were excavated from Unit 1. A piece of fresh water clam shell 15 mm. by 11mm. from Unit 2 may be ground on two edges. A large almost complete clam shell 7 cm. across was found sticking from the upper cultural level on the north side of the arroyo. One rusted, hand-made, square nail from Unit 1 is very likely intrusive.

Ceramics

Pottery from excavation of the Petsch Springs Site consisted of thirty body sherds and three rim sherds from Unit 1, seven body sherds and two rim sherds from Unit 2, twenty-one body sherds from Unit 3, and fifty-one body sherds and three rim sherds from the surface. Three sherds from Unit 3 fit together to form one sherd 5.7 cm. by 4.6 cm. and are counted as one. Excavated sherds are divided into two groups and surface sherds into these two and one additional group, on the basis of similarities in paste, temper, color, and surface treatment.

All but four excavated sherds are from one group. This class of pottery is characterized by a fine gritty paste. This fine grit or sand makes up a large portion of the paste and is homogeneous through all sherds; because of this it is probably a characteristic of the paste chosen rather than added tempering. Tempering is restricted to occasional particles of rounded quartz particles averaging 1/2 to 1 mm. in diameter. The color is predominately dark gray to black, with infrequent exteriors being dark brown to buff. The largest sherd is both black and buff.

Sixty percent of sherd exterior surfaces are smooth and the rest are cord-marked and smoothed. Cordage appears to have been two-strand with a "z" twist. Fiber elements of these cords are not evenly or well integrated, and the twist and two-strand construction is evident on only a few sherds. Cords range from 1/2 to 2 mm. in diameter, and cord impressions are usually about 1/2 mm. deep. These cord impressions are usually parallel and run vertically up the vessel body. About 15% of the sherds have a second set of cord marks overlapping the first set at varying angles. Interiors are smooth and show occasional shallow depressions and striations. Sherd thicknesses average 8 mm.

Larger sherds indicate a globular body shape. The largest sherd comes from near the top of the vessel and is recurved (Fig. 17). Manufacturing technique is inferred to be shaping from a lump with cord-wrapped paddle and anvil. Smooth sherds may have been made with something other than a cord-wrapped paddle.

Two rim sherds from this type of pottery are 4 mm. thick and taper to a thin, rounded lip. These are straight in profile, but are too small (ca. 1 cm.) to generalize complete rim form. One other rim sherd is similar in size and profile, but has three vertical, elongate "S" shape lines incised on the exterior surface (Fig. 17). The sherd is broken across these incisions, so the complete form of the design is not represented.

Two other rim sherds are similar in paste, temper, and color, but are only 2-1/2 to 3 mm. thick. These appear to come from some sort of miniature vessel or perhaps a clay pipe. Each has a rounded, slightly folded lip with small, closely spaced vertical incisions (Fig. 17).

Sixty percent of the surface sherds also represent the smooth or cord-marked variety of this pottery. One body sherd 2-1/2 by 3 cm. is part of an in-curving rim or shoulder. One rim sherd 5 mm. thick tapers to a thin, rounded lip with a very slight outward flare.

Four excavated sherds and nineteen body sherds have different characteristics. Exteriors are buff and interior surfaces and cores are gray. Paste is coarser and temper consists of larger (0.5 mm. to 4 mm.) and more frequent rounded quartz particles. Sherd thickness averages 9 mm. Exterior surfaces are cord-marked with parallel two-strand, "Z" twist cordage and partially smoothed.

Two rim sherds from this group are 6 to 8 mm. thick and have flattened, slightly thickened lips. One of these has wedge-shaped incisions on this flattened area which are about 3 mm. across, 8 mm. long, and 1-1/2 mm. deep (Fig. 17).

Five sherds from the surface seem to represent another variety of ceramics. These have reddish-brown exterior and interior surfaces, and dark brown to gray cores. Surfaces are not as carefully smoothed and are rather irregular. Temper is large amounts of coarse quartz sand, and in some cases paste seems to be just adequate for

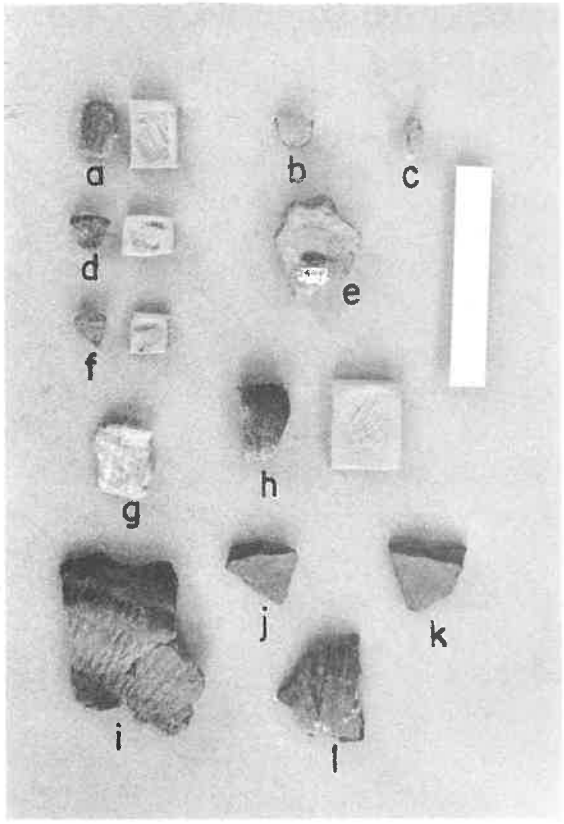


Figure 17. Ceramics from the Petsch Springs Site: straight rims, with rounded lips, incised (a); plain (b), in profile (c); incised rims from miniature vessel (d,f); Shoshonean sherds (e); cord-marked body sherds (g,h,i,l); smooth body sherds (j,k); profiles; m (of i above), n (of d above), o (of f above), p (of a above).

holding this sand together. These sherds are rather thick, averaging about 11 mm. Larger sherds have a slight curvature (Fig. 17).

Faunal Material

Bone material recovered from excavations was predominately buffalo (Bison bison. Other species, represented by a few identifiable elements each, were beaver (Castor canadensis), either deer (Odocoileus hemanius) or antelope (Antilocapra americana), badger (Taxidae taxus), and gopher (Gepherus burasarius). The latter two species may be intrusive. The bison bone comes from at least two animals, one a large, extremely old individual, and the other a smaller animal three to four years old.

All bone was cracked and broken up during butchering processes. A few phalanges, an astragalus, and a calcaneus represent the only complete elements found. Centrums from four lumbar vertebra represent the only elements found in an articulated position. Most fragments came from bones of the leg though an occasional rib, vertebra, or mandible fragment occurred.

Most bone came from in or near the pit-like features mentioned previously, but fragments were scattered throughout all three excavated units. Bone from the feature in Unit 1 weighed 3.044 kilograms, and fragments from the feature in Unit 2 weighed 3.532 kilograms.

Plant Material

Other than charcoal from locally-occurring trees, the only floral material recovered consisted of two burned chokecherry pits (Prunus melanocarpa).

Discussion of the Archaeological Evidence

The Petsch Springs site is in a valley within the escarpment system, a somewhat more sheltered location than the first site discussed. Wood and water occur within a few hundred feet of the site area. The edge of the escarpment and the Horse Creek Valley are about three miles north of the site, and it is about five miles to Horse Creek. The uplands behind the scarp system begin about one mile south of the site. The occupants therefore would have had easy access to the plant and animal resources of these areas.

The state of tooth eruption of one partial buffalo mandible is the same as in three and one-half year old animals killed at communal procurement sites during the

fall of the year (Frison and Reher 1970:46-47). The erupting teeth are premolars, which can be somewhat variable, but the burned chokecherry pits are another bit of evidence indicating use of this camp during the late summer or fall.

Non-local cherts, jaspers, and quartzites were probably brought in from the Hartville Uplift or the Laramie Range. Results of analysis to determine the source of the obsidian have not yet been received, but a source in Yellowstone Park or the Jackson Hole area is likely.

Most artifacts appear to be related to butchering and hide-working processes. Light polish on ridges between flake scars on some biface and fragments might indicate hafting of these tools. The pressure retouch on one long narrow side scraper is unusual. Flake analysis at this site also revealed that many more tools were used than were actually found.

Most pottery from this site is clearly related to Dismal River ceramics as described by Gunnerson (1960). Some surface sherds and a very few excavated sherds are similar to the Upper Republican ware from the Gurney Peak Bench Site. All possible Upper Republican sherds which were excavated came from just below or in the bottom of the cultural level in the first test. A few flakes from Unit 2 may belong to this lower level, but there was no evidence of it in Unit 3. If an Upper Republican occupation exists, it is quite scanty and discontinuous, at least in this part of the site. An occasional minute piece of charcoal or bone is the only evidence of this level visible in trench profiles, and these are not clearly distinct from the main Dismal River level. Several reddish-brown sherds from the surface are clearly different from other sherds in temper, paste, color, and surface treatment. They are similar to several samples at the University of Wyoming which are known to be Shoshonean. Their relationship to the other ceramics is not known, since they were found in the arroyo below the site. Further discussion of ceramic affiliations will be confined to Chapter VI.

The features in Units 1 and 2 appear to be the result of a stone-boiling operation. Lined with a buffalo paunch or green hide and filled with water, the shallow pits could have been used to boil bone grease and marrow from the broken bone. Stones to bring the water to a boil could have been heated in the nearby fires evidenced by the charcoal lenses. Several fire blackened and fire fractured rocks were found in each feature. No hammer or anvil stones for breaking up the bone were found, unless these same rocks were also used for that purpose.

The large amounts of breakage obscured most evidence of other butchering processes. A few gouged or chopped-loose muscle attachments such as described for Gurney Peak Bench Site also seem to occur at this site. Four articulated lumbars have had their neural arches and transverse processes chopped off. Two other lumbars were treated in a similar manner. The anterior articulatory surface on the first lumbar in the articulated section also shows extensive chopping marks, indicating that

the spinal column was separated at this point. One distal end of a radius-ulna has cut marks on the exterior side of the ulna. Presumably this was the result of severing ligaments to remove the foot, as described by Frison (1970:12).

The Gurney Peak Butte Site, 48 LA 305

This site consists of a campsite on top of a small, steep-sided butte and around its base, in section 31, R.61W., T.18W. The butte is about ninety feet long, sixty feet wide, and thirty to forty feet high (Fig. 18a). The south half of the top of the butte has several large interconnecting depressions, making the center area lower than the edges (Fig. 18b), and this area contained the cultural material. The north half of the butte is level with the top, but contains several dozen small depressions one to three feet wide and one to three feet deep. The butte is bordered on three sides by a series of vertical ledges up to fifteen feet high, and on the back a flat area extends southward to the steep face of a large hill known as Gurney Peak. Scattered evidence of occupation is also found on this flat area.

Access to the top of the butte is gained via a horizontal ledge about six inches wide which extends along the west side of the butte to about its center, and from there using a series of footholds and handholds fifteen feet up to the top.

Ponderosa pine, juniper, yucca, prickly pear, and various shrubs and grasses grow around the butte, but vegetation on its top is limited to a few clumps of grass and a few small shrubs. The Gurney Peak Bench site is located directly to the west of this site across a canyon about 330 yards wide. The nearest water is the small stream west of the Gurney Peak Bench Site, described previously.

Excavation, Stratigraphy, Feature

When first found, it was obvious that this site had been badly looted. Equipment for excavation was carried up onto the butte in hopes that some undisturbed fill might still exist. Several small tests with shovels and screen and with trowels revealed that not one patch of soil, not one crevice or corner remained intact. Screening and digging by the persons who destroyed the site had loosened the fill and caused finer materials to be eroded away by wind action. What remained was a homogeneous "lag gravel" up to six inches thick made up of pebbles, bone fragments, pottery, flaking debitage, and occasional broken artifacts. A relatively large sample of this material was obtained, partially from test screenings but mostly from surface collecting, and this is described below.

Several fire-hearths were evidenced by irregular blackened areas on bedrock under the disturbed fill, similar to those described for the Gurney Peak Bench Site. The holes noted on the north half of the butte are surprisingly round and regular, with

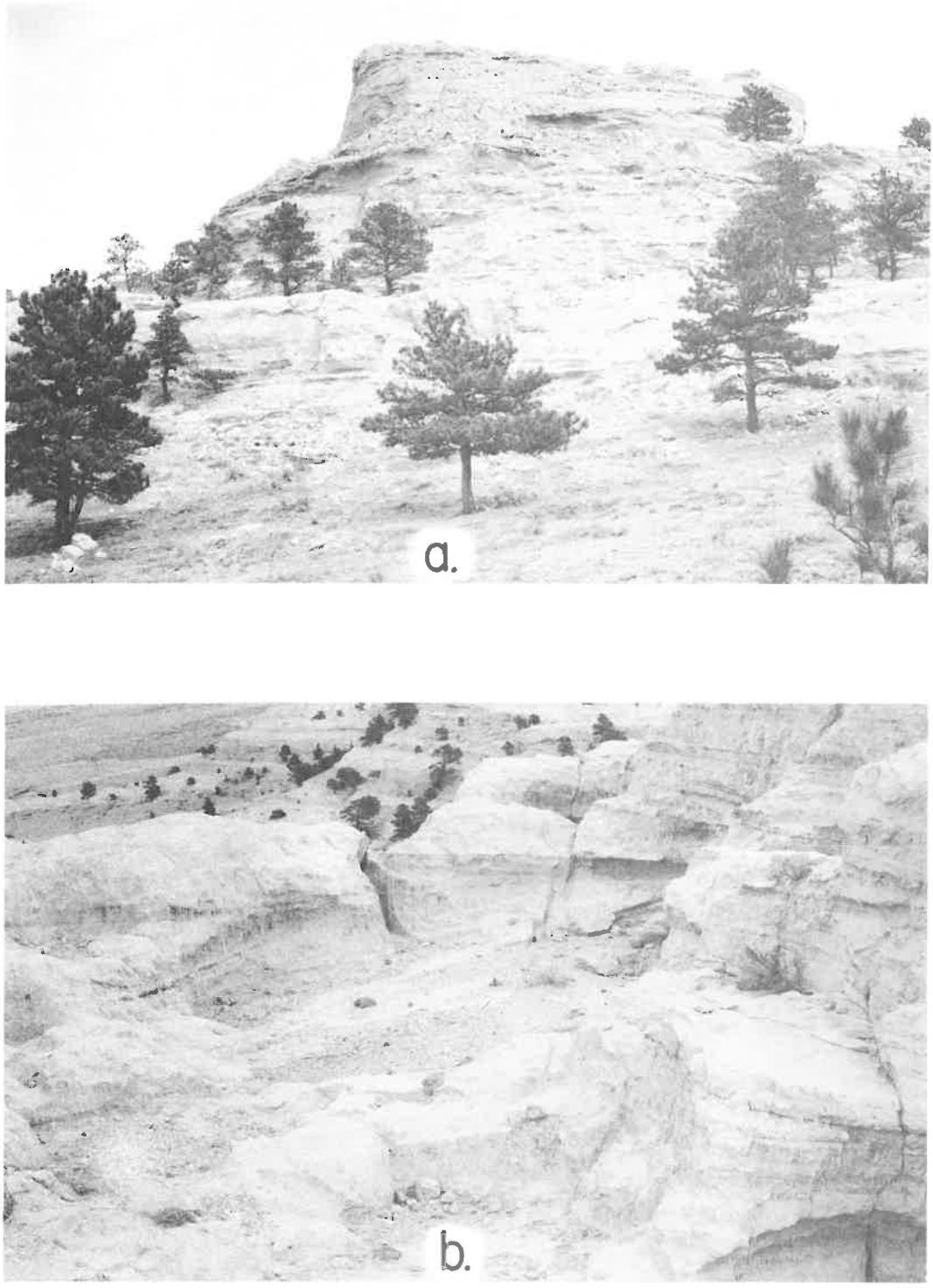


Figure 18. The Gurney Peak Butte Site, 48 LA 305:
Looking east at butte on which site is located (a).
Looking east across south end of butte (b).

