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by George M. Zeimens and Danny Walker	

NOTE: An Inventory of Archaeological Resources In The Gas Hills Uranium Mining District Summary and Plates will be published in the next issue of "The Wyoming Archaeologist"

The Wyoming Recreation Commission, along with the people of Wyoming, will long remember and miss the very capable direction of Paul H. Westedt.

The Wyoming Archaeological Society shares in the sympathy extended in this great loss.

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Are all summers as unbelievably short as this one has been, or could it be that age is entering into the picture in limiting the amount of energy available?

There are still some things which need done in July and it's already November. From this one can begin to see some of the problems that beset archaeologists in this great state of ours. They are being called, day and night, from one end to the other of this vast area we call Wyoming. Drill locations, access roads, rights of way, mining areas, and on it goes. The present thrust in quest of energy sources is placing tremendous demands upon these dedicated people.

We as amateurs can contribute viable assistance in keeping records of what is found, how, when, and where. Context is the important word. Carefully prepared site reports can and do save countless hours of searching, hours which can be utilized effectively in research and lab analysis in order that definitive statements may be made concerning sites in question. Opportunity for cooperation has never been greater.

Interest in Archae Annie has been voiced on both amateur and professional levels, so let us hear from you. Many of you have a talent for writing, why not try your pen and paper and send the results along for publication. This would be a most welcome addition to any and all issues.

"An Inventory of Archeological Resources in the Gas Hills Uranium Mining District" will be published in two parts.

/s/ George W. Brox  
Editor

## EDITOR'S NOTES

There was no response from Archae Annie's initial try for reader participation in the September issue of the Wyoming Archaeologist. We hope that out there somewhere, there are some someones with questions or answers or information to share with the members of the Wyoming Archaeological Society.

Here is a "something" we picked up. Our Dr. George C. Frison is sometimes exported to other locales. May 21 he was one of the eleven international scientists who gathered in Pasadena, California to give workshops at the L.S.B. Leakey Foundation's third annual Fellows Day Conference. His subject was Early Man On The High Plains of North America. Here, verbatim from the Leakey Foundations special report is part of what George had to say.

"Q. Why have you developed an intense study of faunal remains in Paleo-Indian (Early Man) sites, especially in communal kill situations?

A. Animal kill sites are the most visible of all Paleo-Indian Archaeological manifestations. However, they represent only a small increment of the total year-round social and economic activities. Careful identification of the numbers and ages of animals taken provides a basis for estimates of the amount of food acquired, the actual nature of the kill events (e.g. several events over a period of time or a single mass kill). This, in turn, provides insights into the necessary societal requirements. This would include the number of persons required to operate a large animal kill; what kind of leadership might be expected within the human group? At what stage of these operations did the communal nature of this kind of procurement break down and revert to family level operations? Detailed studies of faunal remains are helping to answer such questions.

Q. How do geological and related studies fit within the framework of Paleo-Indian studies?

A. This is closely tied to the first question. Much of the High Plains is an area of sparse vegetation cover and high relief. Consequently, geological processes have altered landforms to a greater extent than in many other areas. It is vital to be able to reconstruct past landforms in order to reconstruct the animal procurement methods. Driving bison into a sand dune trap, an arroyo trap, or over a precipice, each has a different set of procurement methods, different animal-handling techniques, and consequently different manpower requirements. Usually, the Archeological materials repose on remnants of the original landform. The Archeologist is, in turn, dependent upon geological expertise to reconstruct the landform situation at the time of the original event.

Q. What are the cultural and ecological implications surrounding the disappearance of animals such as the mammoth, horse, camel, but not the bison at the time of the terminal Pleistocene on the North American High Plains?

A. Although there has been a good deal of study of the problem, the question remains open. Certainly the numbers of young mammoths taken in kill sites (e.g. Lehner in Arizona and Colby in Wyoming) would suggest human predation as a major factor in their disappearance. As yet, however, the evidence does not indicate that early man on the

Plains was taking large numbers of horses or camels. On the other hand, the bison was under heavy predation beginning at least in Clovis times but was able to survive. The true nature of human predation on animal population during this time remains something of a mystery. Traditional interpretations of many pre-historic hunting methods need to be questioned also. I would argue that these people were good hunters so that predictability of acquiring large animals in locations of their choosing was usually high. In this sense, procurement of these animals in geomorphic features and locations that were unfavorable to utilization of the meat products was the exception rather than the rule."

