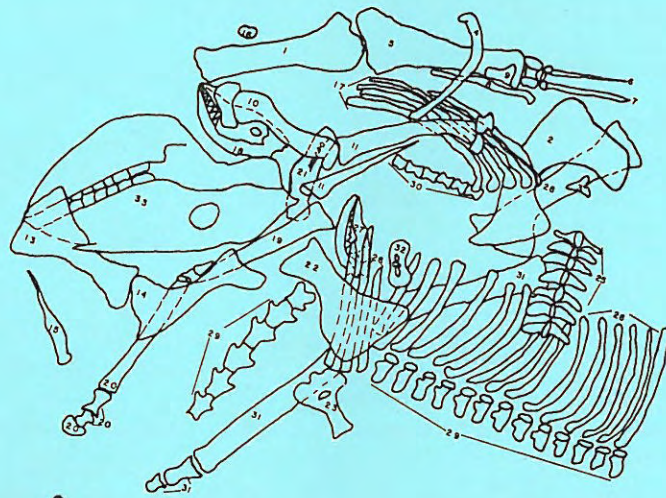


# THE WYOMING ARCHAEOLOGIST



*VOLUME 38(3-4)*

*FALL 1994*

# THE WYOMING ARCHAEOLOGIST

VOLUME 38(3-4), FALL 1994

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## H. MARIE WORMINGTON 1914-1994

Marie Wormington, long the leading authority in the Paleoindian field, died during the night of June 1, 1994, at the age of seventy-nine. Someone had left a cigarette on a couch which smoldered and sent fumes upstairs which caused her death from smoke inhalation.

H. Marie Wormington, the dean of American Paleoindian archaeologists, was as famous for her writing as for her field work. As a woman, she was a pioneer at a time when the Paleoindian field was nearly all male. In spite of this male-dominated profession, she quickly emerged as a leader through the publication of her book, *Ancient Man in North America*. This single book has gone through a hundred thousand copies and has been revised numerous times to keep the text current. Forty years ago, I bought a second edition and after reading it, decided to become a Paleoindian archaeologist.

In my developing years, Marie always was ready to take time to advise me when I was going astray and would spend hours revising a mediocre research paper into one of merit. I was not the only one aided in this manner. Among others, we must include Dennis Stanford, now head of North American Archaeology at the Smithsonian Institution, Vance Haynes, Regent's Professor at the University of Arizona, and the late Cynthia Irwin-Williams and Henry Irwin, to name a few. We all benefited and her only reward was her knowledge that she helped each of us advance within the professional Paleoindian field.

Marie was born in Denver in 1914. She was a pupil of E.B. Renaud at Denver University. I suspect her interest in Paleo Man in the New World must have germinated under his instruction. Her graduate training was at Radcliffe College, a woman's college closely associated with Harvard University. In working toward an anthropology degree, she had to take

advanced courses at Harvard University, being only the second woman to work for her doctorate under this system. One professor even made her sit in the hall and listen to his lectures through an open door of his classroom.

Marie obtained her M.A. from Radcliffe in 1950 and her Ph.D. in 1954. Upon receiving her doctorate, she went to Europe and excavated French Paleolithic sites under the direction of Henri Martin. Returning to Colorado, she was hired by J.D. Figgins as a staff archaeologist for the Denver Museum of Natural History. Figgins, who had lived during the period when the Paleoindian was more fiction than fact, was delighted to obtain on his staff someone who shared Paleoindian interests. Within a short period, she was appointed Curator of Archaeology, a post she retained until retirement thirty-one years later.

It was in the late 1950s that I first became acquainted with Marie. I had just received my own doctorate from Syracuse University, completing a thesis on the Paleoindian in the Middle Rio Grande of New Mexico. I was fortunate enough to work the first notched pint culture (Simonsen in Iowa) found with extinct *Bison occidentalis* with a radiocarbon date exceeding 8000 yrs. In the fall of 1959, I obtained a post at the University of Wyoming and in the next few years, I was fortunate to be the first excavator at many nearby sites. That fall, I began excavations at the Brewster Agate Basin site near Lusk, and the Hell Gap site near Guernsey. A year later, again in the fall, I found the Rawlins Mammoth Locality. Since all three of these sites were found in the fall when research grants are usually unavailable, each site created a problem. Not to excavate would endanger these sites through erosion or vandalism. Marie used her contacts in all three instances to obtain research money from the Wenner-Gren Founda-

tion and the National Geographic Society so that initial research at each of these sites could be conducted before winter set in. Without Marie's influence, Wyoming might have lost the information from all three of these sites.

Shortly afterwards, Vance Haynes and I, for the first time, dated the Folsom culture at Lindenmier and began work trying to clear up the actual age and stratigraphic sequence at Sandia Cave. The Lindenmeier radiocarbon date was published through the Denver Museum monograph series. In every instance, Marie Wormington found ways of producing some funding at these sites. Marie was also largely responsible for aiding in my post-doctorate education by being my sponsor for the prestigious Wenner-Gren annual Fellowship, allowing me to do post-doctoral research at Harvard University. These efforts on my behalf were duplicated for many other young archaeologists and geologists, including Dennis Stanford, Vance Haynes, Cynthia Irwin-Williams, and Henry Irwin, as mentioned above.

A word should be said regarding her husband Pete Volk, who died several years before Marie. He was a successful oil engineer, with a strong interest in archaeology. I remember him building screens, putting up tents and even washing dishes in the field. He joined her in excavations with interest and enthusiasm.

This woman survived a difficult entrance into archaeology at a time when it was almost exclusively a man's profession. However her book *Ancient Man in North America* captured the imagination and interest of both professional archaeologists and amateurs. This book has become the bible for references and descriptions of excavations for thousands of amateurs interested in our First Americans. At the time of her death, she had been working on a new text to replace this book. It was not simply an update, but contained new insights, ideas, and important information on the history of ancient man in the Americas. Dennis Stanford of the Smithsonian fortunately had agreed to co-author this publication with Marie. With his help, even after her

death, she will continue to synthesize, instruct and inform eager readers with her vast knowledge in her specialty.

In 1958, Marie became the first woman president of the Society for American Archaeology. She guided with professional skill the second female president of the same society, Cynthia Irwin-Williams, who was as close as family to Marie. In 1993, Marie Wormington was awarded the prestigious Society for American Archaeology's Distinguished Service Award. Most important of all, she was such a credit to American archaeology that it was easier for later women to enter the profession.

Few leaders in any field of science held such prominence that they were considered almost indispensable. Marie Wormington was such a person and her role in the Paleoindian field will not be easily filled. In closing, I cannot find words any better than those written by Barbara Sudler in 1983 when she said of Marie Wormington: "Just as Margaret Mead did in cultural anthropology, Marie has paved the way for women in archaeology, having persevered despite various degrees of discrimination throughout her career."

#### SELECTED BIBLIOGRAPHY

##### H. Marie Wormington

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- 1947 *Prehistoric Indians of the Southwest*. *Denver Museum of Natural History, Popular Series 7*.
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1965 An Introduction to the Archaeology of Alberta, Canada. *Denver Museum of Natural History, Proceedings* 11.

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George A. Agogino  
Distinguished Research Professor in  
Anthropology, Emeritus  
Eastern New Mexico University  
Portales, New Mexico

WYOMING ARCHAEOLOGICAL  
SOCIETY, INC.  
1994 ANNUAL MEETING MINUTES

8:30 a.m. - Buffalo Bill Historical Center,  
Cody, WY; Saturday, April 30, 1994

PRESIDING: Dewey Baars, President

CALL TO ORDER: 8:55 a.m.

ROLL CALL AND CERTIFICATION OF DELEGATES: Secretary/Treasurer Carolyn Buff certified the voting delegates: Absaroka, Russell and Robin Purdue; Ancient Trails, Angie Cregger and Mary Capps; Casper, Jim Curkendall and Carl Belz; Cherokee Trail, absent; Cheyenne, Susan Carlson and Dick Lappe; Fremont, Loucille Adams; High Plains, Janice Baars and Terri Korell; Platte, absent; Rawlins, absent; Sweetwater, Russ Tanner; and Sheridan, absent.

Roll call showed seven chapters represented: Absaroka, Ancient Trails, Casper, Cheyenne, Fremont, High Plains, and Sweetwater. Not represented at the meeting were Cherokee, Platte County, and Rawlins.

MINUTES OF LAST ANNUAL MEETING April 24, 1993: Motion by Susan Carlson, second by Joe Bozovich to approve the minutes as printed in the fall 1993 issue of *The Wyoming Archaeologist*. Carried.

TREASURER'S REPORT: Secretary/Treasurer Carolyn Buff gave the treasurer's report showing a total net worth as of March 31, 1994 of \$24,275.23, an increase of \$353.81. Motion by Betty Rickman, second by Terri Korell to file the treasurer's report for audit. Carried.

AUDITOR'S REPORT: Mark Miller, Brian Waitkus, and Alan Korell reported that they had examined the accounts and receipts of the Secretary/Treasurer, and found them in order.

COMPUTER/PRINTER ACCOUNT: Carolyn Buff requested from WAPA that their donation and one private donation be moved into the general account since we no longer have a need for a computer or printer. Motion by Susan Carlson, second by Janice Baars to move this money into the general fund. Carried.

EDITOR'S REPORT: Mark Miller for Bonnie Johnson, editor, reported that the current issue is being put together now.

LIBRARIAN'S REPORT: Mark Miller for Danny Walker reported that exchange publications are on file at the Department of Anthropology, University of Wyoming.

SCHOLARSHIP COMMITTEE: Carolyn Buff announced that the committee would meet during the morning break.

CHAPTER REPORTS: Were given by all chapters present. Carolyn Buff welcomed the Ancient Trails Chapter (Newcastle) to the Society.

STATE ARCHAEOLOGIST'S REPORT: Mark Miller reported that the legislature has restored the budget to that of 1992 and thanked chapters and individuals who supported the movement to get that budget restored. A National Science Foundation grant proposal is in the works to obtain funding to inventory the archaeological repository at the University. The University of Wyoming is scheduled to host the 1995 Plains Anthropological Conference and will want to work closely with the Society to sponsor the conference.

OLD BUSINESS: Archaeology Support Fund - Susan Carlson reported that the status of the fund is unknown at this time.

Society for American Archaeology Representative: Marcel Kornfeld reported that the state

representatives did not meet this year. Marcel agreed to continue to serve as the Wyoming representative.

**NEW BUSINESS:** Archaeology Week - Carolyn Buff for Mary Hopkins reported that it was the consensus that February or March might be a better time for Archaeology Week. Local chapter coordinators are needed in order to make the activities happen.

**Membership Committee/Brochure** - Carolyn Buff agreed to do the typesetting and serve on a committee to create a membership brochure. Other committee members are Angie Cregger, Mary Capps and Susan Carlson.

