

# THE WYOMING ARCHAEOLOGIST



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# THE WYOMING ARCHAEOLOGIST

## VOLUME 41(2), FALL 1997

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# NEWS REPORTS

## WYOMING ANTIQUITIES ACT REVISED

The 1997 Wyoming State Legislature revised the Wyoming Antiquities Act during its revisions of the overall state lands laws. The following is extracted from the final bill and is that portion of the bill which pertains to antiquities on state lands.

W.S. 36-1-116. Protection of prehistoric ruins; penalty.

(a) Except as provided by subsection (d) of this section, any person violating any of the provisions of this act shall be guilty of a misdemeanor and shall be fined not less than twenty-five dollars (\$25.00) or more than one hundred dollars (\$100.00), or imprisoned in the county jail not more than six (6) months, or by both fine and imprisonment, and shall forfeit to the state all articles and materials discovered by or through his efforts.

(b) Persons holding permits or leases on state lands may not sublease or subcontract archeological or paleontological removal without prior written approval of the board.

(c) All state leases are subject to inspection by state or county law enforcement agencies or their designees for violation of W.S. 36-1-114 and 36-1-115.

(d) Any person who, for monetary gain or for commercial or any other purpose, removes any archeological or paleontological artifacts in violation of W.S. 36-1-114 or 36-1-115 with a cumulative value in excess of five hundred (\$500.00), shall be guilty of a felony and upon conviction shall be fined up to ten thousand dollars (\$10,000.00), imprisoned for up to ten (10) years, or both.

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## MONTANA AND WYOMING TO HOLD JOINT MEETING IN BILLINGS

(from MAS newsletter)

This is as an early reminder of our joint meeting that will be held next spring in Billings with the Montana Archaeological Society. We are also inviting our colleagues and friends in the South Dakota Archaeological Society.

Be sure to set aside May 8, 9, and 10, 1998 for the MAS/WAS annual meetings. Yes, that is Mother's Day weekend and we apologize to all mothers ahead of time, but what better treat for Mom than an exciting weekend of archaeology in Billings.

The meetings will be held at the Sheraton Hotel in downtown Billings on north 27th Street and First Avenue North. The Sheraton is providing a special room rate of \$55 (single or double), and will also honor the government rate for Federal employees (with ID). A formal meeting notice and registration will be sent out in March, but if you want to reserve a room early, call the Sheraton at (406) 252-7400. When making reservations, be sure to indicate you will be attending the Montana/Wyoming Archaeological Society Meetings.

Everyone is urged to stay at the Sheraton. The hotel has an excellent restaurant, the Lucky Diamond, located on the 20th floor with a great view of Billings and the Beartooth Mountains. City-owned parking is available adjacent to the hotel with access via an enclosed pedestrian bridge over First Avenue North. The Sheraton will validate parking garage tickets for those registering at the hotel.

Although details of the meeting are still being ironed out, it is expected that the business meetings and the paper sessions will take place on Friday and Saturday with a field trip to Pictograph Cave on Sunday. Alice Kehoe will be the banquet speaker on Saturday evening.

The live auction is returning for the 1998 annual meeting. And once again, Jim Shive, although a lame duck, will preside and use his unique talents to mightily increase the MAS coffers. However, this good old boy's success depends on the ingenuity and liberality of the donors and the generosity of our members and visitors, who always know a good thing when they see it. All members are reminded to search their cellars, attics, garages, offices, secret vaults and safes for any lost treasures that they wish to donate to this annual event. The fund raising auction will take place on Friday evening. Lynelle Peterson is coordinating the auction this year. For further information, call her at (406) 252-9163 (E-mail - ethno@wtp.net).

Billings is a growing and changing city with many new attractions. An Archaeologist's Biased

Guide to Downtown Billings is being prepared for inclusion in the packet that you will receive at registration. This will be an annotated listing of restaurants, watering holes and other attractions within walking distance of the Sheraton Hotel. A map and guide to the city will also be included.

Amateur, avocational and professional archaeologists from the two societies are encouraged to give papers, which should be about 15-20 minutes in length. If you would like to give a paper, contact one of the following people:

Montana and Other Papers:

Marv Keller, Phone (406) 247-7911, e-mail Marv\_Keller@mail.bia.gov

Wyoming Papers:

Mark Miller, Phone (307) 766-5564, e-mail mmiller@uwoyo.edu

Historic Archaeology or Gender Study Papers:

Mitzi Rossillon, Phone (406) 782-0494, e-mail rtibutte@aol.com

Powder River Basin Papers:

Kerry Lippincott, Phone - (307) 235-8952

To avoid painful prodding and arm twisting, titles and abstracts should be mailed to Marv Keller at 123 Burlington Avenue, Billings, MT 59101 by February 1, 1998. If you have any questions feel free to call Marv at the above number.

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#### CHAPTER PROGRAMS AVAILABLE

Each year several requests come into our office regarding possible programs for your monthly chapter meetings. This year we have prepared a list of some of the current research topics that various people are working on, which your membership may be interested in, although it is not an exhaustive list of what may be available from Laramie. These presentations generally include slides and last from 45-60 minutes.

If your chapter is interested in a particular program for an upcoming meeting, please call one of these presenters at the phone number provided. Please also be prepared to discuss any arrangements for audio-visual equipment and funding or travel expenses. Some of these presenters are students with limited resources and often they have no financial

support for their research. It is anticipated that you will make all necessary arrangements with the presenter during your phone conversation.

Thank you for your continued interest in the research activities in Laramie. Best of luck with your meeting schedule for 1997-1998.

Rich Adams "Early Man and Rock Art in South Africa." Phone (307)766-5301.

Rich Adams "Central Siberian Archeology." Phone (307)766-5301.

Rich Adams "Pipes and Bowls: Soapstone Artifacts in Wyoming." Phone (307)766-5301.

Rich Adams "Stonewall Buttes: Prehistoric Structures in the Powder River Basin." Phone (307)766-5301.

Rich Adams "Natural Science is Not Just for Nerds." (for schools). Phone (307)766-5301.

Judy A. Brown "Archaeological Curation at the University of Wyoming Repository." Phone (307)766-5301.

Cher Burgess "Working With Middle School Kids on Historical Archaeology at the Muhlbauer Site in the Black Hills." (A Visit With Your WAS President) (307)283-1154 or (307)283-1200.

Dan Eakin "Archaeological Investigations on the North Fork of the Shoshone River." Phone (307)766-5301.