We are sure Dr. Frison did a good job of informing and passing on his great knowledge and interest of Paleo-Man of the Plains. We hope the members of the Wyoming Archaeological Society are interested in hearing about what Wyoming exports abroad.

Has anyone read "America B.C. - Ancient Settlers in the New World"? It's by Berry Fell and published 1976 by the New York Times Book Co. Fell thinks he has proof that around 4000 B.C. roving Celtic mariners crossed the Atlantic from Portugal and Spain and established settlements. By 1000 B.C. he believes there were deliberate voyages and trade between bronze age settlements in eastern North America and the Mediterranean area. Fell attempts to prove that by 100 A.D. Latin numerals, the Roman calendar system and ancient Greek astronomical knowledge was in use in what is now New England. Aspects of American Indian cultures developed from contacts with ancient settlers from Europe and the Middle East, and the languages of some Indian tribes, such as the Micmec, Zuni and Pima, descended from ancient Mediterranean tongues. After the fall of Rome around 500 A.D., voyages from the Old World to the New World stopped. No more communication with the Old World until the 14th and 15th century when Western Europeans came to the shores of North America. You all know the rest of the story.

Archae Annie, the Amateur, is asking for "tho'ts" about the above from the pro's or any interested readers. Any one for "tho'ts?" Sound off!! Please let us hear from you.

AN INVENTORY OF ARCHEOLOGICAL RESOURCES IN  
THE GAS HILLS URANIUM MINING DISTRICT

Prepared by the Office of the Wyoming

State Archeologist

George M. Zeimens and Danny Walker

For the Tennessee Valley Authority



## Abstract

This report documents the results of an inventory of archeological resources in the Gas Hills Uranium mining district. The study was requested by Tennessee Valley Authority and conducted by the Wyoming State Archeologist. Archeological resources are described and recommendations are made concerning preventative or mitigating measures which will be needed. Evaluations are made concerning the eligibility of these resources for inclusion on the National Register of Historic Places.

## Introduction

At the request of Mr. Bennett Graham of the Tennessee Valley Authority, archeological studies were conducted on approximately 20,000 acres in Natrona and Fremont Counties, Wyoming. The purpose of the studies was to locate and evaluate any archeological resources which might be affected by uranium mining in the area. The studies were conducted under the auspices of Mr. Paul H. Westedt, Wyoming State Historic Preservation Officer and Dr. George C. Frison, Wyoming State Archeologist. Field investigations and laboratory analyses were directed by George M. Zeimens, Associate State Archeologist.

All areas involved (plates 1,2,3,4) were inspected on foot. Allowing for some small areas which may have been overlooked and for steep slopes along Beaver Rim, the study resulted in complete coverage of 75% of the area. Sites were plotted on U.S.G.S. topographic maps and were assigned numbers in the field. Samples of debitage and all obvious artifacts were collected from each site. Excavations were limited to testing of fire hearths or pits to obtain charcoal for carbon 14 dating or to determine if other subsurface materials were present. Many photographs were taken of each site including aerial photographs of one stone circle site.

Before going to the field, a literature search was conducted in an effort to learn of any documented sites. It was found that no sites had previously been recorded on the lands in question. Literature was also reviewed concerning geology, range, floral, faunal, and climatological references to the region.

Local amateur archeologists and collectors were interviewed concerning their knowledge of the area. This proved to be very productive. Several amateurs had collected in the area for years and were very willing to reveal the locations of their sites. Especially helpful in this respect were Eugene and Lorene Iverson, Irene Morgan, and Richard and Judy Pinner. They have been collecting in the Gas Hills for over twenty years and have meticulously catalogued their artifacts site by site. They graciously made their collections available for study. Most of the site names used in this report are the names they used in catalogueing their collections.

Intensive survey was confined to the boundaries outlined by T.V.A. However, several sites included in the report are outside the project boundaries. These are sites which

were discovered as the crew traveled from area to area. Although some sites will probably not be affected directly by mining, they may receive indirect impact from access roads, utility lines, and from increased mining personnel coming into the area. They have already been subjected to collecting activity of mining personnel for many years. Many sites must have been destroyed by the existing mines and the sites described here are all that are left with which to study the prehistory of the area.

