

**THE WYOMING
ARCHAEOLOGIST**



*VOLUME 30(3-4)
FALL 1987*

THE WYOMING ARCHAEOLOGIST
THE WYOMING ARCHAEOLOGICAL SOCIETY, INC.

Alan Korell, President
Box 517
Lingle, Wyoming 82223

Carolyn Buff
Executive Secretary/Treasurer
1617 Westridge Terrace
Casper, Wyoming 82604

Sandra Hansen, Editor
205 S. 30th, Apt. C11
Laramie, Wyoming 82070

Danny Walker, Associate Editor
1520 Mitchell
Laramie, Wyoming 82070

THE WYOMING ARCHAEOLOGIST is published quarterly by the Wyoming State Archaeological Society, with the financial assistance of the Wyoming Recreation Commission. Address manuscripts and news items for publication to: Sandra Hansen, Editor, The Wyoming Archaeologist, 205 S. 30th Street, Apt. C11, Laramie, Wyoming 82070. Please send a minimum of two (2) copies of each manuscript submitted. A third copy would speed the review process. Please contact the Associate Editor for instructions if the manuscript is available on computer disk. Readers should consult the articles in this issue for style and format.

Membership period is from January through December. All subscriptions expire with the Winter Issue and renewals are due the first part of January each year. Continuing members whose dues are not paid by March 30 of the new year will receive back issues only upon payment of \$5.00 per issue.

If you move or have a change of address, please notify the Executive Secretary/Treasurer. Your WYOMING ARCHAEOLOGIST will not be forwarded unless a payment of \$1.00 is received for return and forwarding postage.

Checks for chapter subscriptions and renewals should be sent to the chapter secretary involved. All other checks, subscriptions, and renewals should be addressed to the Executive Secretary/Treasurer. Correspondence and orders for back issues should be addressed to the Executive Secretary/Treasurer.

State Society yearly subscription rates are as follows:

Individual Associate Member @ \$10.00
Single Active Member @ \$7.50
Family Active Member @ \$10.00
Institutional Member @ \$15.00

Other Memberships, including Supporting and Contributing are available. Contact the Executive Secretary/Treasurer for information. Local chapter dues are in addition to the state society dues listed above. The Wyoming Archaeological Society is a Non-Profit Organization.

Neither the State of Wyoming, the Wyoming Recreation Commission, the Office of the Wyoming State Archaeologist, the Wyoming Archaeological Society, nor their employees or appointed or elected officials can be held responsible for any comment or viewpoint expressed in any issue of The Wyoming Archaeologist. The author(s) of each article or issue are totally responsible for the content and views expressed in their paper(s).

THE WYOMING ARCHAEOLOGIST
WYOMING ARCHAEOLOGICAL SOCIETY, INC.

VOLUME 30(3-4)
FALL 1987

TABLE OF CONTENTS

| | |
|--|-----|
| ANNOUNCEMENTS | xi |
| WYOMING ARCHAEOLOGICAL SOCIETY, CONSTITUTION AND BYLAWS | xiv |
| THE KORELL-BORDEAUX AND ROCK RANCH PROTOHISTORIC SITES: A PRELIMINARY REPORT, by <i>George M. Zeimens, Alan Korell, Don Housh, Dennis Eisenbarth, and Bob Curry</i> | 68 |
| THE ROCK RANCH FAUNA: A PRELIMINARY ANALYSIS, by <i>George M. Zeimens</i> | 93 |
| HUMAN SKELETONS FROM THE ROCK RANCH AND KORELL-BORDEAUX SITES, by <i>George W. Gill</i> | 103 |
| BOOK REVIEW: American Archaeology Past and Future: A Celebration of the Society for American Archaeology 1935-1985, edited by David J. Meltzer, Don D. Fowler, and Jeremy A. Sabloff, <i>reviewed by David J. Rapson</i> | 109 |

ANNOUNCEMENTS

MARGARET POWERS

Margaret Powers of Big Horn, Wyoming passed away on Wednesday, November 4, 1987, and with her death, Wyoming archaeology lost one of its most ardent supporters. Margaret is well known to the Wyoming Archaeological Society as a charter member of the organization, and an active, long-time participant in its first chapter in Sheridan. She was intimately involved with establishing Wyoming's archaeological site files, supporting passage of the State Archaeologist's statute, and some of the early fieldwork done by the society. Her field experience includes investigations at the Powers-Yonkee site, a prehistoric bison kill in Montana which bears her name. Indeed, Margaret's popularity and commitment are acknowledged well beyond the boundaries of the Wyoming Archaeological Society.

Margaret Powers will be remembered by all who knew her well as a good friend, welcoming everyone at any and all times with words of encouragement, the offer of a meal, and a place to stay the night. Her interest and support were genuine and her first inquiries were always to find out who was doing what,

where were they doing it, and what was its significance for Wyoming archaeology. She was a person of high principles; her honesty and forthright approach can be a model for all of us to follow.

In 1982, the Wyoming Association of Professional Archaeologists established a service award to recognize individuals who have made an enduring contribution to Wyoming archaeology. Margaret Powers was the first recipient of this award; a lasting legacy to her influence on subsequent generations of archaeologists. She will be sorely missed by professionals, students, and avocational archaeologists alike, but her lasting value to the discipline will never be forgotten.

George C. and June Frison
Department of Anthropology
University of Wyoming
Laramie, Wyoming 82071

Mark E. Miller
Wyoming State Archaeologist's Office
Department of Anthropology
University of Wyoming
Laramie, Wyoming 82071

LETTER FROM THE NEW EDITOR

Dear Friends,

Taking over as editor of The Wyoming Archaeologist has been quite an experience! Stepping into George Brox's shoes was an impossibility, so I'm stumbling along on my own. After just a few months on the job I can appreciate, as never before, the effort that George put into this publication over the years.

Working on the fall issue has been an interesting experience to say the least, but I hope to have some of the "bugs" worked out before the spring issue is due. Trying to coordinate the schedules of several people, gain access to equipment, and meet deadlines is a staggering job on a statewide operation such as this.

However, with everyone's cooperation, we should be able to set and meet deadlines and also include a larger variety of articles. Remember, the Archaeologist is your publication. It is here as a forum for the non-professionals as well as the professionals. We all put a lot of effort into archaeology and the Archaeologist is here to help us share those experiences with others.

I feel the current status is never good enough -- we can always improve and try new ideas. As a step in this direction, the spring issue will contain an updated list of all past issues available for purchase or copying and a manuscript from the late William Maycox, submitted by his wife. Any material to be considered for the spring issue must be in my possession by February 1, 1988. It should be a good, full issue as we already have several articles under consideration.

I'm looking forward to the challenges and opportunities of working on the Archaeologist. My goal is to produce an interesting and educational journal that we can all be proud of, and I urge all of you to feel free to make suggestions toward that end.

(signed)
Sandra Hansen

NOTES FROM THE EDITOR

This issue of The Wyoming Archaeologist is devoted to three studies on two related sites near Torrington, Wyoming. These sites, the Korell-Bordeaux and Rock Ranch sites, were reported to professional archaeologists by interested citizens of the community. Since that time, their interest has grown into one of the more active chapters of the Wyoming Archaeological Society. We hope you enjoy reading these reports prepared from data collected from these sites by fellow avocational archaeologists.

By the time the membership receives this issue of The Wyoming Archaeologist, the fall workshop on laboratory techniques will have been held in Laramie. A complete report on that workshop will be prepared for the spring 1988 issue of The Wyoming Archaeologist.

We also have almost enough articles for that spring issue. However, please do not let that delay or prevent you from sending more articles on your favorite site (or sites), news of what your chapter has been doing, or just interesting facts about Wyoming archaeology you would like to share. We need all we can get in order to keep publishing The Wyoming Archaeologist.



In July 1987, several archaeologists from across the country met with Dr. George C. Frison, former Wyoming State Archaeologist and University of Wyoming, Anthropology Department Head, to tour a series of Paleoindian sites in eastern Wyoming and southeastern Montana. The group used this opportunity to discuss current Paleoindian research and evaluate the continuing role these Wyoming and Montana sites have in such studies. Pictured here at the Agate Basin site in Niobrara County, Wyoming, are (standing left to right) Dr. Frison, Dr. C. Vance Haynes (University of Arizona), Dr. Dennis J. Stanford (Smithsonian Institution), Dr. R. E. "Irv" Taylor (University of California, Riverside), Marcel Kornfeld (University of Massachusetts, Amherst), George M. Zeimens (Lingle, Wyoming), and Mary Lou Larson (University of California, Santa Barbara and University of Wyoming). Kneeling in the background is Eric E. Ingbar (University of New Mexico). Present during portions of the tour, but not pictured, were Mrs. June Frison, David J. Rapson (University of New Mexico), James C. Hageman (Wyoming State Representative, Goshen County, Wyoming), Harley J. McKinney (Rock Springs, Wyoming), and Dr. Mark E. Miller (Wyoming State Archaeologist). (Photo by Mark E. Miller).

WYOMING ARCHAEOLOGICAL SOCIETY, INCORPORATED
CONSTITUTION

ARTICLE I - NAME

The name of this Society shall be the Wyoming Archaeological Society, Incorporated.

ARTICLE II - TERM

The term of existence of the Society shall be perpetual.

ARTICLE III - MEMBERSHIP

Membership shall be open to all duly organized Chapters in the State of Wyoming, to any person, persons, societies, or institutions upon payment of specified dues, and who subscribes to the purposes and abides by the rules of the Society.

ARTICLE IV - PURPOSES

1. To encourage the preservation of archaeological materials and sites.
2. To disseminate archaeological information.
3. To receive, maintain and hold, by bequest, devise, gift or otherwise either real or personal, any fund or funds without limitation as to amounts or values; and to convey such property and to invest and reinvest any principal or interest; and to direct, manage, and expand the income and principal of the association, and administer any special funds for various purposes as agreed upon by the governing Board of the Society, and for purposes and uses herein set forth; to buy, lease, hold, and exercise all privileges of ownership over such real or personal property as may be deemed necessary for the conduct and operation of the business of this Society or incidental thereto.
4. To promote scientific research and cooperation with scientific organizations to further archaeological studies.

ARTICLE V - OFFICERS

The management of this Society shall be vested in the duly elected officers and appointive officers of the Wyoming Archaeological Society, Inc. and their duly elected successors. The elective officers shall include a President, First Vice President, and Second Vice President. The appointive officers shall include the Executive Secretary/Treasurer, Editor, and Librarian, who shall be appointed by the Board of Directors. All State officers, elected and appointed, shall be members in good standing of a Society Chapter. The appointed officers shall be appointed for an indefinite term of office. The elective State officers shall be elected at the annual meeting by a majority vote of the qualified delegates or alternates.

ARTICLE VI - BOARD OF DIRECTORS

1. The governing body of the Wyoming Archaeological Society, Inc. shall be a Board of Directors consisting of one Director from each Chapter; such Director to be elected by the Chapter which he/she represents from the paid-up active membership of said

- Chapter.
2. Other members of the Board shall be the elected State officers together with the Executive Secretary/Treasurer and the immediate past President of the State Society.
 3. Acting in advisory capacity shall be the remaining appointive State officers.

ARTICLE VII - EXECUTIVE COMMITTEE

There shall be an Executive Committee consisting of the elected and appointed State Officers. The State Archaeologist shall act in advisory capacity for this Committee.

ARTICLE VIII - CHAPTER ORGANIZATION

Ten (10) or more people residing near each other may apply to the Executive Committee for a Chapter Charter, provided the aforementioned persons are paid-up members of the Society and their Chapter application is approved by the Executive Committee by a majority vote.

ARTICLE IX - AMENDMENTS

Any proposed change in the Constitution and Bylaws of the Wyoming Archaeological Society, Inc. shall first be submitted to all the Chapters at least ninety (90) days prior to the annual State meeting or any special meeting called by the Executive Committee for the purpose of amendment. An affirmative vote of two-thirds (2/3) of the legal delegates or their alternates present shall be required for any proposed change in the Constitution or Bylaws of this Society.

ARTICLE X - VACANCIES IN OFFICE

All State Society officer vacancies occurring by death, resignation, or failure to serve, for the duration of the term to which the officer was elected or appointed will be filled by appointment by the remaining members of the Executive Committee for the balance of the term, except President and First Vice President, which offices will be filled by the First Vice President and Second Vice President for the balance of the term.

ARTICLE XI - MEETINGS

The Wyoming Archaeological Society, Inc. shall hold an annual business meeting in April of each year. Other meetings may be called at such times and places as may be determined by the Executive Committee. The Executive Committee shall be responsible for the organization of the meeting. A quorum at any duly authorized meeting of the State Society shall be a simple majority of those present.

ARTICLE XII - ACCOUNTING PERIOD

The annual accounting period of the Wyoming Archaeological Society, Inc. shall begin on April 1 of each year and end on March 31 of the following year.

ARTICLE XIII - RULES

The Wyoming Archaeological Society, Inc. shall be governed by the current edition of Roberts Rules of Order.

ARTICLE II - DUTIES OF OFFICERS

1. The President shall preside at the annual meeting of the State Society and at the meetings of the Board of Directors, the Executive Committee, and at the meetings of the Board of Directors, the Executive Committee, and at any special meetings. He/She shall perform such duties as usually pertain to that office, including the naming of a Nominating Committee, Legislative Committee, Credentials Committee, and other standing and select committees. He/She shall appoint prior to the annual State meeting a sergeant-at-arms, who shall check the credentials of all the delegates and/or alternates. The sergeant-at-arms shall report the findings to the Credentials Committee. The President, with the approval of the Executive Committee, shall also make any appointments necessary for the furtherance of the aims and purposes of the State Society.
2. The First Vice President shall perform all duties of the President during the absence or disability of the President, and in the event of death, resignation, or removal of the President from office during the term for which he/she was elected, the First Vice President shall serve for the balance of the term.
3. The Second Vice President shall perform all the duties of the First Vice President in the absence or disability of the First Vice President, and in the event of death, resignation, or removal from office during the term for which the First Vice President was elected, the Second Vice President shall serve as First Vice President for the balance of the term.
4. The Executive Secretary/Treasurer shall maintain the Society repository and shall serve as custodian for any and all archaeological materials and records contained in the repository. He/She shall assist the elected officers in the conduct of Society business, and shall keep records of such business. He/She shall assist the Chapters and coordinate activities between the Chapters, and shall keep the Chapters informed on all Society business. The State Secretary/ Treasurer shall keep and maintain all financial records of the Society for the Executive Committee. He/She shall collect State dues and issue memberships and certificates as appropriate for Associate, Active State, Institutional, and Honorary memberships. He/She shall establish and maintain Society checking and savings accounts as needed, with arrangements for the signing of all checks and/or savings account withdrawals by either the Secretary/Treasurer or the President's appointee. He/She shall present a financial report at the annual State meeting and shall keep the Executive Committee apprised of the Society's financial position. The Executive Secretary/Treasurer shall be bonded at the expense of the State Society.
5. The State Editor shall be responsible for the production and distribution of all Society publications.
6. The State Librarian shall have charge of all library materials including the Exchange publications. He/She shall keep a list of all publications and books available for loan to members and shall have the list published at least once a year in the Society's publication. Rules and regulations pertaining to the loan

WYOMING ARCHAEOLOGICAL SOCIETY, INCORPORATED
BYLAWS

ARTICLE I - AUTHORITY OF OFFICERS

1. The elected and appointed officers, with the State Archaeologist in advisory capacity, shall serve as the Executive Committee and shall have charge of all affairs, funds, and property of the State Society subject to the control of the State Board of Directors.
2. A majority of all the members of the Executive Committee is sufficient to remove any State officer or officers for due cause.
3. The Executive Committee shall serve in advisory capacity to all the Chapters of the Society.
4. The Executive Committee shall not be liable for any debts, bills, or liabilities incurred by any of the Chapters or their members.
5. No officers, elective or appointive of the Wyoming Archaeological Society, Inc., either State or Chapter, will receive any compensation or be exempt from any dues. The State Executive Secretary/ Treasurer shall be given a mileage rate and per diem for official business travel at a rate set by the Executive Committee.
6. All libraries, equipment and monies of a disbanded Chapter shall be turned over to the Executive Committee for disposition.
7. The State Board of Directors shall appoint an Executive Secretary/ Treasurer, a State Editor, and a State Librarian. These officers shall be appointed from the present paid-up membership and shall serve at the discretion of the Board.
8. The Executive Committee may specify a permanent Society mailing address. The permanent mailing address shall be one convenient to the State Board of Directors, the Executive Committee, the Executive Secretary/Treasurer, the Chapters, and to any members of the Society who shall have occasion to contact this Society on any matter of archaeological interest or routine Society Business.
9. The Executive Committee may designate an official State Repository. Said repository shall contain all of the records of the Executive Committee, which the Executive Secretary/Treasurer shall maintain in a current and accessible condition, so that they shall be available during all reasonable business hours for inspection by any member of the Society. The repository shall also serve as the Society's official repository for all archaeological material which is now, or may hereafter become, the property of the State Society, and the Executive Secretary/Treasurer shall serve as custodian thereof, and make the same available for public view in a place generally available to the public. The Executive Secretary/Treasurer, on his/her own determination, or at the request of any member of the Society, may limit access to site reports, archaeological surveys, and collections, when such action is deemed necessary and reasonable to preserve archaeological sites.

of publications to members must be approved by the Executive Committee.

ARTICLE III - ELECTION AND TERMS OF OFFICE

The State President, First Vice President and Second Vice President shall be elected by a delegation consisting of two (2) delegates or their alternates from each of the affiliated Chapters. They shall be elected from the present paid-up memberships of the Society. Election of State officers shall take place annually at the regular annual meeting. Elected officers shall serve for a term of one (1) year. A member cannot serve in one (1) elective office for more than two (2) consecutive years.

ARTICLE IV - CHAPTER ORGANIZATION

1. Each Chapter must choose a name for itself and must adopt its own Constitution and Bylaws which must not be in conflict with the State Constitution.
2. Local Chapters may designate the time and place of their meetings, but it is recommended that Chapters meet at least once a month.
3. Each Chapter has complete self-determination in the election of its officers, business and projects, as long as it does not violate the policies of the Society as a whole.
4. It shall be the function of the Chapter to issue all memberships and collect dues.
5. Each Chapter shall have full custody of, and determined disposition of, archaeological material recovered by the Chapter.
6. Each Chapter shall have as a minimum the following officers as its Executive Board: President, Vice President, Secretary/Treasurer, and four (4) Board members. The President, Vice President, and Secretary-Treasurer shall serve one- (1-) year terms, and the Board members shall serve two- (2-) year terms, except upon the organization of a Chapter, two (2) of its first four (4) Board members shall be elected to one- (1-) year terms. A vacancy in any Chapter office may be filled by appointment by the Chapter President until the next regular election.
7. The annual election of regular Chapter officers shall be held in January of each year.
8. Each Chapter shall set its own membership fees which shall include the State fees for each active individual or family membership.