Dr. Robert Kelly "Ethnoarchaeology Among Mikea Hunter-Gatherers of Madagascar." Phone (307)766-5136.

Dr. Marcel Kornfeld "Paleoindian in the High Country: Middle Park, Colorado." Phone (307)766-5136.

Dr. Marcel Kornfeld "Hell Gap Revisited: Paleoindian Cultural Chronology and Other Problems." Phone (307)766-5136.

Dr. Mark E. Miller "Archaeology, History and the Wagon Box Fight of August 1867." Phone (307)766-5301.

Dr. Mark E. Miller "Early Archaic Pronghorn Hunting in the Upper Green River Basin, Wyoming." Phone (307)766-5301.

Dr. Mark E. Miller "Historical Archaeology at Fort Fred Steele, Wyoming." Phone (307)766-5301.

Laura Niven "Variability in Seasonality of Archaic Bison Kills." Phone (307)745-8210.

Laura Niven "1997 Excavations at Upper Paleo-

lithic Sites in the Russian Far East." Phone (307)745-8210.

Dr. Danny N. Walker "Archaeological Looting in Wyoming." Phone (307)766-5301.

Dr. Danny N. Walker "Excavations at the Baldwin Trading Post and Sand Draw Dump Sites. Phone (307)766-5301.

### A WEEKEND AT NORTH TABLE MOUNTAIN

When I entered the academic realm of archaeology, I was lectured that my enemy is the "collector," a word pronounced with a hiss and a sneer. Stories of trucks backing up to sites in the stealthy darkness of night, of the drive along the highway that screens the burgled loot as the collector speeds away; tales of digging into an excavation, only to find the stratigraphy in shambles due to a looter's shovel; these became the horror stories of my schooling.

So when I heard that some volunteer "collectors" would be joining us for our dig at North Table Mountain, just north of Rock Springs, I was quite skeptical of the company.

Regrettably, Dr. George C. Frison was not able to attend the tour that followed his Saturday talk at Western Wyoming Community College. But in the spirit of his fascination with Paleoindian findings, we carried on with the continuing excavation, which was, we hoped, teetering on the brink of Paleoindian pay dirt. Several contingents of the archaeological spectrum showed up for a tour of the site on Sunday, October 5. Russell Tanner and Terry Del Bene of the BLM and Kevin Thompson and Charlie Love of WWC are all Rock Springs locals. Pat Bower of the NFS drove in from Idaho, and the OWSA's Rich Adams took the back roads from Laramie to join in the project. Working overtime is all too common for these folks, but this tour had exciting enough prospects to bring them all out on beautiful warm Sunday.

Four additional pairs of hands came ready to blister in the name of science and education. John Vase, a Rock Springs native, decided to take a break from his long week at Church and Dwight Trona Mine. "I've lived in the area all my life, and I've been collecting since I was young," he explained. He's taken part in such digs before, but doesn't often

find the time to pursue his hobby, which I'm sure made this experience a valuable one to him.

Three generations of the Bozovich family also hiked the rocky slope to our two pits that day. Joe Bozovich, Sr. is a familiar name in Wyoming archaeology, though he is not a trained academic in this field. He has sired a family of responsible avocationals who contribute greatly to the published body of archaeological records.

Joe Bozovich, Jr., his daughter Carrie Bozovich, and son-in-law William Boysen flew up from their Denver-based computer software development company to volunteer for the dig. "This is a really nice change for us," explained Carrie, "It's wonderful to be outside on a day like today, doing something we really like to do." Joe, Jr. told me that their family has been climbing this steep slope for years. "It's interesting to see how artifacts are buried and unveiled from season to season," he mused. "It keeps us coming back every year."

What we desperately wanted to see unveiled at the site this fall were the Paleoindian periods. "When they got down to the hard stuff (during the last excavation period), they decided that they had reached the bottom, and they stopped digging," explained Thompson. So we took to the bottom levels of the two one-by-ones with "the negotiator" (a trusty pick axe). Bower joked from the bottom of the pit, "Oops! Sorry about crushing that Goshen!"

We all took turns digging and exploring the area. Tanner discovered a narrow crevice that seemed bottomless, but could not locate the rumored stone circles that supposedly decorate the mesa's flat top. I went spelunking between boulders and surfaced with a beautifully preserved butchered bison bone. When I returned with my find, I caught Del Bene relaxing in the sunshine and obviously enjoying Sunday's lack of pressures.

I was surprised how much was accomplished during the day. Perhaps not so much dirt was moved, but relationships between archaeological factions were strengthened, information was passed along, and our mutual passion for discovery and documentation was shared.

Vase and the Bozovich clan made me think twice about all the lessons I have learned about non-academic archaeologists. They have passion for the knowledge behind the artifacts, and find no value in the unethical riches that can come from collecting.

These people are not the uneducated desecrators as collectors are often labeled. I respected their knowledge because it is based on life-long archaeological experiences, on local lore, and on their tried and true belief that their work is meaningful.

These volunteers are a reminder to the often "elite" academicians in our field that it is not only our job to research, but to share our knowledge with non-professionals. We need to be open to self-educated people who have real-life experience in the field, even if their terms and methods diverge slightly from established academic norms. These people who collect and record *without being paid* contribute to the archaeological record, but even more so they contribute to the *spirit* of archaeology.

Volunteerism in our field needs to be encouraged. There is so much history to uncover, and only so many already over-worked academics to work on it. Though there is no "due date" for us to solve all the archaeological mysteries, we are in a race against looting, desecration, construction, and erosion. We need to extend our "elite" handshake to those extra hands, *willing* hands, to create a mutually beneficial relationship between avocationals and academicians.

Jill Anderson  
12 Lakeside Drive  
Battle Creek, MI 49015



William Boysen screens at the North Table Mountain site as Carrie Bozovich critiques his methods. Kevin Thompson supervises from the pit.



Joe Bozovich, Jr. searches the screen at the North Table Mountain site for Paleoindian artifacts with John Vase.

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**REPORT OF THE STATE  
ARCHAEOLOGIST'S OFFICE**

We thought we would report to the Wyoming Archaeological Society about progress on some of the recent activities the office has been involved in. First of all, Dr. Walker conducted field investigations last summer with volunteer crews at two sites in the Lander-Riverton area. One was the prehistoric Sand Draw site and the other was the historic Baldwin Trading Post. Assemblages from both of these sites will undergo analysis this winter. Danny and I also helped WAS President, Cher Burgess, with a historic

site investigation in the Black Hills that was coordinated with the Forest Service.