smooth sides. They may represent natural weathering features enlarged by the occupants for retention of rainwater or some other purpose. The only similar features on numerous other buttes examined (from the same Miocene Arikaree formation) occur on two buttes in the Southern Goshen Hole locality which also had extensive prehistoric occupation. Mr. Louis Steege, of Cheyenne has informed the writer that he first visited this site about forty years ago, and at that time several of these hole were partially filled with decomposed choke-cherry pits.

Material Recovered from the Site

Although recovered from a disturbed context, the material described below should represent a good sample of some of the cultural assemblage from this site. Most complete artifacts described were collected from the site by Mr. Steege in the 1930's, before it had been destroyed. Most broken artifacts, all flaking debitage, and all pottery except one rim sherd were collected by the writer.

Chipped Stone

Projectile points: Seventeen side-notched projectile points, some of which are quite small, and three unnotched points come from this site. All are bifacially chipped, and bases are straight or slightly concave (Fig. 19a-m: Table XXIV).

Table XXIV. Projectile points

Description	Length (mm.)	Width (mm.)	Thickness (mm.)	Notch Width (mm.)	Weight (grams)	Figure	Material
1. side-notched	24	14*	4	8	0.9	19a	jasper
2. side-notched	13	9	2	3	0.3	19b	jasper
3. side-notched	14	11	2	5	0.3	19c	quartzite
4. side-notched	9	11	2	4	0.1	19d	jasper
5. side-notched	9	10	2	5	0.1	19e	jasper
6. side-notched	15	10	2	5	0.2	19f	local agate
7. side-notched	14	14	3	8	0.4	19g	quartzite
8. side-notched	16	12	3	9	0.5	19h	jasper
9. side-notched	22	13	3	10	0.8	19i	non-local chert
10. side-notched	18	9	2	5	0.5	19j	non-local chert
11. side-notched	19*	11	3	4	0.5	19k	jasper
12. side-notched	20	13	3	6	0.7	19l	jasper
13. side-notched	14	9	2	5	0.2	19m	jasper
14. side-notched	17	--	-	-	--		quartzite
15. side-notched	--	13	3	8	--		jasper
16. side-notched	22*	15	3	9	--		non-local chert
17. side-notched	--	--	2	6	--		quartzite
18. unnotched	14	13	3	-	.07		jasper
19. unnotched	18	3	10	-	--		local agate
20. unnotched	--	14	2	-	--		jasper

End scrapers: Five complete end scrapers range in length from 2.4 to 3.0 cm. in width from 1.8 to 3.0 cm., and in thickness from 0.6 to 1.2 cm. Four are made from jasper and one is from local agate. Three retain a striking platform at a right angle to the long axis of the tool, and are retouched on the working face and along both sides (Fig. 19v). One is retouched along all four sides and has a flat edge opposite the working face (Fig. 19q); the other is retouched along all sides and is pointed opposite the working edge (Fig. 19p).

Side scrapers: One complete side scraper was made on an elongate agate percussion flake 4.9 cm. long and 2 cm. wide. One end retains a striking platform which forms an acute angle with the long axis of the tool (Fig. 19w). Two end fragments and six mid-sections were also found. One end retains a striking platform similar to that of the complete specimen, and the other fragment has been chipped to a point. Materials of the fragments are agate (3), jasper (3), and quartzite (2). Two mid-sections demonstrate removal of retouch flakes from the flat or ventral side of the tool.

Bifaces: Six biface fragments were recovered, including four end fragments from tools with ovate sides and pointed to rounded bases, and two mid-sections. Materials are agate (3), jasper (1), non-local chert (1), and quartzite (1).

Drills: Four expanding-base drills made from jasper range from 1.7 to 2.4 cm. in length (Fig. 19o,r,s). One broken expanding-base drill, also made from jasper, would have been about twice this size (Fig. 19n). All are chipped bifacially, and tips are diamond-shaped in cross section.

Cores: Five irregular, polyhedral cores were found, ranging in length from 3.4 to 7.8 cm., and in width from 2.8 to 4.5 cm. Materials are non-local chert (3), local chert (1), and jasper (1). Two have wear along one edge suggesting use as small choppers.

Retouched flakes: Thirty-five irregular flakes, ranging in length from 1.9 to 4.5 cm., show deliberate pressure retouch along one end sometimes two edges to form small cutting tools. Materials are quartzite (16), local chert and agate (8), non-local chert (3), and jasper (8). Two small rectangular jasper flakes about 2.6 cm. long and .9 cm. wide show deliberate retouch on all four sides. One large non-local chert flake has been chipped around its circumference to form an ovate-shaped tool (Fig. 19a).

Unmodified flakes: A relatively large sample of manufacturing flakes was gained from the top of the butte (Table XXV). A smaller sample of tool-retouch was also found (Tables XXVI, XXVII, XXVIII). In addition, six fragments of quartz crystal averaging about 1 cm. in length and .6 gram in weight were found. Surface on two of these show flake scars, but no definite indication of their function is visible.

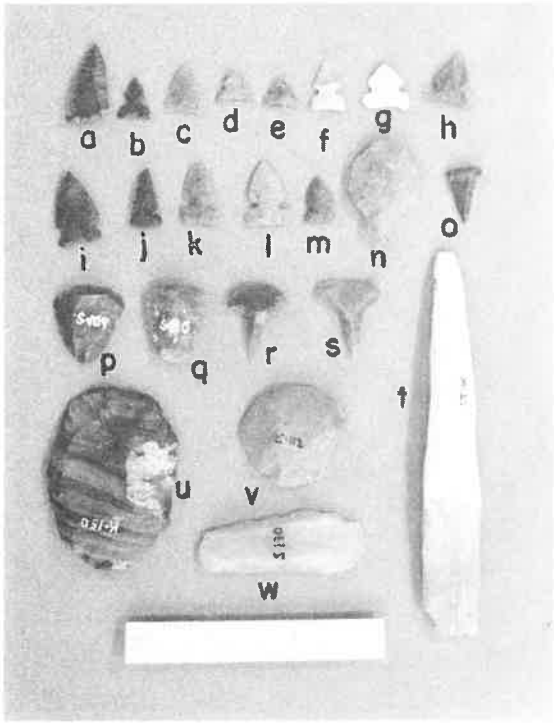


Figure 19. Artifacts from the Gurney Peak Butte Site: projectile points (a-m); expanding base drills (n,o,r,s); end scrapers (p,q,v); side scraper (w); retouched flake (u); bone artifact (t).

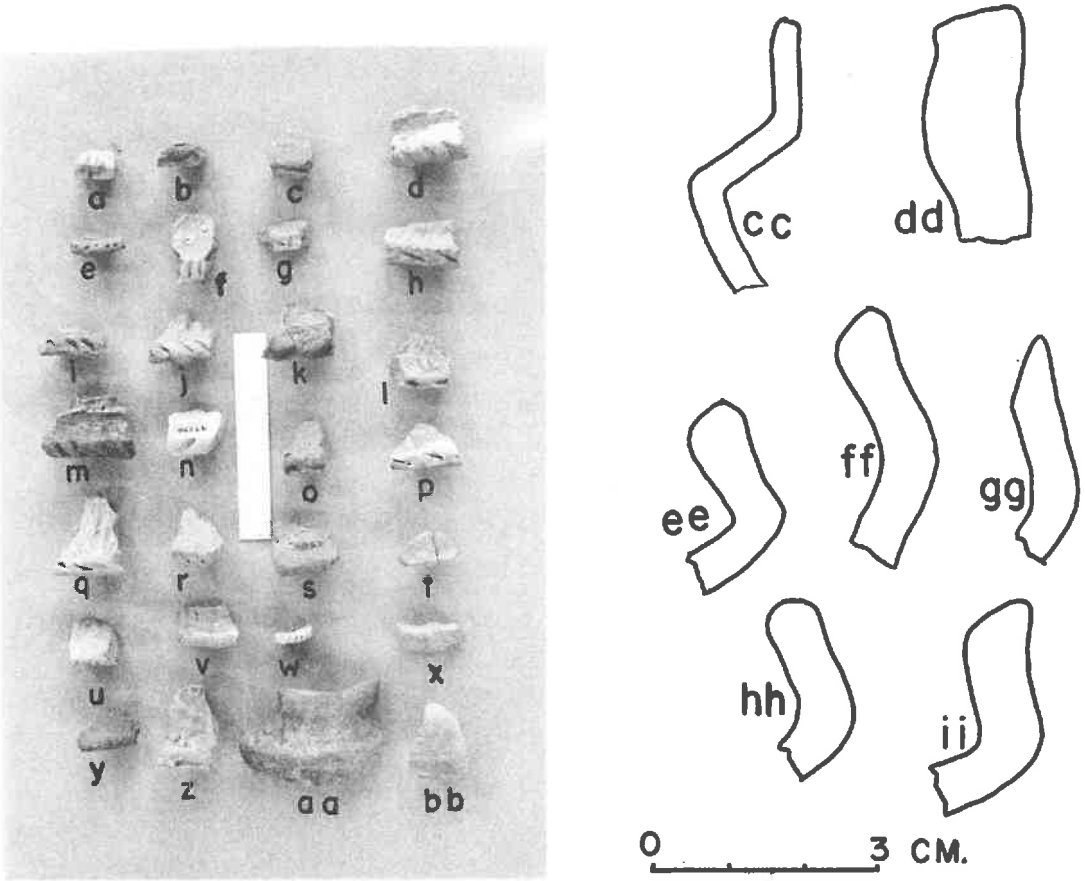


Figure 20. Rim forms from the Gurney Peak Butte Site:
flaring rims with plain, rounded lips (s,v,y); with rounded, incised lips (a); with flattened, incised lips (b-d, g-i, k-r,z); with beveled, incised lips (f,j); with lugs (x), with punctations (e,u); rims from miniature vessel(aa,w); incised body sherd (bb); lug (t). rim profiles, cc (of aa, above); dd (of z above); ee (of d above); ff (of q above); gg (of f above); hh (of s above); ii (of m above).

Ground and Pecked Stone

Five sandstone milling-slab fragments were found, ranging from 2.1 to 10.2 cm. long and from 1.7 to 3.0 cm. thick. All are ground smooth on one surface, and rough but relatively flat on the opposite surface. The largest fragment is concave on the smooth surface and shows peck marks where it was shaped along one margin. Materials are medium coarse to coarse, reddish, gray, and light brown sandstones. One other piece of brown sandstone 9.1 cm. long, 6.4 cm. wide and 2.6 cm. thick, retains peck marks on both upper and lower surfaces. A fragment of a mano is 3.5 cm. by 4.2 cm. and has a rounded, smooth surface. One piece of reddish sandstone is round in cross section and elongate, 3.3 cm. in length and 1.7 cm. in diameter.

Table XXV. Manufacturing flakes

Material	No. of Flakes	Total Weight	Ave. Wt. Per Flake
1. local shert, agate	86	212.6g.	2.47g.
2. quartzite	346	700.2	2.02
3. non-local chert	31	68.6	2.14
4. jasper	63	59.9	0.95
Totals	526	1041.3	

Table XXVI. Flakes from biface retouch

Material	No. of Flakes	Total Weight	Ave. Wt. Per Flake	Minimum Number of tools Represented
1. local cherts, agate	18	7.4g.	0.41g	5
2. quartzite	17	9.0	0.52	6
3. non-local chert	4	2.3	0.57	3
4. jasper	8	3.6	0.45	3
Totals	47	22.3		17

Table XXVII. Flakes from side scraper retouch, Class 1

Material	No. of Flakes	Total Weight	Ave. Wt. Per Flake	Minimum Number of tools Represented
1. local cherts, agate	5	1.5g	0.30g	2
2. quartzite	4	2.6	0.65	3
3. non-local chert	7	3.3	0.48	5
4. jasper	16	5.3	0.33	6
Totals	32	12.7		16

Table XXVIII. Unclassifiable retouch flakes

Material	No. of Flakes	Total Weight	Ave. Wt. Per Flake
1. local chert, agate	20	6.6g.	0.33g.
2. quartzite	9	2.5	0.26
3. non-local chert	6	3.2	0.53
4. jasper	9	3.5	0.83
Totals	44	15.8	

Ceramics

Body sherds: About 80 percent of the 1,428 body sherds collected from this site are large enough for analysis. Larger sherds are about 4 cm. across but average size is only about 2 cm. Exteriors are gray on 65 percent to 70 percent of the sherds and the rest are buff. Cores are dark gray to black on fresh breaks, and interior surfaces are about 90 percent gray and 10 percent buff. The paste contains numerous fine laminations, often giving it a flaky appearance. Temper in most cases consists of moderate amounts of rounded quartz particles averaging 1 to 2 mm. in diameter. Thirty-one sherds, all apparently from the same vessel, are tempered with large amounts of crushed granite and crushed quartz. Paste in these sherds are soft and contain numerous flecks of mica.