**Legislative Activity:** It was noted that the executive committee is in need of a network whereby each chapter can be reached in a hurry for any emergency. It was requested that contact persons agree to having their telephone numbers published on the back page of the journal. Dave Baskett explained that to politicians there is no distinction between archaeology and paleontology and that perhaps it would be advisable to have the state archaeologist's office in charge of all preliminary reports with referral to other disciplines as needed. Perhaps one central reporting area would appeal to legislators at this time. Another concern to this group is the issue of the sale of public lands. A public policy committee was suggested. President Baars requested that presidents and secretaries of each chapter agree to give their telephone numbers to Carolyn to publish in the *Archaeologist*.

**WYOMING ARCHAEOLOGICAL FOUNDATION:** Sandra Hansen reported on activities at the Hell Gap Site. She announced that the Foundation would meet at noon at Maxwell's Restaurant. Fund raising includes the selling of cards. Funding is needed to get the remainder of the data from Harvard. George Frison announced that Vance Haynes will be at the site on May 28. He also reported on other activities

in regard to the site. He reiterated the vital importance of the Hell Gap Site to the study of paleoindian studies in the High Plains.

**ELECTION OF OFFICERS:** Joe Bozovich, chair, members Susan Carlson and Sandra Hansen, nominated the following officers for 1994-1995:

President - Dewey Baars  
1st Vice President - Roger Wardlow  
2nd Vice President - Joe Bozovich  
Foundation - Russ Tanner (3-year term)

Motion by Milford Hanson, second by Janice Baars that a unanimous ballot be cast. Carried.

**SITE OF 1994 SUMMER MEETING:** George Frison recommended that the summer meeting be held at the Hell Gap Site on May 28-30. Motion by Janice Baars, second by Loucille Adams. Carried.

**SELECTION OF SITE FOR 1995 ANNUAL SPRING MEETING OF THE SOCIETY AND FOUNDATION:** Motion by Mark Miller, second by Terri Korell that the 1995 annual meeting be hosted by the Cherokee Trail Chapter in Saratoga. Carried.

**1995 NOMINATING COMMITTEE:** Joe Bozovich, chair, Sandra Hansen, Susan Carlson. It was agreed that the first vice president would assume responsibilities for WAS participation in Archaeology Week, and that the second vice president would assume those responsibilities for the nominating committee.

**ANNOUNCEMENTS:** Lou Steege died on February 8.

Mark Miller - Four 10-day excavations will be conducted at Fort Laramie National Historic Site beginning on June 7, 20, July 5, and 19. Volunteers are needed but they need to register with Steve Fullmer at 837-2221 and be willing to do

nate a minimum of two days to the project. Excavations will be held on the quartermaster's dump from the 1860s and 1870s.

Thank-you's were extended to Russ and Robin Purdue for their hard work in making this a successful meeting, and Sandra Hansen for her work as the Foundation president.

WAPA voted to hold their spring 1995 meeting in Saratoga in conjunction with the WAS meeting.

ADJOURN: 10:33 a.m.

BANQUET: Roger Powers of the University of Alaska was the banquet speaker who spoke on the peopling of the new world.

GOLDEN TROWEL AWARDS: Joe Bozovich and Dr. Danny Walker.

/s/ Carolyn M. Buff

Carolyn M. Buff  
Executive Secretary/Treasurer

/s/ Dewey Baars

Dewey Baars  
President

**WYOMING ARCHAEOLOGICAL  
SOCIETY, INC.  
SCHOLARSHIP COMMITTEE  
MINUTES - April 30, 1994**

PRESIDING: Carolyn Buff, Chair

PRESENT: Dewey Baars, Joe Bozovich, Carolyn Buff, George Frison, and Mark Miller.

Five applications were received. The committee voted to give the Frison Scholarship to Alan Wimer, the Mulloy Scholarship to Karen Rog-

ers, and a Wyoming Archaeological Scholarship to Laura Niven. All awards were in the amount of \$300.00.

/s/ Carolyn M. Buff

Carolyn M. Buff  
Scholarship Committee Chair



**WYOMING ARCHAEOLOGICAL SOCIETY  
TREASURER'S REPORT  
For Year Ending March 31, 1994**

**CHECKING ACCOUNT**

Beginning Balance	\$4,332.12	
Deposits	5,143.92	
Interest Earned	91.48	
TOTAL INCOME	\$9,567.52	
Withdrawals		
Builder's Mart - Trowels	\$ 17.98	
Peden's - Trowel Engraving	20.00	
WAF - Annual Payment	316.50	
Yvette Widman - Student Banquet	15.00	
Thomas Dowson - Honorarium	200.00	
Julie Francis - Dowson Mileage	200.00	
Sheridan Center - Dowson Room	67.96	
Bailey's School Supply - Mailing Labels	73.94	
USPS - Bulk Permit	500.00	
Bonnie Johnson - Editor	50.00	
Key Bank - Secretary Expenses	100.00	
Casper College - Stamps	29.00	
Mary Hopkins - Stanford Airfare	367.50	
Casper Star-Tribune - Stanford Ad	196.02	
SHPO/DOC - Printing	700.00	
Dennis Stanford - Honorarium	750.00	
Mark Miller - Stanford Tour Expenses	84.34	
Dennis Stanford - Expenses	120.96	
Mark Miller - Archaeology Week Expenses	159.88	
Hitching Post Inn - Stanford Reception	293.25	
Susan Carlson - Stanford Expenses	14.70	
Mary Lou Larson - Evaluation Stanford	52.00	
Casper College - Stamps	29.00	
SAA - Annual Dues	25.00	
UW Duplicating - Wyoming Archaeologist	1,227.20	
Secretary of State - Corporation Fees	10.00	
UW Duplicating - Sales Tax	73.63	
Carolyn M Buff - Postage - Legislature	58.00	
Casper College - Stamps	29.00	
Yellowstone Travel - Powers Airfare	405.00	
Correct Bank Error - Canadian Exchange	137.67	
TOTAL WITHDRAWALS	\$6,323.53	
ENDING BALANCE		\$3,243.99

**SAVINGS ACCOUNT**

Beginning Balance	\$3,400.77	
Interest	92.30	
TOTAL	\$3,493.07	
ENDING BALANCE		\$3,493.07

**CERTIFICATE OF DEPOSIT**

Beginning Balance	\$16,185.37	
Interest	1,349.35	
TOTAL	\$17,534.72	
ENDING BALANCE		\$17,534.72

**PETTY CASH**

Beginning Balance	\$3.45	
TOTAL	\$3.45	
ENDING BALANCE		\$3.45

<b>TOTAL NET WORTH AS OF MARCH 31, 1994</b>		<b>\$24,275.23</b>
NET INCREASE		\$353.81
<b>SCHOLARSHIP ACCOUNT</b>		
Beginning Balance		(\$2,556.00)
Deposits		
Harvey Deselms		20.00
Deborah Chastain		100.00
TOTAL		\$300.00
ENDING BALANCE		(\$2,436.00)
<b>COMPUTER/PRINTER ACCOUNT</b>		
Beginning Balance		\$269.00
TOTAL		\$269.00
ENDING BALANCE		\$269.00
<b>ARCHAEOLOGY WEEK ACCOUNT</b>		
Balance		\$1,377.75

/s/ Carolyn M. Buff  
Executive Secretary/Treasurer

We do hereby certify that we have examined the accounts and receipts of the secretary/treasurer, and find them correct; and that the balance in her hands is \$24,275.23. Date: April 30, 1994

/s/ Mark Miller

/s/ Brian R. Wiatkus

/s/ Alan Korell

Total membership as of March 31, 1994: 308 (down from 348 in 1993)

Absaroka = 20	Fremont County = 19
Ancient Trails = 8 (unpaid)	Honorary = 12
State Archaeologist = 2	High Plains = 17
Associate = 31	Institutional = 52
Casper = 21	Platte County = 7
Cheyenne = 18	Rawlins = 24
Cherokee Trail = 18	Sheridan = 14
Department of Commerce = 2	Single = 1
Exchange = 10	Sweetwater County = 22
Family = 1	

Of Chapters:      Single = 103  
                         Family = 86

Chapter Officers:

- Absaroka - Jim Platt, Treasurer
- Ancient Trails - Mary Capps, President
  - Philip Grove, Vice President
  - Robert Cregger, Secretary
  - Edith Grove, Treasurer
- Casper - Jim Curkendall, President
  - Anne Stanley, Secretary
  - Gloria Boyce, Treasurer
- Cheyenne - Harvey Deselms, Sec/Treas
- Cherokee Trail - Dave McKee, President
  - Berneil McCord, Vice Pres
  - Doris Cornell, Sec/Treas
- Fremont County - Jane Weber, Treasurer
- High Plains - Geri McIver, Sec/Treas
- Platte County - Alan Bennett, President
- Rawlins - Dr. Bill Scoggin, President
  - Roger Hicken, Vice President
  - Alta Stample, Sec/Treas
- Sheridan - Bessie Brewer, President
  - BJ Earle, Vice President
  - Lynn Levin, Sec/Treas
- Sweetwater County - Dirk Murcraay, President
  - Bill Current, Vice Pres
  - Joan Allen, Sec/Treas

**PLEASE UPDATE THIS INFORMATION WITH THE STATE SECRETARY/TREASURER AS SOON AS POSSIBLE.**

# ENGENDERED COMICS AND SOCIAL INTERDEPENDENCY: AN ETHNOGRAPHY OF THE UNIVERSITY OF WYOMING VISITING ARCHAEOLOGICAL SCHOLARS' LABORATORY

by  
Matthew R. Pistono

## ABSTRACT

In the spring of 1994, ethnographic fieldwork was conducted at the University of Wyoming Visiting Scholars' laboratory. The organization of the labor process was analyzed that evidenced social interdependency. The laboratory functioned properly because of the pragmatic actions of the director of the laboratory. While openly demonstrating personal views on gender biases in western society, the University, and archaeology, the director diffused any animosity among workers by adorning the laboratory with comical and satirical wall hangings. This had a two fold effect. The first is the accentuation of knowledge about discriminatory actions against women, past and present, in society and in the profession of archaeology. The second affect the wall hangings have is that it pacifies any possible tensions related to gender biases, thus allowing the elements of the social situation to be accomplished.

## INTRODUCTION

The University of Wyoming's Visiting Scholars' Laboratory was first introduced to me four years ago during a tour of the archaeological facilities at the University of Wyoming, Anthropology Department. I was struck by the apparent disorganization and clutter in the room. Since then I have, essentially, become a part of that clutter. Having developed professional and personal relationships with all of the employees in the laboratory, I have discovered that much more happens than just scientific research. It is understood in the field of archaeology that work

does not stop when an archaeologist goes home. Archaeology is a life style, not just a profession.