ARTICLE V - CHAPTER RELATIONSHIP WITH THE STATE SOCIETY

1. Each Chapter shall remit to the State Secretary/Treasurer that amount as set by the Executive Committee for each active individual or family membership effective with the calendar year beginning January 1 of each year. The Society publication will be mailed to all members when published.
2. Each Chapter shall submit to the Annual meeting of the State Society a complete report of its activities during the previous year.
3. Each duly organized Chapter shall be entitled to two (2) delegates to the Annual meeting. Each Chapter shall also name two (2) alternates to the Annual State meeting who will serve in place of the delegates if one or both are unable to attend.

Each delegate and alternate must be certified by the Secretary of each Chapter of which he or she is a member.

ARTICLE VI - MEMBERSHIPS

1. Individual Associate Membership.
Such members shall be members of the State Society only, shall not be affiliated with any Chapter, and shall not have any voting privileges. Such members shall be issued an Associate Membership Certificate by the State Secretary/Treasurer. Associate members shall be entitled to receive the periodical publication of the Society as issued.
2. Institutional Membership.
Any institution, such as colleges, universities, libraries, museums, other archaeological societies, etc. shall be members of the State Society only. Institutional members shall not have any voting privileges. Such members shall be entitled to receive the periodical publication of the Society as issued.
3. Active Membership.
 - a. Any individual who affiliates with a local Chapter and takes active interest in the work of such Chapter, shall be issued an Active Membership card by the Chapter Secretary. This shall entitle such members to Active Membership in the Chapter with full voting rights in the Chapter, but with Family Membership limited to a maximum of two (2) votes. All Active Memberships shall be members of the State Society also, and shall be entitled to receive the periodical publication of the Society as issued, but family memberships shall include only one copy of each publication.
 - b. Individuals residing out-of-state or in areas remote from a local Chapter may apply to the State Secretary/Treasurer or to a Chapter Secretary for an Active Membership, either individual or family. These members shall have no voting rights, but shall be entitled to receive the periodical publication of the Society as issued, and shall be allowed to participate in any of the State Society's activities.
4. Honorary Memberships.
Candidates for Honorary Memberships may be nominated by a local Chapter for reasons based upon significant service to archaeology in Wyoming. Nominations must be voted upon by a majority at the annual meeting of the State Society and such membership shall be granted in an open session of the annual meeting. The State Secretary/Treasurer shall issue one (1) Honorary Membership Certificate and an Honorary Membership card to each Honorary member. Honorary members who were Active members prior to their election as Honorary members may retain their active status and voting rights. No institution can qualify for an Honorary Membership.
5. Renewals.
All renewals of memberships in each Chapter or State Society shall be made on or before March 15 of each calendar year or the membership and all Society privileges shall be terminated.

ARTICLE VII - RULES OF CONDUCT

1. The Executive Committee may, for reasons of conduct inappropriate to an archaeologist, revoke the membership of any member of the Wyoming Archaeological Society, Inc. Such reasons may include:
 - a. Any conduct which is contrary to the state intents and purposes of the Society.
 - b. The conduct of any excavation by methods inappropriate to a professional archaeologist.
 - c. Failure to complete and make public the records of a site upon completion of the investigation within a reasonable length of time.
 - d. Misrepresentation of membership in, or official relation to, any archaeological organization.
 - e. The sale of artifacts from or information about, any archaeological site for personal gain.
 - f. Aiding or abetting, by word or action, any persons who loot or destroy any archaeological site for any reason whatsoever.
 - g. Failure to secure the consent or permission of the Executive Board of the member's Chapter prior to excavation.

ARTICLE VIII - ORDER OF BUSINESS OF THE ANNUAL STATE MEETING

1. Call to order by the President.
2. Report of the Credentials Committee.
3. Roll Call of the Delegates or Alternates.
4. Reading of the minutes of the previous meeting by the Executive Secretary/Treasurer.
5. Treasurer's Report.
6. Editor's Report.
7. Librarian's Report.
8. Committee Reports (standing and select committees).
9. Old or unfinished business.
10. New business.
11. Election of officers.
12. Selection of site for the Summer meeting.
Selection of site for the Annual meeting.
13. Comments and introduction of new officers who take office at this time.
14. Adjournment.

THE KORELL-BORDEAUX AND ROCK RANCH PROTOHISTORIC SITES: A PRELIMINARY REPORT

BY

GEORGE M. ZEIMENS, ALAN KORELL, DON HOUSH,
DENNIS EISENBARTH, AND BOB CURRY

ABSTRACT

The Korell-Bordeaux and Rock Ranch archeological sites represent early historical activities along what became known as the Emigrant Trail. These are two of many interrelated sites comprising a large complex of resources dating from earliest Euro-american contact or Fur Trade era to modern times. Salvage excavations were conducted at the Korell-Bordeaux and Rock Ranch sites by the High Plains Chapter of the Wyoming Archeological Society. This interim article describes the findings.

INTRODUCTION

History on the Northwestern Plains began with the exploration of the American West and development of the fur trade during the early to mid-Nineteenth century. One main route of travel to the West was established early on the North Platte River. A portion of that trail in eastern Wyoming, near the confluence of the Laramie and North Platte rivers became, more or less, a gateway to the Rocky Mountains. Here, trappers and explorers made final preparations for excursions into the mountains. This was also a place where they often regrouped or wintered. Travelers on the Emigrant Trail (Oregon-Mormon Trails) found shelter, rest, supplies, and military protection here after weeks of arduous travel from the East and before continuing on the longest and most difficult segment of their journey through the Rocky Mountains. From this place, trails also extended south to trade centers on the South Platte River and the Taos, New Mexico area. Trails also led north toward mining and trade regions of Montana and the Dakotas.

The original Euro-american establishment at this location was a trading post known as Fort William, later purchased by the United States Government to become Fort Laramie. The area quickly became an important center of trade and other affairs for both Euro-americans and Native American Indians. Fort Laramie and related sites developed into historically significant complexes for exploration, the fur trade, immigrant migration, and U.S. Government-Indian affairs.

Archaeological sites of the Early Contact or Protohistoric era are rare. Two sites, Korell-Bordeaux and Rock Ranch, of early to mid-Nineteenth century vintage, were rediscovered in 1980. Both sites contained prehistoric and historical components. The bulk of the assemblages represented Protohistoric occupations. Both sites were found in fields being leveled to better facilitate farming. While planing off a terrace edge near the old Bordeaux Trading Post, Alan Korell opened several graves. The graves contained remains and associated artifacts of both Native Americans and Euro-americans. Realizing the find

was important and more of the site might remain intact, Korell notified the Wyoming State Archaeologist. Subsequent investigations by that office determined what eventually became known as the Korell-Bordeaux site was indeed a highly significant discovery. Many perishable and extremely fragile artifacts were present.

It was imperative that not only were salvage excavations in order, but specialized curation of the artifacts was also needed. James Hanson, Coordinator, Native American Museum Training Program at the Smithsonian Institution, was contacted. Hanson traveled to the site to view the situation. An offer was made by Hanson to curate the materials at the Smithsonian laboratories in Washington, D.C. George Frison, Wyoming State Archaeologist, hand-carried the artifacts to Washington, but budgets were apparently cut and the materials were later returned uncurated. At the time of this writing, most of the assemblage remains uncurated and many rare and irreplaceable items are in a state of deterioration. The Korell-Bordeaux assemblage is not fully described in this report because we feel proper curation should be accomplished before the items are handled further.

While salvage efforts were underway at the Korell-Bordeaux cemetery, the Rock Ranch site, located approximately ten miles east, was rediscovered. Here, test excavations revealed a significant buried and stratified site, also soon to be destroyed by farm activities. Initial findings included the grave of a murdered male individual who had been partially dismembered and buried beneath an old building. The grave may have been that of a Negro and probably dates to the 1860s or 1870s. Much of the initial work conducted at the site proceeded behind earth-moving equipment. It soon became apparent that the two sites represented elements of a larger complex of interrelated early Historic activity along the Emigrant Trail in the Fort Laramie area. The landowners of the Rock Ranch site were informed of the situation. They agreed to preserve a

portion of the site for a short while to allow for a sample of the area to be excavated. This was generous of the landowners since the site was located in a cultivated field, and to farm around it was no minor inconvenience.

Since both sites were endangered, the primary objective of the project was to salvage and record samples of each location. Samples were obtained by surface collection and by excavation. This report is preliminary to future analyses. Detailed analyses and interpretations of various categories of data are in progress.

ENVIRONMENT

Both sites are located on low terraces along the south side of the North Platte River in Goshen County, southeastern Wyoming (Figure 1). The Korell-Bordeaux site is situated in the NE 1/4 of Section 22, and the NW 1/4 of Section 23, T25N, R63W, at an elevation of 1,280 m (4,200 ft) above sea level (U.S.G.S. Barnes, Wyo. Quad., 1960). The Rock Ranch site is located in the SW 1/4 of Section 12, T24N, R62W, at an elevation of 1,254 m (4,115 ft) above sea level (U.S.G.S. Cottier, Wyo. Quad., 1960).

The North Platte River runs in a southeasterly direction through the area and drains a large portion of southeastern Wyoming. The riparian environment is characterized by low flood plains covered with grasses, bushes, shrubs, and groves of cottonwood trees. Occasional springs can be found near the river. Both sites were located adjacent to the flood plain and fresh water springs. This sheltered valley with its vegetative diversity provides ideal habitat for numerous birds and animals, including many game species such as ducks, geese, grouse, buffalo, elk, deer, pronghorn, rabbits, and many others. In turn, the shelter, grass, firewood, potable water, and wild game provided an excellent environment for human habitation, especially during the winter.

The areas above the river valley are

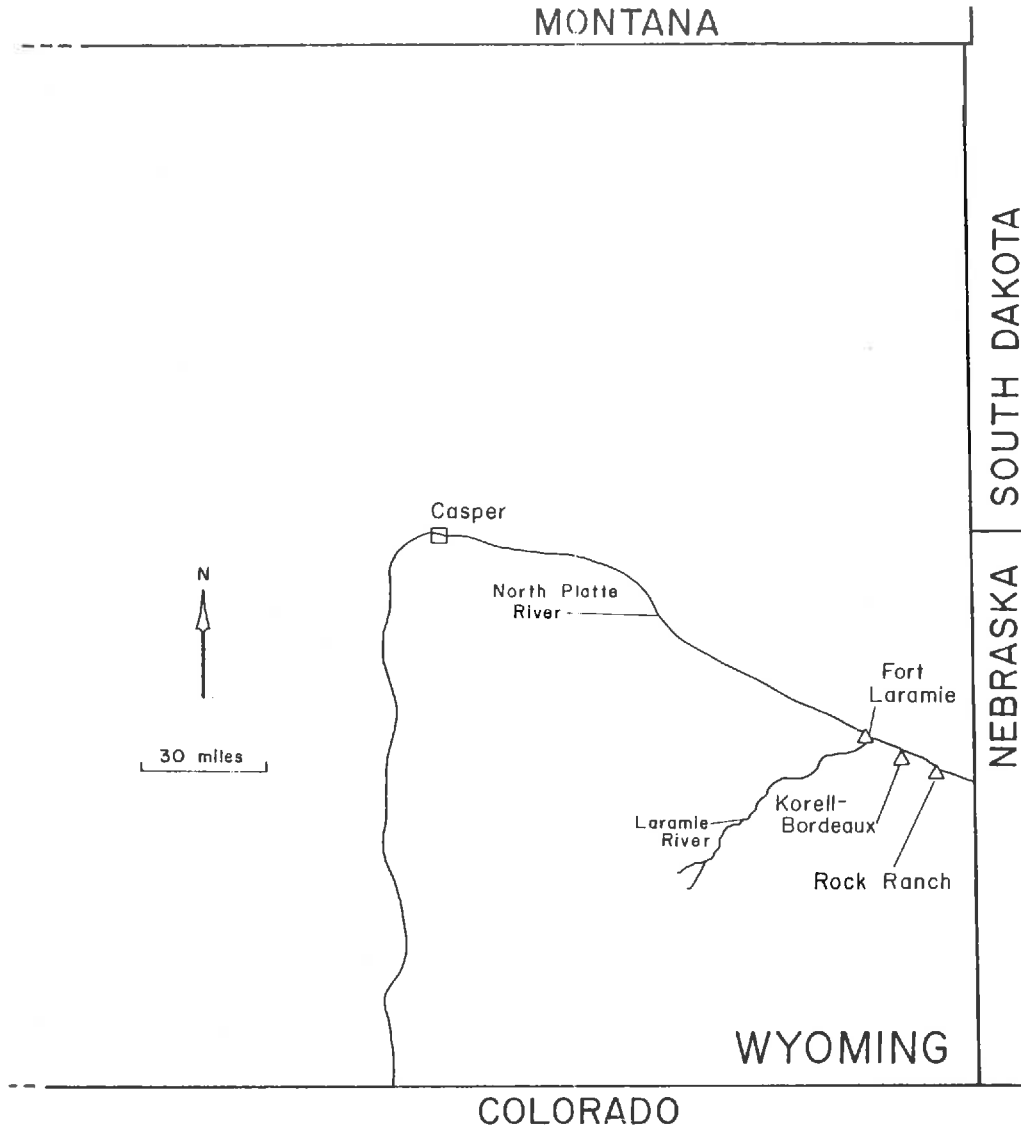


Figure 1: Locations of the Korell-Bordeaux and Rock Ranch sites in south-eastern Wyoming.

typical high plains with short grass and rolling tablelands dissected by occasional low escarpments. The escarpments are sometimes sparsely covered with pines and juniper trees. The Hartville Uplift, only a few miles northwest, contains numerous exposures of the renowned Spanish Diggings cherts and quartzites. These high quality flaking materials played an important role in prehistoric cultural systems which relied heavily on stone tools. To the northeast, the noted Nebraska Sandhills actually begin in Wyoming on the north

side of the river between Lingle and Torrington.

The regional climate is semi-arid. The area receives approximately 33 cm (13 in) of precipitation annually. Winter precipitation usually comes as snow, but it is lowest during those months. Highest precipitation comes as rain during the early summer. Temperatures range from extreme highs of over 37.8° C (100° F) during the summer to lows of under -16.7° C (-30° F) in some winters. Temperatures are often accentuated by high winds, especially during

winter. The area has a growing season of about 130 days.

The climate of the area has probably not changed much since Euro-american arrival. However, most of the North Platte River flood plain now produces irrigated crops. Irrigation has affected factors such as ground water, humidity, and the annual spring flooding of the main river channel. Much of the original topography has been altered (leveled by cutting or filling) to provide the gentle relief necessary for gravity-flow irrigation.

METHODS OF INVESTIGATION

Korell-Bordeaux site

Cultural materials exposed by earth-moving equipment in Areas I and II (Figure 2) were collected and labeled as closely as could be determined according to the graves from which they originated. Undisturbed portions of these features were then systematically excavated. Metal detectors were helpful in locating artifacts in disturbed deposits.

Since it was suspected that additional features existed in the area, a proton magnetometer survey was attempted. The survey was unsuccessful, and at the time this was thought to be because of

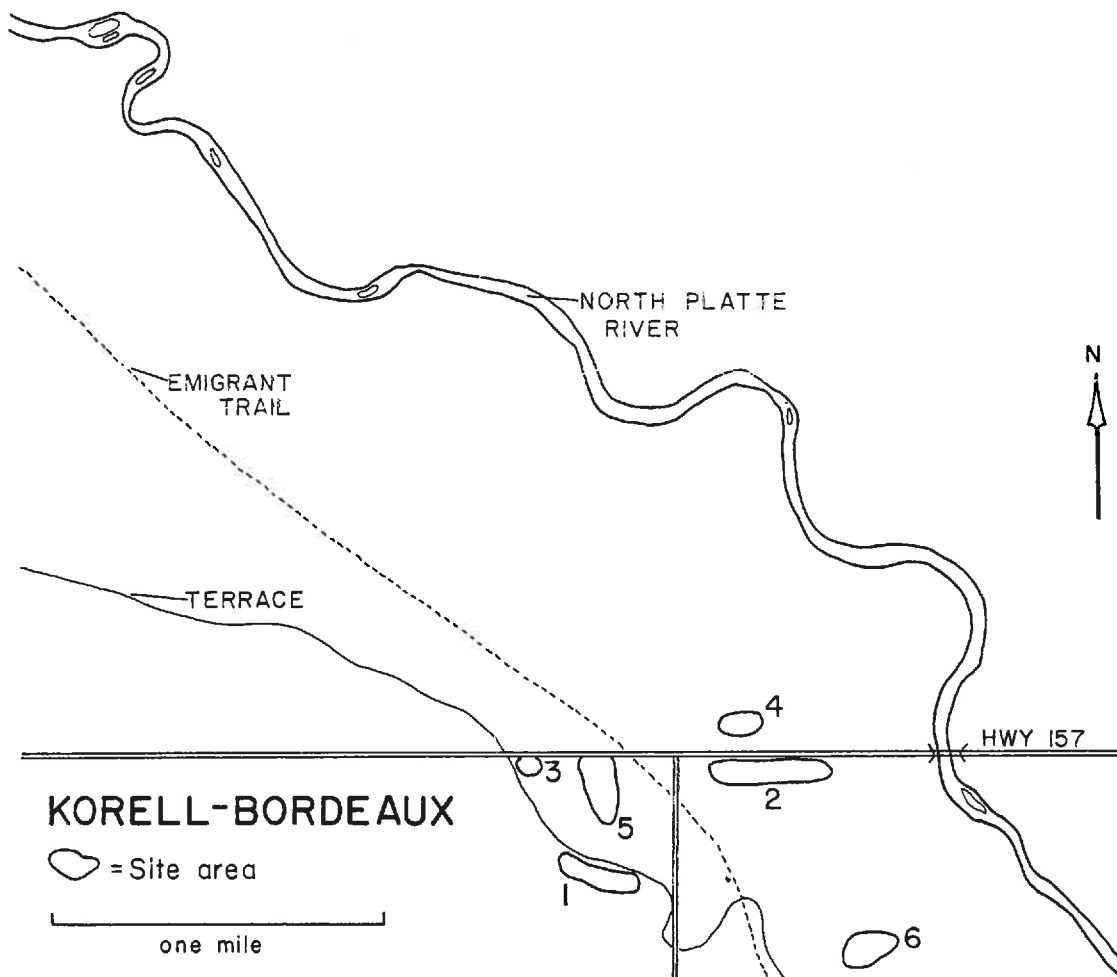


Figure 2: Areas of known exposures of cultural material at the Korell-Bordeaux site.

either faulty equipment or lack of expertise in the use of the equipment. The United States Geological Survey in Denver expressed an interest in the problem and sent Larry Paul, a proton magnetometer expert, to the site. Paul spent several days, mainly in the cemetery area, with a proton magnetometer. The equipment recorded several subsurface anomalies. Results from subsequent excavations of areas that produced the readings were mixed. Besides irregularities in soil density, anomalous readings were also produced from metal objects buried beneath the surface. In fact, metal was so common in the area that a standard reading of soil density could not be established. However, excavations of areas that yielded suspect readings did result in the location of one additional grave. In spite of this, it was concluded the proton magnetometer could not be effectively used to explore subsurface areas of this site except as an expensive metal detector.