### Natural Setting

The Gas Hills Uranium District is in a remote section of Natrona and Fremont Counties, lying approximately 24 miles north of Jeffrey City, 45 miles east of Riverton and 35 miles south of Moneta (see plate 5). The district lies along the southeastern border of the Wind River Basin at the base of Beaver Rim, on the north side of the Granite Mountain Fault Block.

The present land surface is characterized by broad, shallow, sagebrush-covered valleys, edged by cobble-strewn ridges of outcrops of Eocene and Oligocene sediment (Anderson 1969:93). The older, more erosion resistant rocks (Mowry Shale, Morrison Formation, Chugwater Formation, among others; Zeller et. al. 1956) are Paleozoic in age and form steep hogbacks that outline the flanks of gentle, northwestward plunging folds. Holocene sediments in the area are composed of stabilized sand dunes, creek-terrace sediments, landslide features, and pediment gravels (Love 1970:104). A conspicuous east-west trending erosion escarpment called Beaver Rim rises abruptly above the basin floor. The rim extends more than 100 miles and forms the drainage divide between the Wind River to the north and the Sweetwater River south. Small springs are found along the steep north face of the scarp and give support to small scattered groves of willow (*Salix* sp.), aspen (*Populus tremuloides*) and pinyon pine (*Pinus edulis*) (Anderson 1969:93,95). Numerous small intermittent streams (Coyote Creek, Muskrat Creek, Willow Springs Creek, and West and East Canyon Creeks) head at the base of the rim and flow generally in a northwest direction toward the Wind River.

Edible plants in the area include pinyon pine (*Pinus edulis*), several species of grasses including sand drop seed (*Sporobolus cryptandrus*), side oats gramma (*Bouteloua curtipendula*), blue gramma (*B. gracilis*), buffalo grass (*Buchloe dactyloides*), crested wheat grass (*Agropyron cristatum*), as well as several other plants that have edible roots or seeds. Big Sagebrush (*Artemisia tridentata*), birdsfoot sagebrush (*Artemisia pedatifida*), gardner saltbush (*Atriplex gardneri*), yucca (*Yucca glauca*), and prickly pear (*Opuntia polyacantha*) are also present (Beetle and May 1971).

Common mammals found in the region today are the antelope (*Antilocapra americana*), mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), badger (*Taxidea taxus*), Richardson's ground squirrel (*Spermophilus richardsonii*), least chipmunk (*Eutamias minimus*), sagebrush vole (*Lagurus curtatus*), woodrat (*Neotoma cinerea*), deer mouse (*Peromyscus maniculatus*), jack rabbit (*Lepus townsendii*), and cotton tail (*Sylvilagus audobonii*) (Long 1965).

Birds seen in the area of the survey include several varieties of hawks (Buteo sp.) golden eagle (Aquila chrysaetos), ducks (Anas sp., among others), canada goose (Branta canadensis), sage grouse (Centrocercus urophasianus), and several small passerine forms.

Temperatures range from summer highs in the area of 100 degrees f. to winter lows of 50 degrees below zero. Annual rainfall is usually less than ten inches, most of which comes in the early spring. Mid-summer cloudbursts can drop several inches of rain in a short time. Strong southwesterly winds cause drifting snow and blizzard conditions throughout the winter with late summer and early fall being the most pleasant season of the year (Anderson 1969:95).

### Archeological Resources

The area was found to contain four general types of sites. Open camps along main drainages or near water sources are by far the most common. The main features here are numerous firepits around which are found scattered fire cracked rocks and various amounts of debitage. Diagnostic artifacts are usually absent mainly because collectors have visited the sites for many years. Also absent are bones and other evidence of game processing which suggests that these are not hunting camps. Evidence does suggest that these sites were occupied repeatedly over thousands of years. Occupation appears to have been brief and probably on a seasonal basis. Without more information it is difficult to determine what the relationships are between sites in this area and sites in adjacent foothills and mountainous areas.