I conducted ethnographic field work on this laboratory to understand better a sub-culture that employs me and that I live in. From a theoretical perspective, I wanted to understand the dynamics of the scientific process in the laboratory, and from a practical perspective, I wanted to explore gender issues in academia, specifically archaeology. During this research project, I proceeded inductively, beginning with passive observation, then participant observation, handing out surveys, and finally, conducting interviews with all but one individual working in the laboratory during my research.

As the goal of scientific anthropology is to explain and describe regularities and variation in social behavior (Spradley 1979a:10), I started passive observation exercises by mapping the laboratory. Understanding the spatial distribution eases the labor processes. Furthermore, it aids in understanding the "ambience" in the laboratory that is essential before trying to analyze the social relations and behavior among individuals that function in this small but complex sub-culture. Among the important items of material culture that I inventoried were the humorous and satirical wall hangings throughout the laboratory.

The participant observation, which included a written survey, I did may seem a bit odd as I was employed in the laboratory. I had to observe and ask questions more than one might think. First, when working in the laboratory, my back usually faces all of the other workers,

therefore I do not really know what they are doing at any given moment. I need to observe when I am not working. Furthermore, my employment often takes me out of the Visiting Scholars' Laboratory to other parts of the department. On the other hand, my research was aided by my employment because I already knew the layout of the laboratory, and was familiar with the emic (native) terms more than a stranger to this cultural scene. The survey I conducted inquired about supervisors, personal work space and organization of the laboratory.

I conducted interviews with each employee on two separate occasions. The first interview was accompanied by field notes and was intended to give me some a somewhat native view of the intra-laboratory relationships and chain of command. I presented each informant with eight separate note cards that had the names of all of the employees. I asked the informants to organize them in a variety of ways. The second interview session was done in formal, tape-recorded, question/answer style. By this time, I had begun to direct my research toward the processes of labor and gender related issues in archaeology. Each interview was recorded and transcribed.

By the time I had begun interviewing my informants, the interdependence of the social elements in this cultural scene had become clear. Essentially, this interdependency crystallized by looking at what Spradley (1979b) refers to as the surface of a culture. Further research into the social relations and attitudes of the employees illustrated how the laboratory is a microcosm of current societal turmoil with regards to gender issues. In a patriarchally organized society and University department, the main decision maker in the laboratory was a woman. If and how this accentuates the friction yet pacifies the turmoil will be dealt with below.

The following text will be organized as many ethnographies are in that it will cover space and material, social elements and activities, social organization and hierarchy, and

finally, gender related issues in the laboratory. Concluding this text will be a summation of the research highlighting the cultural themes and a section of self-reflection.

### SPACE AND MATERIAL IN THE LABORATORY

Understanding the spatial distribution is essential before trying to comprehend the social relations and behavior among the individuals that function in complex sub-cultures. There are nine individuals that work in the laboratory regularly. The room that these individuals function in is approximately ten by eight meters. The divisions of the different work areas are done in one of three ways; with bookshelves, long tables or work desks. The divisioning does not totally seclude any of the individuals as offices may do (Figure 1).

During my passive observation, I mapped and inventoried the main material artifacts in the laboratory. This laboratory was broken down into six sections. The work performed in each of these sections corresponded with the employees' duties (Figure 2). Among the employees, there was some sense of 'personal' space associated with each work area. The strongest sentiment of territoriality was articulated by a student informant.

"I have my own little work area and I get very upset if someone invades my territory. My work space is organized so that only I know what I am doing and where everything is located."

The second sentence of the above statement is referring to the question of organization. The entire laboratory has a cluttered feeling that seems to surround an individual when one walks into the room. While inventorying the laboratory, I noticed that the distribution of clutter flowed from the West to the East ends. There was more clutter near the main entrance and less to the back of the room. Possibly this results from the placement of items when one walks

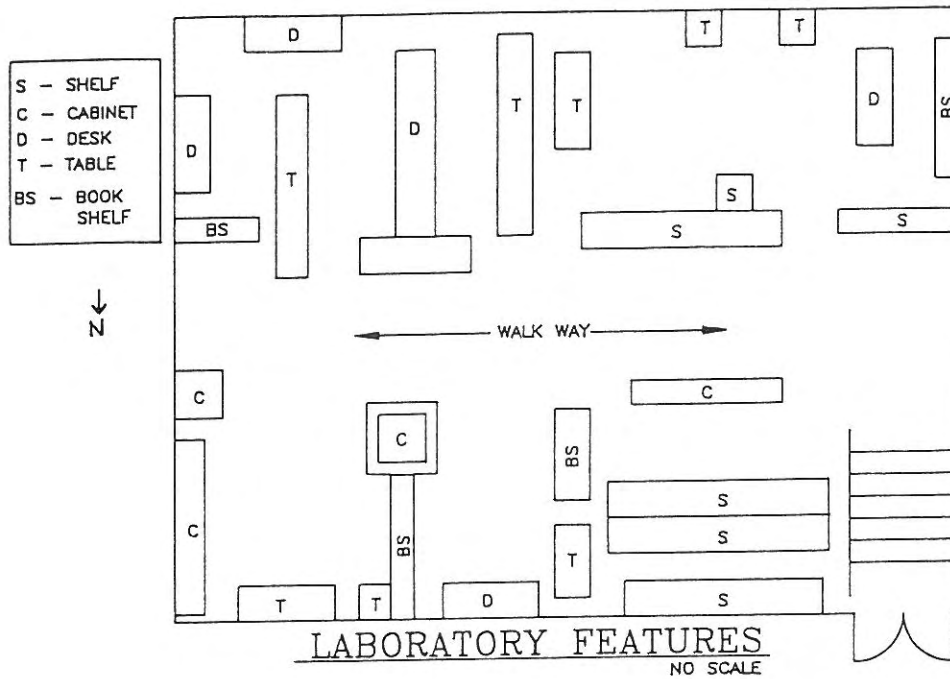


Figure 1: U.W. Archaeology Visiting Scholar's Laboratory, general floor plan.

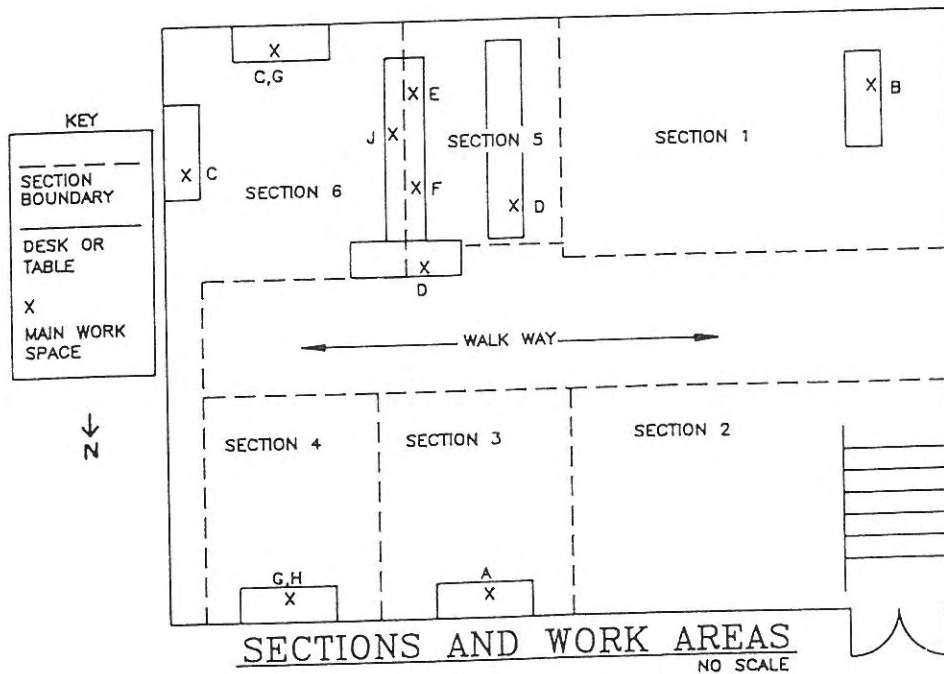


Figure 2: U.W. Archaeological Visiting Scholars Laboratory, work section layout.

into a room. Generally, one would prefer to carry something the least distance necessary, therefore the West end of the room, where the door is located, is more cluttered.

Although on the surface this laboratory looks cluttered and haphazardly put together, it is, in fact, organized.

"Yes, (it is organized) in a minimalist sense. The combination of a large number of people, working on a variety of projects, in a limited space makes for considerable confusion and shifting of materials and people,"

one visiting scholar wrote on a survey. Informant A said, "Sometimes, (it is organized) and also, if given enough time, I can find anything you need in the lab." The length of time people have worked in the laboratory enables them to know where materials are in this seemingly disorganized place. Many time I observed, and have been asked by my supervisors, where something was placed. This illustrates how the individuals doing the main research depend on their workers.

A final note on the organization of the laboratory is that throughout my four month research, the room became less cluttered. I did some moving of shelves and boxes at the request of the directors of the laboratory. The clutter also decreased throughout my research because of the cyclical, seasonal nature of (lab to field) work in archeological done by this laboratory. In September 1993 when I began studying this social scene, summer field work was ending and many items such as boxes, five-gallon buckets, and other equipment were in the transition from the field to storage. This influx of field supplies that were haphazardly placed at the entrance of the laboratory have since been used or place in other storage facilities. Thus the employees often depend on each other for directions to unknown materials, artifacts or supplies.

### ELEMENTS OF THE SOCIAL SITUATION

The elements that are common in most social situations such as actor, place and activities (Spradley 1979b:39) are also found in the Visiting Scholars' laboratory. The main social elements of the laboratory can be schematically represented (Figure 3).

The actors of the social situation are the nine workers in the laboratory. Of the nine workers, two are part-time lecturers-researchers, one is a researcher, three are full-time undergraduates, one is a full-time graduate student, and two are employees. The age range of the individuals in the laboratory is between twenty-one and early forties.