In an attempt to discover more graves, several long exploratory trenches were dug through Area I with negative results. Exploratory trenches in Area II did not reveal the origin of the human skeletal elements found there. Future excavations in Area II may be more productive since the plow zone contains butchered bones, glass trade beads, iron fragments, fire-cracked rocks, clay pipes, chipped stone tools, and what may be part of a buried building foundation. Area III contained several human skeletons which were discovered some fifty years ago (The Lingle Review, 1930). They were apparently buried inside a wagon box along with coins, clothing, and other artifacts. Racial affiliation of this interment has not been determined. Area III has not been tested for additional features. Area IV is thought to be the site of the main buildings of the Bordeaux Trading Post. The area has been leveled, but the building apparently contained a cellar (Ware 1960:198-199). Excavations here could potentially produce the precise location of the trading facility. Areas V and VI also contain artifacts

and other surface manifestations, but these areas remain untested.

Rock Ranch site

Investigations at the Rock Ranch followed the same methods used at Korell-Bordeaux, with the exception that no proton magnetometer study was attempted. The site has been divided into five areas (Figure 3). Three old buildings remained standing on the site in Area I in 1980, but one has since burned. Several buried foundations of older buildings were found in this area. One grave was found at this site. This area also contained stratified deposits. Most of Area I has been destroyed or excavated, but additional stratified deposits may be preserved beneath the buildings. Areas II, III, and IV were destroyed by earth-moving equipment but appeared to contain fire pits, building foundations, and other features. Those areas are littered with bones, iron fragments, broken glass, and other artifacts, most of which have not been collected. Area V contained three human skeletons unearthed in 1915. Apparently they represent the remains of three men killed in an Indian battle during the winter of 1867-68 (John Owens 1915). Supposedly, several Indians were also buried after the battle but at some undetermined distance to the east of the site.

KORELL-BORDEAUX FEATURES AND ARTIFACTS

Because so many of the artifacts from this site are perishable and fragile, they have not been examined in great detail. Hopefully, they will soon be curated and stabilized so they can be handled and analyses can proceed.

Excavations were concentrated in Area I of the site. Here, several graves were located near the present ground surface. Because so much of the topsoil had been removed, the original depth of the internments could not be determined. Apparently, they were dug through several centimeters of sandy topsoil and

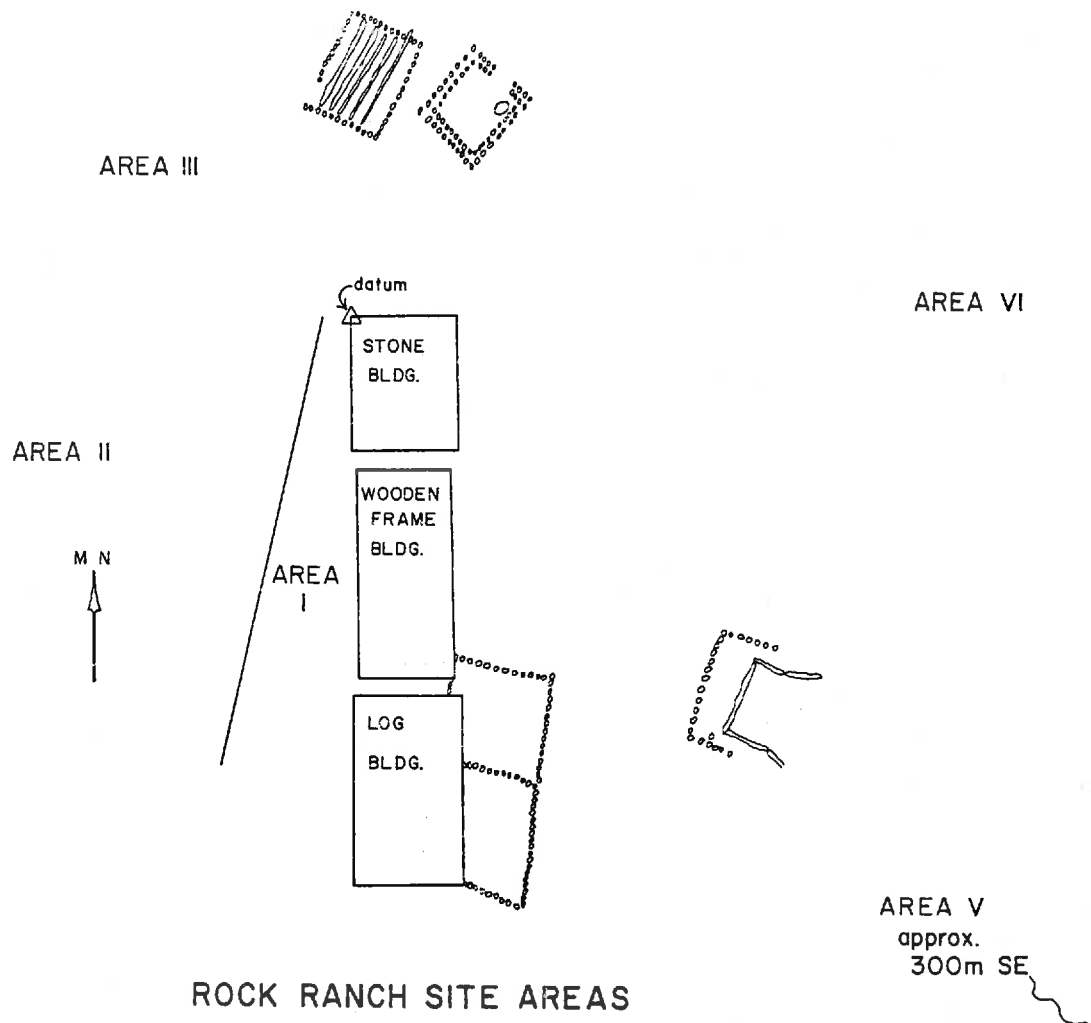


Figure 3: Excavation areas and exposed features at the Rock Ranch site.

continued for a short distance down into clay deposits.

An unknown number of individuals of aboriginal or mixed racial descent were buried in caskets. None of the caskets were found intact, but several large fragments offer clues about their construction. They were made of planed pine boards put together with square nails. It is not known if the lids were hinged, but a metal hasp was definitely used on one edge of one specimen. Pieces of metal (iron and brass) apparently ornamented other parts of the caskets. Some of the pine boxes were lined with red and yellow silk.

Several children's graves were clustered in one area of the cemetery. These graves contained toys, coins, and shoes.

The toys included marbles and a miniature china set (Figure 4). The coins had been perforated along the edge and sewed or tied to some type of garment. Many of the perforations still contain fragments of knotted thread and leather. Most of the coins are dimes and half dimes except one which is a three-cent piece. The sewed leather shoes appear to be a type available at early trading posts. Some of the adult graves also contained shoes.

A gold ring was found on the finger of a female in grave number ten. An unidentified stone, cut in the shape of a shield, is set in the ring. The interior surface of the ring bears a highly worn inscription which reads, "From W.B. to his friend P.D. 1853." Rings of

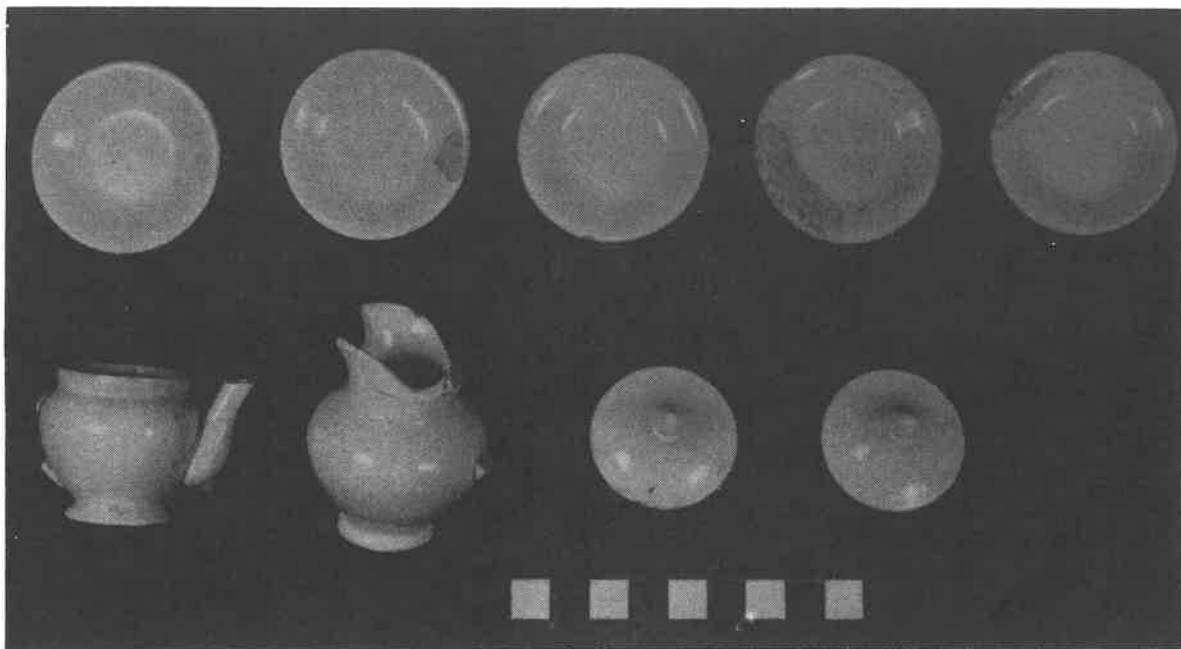


Figure 4: Miniature china set found in child's grave at Korell-Bordeaux site. Scale in centimeters.

copper, bone, and vulcanite were found in other graves.

Many copper bracelets and other items of copper were present. The deteriorating copper stained many of the skeletal elements as well as other artifacts. Copper or brass conical tinklers and bells were also found. One string of small brass trade beads remained strung on some type of wire or thread.

Several hundred glass trade beads were recovered and several hundred more remain in the plowed fields in and around the site. Some bone beads were also found, but the greatest majority were glass beads and include every size and type known to have been traded into the area. Several fragments of leather still retain strings of beads sewn to them. Many fragments of leather were preserved, several of which exhibit excellent examples of sewing and lacing techniques. Other fragments appear to be pieces of belts or straps. One large belt is well preserved (Figure 5).

Several pieces of blankets were preserved. One appears to be a Taos trade blanket (Figure 6). Several fragments

of handwoven wool were found along with examples of other types of textiles.

A large, white, clay ball was placed in a grave near the head of one individual. The interior or core of the ball is a bright orange-red color. Perhaps this object is vermilion or some other type of pigment.

One hand-carved, bone button was found along with numerous glass, brass, and shell buttons. Several shell ornaments were also present, some of which contain fragments of threads through their centers.

Several scissors were found in women's graves. Along with them were needles, razors, and other items which seem to constitute sewing kits.

Fragments of white clay tobacco pipes were found in Areas II and IV, but none were present in Area I. Two pipes from Area I include a miniature hand-carved, catlonite specimen, and a glazed, decorated, bowl (Figure 7). The catlonite pipe is perhaps too small to be functional and was probably a toy. Raw catlonite was available as a trade item. Another piece of carved catlonite in the

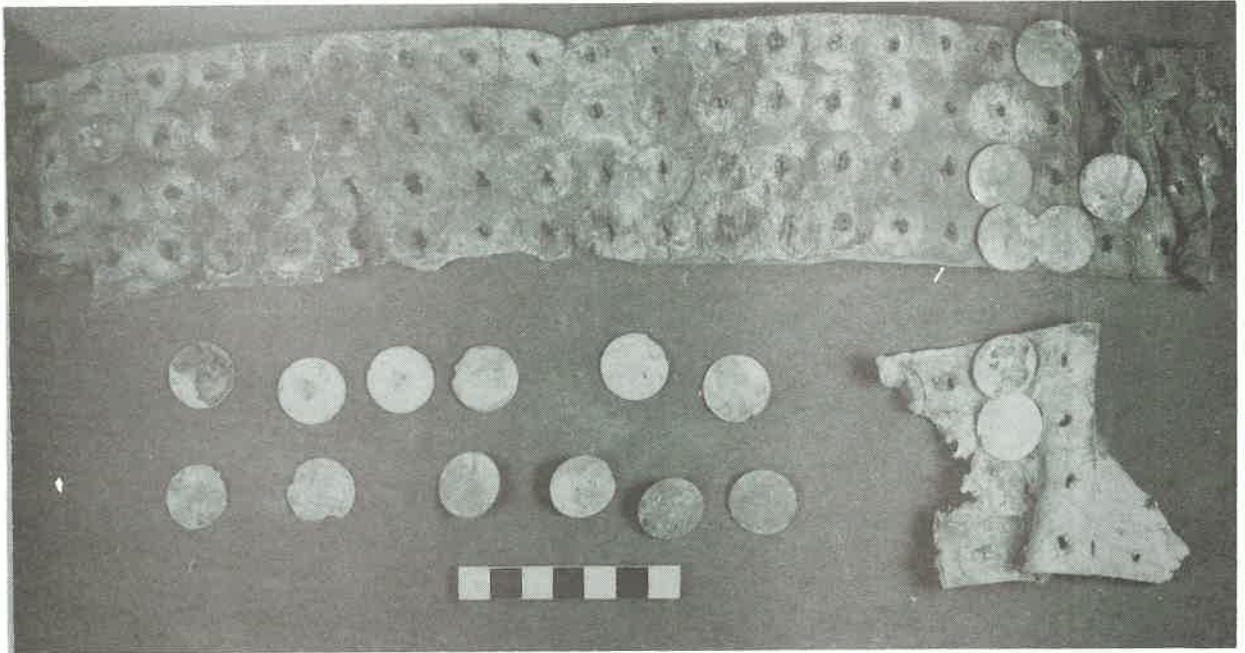


Figure 5: Brass-studded leather belt found at Korell-Bordeaux site. Scale in centimeters.

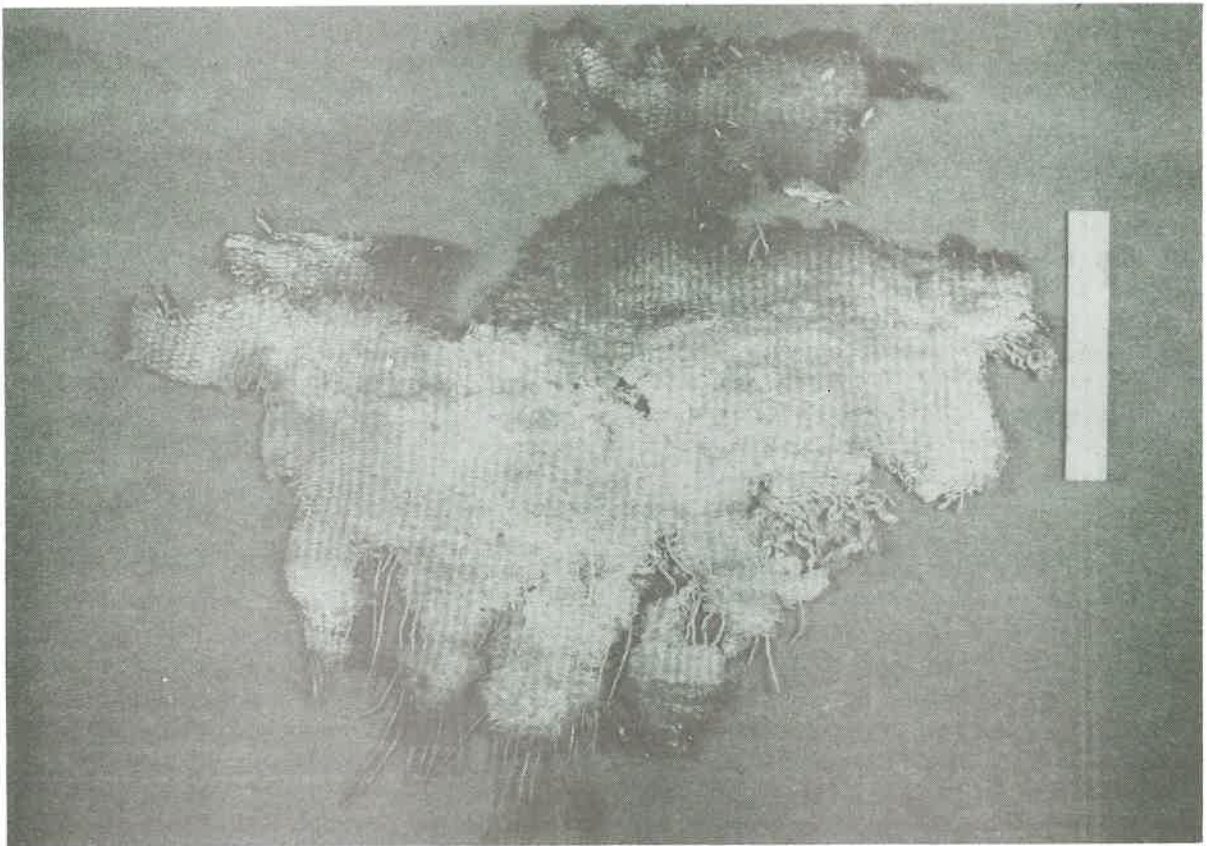


Figure 6: Fragments of Taos trade blanket found at Korell-Bordeaux site. Scale in centimeters.