Between 90 percent and 95 percent of exterior surfaces are marked with a cord-wrapped paddle and smoothed. Impressions from unsmoothed sherds indicate that cords were two-strand with a "Z" twist. They averaged between 1 and 2 mm. in diameter and the cord markings are usually parallel, from 3 to 5 per cm. A few sherds were impressed with cords 3 mm. in diameter, spaced two per cm. apart. About 1 percent of the sherds have a second set of cord-marks overlapping the first set at various angles. One sherd about 2 cm. by 2.4 cm. was impressed with a piece of coiled basketry, but is otherwise similar to the rest of the sherds. Sherd thicknesses averaged between 6 mm. and 8 mm.

Neck sherds: Fifty-two sherds could be identified as coming from constricted necks below a flaring rim. These are similar to other body sherds, except they average closer to 10 mm. in thickness, and about 50 percent have buff-colored exteriors and gray interiors.

Rim sherds: Eighty rim sherds from this site could represent as many as twenty vessels. Two sherds come from a miniature vessel with rounded, incised lip, a straight rim, and an angular shoulder (Fig. 20w,aa). Twenty other rim sherds are flaring and have plain, rounded lips (Fig. 20s,v,y). One of these (Fig. 20v) has crushed granite and quartz temper like the small group of sherds mentioned above. Three flaring rims

have rounded lugs projecting above a rounded lip (Fig. 20z). Three rims have lips beveled to the outside at about a forty-five degree angle. Two of these beveled areas are incised (Fig. 20f,j) and the other is unmarked. Seven other rims are flaring, but lip form and decoration is not indentifiable. Two flaring rims with rounded lips have small, round punctations made with a sharply pointed tool (Fig. 20e,u). Two other rounded lips have diagonal incisions on the exterior side of the lip (Fig. 20a).

The remaining forty-one rims are flaring and have a flattened lip with various types of incisions (see Table XXIX: Fig. 20b-d,g-i,k-r,z).

One body or shoulder sherd has an incised design consisting of four horizontal lines connected with a "V" shaped incision (Fig. 20bb). One sherd is a semicircular lug, flat in cross section and 7 mm. thick (Fig. 20t).

Worked Bone

One rib fragment 11.5 cm. long has been tapered by grinding to a blunt point. Shallow grooves along the exterior surface might have resulted from friction with sinew bindings, suggesting this was used as some sort of haft (Fig. 19t).

Faunal Material

Faunal material found at these sites consists mostly of long bone fragments of at least two buffalo (Bison bison) along with fragments of foot bones, a pelvis, and mandibles. Other fauna evidenced by two or three elements from each are mule deer (Odocoileus hemionus, a canid (coyote or dog), and an unidentifiable large bird.

Discussion of the Archaeological Evidence

It is unfortunate that this site was so completely destroyed. The relatively large pottery and flake sample obtained even after the site was looted show that this site was one of the most intensively utilized sites in the area. As a campsite this butte has many disadvantages: the difficult access to the site, the distance to the nearest water, the small living area, and the rocky floor, would seem to discourage such heavy occupation as the site apparently had. Two advantages which may have helped outweigh these undesirable characteristics are the extremely defensible nature of the butte, and the fact that a very large stretch of the Horse Creek Valley and the area north of it could be kept under observation for game, etc. The rather extensive camping activity evidenced around the south end of the butte might mean that the butte was not used all of the time, or that not all of the people in one group could live on it at one time.

The ceramic sample is clearly related to Upper Republican ware, but some differences can be seen between this sample and the one from Gurney Peak Bench,

Table XXIX. Rim form and decoration

	Profile	Lip Form	Lip Decoration	Thickness	Sherds	Fig.
1.	straight rim, shouldered	rounded	small incisions	3-4 mm.	2	20w,aa
2.	flared	rounded	none	5-9	20	20s,v,y
3.	flared	rounded	small lugs	5	3	20x
4.	flared	rounded	punctates	5	2	20e,u
5.	flared	rounded	incisions on lip exterior	7-9	2	
6.	flared	beveled	none	10	1	
7.	flared	beveled	vertical incisions	9	1	20f
8.	flared	beveled	diagonal incisions	8	1	20j
9.	flared	flattened	incisions joined to form triangles	7	1	20b
10.	flared	flattened	incisions at diff. angles	6	1	20g
11.	flared	flattened	incisions parallel to vessel-exterior	8-10	10	20c,l,o
12.	flared	flattened	diagonal incisions	7-14	20	20h,i,p,q,r,z
13.	flared	flattened	diagonal incisions on top of lip vertical incisions on lip exterior	9	1	20q
14.	flared	flattened	large, broad incisions	9-11	6	20k,n
15.	flared	flattened	diagonal incision across lip	9	2	20d,m
16.	flared	unidentifiable			7	

some 400 yards to the west. Some of the differences can be related to the disparate size of the samples, but such things as absence of braced rims on Gurney Peak Butte and the absence of incised, flattened lips at Gurney Peak Bench are suggestive.

Flake analysis is the only way a valid reconstruction of the tool assemblage can ever be gained from this site. Retouch flakes collected on the surface, such as these were, are bound to be biased towards larger flakes and brighter-colored material, simply because they are easier to see. However, data on these were given to indicate the type and number of tools evidenced for the site by even such a small sample. Quartzite seems to have been utilized more than local materials, which is not the case at other sites excavated.

It is not known how representative the artifact collection described is. It does appear similar to other nearby sites, except for the high proportion of extremely small projectile points.

A relatively high percentage of the buffalo bone had been burned, perhaps reflecting the limited site area. Butchering evidence at this site was also obscured by pounding up of most bone into fragments, presumably to allow extraction of marrow. From the large amounts of bone and manufacturing debris in this site, it appears that the difficult access did not impose any limitations on normal camp activities.

The Pine Bluffs Locality

Seven Mile Point, Site 48 LA 305

This site consists of a camping area spread over the top of a sizeable butte in section 17, R.60W., T.13W. This butte, known locally as Seven Mile Point, is separated from the main Pine Bluffs escarpment by a gap about 200 yards wide. It is over 500 feet long and 200 feet wide, and rises abruptly to about 200 feet over the adjacent lowlands. The top of this feature is underlain by the flat-lying Pliocene Ogallala, and has only about twelve feet of relief, with the highest point being near the southeast end. The Ogallala forms a cliff up to thirty feet high around most of the butte, but access to the top is relatively easy at several points on its northern side (Fig. 21a; see also Fig. 4, Chapter III).

The top of the butte is rather barren, with vegetation consisting only of scattered yucca, prickly pear, sagebrush, rabbit brush, and an occasional saltbuch (Atriplex sp.), and patches of short grasses and forbes (Fig. 21b). Vegetation on the sides of the butte consists of the same species in more abundance, and several wild currant bushes (Ribes sp.) have gained a foothold in sheltered spots below the caprock on the north side. Juniper and Ponderosa Pine grow in thick clumps along the main escarpment north of Seven Mile Point.

Muddy Creek is a perennial stream several miles west of the site, and before the start of extensive irrigation projects in the area, it had intermittent stretches of open water up to within a few hundred yards of Seven Mile Point; water, therefore, would not have presented a problem to the prehistoric occupants of the site. However, the top of this butte is a high and extremely exposed location and probably would not have been suitable for occupation during cold weather.

Excavation, Stratigraphy, Features

Test excavations at this site proceeded with two general purposes in mind. Previous surface collections by the writer had indicated the possibility of two ceramic components at the site - Upper Republican and Plains Woodland (Reher 1969:20). It was hoped excavation would recover material from these components in distinct stratigraphic contexts, which would be much more valuable than mixed surface materials with an occasional diagnostic artifact. It was also decided to disperse work over the site to gain an idea of the strata over as much of the site as possible, as an indicator for future work.

A datum point was established on the higher ground near the southeast end of the butte, and the NW-NE, SW-SE lines were plotted as the base lines for a grid system. The site was also later mapped with a contour interval of two feet (Fig. 22).

The initial excavation (Unit 1, SW 000-005, NW 055-065) was located where surface features seemed to indicate a relatively deep deposition. Unit 1 was excavated in arbitrary six inch levels using trowels, whisk brooms, shovels, and screens. Occasional flakes occurred within two inches of the surface, but material became more concentrated six to eight inches below the surface. The second six inch excavation level reached bedrock in most parts of the trench and bedrock was reached within fifteen inches of the surface in all parts of the trench. Cultural material occurred to bedrock over most of the unit.

Stratigraphy consisted basically of three inches of weakly-developed sod, and below this homogeneous gray-brown dirt extended to bedrock. Weathered fragments of bedrock of variable size were scattered throughout the deposit, but most were concentrated within a few inches of the bedrock. No distinct geologic or cultural strata were discernable other than the more frequent occurrence of cultural material and rock fragments below a certain depth. Typological differences discussed below indicate the possible existence of more than one component, but they appeared to overlap in the bottom six to eight inches of the deposit and could not be separated. The general lack of diagnostic artifacts also hindered any such seapration (Fig. 23a).

Unit 2 (SW 040-045, NW 160-170) was closer to the middle of the site, also in an area of deeper-appearing sediments. No distinct levels were visible in the unit,

Figure 21. The Seven Mile Point Site, 48 LA 304:
(a) looking south from Pine Bluffs escarpment.
(b) looking west from middle of the site area, lowlands of Lodgepole Creek, Muddy Creek in background.

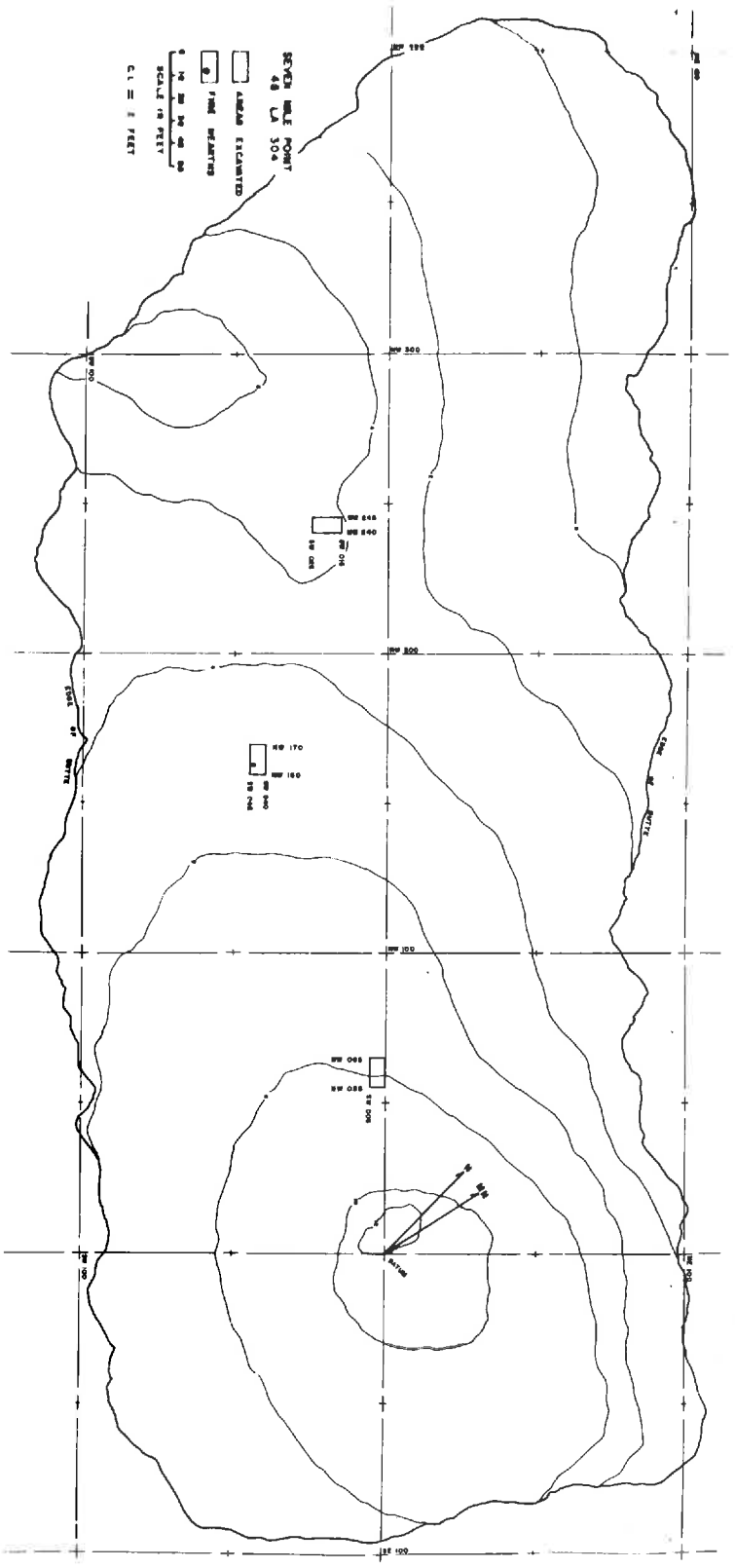


Figure 22. Topographic Map of the Seven Mile Point Site, 48 LA 304.

and it was dug by arbitrary three inch levels. Cultural material began to appear just below the surface and became more concentrated about three to four inches in depth. Bedrock was reached at a depth of twelve to fifteen inches. Although no cultural stratification was apparent, material recovered in these smaller excavation levels does seem to separate into distinct components (Fig. 23b).

Unit 3 (SW 015-025, NW 240-245) was located closer to the northwestern end of the site, and was also excavated by three inch levels. Deposits on this end of the site consist of more rock fragments and less soil, and bedrock was reached at depths of only four to six inches. Only one component is suggested by the nature of the deposit and by the artifacts recovered (Fig. 23c).

The only feature encountered during excavation was a fire hearth in Unit 2. It was made by prying loose several fragments of fractured and weathered bedrock, forming a depression about four inches deep and eighteen inches across. The fill in this depression was stained a darker color than the surrounding soil, and the bedrock within it was fire-blackened.