The place is the laboratory itself. The main activities of the social situation (social elements) in the laboratory are shown in the diagram above: picking matrix, computer data entry, artifact analysis, and research. These primary activities do not exhaust the elements of the social situation but they are the primary ones. As Spradley (1979b:40) writes, "they do serve as a springboard into understanding [the social situation] them." "Picking matrix" is the process of picking usually bone, chipped stone, fire cracked rock, or charcoal out of dirt that has been excavated. Informants E, F, and H fulfill this task. Research is undertaken usually by Informants A, B, and, C, although all of the other activities are tied into the process of research. The research that I am referring to as a social element is the actual writing of reports and papers about the work being accomplished in the laboratory. Artifact analysis is executed by Informants A, B, C, D, and J. This activity is the process of looking at faunal material (bones) and lithics (chipped stone) and inferring certain things about the artifacts. For example, one might be looking for cut marks made by stone tools on the bones or for usage wear on the chipped stone or lithic debris. Both analyses are done by viewing the artifacts by either the naked-eye, a magnifying glass, or a microscope. The final activity is Computer Data Entry. This

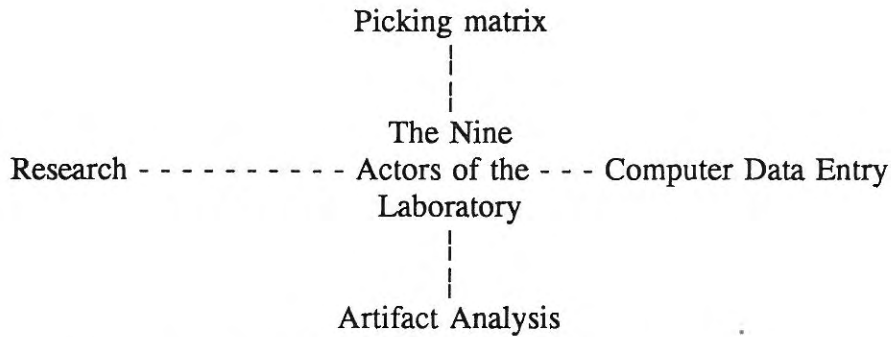


Figure 3: Relationships between activities, U.W. Archaeology Visiting Scholar's Laboratory.

is performed in some way by all of the informants and involves entering artifact numbers and relevant measurements into a data base so statistical analysis can be executed. The individuals that usually enter the data are called "Data Peeps."

The goal of the social elements is to contribute specific information to the particular project's or site's data base. During the interviews with the informants, I inquired about the goal of archaeology and their own, personal contribution. All of the informants said in some way that the goal was to understand human behavior by using the archaeological record and that understanding the past will aid us in the comprehension of present and future populations.

Each informant told me that their own personal contribution was adding to that overall archaeological data base. The way in which each of these individuals accomplished this was by either research, entering data on a computer, analyzing artifacts, or picking matrix. Within this laboratory, if any one of these elements were to be eliminated then the entire process and goal of contributing information to the archaeological data base would cease.

For example, if bone or chipped stone were not picked from the dirt, then the artifact analyses could not be accomplished. Or, if the number on each artifact were not recorded in the computer, then statistical analysis would be

virtually impossible. And, if the artifacts were not picked, data not entered, and information not analyzed, the final write-up could not be accomplished. If the final reports are not written, presumably no further research funding would be available. If there is not any money to pay the employees, then the entire process would be at a stand-still. This is how the social elements are dependent on each other and thus characterize the interdependency of the Visiting Scholars' Laboratory.

### SUPERVISION AND HIERARCHY

"An interest in the hierarchical relations between men and women has been a feature of the discipline of anthropology since its earliest days" (Moore 1988:12).

All of the individuals in the laboratory that I observed, spoke with, or returned the small survey, feel that the supervision of the work done in the laboratory is accomplished in a cooperative manner. Informants A, B, and C see themselves as supervisors. However, Informant A responded on the questionnaire to the question of her work being supervised,

". . . my employees supervise my work in that I must perform tasks for them and [I] keep one step ahead of them most of the time."



Although she said her employees supervise her, all of the employees I spoke with said if there was one supervisor, the person at the top of the chain of command, it would be Informant A. When I asked Informants A and B to diagram the relationship of all the people in the lab with individually marked note cards, both of them put the note cards in a circular manner. They said the work in the lab was done cooperatively. Informant B said that he is generally not supervised in the laboratory and critical comments and views by all the employees are taken seriously. I see the supervision of the lab as a cooperative effort done by Informants A, B, and C, who welcome advice given by the other employees.

I asked almost all of individuals in the laboratory to diagram the chain-of-command and no diagram was exactly like another. Informant A was consistently part of decision making body, while Informant B and C varied from equal in the chain-of-command to a step or two below Informant A. Informant B and C were referred to by employees as "directors," "sub-directors," and "figure-heads." Informant B was even called "Informant A's messenger and workhorse."

The next step down in the chain-of-command was where the most variation was found. Generally the diagrams had employees with more field experience and education ahead of those individuals with less field and classroom work. However, there were instances where this did not always occur and individuals placed themselves above another individual that had more experience or education. For sake of informant anonymity, no example will be given, but as stated above, there did seem to be some type of graded-scale from top to bottom related to the amount of experience or classroom education.

Cooperation and communication is the key to the work getting accomplished. Although the chain of command diagrams varied, each individual can give and receive advice from any other individual. This is most explicitly seen

during the biweekly employee meetings. Each worker gives their input as to the status of their work and also is able to voice opinions or critiques of their own and other's ongoing work. Final research decisions are always made by Informants A, B, and C.

## GENDER RELATED ISSUES

"This is a paternalistically organized society, so is archaeology. There are Bigmen in archaeology as there are Bigmen in society. Women's roles are influenced by this fact" (interview with Informant C, 11/18/93).

When I began researching this sub-culture, I already had some knowledge of the "hot" topics of conversation. I spent the main portion of my 1993 summer at various archaeological sites with most of the individuals in this study. A topic that was discussed over meals, at the camp fire, and with trowels in our hands was the role of women during prehistory and in the field of archaeology. The entire spectrum of attitudes and responses arose during these chats, conversations, and heated debates. This topic did not stop when the work was brought back to the laboratory.

During my passive observation of the laboratory, I inventoried the wall hangings (Table 1). Comical wall hangings comprised 33% of the total. Of that percentage, 17% referred in some way to gender issues. The issues that are dealt with in a satirical manner have a deeper meaning than just a simple comic strip. For example, throughout the summer field season, a phrase that referred to a man or an action that was too "macho" or chauvinistic was, "it's a dick thing." There is a magazine article titled by the same phrase hanging on a cabinet in the laboratory (Sargent 1990:49). Furthermore, a wall hanging that was put up by Informant A compares the anatomical make-up of a male brain to that of a dog brain, with some similar characteristics. Characteristics included the male having a lobe

for "ball sports, T.V., and air guitar" and the dog having the same lobe for "ball sports, chasing cats/squirrels, and licking gross things." The largest portion of the male's brain was devoted to "sex" and the largest for dogs was "love of the putrid; eating it; rolling in it." A note that was put up to the side of the wall hanging said, "Editorial Comments welcomed (but go to *Informant A*)." The note was put up by Informant E, a woman.

The questions raised by this issue of men and women's roles in the laboratory, or even in archaeology, are many. Are the comic strips that adorn the lab simply a means by which to break up the monotony of the laboratory work or are they perhaps venting certain feelings of animosity? A recent article about conflict resolution discusses the utility of concentrating on the "actual sequences of conflict talk" instead of focusing on "talk *about* conflict" (Kulick 1993:510). Consequently, I explored the se-

quence of avoiding a conflict in the laboratory and not talking about the larger societal picture it represents.

During the formal interviews with the employees of the Visiting Scholars' Laboratory, I primarily concentrated on questions of male chauvinism and gender roles in archaeology and in the laboratory. After the first few questions, I found informants willing to speaking frankly about their opinions and their experiences.

In an attempt to relax the atmosphere of a formal interview session, I read a quotation from a 1973 ethnography of archaeologists.

"They [women] are to be found in classrooms, in summer field schools, and as wives of archaeologists. The phrase male archaeologist is redundant. Successful female archaeologist (read married to an archaeologist) (Sellars 1973:146)."

Table 1: Summary of wall hanging types, UW Archaeology Visiting Scholar's Laboratory.

TYPES OF WALL HANGING	% FOR ENTIRE LAB	% FOR SECTIONS					
		1	2	3	4	5	6
Photographs	6.5	20.8	0.0	3.2	0.0	0.0	0.0
UW Regulations & Notifications	5.3	12.5	0.0	6.4	0.0	0.0	11.7
Calendars & Schedules	9.6	16.6	0.0	12.8	0.0	0.0	29.4
Archaeological Posters	11.8	0.0	25.0	16.1	0.0	0.0	11.7
Comic strips & humorous comments	33.3	20.8	0.0	61.3	22.2	75.0	5.8
Signs & Notes for Workers	5.3	4.1	0.0	0.0	0.0	25.0	11.7
Maps, Tables & Charts	21.5	12.5	75.0	0.0	77.7	0.0	23.5
Miscellaneous	6.5	12.5	0.0	3.2	0.0	0.0	5.8

All of the interviewees were amused by this quotation and agree that this probably was how things were twenty years ago. I then asked the informants about male chauvinism in the present field of archeology. All of the responses answered in some way that there is male chauvinism in archeology today. However, informant J told me that there is also a fair amount of female chauvinism in his experiences. He implied that the female chauvinism is a counter measure against the male chauvinism experienced. This informant said that the satirical commentaries about men were a form of female chauvinism although they did not offend him personally. Informant D showed me a cartoon out of a stack of papers on Informant B's desk that I am sure would be a form of sexual harassment against women if hung up. The cartoon compared different poses of nude women to street and road signs. Satirical wall hangings about men are permitted because they serve to vent emotions and counter chauvinistic behavior. By having this mode of communication available, face to face confrontation about male chauvinism does not occur.

I questioned the employees in the laboratory about the possibility of different degrees of chauvinistic behavior at the different pay levels in archaeology. Informant G said she thinks there is more male chauvinism at the higher paying jobs of archaeology and that she has not experienced chauvinistic behavior very much. Informant A differed from Informant G saying that there is chauvinism at all levels of archaeology:

"I think it [chauvinism] is at the lower ones [jobs]. Historically, archaeology is a white, wealthy, male profession. There are studies that suggest women get on-average lower salaries and despite anthropologists claim to be non-ethnocentric, they are."

In light of all informants views that there is some male chauvinism in the field of archaeology, most of the informants told me that they

did not feel that there was much male chauvinism in the laboratory. Informant B [male] did tell me that as much as the men in the laboratory say they are not chauvinistic, "even if we think we're not, the whole culture is." M. W. Conkey supports this as well when she writes,

". . . archaeologists themselves have contributed to and perpetuated certain limited and ethnocentric (i.e., sexist) views on women and gender relations" (Conkey 1991:103).

Informant F said that in the laboratory, male chauvinism, "definitely isn't intentional," but he implied that it often comes out just because of the nature of the male ego. He went on to say that the person at the top of the chain of command (Informant A), "can shoot down egos faster than anyone I've ever seen." In essence, what Informant F was saying was that Informant A, a woman, does not want any male chauvinism in the laboratory because of the possibility of disturbing the work process. I did not observe any male chauvinism and this is in part because the males in the laboratory know that the director of the work place does not want any such behavior. The people in the laboratory know this because of the wall hangings adorning the laboratory.

When I asked the informants their opinions of the wall hangings, I referred them to my passive observation statistics of the gender specific wall hangings. These gender specific wall hangings all referred to male actions (or lack there of). Some of the titles of these wall hangings include, "Comparative Anatomy Brains; Dog and Man," and "Evolution of The Chain of Authority," which has a primate foot imprint to start with and ends with an imprint of a women's high-heeled shoe. I received a variety of answers and opinions as to the significance of the wall hangings but all of the informants said that it was more than simple humor.