This year Dave Eckles and the Archaeological Survey have initiated 64 new survey projects in various locations around the state, and have completed 59. Reports are being completed on the remaining five projects. The survey crews also conducted test excavations at sites in Sybille Canyon, at Greybull Reservoir, on the Moran-Dubois highway, and in Yellowstone.

Give us a call next summer at (307)766-5301 if you want to know whether or not there is an excavation project in your area. We anticipate fairly extensive excavations next season at a Middle Archaic site along the north fork of the Shoshone River



The whole North Table Mountain crew hard at work.

above Cody, and a multicomponent site in Sybille Canyon with occupations from at least the Early Archaic through Late Prehistoric periods. Over 200 visitors stopped at this site last summer. We will let the society know as plans progress in case some of you will want to visit one of the projects.

As I reported at the WAS spring meeting in Casper, we are in our third year of conducting a box inventory of archaeological collections at the University of Wyoming Archaeological Repository. These collections have been gathered over the past several decades through basic research and cultural resource management projects. A total of 503 boxes have been inventoried from an estimated 3,500 box total. It is a slow and tedious process, because information from the box contents needs to be matched to catalog cards, and some boxes often contain several site assemblages.

Eric Ingbar produced a computer program that we are using to store the box inventory information, and we have entered the contents of about 234 boxes. We have a long way to go, since we estimate as many as 20,000 site assemblages exist in the repository, containing upwards of one million items. The work must continue, however, because future re-

search depends on these collections and their proper care. Staff are doing the best they can with existing resources. We hope to offer the WAS a tour of the repository at a future fall workshop, but give us a call whenever you are in town and we can show you around.

In the past year our staff conducted over 75 programs and contacts that reached at least 1,500 members of the public. Slide presentations and lectures on current research comprise the bulk of these programs. Quite a few were associated with the 1997 Wyoming Archaeology Awareness Month activities. We also sent each chapter a list of programs available from several UW faculty, students, and state staff for the current year. This list should be useful when you organize programming for monthly meetings.

Thanks to all of you who have helped so far in identifying Folsom and Clovis discoveries in Wyoming. We have over two dozen locations from the literature and from avocational reports, and have looked at several of the artifacts. We hope to visit some localities with society members this summer who have reported discoveries. Once we have enough information, we can put a progress report in



the journal and hopefully stimulate even more participation. Thanks again.

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### ISLAND IN THE PLAINS CONFERENCE

Since 1992, archaeologists, historians, Native Americans, students, scientists in related fields, avocationalists and interested members of the community have been gathering at a two day symposium called The Island in the Plains Conference. The meetings were initiated by the Black Hills National Forest Heritage Resource program to disseminate the newest information available. In the following years, the conference grew in scope and now serves as a regional forum for exchanging ideas, recent research and increasing public involvement.

The 1998 conference will be held in Belle Fourche, South Dakota on February 14-15, 1998. The conference meetings will be held in the Community Center at 1111 National Street, Belle Fourche. An early-bird reception will be held on Friday the 13th at the Prime Time Grill & Bar. Contact the Belle Fourche Chamber of Commerce for lodging information at 1-800-345-5859.

Pre-registration by January 30, 1998 is \$20.00. On site registration will be \$25.00. Banquet pre-registration by January 30, 1998 is \$12.50. The cost of registration will include the conference and the annual poster. In addition, every effort is being made to include the publication of papers from the first symposium.

You are invited to present your research, field work and other perspectives on the Black Hills or the immediately surrounding area.

Each year, we encourage selection of a specific topic for a symposium-like format with a target length of 2-3 hours. If you have a topic you would like to see emphasized, please send the suggestion as soon as possible to Pochteca Archaeology (address below).

Time limit for papers is 20 minutes with a minimum length of 10 minutes. Abstracts should be submitted before January 30, 1998. Please send the abstract via attached E-mail file, or on IBM compatible disk (preferably in WordPerfect or ASCII format, most word processing programs are accessible) and

accompanied by a hard copy. When necessary, hard copies alone will be accepted. The abstract should include a note with the length of the paper, and any special equipment required. A slide projector will be provided.

Submit abstracts to:  
Pochteca Archaeology  
Island in the Plains Abstract  
869 North Fourth Street  
Laramie, WY 82072  
phone: (307)742-6791  
fax: (307) 745-9682  
email: Pochteca1@aol.com

For additional information, contact:  
Tim Cowan: (605) 642-4622 cojo5@iw.net  
Alice Tratebas: (307) 746-4453  
wyatrateba@wy.blm.gov  
Cynthia Webb: (307) 742-6791 Pochteca1@aol.com  
Check our Web site at  
<http://WWW.ISLANDPLAINS.ORG>

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### COMPUTER PROGRAMS FOR ARCHAEOLOGY

(from MAS Newsletter, Number 7,  
December 1997)

Wil Husted (MAS Newsletter Editor) has been made aware of two computer programs that may be useful to Wyoming and Montana archaeologists. The first is **ConRec**, a contour mapping program written for the Environmental Protection Agency. **ConRec** is part of a larger program for the geostatistical analysis of spatially correlated data called **GeoEas**. Dr. Bruce Bevan made the program and supporting files available at a National Park Service-sponsored remote sensing workshop. Dr. Bevan authored the summary document file which explains the contents of the disk. Bob Nickel of the National Park Service's Midwest Archaeological Center in Lincoln, Nebraska kindly gave me a copy of the **ConRec** disk. The package totals 858 kilobytes. He will be happy to provide the program to anyone supplying an IBM-formatted 1.44 Mb 3.5" diskette and a self-addressed, stamped diskette mailer. The complete

**Geoas** program may be downloaded from <http://earth1.epa.gov/ada/geoas.html>. However, the installation file contains 1.26 Mb and the documentation file 3.3 Mb. The documentation is in PDF format and may be read with Adobe Acrobat which is available free from Adobe. The **ConRec** and **Geoas** programs are in the public domain and may be freely used by anyone.

Harold Hagen of the Billings contingent of the Brotherhood of the Busted Trowel informed me of a Windows NT/95 program, **Posthole** Version 1.02, for the detection of rectangular structures in scanned excavation plans or from digitizer output. The program description is too long to include here. MAS Newsletter Husted will be happy to e-mail it to anyone (16 kilobytes). The program consists of two files (posthol1.zip and posthol2.zip) which can be downloaded from <ftp://ftp.uni-koeln.de/pc/basp>. You can also use the web page at <http://www.uni-koeln.de/~alOO1/basp.html> for a loading link, although it's probably slower. Posthole is in the public domain and may be freely used by anyone.

