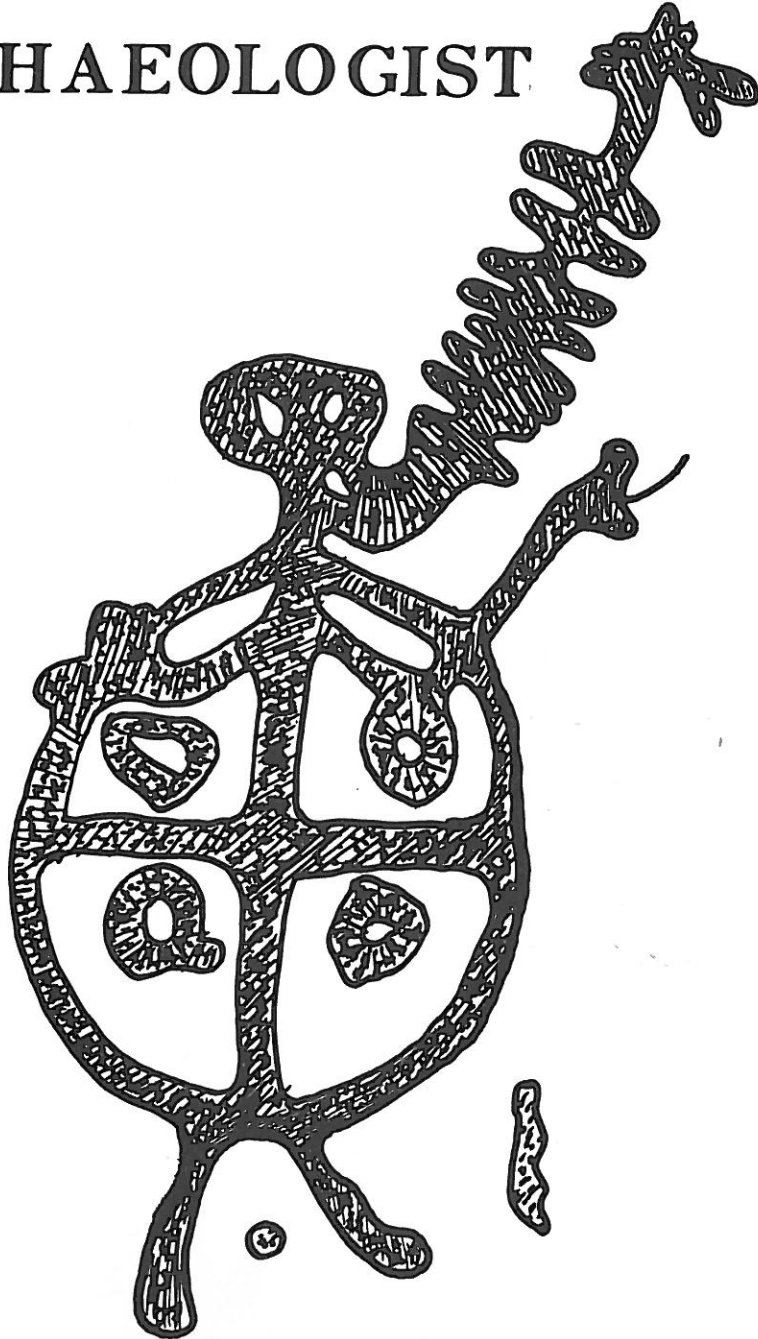
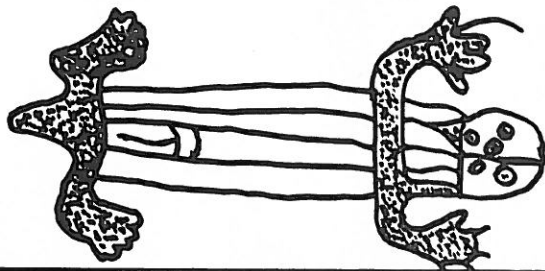


WYOMING
ARCHAEOLOGICAL
SOCIETY

THE WYOMING ARCHAEOLOGIST



RC



SEPTEMBER 1974

VOL. XVII NO. 3

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WYOMING ARCHAEOLOGICAL SOCIETY, INC.

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SEPTEMBER, 1974 ISSUE CONTENTS

	<u>Page</u>
State and Chapter Officers	Appendix A
Wyoming Recreation Commission	Appendix B
Membership and Subscriptions	Appendix C
Contents and Editor's Notes	1
Plains Conference Announcement and Registration Form	2
President's Letter	4
Minutes of 1974 State Meeting	5
Minutes of 1974 Archaeological Meeting	14
Archaeological Survey, Gulf Interstate Engineering Company by Charles M. Love	16

Editor's Notes

Biggest news since the Johnstown Flood is the presence of the PLAINS CONFERENCE at the University, November 7th, 8th and 9th. This is not a football weekend so accommodations will be available if you arrange quickly. You should, by all means, plan for the three days, and by carefully selecting those programs most interesting to you, schedule your attendance accordingly. There is no better way to gain so much meaningful information in such a short time. George and Sandy Zeimens will certainly have a busy week. If at all possible don't miss the traditional get-together at the Holiday Inn on Wednesday night. As you know, this Conference takes the place of our Annual Fall Workshop and it will, of course, be on a much larger scale. It will be a wonderful opportunity to see the lab materials such as the three mammoths from the Big Horn Basin and artifacts from Hanson Site.

There is a rumor that a Buffalo Barbeque will be part of the Conference activities.

Hope to see all of you there.

Grant Willson

THIRTY-SECOND PLAINS CONFERENCE

ANNOUNCEMENT AND CALL FOR PAPERS

The Thirty Second PLAINS CONFERENCE will be held at the University of Wyoming, in Laramie, on November 7, 8, 9, 1974. Abstracts for papers should be mailed to the Program Coordinator by October 21, 1974. Contributed papers will be limited to twenty (20) minutes and site reports to ten (10) minutes. Please indicate any audio-visual aids required when the abstract is submitted.

All of the meetings will be held in the Student Union on the University campus. Laramie does not have extensive public transportation, and if you are arriving by plane, train, or bus, we suggest you drop a line in advance to the Program Coordinator telling date, time, and place of your arrival in Laramie so that we may have someone there to meet you and take you to your motel. Enclosed is a list of motels within reasonable distance of the campus, and we ask you to make your own reservations. Room rates for singles vary from eight to seventeen dollars, with the average about ten dollars. All the motels will have rooms available for students, at rates varying from \$3.50 to \$5.00 a person. We suggest you make your reservations early to avoid last-minute confusion.

An early arrival get together will be held Wednesday evening, November 6, from 6-8 p.m., at the Holiday Inn. There will be an information desk, where you may also register for the conference, at the party.

We look forward to hearing from you and to seeing you in Laramie in November.

CONFERENCE COORDINATORS
George and Sandy Zeimens
Department of Anthropology
University of Wyoming
Laramie, Wyoming 82071

PROGRAM COORDINATOR
Anne M. Slater
Department of Anthropology
University of Wyoming
Laramie, Wyoming 82071

DATES: NOVEMBER 7, 8, 9, 1974

Registration Slip: Thirty Second PLAINS CONFERENCE
Laramie, Wyoming
November 7, 8, 9, 1974

Registration fees: Regular \$5.00
Student \$3.00
Banquet (Friday, Nov. 8) \$6.00

Name _____

Address _____

Institution _____

If you are not arriving by private transportation, please fill out the following so that we may arrange to meet you.

Arrival in Laramie: Date _____ Time _____ Place _____

Amount Enclosed: _____ I will pay at registration _____

Please return this form to: George Zeimens
Anthropology Department
University of Wyoming
Box 3431, Univ. Stat.
Laramie, Wyoming 82071

(Area Code 307)

BUCKAROO MOTEL
365 North Third
742-2865

LARAMIE MOTEL
655 North Third
745-3103

RANGER MOTEL
453 North Third
742-6677

*CONNOR MOTOR HOTEL
Third and Grand
742-2123

*LARAMIE TRAVELODGE
262 North Third
745-4053

SILVER SPUR MOTEL
1104 South Third
742-3741

*DOWNTOWN MOTEL
165 North Third
742-6671

*LAZY U MOTEL
1622 Grand Avenue
745-7322

SNOWY RANGE MOTEL
851 North Third
745-9817

GASLITE MOTEL
960 North Third
742-6616

*MOTEL 8
501 Boswell Drive
745-4856

*WYO MOTEL
1720 Grand Avenue
742-6633

*HOLIDAY INN
South of Laramie
742-6611

*RAMADA INN
1503 South Third
742-3721

*Restaurant in motel
or very close by.

WYOMING
ARCHAEOLOGICAL SOCIETY, INC.



Cody, Wyoming

October 6, 1974

Dear fellow members:

The big news continues to be the fall meeting in Laramie on November 7th, 8th and 9th to be held in conjunction with the "Plains Conference".

If some of you have not been contacted by your presidents let me say, this will be an excellent opportunity to become acquainted with archaeologists from all over the United States and Canada. There will be programs relating to all the disciplines of Archaeology and you will have the privilege of attending any that appeal to your interest.

The foundation continues to grow with the generous help of the members. We now have a new project, May Helen Hendry was kind enough to donate two replicas of pictographs in bas relief on a framed material resembling Sandstone. One of them is a reproduction of one of the pictographs at Hyattville. The reproduction technique is known only to Mary Helen. They are distinctively beautiful pieces of art that anyone would be proud to own. Chances are on sale from any chapter member and they will be available at the conference. The drawing will be held during the banquet on November 8th.

Be sure and return all of sold and unsold tickets to me before November 3rd as we plan to leave for Laramie November 5th. If any of you are coming to Laramie, you may bring them with you.

I have received some literature on the Plains Conference, will include that plus a registration blank and a list of the motels. If you are planning to attend, make your motel reservations early.

Hope you all had a good summer, and will be looking forward to seeing you in Laramie.