"Sometimes I wonder how much women are trying to escape their past and creating an issue

when there really isn't one," Informant D told me. Informant J told me that he thought women were equally able to do any job he could do but questioned why women would put up such wall hangings. "Sometimes they go overboard in making it known that they are capable and competent," he told me. One female in the lab told me that she "really didn't pay that much attention," to the wall hangings and implied that those who put up the comics may have more of a problem with the issue than she does. This implies that there is a lack of female solidarity in the laboratory, probably because of the amount of chauvinistic behavior experienced. Informant A apparently has experienced more, therefore she exercises her ability to vocalize against chauvinism more than women who have not experienced this sort of behavior.

Informant F told me that he thought the wall hangings were to,

"make people aware that there is still sexism. I don't think it is an attack on me personally though, but against a social system that has traditionally not viewed things egalitarian."

This is why some wall hangings have been put up around the lab. This is confirmed by Informant A, who has put up at least six of the wall hangings and those three named earlier. She said the wall hangings are like a "political statement." I inquired as to the possible repercussion on an aspiring young female archaeologist if they saw these wall hangings. She answered,

"I think it is good, it makes them aware of it because it is a battle they will face the rest of their life."

The consciousness that Informant A wanted to relay to younger women working in the laboratory apparently did not happen for Informant G, yet this does not mean it would not happen to others. Although Informants D and J expressed to me that they think women are "creating an issue when there really isn't one," apparently

they recognize that Informant A is sensitive to chauvinistic behavior thus they would be less likely to act in such a manner.

Informant A was very willing to speak of male chauvinism. I asked her to elaborate on a quotation that I found in the introduction of her PhD dissertation that said, "in a culture steeped in male chauvinism." She related to me how the same behavior can be viewed in completely different ways depending on the gender.

"If I am assertive then I am considered a bitch, but if a *male* does the same thing he is considered a strong male figure. I still may be a bitch but these are things to be aware of."

Most of the people in the laboratory said that the comics were a way of "poking fun at a serious problem." I did not observe much, if any, male chauvinism in the laboratory. From what the informants told me, the comics relate to a larger societal picture. In a patriarchally oriented society, and department within the University, the laboratory is primarily directed by a woman. This is why there is a significant amount of gender related comics hanging around the laboratory.

Since society would expect to have a man in the main position of authority, having a woman as the decision maker or director of the Visiting Scholars' Laboratory brings the gender issues to the forefront more so than if a male was directing the laboratory. Informant A's actions concerning gender issues in the laboratory have a two fold effect.

The first, which has been alluded to before, is that she accentuates the knowledge about discrimination against women, past and present, in society and in archaeology. The way this is done is not radical but simply demonstrates her opinions. Hanging satirical wall hangings about gender roles increases awareness. For example, the note that Informant E put up (see above) would not have been placed if Informant A would not have put up the comical pin-up. Fur-

thermore, the knowledge by the workers in the laboratory that Informant A is sensitive and will respond to chauvinism discourages that sort of behavior.

This leads us to the second affect the wall hangings have and that is the pacifying of possible tensions. It is a means to alleviate tension so the work can get done without serious personal disputes arising. Informant A is fully aware that the social elements (work) can get done more effectively and efficiently if personal disputes are not present. For example, there are bi-weekly employee meetings that are always conducted not by Informant A, but Informant B. I surmise that in part, Informant A has Informant B conduct the meetings because in the patriarchally organized society we function in, she sees utility in having a man run the meeting. Not because men are better at conducting social organizations than women, but because she recognizes specific roles and uses them to achieve the goals of the laboratory.

Essentially, the Visiting Scholars' Laboratory is a microcosm of societal turmoil in terms of gender related issues. The director of the laboratory makes the turmoil known yet pacifies it with satirical wall hangings so the interdependency of the social elements will not be disturbed.

#### SUMMATION OF THE RESEARCH

Although I began the research by passively observing, this method did not cease once I began using other approaches. Nor did the interviewing process start during the final month of my research. During the research, it seemed as though I was doing the methods in sequence, passive to participant observation and concluding with interviews. As I look back on the process, it was an interwoven methodological approach that incorporated observation, participation, and discussions about the sub-culture that I studied.

The space and material culture that I mapped and inventoried allowed me to understand how a seemingly haphazardly organized laboratory functioned. I mapped and counted more than I

included in this ethnography. However, I think this process allowed me to understand the spatial distribution and how it is organized. When the interdependency of the social elements crystallized, the laboratory seemed more of a cohesive entity than I originally realized.

The main theme of this ethnography, that is the laboratory is a microcosm of societal turmoil and is dealt with by using comical and satirical wall hangings, has helped me understand my boss better. I think the statement that Informant A made about her behavior being considered unbecoming of a woman while if a male did the same it would be viewed positively, eased this understanding. It also helped me comprehend the sometimes double-standard for women in archaeology and society. This research, that I tried to describe in a *thick* way (Geertz 1973:3-32), has taught me not to look at society simply on the surface, but to find out what are the underlying meanings.

In conclusion, the University of Wyoming Visiting Scholars' laboratory is characterized by interdependency of the social elements and has proven to be a microcosm of societal turbulence. This societal turbulence is recognized by the director of the laboratory. Because a woman is the director of the laboratory in this paternalistically organized society and University, gender issues are more widely publicized in the laboratory. Although these gender issues are a part of a larger societal picture, they still have the potential to disrupt the social elements in the laboratory. However, because of the pacifist actions and pragmatic knowledge of gender roles by Informant A, the laboratory accomplishes research goals and contributes to the overall archaeological data base.

#### ACKNOWLEDGEMENTS AND NOTES

The methodological approaches I employed during this ethnographic research were aided by the texts of J. P. Spradley, D. W. McCurdy, R. B. Edgerton and L. L. Langness, and H. R. Bernard.

Dr. A. Shalinsky directed me throughout the research and did multiple reading and critical proofing of drafts. Ms. O. Mellizio, Mr. T. Parlato, and Mr. G. Shaw also helped in the proofing and organization of this manuscript.

Because of copyrights, none of the comical wall hangings were allowed to be published in this manuscript.

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# AN EARLY HISTORIC PERIOD HORSE SKELETON FROM SOUTHWESTERN WYOMING

by

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## INTRODUCTION

During archaeological monitoring of highway construction at site 48SW8319 in 1991, the remains of a single modern horse, *Equus caballus*, were uncovered by heavy construction equipment. The site is located next to the Blacks Fork River in Sweetwater County (Figure 1). The site lies in the Green River geomorphic basin (also known as the Bridger Basin) of southwestern Wyoming, on the east side of the Blacks Fork River near the head of Flaming Gorge Reservoir. Gravel deposits are present in the terrace and probably date to the Pleistocene Period. The bedrock exposed on the surface of the higher terraces consists of the Laney Member sandstones and shales of the Eocene age Green River Formation. Site 48SW8319, as a whole, contains a variety of prehistoric remains. These include hearth features and possible buried components dating to the late Archaic and Late Prehistoric periods, and surface materials related to the historic ranching period of the early 20th century (Waitkus 1990). There were no surface or subsurface indications of any early historic period artifacts, features or components found during the survey or test excavations at this site in 1990 and 1991.

The construction equipment exposed the very top of the horse remains, and most of the skeleton was found intact (Figure 2). Upon exposure, the loose sediment was removed from the uppermost bones to learn their extent. A two by two meter unit was established over the remains for mapping purposes. All loose fill was screened through ¼" mesh screen.

The horse remains were located on the contact between the sand sheet (or dunal remnant)

deposits and the top of the Pleistocene gravel deposits. It is felt the gravel deposits are Pleistocene age because, in several locations within the gravel pit, ice wedge features were observed at the contact between the sand and gravel deposits (Mears 1981). Most of the horse skeleton was found in the gravels. It could not be determined if a pit had been excavated and the horse placed in a pit, or if the remains had been left at a place where gravels had been exposed and then quickly covered by alluvial or eolian sand deposits. The state of preservation of the bones was excellent suggesting a rapid interment, whether natural or cultural.

Further, organic remains were found in the body cavity of the horse skeleton. Maggot cases (generally found throughout the bones), the remains of stomach contents (found in the rib cage area), and possible decayed flesh on the scapulae, vertebrae, and innominate, were present. This suggests a period where the carcass lay exposed before being covered. Samples of the maggot cases and stomach contents were recovered for further analysis and radiocarbon dating.

Upon first exposure, the horse remains appeared to be no more than an isolated occurrence, perhaps a natural death. However, the skeleton was not completely articulated as might be expected. This was especially evident with the lumbar vertebrae being found on top of the rib cage as a unit, and the cervical vertebrae that were present in an articulated unit, but disarticulated from the atlas and axis vertebrae and skull. The pelvic unit was also not in normal articular position. As excavation progressed, three *Canis latrans* (coyote) skulls were uncovered under the