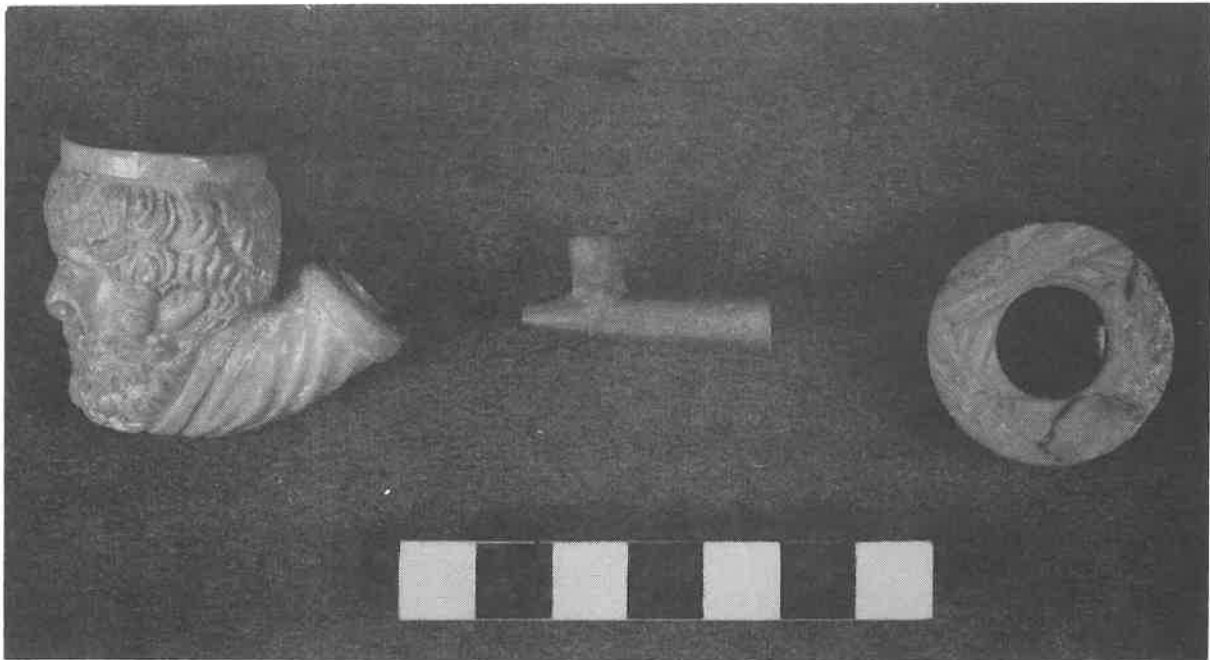


Figure 7: Glazed pipe bowl, catlonite pipe, and catlonite disk recovered from Area I, Korell-Bordeaux site. Scale in centimeters.

assemblage is a circular disk with a round hole carved in the center. The function of this item is unknown but perhaps it was used as an ornament or toy.

Two wild plum seeds from the grave area were worn and polished as though they had been carried around for a long time. Three parallel lines were carved on the side of one seed.

Knives consist of one double-edged dagger (Figure 8), a badly corroded folding pocket knife, and a Green River trade knife.

Bullets were present but cartridges were absent. It has not been determined if the bullets were responsible for the demise of any grave occupant. A gun barrel was present in one grave. Apparently, only the barrel was placed in the grave since the rest of the gun was not found. One gunflint was also present.

Other miscellaneous trade items consist of spoons, double-edged vulcanite combs, perfume bottles, an ink well, and scribes or ink pens. Several stone tools include a gray, shist whetstone, both grooved and ungrooved hammerstones

or mauls, and disk-shaped smoothing or tanning stones. Also present were several hand-sized chunks of pumice (Figure 9).

The grave of one white male did not contain a casket. This individual apparently died of multiple gunshot wounds. A felt hat was placed over the face and leather boots remained partially preserved on the feet. Two rings remained on the fingers and three nickels, dated 1866, 1867, and 1867 were found near the chest (Gill *et al.* 1984: 229-238).

The items briefly described above are from the contents of several graves which apparently represent a cemetery. It is likely that the cemetery was related to the Bordeaux Trading Post but remains to be proven. The children's graves were clustered closely together and may represent a single catastrophic event. The adult graves seem to represent single internments over a long period of time. However, additional discussion before all the data are completely analyzed would only result in speculation.



Figure 8: Double-edged dagger found at Korell-Bordeaux site. Scale in centimeters.

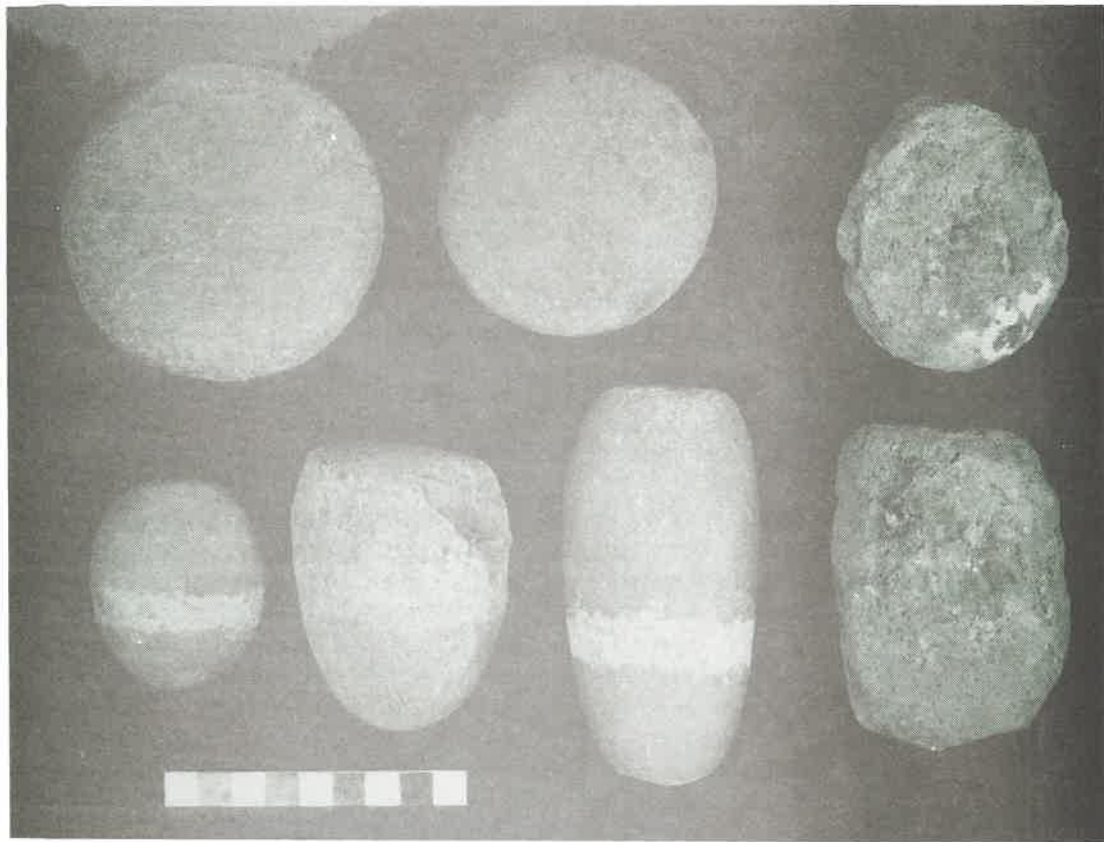


Figure 9: Smoothing stones (upper row, left and middle), hammerstones (lower row, three left items) and pumice pieces (right) found at Korell-Bordeaux site. Scale in centimeters.

ROCK RANCH STRATIGRAPHY

By the time systematic excavations commenced, the only stratified portion of the site that remained intact was a small wedge of deposits along the west side of the buildings. If stratigraphy existed to the west of the wedge and north and south of the buildings, it has been destroyed. Cultural levels merged together on the east side of the buildings. Early artifacts were mixed together with recent materials such as battery cables, chewing gum foil, oil cans, etc.

A long profile of the deposits was obtained along a north-south line extending from datum to 17 m south. Cultural deposits were distinctly separated from other soils only from 8-15 m south. Cultural levels angled toward and became mixed together or were disturbed north-

and south of this area. The chronological sequence in the stratified area was complicated by an old, shallow gully meandering through the deposits (Figure 10). The gully was present during the earliest occupation but had gradually become filled and was not visible on the surface when excavations began. Deposits in the gully extended to within 20 cm of the surface where they became mixed. Stratigraphy in the gully was complicated by tree roots and rodent burrows. Because the land immediately to the west had been leveled, the source and direction of flow of the gully was not discernible.

The gully was apparently used as a refuse dump. A fire pit was located on the bank of the gully under the southwest corner of the stone building. Cultural debris on the gully floor appeared to be materials which had been



Figure 10: Profile of gully through stratified deposits at Rock Ranch site. Line level is four inches long for scale.

cleaned out of the pit and dumped into the gully. There was no evidence the deposits had been disturbed by stream action, so apparently the gully was dry when the site was occupied.

Two thin charcoal levels in the profile at 3-5 m south were stratigraphically below what is referred to here as cultural level I, or the earliest occupation. However, the two thin levels contained no cultural materials. It is likely that older cultural deposits may have existed elsewhere in the site.

Cultural Level I

This level rested on the bottom of the gully at a depth of 72 cm below the ground surface. The level angled upward to a depth of 40 cm, which was probably the original bank of the gully, and then thinned out rapidly as it extended southward. To the north, it extended rapidly upwards into the mixed levels of the more recent deposits. In the gully, the level contained burned rocks and charcoal. Turtle and fish bones were present along with bones of larger animals. None of the butchered bones in this level were sawed with iron implements. The artifact assemblage included gunflints, stone and bone tools, clay pipes, percussion caps, a minie' ball, glass and bone beads, and several small pieces of highly corroded metal. Broken glass was not present. Nails may have been present, but metal fragments from the level were too deteriorated for identification.

Artifacts in and around the fire pit in the bank were of the same variety as those found in the gully and presumably of the same age. The pit also contained burned fish bones. Several other fire pits found in the areas disturbed by land leveling apparently contained similar assemblages. It would appear that level I consists of several small activity areas, each with a central fire hearth. None of the building foundations were definitely assignable to this period, but one or more of the burned stone or wooden foundations could have been present.

A thick, heavy charcoal level rested immediately on top of level I. Metal fragments were more numerous in the level, with broken glass and square nails also present. This level probably represents debris from a burned building. It was not possible to tell whether it is related to levels I or II, or if it represents a separate intermediate level.

Cultural Level II (Figure 11)

This level generally lies from 2-5 cm above the thick, charcoal stained level in most places, but those components merge at some spots. This level contained numerous butchered bones, a few of which had been cut with a metal saw. Fish bones were also present. Artifacts included square nails, broken glass, glass beads, bone tools, percussion caps, bullet cartridges, and clay pipes. These materials represented a small activity area which thinned out in all directions. In the gully, this component is detectable as only a thin level of charcoal 33 cm above the thick, charcoal stained level. No fire pits or buildings were definitely associated with this occupation, but the nails and plate glass suggests a structure was present.

A light brown sand above level II varied in thickness but clearly separated the level from later occupations.

Upper Cultural Levels

It is impossible to determine how many cultural occupations are present in these mixed deposits. It appears that the site was occupied continuously from the historic occupation time to the present day. Artifacts from the later components include coins, bottles, spurs, and large quantities of corroded metal, broken glass, etc. Some of these artifacts undoubtedly are from the period when the Swan Land and Cattle Company used the site around the turn of the century.



Figure 11: Artifacts and bone in situ in Level II at the Rock Ranch site.

ROCK RANCH FEATURES AND ARTIFACTS

Structures

As mentioned earlier, three old buildings remain standing on the site (Figure 12). The northern-most structure is of stone construction. It dates to at least before the turn of the century and may be even a decade or so older. The middle building is of wooden frame construction. Square nails were used and it is likely that this building dates to at least the early Twentieth Century. The frame structure burned in 1982 and only the foundation remains in place. The southern building is of log construction. The exterior has been recently covered with stucco. This building may also date to before the Twentieth Century. All three buildings exhibit details of early styles of architecture which remain to be fully re-

corded.

Several buried foundations were found during excavation. One contained a log-lined cellar. Another consisted of log floor joists which rested on a sandstone rock foundation. Another sandstone foundation outlined two rooms which extend beneath and predate the buildings which now stand on the site. None of these features have been dated, but it is obvious that they are all pre-Twentieth Century. It is difficult to correlate them to the various horizons in the stratigraphy. However, more careful work at the site could possibly eliminate some of the dating difficulties.

Gunflints

Gunflints occurred in situ only in Level I (Figure 13). A total of eleven flints were found, seven were commercially manufactured and four of which



Figure 12: Extant standing structures at the Rock Ranch site. View is to the northwest.

were homemade. The commercial specimens are prismatic and apparently were made from unifacially prepared blades. A light retouch was applied to shape the edges. Three of these artifacts are dark, grayish-black color, possibly of British flint, and three are yellowish-brown, possibly of French origin. One ashy-gray specimen had been burned and the original color could not be determined. The edges of both the ends and sides have been used. Only one specimen was apparently not used. Material types and methods used in commercially producing gunflints are distinctive. Additional comparisons of these artifacts to collections of known genesis should be useful in determining precisely the sources of the materials and the places and dates of production.

The homemade flints are all made from locally available red, yellow, and gray cherts. They are roughly shaped, are thick in cross-section, and generally inferior copies of the commercial types.

All contain evidence of usage along one or more edges. One specimen was heat fractured and several spalls broke away from the dorsal surface.

Fire-flints

Two artifacts are arbitrarily classified here as fire-flints. Fire-flints were struck against a fire-steel to produce a spark which ignited some kind of tender. Unfortunately, little is known about flint and steel fire-making kits. The function of the two artifacts in question may be misinterpreted here, but it is difficult to explain the pattern of use they display in any other way.

Both artifacts were made from local materials. One specimen is a thick flake of bluish-green chert. It is unifacially flaked. There is no evidence the dorsal surface was reduced after the main flake was struck. It is 60 mm long, 31 mm wide, and 17 mm thick.



Figure 13: Gunflints recovered in situ in Level I at the Rock Ranch site. Upper row and left three items on middle row are commercial specimens. Remainder are "homemade." Scale in centimeters.

All edges have been heavily battered and crushed. Edge-angles are not uniform and vary from 90° to less than 30° .

The second fire-flint is made from a flake of yellowish-brown or tan chert. Large percussion flakes have been removed from both sides. The length of the long axis is 49 mm and maximum width measures 28 mm. Maximum thickness is 14 mm. Only one end is battered and crushed. No use retouch is visible along the other edges. The angle of the used edge is approximately 55° . This specimen was not used as extensively as the first. In fact, had it not been for the need to explain the extensive use of the other artifact, both of these specimens may have been categorized as merely large, crude flakes.

No artifacts were identified as fire-steels. However, many of the iron objects were so heavily corroded with rust

they were beyond recognition.

End Scrapers

One end scraper was found in the fire pit at the southwest corner of the stone building. It had been subjected to high temperatures and was heat fractured. Several heat spalls from this artifact were also found in the pit. This plano-convex scraper was made from a local red chert. The working end was steeply beveled and the opposite end was probably tapered.

Cores

A small, fine-grained, reddish-gray expanded quartzite core was collected from a disturbed area. It was bifacially reduced by removal of large percussion flakes from all directions. Maxi-

maximum length is 53 mm, maximum width is 45 mm, and the maximum thickness is 21 mm. None of the edges show evidence of use.

Bifacial Cutting Tools

Three broken artifacts from level I fit into this category. Two of these are fragmentary tips of pointed side-scrapers or knives. One is made from a local red, dendritic chert and the other from a local red and white chert. Use retouch is present on the edges of both artifacts. A hinged fracture on the broken edge of one specimen has been used for cutting after the tool was broken.

A third specimen was made from a local yellow chert. This tool was apparently broken during manufacture and discarded without being finished. No evidence of use was present on the edges.

Unifacial Tools

Two items fall into this category. Materials are a local white and a local bluish chert. Both specimens are sharp flakes with use-retouched edges. All edges have been used apparently for cutting or scraping, even the steep angles of the thick distal ends of the flakes.

Flakes

Four flakes were recovered from the lowest level. Two of these are made from red dendritic chert and are heat spalls from a larger artifact. Another is a thin percussion flake of metamorphized shale. Part of the exterior or rind of the shale remains on the dorsal side of the flake. The fourth flake is a small, white, chert sharpening or retouch flake.

Chipped stone tools were present and evidently were used at the site in levels I and II. Cut marks made with stone tools were present on the butchered bones, however, cut marks from iron tools were more common. A large sample of the matrix was washed through a fine

water screen. Only one retouch or sharpening flake was recovered. This suggests that stone tools were not used as extensively as iron tools, at least in those portions of the site where excavated samples were obtainable.

Hammerstones

Two items have been classified as hammerstones. Both qualify as excellent butchering tools and may have been used for breaking bones. The first stone is a brown, coarse-grained, quartzite river cobble. It is 100 mm long, 74 mm wide at the largest end, 32 mm in diameter at the rounded small end, and maximum thickness, on the largest end, measures 50 mm. The small rounded end was extensively battered and crushed. The large end was also obviously battered, but it was not crushed as extensively. Edges and surfaces of the sides show no evidence of use. This artifact was collected from a disturbed area of the site.

The second hammerstone is a fine-grained piece of local sandstone. The largest end measures 48 mm, the smallest end 32 mm, and overall length is 120 mm. Both sides are flat, with uniform thickness, measuring 25 mm at the largest end and 22 mm at the small end. The surfaces of the sides have been smoothed. Light striations are visible extending parallel to the long axis. Grooves near the center along one side are perpendicular to the long axis and may indicate this tool was hafted. Crushing use is most evident on the large end. Only moderate use was evident on the small end. This artifact was found in cultural Level I.

Grooved Abrading Stones

Two grooved abrading stones were presumably used to smooth arrow shafts. One is made from a fine-grained, brown sandstone. The smaller piece is made from a coarse-grained, gray sandstone. Both materials are available near the site. These artifacts are small, flat pieces of sandstone. Each has a single,

narrow, U-shaped groove extending through the center of one side. The grooves are straight and uniform in depth, approximately 7.5 mm wide and 3 mm deep. Evidence of fortuitous use as grinders is present on the ungrooved surfaces. One abrader is complete and unbroken. It has been pecked and ground to shape and measures 52 mm in maximum length, 45 mm in maximum width, and 45 mm thick.

A third grooved abrader was apparently used to smooth or polish long, cylindrical objects much larger than arrow shafts. This stone is made from a gray, coarse-grained sandstone. The single, wide, U-shaped groove is uniform in depth and extends the full length of the long axis. The groove is 79 mm long, 43 mm wide, and 6 mm deep. All three grooved abraders came from cultural level I.

Whetstones

Two whetstones were recovered from the mixed cultural deposits of the upper levels. Both of these stones were made from a gray, micaceous schist. Schist is also locally available. Both specimens were probably homemade and shaped by sawing into thin, rectangular blocks. The sharp edges were then smoothed and tapered, with both sides being used. Both sides of one specimen have become basined from use.

Edge-Ground Cobbles

A brown, smooth, river cobble displays a unique form of wear. One end of the stone is pointed. This end has been ground smooth at a 45° angle from both sides, producing a keeled affect. The worked edge is curved and has been keeled for a distance of approximately 35 mm. One edge of the stone is relatively straight and was originally round. This round edge has been worn flat from use.

Edge-ground cobbles are common in prehistoric sites from the Late Archaic Period about 2,000 years ago. They are thought to be hide tanning stones. This is the first artifact of this type found

in a site from the Protohistoric Period, at least in this area.

Miscellaneous Ground Stones

Four sandstone artifacts were abraded or used as abraders, but their functional attributes remain nebulous. One item is an oblong sandstone rock. Grinding was extensive enough to produce a basining effect on both flat surfaces. Visible striations across abraded surfaces are perpendicular to the long axis.

A second specimen is a fragment of a larger unidentified artifact. This item is ground on both sides. Three edges are broken, but the fourth has been ground to form a smooth curve from one side to the other. It is possible this fragment is part of a shaped metate.