Sincerely,

Imogene Hanson

MINUTES OF STATE MEETING

RAMADA INN CASPER, WYOMING

April, 1974

Meeting was called to order by President Hanson at 10:20 A.M. There were 73 registered members present and many guests. After a brief welcoming address, the guests were introduced. It was regretted that the Executive Secretary, Lou Steege, was absent because of corrective hip surgery. Grant Willson was appointed Acting Secretary in his absence.

Report of Credentials Committee:

Bob Randall, Chairman, reported the following certified voting delegates were present: Casper Chapter, Evelyn Albanese and Jean Hanke; Sheridan Chapter, Carol Conner and Terry Carbone; Sweetwater Chapter, Joe Bozovich and Mrs. Baker Port; Cheyenne Chapter, Craig Casner and Bob Carpenter; Gillette Chapter, Audrey Maycock and Albert Schumacher; Cherokee Trail Chapter, George Pierson and George Brox; Northern Big Horn Chapter, Darralee Ellis and Bob Ellis; Fremont Chapter, Jim Adams and Helen Lookingbill.

Minutes of the previous State Meeting were read and approved as read. Treasurer's report by Milford Hanson was read and approved. A copy is included in these Minutes. Annual Chapter reports were made by the following Chapter Officers:

Casper Chapter	Henry Jensen
Cheyenne Chapter	Harry Palmer
Cherokee Trail Chapter	Lois Flohr
Fremont Chapter	Jim Adams
Gillette Chapter	Audrey Maycock
Northern Big Horn Chapter	Bob Ellis
Sheridan Chapter	Terry Carbone
Sweetwater Chapter	Eva Mae Port

Larry Osborn, teacher at Riverton High School and member of Fremont Chapter, spoke of the pressing need for a comprehensive, up-to-date, anthropological program suitable for use in the schools in Wyoming. He stressed the fact that we are overlooking these young people whose enthusiasm, properly channeled, could do much for Wyoming archaeology. He suggested that the Society should be instrumental in developing such a program, and that high school students could be of great help in such areas as dig sites and archaeological survey work. He stated that anthropology courses are among the most popular electives in the whole curriculum.

Grant Willson spoke briefly on a new program instituted by Archaeological Societies in New Mexico, Texas, Arkansas, and Missouri whereby amateur Society members were trained, both by field experience at sites and by University level class work. This closely supervised program results in the actual certification for various skills such as surveyor, lab technician, petroglyph surveyor, or field archaeologist. If such a program could be established in Wyoming, it could provide a reservoir of skills invaluable for the upcoming archaeological survey demands. Dr. Frison said it would be impossible to set up such a program under his present work load.

Representatives from the Wyoming Recreation Commission, Mr. and Mrs. Ned Frost were introduced.

Dr. Frison, State Archaeologist, summarized the past year's activities and gave an insight into the critical position that Wyoming archaeology is now facing. The creation of State Archaeologist, with inadequate funding, made possible only a low keyed operation but with Chapter help, much was accomplished. Academic pressure to seek funding is constant. The amount of research necessary to write proposals for financial grants is very time consuming. However, four National Science grants have been obtained. The largest being a three year grant to study the ecology of the Big Horn Basin and human exploitation of this area. The Medicine Lodge Site containing thirty-five to forty-one cultural levels is the key stone of human exploitation in this area, but there are forty-two other sites ranging from Paleo to the Historic Period which should be developed if only time and manpower would permit.

Against advice of many anthropologists, bison kill studies were carried out. Previous methodology was weak and the subject was felt unworthy of research. However so much valuable information has been gained that the subject now is accorded the scientific interest it rightfully deserves. However, the study of so much bone material creates a terrific storage problem and immediate conflicts over space with the University. The pressure to maintain teaching schedules, conduct scientific research, constant interruptions by demands for emergency salvage operations, causes endless conflicts. And now, because of the energy crisis, Wyoming is faced with a sudden overwhelming demand for ecological surveys. Money for surveys is suddenly abundant but the time necessary to write ecological impact studies is in short supply. In short, a crisis is developing and unless some solution is found Wyoming archaeology must suffer. A possible solution might require restructuring the position of State Archaeologist, providing a full time assistant, obtaining adequate space and research facilities, funding without its attendant red tape subject to constant review and indefinite time of availability and finally, adequate clerical help. The Society's help will be needed to aid in the solution of these problems. A solution must be found.

Now for the good news. A Paleo site found by two members of our Society, named the Hanson Site in their honor, has been sampled, carbon 14 tests give date of 10,700 years b.p., artifact assemblage consists of cores, fifty to sixty channel flakes, and 150 typical Folsom tools. This deeply buried site has the appearance of the best Folsom site since Lindenmeier and will be sealed up until time will permit the proper consideration it deserves.

The Colby Mammoth Site at Worland produced artifacts differing from the classic Clovis and perhaps must be considered a peripheral type. Remains of three mammoths have been found.

Dr. Dennis Stanford from the Smithsonian Institution and his wife Jean were introduced.

Dr. Frison asked graduate student George Zeimens to explain the problems attendant to the national crisis in energy development which will require some sixteen surveys, covering several thousand acres, be made this summer. Problems arise in maintaining quality standards in face of the need for urgency. With limited amounts of money and time available for lab work, the result will be only emergency salvage on some sites, with utter abandonment of others. One of which might hold the key information.

Student Mark Miller was introduced and he made an excellent slide presentation on the John Gale Site west of Rawlins which George Brox and he worked last winter.

Reports from Standing Committees:

Editor Grant Willson reported need for material for the Archaeologist. March issue is delayed and greater participation by the Society is needed.

Library Chairman Dave Baskett reported that he had picked up all library material from Helen Lookingbill and had transferred them to the Anthropology Department. Dr. Frison stressed the problems inherent in all libraries with vandalism and theft. Particularly vulnerable are archaeological publications which are in fact limited editions, are quickly out of print, they become then, collector items, and are therefore "collected" to the detriment of every library. Items of value therefore should be bound before being released to students which would greatly decrease the possibility of their disappearance. A motion was made by the State Librarian Helen Lookingbill that the Society publications be left under the jurisdiction of the Anthropology Department rather than be included in the general University Library. Motion seconded by Dave Baskett and unanimously carried.

Meeting recessed for lunch and reconvened at 1:45 P.M.

President Imogene Hanson gave a comprehensive report of the year's activities and invited discussion concerning the following projects and proposals:

- 1) The vital need for a Legislative Committee to work with the Recreation Commission to solve problems now confronting the position of the State Archaeologist.
- 2) The need for the Scholarship Committee to propose new guidelines to be followed by the Scholarship Award Committee.
- 3) Proposed that a project of photographing pictographs, as suggested by Jim Adams, be adopted by all Chapters with possibility of printing a special monograph sometime in the future.
- 4) Proposed that all members bring their catalog of artifacts up-to-date as an aid to the numerous surveys that will be quickly needed in the very near future.
- 5) The need for an Educational Committee to develop a pilot slide program for possible use in the schools as well as by the various Chapters.

Archaeological Foundation report given by John Albanese showed considerable growth in the fund resulting from the \$2500 donated by the Sweetwater Chapter's survey work and from the bequest in Bob Barber's will. John announced the regular Foundation Meeting for Sunday, 9:30 A.M., with everyone invited to attend.

Under New Business, President Imogene proposed that the suggestions by Jim Adams that each Chapter conduct a pictograph inventory using black and white photographs including a scale, be adopted as a statewide project. Motion made by Helen Lookingbill, seconded by Eva Mae Port, and unanimously carried.

Summer Meeting was discussed and Dr. Frison stated that the Medicine Lodge Site will be finished by July 19th so suggested another site be considered. Harry Palmer discussed the Cheyenne Chapter's planned field trip to the Spanish Diggings. Bob Ellis' motion that the State Summer Meeting be hosted by the Cheyenne Chapter at the Spanish Diggings was unanimously carried.

Dr. Frison announced that the Plains Conference tentatively set for November 7, 8, and 9th will be held at the University of Wyoming, jointly sponsored by the Sociology and Anthropology Departments. This will take the place of the annual full workshop and of special interest will be a symposium on Buffalo Procurement by Connor, Ewers, Dempsey and others.

President Imogene made the following appointments:

- 1) An Educational Committee chaired by Bob and Shirley Randall with members Larry Osborn and Grant Willson.

2) A Legislative Committee chaired by Glen Sweem with members Bob Randall, Bob Ellis, Joe Bozovich and David Baskett. An Assistant State Archaeologist is vitally needed as is space for a research center with full time help to handle the sudden demands for survey work caused by the energy crisis. The Moss-Bennett bill will demand proper administrative structures to handle the money generated by the surveys. A separation of the position of State Archaeologist from the teaching demands of the University may be necessary.

Mr. Ned Frost spoke on the parallel problems with the Historic Preservation Act. Wyoming's share of federal funds will be doubled and while the funds must be matched by legislative action, the energy crisis will precipitate Wyoming's involvement. With the Recreation Commission's involvement both in historical and archaeological funds, it would be best to seek solution to the archaeological problems through budgetary procedures rather than legislative action.

Report by Nominating Committee was made by John Albanese who made a motion that the present slate of officers be continued for the coming year. Motion seconded by Bob Ellis and unanimously carried.

This concluded the business session for the afternoon and Dan Walker gave a slide presentation on canine bones which are found in our sites and how to distinguish, by tooth eruption pattern, between the domesticated dog and the wolf.

The evening banquet was well attended and after a brief welcoming address, President Imogene expressed her thanks for all the cooperation received during the past year.

Margaret Powers spoke on the history of the Society's Scholarship Program and thanked Helen Bryant for her continuing efforts in behalf of this valuable program. The following have been recipients of the award: Sharon Gray, Harriet Washburn, Bob Edgar, Charles Reher, John Litel, Ross Hilman, and George Zeimens. This year's award of \$300 was divided in half and awarded to undergraduate Debbie Foster and to graduate George Zeimens.