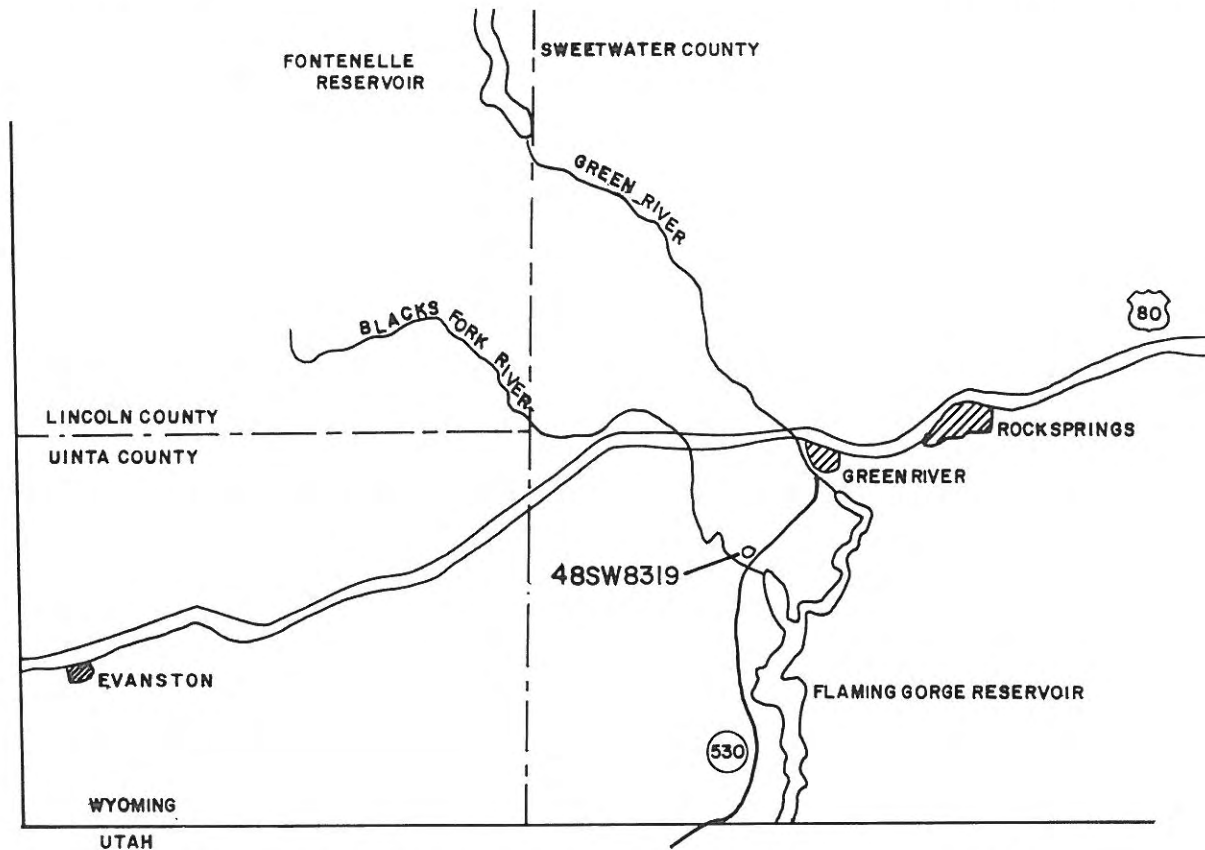


Figure 1: Location map of 48SW8319 where horse remains were found (not to scale).

right tibia, right humerus, distal end of the skull and rib cage (Figure 3). This was more evidence that the horse had been purposefully placed in this location with the coyote skulls placed among the horse.

Upon examination of the individual bone elements, several butchering marks were evident. The depth of these marks, and in some cases the displacement of bone, argues for the use of metal tools. Deep cut marks were found on the right and left femora, right innominate, right humerus and right scapula with less deep, but visible, cut marks on the lumbar vertebrae, first sacral vertebra and on seven of the right ribs (see discussion on butchering below).

A sample of organic matter recovered from the rib cage area (stomach contents) yielded a radiocarbon date of  $430 \pm 60$  BP (Beta - 48068). Another radiocarbon date was run on the left

radius, resulting in a "modern" date (Beta - 50322  $100.5 \pm 0.8\%$  of modern), which means the bone date must be less than 300 years old (Murray Tamers, personal communication 1991).

These radiocarbon dates place the horse skeleton at a very early age for modern horses to have been in Wyoming. The range of dates suggested is between A.D. 1426-1481 (one standard deviation) and A.D. 1400-1633 (two standard deviations). These are the calibrated ages of the radiocarbon date converted into calendar years (Murray Tamers, written communication). The "modern" bone date suggests an age of less than 300 years (less than A.D. 1650) but bone tends to date younger compared to other materials (Tamers and Pearson 1965). Given the history of European exploration and settlement in North America after 1492, it is



Figure 2: Excavations in progress at Horse locality, 48SW8319.

next to impossible to expect horses to have been present in Wyoming before the major Spanish exploration in the Southern Plains of the mid-16th century or even the Spanish settlement in New Mexico in the early 17th century. As Haines stated,

"... The available evidence indicates that the Plains Indians began acquiring horses some time after 1600, the center of distribution being Santa Fe. This development proceeded rather slowly; none of the tribes becoming horse Indians before 1630, and probably not until 1650 . . ." (Haynes 1938a:117).

Therefore, it may be concluded that the more accurate date of these horse remains is toward the end of the documented radiocarbon age, i.e., the mid-1600s.

#### SKELETAL ANALYSIS

The horse skeleton is nearly complete with only a few of the smaller elements missing, such as phalanges, carpals and tarsals, and caudal vertebrae (Table 1). Normal or average numbers of each element area also presented based

on the work of Getty (1975:257-317). The left innominate is incomplete and portions appear to have been broken and removed by heavy earth moving machinery. The most notable missing elements are the right front and rear phalanges, and left rear hoof (distal or third phalanx). Only the left front hoof is present.

This horse is quite young. Based on the table of average period of tooth eruption (Getty 1975:470), this animal was between five and nine months of age. The permanent first maxillary premolar has erupted and the first permanent mandibular premolar has not erupted. The eruption of the first permanent premolars should occur between five and six months (Getty 1975:470). The mandibular deciduous third incisors, which should erupt between six and nine months, have not. Finally, the maxillary and mandibular permanent first molars have not erupted; these teeth should erupt between nine and twelve months.

All vertebrae, ribs, long bones, and innominate have unfused epiphyses. Only those articular ends of certain elements that fuse before birth or just after birth are fused. Thus, the proximal end of the third metacarpal and distal

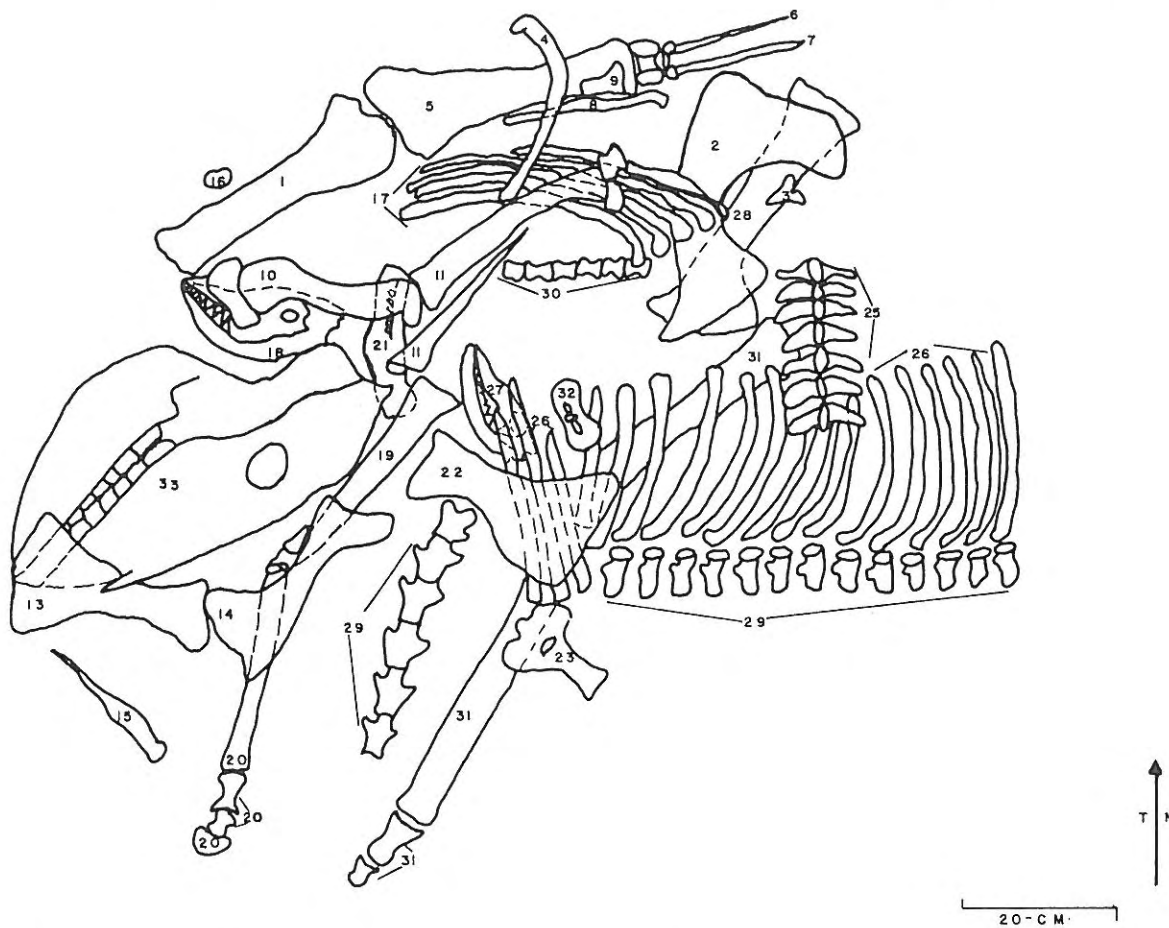


Figure 3: Drawing of *Equus caballus* bone distribution at 48SW8319, showing relationships of horse bones and *Canis latrans* (coyote) skulls.

- |                                     |   |
|-------------------------------------|---|
| 1. right femur                      | 16. sternal element (not shown)                         |
| 2. right innominate                 | 17. left ribs   |
| 3. sacral vertebra                  | 18. coyote skull  |
| 4. right rib                        | 19. left radius and carpals                             |
| 5. right tibia and tarsals          | 20. left metacarpal, carpals, and phalanges             |
| 6. right metatarsal                 | 21. coyote skull  |
| 7. right metatarsal                 | 22. right scapula                                       |
| 8. right rib                        | 23. axis vertebra                                       |
| 9. right calcaneus                  | 24. left innominate (not shown, under right innominate) |
| 10. right humerus                   | 25. lumbar vertebrae                                    |
| 11. right radius, ulna, and carpals | 26. right rib   |
| 12. right second metacarpal         | 27. coyote skull  |
| 13. left scapula                    | 28. left femur (not shown)                              |
| 14. left humerus                    | 29. thoracic vertebrae, cervical vertebrae              |
| 15. left ulna                       |   |

KEY TO SKELETAL ELEMENTS, FIGURE 3

ELEMENTS PRESENT (INCLUDING EPIPHYSES)	NUMBER AND SIDE	NORMAL COUNT (BASED ON GETTY 1975)
Skull	1	1
Mandibles	1 left, 1 right	2
Atlas vertebra	1	1
Axis vertebra	1	1
Cervical vertebrae	5	5
Thoracic vertebrae	17	17-19
Lumbar vertebrae	6	6
Caudal vertebrae	14	18 average
Scapula	1 left, 1 right	2
Humerus	1 left, 1 right	2
Radius	1 left, 1 right	2
Ulna	1 left, 1 right	2
Metacarpal	3 left, 3 right	6
Carpals	5 left, 5 right	7-8 7-8
Phalanges	3 left front, 2 left rear	3 3 3
Ribs	18 right, 16 left	18 18
Sternal elements	5	---
Innominate	1 left, 1 right	2
Femur	1 left, 1 right	2
Patella	1 left, 1 right	2
Tibia	1 left, 1 right	2
Metatarsal	3 left, 3 right	6
Tarsals	5 left, 3 right	6 6

Table 1: Skeletal element representation of *Equus caballus*, 48SW8319.

end of the first and second phalanges are fused. Of further note in this age determination are several unfused elements. The distal scapulae are unfused. Horse scapula should fuse between nine and 18 months. The distal ulna fuses with the radius to become the lateral styloid process between two and nine months (Getty 1975:285). The distal ulnae of this horse are unfused. The distal third metacarpal fuses between six and 18 months and the distal metacarpals of this horse are unfused. The proximal epiphyses of the first and second phalanges of this horse are nearly completely fused with the fusion line still visible. The proximal epiphyses of these phalanges should fuse between six and 15 months (Getty 1975:272). Based on tooth eruption and fusion schedules for the long bones discussed above,

the age of this horse should be between five and nine months.