Several other computer programs that may be of use or interest to archaeologists are available for downloading via the ArchNet site. Go to <http://www.lib.uconn.edu:80/ArchNet/Software/software.html> for a listing of these programs. Some can be downloaded from ArchNet, and links to others are provided on the page.

A Guide to Statistical Computing Resources on the Internet. Resource guide by Ken Varnum and John Weise, University of Michigan.

**BASP** -- The Bonn Archaeological Statistics Package (DOS and Windows). Documentation and program files are now located on the ArchNet/Spirit server. Newest Version: 5.29

**Calib v. 3.03c** -- Radiocarbon calibration program from the University of Washington. Stuiver and Reimer's (1994) program is constantly updated and available for both MAC and DOS platforms.

**CavePlot** -- Mapping software for caves and rockshelters. Available only for Macintosh platform.

**Forager 2.01** -- An update of the popular foraging simulation program by Brian Jones (UCONN). This interactive MS-DOS program

allows users to set foraging area size and the types end amounts of available food resources. Also known at UCONN as "Brian's World". This program can be downloaded from the ArchNet site [[for20.zip](#) 76K].

**Map Maker** -- September 1995 Update. Map Maker is a user-friendly geographical information system for Windows which is being made available for free to nonprofit organizations, academics, students, and international and governmental organizations. Approximately 700k.

**NOAA/Paleoclimatology Software Archive** -- Pollen database and mapping software.

**OxCal v. 2.18** -- Radiocarbon calibration program from the Research Laboratory for Archaeology and Art History at Oxford University. This MS-Windows program is easy to use and extremely fast. An essential tool with excellent on-line documentation. OxCal is now available for download from the ArchNet Software Archive (634K).

**Point** is a projectile point classification program by Tara Prindle (UCONN). This program utilizes morphological data to classify projectile points from the northeastern United States. The program can be downloaded from the ArchNet site. [MS-DOS platform only]. Program documentation is available online.

**RAD** -- Rock Art Database MS-DO program for cataloguing rock art sites.

**Sampler** -- An archaeological sampling simulation from Brian Jones (UCONN). Allows users to specify size of region, sampling unit, and sample size. The program can be downloaded from the ArchNet site. [MS-DO platform only].

**TriPlot 2.1** -- A ternary plotting program.

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**ROCK ART ON THE INTERNET**  
(from MAS Newsletter, Number 7,  
December 1997)

Jim Shive sent the URLs for several rock art sites and MAS Editor Husted took a brief look at each. As usual, one thing led to another, and he found some interesting additional sites following the links. Here's a brief description of those that Jim provided and some others that Wil found.

Circle of Rock Art:

**<http://www.DottedDog.com/rockart/ra/index.html>.**

This is an interesting site with links to other rock art sites, monthly petroglyph puzzles, information on photographing rock art, rock art etiquette, books and lots of rock art images. Links include the Utah Rock Art Research Association and the Upper Midwest Rock Art Research Association.

Petroglyphs and Rock Art Paintings:

**<http://HMI.execpc.com/~jcampbel>.** This is John F. Campbell's site containing rock art images from Baja California.

South Carolina Rock Art Survey:

**<http://pages.prodigy.com/asscinc/art0997b.htm>.**

The survey is being conducted by the South Carolina Institute of Archaeology and Anthropology at the University of South Carolina in Columbia. Results to date are described.

South Carolina Petroglyphs:

**<http://www.pclink.com/deborah/>.** The South Carolina Petroglyph Survey and how it is being conducted are described.

RockArtNet:

**<http://www.geocities.com/Athens/5806/index.html>.**

RockArtNet is a project to provide information about online rock art resources. It contains links to many other rock art pages including the following:

Online Rock Art Bulletin:

**<http://www.geocities.com/Athens/2996/>**

Upper Midwest Rock Art Association:

**<http://www.geocities.com/Athens/5806/index.html>.**

The Upper Midwest Rock Art Research Association includes but is not limited to the states of Iowa, Minnesota, North Dakota, South Dakota and Wisconsin. This page includes book reviews and internal hyperlinks to sites and articles on rock art.

American Rock Art Research Association:  
<http://zzyx.ucsc.edu/Comp/Bill/ARARA/ARARA.HTML>. The home page for ARARA includes membership information, publications, ethics, annual meeting information, descriptions of awards and links to other pages.

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### ARPA UPDATE

(from MAS Newsletter, Number 7,  
December 1997)

#### CRIME DOES NOT PAY - ASK EARL!

As reported by the MAS Newsletter earlier, Earl Shumway was Sentenced to six and a half years in federal prison for looting two alcoves on BLM land in Utah and Anasazi sites in Canyonlands National Park and Manti-LaSal National Forest. Assistant U. S. Attorney Wayne Dance had argued for archaeological value being used to compute the loss and an "upward departure" from U. S. Sentencing Guidelines. Chief Judge David Winder agreed and imposed the record sentence.

Shumway appealed to the U. S. Court of Appeals for the Tenth Circuit. Most of the lower court's ruling was affirmed. At the re-sentencing hearing, Judge Winder was urged to apply the "extreme conduct" enhancement which would have resulted in the sentence as originally imposed. However, Shumway was re-sentenced without additional punishment to a five year, three month prison term which is still a record for an ARPA sentence.

Common Ground Summer/Fall 1997

#### LITTLE BIGHORN BATTLEFIELD ARTIFACTS CONTINUE TO APPEAR

More than 20 years ago Joseph Anderson found a binocular lodged in the soil near Last Stand Hill at Little Bighorn Battle field National Monument. He broke one of the lenses kicking the instrument from the soil. In June 1996, someone employed by the trucking company where Anderson also worked called the park anonymously saying that he had seen the binocular. He also said that Anderson had told him from where the binocular had come. Suffering a guilty conscience, the caller agreed to telephone Anderson to see if he still had the glasses while

National Park Service agents taped the call.

Anderson was told that the informant was interested in purchasing the binocular as a gift for his father. Anderson sold the instrument to the agent posing as the father and provided a sketch of the location where the binocular was found. He offered to prepare a statement of authenticity should the purchaser wish to resell the binocular.

A search warrant was served on Anderson, and the binocular and money were seized. Anderson cannot be charged with theft under ARPA because the statute was not enacted before the crime took place. However, he can be charged under ARPA's trafficking provisions and charges are pending.