John Albanese presented Florence Coates with a special award in the name of Bob Barber in recognition of her efforts in behalf of the Wyoming Archaeological Society. He then presented the Steege "Golden Trowel" award to Grant Willson. Mary Helen Hendry spoke on the touring rock art exhibit which was developed through association with the survey of Wyoming's prehistoric rock art from 1969 to 1973. This survey was partially funded by the National Endowment for the Arts and the Wyoming Council on the Arts. Survey was directed by George Frison with cooperation of the Wyoming Archaeological Society. Mary Helen's technique produces "life sized" documentation which can be carried and readily displayed. Twenty examples of rock art are currently on exhibition.

An epic archaeological poem "Silver Tip" was read by Darralee Ellis and heartily applauded by all.

Milford Hanson introduced our guest speaker Dr. Dennis Stanford of the Smithsonian Institution who was an outstanding speaker with a tremendous sense of humor. He told of the problems concerning the continuing Smithsonian surveys of early man sites in South America which are frequently interrupted by revolutions. Of special interest to us will be this Winter's publication of Frank Roberts' Lindenmeier Site Report and the reworking of the Agate Basin Site on which John Albanese will make the geological report. During the past two summers the Smithsonian has been occupied with the Miller-Jones Hell Gap Site near Wray, Colorado. Chuck Reher acted as field foreman, John Albanese made geological report, and Robert Jack Smith, Civil Engineer from Rawlins, established the control survey, and Dan Whitter of Cody made the faunal analysis. Dr. Stanford concluded with a marvelous slide presentation of their Paleo Bison Kill Site.

SILVERTIP

Years ago one shepherd almost ran out of luck,
Three sheets to the wind, he wrecked his pickup truck.
He swerved to miss a snake, he said,
And so he wound up in a hospital bed.

It happened his nurse had a strange addiction,
Along with her husband, she shared this affliction.
They spent hours looking at rocks on the ground,
Searching for miles until chipping they found.

Through days and long hours of nursing care,
She talked to the shepherd and became aware
He knew of some places she had not been,
Camps in the mountains, definitely Indian.

One day, getting off work, she became so excited
She rushed to the Bakery, to her husband confided.
He, too, by this news was strongly affected,
Deciding this herder must be inspected.

Though wise to the yarns that shepherders tell,
There was something about this they couldn't quell.
The shepherd gave them directions and then
Drew them a map so that they could go in.

When he was well, they invited him to come see
Their collection of arrowheads and Indian potpourre.
The shepherd, his given name later forgotten by them,
Bade them farewell, but they hadn't heard the last of him.

Later, when weather and time permitted,
They explored the Needles where the map fitted.
Indeed the shepherd's story rang true,
For there had been Indians there, one or two.

Now there lived in Wyoming an archaeologist of some fame
Who thought amateur collectors were part of the game.
"Doc," we shall call him, made friends, true and many;
The baker and the nurse became part of the company.

Over the years happy hours were spent
Discussing artifacts and bones, all content
That they belonged to a great society,
Preservation of archaeology, a propriety.

Six years passed and then at last summer's meeting,
The Hyattville Site was filled with everyone greeting.
Doc could hardly contain himself one night;
He had a story and he wanted to tell it just right.

He waited until there was a group gathered round
Including the principals, then began to expound
About the character he had met one day
While on Sunlight Mesa doing a survey.

Seems he and some students had driven further
To a sheep camp where they espied a herder,
An interesting chap, though not very sainted;
He and Doc chatted, becoming acquainted.
His name, he said, was Silvertip
(Some think it should be Silverlip).

Doc told him he'd done some sheepherding, too;
And he hadn't forgot how this thing to do.
Then Doc asked, "Have you ever chanced to discover
"Arrowheads around here, one place or another?"

Silvertip said, "Don't hunt myself, but others do;
"However, I may have picked up one or two,
"But once in my life I saw such a collection....."
(Doc paused in his story and grinned in reflection.)
Looking up at Doc, Silvertip continued and asked, "Say,
"You know that crazy sonofabitch baker o'er Cody way?"

"Wife's a nurse at the hospital," he avowed.
"You know him?" "I might," Doc allowed,
"Tell me, does he have a collection?"
Silvertip exploded, "Such a selection!
"Does he have arrowheads!*" the shepherd recalls,
"He's got THEM PLASTERED ALL OVER HIS WALLS!*"

Ending his tale, Doc guffawed and slapped his knee,
And his audience all laughed appreciatively.
The baker smiled, looking slightly abashed,
Now who on earth would have slashed
Out at him in such an odd way;
Now who on earth would ever say
Such a thing about him - so flip;
WHO IN THE HELL WAS SILVERTIP?

We talked about Silvertip for days,
Trying to think and figure out ways
Of finding out about this peculiar man
Who discredits character with such elan.

All of our speculation came to no avail;
Much later in the Fall, we came upon his trail.
A group of us went to the Big Horn Mountains one day;
We decided to go to Sunlight Mesa, hoping to survey
Some chipping, and were looking o'er the terrain
When a horseman came riding up and drew rein.

He asked what we were doing there;
We told him and he said he didn't care.
But, we'd better stay away from the meadows from whence
We'd heard shots earlier and described in terms tense
The cowboys who were riding herd with guns loaded;
For rustling had occurred and violence forboded.

Flipping his sunglasses up, the rider dismounted his horse,
And squatted on the grass with the fellows in a concourse.
Howsomever, two of them noticed a part of his chattel
Included the name, "Silvertip," tooled onto his saddle.

As he glanced at the plate on the Blazer, his query,
"Do you know that baker in Cody?"
The baker answered, "Yes, I'm him."
Silvertip recognized the nurse about then.
Nonchalant, he invited us down to the Springs
To see his sheep camp and look at some things.

Later we went down to satisfy our curiosity;
There was his sheepwagon, painted patriotically
Red, white, and blue, "Silvertip" stenciled on the outside,
Decals of daisys within - immaculate - no wonder, his pride.

Around the Springs the chipping was thick,
Silvertip joined us, carrying a pointed stick.
He flipped the chipping expertly, confessing
He never hunted himself - all the while professing.
Silvertip then told us about his mother, so brave;
She had once killed two grizzly bears in a cave.
We wondered if that's how he got a name with such flair,
But, no, he was born with a silver streak in his hair.

Silvertip showed us diggings of the University crew
Plotted around the Springs, then he asked if Doc we knew.
We allowed that we did.
"Quite a fellow, knew how to grid!"

Then he scratched his grizzled head,
Looked up quizzically and said,
"How did that dumb sonofabitch sheepherder persist
"In getting smart enough to be an archaeologist?"

- Darralee Ellis

WYOMING ARCHAEOLOGICAL FOUNDATION

Minutes of the April 7, 1974 Meeting

The meeting was called to order by President Albanese at 10:30 A.M. with the following board members present: Jerry Carbone, Baker Pont, Henry Jensen, Bob Carpenter, Deborah Chastain, Audrey Maycock, Grant Willson, Dr. George Frison, Dave Baskett, Bart Rea, Bob Edgar, Milford and Imogene Hanson. Many Society members were also present.

Milford Hanson gave the treasurer's report, a copy is included in these Minutes. He reported the welcome increase to the fund resulting from the survey made for the Gulf Interstate Company by the members of the Sweetwater Chapter. This payment covered fifty miles at \$50/mile for a total of \$2500. A similar amount will be received after probate of the Barber Estate. Thus, the fund has grown appreciably and, with the surety of additional survey requests, it has grown to the point where the board might consider funding a worthy project. John Albanese, President, spoke of the original purpose of the Foundation and of the need to justify our existence as an aid when soliciting for additional funds.

Jerry Carbone requested a list of contributors as the Sheridan Chapter has given many copies of the publication with the suggestion that a donation be made to the Foundation.

Dr. Schoondermark suggested an occasional publication in the Archaeologist of the names of contributors. Some donors however might wish to be anonymous.


Larry Owens, Riverton, suggested the overlooked possibility of student participation in actively soliciting funds. A formal letter requesting any disbursement must be submitted to the board for approval.

Bart Rea submitted a proposal to join with the Geological Society in joint sponsorship of a publication The Applied Geology and Archaeology of the Holocene Period in Wyoming. Michael Wilson, the Associate Editor, explained the interesting task he has worked on for eighteen months in getting the various disciplines at the University to cooperate in working on a common problem. The final result will be a publication of approximately one hundred pages containing twenty abstracts. Three thousand copies will be printed at an approximate cost of 83¢ each. By selling copies at \$2.50 each a profit on an investment of \$500 can be realized.

Dr. Schoondermark made a motion that the Foundation subscribe \$500 for a joint sponsorship contingent upon Geological Society's funding of \$2000. Motion seconded by Bob Edgar, and unanimously carried.

Dr. Frison spoke briefly about a possible survey on the Bell Fourche for Amex, which would involve the Gillette Chapter. The Marathon Oil survey will also contribute to the Foundation. A Tri-State Power Line Survey near Laramie could involve the Cheyenne Chapter. The basic problem is still the time necessary to analyze and make the proper report after the physical surveys have been run.

President John, regretting the resignation of Secretary Lou Steege, appointed Bob Randall to fill this appointment which was unanimously approved. Nominations for election of officers for the coming year were called for and it was moved by Dr. Frison that the incumbent officers, John Albanese, President; Bart Rea, Vice President; and Milford Hanson, Treasurer, be re-elected. Motion seconded by Grant Willson, and unanimously carried. A letter of appreciation will be extended to Lou Steege. With no further business the meeting adjourned at 12:05.


G. H. Willson
Secretary (Temporary)

ARCHAEOLOGICAL SURVEY AND ANALYSIS
OF THE
GULF INTERSTATE ENGINEERING COMPANY
F. M. C. PIPELINE PROJECT
SOUTHWESTERN WYOMING

BY
CHARLES M. LOVE

WESTERN WYOMING COLLEGE
ROCK SPRINGS, WYOMING

MAY, 1974

INTRODUCTION

This is the final report and analysis of an archaeological survey conducted along a gas pipeline right-of-way leading from collection areas to the FMC trona plant west of Green River, Wyoming (Figure 1). The contract was made between Gulf Interstate Engineering Company, who arranged for the staking of the route in advance, and the Wyoming Archaeological Foundation, who supplied the personnel for the survey. The survey was completed by June 1, 1973, with several subsequent field checks made in critical areas during the summer as trenching operations advanced. Permission to survey both public and private lands traversed by the right-of-way was obtained by Gulf Interstate Engineering Company, which accelerated completion of the project. Personnel largely responsible for the ground survey were members of the Sweetwater Chapter of the Wyoming Archaeology Society. Special thanks go to Mr. Joe Bozovich, Mr. and Mrs. George Babel, and Mr. and Mrs. E. Baker Port who respectively spent the most time in the field and who donated so graciously of their free time. Equal appreciation goes to Mr. Joe Workman of Gulf Interstate Engineering Company. He kept us constantly informed of field developments, progress of the line surveyors, and road conditions, and has been most patient with the series of delays which have plagued the completion of this report.