Another fairly common site type are stone circles. They generally contain little or no artifact materials and excavations are usually fruitless. The paucity of artifacts or debitage in or around these features has puzzled archeologists for years. Thousands of stone circles have been excavated which have shed little light on the problem. Lacking evidence for other interpretations, it is generally accepted that the purpose of the stones was to hold down hide covers on tipis (Mulloy 1965, Kehoe 1960). The stone features found during this study have been fully recorded cartographically and photographically, have been tested and found to contain no cultural deposits, and are of no further value.

Less common are quarry sites and flaking stations. The quarries are small and represent fortuitous use of small pieces of cherts and quartzites found in local gravel deposits. No major quarry activities are represented. The flaking stations are small isolated areas containing a few scattered flakes. No major production areas are represented.

The sites described briefly below are evaluated in terms of their potential to contribute to studies of the prehistory of the area. In most cases, relative dates have been assigned on the basis of projectile point styles. Very few projectile points were found during this study but three amateurs were found who had collections from most of the sites. The reliability of the assigned dates depends on the accuracy of records kept by amateurs and all dates are tentative. Radiocarbon dates were obtained from 3 sites and 2 more will be available when results are received from the radiocarbon laboratory.

Chronologically the area can be divided into 4 broad cultural periods:

Paleo-Indian	11,500 B.P. - 7,500 B.P.
Altithermal	7,500 B.P. - 5,000 B.P.
Post Altithermal-Preceramic	5,000 B.P. - 1,500 B.P.
Ceramic	1,500 B.P. - Historic

These periods can all easily be subdivided but for this paper the broader categories are more useful. If and when the sites are tested or excavated a more precise chronology will be needed. No cultural sites of interest from the Historic Era were found:

Site Number:	48FR117, Muskrat Crossing
Location:	SW1/4, Section 23, T34N., R91W.
Site type:	Open camp, fire pits, heavy scatter of debitage. Dark cultural level 4 inches thick in cut bank.
Cultural affiliation:	Unknown, C-14 sample submitted.
Site condition:	Presently being eroded by Muskrat Creek. Partially destroyed by highway 136.
Recommendation:	Excavate 10 meters to east to stop erosion. Preserve for future study. Salvage if in danger.
National Register evaluation:	This site appears to contain significant information. It is eligible for nomination.
Site Number:	48FR118, Clay City
Location:	NE1/4, Section 21, T33N., R90W.
Site type:	Open camp, fire pits, considerable debitage.
Cultural affiliation:	Paleo-Indian, Post Altithermal-Preceramic, Ceramic (plate 6).
Site condition:	Partially eroded.
Recommendations:	Preserve for future study. Salvage if in danger.
National Register evaluation:	Potentially contains significant information. It is eligible for nomination.
Site Number:	48FR119, Happy Hunting Ground #1
Location:	SW1/4, Section 11, SE1/4, Section 10, T33N., R90W.
Site type:	Open camp, fire pits, thin scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic.
Site condition:	Highly eroded. All materials are superficial.

Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR120, Gas Hills #1
Location:	SW1/4, Section 16, T33N., R89W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Highly eroded. Highly disturbed by 2 road cuts, 2 buried pipelines, and a buried telephone line.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR124, Coyote Creek
Location:	SW1/4, Section 1, SE1/4, Section 2, NE1/4, Section 11, T32N., R91W.
Site type:	Open camp, fire pits, heavy scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic.
Site condition:	Heavily eroded.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR125, Upper West Canyon Creek
Location:	SW1/4, Section 27, SE1/4, Section 28, NE1/4, Section 33, NW1/4, Section 34, T33N., R89W.
Site type:	Open camp, firepits, 1 stone circle, one possible cairn, heavy scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic (plate 7-9).
Site condition:	Highly eroded.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR126, Midland
Location:	NE1/4, Section 29, T32N., R91W.
Site type:	Open camp, fire pits, heavy scatter of debitage.
Cultural affiliation:	Paleo-Indian, Post Altithermal-Preceramic, Ceramic (plate 10, 11).
Site condition:	Heavily eroded, some areas may remain intact.