### BUTCHERING ANALYSIS

Butchering marks occur on several elements. Most of these are deep cut or chop marks that are clearly from metal tools, either large knives or hatchets. A few of the cuts are completely through the bone and may be cuts from the use of a saw or from a clean cut with a hatchet or ax. Cut marks are found on the right humerus, right scapula, right innominate, both femora, lumbar vertebrae, first sacral vertebra, and seven of the right ribs.

On the right humerus, there is a chop cut across the proximal head and shaft and a large chop or saw cut across the medial side of the proximal head. The large chop or saw cut on the humerus head corresponds to a similar large chop or saw cut across the glenoid cavity and supra-glenoid tubercle of the right scapula. The right innominate has a deep (hatchet?) cut into the body of the ischium at the ischiatic spine (Figure 4). This is a deep cut that has displaced some bone in the area of the cut.

Both femora have cut marks. The left femur has a deep (hatchet?) cut at the lesser trochanter and faint cut marks on the proximal head under and on top of the fovea. The right femur has a deep (hatchet?) cut across the proximal head down into the diaphysis (Figure 5, lower). There are green-bone breaks at the lesser trochanter as if the ax or hatchet had penetrated into the diaphysis and the bone was then "wedged" loose (Figure 5, upper). There are also four deep cuts lower on the diaphysis (cranial view) and six shallow (knife?) cuts on the diaphysis (caudal view) from near the proximal head to near the distal articular surface.

There are cut marks on the second, third,

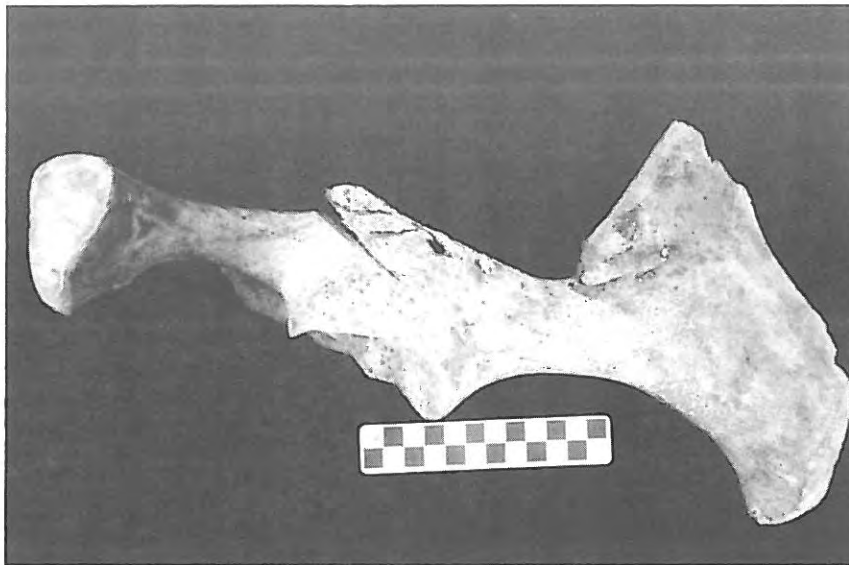


Figure 4: Butchering marks on horse ischium from 48SW8319.

and fourth lumbar vertebrae. These appear to be knife cuts located across the base of the right transverse processes. The first sacral vertebra has a shallow (knife?) cut at the top of the spinous process on the cranial aspect.

Seven of the right ribs have one or two shallow cut marks across the body just below the proximal head. Four of the right ribs have apparent carnivore damage as well. The cut marks present are in some ways similar to that found on bison in kill locations, and in other ways they are quite different. The work of Frison (1970, 1973) on the butchering of bison at the Glenrock and Wardell sites was used to compare butchering methods.

According to Frison (1973:34-39), butchering on bison occurred first at the metacarpals and metatarsals to begin removal of the hide. Cut marks from stone tools were found on the metacarpals, metatarsals, distal ends of the tibiae, and vertical edges of the mandibles at the Glenrock and Wardell sites (Frison 1973:39). Regarding the tail,

"Variation is also evident in the handling of the tail. With about equal frequency at Wardell the fifth sacral vertebra was broken

off or the separation was effected between the last sacral and first caudal. Less frequently, the tail was cut off between the first and second caudals, as suggested by a significant number of number one caudals in relation to the insignificant number of remaining caudals. At Glenrock, the procedure was similar except that the fourth and fifth or only the fifth sacral vertebra was broken off. . ." (Frison 1973:39).

Frison (1973:39) postulates that the bison were most likely lying on one side when skinning the hide commenced, with the hide being cut down the belly and skinning occurring at the other bones mentioned above.

No evidence of skinning could be found on the horse bones from 48SW8319. No cut marks were found on any of the metacarpals, metatarsals, or mandibles. It could be inferred that skinning of the horse hide did occur in some fashion, given the absence of the distal-most caudal vertebrae, most of the phalanges, and the fact that the horse was lying on its left side. Direct evidence for skinning is, however, absent.

The cut marks on the horse humerus proxi-



Figure 5: Horse femur from 48SW8319 showing butchering marks with steel tool. Upper = cranial view; lower = caudal view.

mal head and glenoid of the scapula are somewhat similar to that at Glenrock and Wardell.

". . . At Wardell, most scapula were chopped off at the neck just behind the articulation with the humerus. Presumably the main bulk of the scapula from the neck upward with associated muscles intact was then taken to the processing area, since these

parts were lacking at the kill area. Three specimens suggest an alternate method. One scapula bears deep cut marks and two others indistinct marks that encircle the glenoid cavity between the latter and the tuber scapulae. This suggests cutting muscles and ligaments to separate humerus and scapula rather than chopping across the neck of the latter, but the number of specimens demonstrating these marks is small. At Glenrock,

both lateral and medial tuberosities of the humerus were chopped off to strip the muscles on both sides of the scapula. The latter was usually left complete except for a regularly broken off small amount of the coracoid process, which presumably occurred during removal of the flesh . . . " (Frison 1973:39).

Clearly, the cut across the horse scapula glenoid and proximal head of the right humerus was to disarticulate these two elements and is different to a degree from the bison examples. Only two cut marks were found on the proximal head of the left humerus of the horse, and the left scapula did not have any cut marks. This suggests that butchering of the horse front leg was not a consistent pattern as is seen on the bison examples.

The deep cut mark on the horse right innominate (cut into the ischiatic spine) is dissimilar to butchering on bison at the Glenrock and Wardell sites, as butchering marks on the bison innominates appear on the *tuber ischia*, distal end of the ischium, pubis, and acetabulum. On the bison examples, the muscle masses that would have been so removed include the lateral leg muscles, muscles lying on the innominate, sublumbar muscles, and *longissimus* muscles (Frison 1973:43-46). The cut mark on the horse innominate is difficult to explain based on the bison examples because the cut is opposite the acetabulum where the *gluteus profundus* originates (Getty 1975: 437). Otherwise, the innominates have no other visible butchering marks. If the butchering of the horse had followed the bison examples, cut marks around the acetabulum would have been expected.

This is further complicated by the level of butchering evident in the horse femora. The proximal heads of both femora show slight to heavy butchering. This would be expected to separate the femur from the innominate. The extreme amount of deep cut marks on the right femur at the proximal head without corresponding cut marks on the acetabulum, however, is hard to explain. This is unlikely just the result

of disarticulation of the femur from the innominate. The deep cuts on the right femur shaft are also difficult to explain. It is possible that the muscle masses around the femur were removed in a haphazard fashion. Persons doing the butchering did not quite know what they were doing, or there is another reason for the deep cuts.

Cut marks on the lumbar vertebrae are similar to the bison examples if it is assumed that the cuts were a result of stripping the *longissimus* muscle (back strap). The cut on the first sacral vertebra spinous process also may be related to stripping the *longissimus* muscle. The fact that no other cut marks were present on any of the other vertebrae does not fit the scenario for stripping the *longissimus* as a whole as is reported in Frison (1973:43-46).

The cut marks on the ribs may be in relation to separation of the *longissimus* muscle or the sublumbar muscles attached to the ribs. The cuts on the horse are small and shallow compared to the other deeper cuts and occurred in no consistent pattern on the ribs that articulate with the lumbar and thoracic vertebrae. This is different from the bison examples where the ribs were broken at both the proximal and distal ends (Frison 1970:18).

Based on the comparison of butchering marks on bison, the cut marks found on the horse skeleton are largely dissimilar. Based on the cut marks alone, it would appear that this is not a "normal" butchering situation. This is further seen in the disposition of skeletal elements. As has been documented in the bison examples, some skeletal elements were removed from the kill location. Nearly all of the horse skeletal elements are present. In addition, little disarticulation of the horse has occurred compared to the bison examples. Another interesting aspect of the horse situation is that nearly all cut marks are on the right side of the skeletal elements. Only the left femur has a single cut mark. The amount of deep cut marks on the right femur and right innominate are also difficult to explain as part of a "normal" butchering

pattern. It looks as if the horse skeleton, lying on its left side, was almost randomly "hacked" with heavy metal tools, such as a hatchet. In fact, little, if any, meat stripping appears to have occurred.

#### ENTOMOLOGICAL ANALYSIS

One working hypothesis during this study was that the material recovered from within the rib cage was stomach contents, and the analysis of these contents could shed light on the condition of the horse at the time of death. The following assessment of the insects within this material was made to draw inferences relevant to the time, place, and conditions of death.

The material was found within the body cavity (rib cage) of the horse, at a level that was consistent with it having been within the horse's body. The material consisted of, first, 182.9 grams of samples that had been sifted through four mesh sizes (2.0, 1.0, 0.5, and 0.25 millimeters), and second, material that had been selectively picked from the site. A subsample of each sifted aliquots was microscopically surveyed to learn which contained insects or insect parts. The selectively picked materials clearly consisted of insect parts, so no subsampling was necessary. After learning which samples contained insects or insect parts, the individual specimens and fragments were compared to materials in the Rocky Mountain Insect Museum. The museum includes extensive series of insects that are associated with both the mixed grass prairie and animals carcasses. The findings are based on these comparisons and on available literature relevant to the decomposition processes of large animals in Wyoming.

**Description of Findings:** Except for the selectively picked insect material, most insect remains (>95%) were associated with the sample that had been passed through the one millimeter sieve. As such, the balance of this report relates to these two sources of insect remains.