At the completion of the survey, it was apparent that sites in several areas would be impacted by trenching. After making a careful surface check of the sites, we felt that exposure by the trenching operation might yield better information about site depth and extent, and hence we asked for no change of right-of-way. The checks during trenching revealed these sites to be purely on the surface, and impact was minimal.

The pipeline right-of-way stretches northward from the FMC trona plant on the Blacks Fork River to Bird Canyon, northeast of La Barge. A series of laterals and feeder systems are incorporated. In all, the project involves approximately 76 miles of right-of-way. The survey commenced just north of the FMC plant and continued north progressively, although several separate northern segments were finished in advance.

Site Sampling

A site within or overlapping the right-of-way was recorded for the survey if we found any surface evidence of human occupation or disturbance. The sites discussed in detail in this report are those from which collections were made that yielded any information of local or regional significance. A number of sites included only firecracked rock or quartzite cores, and though their location is noted and a site report filed, no collections were made. Sampling is biased in the direction of collecting all tools, projectile points, obsidian, and the broadest variety of other

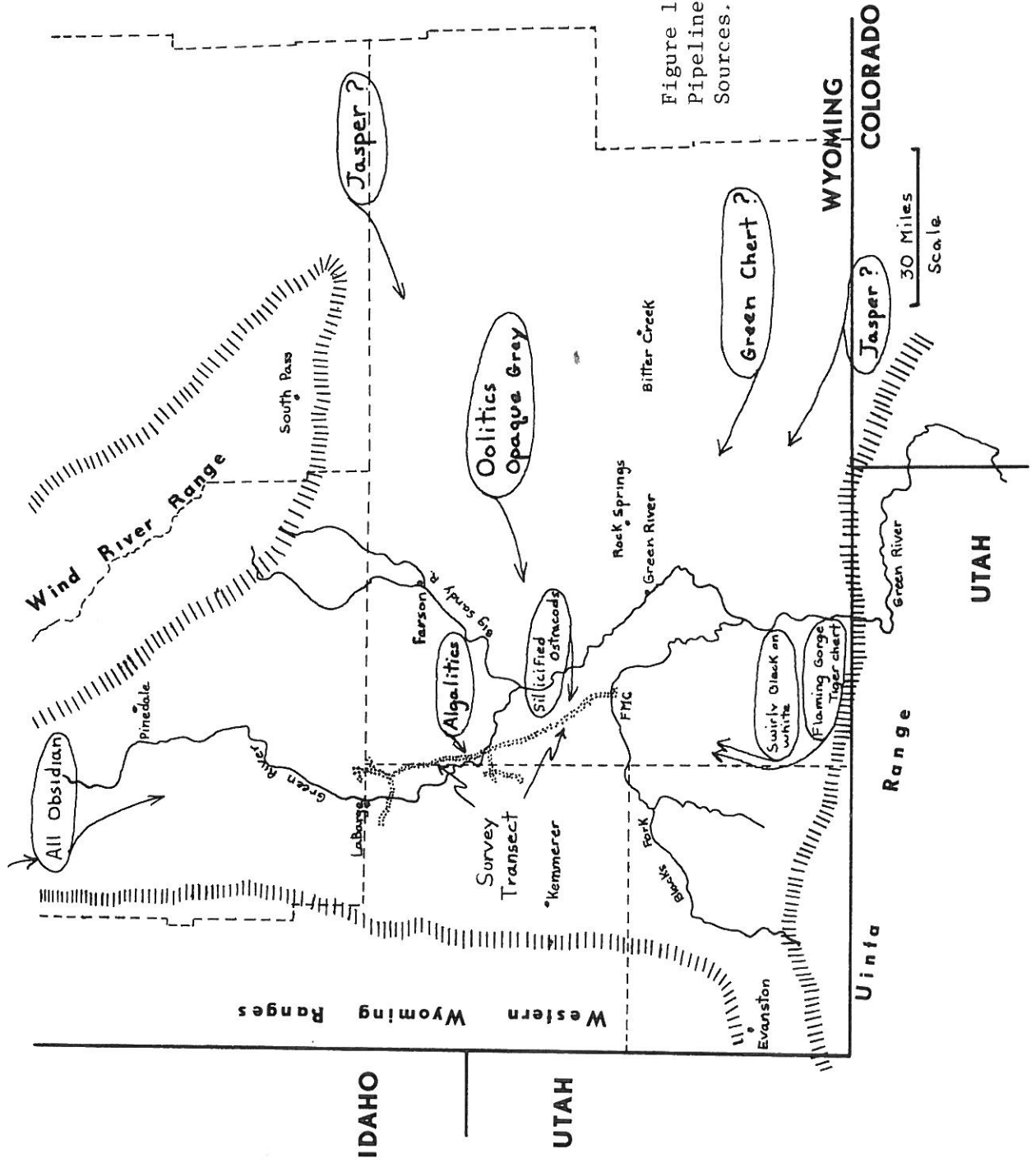


Figure 1, Area of FMC Pipeline Survey and Chert Sources.

materials available. We were not concerned with collecting all the flakes available, and if quartzite flakes were present, they were largely ignored. The reason for the collecting bias is that the tools and projectile points give the most information about the reason for site occupancy and its age. Obsidian flakes are potentially dateable and come almost wholly from the Yellowstone-Teton region. They may yield information about quarry sources there, potential time of obsidian-gathering activities when associated with projectile point typologies and ultimately directions of obsidian flow from a centralized region. Correlation of these variables may yield either trade patterns or seasonal population movements. Many of the immense variety of cherts also have somewhat localized sources that may produce past population movement patterns within the Green River Basin. Quartzite exists in cobbles in the Green River and more or less generally as a sporadic lag gravel over large areas of the Green River Basin. Although it comes in a variety of colors and textures, sources cannot be pinpointed and hence it was not emphasized in the collection for the survey.

Site locations in this report will be discussed only in a general way in order to avoid the destruction that often occurs due to public knowledge of them. The site reports, materials collected, and accurate locations are on file in the Anthropology Department of Western Wyoming College in Rock Springs, Wyoming.

The information from only six authors directly concerned with southwestern Wyoming archaeology was available to the writer. In addition to the Bibliography, another short reference list of other sources is included, most of them from Sharrock (1966).

ANALYSIS

Topography and Vegetation

Topographic relief throughout the right-of-way totals about 1000 feet, the most rugged region located near the north end. In this area the canyons are up to 400 feet deep. However, relief is comparatively slight over most of the survey and is caused by differential erosion on various layers of the underlying Eocene Green River Formation. The pipeline itself traverses sand dune and blow out areas, lag gravel covered terraces, gentle slopes and bottom lands adjacent to the Green River, Blacks Fork, and LaBarge Creek, and a few canyons and rough breaks areas. Vegetation very often is linked with topography.

The right-of-way is located primarily within the upper Sonoran life zone. According to Ecology Consultants, Inc. (1973), who prepared a vegetational analysis for this same right-of-way, three major vegetative patterns exist along the pipeline route.

These are:

1. Upland brushgrass
2. Greasewood flats
3. Western wheatgrass bottoms

Of these the first is the most significant, the other two totalling less than several miles of right-of-way.

The upland brushgrass zone was extremely varied, with perhaps distinct and definable subzones directly dependent on topography and soil formation. This idea stems from what appear to be clusters of archaeological sites that are related to these subzones. Stabilized and semi-active sand dunes are by far the most productive areas for sites, and in these cases tall and thick sage and/or greasewood enclaves dominate the vegetated inter-dune areas. Snow melt and rain seeping directly into the dunes may create a localized perched water table on the relatively impervious bedrock, which is closest to the surface in the inter-dune areas, and therefore responsible for the patchy but thick vegetation. Most of the regional artifact collectors have recognized the same association of dunes, vegetation, and site locations. The uneven sand dune topography, complete with blow out areas and occasional small playa lake flats, was created at the end of the last major ice advance of the Wisconsin glaciation (Ahlbrandt 1972). They have been intermittantly active since.

Another general topography also produces numerous sites. This is characterized by the slowly eroding edges of small first and second order arroyo basins south of the Green River crossing. Modern wind and sheet wash erosion seems to be the cause for site exposure. Where sand dunes encroach on these areas, site size and density increase.

North of the Green River crossing, the right-of-way traverses several areas where the topographic probability of sites is high. Thoroughly ground checked, they reveal nothing. Two of these areas are the Bird Canyon collection system and Anderson Canyon crossing. The reason for the lack of sites seems to be the stage of the canyon-filling process brought about by the third order arroyos within. The arroyos and the lower end of their second order tributaries seem to be in the process of terrace formation and are small compared to the size of their canyons. The arroyos are only slightly inset, and fresh and extensive overbank deposits parallel them. Recent sheet flooding and deposition from the preceeding spring rains and snow melt is evident. The writer personally checked a number of off right-of-way zones within this region and found a similar stream regimen to be in action. No sites were found, although topography suggests very high potential. The first order gullies and the upper ends of the second order washes are steep, on bedrock, and are recent erosional phenomena. If these walled and narrow areas existed in the past, they would probably not have made good areas for prehistoric camps.

Potentially some might be used as traps.

Only two of the lateral systems at the north end of the right-of-way produced sites of any consequence, and these were both west of the Green River. Thus it appears the erosion cycle at this end of the right-of-way is in a different stage than that of the southern end, and that deposition within the northern canyons has buried potential site areas. It seems unlikely that the sites have been washed away.