Anderson had worked as a seasonal ranger at Yellowstone National Park. A cannonball, belt buckle and other items in his possession were obtained "under questionable circumstances."

Common Ground Fall/Winter 1996

## A REQUEST FROM THE STATE ARCHAEOLOGIST FOR RESEARCH ASSISTANCE

### Dear Wyoming Archaeological Society Members

Avocational archaeologists in Wyoming, especially members of the Wyoming Archaeological Society (WAS), always have been tremendous sources of information on important archaeological discoveries. Similar voluntary support is available to researchers elsewhere on the Plains, and Dr. Jack Hofman has been able to utilize such help to develop a fluted point survey in states like Oklahoma and Kansas. He and I would like to initiate a similar project for Wyoming, using the attached reporting form.

If you know of a fluted point (Folsom, Clovis) locality, or have a collection from one, please fill this form out and return it to one of the addresses listed at the bottom. You do not have to worry about completing every entry, and you only need to be as specific as you can. If you know a site location is in a particular county or township, but do not know the section, then just list the county or township. We are interested in descriptions and measurements of whole or fragmentary projectile points, and all the information you provide will be kept confidential.

We hope to compile information on as many discoveries as possible over the next year or so. Folsom and Clovis weapon technologies are relatively easy to identify compared to other Paleoindian assemblages, so we are confident the geographic distribution of known localities may help us understand certain aspects of prehistoric human behavior. From the forms you return, we can begin to get a picture of this distribution. We also can begin to see if certain raw materials show up more in one area than another, and whether or not different production technologies (flaking patterns) occur throughout the entire region. Many other lines of research may develop from this project.

Your participation will be a big help in our effort to document fluted point localities in Wyoming, and any information you provide will be greatly appreci-

ated. Please call the Wyoming State Archaeologist's office at the number provided if you would like to visit about filling out a form, discuss a site or artifact you would like us to see, or if you just want to talk about archaeology.

Thank you in advance for any assistance you can provide. We will try to keep the WAS membership up-to-date through *The Wyoming Archaeologist* as we interpret any findings.

Dr. Mark E. Miller  
State Archaeologist  
Wyoming State Archaeologist's Office  
Wyoming Department of Commerce  
Department of Anthropology  
University of Wyoming  
Laramie, WY 82071-3431

GREAT PLAINS FLUTED POINT SURVEY

specimen data sheet 5/1/92 JLH

Date: \_\_\_\_\_ Recorder: \_\_\_\_\_ Spec. Number: \_\_\_\_\_ Type: \_\_\_\_\_

Collection of: \_\_\_\_\_

Specimen found by: \_\_\_\_\_

Find Spot--State: \_\_\_\_\_ County: \_\_\_\_\_ River System: \_\_\_\_\_

Site: \_\_\_\_\_ Legal: \_\_\_\_\_ I/4S: \_\_\_\_\_ T: \_\_\_\_\_ R: \_\_\_\_\_

Context: (field, pasture, road, streambed, terrace, upland, slope, excav.)

Type of Specimen: point--fluted/unfluted preform--fluted/unfluted

Portion present: (complete, base, blade, tip, edge, channel flake)

Lithic Material: (include translucence, color, texture)

Ultraviolet response: LW/SW \_\_\_\_\_

Thermal alteration: \_\_\_\_\_

Abrasion/Patina: \_\_\_\_\_

Measurements (cm/in):

Length: \_\_\_\_\_ Width: \_\_\_\_\_ Basal Width: \_\_\_\_\_ Thickness: \_\_\_\_\_

Fluted Thickness: \_\_\_\_\_ Basal Depth: \_\_\_\_\_ Weight: \_\_\_\_\_ (gm/oz)

Flute A: length \_\_\_\_\_ width \_\_\_\_\_ ; Flute B: length \_\_\_\_\_ width \_\_\_\_\_

Flake Scars (per/cm): face \_\_\_\_\_ edge \_\_\_\_\_ ; Stem Length: \_\_\_\_\_

Reworking: (tip/base/edge) \_\_\_\_\_

Flaking Pattern A: \_\_\_\_\_ B: \_\_\_\_\_

Flake Blank: (Y/N) \_\_\_\_\_

Distal end of flute A: (extended to tip y/n)

removed by flaking: \_\_\_\_\_ hinged: \_\_\_\_\_ feathered: \_\_\_\_\_ missing: \_\_\_\_\_

Nipple: (present/absent/remnant) \_\_\_\_\_

Base outline: \_\_\_\_\_ Edge outlines: \_\_\_\_\_

Edge Grinding A: \_\_\_\_\_ Edge Grinding B: \_\_\_\_\_ Basal Grinding: \_\_\_\_\_

Photos: y/n, b&w, slides, color/ Draw specimen below or on back

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University of Kansas  
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913/864-4103

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# ARCHAEOLOGICAL PERIODICALS IN WYOMING LIBRARIES

compiled by  
Leniegh Shriner

## INTRODUCTION

The following listing was compiled from the *Wyoming Union List of Periodicals*, Wyoming State Library, January 1995 and from the CARL catalog system at the University of Wyoming Coe Library. The first part of the compilation is listed by journal name, with a listing of availability by each county, community college, or other public library listing. The second part is a separate listing of all anthropological and archaeological journals found in the University of Wyoming libraries. For interlibrary loans of any of these journals, please contact your public library.

## PUBLIC LIBRARIES

**AMERICAN ANTIQUITY:** first issue 1935.  
**Casper College Goodstein Foundation Library.**  
1960; lends, copies (no charge)  
**Central Wyoming College.**  
1969-1976, 1979; lends, copies (no charge)  
**Northwest Community College.**  
1984; lends - if necessary, copies (no charge)  
**Western Wyoming College Hay Library.**  
1978; lends, copies (no charge)

**ARCHAEOLOGY:** 1 March 1948  
**Campbell County Public Library.**  
(10) lends, copies  
**Carbon County Public Library.**  
1985-+1994; lends; copies 10 or more pages .15 @,  
less than 10 free  
**Crook County Public Library.**  
1992; lends 4 weeks, back issues only; copies (no  
charge)  
**Fremont County Public Library (Lander).**  
1994; lends, copies (no charge)  
**Fremont County Public Library (Riverton).**  
1994; lends, copies (no charge)