Recommendations:	Preserve for future study. Test if in danger.
National Register evaluation:	Testing needed to determine eligibility.
Site Number:	48FR127, Willow Springs
Location:	SE1/4, Section 21, T33N., R90W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Highly eroded.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR131, Willow Creek
Location:	West 1/2, Section 8, T33N., R90W.
Site type:	Open camp, fire pits, light debitage.
Cultural affiliation:	Paleo-Indian, Ceramic, C-14 date laboratory number RL-611 1100±110 B.P. A.D. 850 (plates 12-15).
Site condition:	Partially eroded.
Recommendations:	Preserve for future study. Test if in danger.
National Register evaluation:	Testing needed to determine eligibility.
Site Number:	48FR132, Honker Dam
Location:	SW1/4, Section 25, South 1/2, Section 26, T32N., R91W.
Site type:	Open camp, fire pits, heavy scatter of debitage.
Cultural affiliation:	Paleo-Indian, Post Altithermal-Preceramic, Ceramic. C-14 date 1760±110 B.P. A.D.190, lab no. RL-612 (plates 16,17).
Site condition:	Highly eroded, some material in situ in portions of the site.
Recommendations:	Preserve for future study, salvage if in danger.
National Register evaluation:	Site is eligible for nomination.
Site Number:	48FR133, Upper Spring Creek
Location:	Center between sections 32, 33, T32N., R91W.
Site type:	Open camp, light scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic.

Site condition:	Highly eroded.
Recommendations:	No further investigation.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR134, Chip Hill
Location:	Center, section 6, T32N., R90W.
Site type:	3 stone circles, 1 fire pit.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic. C-14 date, 710±100 B.P., A.D.1240, lab number RL-610 (plate 18-21).
Site condition:	Highly disturbed by old mining activities.
Recommendations:	No further investigation.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR135, Morgan Ceramic
Location:	NW1/4, Section 33, T33N., R89W.
Site type:	At least 5 stone circles, ceramic sherds.
Cultural affiliation:	Ceramic (plate 22-25).
Site condition:	Partially eroded, partially disturbed by road cut.
Recommendations:	All circles tested and recorded, all ceramics collected, no further recommendations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR136, Dome Area
Location:	SW1/4, Section 3, SE1/4, Section 4, NE1/4, Section 9, T32N., R90W.
Site type:	Stone circles, no debitage.
Cultural affiliation:	Unknown, several Post Altithermal-Preceramic projectile points found below the site (plate 26, 27).
Site condition:	Circles are in good condition, no deposition, no potential for subsurface cultural material.
Recommendations:	All circles have been recorded. No further investigations warranted.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR137, Happy Hunting Ground #2
Location:	Center between sections 14, 15, T33N., R90W.

Site type:	Open camp, light scatter of debitage.
Cultural affiliation:	Post Altithermal–Preceramic, Ceramic (plate 28).
Site condition:	No deposition, all materials are superficial.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR138, Dry Coyote Creek Quarry
Location:	NE1/4, Section 18, T32N., R90W.
Site type:	Chert Quarry.
Cultural affiliation:	Unknown.
Site condition:	All materials are on surface.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR139, Lower West Canyon Creek
Location:	South 1/2, Section 18, T33N., R89W.
Site type:	Open camp, eroded fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Highly eroded, some disturbance by vehicle trail.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR142, Cotton Wood Creek
Location:	SE1/4, Section 8, T32N., R91W.
Site type:	Open camp, fire pits, medium to light scatter of debitage.
Cultural affiliation:	Post Altithermal–Preceramic (plate 29).
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR143, Puddle Springs
Location:	East 1/2 of sections 24, 25, T33N., R91W.
Site type:	Open camp, fire pits, medium scatter of debitage.
Cultural affiliation:	Paleo-Indian, Post Altithermal–Preceramic, Ceramic (plate 30).
Site condition:	Some erosion but much of the site appears to remain intact.