By contrast, the high, stratigraphically controlled terrace rim east of Fontenelle Reservoir has been subject to heavy wind erosion, and polished lag pebbles generally cover the top of it. (Only two small sites were discovered along the right-of-way in this region, which is set back as much as several miles from the eastern edge of the reservoir.)

MATERIALS SAMPLED

Obsidian

Obsidian occurs in more sites than any other specific type of material except Precambrian quartzite. The dating potential inherent in obsidian biased its sampling in that if obsidian were present, as much as possible was collected. In every case, obsidian constituted a minor percentage of the total materials collected.

Table 1 shows five categories into which the obsidian might fall according to source area. The criteria for developing four distinct source areas involves the type of original pebble surface remaining on the obsidian chips and/or tools. Some 46 percent of the obsidian flakes and tools collected display the original pebble or primary joint surface. The writer is familiar with a number of obsidian source areas in the Teton-Yellowstone region (Love 1972), and feels there is utility in using the sites containing obsidian as reference points for trade or travel to the quarries through time. Direct correlation is at present not possible without chemical analyses. Therefore, the following ideas should be taken as suggested correlations only.

The closest obsidian quarries to the survey area lie in or near Jackson Hole and require potentially one relatively low level travel route from the Green River Basin to the Jackson Hole area. As shown in Table 1, two of the four distinct sources lie within Jackson Hole: the Elk Refuge source, and the primary source. The original surfaces of materials from these sources is virtually identical to the remnant surfaces on the specimens collected from the sites listed. The correlation might seem shakey, but surface characteristics of the pebbles in Jackson Hole are easily recognized. That the primary obsidian does come from Jackson Hole might be much more in question, since there are numerous primary sources in Yellowstone Park.

The two other obsidian groups are distinguished on the basis of smoothing of the chatter-marked pebble surface. The difference in their fine textures is slight, but the "pebble-smooth" category was created because this group has a uniformly sand-blasted or frosted appearance. That sand blasting has not been the cause of this smoothly pitted effect is evidenced by the still sharp flake edges and surfaces made prior to leaving the obsidian in the site. These various surface textures are probably the result of the different stream regimens that deposited them. The exact source areas for these two obsidian groups is unknown. Obsidian from a glacial and two alluvial deposits prehistorically quarried in Jackson Hole display obviously different surface characteristics. Thus, it seems possible to closely correlate obsidian exhibiting pebble surfaces with its alluvial source.

Of 15 sites in Table 1, only 4 of the collected flakes and tools necessarily came from a core greater than 6 cm. in diameter. Curvature of those pieces displaying a pebble surface all suggest an original pebble of less than a 5 cm. diameter. Some of these further suggest a relatively flat tabular-shaped core pebble. Only a few flakes and core chunks have edge rounding on the oblique angle between two flake surfaces, hinting that they were carried in a pouch or other container after the initial flaking. Here the assumption is that in order to round off noncutting edges, gentle and continuous abrasion against a relatively flexible surface is necessary. An alternate explanation is that these were tools in which the oblique angle edge was used, and not the acute junctures (Figure 2).

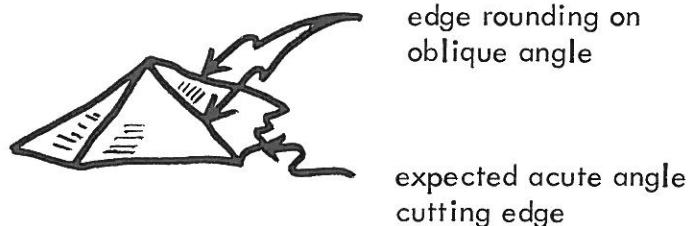


Figure 2. Wear on oblique angle of certain obsidian flakes.

The people who quarried the obsidian apparently had access to a number of sources, but the lack of primary obsidian suggests they are not reaching the bulk of the obsidian flows in Yellowstone Park or the Jackson Hole area. Not one piece of ignimbrite was found in the survey. Ignimbrite is not only somewhat similar to obsidian in appearance, it is also roughly as abundant as obsidian, and was used a great deal in northwestern Wyoming (Love 1972).

Since the occurrence of ignimbrite is largely in Yellowstone Park and Idaho, it adds some credence to the idea that collection of obsidian was either inordinately selective or from areas south and east of the prehistorically popular primary flows in

TABLE I
OBSIDIAN DISTRIBUTION

Site Designation	SOURCE AREA					AGE via other Diagnostic Tools
	Pebbles, Smooth Surface	Pebbles Rough Surface	Pebbles, Elk Refuge Type	Primary Source Jackson Hole	Other	
BP 8	X				F3b	middle period
SG 1					X	late period
SG 2			X		X	late middle period
SG 3	X	X ?				
WB 1					X	
WB 3	X	X			X	
WB 4	tool X					
WB 6	X	X				
WB 9	X			X		
WB 11	X					
WB 12				tool X	tools X	late middle period
WB 13	X	X			X	late middle period
WB 14	X	tool			tool X F60	middle middle period
FRSE 2		X				late period
F 1		X			F5a	late period

NOTE:

X = flakes; Fla = Figure 1a; Tool = flake tool not illustrated in figure

Yellowstone Park. Only three sites suggest obsidian came from the Jackson Hole region (Table 1). Therefore, it seems probable that the other alluvial sources are in southern Yellowstone Park or in Idaho. It is also possible that the Jackson Hole quarry areas were little used or unknown to the people living in the Green River Basin.

Quartzite

Chipped quartzite found in the survey site comes originally from lag cobbles distributed over large portions of the Green River Basin by late Tertiary streams. One of the sources for the cobbles is a Paleocene conglomerate outcropping on the north-western margin of the basin. This was in turn derived from Precambrian sources further to the northwest. The quartzite is hard, dense, and displays a tremendous variety of colors and textures. Finer grained cobbles tended to be selected for tool manufacture, and cores remaining from this activity are common.

At least two other prehistoric quartzite quarries exist in separate locations in the basin to the southeast of the survey. These both produce consistently grey, speckled-black variety. None were discovered in sites along the right-of-way, although sites immediately east contain minor amounts from these quarries.

Chert

The Green River Basin Tertiary formations contain a tremendous variety of chert. Gradations of color and texture from one chert outcrop to another occur in a number of cases. However, the number of specific chert varieties found in the survey sites suggest prehistoric peoples were rather selective. Only a small portion of the cherts available are found in the sites. The writer has on several occasions experimented with cherts not utilized for prehistoric tools, and discovered that most of them have impurities, frost fractures, layer separations, gross crystallization, or other qualities that make them unsuitable.

Tables II and III show specific chert distribution among the survey sites. The cherts described are representative of 43 percent of the total chert collected from the sites. In order for a chert to qualify for distinction, it first had to be represented in several sites, and not necessarily just those within the survey transect. Secondly, the chert type must have comparatively narrow variational limits. Thirdly, it was included if recognized as coming from an already known source region or quarry. Artifacts made from the distinctive cherts are included by Figure number.

Sources for the ten distinctive survey cherts are at present only roughly determined. Actual quarries or point sources for several of them may not exist since they occur largely as dispersed lag pebbles in various regions. Moss agate lag

TABLE 11
CHERT DISTRIBUTION

DISTINCTIVE CHERT TYPES	SITE DESIGNATIONS									
	BP 1	BP 4	BP 5	BP 8	BP 10	BP 11	BP 12	SG 1	SG 2	SG 3
1 Silicified Ostracods			F3d				X			tool X
2 Cream algalitic on brown/clear				X			X	X	F3m X	X
3 Moss Agate			X			X			F3n	X
4 Flaming Gorge cream-banded black		X ?							F3p	
5 White oolids on brown								F3h		
6 Brown oolids on clear to brown								X		X
7 Green opaque					X					
8 Grey opaque										
9 Jaspers										
10 Swirly black banded on white	X	X ?						X		
AGE - via Diagnostic tools		late per.	late per.	mid. per.					late per	late mid. per.

NOTE: X = flakes; Fla - Figure 1a; tool = flake tool not illustrated in figure

TABLE III
CHERT DISTRIBUTION

DISTINCTIVE CHERT TYPES	SITE DESIGNATION								FRSE	FRSE	F 1
	WB 1	WB 3	WB 7	WB 9	WB 11	WB 12	WB 13	WB 14	1	2	
1 Silicified Ostracods	X		X	F3t, u,v, X			X				
2 Cream algalitic on brown/clear	X	X						F6k	X	X	X
3 Moss Agate	X	X ?			X	X	X	F6g X	X	X	
4 Flaming Gorge cream-banded black								X			X
5 White oolids on brown											
6 Brown oolids on clear to brown	X	X			X	F4c	X ?		F2n tool		
7 Green Opaque						X					X
8 Gray Opaque	X ?			X ?			F4l tool			X	tool
9 Jaspers					X	F4d				tool	
10 Swirly black banded on white					X	X					
11 AGE - via Diagnostic tools						late mid. per.	mid. per.	mid. mid. per.	late per.	late per. ?	late per.

NOTE: X = flakes; Fla - Figure 1a; tool - flake tool not illustrated in figure

pebbles are common of the survey, but exact limits on their distribution are not yet known. Approximate source regions for most of the distinctive cherts have been plotted on Figure 1 with caution. Incomplete data from surrounding sites have helped supply the information for the pattern. The map shows prehistoric collecting areas or preferences in the region surrounding the sites of the survey transect. In terms of the volume of chert prehistorically collected, categories 1, 2, and 3 are among the highest. This suggests that local varieties take precedence over collecting elsewhere, as might be expected. However, category 6 seems to have the greatest outside influence and hints of either trade or travel in that direction. Chert category 6 is unusual in appearance, having white oolids enmeshed in a brownish to colorless translucent agate matrix. Its frequency in the sites suggests that, like obsidian, it may have had an aesthetic appeal. It should be understood that there are a number of other prehistorically used distinctive chert types in and around the Green River Basin which were not discovered in the survey sites. These have been excluded from Figure 1.