Another fragment is apparently an end of a much longer item. It has been ground on all four sides. The four longitudinal surfaces vary from flat to slightly convex.

The fourth miscellaneous item is a cylindrical object. One end is rounded and all four sides have been smoothed. One side has been shaved for a distance of 27 mm near the broken end.

Antler Tips

Two deer antler tips were collected from near a fire pit in Area II. Both of these artifacts were severed with an iron saw. They average 31 mm in length and 10 mm in diameter at the cut ends. Their function has not been determined, but it is speculated here that they may have served as plugs for some small orifice such as the pouring spout of a powder horn or flask.

Carved Bone

One fragment of carved bone was probably part of a handle or grip. The outer surface is decorated with a cross-hatched pattern. A small hole was drilled through the bone, possibly for a pin. This item came from level II.

Cut and Snapped Bone

Three ribs were intentionally cut and snapped. All three specimens are tentatively identified as bison bone. The manufacturing technique employed here was to cut or saw a groove partially through the surface all around the bone. The breakage was completed by snapping the bone. This was done to obtain a center section of the bone with clean, straight ends. Merely snapping the bone would have been less time consuming, but would have produced irregular and jagged ends. The midsection was then used for whatever purpose it was intended, such as a haft or the beaming tool described below.

Beaming Tool

A bison rib beaming tool was found in the fire pit at the southwest corner of the stone building. This tool is a rib midsection that was cut and snapped on both ends. It is 97 mm long, 18 mm wide at one end and 24 mm wide at the other end. The surface has been intentionally smoothed or polished, as shown by numerous striations on both sides. The sharp, posterior edge of the rib has been worn flat from use.

Gouging Tool

This artifact is also made from a bison rib. The rib head has been snapped at the neck producing a sharp, jagged end. Several jagged projections are highly polished from use. Such a tool may have been used to extract marrow from bone cavities.

Metatarsal Scraper

The midsection from a deer or pronghorn metatarsal shaft was made into a scraping or fleshing tool. The bone was broken, with only the working end found. The portion used was either the lateral or medial side of the bone. It was originally sharp but now highly polished and dull. The surface is also highly polished with numerous striations near

the working end attesting to heavy use.

Humerus Scraper

This tool was made from a fragment of a bison humerus shaft. The spiral green bone break produced an acute, sharp angle at the end of the fragment. This sharp edge became the working end. The edge is now somewhat irregular since several flakes were chipped away during use. Cut marks across the surface of the bone were apparently made when the humerus was fleshed.

Glass Beads

As was the case with the clay pipe fragments, glass beads were scattered throughout the site and present in all cultural components. Beads seem to be especially susceptible to wind, rain, root, insect, and rodent activities which rearrange artifacts in the ground. For example, in several instances beads exposed during excavation and left in situ, were blown away by gusts of wind before they could be recorded and collected. Several hundred more remain scattered about the site area. Colors were often faded, probably as a result of heat from fire pits and burning buildings. Some specimens were broken, and some seem to have deteriorated in the damp acidic soils. This was especially true of the small blue and green types, many of which simply disintegrated into a powder when touched or moved.

A variety of sizes and colors are represented. The most common type are asymmetrical, but generally round in appearance. The smallest of these measure one mm in cross section, and some are slightly less than one mm in length. Some have white cores and red exteriors. Others are solid red. The pink color of some specimens may be simply faded red. Several shades of blue are represented and again, some of the lighter blues may be faded. Yellow and dark green colors are also present. Black is represented only in the largest sizes. The largest round bead is black and measures 5 mm in diameter. Several shades of brown are

present but these seem to be faded or stained. Blue is the most common color, followed closely by red.

Red, white, and blue round, tubular beads are also present. These were long, straight tubes of glass which could be broken into whatever length the user desired. The pieces found in the site vary in length from six mm to 22 mm.

One clear, multi-faceted bead measures seven mm in diameter and is 7.5 mm long. The facets appear to have been ground at random since they are not uniform in size, shape or location on the surface. One black bead is also faceted. It is 3 mm in diameter and 2.5 mm in length. In this case, the facets are uniformly spaced.

Three large specimens are mandrel-wound beads, a name derived from the method of manufacture. Two are plain white, broken, and not measurable. The third is a white mosaic bead containing 12 inclusions of red glass which gives a spotted appearance. Each inclusion contains a dark-colored nucleus which protrudes far enough to cause the surface to feel rough. This bead is 10 mm long and 9 mm in diameter at the center. All three specimens are tapered at both ends.

Bone Beads

Two tubular bone beads were found near a fire pit in the lowest level. One specimen appears to have been made from a section of long bone shaft from a small animal approximately the size of a jackrabbit. The other was made from a section cut from a canid metapodial. Striations on the surface of both beads reveal that they were shaped and smoothed, probably with a sandstone abrader. Interior surfaces and orifices of both are also smooth from wear. One specimen is ovoid in cross-section, while the other is rectangular. One orifice of the ovoid bead is 9 mm in diameter while the other end measures only 5 mm. The ovoid bead is 18.5 mm long. One end of the rectangular bead was missing so it could not be measured.

Unidentified Bone Items

Origin and function of three bone rings remains to be determined. These are bands of thin bone two mm wide forming unbroken rings about 13 mm in diameter. There is no evidence they were intentionally smoothed or shaped. They were found near a concentration of fish and turtle bones in the lowest levels.

Shell Ornaments

Several fragments of mussel shell were found in the lower two cultural levels. None of these items exhibit evidence of cultural modification. However, it is likely that mussels were collected and used for ornamentation or as utensils since they do not occur naturally in the deposits.

Tobacco Pipes

Over five hundred pipe fragments were recovered. Fragments were scattered throughout the site in all levels, but remained in situ only in the two lower components. Most of the pipes were concentrated in and around the fire pits. Many more fragments could have been recovered by sifting through the disturbed soils.

Only four specimens contain use stains and residue. Many others probably were used, but residues have been destroyed by soil acids and fire pit heat. No teeth or chewing marks were found on any of the stems. This is apparently because hard clay stems were difficult to mark. One of us (Zeimens) experimented with one clay stem by placing the end in his mouth and chewing it while working. The stem was gnawed for more than eight hours and not a single mark was produced.

The clay pipes are hard and brittle. All were broken. They were probably originally broken before they were discarded, but suffered more attrition after they were abandoned. Those that were in fires became even more brittle and fractured into small pieces. Heat spalls had developed on many pieces.

Heat also turned some of the white pipes to a grayish-blue color.

Fourteen different pipe styles were represented (Figures 14,15). Only white clay pipes were found in the lowest level. Both white clay and glazed types were found in the second level. A vulcanite specimen and a porcelain stem were recovered in the mixed upper levels.

Type one is an unfinished, handmade specimen. It is made from a white, chalky clay, probably of local origin. It was not fired, and apparently broken and discarded before it was finished. Fingertip impressions are molded in the sides. The bowl was gouged out with a pointed instrument. Several gouge marks remain in the bottom of the bowl.

Type two consists of one porcelain stem. The interior of the stem is a glossy white and the exterior a dark reddish-brown. No seams are visible. If the bowl was present, it would point

upwards at a right angle to the stem. The stem is 28 mm long and tapered at the end. Striations around the end suggest that it was inserted into a larger stem during use.

Type three consists of a dark brown glazed stem and fragments of a bowl. Seams are apparent along the top and bottom. The stem is 25 mm in length, contains a single flange on the end, and decorated forward to the bowl with a checkered pattern. The checkers are produced in relief and are not uniform in size, but average about two mm square. The bowl is decorated with a leaf motif and a flanged lip. The bowl is at a right angle to the stem.

Type four is a small, thick, fragment of a dark brown, glazed stem. Lines running parallel to the long axis produce a corrugated surface. The end consists of a single large flange. The bowl is missing and no seams are visible.



Figure 14: Various pipe styles recovered from Rock Ranch site. Scale in centimeters.



Figure 15: Decorated and undecorated clay pipe bowls recovered from Rock Ranch site. Scale in centimeters.

Type five is represented by two light brown or tan glazed stems. Only remnants of the bowls were found. They set at right angles to the stems. The stems are 20 mm long and have a single flange on the ends. Seams are prominent along the tops and bottoms.

Type six has a bluish-gray glazed exterior with a yellowish-brown interior. The stem is only 11 mm long with two flanges decorating the end. The surfaces of the stem and bowl are plain, but both the top and bottom seams have been smoothed. The bowl is perpendicular to the stem.

Type seven is a fragment of a glazed red stem. The end is flared slightly but is not flanged. The surface is undecorated.

Type eight is represented by the proximal portion of a red, unglazed stem. Two thin flanges extend around

the end. The seams are offset as though the mold had slipped. A circular impression decorates each side.

Type nine is an unglazed, reddish-brown pipe with a stem that extends slightly beyond the bowl. The stem is 39 mm long and has two, thick flanges on the end but otherwise undecorated. Seams are unsmoothed on the top and bottom and extend to the top of the bowl. The lip of the bowl is flanged. Another flange extends around the bowl at the center. Several circular impressions between the flanges complete the decoration. The bowl sits at a right angle to the stem.

Type ten is a portion of a stem and bowl of a black vulcanite pipe. The stem curves downward from the proximal end. The end itself is missing. A date of 1874 is stamped into the right side. There was apparently a projection on the

bottom of the bowl, but it has been disfigured by burning. The inside of the bowl lip is threaded, apparently to receive the threaded portion of an upper bowl. The upper bowl was not found but was presumably made of wood.

At least twenty specimens categorize type eleven. These are white clay pipes bearing the initials "TD" in relief on the posterior sides of the bowls (Figure 16). The initials are 5 mm high with the "T" on the left side of the seam and the "D" on the right. A short spur protrudes from the bottom of the bowls, but this type is otherwise undecorated and unmarked. No unbroken stems were found. The longest stem fragment measured 117 mm in length. Diameters of the stems vary asymmetrically but generally are round. Bowl thickness is not uniform but averages two mm.

Type twelve is identical to type eleven except for extra decorations on the bowl. Fifteen small leaves stand in

relief along each side of the anterior seam and ten on each side of the posterior seam. The "TD" initials are the exact same style and size as those on type eleven. But here the initials are circled with 13 small six-sided stars, six on the left side and seven on the right side. The stems are undecorated (Figure 16).

Type thirteen is a decorated white clay pipe without the initials. Only one fragmentary specimen was found, but it is similar in size and shape to the two styles described above. The bowl is decorated by several ridges or ribs which extend from the lip of the bowl to the stem. A small "Z" pattern extends down along the full length of at least the anterior seam. No stems were found which can definitely be matched to this specimen.

Type fourteen consists of four specimens which differ from type thirteen in that there are no decorations along the



Figure 16: Pipe bowls with "TD" initials. Left is pipe bowl type 12; right is pipe bowl type 11. Scale in centimeters.

seams, the ridges or ribs only extend about half way up the bowl, and the stems are decorated where they meet the bowls just behind the spurs. Also, the four flanges extend around the stems about two mm apart. Two rows of dots stand in relief between the second and third, and third and fourth flanges. There are probably five dots on each side of the stem (ten in a row), but they were smudged while still wet and cannot be counted precisely on these specimens.

Clay pipes were cheap and replaceable. They were made by numerous manufacturing companies both in Europe and America in the early Nineteenth Century. Apparently, some types are still manufactured today. They serve as poor temporal indicators in archaeological sites.

Iron Items

Most of these artifacts remain to be described. They include both square and round nails, nuts and bolts, trade axes, stove parts, spurs, coins, buckles, gun parts, bullets, cartridges, percussion caps, etc. Many iron objects were highly corroded. Much curation is needed before analyses are attempted.

Glass Items

As with the iron artifacts, glass was abundant in the site. Most specimens are smaller pieces of broken plate glass, but many larger pieces of dishes and bottles were also represented. One broken bowl has been pieced together and identified as part of a set now belonging to a woman whose mother lived at the site in the early Twentieth Century.

Fire Pits

The oldest cultural component of the Rock Ranch was composed of several discreet activity areas. These features consisted of central fire pits around which were scattered butchered bones, stone and bone tools, glass trade beads, and occasional fragments of iron and

glass. These were circular areas about six meters in diameter. At least four areas were present, three of which had been ripped up and scattered about on the surface by the earth moving equipment. Test excavations revealed that the rippers had extended deeper than this component and nothing remained in place below the surface. From the quantity of burned rocks, bones, and other debris scattered throughout the field, it is likely that more than the three visible features were present, and several others may have been totally destroyed.

One undisturbed pit was spared from the machinery because it lay buried below the southwest corner of the stone house. However, most of the area and artifacts surrounding this pit had been destroyed when the foundations of the existing buildings were installed. This pit was near the bank of an old gully. The artifacts found in the bottom of the gully were probably refuse from cleaning of the pit for reuse. The gully apparently served as a convenient trash dump. The pit was roughly circular and measured one m in diameter and 13 cm deep. The bottom was basin-shaped and lined with sandstone rocks. The rocks had apparently been subjected to extreme heat and disintegrated into small, soft stones. The rocks, along with numerous fragmentary and burned bones, gave the matrix of the pit an ashy appearance.

Most of the charred bones in the pit were fragmented beyond recognition. However, one was identifiable as a pronghorn mandible and another was a dog mandible. Both mandibles had been butchered. Other identifiable butchered bones included pronghorn and bison long bones, and pronghorn and dog ribs. The contents of the pit also contained several clay pipe fragments, pieces of glass trade beads, several small unidentifiable iron fragments, a gray clay ball, a red chert end scraper, two grinding stones, and a bison rib beaming tool.

This assemblage was similar to the items found scattered around the disturbed pits. Both plain and decorated

clay pipes were represented. The glass beads were highly deteriorated and turned to powder when disturbed. Although badly corroded, at least one iron fragment has tentatively been identified as part of a flintlock action. The clay ball was hand molded and its function remains a mystery. It measures 18 mm in diameter and has been fired at a low temperature. The end scraper has been extensively fractured from high heat. The grinding stones have been ground and pecked to shape and appear to be fragments of two different metates. The beaming tool is made from the midsection of a bison rib. Both ends were grooved completely around and the breaks then completed by snapping them in two. Both ends are polished. The sharp blade edge has been worn flat and is polished. It was probably the primary working edge. Heavy striations appear on both surfaces and are either from heavy use or intentional polishing of the surfaces. The tool measures 152 mm in length.

It was not possible to determine if the fire pits were contemporary with any of the old buried foundations. Based on the types of artifacts present in and around the pits, it is likely that these features date from the 1820s to the late 1840s.

The pits probably served as central hearths. Whether they were covered by a structure (tipi) is conjectural. Because of the amount of disturbance to the features, it was not possible to determine if packed living floors had been present.

Several fire pits were plowed up in the Korell fields between the terrace which contained the main cemetery and what is thought to be the Bordeaux Trading Post site. Fire-cracked rocks, charcoal, glass beads, clay pipes, end scrapers, stone projectile points, and chert and quartzite flakes were present. These pits were all too badly disturbed for description, but were apparently rock lined. The artifacts suggest both prehistoric and historic pits were present. It is estimated the area contained forty to fifty pits. More than fifty pits may have existed at one time since

much of the land was leveled several years ago. It is possible undisturbed pits remain below the surface.

One aspect of prehistoric and early historic lifeways that has been neglected the most is the use of fire. There was probably nothing that contributed more to the everyday needs and indeed, even survival, of those who occupied the High Plains. Yet, because the use of fire was so necessary and so mundane, it was completely overlooked, or at best barely mentioned, by early explorers and ethnographers. The most common feature found in archaeological sites in the area are fire pits or hearths. The Korell-Bordeaux and Rock Ranch sites provide an excellent and unique opportunity to compare prehistoric with protohistoric uses of fire.

SUMMARY

Samples were excavated from both the Korell-Bordeaux and Rock Ranch sites. Just how representative these samples are is speculative since large portions of the sites have been destroyed and other areas not in immediate danger remain unexcavated. The samples are small considering the approximated size of the sites.

Much remains to be done to curate and analyze the assemblages. Hopefully, resources will be found soon for curation since the perishable artifacts are in a state of deterioration. These artifacts are exposed to the atmosphere and occasionally handled which causes major damage in almost every instance.

The Korell-Bordeaux cemetery is probably associated with the Bordeaux Trading Post. The precise location of the main trading facility is not known but there is a strong possibility it can be found by future excavations. The Rock Ranch contains stratified evidence for Early Historic occupations. Both sites represent examples of trade and settlement along a significant segment of the Emigrant Trail. Over the years, large portions of both sites have been destroyed. Attrition will continue unless

some type of preservation program is devised and implemented for these resources. The area contains other sites not discussed here that are temporally related to Korell-Bordeaux and Rock Ranch, and are also in need of preservation and investigation.

ACKNOWLEDGEMENTS

The impetus for this project came from the deep concern of several local individuals for the preservation of cultural resources. Over one hundred people from the community participated in the project in one aspect or another. Many contributed labor during excavation and assisted in cleaning and cataloging artifacts. Others bused school children to the Rock Ranch to view an archaeological excavation in progress. A new awareness concerning historic preservation began to emerge through the community. What began seven years ago as a small group of concerned individuals has now blossomed into a full-fledged chapter of the Wyoming Archaeological Society.

Both sites would have been destroyed without cooperation of the landowners. The Korell brothers not only interrupted their farming when the graves were discovered, but alertly notified the Wyoming State Archaeologist. The owners of Rock Ranch, Bill Poage and Don Jones, generously set aside a portion of that site for excavation.

The Wyoming Council for the Humanities approved their first grant for archaeological studies at Rock Ranch. Their assistance allowed not only for the work to be carried out quickly, but provided an opportunity for many novices, amateurs, and students to work with professionals at two significant archaeological sites. The Goshen County Commissioners administered the grant without an overhead fee. The Homesteaders Museum provided work and storage space, lights, photographic equipment, and many other necessities for a project of this nature. The U.S.G.S. office in Denver donated time and use of a proton

magnetometer. Several students from the Anthropology Department at the University of Wyoming donated their time at the site and in the laboratory. Sandra Hansen helped type and edit the report. Last but far from least, Shirley Korell prepared numerous meals and provided many other gratuities, such as coffee, cakes, and cookies.

REFERENCES CITED

- Gill, G. W., J. W. Fisher, Jr., and
G. M. Zeimens
1984 A Pioneer burial near the historic Bordeaux Trading Post. Plains Anthropologist 29(105): 229-238.
The Lingle Review
April 24, 1930, No. 22
- Owens, John
1915 Letter to Tom Powers, June 16, 1915.
- Ware, E. F.
1960 The Indian War of 1864. St. Martin's Press, New York.
- George M. Zeimens
Box 132
Lingle, Wyoming 82223
- Alan Korell
Box 517
Lingle, Wyoming 82223
- Don Housh
2410 East E Street
Torrington, Wyoming 82240
- Dennis Eisenbarth
Route 1, Box 512
Torrington, Wyoming 82240
- Bob Curry
Rural Route
Veteran, Wyoming 82243

THE ROCK RANCH FAUNA: A PRELIMINARY ANALYSIS

BY
GEORGE M. ZEIMENS

More than two thousand disarticulated bones were recovered from the refuse of several periods of occupation. Most of the bones were found in a mixed cultural context. Mixing was the result of rodent activity, recent disturbance due to farming and land leveling, and, in the upper levels, later occupants dwelled immediately on top of and amongst the debris left by previous occupations. However, a small sample of the two earliest occupations remained in situ and were separated from later levels by sterile soils.