**Jackson Hole High School.**  
1992+; does not lend, copies (no charge)  
**Sheridan High School.**  
1991+; does not lend; copies print, fiche  
**McCracken Library Buffalo Bill Historical Center.**  
1981+-1987+; no lending; copies 10 or more .25  
@, less than 10 copies free  
**Natrona County Public Library.**  
1991+; no lending; copies: 1-19 page free, 20th  
page \$1.00, 21st plus .10 @  
**Northwest Community College.**  
1986; lends - if necessary, copies (no charge)  
**Sheridan College Griffith Memorial Library.**  
1986; lends one week for local patrons, in library use  
only for interlibrary loan; copies  
**Sublette County Public Library.**  
1990+; lends 2 weeks; copies 10 or more .15 @,  
less than 10 free  
**Washakie Public Library.**  
1989-1994; lends conditionally, copies  
**Weston County Public Library.**  
1994; lends, copies  
**Western Wyoming College Hay Library.**  
1982-1986, 1992; lends, copies (no charge)

**ARCHAEOLOGY IN MONTANA:** first issue sum-  
mer 1958  
**Northwest Community College.**  
1984; lends - if necessary, copies (no charge)

**PLAINS ANTHROPOLOGIST:** first issue May 1954  
**Campbell County Public Library.**  
(10); lends, copies  
**Casper College Library.**  
1954; lends , copies (no charge)  
**McCracken Research Library Buffalo Bill Hist.  
Center.**  
1988+; no lending; copies 10 or more .25 @, less  
than 10 copies free



**Northwest Community College.**

1984; lends - if necessary, copies (no charge)

**Sheridan College Griffith Memorial Library.**

1970-+1979, 1980; lends one week for local patrons, in library use only for interlibrary loan; copies

**Western Wyoming College Hay Library.**

1973; lends, copies (no charge)

**Wyoming State Archives, Museums and Historical Department.**

1954-1979; no lending; copies 10 or more .20 @ less than 10 copies free, microfilm copies .50 @

**WYOMING ARCHAEOLOGIST:** first issue 1959 (formerly *SMOKE SIGNALS*)**Campbell County Public Library.**

1972; lends, copies

**Casper College Goodstein Foundation Library.**

1958; lends, copies (no charge)

**Central Wyoming College.**

1958-1981; lends, copies (no charge)

**Fremont County Library (Lander).**

1977-1979; lends, copies (no charge)

**Laramie County Library System.**

1958-1981, 1987; lends; copies 20 or more .10 @, less than 20 free

**McCracken Library Buffalo Bill Historical Center.**

1958; no lending; copies 10 or more .25 @, less than 10 copies free

**Natrona County Public Library.**

1958; no lending; copies: 1-19 page free, 20th page \$1.00, 21st plus .10 @

**Northwest Community College.**

1970; lends, if necessary, copies (no charge)

**Park County Library (Cody).**

1976; no lending, copies 10 or more .10, less than 10 free

**Sheridan College Griffith Memorial Library.**

1958; lends one week for local patrons, in library use only for interlibrary loan, copies

**Western Wyoming College Hay Library.**

1973; lends, copies (no charge)

**Wyoming State Archives, Museums and Historical Department.**

1958-1984; no lending, copies 10 or more .20 @, less than 10 copies free; microfilm copies .50 @

**Wyoming State Library.**

1973; lends, copies .15 @

**UNIVERSITY OF WYOMING*****THE JOURNAL OF THE ROYAL ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.***London, Royal Anthropological Institute of Great Britain and Ireland. Continues *Journal of the Anthropological Institute of Great Britain and Ireland*. Superseded by *Man (London)*. University of Wyoming holdings = [volume 40 (1910)] 40-42,46,48, 50-51,53,55-89,(90),91-95. Call Number = GN 1 .R71x. Location = U.W. Coe Library***ACTA ANTHROPOLOGICA.***

Mexico, D. F., Escuela nacional de antropologia e historia. University of Wyoming holdings = [volume 1=1945] 1-3. Call Number = GN 1 .A31X. Location = U.W. Coe Library

***AMERICAN ANTHROPOLOGIST.***Washington, D.C., American Anthropological Association. Supersedes *Anthropological Society of Washington. Transactions*. University of Wyoming holdings = [volume 1 = 1888] 1-11;N.S.1-6,(7), 8-14,(15-18),19-36,(37),38-46,(47),48-68,(69), 70-81,(82),83-85,(86),87-present. Call Number = GN 1 .AS. Location = U.W. Coe Library.***ANTHROPOLOGICAL LINGUISTICS.***

Bloomington, Ind., Anthropology Department, Indiana University. University of Wyoming holdings = [volume 1 = 1959] 1-5,(6),7. Subscription cancelled. Call Number = P 1 .A58. Location = U.W. Coe Library.

***ANTHROPOLOGICAL QUARTERLY.***Washington, Catholic University of America Press. Continues *Primitive man*. University of Wyoming holdings = [volume 38 = 1965] 38-present. Call Number = GN 1 .P7. Location = U.W. Coe Library.***CHINESE SOCIOLOGY AND ANTHROPOLOGY.***

White Plains, N.Y. M.E. Sharpe. University of Wyoming holdings = [volume 16 = 1983/84] (16)-present. Call Number = KM 1 .C45. Location = U.W. Coe Library.

***CURRENT ANTHROPOLOGY.***

Chicago, University of Chicago Press. University of

Wyoming holdings = [volume 1 = 1960] 1-19, (20),21-22,(23),24-present. Call Number = GN 1 .C8. Location = U.W. Coe Library.

**THE EASTERN ANTHROPOLOGIST.**

Lucknow, Ethnographic and Folk Culture Society. University of Wyoming holdings = [volume 34 = 1981] 34-35,(36),37. Call Number = GN 1 .E1S. Location = U.W. Coe Library.

**SOUTHWESTERN JOURNAL OF ANTHROPOLOGY.**

Albuquerque, University of New Mexico. University of Wyoming holdings = [Volume 1 = 1945] 1-28. Call Number = GN 1 .S64. Location = U.W. Coe Library.

**CONTRIBUTIONS TO ANTHROPOLOGY**

Missoula, Dept. of Anthropology, University of Montana. Supersedes *Anthropology and Sociology Papers 0544-8824*. University of Wyoming holdings = [volume 1 = 19067] 1-8. Catalog Number = GN 2 .M61x. Location = U.W. Coe Library.

**POLITICAL ANTHROPOLOGY.**

Assen, Netherlands, Van Gorcum. University of Wyoming holdings = [volume 1 = 1975] (1). Call Number = JA 1 .A1 P62. Location = U.W. Coe Library.