Only two authors, Frison (1971) and Sharrock (1966), mention source areas for chipped chert. Sharrock discovered a source for "tiger chert" (category 4, this report). Several additional quarries of tiger chert outcrops have been located near Flaming Gorge. Dibble and Day (1962), Day and Dibble (1963), Sharrock (1966), Frison (1971), and Wilson (1972) all illustrate or describe chert types which occur within sites of the survey transect. Many of their source regions are either plotted on Figure 1 or are in the defining process.

It is interesting to note that no pottery, no steatite, and almost no bone materials were discovered in any of the 34 sites along the transect. This is in contrast to a large number of sites in the surrounding basin area which often contain one or more of these items.

ARTIFACTS AND SITES

The surface artifacts from 15 of the 34 sites discovered are illustrated in Figures 3, 4, 5, and 6. The artifacts in these figures are arranged sequentially in sites from south to north as they were discovered along the survey transect. The material collected from the remaining sites are either flakes or flake tools which are not illustrated.

Diagnostic projectile point typologies range from the Middle Prehistoric Period (2500 B.B. to A.D. 500) through Late Prehistoric Period (A.D. 500 to Historic) as developed by Mulloy (1958). Only one projectile point base indicating greater age was recovered (Fig. 4m). This particular base with ground edges and base suggests a variety of the Eden Valley point types. The base is slightly flaring. Remnant edges above the shoulders suggest parallel sides. The cross

section is lenticular. Unfortunately no other base quite like it has been illustrated in reports on archaeology of southwestern Wyoming. The local collections available for study are also devoid of comparable material.

Another rather unusual projectile point is illustrated in Fig. 3r. Zeimens (1973) collected one of these near Hanna, Wyoming, and attributes to it a Middle Prehistoric Period age. No others seem to be in the local collections available or archaeological reports of the Green River Basin.

A probably late Middle Period assemblage contains a variant also not illustrated by previous investigators (Fig. 4a). The base and edges are sharp and the tangs flare just slightly.

All of the other projectile point types illustrated are rather typical of regional assemblages collected and discussed by other researchers. The appropriate references for comparison are included in Table V. Bifacial tools, tool fragments, and end scrapers are also somewhat typical although one (Fig. 5l) is of an unusual chert probably brought north from the vicinity of the Utah-Wyoming border west of Flaming Gorge. Most striking is the high percentage of silicified ostracod bifacial fragments, most of them large. Almost no other tools are composed of silicified ostracods, although flakes of that material were common in the sites. Only one awl or drill tip of white chalcedony was recovered (Fig. 3q).

Recognizing the dangers in assigning ages to a site containing only one or two diagnostic point styles, the determinations in Table IV should be considered tentative. More complete information is given in Table V.

TABLE IV

Approximate Age of Sites

<u>Site Designation</u>	<u>Tentative Age</u>	<u>Figure Location</u>
BP 4	Late Prehistoric	Fig. 3a
BP 8	Early Middle Prehistoric	Fig. 3b,c
BP 5	Middle Prehistoric ?	Fig. 3d
SG 1	Late Prehistoric	Fig. 3g-j
SG 2	Late Middle Prehistoric	Fig. 3k-o
WB 5	Middle Prehistoric	Fig. 3r
WB 12	Late Middle Prehistoric	Fig. 4a-b
WB 13	Late Middle Prehistoric	Fig. 4d-l
FRSE 1	Early Prehistoric	Fig. 4m-o
WB 14	Middle Middle Prehistoric	Fig. 5a-o

TABLE IV (continued)

Approximate Age of Sites

<u>Site Designation</u>	<u>Tentative Age</u>	<u>Figure Location</u>
F 1	Late Prehistoric	Fig. 6a
FRSE 2	Late Prehistoric ?	Fig. 6b-3

Several sites in the stabilized sand dune areas are so spread out as to be nearly continuous over a half mile area. Undoubtedly they are composed of many separate camps of varying ages. These large site areas yielded few diagnostic artifacts (BP 8, SG 1, WB 1, WB 11). By contrast, smaller, more localized sites such as WB 12 and WB 14 tended to have a large proportion of diagnostic artifacts. This suggests extensive public collecting in the larger site areas while the smaller sites go undiscovered.

One of the smaller sites, WB 14, contains almost a perfect distribution of Middle Prehistoric Period projectile points (Fig. 5a-o). Rechecks of this site both before and after tenching did not add to the initial collection. Three other sites (WB 12, WB 13, SG 2) are almost identical in setting, and have somewhat comparable point collections. While excavation of similar sites might produce more solid information, a Middle Prehistoric Period pattern of stabilized dune exploitation could be outlined.

The inter-dune areas often have water available, protection from winds, and comparative invisibility. The total dune areas are rarely more than a mile or two across, and small playa lakes are common. The dunes are regularly broken by hills and breaks of the underlying resistant sandstones and shales. If modern cattle and wild horses are any indication of how buffalo might have utilized the inter-dune vegetation and water, hunting the buffalo on a small scale may not have been difficult. Seeds of various plants may also have been seasonally available, although not one mano or metate was discovered in the survey. Most of the "snowfall" in dune areas is horizontal, and survival may well have been facilitated by windbreaks or brush huts in the driftless but tall sage inter-dune zones. Local dune traps for buffalo or antelope may have been used seasonally as well. These last two speculations have not been substantiated in this area for the Middle and Late Prehistoric Periods.

The dunes therefore, might represent a slightly richer economic enclave amidst a variety of arid ecological habitats. The immediate access to such variety might be a strong reason for prehistoric orientation to them.

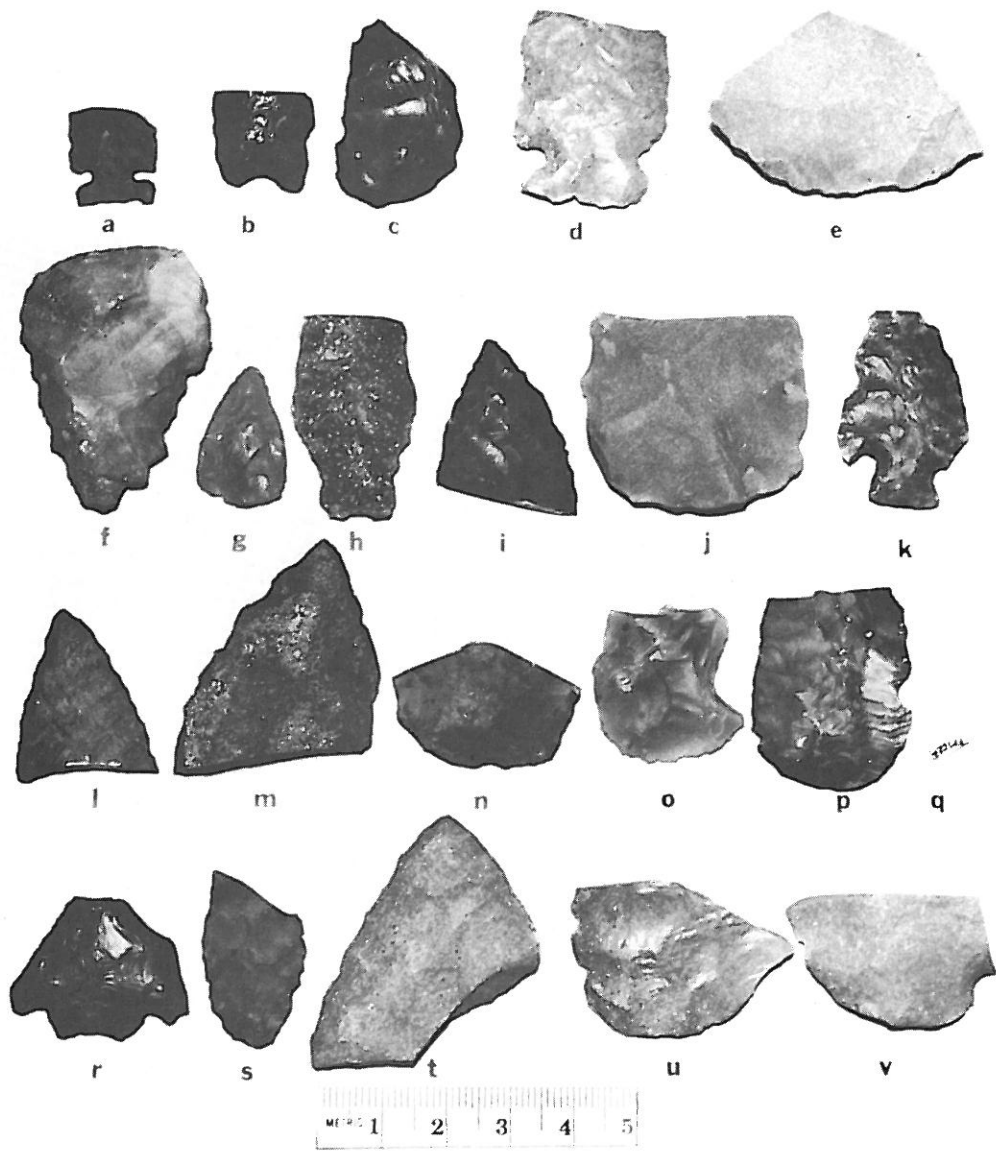


Figure 3. FMC Pipeline Survey Artifacts (site designation follows letter).
 a, BP 4; b-c, BP 8; d, BP 5; e-f, SG 3; g-j, SG 1; k-l, SG 2;
 r, WB 5; q, s, WB 6; t-v, WB 11.