The bones were generally well-preserved even though most of them were fractured. A small percentage of the specimens had been gnawed by rodents and carnivores. Most of the bones were identified by Dr. Danny N. Walker, Wyoming Assistant State Archaeologist.

The fauna contained a variety of species including portions of two humans. The human bones were found in the mixed upper levels. An adult male was interred under the corner of a building. The skull had been shattered by a bullet, and one bullet remained lodged in a thoracic vertebra. The legs had been severed at the knees, apparently by heavy blows from a trade ax. Portions of the lower legs were scattered in other areas of the site. This individual was exposed near the ground surface in an access road and had been partially eroded by farming equipment and other traffic. The other individual was represented by a single, immature, distal epiphysis of a femur. This specimen was found in a large rodent hole. It is speculated that this bone was part of a rodent-vandalized grave located some-

where near the Rock Ranch and was brought into the site. The human remains have been analyzed by Dr. George Gill of the University of Wyoming and discussed in his accompanying report in this same volume.

Non-human remains included several domesticated species. All domestics were found in the upper level, except for two dogs which come from the lowest level. Except for the sauger and bison, all of the species still inhabit the vicinity of the site today. Sauger, a fish similar to northern pike, are no longer found in this portion of the Platte River but are present in other parts of Wyoming (Dr. Danny N. Walker, personal communication, 1983).

A list of species and minimum number of individuals (MNI) in the assemblage is provided in Table 1. MNI was derived by using the most numerous bone element for each species. MNI is meaningless here since only a small sample of the site was excavated. Many more animals were probably present than is indicated. It is also possible that additional species were also present. However, the MNI do hint at the relative frequency at which various species were utilized. For example, pronghorn occurred more frequently than bison, at least in the excavated portions of the site. Many bones which were scattered by the dirt moving equipment were not collected. A cursory count of bones in disturbed areas suggested that species frequency in other parts of the site did not differ significantly from the excavated sample.

With the exceptions of the humans, horses, small rodents, mussels, and

| | Minimum Number of Individuals |
|--|-------------------------------------|
| Class Pelecypoda | |
| Order Prionodesmaceae | |
| Family Unionidae | |
| <u>Lampsilis radiata</u> -- river mussel | 4 |
| Class Gastropoda | |
| Order Pulmonata | |
| Family Lymnaeidae | |
| <u>Fossaria</u> sp. -- freshwater snail | 25 |
| Class Osteichthyes | |
| Order Perciformes | |
| Family Percidae | |
| <u>Stizostedion canadense</u> -- sauger | 9 |
| Class Reptilia | |
| Order Testudines | |
| Family Trionychidae | |
| <u>Trionyx spiniferus</u> -- softshelled turtle | 3 |
| Class Aves | |
| Order Anseriformes | |
| Family Anatidae | |
| <u>Branta canadensis</u> -- canada goose | 3 |
| <u>Anas platyrhynchos</u> or <u>A. acuta</u> -- mallard or pintail | 2 |
| <u>Anas strepera</u> or <u>A. americana</u> -- gadwall or widgeon | 2 |
| <u>Anas crecca</u> ssp. -- teal | 3 |
| <u>Mergus merganser</u> -- common merganser | 1 |
| Order Falconiformes | |
| Family Cathartidae | |
| <u>Cathartes aura</u> -- turkey vulture | 1 |
| Order Galliformes | |
| Family Tetraonidae | |
| <u>Pedioecetes phasianellus</u> -- sharp-tailed grouse | 6 |
| <u>Gallus gallus</u> -- domestic chicken | 2 |
| Class Mammalia | |
| Order Primates | |
| Family Hominoidea | |
| <u>Homo sapiens</u> -- man | 2 |
| Order Lagomorpha | |
| Family Leporidae | |
| <u>Sylvilagus nuttallii</u> -- Nuttall's cottontail | 5 |
| <u>Lepus californicus</u> or <u>L. townsendii</u> -- blacktail or whitetail jackrabbit | 5 |
| Order Rodentia | |
| Family Castoridae | |
| <u>Castor canadensis</u> -- beaver | 1 |
| Order Carnivora | |
| Family Canidae | |
| <u>Canis familiaris</u> -- domestic dog? | 4 |
| Family Mustelidae | |
| <u>Taxidea taxus</u> -- badger | 2 |
| <u>Mephitis mephitis</u> -- striped skunk | 2 |
| Order Artiodactyla | |
| Family Suidae | |
| <u>Sus scrofa</u> -- domestic pig | 2 |
| Family Cervidae | |
| <u>Odocoileus hemionus</u> -- mule deer | 4 |
| Family Antilocapridae | |
| <u>Antilocapra americana</u> -- pronghorn | 23 |
| Family Bovidae | |
| <u>Bos taurus</u> -- domestic cow | 2 |
| <u>Bison bison</u> -- bison | 4 |
| <u>Ovis aries</u> -- domestic sheep | 2 |
| Order Perissodactyla | |
| Family Equidae | |
| <u>Equus caballus</u> -- domestic horse | 2 |

Table 1: Faunal remains recovered from Rock Ranch Trading Post, Goshen County, Wyoming.

snails, there is good evidence that all other species were used for food. The mussel shell was used to make pendants and perhaps other ornaments and utensils. Butchering evidence was manifest as breakage patterns, depressed fractures, and cut marks on the bones. Some bones were also burned, but it was not always possible to determine if burning was the result of cooking or non-cultural factors. Some bones may have been charred when the buildings burned.

Many bones in the upper levels had been severed with iron saws. Many of these sawed bones were from domesticated animals and mixed with bones obviously butchered in a more primitive manner. In the lower levels, butchering was accomplished using both stone and iron tools, but iron saws were apparently not used.

In the earliest levels, the larger animals, such as buffalo, deer, and pronghorn, were butchered by stylized,

but primitive methods. All portions of the animals were represented, including skull and axial bones, which suggests the entire animal was brought to the site before butchering. Skulls were generally crushed into small fragments. An exception to this are two bison horn cores which were chopped off at their bases with an iron ax (Figure 1). These horns were not found together, but are the same size and shape and probably originated from the same animal. The horn cores may have been removed to be used as tools, but there is no evidence that they were ever used. It is also possible that they were chopped off so that the horn sheaths could be easily retrieved.

Mandibles were also subjected to extensive butchering (Figure 2). Usually, the coronoid processes were broken. The ascending rami also exhibit chopping and cutting marks. The ventral borders were often knocked off, possibly to gain



Figure 1: Bison horn cores chopped with steel implements recovered from Rock Ranch site. Scale in centimeters.

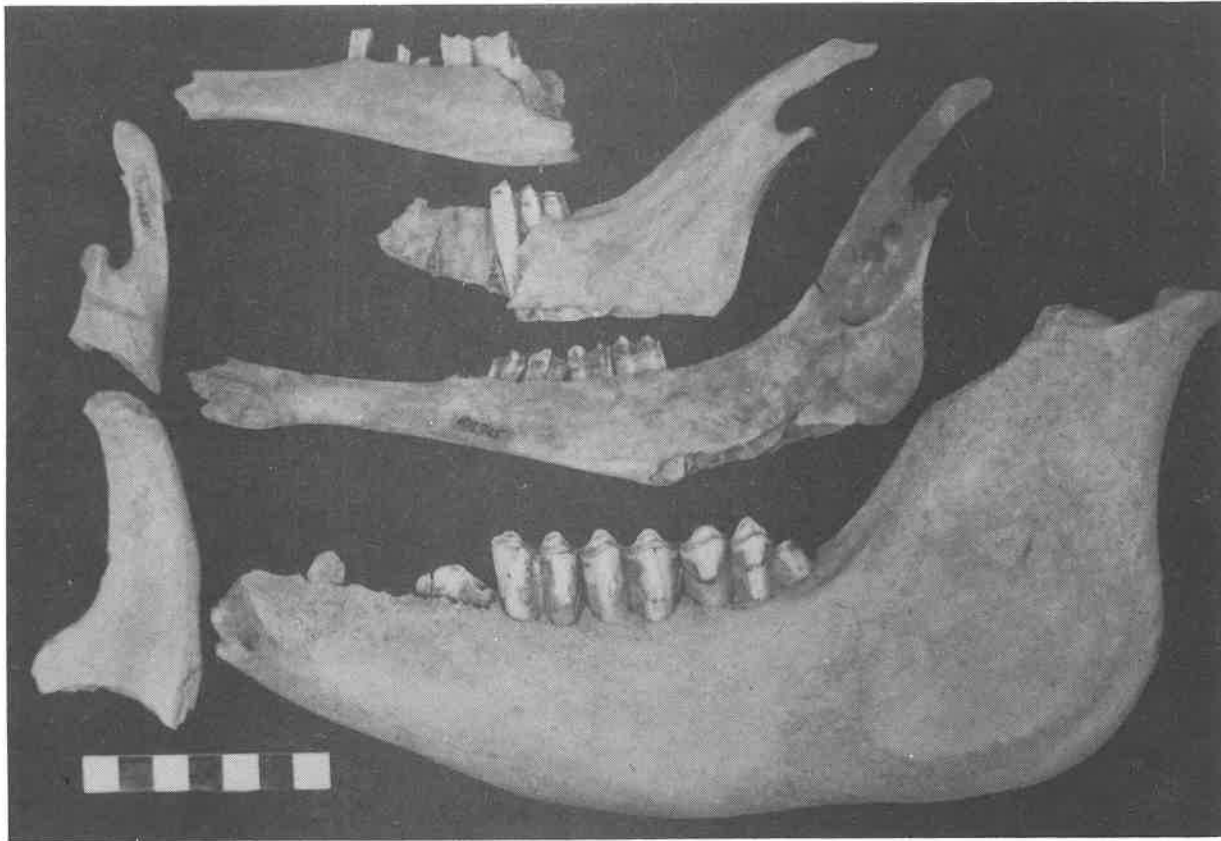


Figure 2: Butchered bison and pronghorn mandibles recovered from Rock Ranch site. Note removal of coronoid processes and cut marks on recovered coronoid processes. Scale in centimeters.

access to the marrow and blood contents of the tooth cavities. The anterior portions were commonly removed by a break at the diastema. Butchering of the mandibles in this manner would have resulted in disarticulation and provided easy access to the tongue and other morsels of the skull.

Cutting and chopping marks appear regularly on spines and lateral processes of cervical, thoracic, and lumbar vertebrae. In many instances, these processes have been completely removed (Figure 3). Some of the marks were made with an iron blade while others were made with a blunt instrument, such as a hammerstone. Ribs were generally snapped near the heads while distal ends were commonly chopped off near the sternum (Figure 4). Sternal elements were represented, but rare, in the assemblage.

Innomimates were disarticulated and ilium, ischium, and pubis elements broken near the acetabulum. Femur heads had been hammered off and remained articulated to the acetabulum of several pronghorn pelvises. Sacral and caudal bones were rare.

Phalanges were mostly unmarked and unbroken but were always disarticulated. The number of phalanges was disproportionately low in relation to the other bone elements. Perhaps the feet were sometimes removed to facilitate transportation of the carcass to the site. Few sesamoids were recovered.

Metapodials were broken once, somewhere along the shaft, usually near the center (Figures 5-6). Some specimens had obviously been chopped with sharp stone and iron tools, but depressed fractures indicate that more often a blunt instrument was used. It is pos-

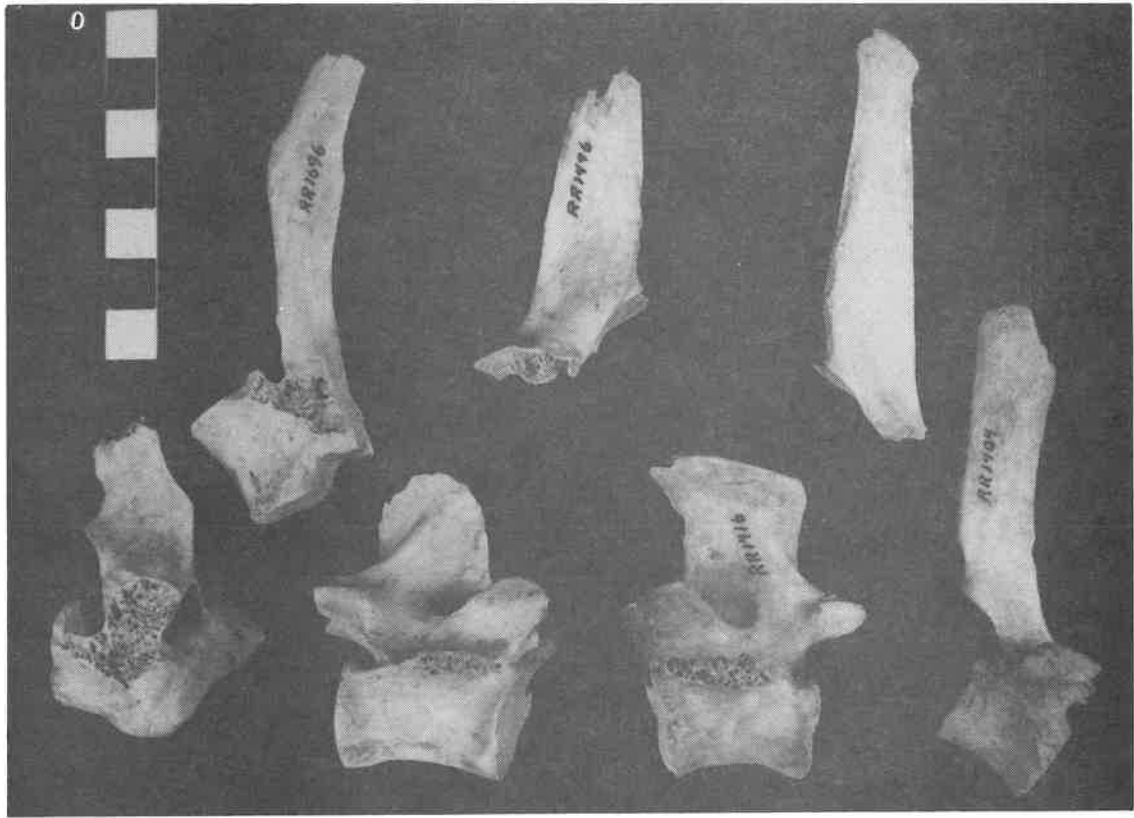


Figure 3: Butchered pronghorn vertebrae recovered from Rock Ranch site. Note stylized removal of processes from all specimens. Scale in centimeters.

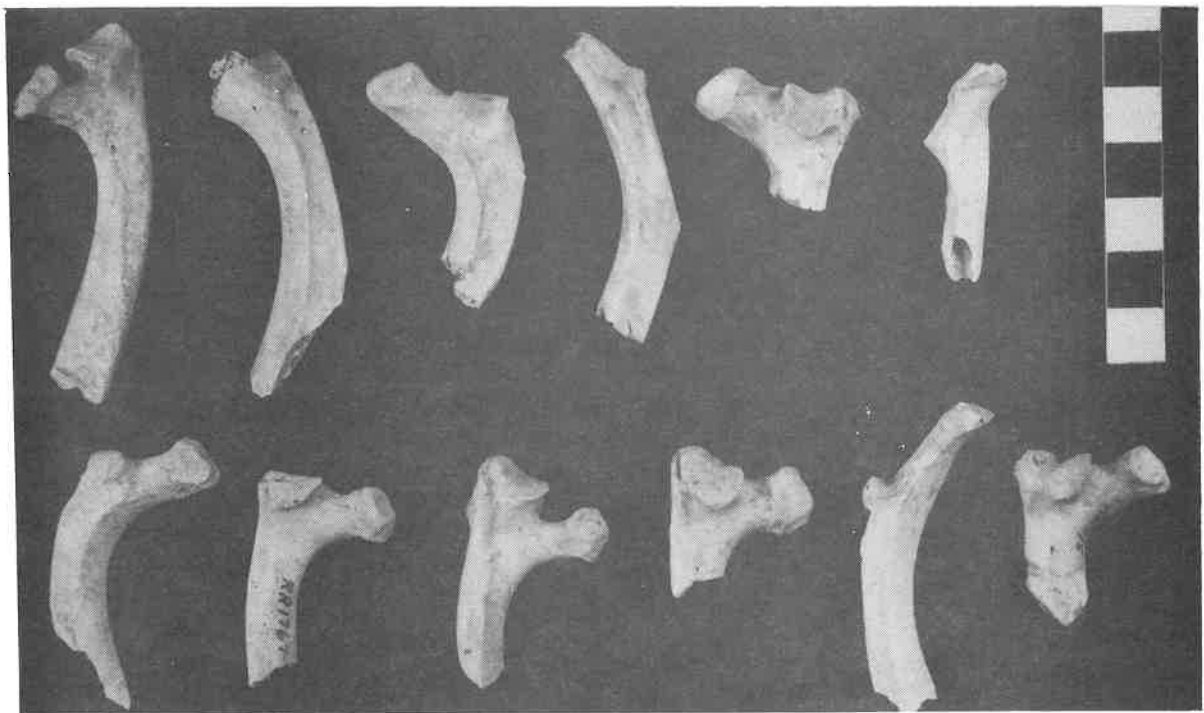


Figure 4: Butchered ribs from various species of game animals recovered from Rock Ranch site. Scale in centimeters.