Recommendations:	Preserve for future study. Salvage if in danger.
National Register evaluation:	This site is eligible for nomination.
Site Number:	48FR144, Sleeping Elephant
Location:	SW1/4, Section 31, T33N., R89W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic (plate 31).
Site condition:	Highly eroded.
Recommendations:	No further studies.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR145, Cameron Springs
Location:	From corners of sections 1, 2, 11, 12, T32N., R90W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Highly eroded.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR146, Muskrat Creek
Location:	SE1/4, Section 20, T32N., R91W.
Site type:	Open camp, fire pits, heavy scatter of debitage.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic (plate 32-38).
Site condition:	Highly eroded, all materials are superficial.
National Register evaluation:	Not eligible for nomination.
Site Number:	48FR147, Camp Ridge
Location:	NW1/4, Section 14, T33N., R90W.
Site type:	3 stone circles.
Cultural affiliation:	Unknown.
Site condition:	No deposition, no debitage.
Recommendations:	All circles recorded, no further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA98, Ervay Basin SW #1

Location:	NE1/4, Section 10, T33N., R89W.
Site type:	Open camp, fire pits, scattered debitage.
Cultural affiliation:	Unknown, results from C-14 sample not returned.
Site condition:	Highly eroded.
Recommendations:	No further studies.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA99, Ervay Basin SW #2
Location:	NW1/4, Section 10, T33N., R89W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Highly eroded, all materials are superficial.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA100, Ervay Basin SW #3
Location:	NW1/4, Section 11, T33N., R89W.
Site type:	Open camp, fire pits, light scatter of debitage.
Cultural affiliation:	Unknown.
Site condition:	Eroded but some materials may remain in sites.
Recommendations:	Preserve for future study. Salvage if in danger.
National Register evaluation:	Testing needed to determine eligibility.
Site Number:	48NA101, Ervay Basin SW #6
Location:	SE1/4, Section 3, T33N., R89W.
Site type:	Single stone circle.
Cultural affiliation:	Unknown.
Site condition:	Circle rests on bedrock.
Recommendations:	No further investigation.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA102, Bengal Pit
Location:	SE1/4, Section 22, SW1/4, Section 23, T33N., R89W.
Site type:	5 stone circles, quarry debris, 1 possible cairn of stone and wood.

Cultural affiliation:	Post Altithermal-Preceramic (plate 39-40).
Site condition:	Highly eroded, no deposition, all features fully recorded.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA103, Bengal Reservoir
Location:	SE1/4, Section 26, SW1/4, Section 25, T33N., R89W.
Site type:	Open camp, heavy scatter of debitage, area may be stratified.
Cultural affiliation:	Post Altithermal-Preceramic, Ceramic.
Site condition:	Some erosion, some deposits may be stratified.
Recommendations:	Preserve for future study, salvage if in danger.
National Register evaluation:	Testing needed to determine eligibility.
Site Number:	48NA174, Ervay Basin SW #5
Location:	NE1/4, Section 10, T33N., R89W.
Site type:	Flaking station along ridge top.
Cultural affiliation:	Unknown.
Site condition:	Site rests on bedrock.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.
Site Number:	48NA175, Ervay Basin SW #4
Location:	SE1/4, Section 3, T33N., R89W.
Site type:	Flaking station.
Cultural affiliation:	Unknown.
Site condition:	Site rests on bedrock.
Recommendations:	No further investigations.
National Register evaluation:	Not eligible for nomination.

### Discussion

The data gathered by this kind of archeological study has very limited value for interpreting the prehistory of an area. A survey is designed to identify the resource base.

which may facilitate future research. A survey is limited to an examination of the land surface and although 75% of an area is examined, this does not mean that 75% of the sites contained in an area were found. The most valuable sites are buried and usually are not visible. Sites contained on the surface are often badly eroded and materials are out of context. The archeological record contained on the surface has been drastically altered by artifact collectors. Very few collectors keep records and those that do tend to catalogue only the more complete projectile points and pile less exotic items in their flower gardens, garages, or basements. It is common for people to pick up simple or broken tools and to discard them later sometimes miles from their place of origin. When key items such as projectile points, cutting tools, and grinding stones have been removed or rearranged it is difficult if not impossible to make valid evaluations and interpretations.

This study has produced a number of significant archeological sites which offer much potential for future research. Materials recorded reflect a long period of occupation, probably for over 11,000 years. Early Paleo-Indian evidence is scarce but not completely absent. Two projectile points from 48FR126 are typologically similar to Midland points (plate 10, lower right). Midland points are probably a variation of the classic Folsom point but lack the characteristic flute. Chronologically, they span approximately the same period but exact relationships between the two forms are still not clear (Judge 1970). Judge feels that the two styles represent a completely different manufacturing process. Others believe differences represent variations of the same process (Roberts 1936, Haury 1943, Forbis and Sperry 1952, Wormington 1957, Wendorf and Krieger 1959). Fluted and unfluted points dated at 10,700 years ago have been found together at a large site less than 200 miles north of the Gas Hills mines (Frison 1976). Whatever the difference in the two forms means, the presence of the specimens in the area indicates human occupation almost 11,000 years ago.