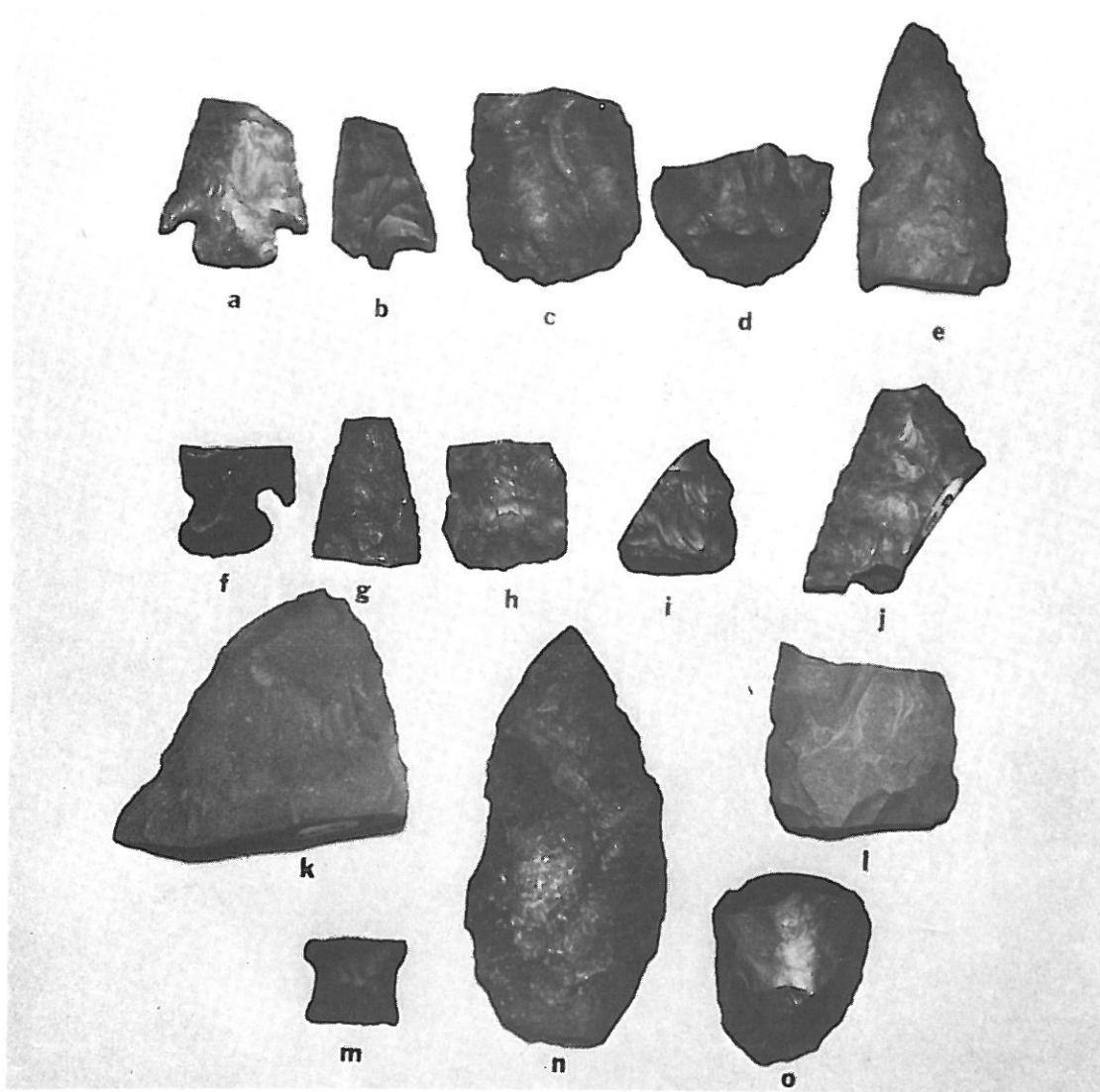


Figure 4. FMC Pipeline Survey Artifacts (site designation follows letter).
a-d, WB 12; e-l, WB 13; m-o, FRSE 1.

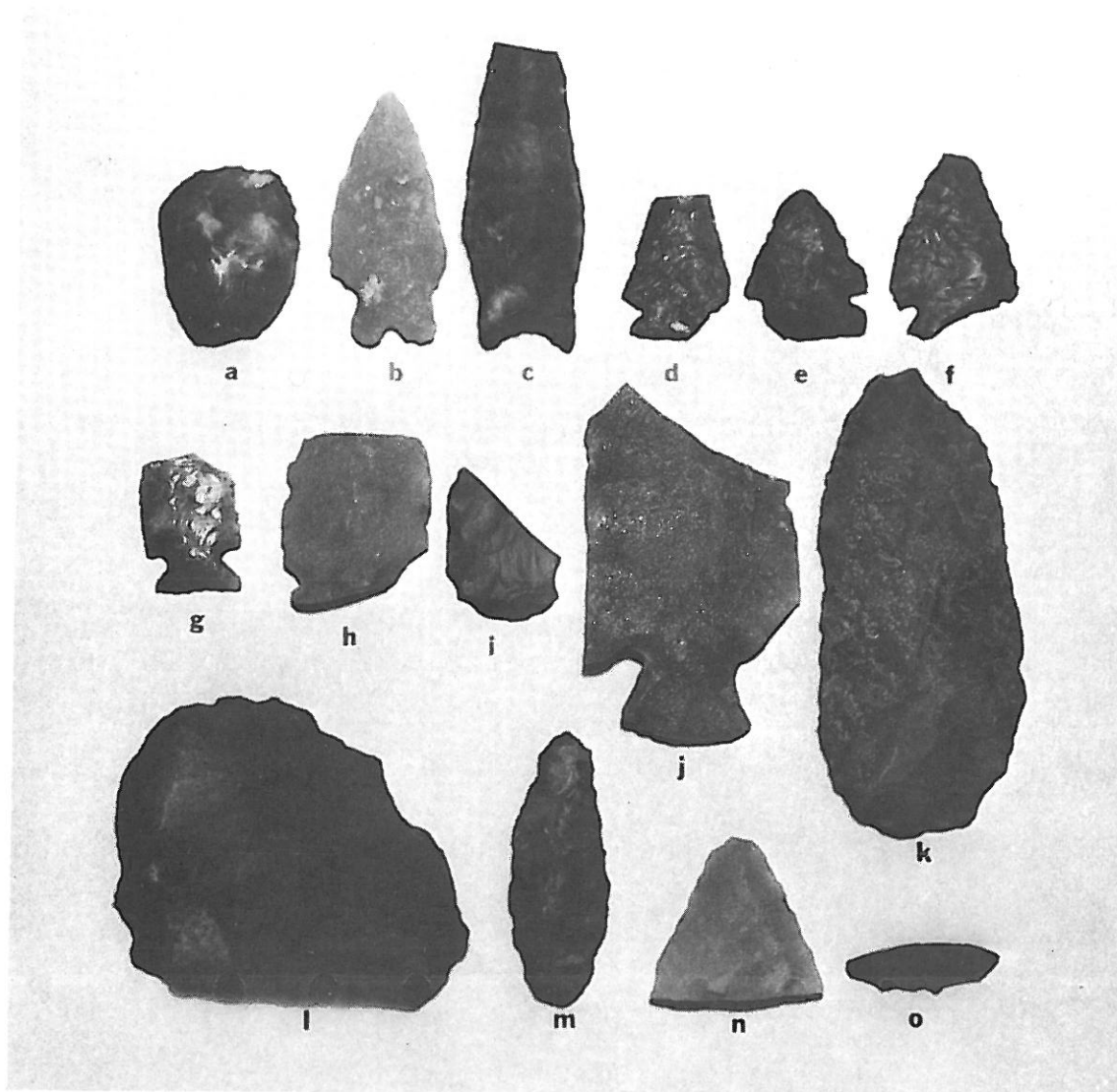


Figure 5. FMC Pipeline Survey Artifacts (site designation follows letter).
a-o, WB 14.

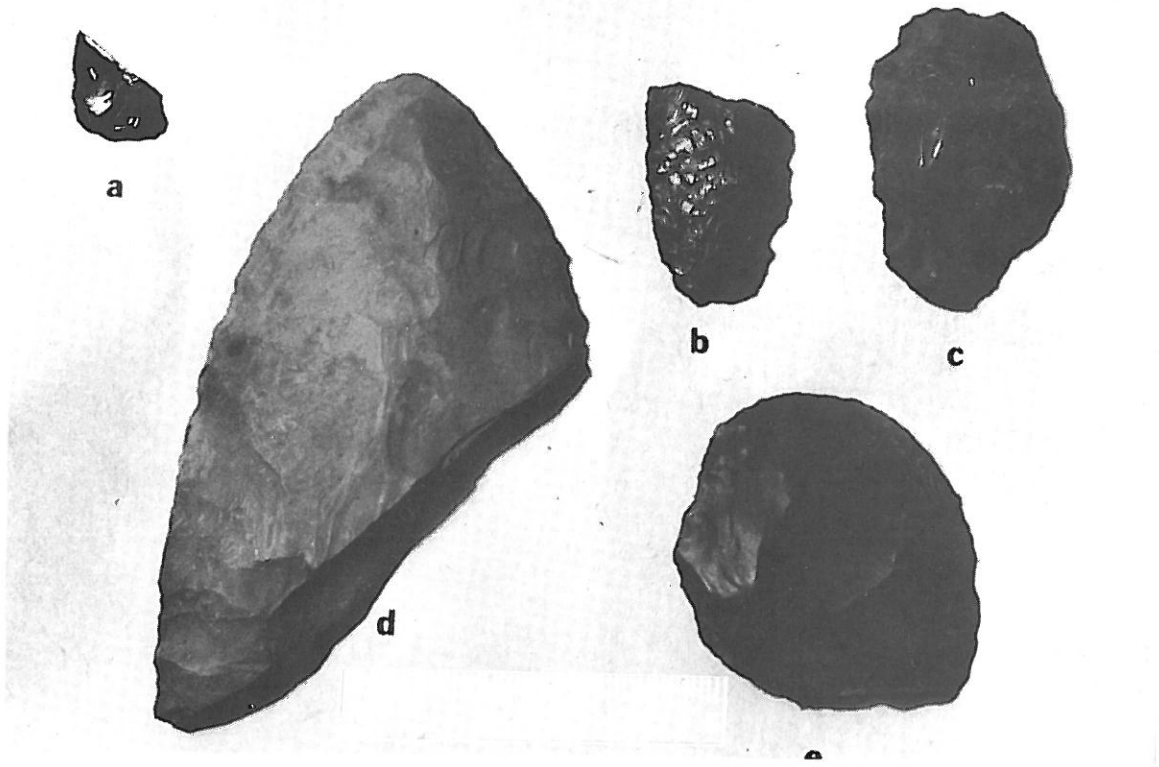


Figure 6. FMC Pipeline Survey Artifacts (site designation follows letter).
a, F 1; b-e, FRSE 2.