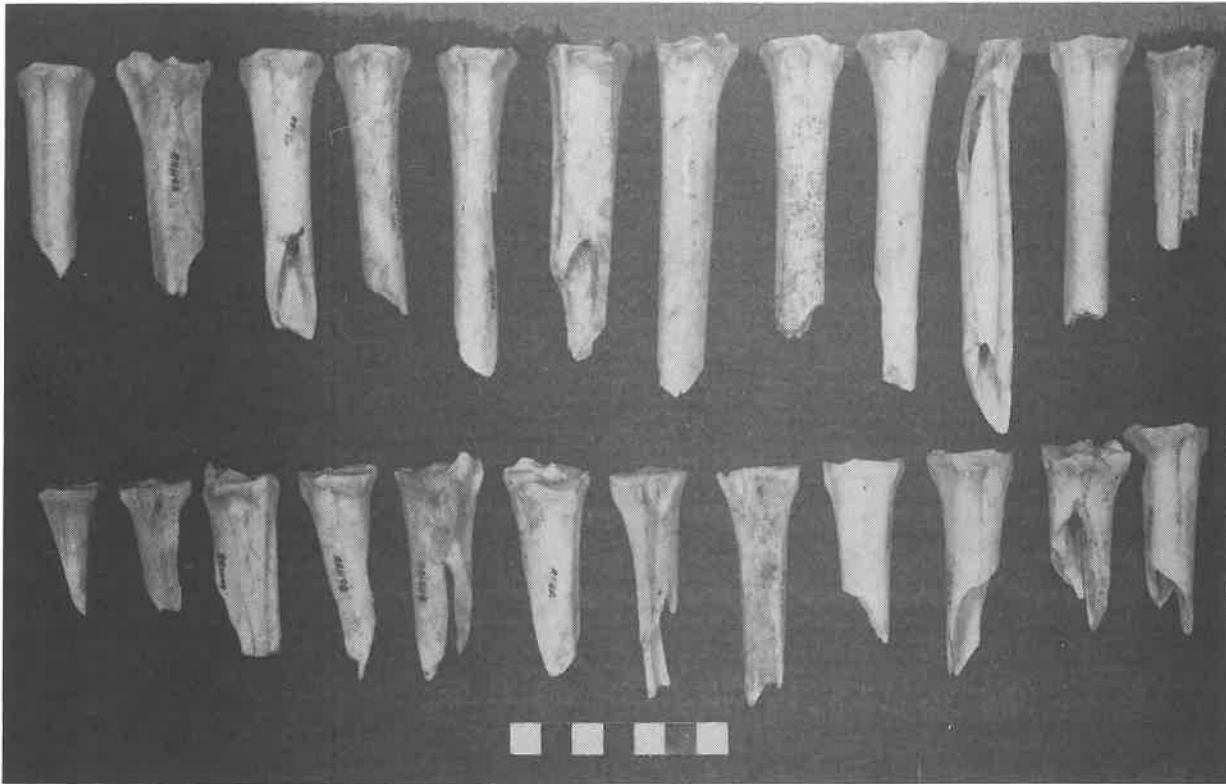


Figure 5: Butchered proximal metatarsals and metacarpals recovered from Rock Ranch site. Scale in centimeters.

sible the depressed fracture was produced by snapping the bones over an anvil stone. Whatever the case, the breaks allowed access to the marrow-bearing cavities of the metapodials.

Both cutting and chopping marks occur regularly on the surfaces of the carpals and tarsals (Figure 7). These marks were probably produced by disarticulation of the feet and while cutting the hide loose on the lower legs in preparation for skinning. Some of the tendons of the lower legs were loosened by chopping off the distal portions of the ulna and calcaneus, and by knocking loose the patella. Sometimes tendons were cut instead of chopped, but such examples were infrequent.

Long bones were broken without exception. Usually both the proximal and distal ends were removed by heavy-handed chopping or pounding techniques. The shafts were reduced to small fragments presumably to retrieve marrow.

Scapulae were usually butchered by

breaking off the spine and acromion. Sometimes the articular end was broken completely off, probably to disarticulate the scapula from the humerus. The distal ends were fragmented into small pieces.

In general, larger animals in the earlier cultural components were completely and systematically butchered in a primitive manner. Both stone and iron tools were used. The animals were apparently killed nearby since the whole carcasses were hauled or dragged to the site. If the animals had been disarticulated elsewhere, then certain waste elements such as the head and feet should be missing. Also, disarticulation elsewhere should have resulted in specific butchered units (those easy to transport) being brought to the site. All bones were disarticulated and no articulated units were found.

Only minor differences can be seen between butchering methods observed at the Rock Ranch and methods described for

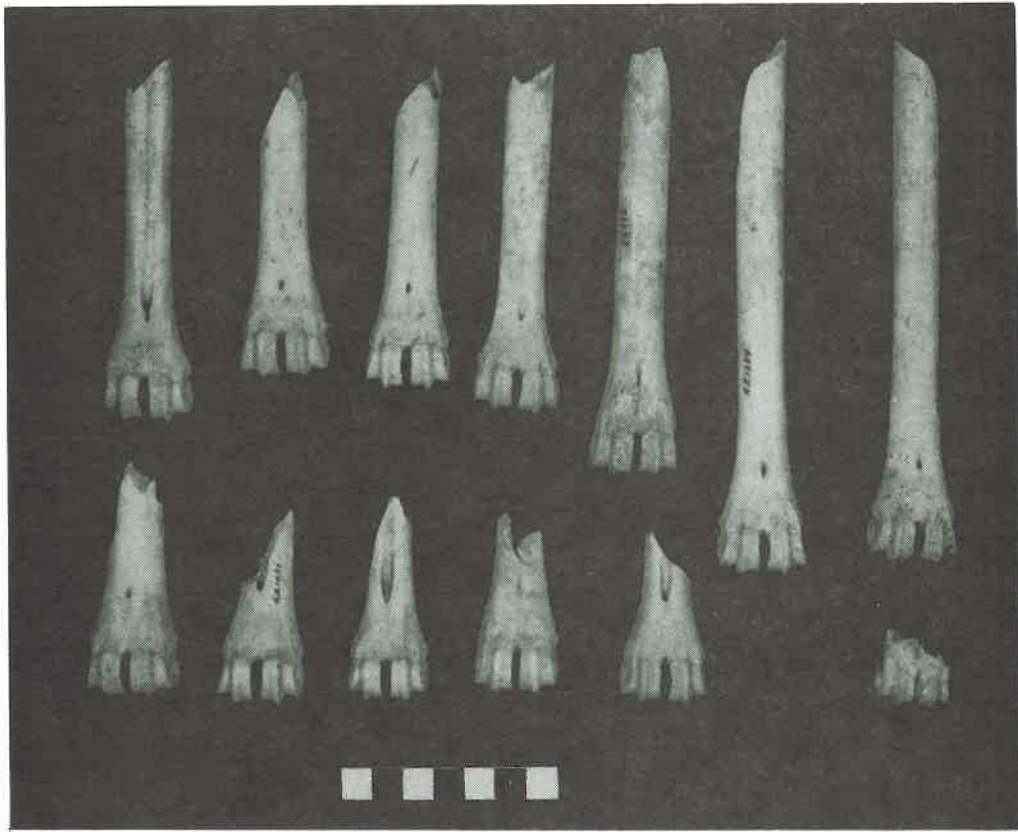


Figure 6: Butchered distal metapodials recovered from Rock Ranch site. Scale in centimeters.



Figure 7: Cut marks preserved on bison astragalus recovered from Rock Ranch site. Scale in centimeters.

prehistoric hunters in the area as long ago as 10,000 years. (Frison 1970, 1974; Zeimens 1982). Iron tools may have been responsible for a more heavy-handed technique, especially where pronghorn were concerned. Binford (1978) presents an interesting discussion of differences in butchering between iron and stone tools.

The Rock Ranch pronghorn are considerably more battered than, for example, the pronghorn in the prehistoric Eden-Farson site (Frison 1971). However, this difference may be due to differences in the types of sites. The Rock Ranch was probably a winter camp where an occasional animal was brought in, whereas the Eden-Farson site functioned in proximity to large-scale, communal procurement operations.

Where the smaller animals are concerned, butchering patterns are not discernible. There is no doubt that smaller game animals were utilized since the bones were broken, scattered, sometimes burned, and sometimes found in the contents of fire pits. Chopping marks were found on a canid humerus, but marks were rare on the smaller bones. No marks were found on the fish bones, but they were all broken, some were burned, and some were in fire pits. Some marks were present on a fragment of turtle shell, but it could not be determined if the mark was of human origin.

The site contains little direct evidence for procurement methods. However, it is not likely that a large communal skill was involved. Hunting was presumably conducted on an individual or small party basis. Horses were probably used in the hunt and to transport the game to the site. Apparently, both the gun and the bow and arrow were in use at the time. Traps or snares may have been used to procure some of the smaller animals, but those items were not present in the artifact assemblage. Procurement of game birds, fish, and turtles must have required special tactics, none of which can be explained by material remains at the site.

Judging from the variety of animals utilized, meat may have been scarce.

The use of many small, low-meat bearing animals suggests economic stress. Pronghorn was the most numerous species in the site and occurred in significantly greater numbers than buffalo. This may be because buffalo were scarce in the area at the time of occupation. However, it is possible that bison contributed more to the diet than is suggested by the faunal remains since animals could have been killed and butchered elsewhere and only the prepared meat brought to the site.

The analysis of the Rock Ranch fauna is far from complete. The bones from the upper levels were so intermixed that some aspects of analysis will be limited if not impossible. The bones in the lower levels were in good context, but the sample is small in relation to the size of the site. It is not known how long the lower levels were occupied or the size or content of the cultural group. It is likely that several occupations were involved over a period of several years. The faunal evidence only hinted at the season of occupation. A small sample of fetal material was present. Preliminary analysis suggests that the fetal material is somewhere between fifty percent and seventy-five percent, developed which may place at least part of the occupation during the winter months.

REFERENCES CITED

- Binford, R.
1978 Nunamiut ethnoarchaeology. Academic Press, New York.
- Fisher, T. D.
n.d. A summary of fifteen historic skeletons near the old Bordeaux Trading Post of southeastern Wyoming. Unpublished manuscript on file, Department of Anthropology, University of Wyoming, Laramie.
- Frison, G. C.
1970 The Glenrock Buffalo Jump, 48C0303: Late Prehistoric period buffalo procurement and butchering. Plains Anthropo-

- logist Memoir 7.
- 1971 Shoshonean antelope procurement in the upper Green River Basin, Wyoming. Plains Anthropologist 16(54):258-284.
- 1974 The Casper site: A Hell Gap Bison kill on the High Plains. Academic Press, New York.
- Zeimens, G. M.
- 1982 Analysis of postcranial bison remains. pp. 213-240, In The Agate Basin Site: A record of paleoindian occupation on the High Plains. (G. C. Frison and D. J. Stanford, eds.). Academic Press, New York.

George M. Zeimens
Lingle, Wyoming 82223

HUMAN SKELETONS FROM THE ROCK RANCH AND KORELL-BORDEAUX SITES

BY
GEORGE W. GILL

INTRODUCTION

Human remains recovered from the Rock Ranch and Korell-Bordeaux sites are of particular interest to historians and prehistorians. This is in part due to the excellent state of preservation of bone and associated cultural materials. This has allowed for unusual insights into aspects of everyday life on the frontier. The varied racial composition of the skeletons and severe injuries seen on two of them also contribute to their interest and to a better understanding of an exciting and violent chapter in the history of the Northwestern Plains.

BACKGROUND AND METHODS

Preliminary analysis is now completed on the American Indian skeletal sample from the Korell-Bordeaux site (Fisher n.d.), commented on earlier by Korell (1981). Full reports are available on the White frontiersman from that same site (Gill *et al.* 1984) and the Black male (possible slave) from the nearby Rock Ranch Site (Gill n.d.). Due to the availability of these reports, the following treatment will be a brief summary of only the most pertinent information on the skeletons.

Basic statistics on each of these skeletons were calculated (Table 1). Sex determination was not attempted on subadult skeletons, but is generally reliable on adolescent or adult skeletal specimens. If pelvises or skulls are

available, then sex determinations are accurate. Where possible, determinations were made from the pelvis according to standard procedure outlined in Bass (1971), Krogman (1962), and Stewart (1979). Cranial traits were also considered, and Giles-Elliott (1962) discriminant function tests were run where possible.

Ages of children were determined by a combination of dental development stages (Ubelaker 1978) and long bone lengths (Johnston 1962). Adult ages were determined largely by stages of os pubis development (McKern and Stewart 1957; Gilbert and McKern 1973), and by degree of dental attrition for American Indian adults (Ubelaker 1978).

Determination of racial affinities was accomplished by examination of incisor tooth morphology (Bass 1971; Krogman 1962) and certain observable facial features (Krogman 1962; Stewart 1979). Whenever possible, the interorbital features method was also applied (Gill 1984). The only two non-Indian adults were both clearly so. The male from the Korell-Bordeaux site is unquestionably Caucasoid. The male from the Rock Ranch site, even though much more fragmentary, does clearly show 15 skeletal traits of the Negroid race.

Living stature was calculated using current stature formulae available in Stewart (1979). The Genoves (1967) formulae were not used for the American Indians since previous studies have shown the Northwestern Plains Indians to be proportioned more like Whites than Mesoamerican Indians. Therefore, the

| Human Remains Number | Site | Burial Number | Sex | Age | Stature* | Racial Affinities | Condition |
|----------------------|------------|---------------|-----|--------------|-----------|-------------------|---------------------------------------|
| HR066 | Korell-B. | 1 | F | 18-21 yrs. | 5' 9 3/4" | American Indian | Partially complete |
| HR067 | Korell-B. | 2 | - | 6-7 yrs. | ---- | American Indian | Fragmentary |
| HR068 | Korell-B. | 3 | - | 12 mos. | ---- | unknown | Fragmentary |
| HR069 | Korell-B. | 4 | - | 18 mos. | ---- | unknown | No skull, nearly complete postcranial |
| HR070 | Korell-B. | 5 | - | 18 mos. | ---- | unknown | No skull, nearly complete postcranial |
| HR071 | Rock Ranch | 1 | M | 24-30 yrs. | 5' 6 1/2" | Negroid | Fragmentary |
| HR072 | Korell-B. | 7 | F | 24-26 yrs. | 5' 7 1/2" | American Indian | No skull, nearly complete postcranial |
| HR073 | Korell-B. | 8 | F | 16-19 yrs. | 5' 2 1/2" | American Indian | Complete |
| HR074 | Korell-B. | 9 | - | 5.5-6.5 yrs. | ---- | American Indian | Fragmentary |
| HR075 | Korell-B. | 10 | F | 30-35 yrs. | ---- | American Indian | Complete |
| HR076 | Korell-B. | 11 | - | 16 mos. | ---- | unknown | No skull, nearly complete postcranial |
| HR077 | Korell-B. | 12 | F | 44-54 yrs. | 5' 1 1/4" | American Indian | No skull, nearly complete postcranial |
| HR078 | Korell-B. | 13 | F | 26-35 yrs. | 5' 4" | American Indian | Partially complete |
| HR079 | Korell-B. | 14 | M | 22-26 yrs. | 5' 7 1/2" | American Indian | Partially complete |
| HR080 | Korell-B. | 15 | M | 31-37 yrs. | 6' 1" | Caucasoid | Complete |
| HR081 | Korell-B. | 16 | - | ---- | ---- | unknown | Fragmentary |

*Stature calculations by Terence D. Fisher

Table 1: Summary table of human burials from Korell-Bordeaux and Rock Ranch sites, Goshen County, Wyoming.

formulae for Whites were used for both the White male and the Korell-Bordeaux Indians. The Trotter and Gleser formulae for American Black males, as presented in Stewart (1979), were used for the Rock Ranch specimen.

Nearly all burials from the cemetery above the Bordeaux Trading Post were internments of American Indian women and children (Table 1). Nearly all the women were young. To date, this demographic pattern cannot be explained.

PALEOPATHOLOGY

Even though paleopathology was not a part of Fisher's (n.d.) preliminary study of this American Indian sample, at least he did not observe any obvious pathological conditions during examination. The contrary is true for both the White frontiersman and the Rock Ranch Black. Both of these individuals were killed by multiple gunshot wounds from large caliber weapons. Gill et al. (1984) and Gill (n.d.) provide detailed descriptions and photographs of the wounds. At this point I will briefly summarize the patterns of injury.

HR071 - Rock Ranch Black

Multiple gunshot injuries were sustained at the time of death of this individual from at least three bullets. One of these, lodged in the centrum of lumbar vertebra 3, is from a .44 caliber weapon. A point of entry of another large caliber projectile is evident through the right parietal bone. No definite exit wound exists for that particular entry wound, even though some fractured bone is present at the cranial base which suggests possible exit. It is also possible that the bullet lodged or fragmented in the brain. Another projectile entered between the eyes and did continue through the brain to exit below the lambdoidal suture line on the left side of the squamosal portion of the occipital. This entry wound is only partly preserved and difficult to study, but would seem to be of a smaller cali-

ber (11 mm diameter opening).

Certainly, the pathology profile of this specimen, regarding the series of gunshot wounds, is an unusual one and could lead to at least two possible interpretations. The possibility of an execution-style killing, involving more than one weapon, should not be ignored (varying angles of entry and possibly different bullet sizes). Also, the number of "killing" shots is more than required. An ambush with a final round between the eyes is also a possibility. As explained elsewhere (Gill n.d.:7), "Beyond these two almost equally likely interpretations the speculations become somewhat less parsimonious, and will be left to the readers' own imagination."

HR080 - Korell-Bordeaux White Man

This individual had also sustained multiple gunshot wounds which allow an almost definite statement on the cause of death. One projectile entered the cranium above the left eye and exited low on the right side of the occipital bone. The points of entry and exit provide an angle that shows the weapon was held well above the head of the victim when fired (Gill et al. 1984). Initially, this would seem unusual for a victim who was 6 foot, one inch in height, but would seem to be explained by a second wound to the hip. A shattered proximal femur with clear green bone fracturing apparently represents another gunshot injury caused by a large caliber weapon.

The presence of this traumatic injury to the hip considered along with the high angle of entry of the cranial wound would suggest a logical sequence of events. Among the various possibilities, the hypothetical sequence of events that appears most probable is first, a shot to the hip brought the large plainsman to the ground, and then second, a shot through the head at close range was fired from a position above the victim's head (Gill et al. 1984: 235).

This frontiersman was also recovering from three broken ribs when killed. The

10th through 12th ribs on the right side of his chest were broken and partly healed at the time of death.

DISCUSSION

The tall, robust White frontiersman was killed with a .44 or .45 caliber weapon, probably in 1869 or 1870, judging from the dates and amount of wear on the nickels in a coin pouch (Gill *et al.* 1984). It seems he had been married but lost his wife (black ring next to his wedding band). He was likely of British descent based on physical traits and cultural associations (particularly the mourning jewelry). The remains were laid to rest in a small cemetery plot above the Bordeaux trading post, next to the graves of some local American Indians. The American Indian burials were in coffins, but the White man was buried without a coffin. Burial was with boots on, a large-brimmed black hat placed over the face, and what seems to have been buckskin pants, a shirt with small buttons and a jacket with large metal buttons (Gill *et al.* 1984).

The less complete Rock Ranch skeleton was apparently that of an adult male Black of small stature. This person also clearly died of multiple gunshot wounds. Knowing this, and the context of burial (inside the corner of an old building foundation) provides interesting support for a local story that an early-day Negro slave on the Rock Ranch was shot, killed, and buried beneath the floor of the ranch building (Gill n.d.).

Preliminary cranial metrics have been taken by Fisher (n.d.) on the American Indian remains from the Korell-Bordeaux site. Comparisons of the two complete female skulls with results from Hrdlicka (1927) suggest that the individuals may be Siouan. Certainly, firm statements would be premature at this stage of analysis, and with such small sample sizes, but indications so far are clearly in that direction.

CONCLUSIONS

The human skeletons from the Rock Ranch and Korell-Bordeaux sites form an important part of the information base needed in our continual efforts to expand our understanding of every day life on the frontier. The bones reveal biological origins and relationships as well as diseases and injuries suffered in times past. Through continued studies of the remains, as well as the artifacts found with them, a much fuller understanding of the past will emerge.