Excavated and Surface Material

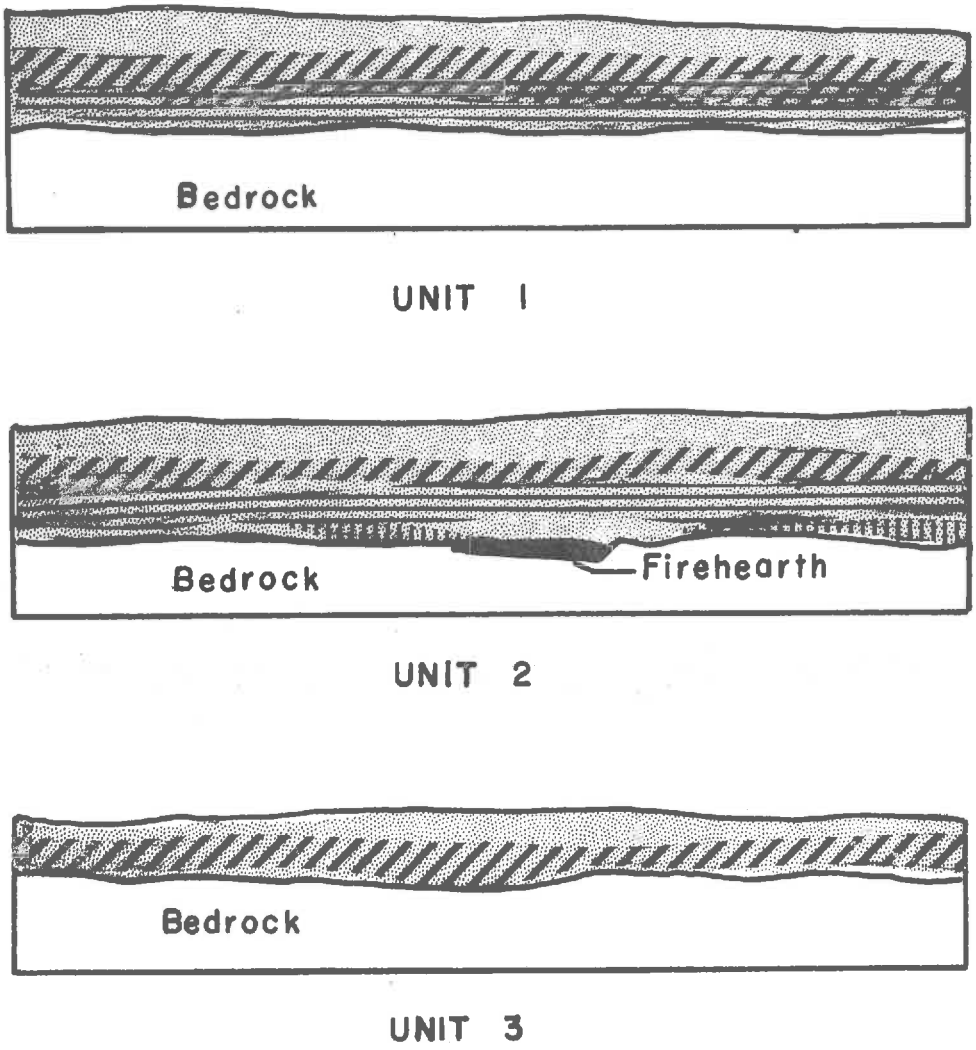
Chipped Stone

Projectile points: Seven side-notched projectile points, two unnotched points, six small corner-notched points, one large corner-notched point, and one point notched on one side were recovered during excavation of the three units. Bases of the side-notched points are straight, and the bases of the corner-notched points are convex. Complete, and broken but identifiable points from the surface include three side-notched, four unnotched, four small corner-notched and three large corner-notched points, and five unidentifiable fragments (Fig. 24f-p,v-gg; Table XXX).

End scrapers: Nine end scrapers, five broken and four complete, are all surface finds. Three of the complete ones are chipped on all margins, forming a rounded or pointed end opposite the working face. One retains a striking platform indicating it was struck from a biface core, and one has the striking platform at right angles to the long axis of the tool. One of the broken specimens has a notch 3.5 mm. deep and 6 mm. wide chipped on one edge, apparently as some sort of spokeshave device. One of the larger broken specimens has a rounded, highly-polished working edge similar to two end scrapers at the Petsch Springs Site. Lengths range from 3.5 cm. to 2.3 cm., widths from 117 cm. to 3.5 cm., and thicknesses from 0.6 cm. to 1.4 cm. Materials are local agate (4), non-local chert (2), and jasper (3).

Side scrapers: Eight side scraper fragments were also surface finds. Four are rounded and fragments 2.5 cm. to 3.6 cm. wide and four others are mid sections.

Figure 23. Generalized cultural sequence in excavated units at the Seven Mile Point Site.



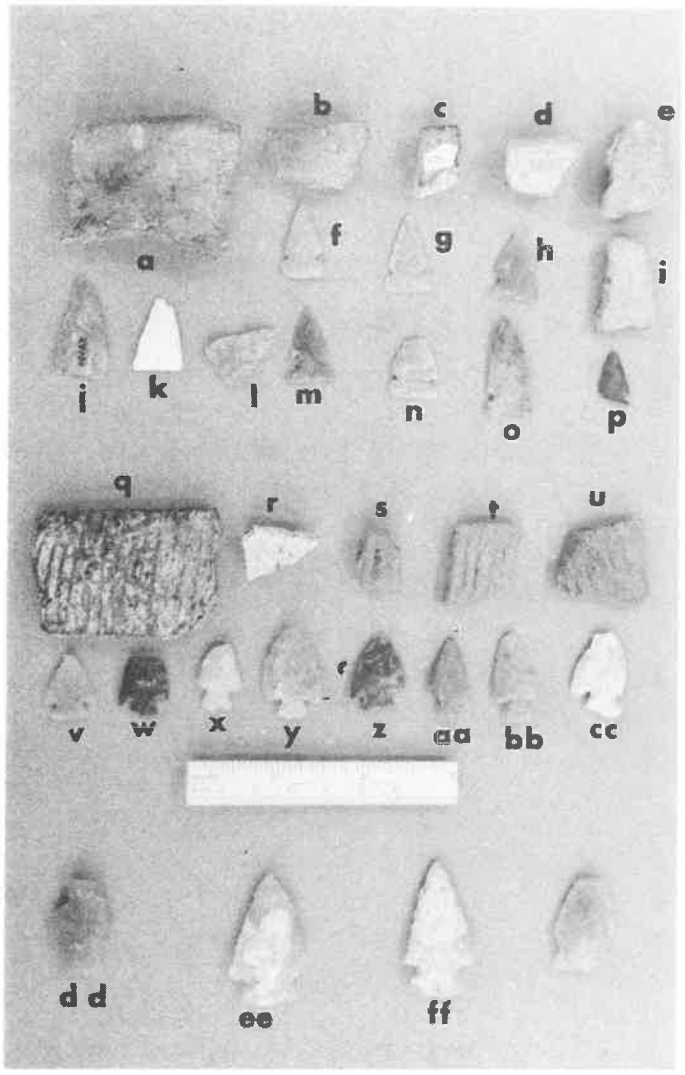


Figure 24. Ceramic and projectile point sequence at the Seven Mile Point Site:

Upper Republican flaring rims with plain, rounded lips (a,b,c), with cord impressed lips (d), cord-marked and smoothed body sherds (e,i), side-notched points (f-h,m-p), and unnotched points (j-l).

Woodland straight rims with plain, slightly flattened lip (q), with flattened incised lip (r), with thin rounded lip (s), cord-marked and unsmoothed body sherds (t,u), and corner-notched points (v-cc).

Large corner-notched points (dd-gg).

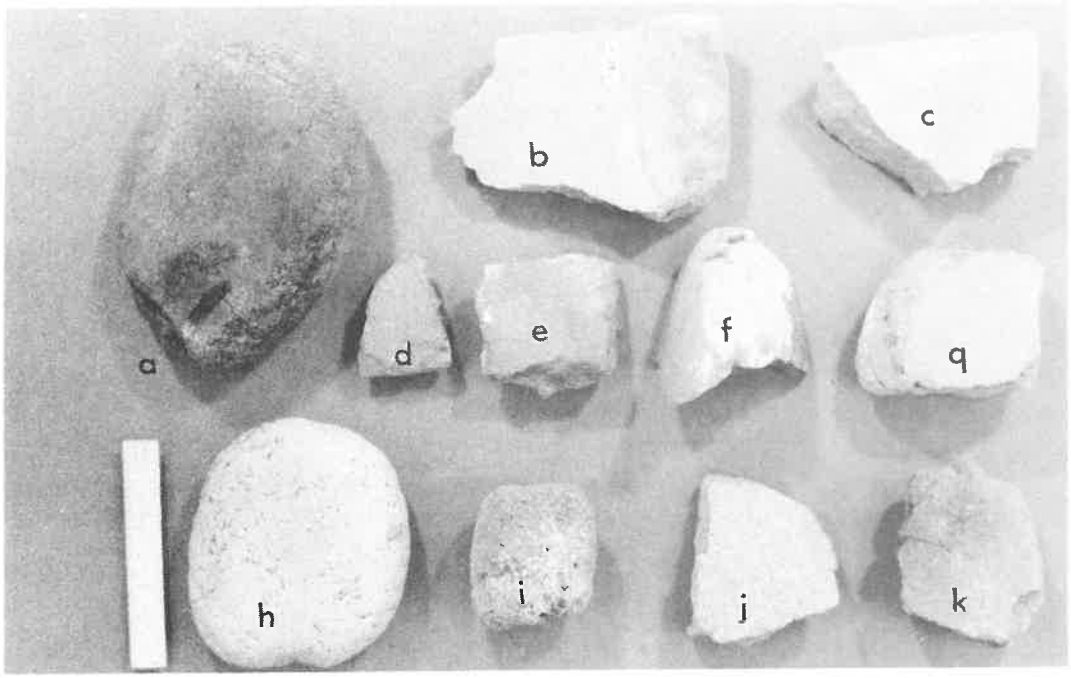


Figure 25. Ground stone from the Seven Mile Point Site: metate fragments (b-e,g,j,k), manos (a,h) and mano fragments (f), grooved abraders (i).

Table XXX. Projectile points

	Description	Provenience Unit	Provenience Level	Length (mm.)	Width (mm.)	Thickness (mm.)	Notch Width (mm.)	Fig.	Material
1.	side-notched	1	1-6in.	27	13	3	8	24o	non-local chert
2.	unnotched	1	1-6	21	-	3	-	-	local agate
3.	unnotched	1	6-12	20	14	3	-	24l	jasper
4.	small, corner-notched	1	6-12	19	14	3	8	24v	local agate
5.	side-notched	2	3-6	22	13	2	7	24g	local agate
6.	side-notched	2	3-6	20	14	3	9	24h	jasper
7.	one side-notched	2	3-6	20*	12	2	9	-	local agate
8.	side-notched	2	6-9	-	-	4	9		non-local agate
9.	small, corner-notched	2	2-9	22*	11*	4	7	24z	non-local agate
10.	small corner-notched	2	9-12	25*	17*	3	7	24cc	local chert
11.	small, corner-notched	2	9-12	-	14	3	6	24w	jasper
12.	small, corner-notched	2	9-12	-	13	3	6	24x	local agate
13.	corner notched	2	9-12	-	22*	4	11		local chert
14.	large corner-notched	2	12-15	37	19	5	12	24ff	local chert
15.	side-notched	3	0-3	21	12	4	8	24f	local agate
16.	side-notched	3	3-6	21	13	2	6	24m	jasper
17.	side-notched	3	3-6	-	13	3	9	24n	quartzite
18.	side-notched	Surface		17*	11*	2	5	24p	jasper
19.	side-notched	Surface		-	11	3	6		local agate
20.	side-notched	Surface		-	-	-	-		local chert
21.	unnotched	Surface		27	15	4	-	24j	jasper
22.	unnotched	Surface		22	14	4	-	24k	local chert
23.	unnotched	Surface		-	14	2	-		jasper
24.	unnotched	Surface		-	4	3	-		quartzite
25.	small, corner-notched	Surface		25	12	4	5	24bb	jasper
26.	small, corner-notched	Surface		24	12*	3	4	24aa	jasper

Table XXX. (Continued)

	Description	Provenience Unit	Level	Length (mm.)	Width (mm.)	Thickness (mm.)	Notch Width (mm.)	Fig.	Material
27.	small, corner-notched	Surface		26	15	4	6	24y	local agate
28.	small, corner-notched	Surface		-	17	4	7	-	local agate
29.	large, corner-notched	Surface		37	7	6	13	24ee	local agate
30.	large, corner-notched	Surface		-	-	5	13	24gg	local agate
31.	large, corner-notched	Surface		-	13*	6	13	24dd	local agate

All have only one side chipped to a steep working edge, except one mid section, which comes from a tool with two alternate beveled working edges. Materials are jasper (3), local agate (3), and quartzite (2).

Bifaces: One elongate biface 6.3 cm. long and 2.5 cm. long, with rounded ends was recovered from the 3-6 inch level in Unit 2. Two rounded bases of ovate bifaces 4.5 cm. wide were recovered from the 6-9 inch level in the same unit. Five small, complete bifaces were found on the surface of the site. These range from 4 to 5.3 cm. in length, from 2.5 to 3.4 cm. in width, and from .5 to 1.0 cm. in thickness. All are basically ovate shaped, with one pointed end and one end either rounded or flat. One nearly complete biface is similar to those just described, and another is more triangular in shape, with a straight base and straight sides. Three other end fragments, and six fragments from the middle of biface tools were also found on the surface. Materials are local agate (9), non-local chert (4), and quartzites (7).

Drills: One fragment of an expanding-base drill was a surface find. It includes the tip, 1.7 cm. long, and part of the base. The tip is diamond shaped in cross-section, and material is jasper.

Cores: One core of local chert, 6 cm. wide and 2.7 cm. thick, was recovered from Unit 1, 6-12 inch level. It consists of a thick percussion flake retaining, a perpendicular faceted striking platform at one end. The flat, inner flake

face was subsequently used as a striking platform to remove smaller flakes from the original thick percussion flake. Four irregular polyhedral cores, from 3 to 7.6 cm. long were surface finds. Materials are quartzite (1), local agate (1), non-local chert (1), and jasper (1). One discoidal core of local agate, similar in size and shape to the one found at the Gurney Peak Bench Site (Fig. 9w), was also found on the surface.