TABLE V

Site Descriptions and Materials

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
BP 1	Open campsite on shallow sand covered bedrock. Fire cracked rocks, flakes present. No tools. Area is 50 ft. by 75 ft.	Variety of chert flakes.
BP 2	Workshop area on small rocky saddle along flank of east sloping hillside. One small white quartzite core and related flakes present. Area 30 ft. in diameter.	No collection.
BP 3	Workshop area on low, cobbled, south sloping hillside. Evidence of cracking and testing quartzite cobbles. Flakes and several partial cores present. Area is 30 ft. by 50 ft.	Two oval quartzite cores, tan and white, about 6" in long diameter.
BP 4	Open campsite on eastward sloping stabilized dunes. Several fire cracked rock zones, variety of chert flakes, one broken projectile point. No charcoal. Area is 60 ft. by 30 ft.	Variety of chert flakes. One side notched projectile point (Fig. 3a). Compare Frison (1973), Sharrock (1966).
BP 5	Open campsite on eastward sloping flat and rocky area near head of gully. Alteration by modern visitors. Artifact, chert and quartzite flakes present. Area 30 ft. in diameter.	Quartzite and chert flakes. One side notched artifact of silicified ostracods (Fig. 3d). Flake tools Compare Sharrock (1966).
BP 6	Open site of one hearth, several quartzite cores on gentle eastward sloping sandy surface. Area 30' in dia.	One quartzite flake tool.

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
BP 8	Large open area of semi-stabilized dunes. Site area 1/2 mile long by 1500 ft. wide. More or less continuous series of fire hearths, flakes and cores. Probably many camps of many ages. Previously sampled by local collectors? Bone chips present in places. Rechecked during trenching.	Flakes of all materials. Broken obsidian projectile point and tool. (Fig. 3b,c). Compare Sharrock (1966).
BP 10	Open camp site on north side of actively eroding dune. Much quartzite, some chert, and bone chips present. No tools. Area is 20 ft. by 30 ft.	Varied quartzite and chert flakes.
BP 11	Open camp site on south sloping head of small sandy swale. One fire hearth and associated fire cracked rock. Small groups of isolated flakes. No tools. Area roughly 20 ft. in diameter.	Various chert and quartzite flakes.
BP 12	Open camp on semi-stabilized dune crest. Fire cracked rock, chert and quartzite flakes present. Algalitic cherts present. Area is about 40 ft. in diameter. Past sheep camp nearby.	Various chert and quartzite flakes.
SG 1	Series of open camp sites in semi-stabilized dune area. Several ages of occupancy, mostly mixed on surface. Fire hearths and fire cracked rock is mostly buried. Area is 1000 ft. by 500 ft. Rechecked during trenching.	Flakes of quartzite, obsidian and cherts (jasper, algalitics, oolitics, ostracods and others). Several artifacts and flake tools (Fig. 3g-j). Compare Frison (1971), Sharrock (1966).

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
SG 2	Series of open camp sites in semi-stabilized dune area. Nearly continuous with SG 1. Several ages of occupancy, mostly mixed on the surface. Comparatively little quartzite. Area 600 ft. by 300 ft. Rechecked during trenching.	Flakes of obsidian and cherts (algalitics, moss agate, and others). Artifacts (Fig. 3k-p). Compare Sharrock (1966).
SG 3	Small open camp site on sandy southwest sloping surface. Several fire hearths and associated fire cracked rocks. Bone chips, obsidian, chert, and quartzite present. Area is 70 ft. in diameter.	Flakes of obsidian and cherts (silicified ostracods and others). End scraper and bi-face fragment (Fig. 3e-f).
WB 1	Long open series of fire hearths on gently southwest sloping sandy flat. Flakes of many materials and bone chips present. No tools. Area is 1000 ft. by 300 ft.	Variety of chert, obsidian, and quartzite flakes.
WB 2	Seven partially buried fire hearths scattered across 150 ft. area in stabilized dune area. Average 5 ft. to 7 ft. in diameter. No charcoal. Scattered pressure flakes present.	No collection.
WB 3	Over fifteen fire hearths scattered across semi-stabilized dune area. Quartzite, obsidian, and chert flakes present with bone fragments. No tools. Area is 300 ft. by 150 ft.	Flakes of obsidian and cherts (algalitic and others).
WB 4	Northeast sloping sandy surface. Isolated obsidian chunk with pebble surface present. No other cultural association.	Obsidian chunk with dimensions 1" x 1-1/2" x 3/4".
WB 5	Northeast sloping sandy surface. Isolated projectile point find. No other cultural association.	One chert projectile point (Fig. 3r). Compare Zeimens (1973).

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
WB 6	Open series of fire hearths on top of stabilized dune area. About 50 fire hearths, largely buried, with bone chips, quartzite, obsidian, and chert flakes. No charcoal. Area 300 ft. by 200 ft.	Flakes of obsidian and chert varieties. Awl tip and small knife (Fig. 3q,s).
WB 7	Small open workshop on cobble area near divide. Mostly quartzite and silicified ostracods present. Area is 25 ft. in diameter.	Flakes of quartzite and silicified ostracods.
WB 8	Small open workshop on sand dune crest. Clay hillside with cobbles to northeast. Quartzite cores and spalls. No chert.	Spalls of quartzite.
WB 9	Small open camp site in stabilized dunes. One fire hearth 19 ft. in diameter (fire cracked rock) with no charcoal. Obsidian, chert, and some quartzite present. No tools. Small waterhole 150 ft. in diameter at end of site.	Flakes of obsidian and chert.
WB 10	Open camp in stabilized dune area. Series of largely buried fire hearths. Quartzite and chert flakes present. Several broken bifaces and one stemmed projectile point recovered. Area is 300 ft. by 200 ft.	Collection unobtainable.
WB 11	Open camp site, 600 ft. by 200 ft., in stabilized dune area. Series of fire hearths, quartzite, chert, and obsidian flakes present. Rechecked during tenching.	Flakes of obsidian and cherts (silicified ostracods and others). Three bifacial fragments (Fig. 3t-v).

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
WB 12	Open camp site, 200 ft. diameter, in large stabilized dune area. Bone chips and variety of chert, quartzite, and obsidian flakes present. Suspect one camp from materials collected.	Flakes of obsidian and chert. Artifacts and flake tools (Fig. 4a-d).
WB 13	Open camp site on stabilized sand sloping southeast. Series of fire cracked rocks, and variety of chert, obsidian and quartzite flakes present. Rechecked during trenching.	Flakes of chert, quartzite, and obsidian. Several artifacts and flake tools (Fig. 4e-l). Compare Sharrock (1966).
WB 14	Open camp site containing three fire hearths on stabilized dunes. No charcoal or bone. Much obsidian, chert and quartzite flakes. Rechecked during trenching.	Flakes of quartzite, chert, and obsidian. Series of artifacts (Fig. 5a-o) and 3 flake tools. Compare Sharrock (1966).
WB 15	Open camp site on stabilized dune area. Several fire cracked rock areas and a few quartzite flakes present. Area is 150 ft. in diameter.	No collection.
F 1	Open camp site on stabilized dune area. Scattered fire cracked rock areas with obsidian, quartzite and chert flakes present.	Flakes of chert, quartzite, and obsidian. Triangular point base (Fig. 6a) and three flake tools. Compare Frison (1971) and Sharrock (1966).
F 2	Open camp site on sandy knoll. Scattered fire cracked rock areas within 40 ft. diameter. Quartzite cores and flakes present.	No collection.

<u>Site Designation</u>	<u>Description</u>	<u>Materials Collected</u>
FRSE 1	Open site on flat lag pebble area. Isolated flakes and tools recovered. No other cultural associations. Area is 30 ft. in diameter.	Chert flakes. Artifacts (Fig. 4m-o).
FRSE 2	Open camp site near head of gully on lag pebble terrace. Quartzite, chert, obsidian present with fire cracked rocks. Area is 100 ft. in diameter.	Flakes of chert, obsidian and quartzite. Artifacts (Fig. 6b-e) and three flake tools.
NH 1	Open camp site on river terrace with small amount of fire cracked rock, largely buried.	One obsidian flake.
NH 2	Open area cleared for farming, disturbed by irrigation ditch and road. Isolated find by surveyor of small Late Prehistoric point. Quartzite core present.	No collection.

CONCLUSIONS AND RECOMMENDATIONS

The evidence in the survey, coupled with sketchy data from surrounding regions, suggests small bands were intermittently moving in a radius of about 100 miles while staying within the greater Green River Basin. Chert from various out-lying sources was brought into the survey area. A number of these bands must have traveled to northwestern Wyoming on a comparatively regular basis. A by-product of this direction of travel was obsidian quarrying activity. Since this could only be done during the summer and fall months, it hints that the bands spent at least the majority of the winter and spring months in the Green River Basin. One of the economic orientations for at least part of that time may have been toward stabilized sand dune ecozones. Protection from the elements, hunting, and gathering could be facilitated by the ready access to the variety of nearby ecological habitats. The selection of inter-dune areas for living was obviously conscious.

Recommendations were made to Gulf Interstate Engineering Company during the spring and summer of 1973. No changes in pipeline route were thought necessary. Archaeological impact was minimal. Observation during trenching of various site areas was recommended, however, and Joe Bozovich of the Sweetwater Chapter of the Wyoming Archaeological Society accomplished this. The observation yielded no new collections and little information on the depth of certain sites. This too seems typical of other dune area sites investigated by the writer. In many sites the materials are available on the surface as a lag lithic debris, with the sand having been blown from around the materials. There is, therefore, little depth to these sites.

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