Evidence for later Paleo-Indian occupation consists of an Eden point found on a site about 6 miles west of the study area. That site is not described in this report but is mentioned here since the find was so close to the area of concern. The type site for Eden materials is only about 120 miles to the southwest of the Gas Hills and has recently yielded a date of 8,900 years ago (Frison, n.d.).

Artifacts representing the latest Paleo-Indian occupation include 2 projectile points from 2 sites, 48FR131 and 48FR132 (plate 12, bottom row, last right). Similar forms often referred to as Pryor Stemmed date from 8,500 years ago to 7,800 years ago (Frison et. al. 1974). In contrast with early Paleo-Indian evidence which is generally associated with big-game hunting activities, the later groups apparently relied more on a mixed hunting and gathering economy. Sites consist mainly of rockshelters and open camps near water sources along the foothills of the major mountain ranges. Late Paleo-Indian sites are conspicuously absent in basin areas although some evidence is occasionally found on the surface.

No Altithermal sites or materials were identified during this study. However, Altithermal projectile points display a wide range of variation and are not easily identified out of context (Zeimens 1976). Recent studies in the Big Horn and Absoraka Mountains of Wyoming

have revealed a long sequence of occupation during the Altithermal (Frison 1976, Husted et. al. M.S.). Like the Late Paleo-Indian cultures, the Altithermal groups seem to have possessed a mixed hunting and gathering economy subsisting mainly in the mountains and foothills.

The bulk of material from the Gas Hills area represents the Post Altithermal-Preceramic Period. During this period human populations seem to have increased sharply and although the mountains and foothills were still occupied, the basins began to play a greater role in the economic cycle. Utilization of the basins probably reflects an increase in the availability of vegetable foods and a greater dependence on these resources by man. Mulloy (1954) suggests that certain groups subsisted in the basins all year. This seems highly unlikely since food resources are available there only on a seasonal basis. Also, basin areas offer little protection from severe winds and cold temperatures during the winter. Basins provide only brush while adjacent areas contain trees which were probably a better source of fuel for winter fires.

Occupation seems to have been continuous during the Post Altithermal-Preceramic period. Points similar to those from 48FR143 (plate 31, bottom row, far left) have been dated at 4,500 years ago not far from the study area (Lobdell 1974). Other varieties of stemmed and corner notched points from the Gas Hills fall within the range of dates for this period provided by the Medicine Lodge Creek study (Frison et. al. 1975) and Mummy Cave (Husted et. al. M.S.).

The most prominent feature from both the Post Altithermal-Preceramic and the Ceramic Periods are fire pits. Dated sites range in age from over 5,000 years ago to A.D. 1750 (Zeimens, et. al. 1976). Although thousands of pits are known to exist in the basins of Wyoming very few have been systematically investigated. These features represent no small effort on the part of their designers. They appear to have been constructed in a very deliberate style to serve for a very specialized function. They may have been used as roasting pits for vegetable food processing but if that is true, what kind of plants were being processed and what was the process? When were these foods available and how were they gathered? They may have been used for meat processing, but the sites lack bones, scrapers, and cutting tools usually associated with hunting camps.

Fire pit sites have the potential to yield significant data concerning pit style, pit construction, and cultural subsistence patterns. They can be dated. Contents can be examined to determine what kind of fuel was used and in an effort to learn what kind of food was being processed. Food production sites have the potential to yield information concerning past climatic conditions. Fire pit sites tend to yield very few artifacts. In the past, archeologists operating with very limited budgets have had to confine their studies to sites which were likely to produce the most amount of information. Firepits apparently played a very important role in the prehistoric past for a very long time. To continue to ignore them is to ignore a very significant aspect of the archeological record.