**INDIANA UNIVERSITY PUBLICATIONS IN ANTHROPOLOGY AND LINGUISTICS.**

Also called *Memoir of the International Journal of American Linguistics*. Baltimore, Md. : Published at the Waverly Press, Inc., by Indiana University, 1948-71. Continued by *Publications in anthropology and linguistics* 0093-7789 and *Special publications of the Bollingen Foundation*. University of Wyoming holdings = 2-3,17-18,23-27. Call Number = GN 4 .15. Location = U.W. Coe Library.

**REVISTA DEL MUSEO DE LA PLATA. NUEVA SER. SECCION ANTROPOLOGIA.**

La Plata, Universidad Nacional de La Plata, Facultad de Ciencias Naturales y Museo. Continues *Revista del Museo de La Plata* 0375-1147. University of Wyoming holdings = [volume 41 = 1971] 41-51,74. Call Number = F 2821 .L3. Location = U.W. Coe Library.

**MAN.**

London: Royal Anthropological Institute of Great Britain and Ireland. Absorbed *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 0307-3114. Continued by *Journal of the Royal Anthropological Institute*. University of Wyoming holdings = [volume 1 = 1901] 1-40,42-65;N.S. 1-29. Call Number = GN 1 .M25. Location = U.W. Coe Library.

**BOLETIM DO MUSEU NACIONAL. NOVA SERIE: ANTROPOLOGIA.**

Rio de Janeiro, Museu Nacional. Also called *Antropologia*. Supersedes *Rio de Janeiro. Museu Nacional. Boletim*. University of Wyoming holdings = 2-20,55-59. Call Number = GN 1 .R56X. Location = U.W. Coe Library.

**ANTHROPOLOGY, MEMOIRS.**

Chicago : Chicago Natural History Museum. University of Wyoming holdings = 1-2,4. Call Number = GN 4 .F5. Location = U.W. Coe Library.

**ANNUAL REVIEW OF ANTHROPOLOGY.**

Palo Alto, Calif., Annual Reviews Inc. Supersedes *Biennial Review of Anthropology* 0067-8503. University of Wyoming holdings = 1-present. Call Number = GN 1 .A623. Location = U.W. Coe Library.

**APPLIED ANTHROPOLOGY.**

Boston, Society for Applied Anthropology. Continued by *Human organization*. University of Wyoming holdings = [volume 1 = 1941] 1-7. Call Number = GN 1 .H83. Location = U.W. Coe Library.

**MAN IN THE NORTHEAST.**

Rindge, N.H., Anthropological Research Center of Northern New England, Department of Anthropology, Franklin Pierce College. University of Wyoming holdings = [volume 2 = 1971] 2,6-22,27-42. Call Number = GN 1 .M313X. Location = U.W. Coe Library.

**ANTHROPOLOGY AND HUMANISM QUARTERLY.**

Tallahassee, Fla., Society for Humanistic Anthropology. Continued by *Anthropology and humanism*. University of Wyoming holdings = [volume 4 = 1979] 4-17. Call Number = GN 1 .A6955. Location = U.W. Coe Library.

tion = U.W. Coe Library.

**CRITIQUE OF ANTHROPOLOGY.**

London [s.n.]. University of Wyoming holdings = [volume 3 = 1977] 3-present. Call Number = GN 1 .C73 Location = U.W. Coe Library.

**JOURNAL OF SOCIAL AND BIOLOGICAL STRUCTURES.**

London,; New York,; Academic Press. Continues *Studies in Human Sociobiology*. Continued by *Journal of Social and Evolutionary Systems* 1061-7361. University of Wyoming holdings = [volume 1 = 1978] 1-present. Call Number = GN 365.9 .J68. Location = U.W. Coe Library.

**THE JOURNAL OF PSYCHOLOGICAL ANTHROPOLOGY.**

New York, Association for Psychohistory. Continued by *Journal of Psychoanalytic Anthropology* 0278-2944. University of Wyoming holdings = [volume 1 = 1978] 1-3. Call Number = GN 502 .J68. Location = U.W. Coe Library.

**THE JOURNAL OF THE ANTHROPOLOGICAL INSTITUTE OF GREAT BRITAIN AND IRELAND.**

London : Published for the Institute by Trubner & Co. Supersedes *Anthropological Society of London. Journal*. Supersedes *Journal of anthropology*. Continued by *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 0307-3114. University of Wyoming holdings = [volume 1 = 1871]. Call Number = GN 1 .R71x. Location = U.W. Coe Library.

**WYOMING CONTRIBUTIONS TO ANTHROPOLOGY.**

Laramie, Dept. of Anthropology, University of Wyoming. University of Wyoming holdings = [volume 1 = 1978] 1-4. Call Number = GN 2 .W8. Location = U.W. Coe Library.

**ANTHROPOLOGICAL PAPERS, UNIVERSITY OF UTAH.**

Salt Lake City, University of Utah Press. Continues *Anthropological papers (University of Utah. Dept. of Anthropology)* 0083-4947. University of Wyoming holdings = [volume 90 = 1968] 90-present. Call

Number = E 51 .U8. Location = U.W. Coe Library [Hebard Collection [volume 94 = 1972] 94].

**THE NEBRASKA ANTHROPOLOGIST.**

Lincoln, Neb. : Anthropology Student Group, Department of Anthropology, University of Nebraska. University of Wyoming holdings = 5. Call Number = GN 1 .N42. Location = U.W. Coe Library.

**CANADIAN JOURNAL OF ANTHROPOLOGY** [also called *Revue Canadienne d'anthropologie*].

Edmonton, Alta., Dept. of Anthropology, University of Alberta. Supersedes *Western Canadian journal of anthropology*, 0008-5340. University of Wyoming holdings = [volume 1 = 1980] 1-5. Call Number = GN 1 .C35. Location = U.W. Coe Library.

**MEMOIRS OF THE AMERICAN ANTHROPOLOGICAL AND ETHNOLOGICAL SOCIETIES.**

Lancaster, Pa. New Era Printing Co. Continued by *Memoirs of the American Anthropological Association* 1073-0850. University of Wyoming holdings = [volume 1 = 1905] 1. Call Number = GN 2 .A22. Location = U.W. Coe Library.

**THE JOURNAL OF PSYCHOANALYTIC ANTHROPOLOGY.**

New York, N.Y. Association for Psychohistory, Inc. Continues *Journal of Psychological Anthropology* 0161-3308. Absorbed by *Journal of Psychohistory Winter 1988*. University of Wyoming holdings = [volume 3 = 1980] (3),4-10. Call Number = GN 502 .J68. Location = U.W. Coe Library.