Retouched flakes: A few irregular flakes retouched along one or more margins to form a cutting or scraping edge came from each excavated level. Numerous similar flakes were also picked up on the surface.

Quartz crystal: Numerous broken pieces of quartz crystal and clear quartz occur at this site, including Unit 1, 1-6 inches (9), 6-12 inches (9), Unit 2, 3-6 inches (2), 6-9 inches (1), Unit 3, 3-6 inches (3), and from the surface (60). One edge of a broken six-sided crystal from the surface shows deliberate retouch and use retouch; apparently this was some sort of chiseling or gouging tool. The terminal, faceted end of another crystal has wear which seems to be the result of pounding this end against a relatively hard substance.

Unmodified flakes: Numerous manufacturing flakes and tool-retouch flakes were recovered during excavations and from the surface of the site. These are summarized (Table XXXI), but are not treated in as much detail as at other sites because of the possibility that most of them come from mixed contexts. Certain artifacts can be tentatively separated from mixed or unstratified deposits on the basis of diagnostic attributes, but work with these flakes indicated no such separation was possible. Obsidian was restricted to a few flakes in the upper level of Unit 2, and the surface, but otherwise materials and flake types were the same throughout all levels and on the surface.

Ground and Pecked Stone

Fourteen fragments of grinding slabs, ranging from 9.3 cm. to 2.5 cm. across were found on the surface (Fig. 25). All were smoothed on one surface and four have been pecked flat on the opposite surface. Five fragments have straight edges rounded in cross-section (Fig. 25b,d,c,g,j.k), and one comes from a rectangular slab (Fig. 25c).

One complete mano was recovered from the 1-6 inch level of Unit 1, and another complete specimen was a surface find. Both are from coarse sandstone, pecked around the edges and ground on opposite sides (Fig. 25a,h). Lengths range from 11.9 to 8.3 cm., widths from 7.2 to 7.1 cm., and thicknesses from 4.4 to 3.2 cm. Another mano from the surface has both ends broken off and is 8.9 cm. wide and 5.3 cm. thick. Three fragments found on the surface come from similar manos (Fig. 25f).

Two grooved abraders are subrectangular pieces of sandstone with grooves along one face (Fig. 25i). Both are surface finds, and widths range from 4.2 cm. to 2.7 cm.

Three small lumps of sandstone 1 cm. to 2 cm. across have been rounded by grinding. All are surface finds.

Table XXXI. Unmodified flakes

	Provenience	Number of Flakes: Local Cherts, Agates	Non-local: Quartzites	Non-local: Cherts	Non-local: Jasper	Non-local: Obsidian
1.	Unit 1, 0-6 inches	40	8	7	16	-
2.	6-12	103	32	15	54	-
3.	Unit 2, 0-3 inches	8	4	2	4	-
4.	3-6	27	12	4	10	1
5.	6-9	8	4	4	5	-
6.	9-12	18	8	7	15	-
7.	12-15	9	3	1	5	-
8.	Unit 3, 0-3 inches	17	8	18	9	-
9.	3-6	31	14	11	22	-
10.	Surface	36	68	52	87	2
	Totals	297	161	121	227	3

Hammer Stones

Two rounded granite cobbles were used as hammer stones and are battered on one end. Two other broken cobbles show similar wear. In addition, one has been polished on one corner by some other type of use. These four surface finds range from 9.2 to 8.5 cm. in length and from 4.6 to 7.0 cm. in width.

Ceramics

Body sherds: Thirty-nine small body sherds ranging from .9 cm. to 3.2 cm. across came from excavated units. One hundred and fifty body sherds were found on the surface, only about 50 percent of which were large enough for analysis. These sherds are divisible into two groups, which are described below.

Thirty-three excavated sherds and 138 surface sherds are characterized by predominately gray interiors and exteriors, and dark gray to black cores. About 20 percent of these sherds have buff exteriors. Three sherds have buff exteriors and cores, and red interiors; three have red exteriors, and gray interiors and cores; seven have red interiors, and gray cores and exteriors, and one sherd only 3 mm. thick has a red exterior and interior, and a gray core. This red color appears to be the result of applied pigment, similar to the red sherds from the Gurney Peak Ranch Site.

Paste has frequent thin laminations, giving it a flaky appearance, and temper is moderate amounts of rounded quartz particles averaging .25 to .75 mm. in diameter. Sherd thickness averages between 6 and 8 mm. Larger sherds indicate a globular vessel shape.

Exterior surfaces are marked with a cord-wrapped paddle and smoothed in about 95 percent of the cases, and cord-marked and unsmoothed in the rest. In the few cases where it can be determined, cords were two-strand with a "Z" twist, and they averaged about .75 mm. in diameter (Fig. 25e,i).

These sherds occurred in excavated units as follows:
Unit 1, 1-6 inches (3 sherds), 6-12 inches (6 sherds);
Unit 2, 3-6 inches (9 sherds), 6-9 inches (8 sherds);
Unit 3, 0-3 inches (5 sherds), 3-6 inches (3 sherds).

Six excavated sherds and twelve surface sherds belong to the other type of pottery. Interiors are gray, cores are dark gray to black, and exteriors are gray to grayish-brown. Paste is homogeneous and coarse, and temper consists of infrequent quartz particles from .25 to 5 mm. in diameter. Several sherds contain moderate amounts of fine sand, which may be tempering or natural inclusions in the clay.

Surface treatment consists of impressions from a cord-wrapped paddle. These marks are always unsmoothed, and cords making these marks were uniformly about 2 mm. in diameter and two-ply with a "Z" twist. Cord marks are parallel, spaced three per cm., and run vertically up vessel sides (Fig. 25t,u). Excavated sherds came from Unit 1, 6-12 inches, and Unit 2, 9-12 inches.

Rim sherds: Five flaring rim sherds, all surface finds, have smoothed surfaces and belong to the first group of pottery. Two have rounded, plain lips (Fig. 25a,b), one has a rounded, slightly folded lip,and another has two parallel cord impressions 1.2 cm. long on a flattened, slightly thickened lip (Fig. 25d).

Three rims from the second group of pottery are straight or curve in slightly in profile, with cord impressions on the exterior surface up to the lip. One lip is slightly flattened (Fig. 25q), another has a thinned, rounded lip (Fig. 25s), and the third has incised diagonal lines running across a flattened lip (Fig. 25r). Four other rim sherds are too small to be definitely classified, but two appear to be from flaring rims with plain, rounded lips, and the two others appear to be straight rims with rounded lips.

Discussion of the Archaeological Evidence

Seven Mile Point offers a very defensible position and a lookout for game across the Lodgepole and Muddy Creek lowlands as far as the horizon. In addition it is close to the additional plant and animal resources which would have occurred in a series of swampy meadows and cottonwood groves along Muddy Creek.

The stratigraphy of the site offered no definite evidence of separate components, but on typological grounds there appear to be two and possibly three separate occupations. Side-notched points, unnotched points, and cord-marked, smoothed pottery with flaring rims and globular bodies represent an Upper Republican occupation. This occurred in Unit 3, overlapped a Woodland occupation in Unit 1, and was found in the 3-6 and 6-9 inch levels in Unit 2. Woodland traits evidenced are small, corner-notched points and cord-marked, unsmoothed pottery from straight-sided vessels. This was seen in the 9-12 inch level of Unit 2, and mixed with Upper Republican material in Unit 1. The larger, corner-notched point from Unit 2 was found directly above bedrock in the 12-15 inch level, which contained no pottery. It may represent a pre-ceramic Middle Period occupation, but similar points occur in Woodland assemblages (Kivett, 1952:81; 1970:99).

Material recovered from excavations was not prolific, but if material occurs in this amount over the entire top of the butte, a vast amount of material should be there. Careful excavation in small levels would be necessary to recover material in separable contexts.

CHAPTER V

SURVEYED SITES

The Pine Bluffs Locality

Site 48 LA 319

This site is an open campsite in a grassy, bowl-shaped depression just above the edge of the escarpment in section 8, T.13N., R.60W. (Fig. 26a). Surface artifacts from this site include two irregular agate flakes chipped along one side to form a cutting edge, and one end scraper, also of agate. Thirty-three agate and twelve jasper manufacturing and tool-retouch flakes were also picked up on the surface (Fig. 1, site 24).

Ceramics consisted of only three sherds averaging about 2 cm. wide and 6 mm. thick. Temper consists of occassional rounded quartz particles, and abundant fine sand may be either tempering or natural inclusions in the paste. Color is gray to grayish-brown, and exterior surfaces were impressed with a cord-wrapped paddle and were not smoothed. The cords were about 2 mm. in diameter. The pottery is quite similar to Woodland pottery from nearby Seven Mile Point and is tentatively classified as such, but little can be done with such a small sample.

Site 48 LA 308

This site is located on a bare slope below the scarp in section 21, T.14N., R.60W. (Fig. 1, site 21; Fig. 26b). Artifacts consist of a large chopper formed by removing several large spalls from each side of one end of a flat chert cobble, and two polyhedral cores, one of chert and one of local agate. Two large chert flakes appear to come from the chert core, and one jasper side scraper retouch flake was also found. Ceramics consist of only one sherd which is black and smoothed on both surfaces, with a black core. Paste is fine and sandy, and temper is an occasional angular quartz particle about .75 mm. in diameter. The inner surface of the sherd has a polished look, and this and the other traits are similar to Dismal River were described by Gunnerson (1960).

Site 48 LA 318

The existence of this site was demonstrated by material exposed in a road cut two feet deep in an open area in section 22, T.14N., R.60W. (Fig. 26c; Fig. 1, site 22). Artifacts from this site include three retouched flakes, one small agate

Figure 26. (a) looking south across Site 48 LA 319 (Seven Mile Point in left background); (b) looking north along slope of Pine Bluffs escarpment, Site 48 LA 308 in foreground.

biface, one jasper side-scraper fragment, one tip of a jasper projectile point, and one complete and one broken end scraper.

Ceramics consist of five smoothed sherds averaging 2 cm. across and 7 mm. thick, which are black on the interior surface, gray to grayish-brown on the exterior surface, and have black cores. Paste includes very fine sand, and the only temper observable is an angular quartz particle 1.5 mm. across in one sherd. This pottery is also tentatively classified as Dismal River.

Site 48 LA 310

Site 48 LA 310 is located on a point extending out in the escarpment system in section 27, T.14N., R.60W. (Fig. 27; Fig. 1, site 23). Artifacts from this site were relatively numerous, consisting of two small choppers, three polyhedral cores, two thin flakes retouched to a cutting edge, and two thick ones retouched to a scraping edge, one three-sided biface (Fig. 28b), and one small, broken biface with straight sides (Fig. 26a).

Ceramics consist of eight small sherds which have apparently been exposed for some time, being weathered and rounded on the edges (Fig. 28c). Exterior and interior surfaces are grayish-brown, cores are black. Paste is characterized by large amounts of very fine sand and flecks of mica. Temper consists of an occasional small particle of quartz. Thicknesses average 6 mm. Exterior surfaces may be cord-marked. Larger sherds indicate a globular vessel shape. Most of these attributes, especially the fine sandy paste, seem to indicate Dismal River affiliations.

Site 48 LA 307

This site is evidenced by a thin cultural layer and four small, slab-lined fire-hearths eroding from the side of a large drainage ditch cut along the foot of the bluffs in section 15, T.14N., R.60W. Artifacts and flakes are found protruding from this level on occasion, but usually they are found on the sides of the ditch below the level. The level varies from three to six feet in depth along a broad curve some 150 feet long (Fig. 29a; Fig. 1, site 20). Artifacts from the site are four irregular thin flakes retouched to a cutting edge (Fig. 28d,e), one large thick flake showing use retouch from a scraping function, and two relatively large corner-notched points. These points range from 1.9 to 2.1 cm. in width, and from 4 to 5 mm. in thickness. One has the top broken off (Fig. 28h), and the one complete specimen is 3.5 cm. long (Fig. 28g). Both have been lightly ground on the base and in the notches.

Pottery consists of two sherds with gray interior surfaces, black cores, and grayish-brown exteriors. Paste is fine, and temper consists of occasional small rounded quartz particles, and a finer sand which may be a natural inclusion. Exterior surfaces were marked with a cord-marked paddle and were not smoothed. Cords were

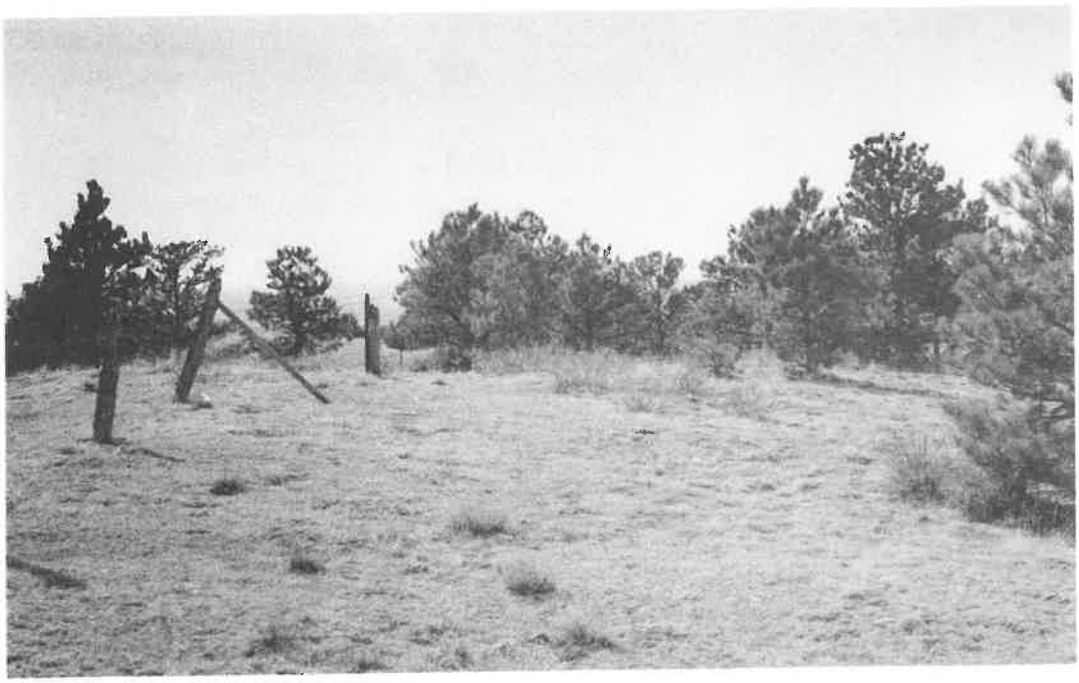


Figure 27. Site 48 LA 310, looking west.