There is no hiatus between the Post Altithermal-Preceramic Period and the Ceramic Period. Around A.D. 500 two cultural items appeared for the first time; the bow and arrow and

pottery. The acquisition of the bow and arrow is reflected by a reduction in the size of projectile points. The change of weaponry apparently had little effect on subsistence patterns. In fact, there seems to have been no change in utilization and exploitation of the area until the latter part of the Ceramic Period.

Ceramic sites are of considerable importance to studies of the last prehistoric era on the Northwestern Plains. Pottery is useful in identifying various prehistoric cultural groups and is very valuable for tracing spatial and temporal developments. It is very useful in tracing population movements and for recognizing contacts between groups. Although ceramic sites are common in Wyoming, several inherent problems are involved. Wyoming wares are generally of the utilitarian variety. They are generally undecorated, are very friable, and finds are usually very fragmentary and offer little potential for reconstruction. As is the case at 48FR135, ceramics are seldom found in a datable context.

An antelope kill site not far west of the study area is dated at A.D. 1720 (Frison 1971). It contained thick-walled flat-bottomed pottery similar to one variety of sherds from the Gas Hills site. A site in southern Montana dates similar pottery much earlier at A.D. 1200 (Lahren 1976). Similar but undated pottery has been described from a site several miles to the east, but was mixed with Woodland and other types which should date even earlier (Zeimens 1975).

Although its temporal and spatial distribution is still unclear, flat-bottomed pottery seems to be confined to the Rocky Mountain Region. Labeled the Intermountain Tradition by Mulloy (1958), it is believed to be representative of Shoshonean groups. That the Shoshone did occupy the area is well documented (Lowie 1909, Steward 1944, 1943, Lewis 1904, Shimkin 1947, Hultkrantz 1961, 1958, Russel 1921). Other groups which may have made similar pottery include the Blackfoot (Ewers 1945), the Sarcee (Sapir 1923), and the Kutenai (Schaeffer 1952). However, the best evidence at this time indicates that the Shoshone were responsible for the flat-bottomed pottery found in this area.

Another type of pottery from 48FR135 is distinctive in that it is thinner and harder than the Shoshonean ware and is decorated with small punctate marks (plate 22-23). Only a few very fragmentary sherds were found and no reconstruction was possible. No diagnostic sherds were recovered (rim, neck, bottom, etc.) and nothing could be learned about its shape. Pottery bearing a similar decor was found at the Hagen site in southern Montana and is thought to be of the Mandan Tradition (Mulloy 1942). Other sites in Montana and Northeastern Wyoming contain similar pottery which probably reflects activities of the Crow during the 16th century (Frison 1976b). It has been established that the Crow had some influence on this area at least during later times (Ewers 1945, Stuart 1935, Beckwourth 1931, Eagen 1934). However, due to the fragmentary nature of the Gas Hills specimens, any statement concerning cultural affiliation would border on speculation. Also, it could not be established whether the two types from 48FR135 were contemporaneous. The site offers no potential for further studies. Further analysis will depend on future investigations at other sites in the area.

One other artifact from this area is worthy of special mention. It is a large bifacially

flaked blade, probably a ceremonial knife or spearpoint (plate 39). The material it is made from is not found locally and items made from this type of chert are rare. The artifact resembles similar specimens recovered from Hopewell sites in the Ohio River Valley area of Eastern North America (Morgan 1952:89, plate 32 and 33). Only three similar specimens are known from Wyoming. One almost exactly like the Gas Hills blade came from Elk Mountain about 100 miles south and east of the Gas Hills. Another came from the South Pass area 70 miles to the west, and one from Douglas 125 miles due east. These items are extremely rare in Wyoming. None have been found in a definable context, and nothing definite can be said about their origin. It is possible that they represent some contact between this area and the Hopewellian in the East.

Towards the end of the Ceramic Period the native environment began to change drastically. With the acquisition of the horse around A.D. 1720 (Haines 1938, Wissler 1914), contact with other groups greatly increased. The gun, which probably had a lesser impact than the horse (Holder 1970), combined with a long list of European influences finally forced the end of the native way of life. No sites which mark the beginning of the Historic Period were found during this study. The area is off the main routes of the early explorers, fur traders, and pioneers. Because of its low potential for agricultural development the area was settled very late. The land has been used mainly for livestock grazing but is of special interest now because of the energy-related uranium ore contained below the surface.