The selectively picked material consisted primarily of the puparia of flies (the case that is formed by Diptera during pupation), although

there were also the elytra (the hardened forewings) of beetles. No entire bodies of insects were found in this material. Morphological features of the puparia and elytra can be used diagnostically. From these characteristics, it was determined that at least three saprophagous species of insects were at the site: the fly, *Phormia regina* (Diptera: Calliphoridae), the beetle, *Dermester frischeri* (Coleoptera: Dermestidae), and the beetle *Trox atrox* (Coleoptera: Scarabaeidae).

The material that had been sifted consisted of 50% fly remains, 15% beetle remains, 20% unidentified organic remains, and 15% inorganic remains (by volume). Within this material, at least five saprophagous species of insects were found. Except for a few complete pupae, there were no intact insects, so identifications were largely based on diagnostic body fragments. The sample included: *Atrogenus* spp. (Coleoptera: Dermestidae), an unknown fly (Diptera: Sepsidae), an unknown beetle (Coleoptera), *Phormia regina*, *Dermester frischeri*, and *Trox atrox*.

#### Summary of Insect Studies:

First, the insects recovered from the site all arrived after the horse died. All insects from the material that was selectively picked from the site and the sifted material represented insects that typically arrive at a carcass after death. There was no evidence that these insects had been ingested by the horse.

Second, the horse died very late in the spring or early in the summer, perhaps in late May or early June. The existence of sarcophagus flies and dermestid beetles suggests a complete insect successional sequence on the horse. The flies indicate that the body was fresh while the flies were mobile. If the horse had died during the winter, the body would likely have desiccated to the point that it would not have been attractive to the flies the following spring. Conversely, if the horse had died late in the summer or fall, the flies would have pupated in the soil (not in the horse's abdominal cavity) for over-wintering. The beetles do not normally



arrive until there is little flesh or moisture remaining, suggesting several weeks or months of exposure. Thus, for such a sequence of insect colonization to occur, the body was probably exposed for several months.

Third, the microhabitat in which the horse died was dry and protected from the elements, i.e., the horse may have been partially buried. The succession of insects (from flies through dermestid beetles) suggests that the horse was not in water. The fact that very light weight pupal cases were found at the site suggests that the horse's body was protected from winds, which would almost surely have dispersed the light-weight insect remains. Overall, there were many more insect remains than would have expected from a carcass completely exposed to the elements of wind and precipitation. As such, it would appear that the horse was buried under a brush or thin layer of soil. At least a portion of the horse's body must have been exposed for early colonization by the flies. The fact that the skeleton was largely intact also suggests that the body was not available to vertebrate scavengers.

Fourth, the horse was not eviscerated or butchered for meat. Finding a high concentration of fly pupae in the abdominal region of the horse suggests that the viscera were intact. If the horse had been butchered for meat, the remains would have dried quickly, and fewer flies would be expected, since these insects will only colonize moist flesh. Moreover, the very high proportion of dermestid beetles, which feed on dry flesh, suggests that a considerable amount of muscle tissue remained on the body after death.

Finally, the horse was not moved from the place in which it was killed. As mentioned above, the fact that the skeleton was intact suggests that the body was not available to vertebrate scavengers. In addition, there were no intact bodies of dermestid beetles. These insects had been dismembered, such that only the heads, legs, and some elytra were preserved. This unusual situation can be explained if these

beetles fed upon the carcass until no flesh remained (a process that may have taken more than one year). After the flesh of the horse was largely or completely removed, it is reasonably likely that the beetles consume other, dead beetles. These beetles frequently consumed the thinner portions of the body wall of dried insects, so an abundance of heads would be expected from an undisturbed site where a carcass was stripped to the bone.

### EVIDENCE FOR MODERN HORSES IN WYOMING

The introduction of the horse into the Great Basin and Northwestern Plains has been the focus of various studies through the years (Wissler 1914; Haines 1938b; Secoy 1953, Roe 1955; Shimkin 1986). While Wissler argued that the probable original source was horses lost or abandoned by the DeSoto and Coronado expedition, this has been largely discounted by later studies (Haines 1938a; Roe 1955). The current consensus is expressed by Haines:

"The center from which the horses spread to the Indian tribes was the stock-raising area around Santa Fe, and from there they spread very slowly at first but later more rapidly until the entire plains and plateau country had been supplied." (Haines 1938b:49).

He further notes, as do other authorities, that the process was greatly accelerated by the Pueblo revolt of 1680 during which large numbers of stock were acquired by Native Americans.

The Shoshone are generally credited with having acquired horses from the Utes. Secoy (1953:28) gives a date of 1692 for the first reported occurrence of the Utes' possessing horses. However, Shimkin (1986: 517) indicates Utes used horses for pack animals, but were not yet riding them in the 1650s. Malouf and Findlay say that

"By approximately the mid-seventeenth century, Utes living in Colorado reportedly used horses and some Eastern Shoshones

had apparently brought horses into their habitat." (Malouf and Findlay 1986:500).

The Idaho Shoshone had horses by 1690-1700 (Haines 1938b:435), with the distribution route being "from Santa Fe to the Snake River by way of the headwaters of the Colorado, the Mrand and Mruen Rivers" (Haines 1938b:436). Haines would date the introduction of the horse into our study area sometime between approximately 1659 and 1690-1700 (Haines 1938b:430), which Secoy (1953:104-105) gives brackets of 1675 and 1710. Frison (1991:122) states that the Shoshone had many horses by the first quarter of the eighteenth century and Shimkin reports that "by the 1740s the Shoshone (or undifferentiated Comanche-Shoshone) of north-central Wyoming were using horse-mounted warriors in full-scale attacks on villages" (Shimkin 1986:517).

The sources reviewed above show the presence of horses in southwestern Wyoming perhaps as early as the mid-seventeenth century and certainly by A.D. 1700. It also should be noted that Bancroft (1890:672-673) relates accounts by unspecified Spanish authorities of settlement in the area immediately south of the Missouri between about 1625 and 1650. While these assertions are categorically denied by Bancroft, some early Spanish presence in the area might not be beyond the realm of possibility.

An additional factor to consider in the interpretation of 48SW8319 is the use of metal tools to butcher the horse. The Eden-Farson site, located north of the project area in the Upper Green River basin is a Shoshonean occupation site radiocarbon dated to 230 B.P. (A.D. 1720). The investigator (Frison 1991:244) states that "all the site activities were accomplished with stone and bone tools"; no evidence of metal tools was present. The River Bend site near Casper, Wyoming has evidence of horse and metal items and is given a date range from 1650 to 1750 (McKee 1988). Secoy (1953:38) indicates the Shoshone were well supplied with metal and horses by 1750.

The lack of metal at the Eden-Farson site

does not preclude its possession by contemporaneous groups in the region or even before. Given the existing trade routes for horses, it would not be unreasonable to expect some metal items reaching the area by the mid- to late seventeenth century.

## CONCLUSION

Assuming the radiocarbon dates obtained from the horse remains place the age of this animal in the mid-17th century, this is one of the earliest examples of modern horse in Wyoming during the Protohistoric period. Given that no diagnostic artifacts, either aboriginal or Euro-American, were found associated with the horse, is difficult to conclude with certainty the relationship represented by these remains. Several conclusions are possible given the accumulated evidence:

1. The historic references indicate that modern horses could have reached Wyoming by the mid-17th century, most likely by Native American trading and raiding of Spanish settlements in New Mexico. It is also possible, but not widely proven that metal tools also could have been in the possession of Native American groups by this early date.

2. The disposition of the horse remains are unlike that of a "normal" large animal butchering sequence. The cut marks are only somewhat consistent with those found on bison, but on the horse are both extreme and somewhat random. It is concluded that little actual meat stripping occurred and that the cut marks are largely an indication of another kind of behavior. The cut marks, the purposefully placed coyote skulls (Figure 6), and likely burial of the horse carcass may be an indication of ritual, magical or religious behavior, the idea being that Native Americans, unfamiliar with horses, performed some kind of ritual act on an unfamiliar, "frightening" creature. This is what was concluded by the entomological analysis. Given that, first, the horse was unknown to Native Americans of Wyoming at the time in which this animal was killed, and second the circumstantial



Figure 6: Closeup view of coyote skulls next to horse skull.

evidence from the insect remains, it can be speculated as to the events that transpired. Perhaps the horse was found by Native Americans during a hunt, and they were fearful of the large and very strange creature. One reasonable response to this situation would have been to run from the unknown animal, but it is also reasonable that they would have attacked it out of fear. As such, the markings on the bones would not have been a consequence of butchering effort, but may have been the result of a fearful and overzealous slaughter. After killing the animal, the Native Americans may have partially buried the carcass, and they took none of the meat. Such a sequence of events would account for the condition of the horse and the biological events that followed its death.

3) The horse may have been part of a Spanish exploratory party. Given the age of the horse and proposed time of death and consequent time of birth, it was most likely accompanied by humans who could tend to a pregnant mother and later a foal. This would more easily explain the metal tool cut marks on the bones as

metal tools were not common among Native American groups in Wyoming in the mid-17th century. It is therefore possible that the Spanish are responsible for the cut marks, having perhaps cut choice meat pieces from the right side of the horse, not being "expert butchers," and leaving most of the carcass to rot. However, this does not explain why the coyote skulls were placed among the horse remains or why the animal was, apparently, purposefully buried. The latter, if it is assumed that Native American ritual behavior was involved, might have occurred if the proposed Spanish group was accompanied by Native Americans.

Finally, no particular sequence of events, whether caused by Native Americans or Europeans, or both, can be firmly concluded. This is a highly unusual find, the presence of modern horse at a very early historic period in Wyoming with butchering marks from clearly metal tools, the presence of three coyote skulls and the likely purposeful burial of the horse carcass.

## REPORT RESPONSIBILITIES AND ACKNOWLEDGMENTS

Several individuals, besides the authors, made important contributions to the preparation of this manuscript. Karin Guernsey of the Office of the Wyoming State Archaeologist staff analyzed botanical remains from the hearth features recovered during the construction monitor. Leslie Ranta, Resident Wyoming Transportation Department Engineer, Rock Springs, was particularly helpful during the excavations and project monitoring, making sure we were able to complete the project within the established guidelines. Byron Loosley, Ashley National Forest Archaeologist, also provided his expertise and blessing to the project.

Dave Eckles was responsible for the overall completion of the project, both in the field and the laboratory. Dale Wedel helped during the monitoring and recovery of features and horse skeleton and compiled information on the spread of the horse into Wyoming in historic times. Dr. Danny N. Walker photographed the horse bone remains, provided technical expertise on the bone elements, and provided critical commentary on the report dealing with the horse skeleton. Insect remains were analyzed by Dr. Jeffrey Lockwood and Rabinder Kumar Pat Reiss typed this report.

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