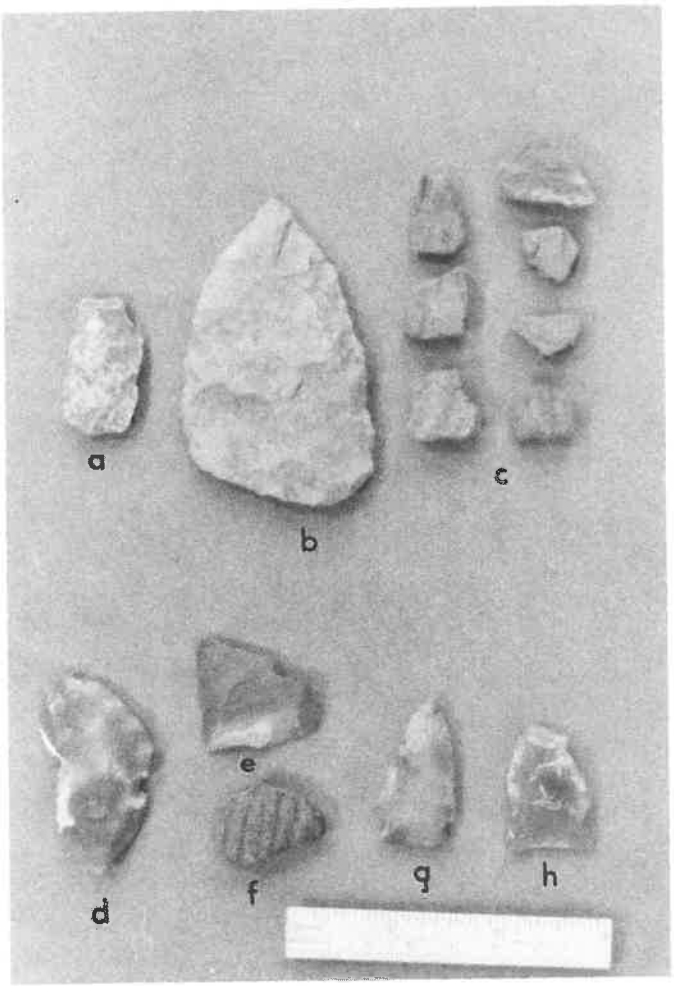


Figure 28. Artifacts from 48 LA 310: bifaces (a,b), pottery (c); artifacts from 48 LA 307: retouched flakes (d,e); cord-marked, unsmoothed sherd (f), corner-notched projectile points (g,h).

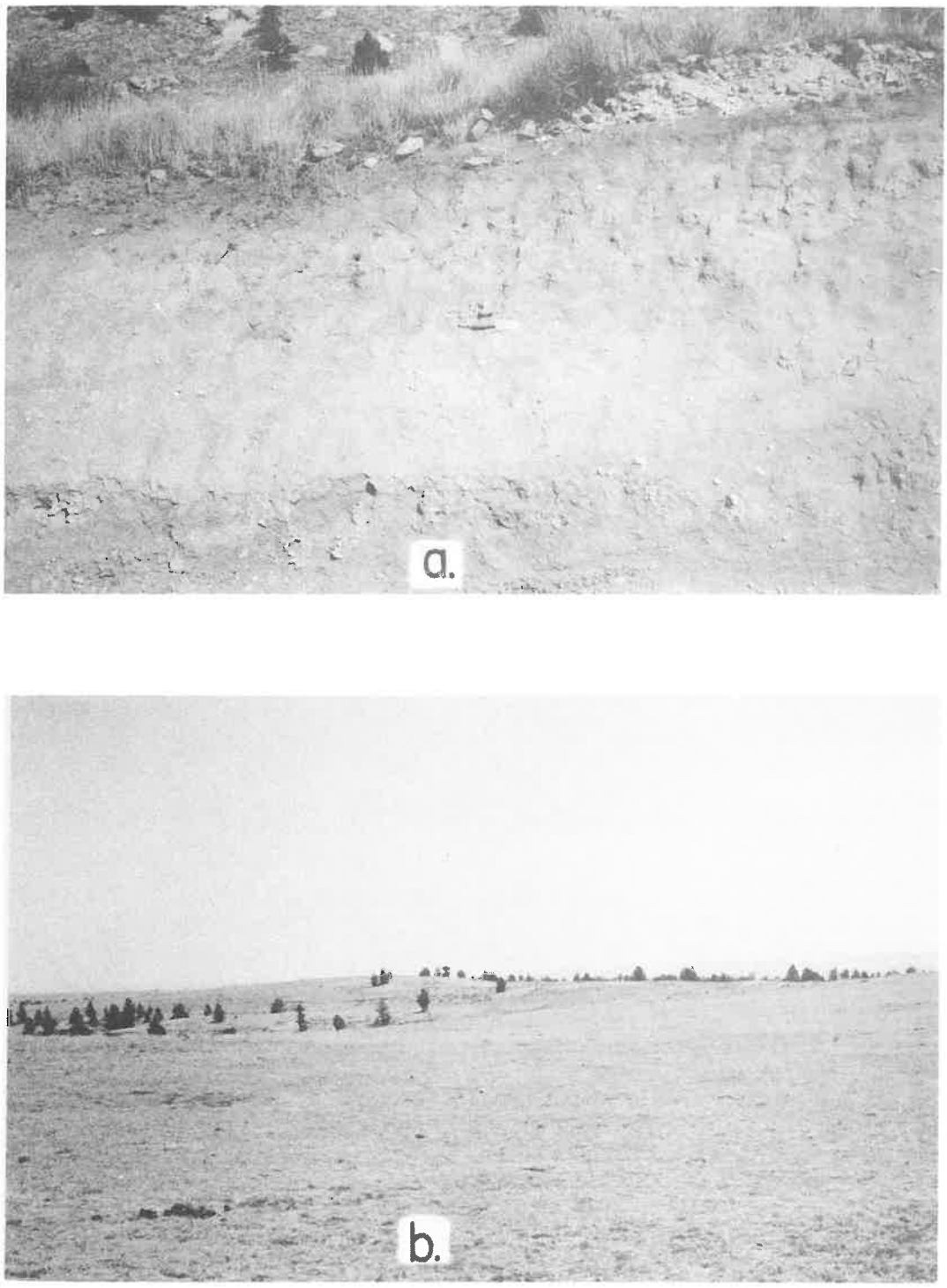


Figure 29. (a) Site 48 LA 307, firepit above trowel in center.

(b) Site 48 LA 306, looking southeast, site located along knoll in background.

two-strand with a "Z" twist, averaged 2.5 mm. in diamter, and were parallel and spaced three per cm. Ceramic traits and the corner-notched points argue for a Plains Woodland classification of this site. Sherds do seem to indicate a straight-sided vessel, but they are too small for sure determination (Fig. 28f).

Site 48 LA 306

This site is located on a small knoll just behind the scarp edge north of Pine Bluffs, in section 28, T.15N., R.60W. (Fig. 29b; Fig. 1, site 18). Artifacts were relatively numerous and included two broken side-notched projectile points (Fig. 31i), one base from an unnotched point, and the base from a large corner-notched point or a hafted knife (Fig. 31g). Other artifacts include six thin flakes retouched to form a cutting tool (Fig. 31l), one bladelet-like flake retouched along both edges (Fig. 31f), and three irregular polyhedral cores, of local agate (2), and quartzite (1). Other artifacts are two end-scrapers (Fig. 31j,k), the end of a worn-cut side-scraper (Fig. 31m), and a small bifacial object which appears to be a point blank (Fig. 31h). A large number of flakes consist of the usual assortment of agates, cherts, jaspers, and quartzites found at sites in the area, and a few fragments of quartz crystal.

Twelve sherds, up to 3.4 cm. across, were found on the surface at this site (Fig. 31a). These have gray interiors, dark gray cores, and gray to buff exteriors. Paste forms thin laminations, and temper is moderate amounts of rounded quartz particles. Exteriors on all sherds were marked with a cord-wrapped paddle and smoothed. Where it can be determined, cords were two-ply with a "Z" twist, and averaged about 1 mm. in diameter. Characteristics of this pottery indicate that it is probably Upper Republican.

Site 48 LA 311

Material for evidence of this site comes from deflated edges of a grassy flat, immediately behind the scarp in section 19, T.15N., R.60W. (Fig. 30; Fig. 1, Site 16). Artifacts consisted of a small, corner-notched point 2.5 cm. long, 2.0 cm. wide, and 4.5 mm. thick, made from local agate (Fig. 31b). Two unclassifiable point fragments were also found, and other chipped stone artifacts consisted of large, flat flakes retouched to a cutting edge (Fig. 31c,d). Two fragments of a single-sided mano and a fragment of a milling slab with a concave grinding surface were also picked up on the site.

Ceramics found include six sherds with gray to reddish-brown interiors, black cores, and gray to reddish-brown exteriors. Paste is fine, with inclusions of moderate amounts of sand, and temper is infrequent rounded quartz particles. Exteriors were marked with parallel, two-strand, "Z" twisted cordage ranging from 2

Figure 30. Looking west, Site 48 LA 311 located above scarp.

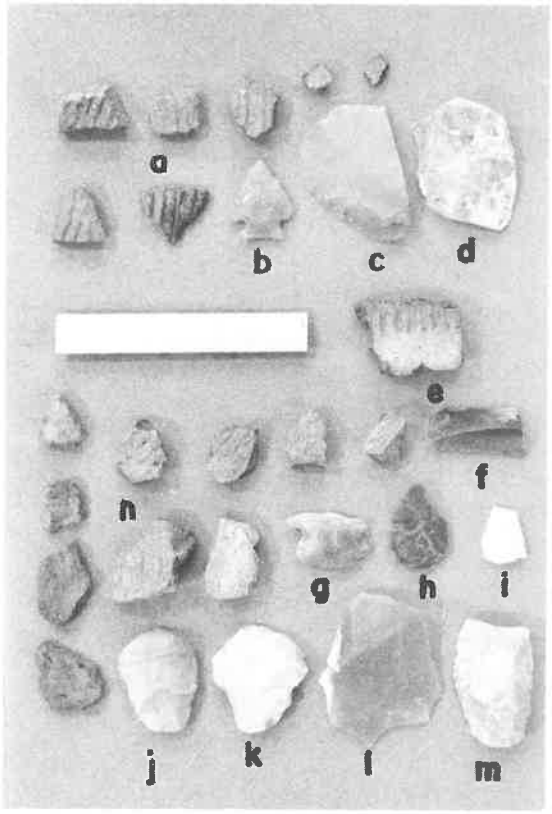


Figure 31. Artifacts from Site 48 LA 311: cord-marked unsmoothed sherds (a), corner-notched projectile points (b), retouched flakes (c,d); incised sherd from 48 LA 309 (e).

Artifacts from Site 48 LA 306: cord-marked smoothed sherds (n); retouched flakes (f,l); base of large point or hafted knife (g); point blank (h); fragment of a side-notched point (i); end-scrapers (j,k); side scraper (m).

mm. to 1 mm., but averaging closer to 2 mm. These cord marks are spaced about three per cm., and on four sherds a second set of cord impressions were lightly impressed on the ridges between the first set (Fig. 31a). Attributes indicate that this pottery is probably Woodland.

Site 48 LA 309

This site is located just above the scarp edge in section 20, R.60W., T.15N. (Fig. 1, site 17). Several stone circles occur in the site area, but these features are common in the area and may not be associated with the pottery from the site. Artifacts from this site consist of only one flat, rounded flake retouched to form a cutting edge. Numerous manufacturing and tool retouch flakes did occur, including three fragments of clear quartz crystal.

Only two sherds were found at this site, both with dark gray interior surfaces, black cores, and light gray exteriors. Paste is coarse, and temper consists of small amounts of angular quartz sand. One small body sherd, 1.8 cm. wide and .5 cm. thick has been impressed with a rectangular object 3 mm. wide and 5 mm. long. These impressions are about 3 mm. apart. The other sherd is 3.0 cm. wide and 2.7 cm. across, and comes from a vessel with an incised shoulder (Fig. 31e). Ceramic affiliation of these sherds is not known.

The Pine Bluffs Site, 48 LA 312

The Pine Bluffs site is a rather extensive camping area above the scarp just behind the town of Pine Bluffs. Material from this site, located in section 15, T.14N., R.60W., erodes from the ditch along either side of a road around the site (Fig. 32; Fig. 1, site 19). This site has been surface hunted over a number of years. Artifacts from the site include several end-scrapers of varying size (Fig. 33b-f), small bifaces (Fig. 33m), a hafted knife (Fig. 33l), and projectile points. The latter are side-notched (Fig. 33g,j), and corner-notched points (Fig. 33h,i,k). Other artifacts include retouched flakes, small polyhedral cores, side-scraper fragments, and one large abrading stone with a shallow groove along one face (Fig. 33a).

Ceramics consist of only seven sherds, from 1.4 cm. to 4.1 cm. wide. Sherd interiors are gray on six sherds and buff on one, cores are dark gray to black, and exteriors are gray on six sherds and buff on one. Paste is flaky in five sherds (Fig. 33n-r), and tempering is frequent particles of rounded quartz. Two other sherds have homogeneous paste with moderate amounts of fine sand, and temper is moderate amounts of quartz particles in one sherd (Fig. 33s), and infrequent quartz particles in the other (Fig. 33t). Surface treatment is cord-marking and smoothing, ranging from complete obliteration of cord marks to very light smoothing.

Figure 32. Looking northeast across Site 48 LA 312, (town of Pine Bluffs in background).