REFERENCES CITED

- Bass, W. M.
1971 Human osteology: A laboratory and field manual of the human skeleton. Second edition. Missouri Archaeological Society, Columbia, Missouri.
- Fisher, T. D.
n.d. A summary of fifteen historic skeletons near the old Bordeaux Trading Post of southeastern Wyoming. Unpublished manuscript on file, Department of Anthropology, University of Wyoming, Laramie.
- Genoves, S. C.
1967 Proportionality of long bones and their relation to stature among Mesoamericans. American Journal of Physical Anthropology 26:67-78.
- Gilbert, B. M., and T. W. McKern
1973 A method for aging the female Os Pubis. American Journal of Physical Anthropology 38(1):31-38.
- Giles, E., and O. Elliot
1962 Race identification from cranial measurements. Journal of Forensic Sciences 7:147-157.
- Gill, G. W.
1984 A forensic test case for a new method of geographical race determination. In Human Identification, (Rathbun, T. A. and

- J. E. Buikstra, eds.), Pp. 329-339. Charles C. Thomas, Springfield, Illinois.
- n.d. A partial human skeleton from the Rock Ranch site, southeastern Wyoming. Unpublished manuscript on file, Department of Anthropology, University of Wyoming, Laramie.
- Gill, G. W., J. W. Fisher, Jr., and G. M. Zeimens
1984 A Pioneer burial near the historic Bordeaux Trading Post. Plains Anthropologist 29(105): 229-238.
- Hrdlicka, A.
1927 Catalogue of human crania in the United States National Museum Collection. Proceedings, United States National Museum 65(5):1-127.
- Johnston, F. E.
1962 Long bones of infants and young children at Indian Knoll. American Journal of Physical Anthropology 20:249-254.
- Korell, A.
1981 Comments on the Korell-Bordeaux site. The Wyoming Archaeologist 24(1): 28-34.
- Krogman, W. M.
1962 The human skeleton in forensic medicine. Charles C. Thomas, Springfield, Illinois.
- McKern, T. W. and T. D. Stewart
1957 Skeletal age changes in young American males, analyzed from the standpoint of identification. Quartermaster Research and Development Command Headquarters, Natick, Mass., Technical Report EP-45.
- Stewart, T. D.
1979 Essentials in forensic anthropology. Charles C. Thomas. Springfield, Illinois.
- Ubelaker, D. H.
1978 Human skeletal remains: Excavation, analysis, interpretation. Aldine Publishing Company. Chicago.

George W. Gill
Department of Anthropology
University of Wyoming
Laramie, Wyoming 82071

BOOK REVIEW

American Archaeology Past and Future: A Celebration of the Society for American Archaeology 1935-1985. Edited by DAVID J. MELTZER, DON D. FOWLER, and JEREMY A. SABLORFF, Smithsonian Institution Press, Washington D.C., 1986. 479 pp., \$35.00 (cloth), \$19.95 (paper).

This impressive volume of 16 essays, originally delivered as part of the fiftieth anniversary proceedings of the Society for American Archaeology during its annual meetings held in Denver (May 1985), represents both a retrospective assessment of the first half century and a prospective appraisal of the future potential of American archaeology. Although the scope of such a topic is enormous, the editors have done an admirable job in selecting and organizing the contents within four major sections. These include: 1) editors' introduction and an overview of the last 50 years of research in American archaeology; 2) themes in the history of American archaeology; 3) new looks at past problems; and 4) current trends and future prospects. Each of these will be discussed in more detail below.

In their introductory comments, the editors make it clear they have chosen not to limit the presentation to a historically descriptive treatment of archaeological personalities, ideas, and discoveries, during the Society's first 50 years (although these are covered adequately). They argue instead that if the field is to achieve the promise of the scientific method which it has adopted, it must urgently consider development and testing of methodological techniques for evaluation of all the myriad explanatory schemes proposed over the last half century. Lack of a coherent body of such techniques has lead

to the diversity of approaches which typify the current "state of the art" in American archaeology. This diversity of approach is reflected by the 16 authors included. However, despite the specific approach taken (i.e., culture history, processual-systemic, contextual-structuralist), the editors contend "...the primary problem facing the field today is a methodological one: our ways and means of knowing the past are weak" (p. 16). Therefore, a significant portion of the text is devoted to a consideration of methodological problems and proposed avenues for their development.

Robert Dunnell's overview of the last five decades of American archaeology provides a historical and philosophical framework for the articles which follow. Dunnell discusses the initial concern with culture history, chronology building, and artifact classification which consumed archaeologists attention during the Society's first two decades (as indeed they still do for many). During the 1950s and 1960s, the "new archaeology" challenged the interpretive conventions which had become established during the classificatory-historical period, arguing that a materialistic view of the past would prove more productive than an idealistic one. As Dunnell points out, such an approach requires a fundamental shift in the goals of interpretation, from configurational (e.g., chronology building) to systemic (e.g., sociocultural reconstruction). This paradigmatic shift has unleashed a torrent of theoretical and philosophical debate within the field, much of which has served to confuse instead of enlighten, and divide instead of unify.

Dunnell credits this upheaval with development of a more sophisticated (and scientific) view of cultural systems including recognition of the "middle-

range" (Binford 1981) problem of how such systems might be recognized in the archaeological record. However, Dunnell argues that effective middle-range methods (i.e., specification of the precise relationships between a concept and a class of empirically observed phenomena) have not been developed which would independently demonstrate the validity of this approach. This has crippled its progress and threatens the future of the "new archaeology." Dunnell aligns himself here with the goals of a systemic-behavioral archaeology, arguing lack of suitable methodology has led many archaeologists either to rejection of theory (Feyerabend 1975), toward a contextual-structuralist paradigm (Deetz 1982; Hodder 1982; Leone, this volume), or into narrow specializations which make no substantial methodological contribution. However, Dunnell makes no substantive recommendations for how such an approach should proceed, arguing instead that the rejection of the traditional culture history approach in favor of the processual-behavioral approach was an irrational decision derived from the demonstration of the traditional paradigm's inadequacies (see articles by Thomas; Binford; Watson; this volume, for responses to this position).

Although Dunnell's review of historical trends is informative and well written, I find his skeptical assessment of current trends rather misleading. Dunnell fails to consider the substantive body of recent work, [much of which is discussed or referenced in other essays in this volume; see articles by Thomas; Stark; Watson; Binford], which is attempting to develop and test usable middle-range theory in a processual and behavioral context. These studies involve a wide variety of topics including ethnoarchaeology (e.g., Binford 1978a, 1978b; O'Connell 1987; Yellen 1977), taphonomy (e.g., Frison and Todd 1986, 1987; Lyman 1985; Todd 1983), spatial analysis (e.g., Binford 1983, 1985; O'Connell 1987; Hietala 1984; Todd et al. 1985), faunal analysis (e.g., Binford 1978b, 1981, 1984; Speth 1983; Thomas 1983), and lithic reduction se-

quences (e.g., Magne and Pokotylo 1981; Stahle and Dunn 1982).

Section 2 of this volume, entitled "Themes in the History of American Archaeology," includes seven articles which loosely follow Dunnell's introductory framework, beginning with a highly personal, narrative description by Jesse Jennings of his long and varied career spanning some 55 years and a great many archaeological sites, regions and research problems. Jennings decries the recent trend toward specialization among archaeologists and lauds the "return to basics" (p. 60) in recent research. William Haag provides a review of early field methods focusing on names, places, and the "intellectual genealogy" of the pioneers in modern excavation techniques.

Donald Grayson and Curtis Hinsley discuss topics in the history of archaeology from different perspectives. Grayson's premise is that middle-range research is not a recent phenomenon in archaeological interpretation but has been an important aspect of "traditional" approaches since the earliest days of the discipline. To illustrate this point, Grayson provides two examples: the search for the earliest inhabitants of western Europe as identified by the presence of "eoliths" (i.e., lithic "artifacts" from early time ranges modified either by humans or other natural agents); and the controversial materials from the "early man" site of Calico Hills, California. This well written essay (including numerous rarely cited references on early European lithic analyses) will be of interest not only to archaeologists interested in the origins of lithic use wear analysis but to all those concerned with the development of middle-range methods. Hinsley brings a historian's perspective to the case study of Edgar Lee Hewett's unorthodox rise to power with the establishment of the School of American Research (originally the School of American Archaeology) in Santa Fe, New Mexico, during the early years of the twentieth century.

Bruce Trigger, Don Fowler, and Jacob

Gruber provide historical essays on changing perspectives toward the archaeological record since the eighteenth century. Trigger's premise is that although anthropologically trained American archaeologists have traditionally considered themselves as "objective" scholars, their early research reflects ethnocentric influences and assumptions. To avoid this, Trigger recommends a return to a "direct historical approach" (p. 208) which he sees as "more culturally specific" (p. 208) and therefore less prone to influence from the researcher's own cultural background. The approach advocated here is a return to the traditional (normative) paradigm employing ethnic identity as the explanation for the variability observed in the archaeological record. The processual-behavioral approach was originally developed as a response to the inadequacies of this approach and seeks to develop methods to test the degree to which variability is culturally versus functionally determined, instead of assuming it as advocated here.

Don Fowler provides a thorough review of the historical development of federal conservation legislation concerning archaeological resources. Fowler's point that development of a conservation ethic in the United States is not as easy as the passing of legislation is well taken. Fowler argues that lack of a perceived congruence between the prehistoric and historic inhabitants of this country creates this problem. Thus conservation of prehistoric sites is seen as "quaint and curious" (p. 152) and not something "to abrogate the sacredness of private property for" (p. 152). To remedy this problem, archaeologists need to interest and involve the lay public more effectively, Fowler argues, combining their interest with "the age-old idea of stewardship of the earth" (p. 149) and the realization of the non-renewable character of cultural resources.

Jacob Gruber's thoughtful essay provides another historian's view of American archaeology, here addressing the early development of the discipline,

from the enthusiasm of the antiquarian collector to the more conservative goals of the naturalist, historian, and scientist. Gruber argues convincingly that only after archaeologists and anthropologists had developed a comprehensive and systemic concept of culture based on adaptive behavior was it possible for the field to develop beyond classification and chronology building to approach explanation.

Section 3 addresses recent developments in three areas of long-term interest to the field: hunter-gatherer archaeology; the process of domestication and food production; and emergence of complex, state level systems. David Hurst Thomas focuses a discussion of hunter-gatherer research on two primary targets, middle-range theory development, and optimal foraging strategy. Thomas' arguments concerning problems of individual optimization (the subject of optimal foraging theory) versus the organizational level of data represented in the archaeological record are significant in evaluating the utility of this approach. More important is Thomas' assertion that development of middle-range theory is mandatory before optimal foraging theory or any other theory based on behavioral principles can be tested in the archaeological record. The paper is carefully researched and well written.

Barbara Stark's essay is a review of recent directions in the study of the origins of food production in three regions of the New World; South America (primarily the Andean highlands), Mesoamerica, and midwestern North America. Problems with traditional approaches/interpretations are reviewed (e.g., lack of centers of origin for most early domesticated plant forms, which display mosaic patterns over time/space) leading to recognition of the need for: 1) intensive excavation of a wider variety of sites within single sociocultural systems representing various seasons of occupation, activities, etc.; 2) a better controlled body of knowledge on plant biology and related issues; and 3) reconsideration of the topics considered

causal in the transition from gathering to cultivation.

In presenting a review of recent trends in the study of early state-level sociopolitical systems in four major regions (i.e., Mesopotamia, Indus Valley, Mesoamerica, Central Andes), Henry Wright focuses on three issues which have recently become major topics of research: sociopolitical hierarchies; population changes; and inter-polity conflict. Wright concludes that the gradualist developmental schemes of Julian Steward and Robert Carneiro are not supported by the evidence. Instead, state emergence is rapid following periods of cyclical conflict and limited population growth.

The final section of this volume addresses the future direction of American archaeology. George Cowgill discusses the explosive increase in mathematical and statistical techniques within the field. An unusual situation has developed here in that power and complexity of the quantitative tools often far exceeds the quality of archaeological data available. According to Cowgill "...what we need above all are data, sociocultural theory, and understandings of the connections between archaeological evidence and past behavior that are worthy of the techniques" (p. 390).

Ruthann Knudson provides an optimistic assessment of contemporary cultural resource management stressing the need for CRM archaeologists to develop their skills, not only as scholars but also as managers. Many such archaeologists will appreciate the comment that "CRM...provides a substantial enhancement of standard anthropological training and practice in that it forces the researchers to understand and operate effectively within the social, economic, and political subcultures of the companies and agencies with which they must work" (p. 405).

Mark Leone's review of symbolic, structural, and critical approaches in American archaeology represents a fundamentally different approach to the interpretation of the archaeological re-

cord. Structural, symbolic, and critical approaches see the importance of our own culture, standing between the researcher and interpretation, as critical to the interpretive process. Although fundamentally true and an important realization for all anthropologists, this insight has developed in recent years into a cynicism which denies the ability to see "reality" accurately since one's perception is always colored by a particular cultural background. Therefore scientific explanation is not possible, only personal understanding based on the individual researcher's perceptions. This approach denies the utility of the scientific method in producing knowledge. Positivist archaeologists would argue however that it is exactly this type of non-culturally based knowledge which middle-range research attempts to establish and employ.

Patty Jo Watson discusses "Archaeological Interpretation, 1985," with the emphasis on development of methods for the justification of inference. Watson offers an optimistic assessment of "the archaeological majority", i.e., archaeologists with a positivist attitude and approach to the archaeological record, who see the past as ultimately understandable in terms of processual-behavioral principles. Watson attacks the pessimistic positions, such as those offered by Leone and Trigger, which question the ability of archaeologists to decipher the past from the material correlates of past behavior. However, positivist approaches require that methodologies and techniques be developed and employed which will justify such inferences.

The volume's final essay by Lewis Binford is entitled "In Pursuit of the Future." Binford discusses "what needs to be done" (p. 459) if the processual-behavioral paradigm is to fulfill its potential as a productive approach to archaeological explanation. Two reactions to the "new archaeology" are identified and discussed here: 1) "reconstructionism;" and 2) "contextual-structuralism." The second position has been discussed above, in reviewing Leone's

essay. Reconstructionism is an intellectual descendant of the strict empiricist approach, advocating that direct observation of the archaeological record can reveal "the true past." Proponents of this approach, such as Michael Schiffer (1976), advocate the development of "laws" or transformations through which the record can be translated into short-term episodes of past behavior - an ethnography of the past. If such a picture cannot be developed, it is due to the "distorting" effects of various post-depositional processes.

Binford argues the problem with this approach is that it misrepresents the character of data preserved in the archaeological record, thereby ignoring its potential to inform us on significant questions of cultural adaptation and process. Instead of focusing on the reconstruction of short-term behavioral events, Binford suggests an emphasis on systems of adaptation which are basic to human ecology in all times and places and the identification of the adaptive strategies behind the observed patterns. Such an approach attempts to explain variability in the organization and functioning of cultural systems as opposed to subsuming patterning within traditionally established explanatory schemes. As Binford states "...we [as archaeologists] have a chance to understand humankind in a way that no participant, or social scientist addressing the quick-time events of direct social experience, could ever imagine" (p. 474). Such an approach requires fundamental shifts in both the concepts employed and the methods developed for testing them. Binford argues that a skeptical approach to explanatory concepts based on empirical generalization will prove more productive in explaining variability in the archaeological record. However, this can only occur through the development and testing of new (middle-range) methods for inference.

In summary, this is an important and highly readable assessment of the current "state of the art" in American archaeology, circa 1985. It is recom-

mended not only as a reference work for scholars in the field but for anyone interested in the developmental history and future potential of American archaeology. In documenting both the historical background and the future prospects of this vibrantly active discipline, the authors provide an informative and challenging insight for all readers.

REFERENCES CITED

- Binford, L. R.
 1978a Dimensional analysis of behavior and site structure: Learning from an Eskimo hunting stand. American Antiquity 43(3):330-361.
 1978b Nunamiut ethnoarchaeology. Academic Press, New York.
 1981 Bones: Ancient men and modern myths. Academic Press, New York.
 1983 In pursuit of the past. Thames and Hudson, London.
 1984 Faunal remains from Klasies River Mouth. Academic Press, New York.
 1985 Researching ambiguity: Frames of reference and site structure. pp. 449-512, In Method and theory for activity area research: An ethnoarchaeological approach, (S. Kent, editor). Columbia University Press, New York.
- Deetz, J. F.
 1982 Households: A structural key to archaeological explanation. American Behavioral Scientist 25(6):717-724.
- Feyerabend, P.
 1975 Against method. Verso, London.
- Frison, G. C. and L. C. Todd
 1986 The Colby Mammoth site. University of New Mexico Press, Albuquerque, New Mexico.
 1987 The Horner Site: The type site of the Cody Cultural Complex. Academic Press, New York.
- Hietala, H. J. (editor)
 1984 Intrasite spatial analysis in archaeology. Cambridge Univer-

- sity Press, Cambridge.
- Hodder, I.
 1982 Symbols in action: Ethnoarchaeological studies of material culture. Cambridge University Press, Cambridge.
- Lyman, R. L.
 1985 Bone frequencies: Differential transport, in situ destruction, and the MGUI. Journal of Archaeological Science 12:221-236.
- Magne, M. P. R. and D. Pokotylo
 1981 A pilot study in bifacial lithic reduction sequences. Lithic Technology 10:34-47.
- O'Connell, J. F.
 1987 Alyawara site structure and its archaeological implications. American Antiquity 52(1):74-108.
- Schiffer, M. B.
 1976 Behavioral archaeology. Academic Press, New York.
- Speth, J. D.
 1983 Bison kills and bone counts. University of Chicago Press, Chicago.
- Stahle, D. W. and J. E. Dunn
 1982 An analysis and application of the size distribution of waste flakes from the manufacture of bifacial stone tools. World Archaeology 14(1):84-97.
- Thomas, D. H.
 1983 The archaeology of Monitor Valley, 2: Gatecliff Shelter. edited by D.H. Thomas, Anthropological Papers of the American Museum of Natural History 59(1):353-391.
- Todd, L. C.
 1983 The Horner site: Taphonomy of an early Holocene bison bonebed. Unpublished Ph.D. Dissertation, Department of Anthropology, University of New Mexico, Albuquerque.
- Todd, L. C., D. J. Rapson, and E. E. Ingbar
 1985 Glimpses of organization: Integrating site structure with analysis of assemblage content. Paper presented at the 50th Annual Meeting of the Society for American Archaeology, Denver, Colorado.
- Yellen, J. C.
 1977 Archaeological approaches to the present. Academic Press, New York.
- David Rapson
 Department of Anthropology
 University of New Mexico
 Albuquerque, New Mexico
- current address:
 Department of Anthropology
 University of Wyoming
 Laramie, Wyoming 82071