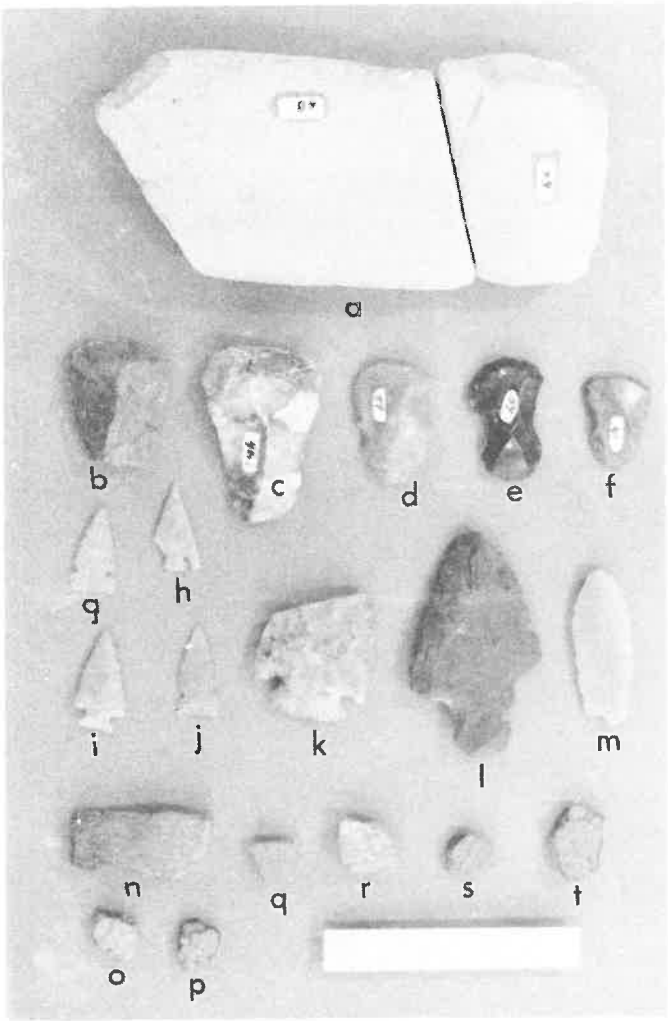


Figure 33. Artifacts from Pine Bluffs Site, 48 LA 312: grooved abrader (a), end scrapers (b-f), side notched projectile points (g,j), corner notched points (h,i,k), hafted knife (l), small biface (m), and pottery (n-t).

The five sherds with flaky paste appear to be Upper Republican. The other two sherds have paste and temper more characteristic of Woodland ceramics. The small corner-notched points indicate the possibility of a Woodland component, but it can not be convincingly demonstrated from this sample.

The Horse Creek Locality

The Steamboat Rock Site, 48 LA 313

Material from the Steamboat Rock site is found in a large deflated area along a stream flowing out of the escarpment system in section 28, T.18W., R.61W. (Fig. 34; Fig. 1, site 12). Artifacts from the side include biface fragments, retouched flakes (Fig. 35l), and a curved flake which has been chipped to a drill tip, diamond shaped in cross-section (Fig. 35o).

Ceramics from the site are of two types. Sixty-six sherds, from 5 mm. to 5 cm. in size, have black interiors and cores, and black exteriors with patches of buff (Fig. 35a, f-k,m,n). Paste contains large amounts of sand, ranging from very fine to coarse. This sand is homogeneously dispersed through all sherds, and might represent natural inclusions in the clay or thoroughly blended temper. Sherd thickness averages 6-7 mm. Exterior surfaces and interior surfaces are carefully smoothed, giving sherds with fine sandy paste a polished feel, and sherds with coarser sand have a gritty feel. One large rim sherd from this group is slightly flared with a rounded lip (Fig. 35a). Another is similar but smaller (Fig. 35i), and one small rim sherd has a rounded lip but is straight in profile (Fig. 35g). This is about certainly Dismal River Ware.

Six other sherds have gray interior surfaces, dark gray cores, and buff exteriors (Fig. 35c-e). Paste is finely laminated, and temper is moderate amounts of rounded quartz particles between .25 mm. and 4 mm. in diameter. One rim sherd has a rounded lip impressed by two parallel cord impressions from two-strand cordage with a "Z" twist (Fig. 35b). These appear to be Upper Republican ware.

Some butchered buffalo bone is associated with this site, and numerous fire-hearths are evidenced by piles of fire-blackened rock in the deflated area.

Site 48 LA 317

This site is evidenced by occasional flakes and sherds eroding from a cultural level in a steep bank along a small tributary of Kellehan Creek, in section 32, T.18W., R.61W. (Fig. 36; Fig. 1, site 14).

Figure 34. Looking south across the Steamboat Rock Site 48 LA 313.

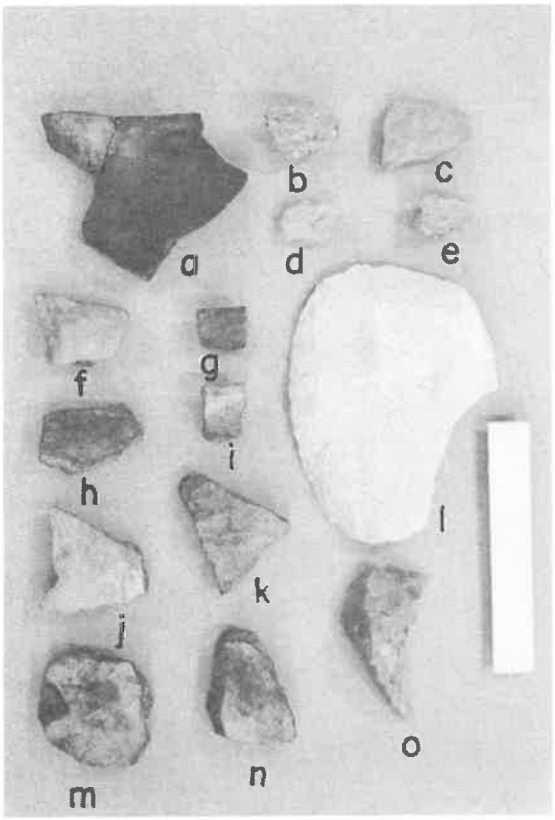


Figure 35. Ceramics and artifacts from Site 48 LA 313: flared rims with rounded lips (a,i), straight rim with rounded lip (g), smoothed body sherds (f,h,j-n), rim with rounded, cord impressed lip (b), cord-marked smoothed sherds (c-e), large retouched flake (l), drill (o).

Ceramics from this site consist of four sherds, from 2 cm. to 3.7 cm. across. These sherds are black on the interior surface and core, and blackish-brown on the exterior surface. The sherds contain large amounts of evenly-distributed coarse sand. Paste appears to be just adequate for holding this sand together, and all sherds have a very gritty feel. Two sherds are smooth on the exterior surface and two have been impressed with coiled basketry. Ceramic affiliation of this pottery cannot be definitely ascertained, although it is similar to Dismal River ceramics in certain characteristics.

Site 48 LA 316

This site is located only a few hundred yards upstream and across the stream from 48 LA 317. Location is section 32, R.61W., T.18N. (Fig 1, site 15). The site is a small campsite exposed on a deflated bench above the stream (Fig. 37). Surface material from this site includes one small end scraper, one irregular polyhedral core, a large, thick flake showing use retouch from scraping and numerous manufacturing and tool retouch flakes. Also found were two large fragments of milling slabs, with rounded edges and concave grinding surfaces.

Pottery consists of three small sherds 1 to 2 cm. across and 5 to 6 mm. thick. Sherds are black throughout, and paste contains large amounts of fine sand, giving the sherds a gritty feel. These characteristics suggest Dismal River affiliations.

Site 48 LA 315

This site is a campsite exposed in a deflated area near Bull Springs, in section 12, R.63W., T.17N. (Fig. 1, site 9). Mr. Louis Steege of Cheyenne, Wyoming, has in his collection numerous end scrapers, bifaces, and side-notched points from this site.

Ceramics consist of one small body sherd, black with gritty paste, and one rim sherd 1.6 cm. long, 2.4 cm. wide, and 5 cm. thick. The lip is slightly flattened and thickened and color is black throughout. Paste contains quantities of very fine sand, and both exterior and interior surfaces are polished. This pottery also appears to be affiliated with Dismal River ware.

Site 48 LA 314

This site is a campsite on a flat area between Horse Creek and the bordering, low escarpment, in section 34, T.18W., R.65W. (Fig. 1, site 8). Artifacts include three broken, unnotched points with concave bases, ranging from 1.2 cm. to 1.8 cm. wide. Another point is side-notched and 1.3 cm. wide, and 2.7 cm. long.

Ceramics from various places on the surface of this site are of three types.

Figure 36. Site 48 LA 317.

Figure 37. Site 48 LA 316.

One group of over 200 small sherds have the gray to buff color, quartz particle temper, flaky paste, and smoothed, cord-marked surfaces characteristic of Upper Regpublican ware described at other sites. Thirty other sherds have coarse paste with large amounts of variable-sized quartz sand temper, reddish-brown color, and the relatively thick sherds characteristic of Intermountain or Shoshoni pottery. Fifty-five others, up to 4.8 cm. in size, have color, paste, and temper similar to Dismal River wares described earlier. An additional trait on this pottery is occasional presence of faint grooves 4 to 5 cm. wide on the exterior surface. This "simple-stamping" with grooved or thong wrapped paddle was described for Nebraskan Dismal River sites by Gunnerson (1960). One rim sherd is straight, simple-stamped up to a rounded lip, and black in color.

Site 48 LA 320

A small campsite on a bluff in T.18W., R.70W. (Fig. 1, site 7) contained two small corner-notched points with serrated edges, two end scrapers, and one cord-marked and smoothed sherd 5 cm. wide and 8 mm. thick. This sherd is similar in paste, temper, and surface treatment to Upper Republican ware, but one sherd is inconclusive. The small corner-notched points are more typical of Woodland assemblages.

The Southern Goshen Hole Locality

The Castle Rock Site, 48 GO 302

This site is located in section 18, T.20N., R.62W., and is a camp area on a small bench on one side of a sandstone pinnacle (Fig. 38a,b; Fig. 1, site 6). Artifacts from this site in the collection of Mr. Grant Willson of Cheyenne, Wyoming, include numerous small circular shell beads (Fig. 39a), side-notched, corner-notched, and unnotched projectile points (Fig. 39b-j,p,l,m,s), several small drill tips (Fig. 39k) and other drill fragments (Fig. 39c). Also in this collection are a diamond-shaped, four-beveled-knife (Fig. 39n), and worked bone objects (Fig. 39q,r).

Ceramics found at this site include several hundred body sherds which appear to be Upper Republican (Fig. 40y,z,cc), and several flaring Upper Republican rims with plain or incised lips (Fig. 39t,w,x,bb,dd). Several large thick sherds (Fig. 39u,v) and one flat-bottom sherd (Fig. 39aa) indicate presence of Shoshoni ware at this site.

The Eagle Rock Site, 48 GO 301

A campsite on a bench on the side of Eagle Rock, similar to the nearby Castle Rock site, is located in section 11, T.20N., R.63W. (Fig. 1, site 5). This site was

Figure 38. (a) looking northeast across Castle Rock Site 48 GO 302, Goshen Hole in the background.

(b) Castle Rock, looking south.

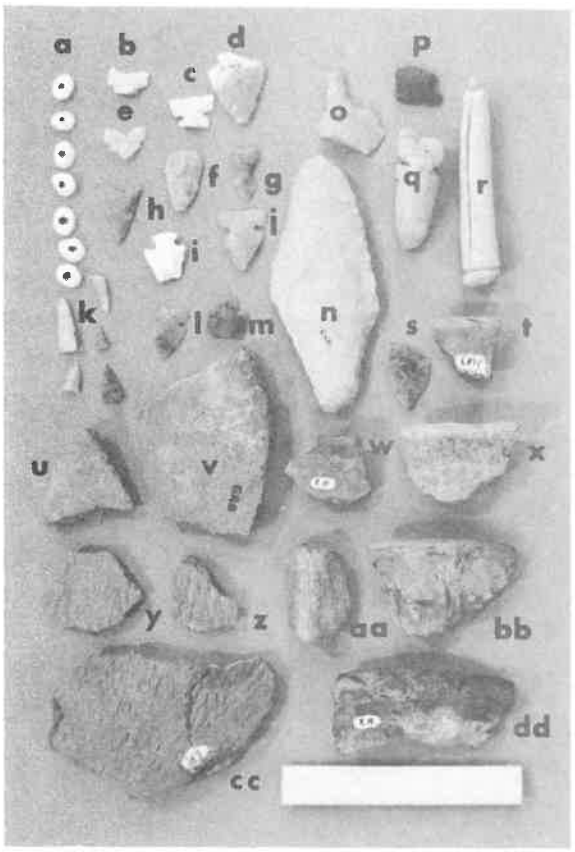


Figure 39. Artifacts and Ceramics from the Castle Rock Site: shell beads (a), projectile points (b-j,p,l,m,s), drill tips (k) and drill fragment (c), four-beveled knife (n), worked bone (q,r), Upper Republican body sherds (y,z,cc) and rim sherds (t,w,x,bb,dd), Shoshoni body sherds (u,v) and flat-bottom sherd (aa).

dug up and essentially destroyed during the 1930's, but occasional small sherds that appear to be Upper Republican can still be found.

The Lone Tree Canyon Site

This site is a series of fire-hearths eroding from a deflating slope at the mouth of Lone Tree Canyon (Fig. 1, site 3) on the Goshen Hole scarp. Artifacts include numerous tool-retouch and manufacturing flakes, and one jasper end scraper. Four small sherds from this site, 1.4 to 3.1 cm. in size, have buff exteriors with smoothed cord marks, and other characteristics similar to Upper Republican ceramics.

Other Sites

These sites were not visited by the writer, but material from them was obtained and they are recorded here for future reference.

Site 48 GO 304

This site is located five miles north and three miles west of Hartville (Fig. 1, site 1). Ceramics include a black, burnished, rim with rounded lip, straight neck, and prominent shoulder. Paste contains quantities of very fine sand, all of which indicate a probable Dismal River occupation of this site. One large sherd 1 cm. thick has a dark brown pigment applied to a smoothed exterior surface, but it was only partially fired and clay is still a natural tan color. Temper in this sherd is frequent rounded quartz particles up to 4 mm. in diameter. Both sherds indicate globular vessel bodies.

Site 48 GO 303

Ceramics from this site occur in a plowed field eight miles south and three miles west of Lingle. Sherds are dark brown to reddish-brown to black in the exterior surface, and gray to black on interior surfaces and cores. Temper is infrequent quartz particles and possibly some sand, and exterior surfaces are marked by a cord-wrapped paddle. A probable Woodland affiliation is indicated for this site (Fig. 1, site 2).

The Fox Creek Site

This site consists of several fire pits eroding from the bank of Fox Creek in

the Southern Goshen Hole locality (Fig. 1, site 3). Small sherds from the site are cord-marked and appear similar to Woodland ceramics from other southeastern Wyoming sites.

The Chalk Bluffs Site

Sherds from the Chalk Bluffs area south of Carpenter (Fig. 1, site 26) are similar to Upper Republican sherds from the Pine Bluffs locality. A few sherds are closer to Woodland in paste, temper and surface treatment, but nothing conclusive can be said without larger samples.

Willotson Ranch and Big Hole Sites

These two sites, located southwest of Cheyenne (Fig. 1, sites 28, 29) have large, thick sherds with coarse quartz sand temper and flat bottom, and so can be classified as Intermountain or Shoshonean wares.

Chugwater Site

Small sherds from the Diamond Ranch near Chugwater (Fig. 1, site 30) appear to be Shoshoni ware similar to that from Willotson and Big Hole, although they are generally thinner and no flat-bottom sherds were found (Fig. 1, site 30).

Rawhide Buttes

A large sample of Upper Republican pottery and artifacts was obtained by Mr. Louis Steege from Rawhide Butte, ten miles south of Lusk (Fig. 1, site 31). This included side-notched and unnotched points (Fig. 40b-t), large bifaces (Fig. 41a,v), end scrapers (Fig. 40u,x,aa,cc,dd), side scrapers (w), and grooved abraders (Fig. 40y). Ceramics included large cord-marked sherds and flaring rim sherds with plain, rounded lips (Fig. 40a,bb,ee,ff).

The Elk Mountain Site

Cord-marked sherds have been reported from a stratified campsite by a spring just north of Elk Mountain (Frison, personal communication, 1971) (Fig. 1, site 46).

The Willow Springs Site

Ceramics in the University of Wyoming collections from Willow Springs (Fig. 1, site 29) include cord-marked, unsmoothed sherds which are similar to Woodland pottery. Smoothed, thick sherds which appear to be Shoshoni ware are also found at this site. Two sherds from Willow Springs were impressed with coiled basketry and were similar to sherds from site 48 LA 317, except that sand in the paste is not as homogeneous.

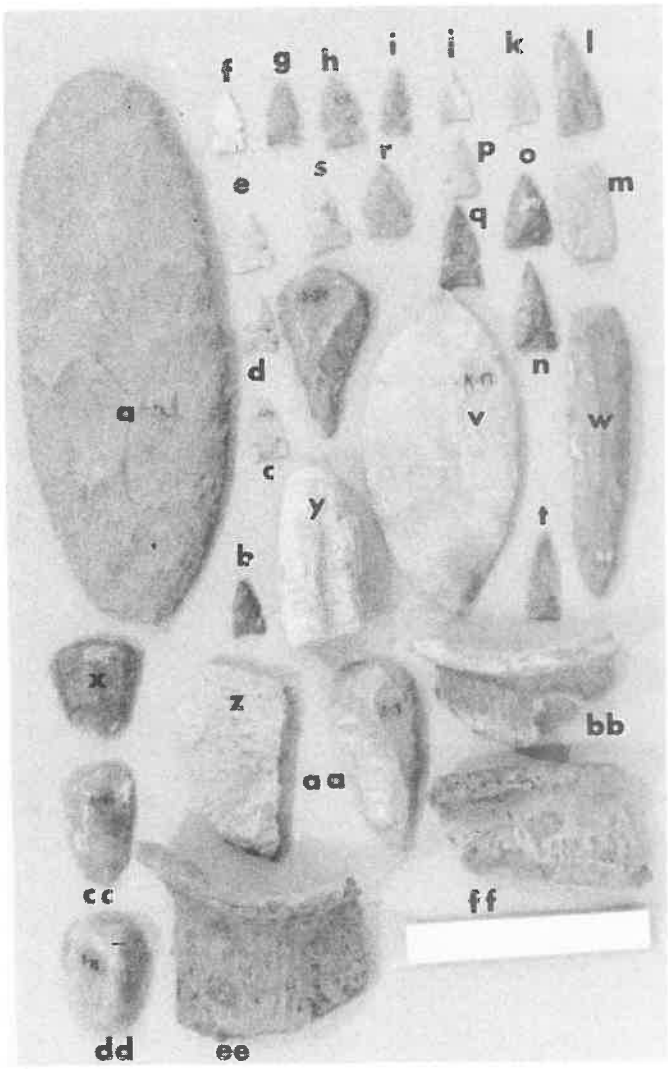


Figure 40. Artifacts and ceramics from Rawhide Buttes: bifaces (a,v), projectile points (b-t), end scrapers (u,x,aa,cc,dd), side scraper (w), grooved abrader (y), Upper Republican cord-marked body sherd (z), flaring rims with plain, rounded lips (bb, ee,ff).

CHAPTER VI

DISCUSSIONS

Recent modifications and replacements of the Midwestern Taxonomic System arose as that system became unsuited to new data and new purposes in Plains archaeology (eg. Lebrmer and Caldwell 1966; Brown 1966; Kraus 1969). As might be expected, the alternative schemes still require large amounts of data before they can be utilized. Archaeology in and near the area under study here has not progressed to the state where such data is available. A useful scheme for integration of this information is based on Champe's ceramic chronology (1946:85), and on Mulloy's outline of Northwestern Plains prehistory where diagnostic traits cut across "large slices of time" and "during any one of the periods, there was a certain substratum which cut across cultural differences and was characteristic of the area at the time" (1958:7). Projectile points and ceramic traits have been found to be the most reliable of these diagnostic traits.

The Early Ceramic Period

Pottery first appeared on the plains somewhere around 0 A.D. in a style that has become known as "Plains Woodland". This designation is a result of ceramic typological similarities with Middle Woodland components east of the Missouri River (Wedel 1959:556). Projectile points associated with Woodland cultures on the Plains are usually corner-notched points of various sizes. These large and small points, in addition to the presence of atlatl weights have been taken as an indication that both atlatl and bow and arrow were used during much of the Woodland period (Kivett 1970:98-99).

Woodland pottery is "characteristically heavy and coarse, with large wide-mouthed jars that have a more or less pointed bottom and were roughened on the outside with a cord-wrapped tool" (Wedel 1961b:90).

Several variants have been distinguished within this tradition, including the Valley focus of Nebraska and Kansas, and the Keith focus of central and western Nebraska, western Kansas, and eastern Colorado.

The Valley focus has sand or grit-tempered ceramics with cord-marked exteriors and vertical or in-curving rims decorated with bosses, spiraled cord impressions and incised lines (Bill and Kivett 1940).

The Keith focus is characterized by typical Woodland vessel forms with straight or slightly flaring, unthickened, undecorated rims. These vessels are often tempered with large amounts of calcite (Kivett 1949, 1952).

Woodland sites near the study area, such as Ash Hollow Cave and the Agate Bluff rock shelters, are grouped in the Ash Hollow focus (Irwin and Irwin 1957:30; Champe 1946). These vessels have a thickened lip which is sometimes cord-impressed on the interior surface. Also occurring in northeastern Colorado and the Denver Basin are Woodland sites included in the Parker focus (Withers 1954:1; Wood 1967: 605-611).

Sites believed to contain Woodland ceramics in southeastern Wyoming are listed below (Table XXXII). Taxonomic assignment is not possible on small samples such as these. Seven Mile Point illustrates a further difficulty in classifying this ware, in that one rim sherd from the site fits the description given for the Parker focus, while another has incised decorations, which do not occur in the Parker focus. In general, all of the Woodland material from this area demonstrates the regional variability of the Early Ceramic Period material more than it does any close affiliations to any specific focus.

The dominant subsistence base during the Early Ceramic Period was hunting and gathering. Both large and small game was hunted, and in many cases a heavy dependence on deer and antelope is indicated. The useage of wild plant foods is demonstrated by the numerous grinding stone which occur in Woodland sites. Wedel summarized the thinking on this culture as:

> On the whole, most Woodland manifestations in the Central Plains look primarily like a creek valley hunting and gathering economy, characteristically with small population aggregates--perhaps limited family groups. Even where these remains are found far out in the short-grass plains, the picture is much the same--a mode of life, one thinks, that was probably carried west out of a forest margin habitat into the tree-fringed creek valleys of the plains (1953:506).

The Middle Ceramic Period

The Middle Ceramic Period began at about the Eleventh Century A.D., with the expansion of peoples and new cultural traits into the Central Plains from the southeast. The main part of the Middle Ceramic Period can be considered as between the Eleventh and Fourteenth Centuries A.D. These groups, including Upper Republican peoples, were a marked contrast over the previous cultures of the Plains. Hunting and gathering was replaced by maize, bean, squash, and sunflower agriculture. The typical ceramic vessel is globular, with sand or grit temper, cord-marked exteriors, and collared or flaring rims. Collared rims were usually decorated with incised geometric designs. Projectile points are usually small, triangular, and notched or unnotched.

Table XXXII. Ceramic types in southeastern Wyoming

Site (sequence same as for Fig. 1)	Woodland	Upper Republican	Shoshoni	Dismal River	Unidentified
1. 48 GO 340				X	
2. 48 GO 303	X				
3. Lone Tree Canyon		X			
4. Fox Creek	X				
5. 48 GO 301		X			
6. 48 GO 302		X	X		
7. 48 LA 320		X			
8. 48 LA 314		X		X	
9. 48 LA 315				X	
10. 48 LA 302		X			
11. 48 LA 305		X			
12. 48 LA 313		X		X	
13. 48 LA 303		X		X	
14. 48 LA 317					X
15. 48 LA 316				X	
16. 48 LA 311	X				
17. 48 LA 309					X
18. 48 LA 306		X			
19. 48 LA 312	X	X			
20. 48 LA 307	X				
21. 48 LA 308				X	
22. 48 LA 318				X	
23. 48 LA 310				X	
24. 48 LA 319	X				
25. 48 LA 304	X				
26. Chalk Bluffs		X			
27. Willotson			X		
28. Big Hole			X		
29. Willow Springs	X		X		
30. Chugwater			X		
31. Rawhide Buttes		X			
32. 25 EN 2	X	X		X	
33. AA:6:1				X	
34. 48 PL 11				X	X
35. U:11:1				X	
45. Red Buttes		X	X		
Totals	9	16	6	13	3

Taxonomic assignment of Upper Republican material from southeastern Wyoming is not warranted by the small amount of work that has been done. Similarities in rim form are evident for certain sites within the study area, such as the flaring rims with plain rounded lips at the Gurney Peak Bench Site, the Seven Mile Point Site, and the site on Rawhide Butte. Similarities also exist between flattened, incised rims from Gurney Peak Butte, and similar rims from the Castle Rock Site. Comparisons to other areas indicate that Upper Republican assemblages from southeastern Wyoming are related to sites in central and western Nebraska, such as the Dalton area rock shelters (Bell and Cape 1936) and the Sweetwater complex (Champe 1936). The Buick focus of Colorado is defined by Withers (1954:2) is similar to much of the southeastern Wyoming material, but again, more data is needed before more specific affiliations can be proposed.

The Upper Republican hamlets of Nebraska and Kansas depended to a significant extent on hunting and gathering to supplement their small-scale horticulture. It has been proposed by several writers that Upper Republican manifestations in this area and in northeastern Colorado represent seasonal hunting parties from villages farther to the east (Wood 1969:104; Kraus 1970:109). Several things appear to the writer to be wrong with this hypothesis. Sites are too numerous and occupations at some were too extensive to represent an occasional hunting party. Secondly, no evidence of villages has been found farther west than about the area of Medicine Creek, in south central Nebraska. It does not seem reasonable that hunting parties would travel 200 miles across some of the best buffalo country on the plains just so they could hunt other buffalo in some place like Goshen Hole. This type of problem might be solvable with archaeology in the right sites. A hunting party preparing large quantities of meat for transport to a home base should leave different types of debris than would an indigeneous group hunting for daily subsistence.

The occurrence of occasional Shoshoni ware in several of the Upper Republican sites is interesting. None from this study were recovered in a context definitely contemporaneous with Upper Republican material, but is is likely that they could be contemperaneous. The suggestion by Mulloy that this could be the result of stealing or trading women seems quite reasonable (1958).

This does not mean the Upper Republican groups evidenced were completely restricted to this area. The hunting could represent a seasonal intrusion into the area, but it is the author's contention that this might have been a major part of the yearly economic cycle, requiring perhaps several months, and not just a short "hunting trip".

Current evidence suggests that a series of droughts caused agricultural peoples to abandon the western margin of the Central Plains by the late Fourteenth or early Fifteenth Century (Wood 1967:641).

The Late Ceramic Period

After an apparent gap of 200-300 years, the Late Ceramic period (ca. 1650-1750 A.D.) is represented in southeastern Wyoming by Dismal River ceramics. Work by Gunnerson (1960) has indicated that these people were a terminal phase of Plains Apache occupation of the High Plains. Ceramics usually consist of black to buff globular vessels with restricted necks and rounded or slightly flattened lips. Surface treatment is either simple-stamping or smoothing and polishing. Temper is usually large amounts of very fine to coarse sand, which may be natural inclusions. Some regional variations are evident, such as the use of abundant mica for temper (Gunnerson 1960:247). Projectile points are unnotched or side-notched. The subsistence base of these people in the area appears to be entirely hunting and gathering.

This survey indicated that Dismal River sites occur relatively frequent in southeastern Wyoming (Table XXXII). Considerable variation is apparent with this ceramic type. This can be seen in the thin, burnished ware from Steamboat Rock, burnished and cord-marked sherds from Petsch Springs, smoothed, thicker sherds from several other sites, and simple-stamped sherds from 48 LA 314.

Concluding Remarks

The goals of this study were fulfilled to a certain extent. A good sample of ceramic distributions and types was gained from the study area, although there are certainly many more sites present than were found.

It appears that adaptation to the High Plains was dependent to a great extent on the extra resources found in the scarp systems. Not only did they provide additional plant and animal resources, but they were important as a sheltered, well-watered base of operations from which surrounding highland and lowland resources could be utilized. Culture is the adaptive mechanism by which man integrates with his environment, and this environment resulted in similar adaptations by ceramic-using peoples over a period of more than 1500 years.

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