**OCCASIONAL PAPERS OF THE NATIONAL MUSEUMS OF SOUTHERN RHODESIA. A, HUMAN SCIENCES.** Also called *Occasional Papers, Bulawayo, Southern Rhodesia : National Museums of Southern Rhodesia*.

Cambridge, England, Printed at the University Press. Continues *Occasional Papers of the National Museums of Southern Rhodesia*. Continued by *Occasional Papers of the National Museums of Rhodesia. Series A, Human Sciences*. University of Wyoming holdings [volume 3 = 1961] (3). Call Number = GN 2 .O22. Location = U.W. Coe Library.

**UNIVERSITY OF WASHINGTON  
PUBLICATIONS IN POLITICAL AND SOCIAL  
SCIENCE.**

Seattle : The University. Continued by *University of Washington Publications in Anthropology*. University of Wyoming holdings = [volume 1 = 1920] (1). Call Number = E 77 .W35. Location = U.W. Coe Library.

**PROCEEDINGS OF THE KONINKLIJKE  
NEDERLANDSE AKADEMIE VAN  
WETENSCHAPPEN. SERIES B,  
PALAEONTOLOGY, GEOLOGY, PHYSICS,  
CHEMISTRY, ANTHROPOLOGY.**

Merged with *Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen. Series C, Biological and Medical Sciences*, to form *Proceedings of the Koninklijke Akademie van Wetenschappen. Biological, Chemical, Geological, Physical, and Medical Sciences*. Continues *Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen. Series B, Palaeontology, Geology, Physics, and Chemistry* 0023-3366. University of Wyoming holdings = [volume 86 = 1983] (86),87-92. Call Number = Q 4 .A41x. Location = U.W. Science Library.

**MEMOIRS OF THE AMERICAN  
ANTHROPOLOGICAL ASSOCIATION.**

Lancaster, Pa. : The Association, 1906-1941, New Era Printing Co. Continues *Memoirs of the American Anthropological and Ethnological Societies*. Continued by *Memoir Series of the American Anthropological Association* 1040-4740. University of Wyoming holdings = [volume 2 = 1906] 2-59. Call Number = GN 2 .A22. Location = U.W. Coe Library.

**MEMOIR SERIES OF THE AMERICAN  
ANTHROPOLOGICAL ASSOCIATION.**

Menasha, Wis., The Association. Continues *Memoirs of the American Anthropological Association* 1073-0850. University of Wyoming holdings = [volume 60 = 1942] 60-73. Call Number = GN 2 .A22. Location = U.W. Coe Library.

**MEMOIR, THE AMERICAN  
ANTHROPOLOGICAL ASSOCIATION.**

Menasha, Wis., The Association. Continues *Memoir Series of the American Anthropological Association*

1040-4740. University of Wyoming holdings = [volume 74 = 1953] 74-96. Call Number = GN 2 .A22. Location = U.W. Coe Library.

**ANTHROPOLOGY AND HUMANISM.**

Arlington, Va., Society for Humanistic Anthropology. Continues *Anthropology and humanism quarterly* 0193-5615. University of Wyoming holdings = [volume 18 = 1993] 18-present. Call Number = GN 1 .A6955. Location = U.W. Coe Library.

**THE JOURNAL OF THE ROYAL  
ANTHROPOLOGICAL INSTITUTE.**

London, The Institute. Continues *Man*. University of Wyoming holdings = [volume 1 = 1995] 1-present. Call Number = GN 1 .J68. Location = U.W. Coe Library.

**ANTHROPOLOGY.**

Stony Brook, N.Y., Anthropology. University of Wyoming holdings = [volume 1 = 1977]. Call Number = GN 1 .A58. Location = U.W. Coe Library.

**HUMAN BIOLOGY.**

Detroit, Mich., Wayne State University Press. University of Wyoming holdings = [volume 1 = 1929] 1-present. Call Number = GN 1 .H8. Location = U.W. Coe Library.

**MAN IN INDIA; A QUARTERLY RECORD OF  
ANTHROPOLOGICAL SCIENCE WITH SPECIAL  
REFERENCE TO INDIA.**

Calcutta, A. K. Bose. University of Wyoming holdings = [volume 44 = 1964] 44-54,(55),56-64. Call Number = GN 1 .M3. Location = U.W. Coe Library.

**REVISTA COLOMBIANA DE ANTROPOLOGIA.**

Bogota, Instituto Colombiano de Antropología. Supersedes *Revista del Instituto Etnológico Nacional Boletín de Arqueología*. University of Wyoming holdings = [volume 1 = 1953]. Call Number = GN 1 .R34. Location = U.W. Coe Library.

**SOVIET ANTHROPOLOGY AND ARCHEOLOGY.**

White Plains, N.Y., International Arts and Sciences Press. Continued by *Anthropology & Archeology of Eurasia* 1061-1959. University of Wyoming holdings

= [volume 1 = 1962] 1-30. Call Number = GN 1 .S66. Location = U.W. Coe Library.

**JOURNAL OF ANTHROPOLOGICAL RESEARCH.**

Albuquerque, N.M., University of New Mexico. Continues *Southwestern Journal of Anthropology* 0038-4801. University of Wyoming holdings = [volume 29 = 1973] 29-present. Call Number = GN 1 .S64. Location = U.W. Coe Library.

**PAPERS IN ANTHROPOLOGY.**

Norman, Okla., Dept. of Anthropology, University of Oklahoma. University of Wyoming holdings = 1-24. Call Number = GN 1 .A67x. Location = U.W. Coe Library.

**HUMAN ORGANIZATION.**

Washington, Society for Applied Anthropology. Continues *Applied Anthropology* 0093-2914. University of Wyoming holdings = [volume 8 = 1949] 8-present. Call Number = GN 1 .H83. Location = U.W. Coe Library.

**OCCASIONAL CONTRIBUTIONS FROM THE MUSEUM OF ANTHROPOLOGY OF THE UNIVERSITY OF MICHIGAN.**

Also called *Occasional Contributions - Michigan University Museum of Anthropology*. Ann Arbor, University of Michigan Press. University of Wyoming holdings = all volumes. Call Number = GN 2 .M53. Location = U.W. Coe Library.

**AMERICAN JOURNAL OF PHYSICAL ANTHROPOLOGY.**

New York, A. R. Liss. University of Wyoming holdings = [volume 1 = 1918] 1-29;n.s.l-present. Call Number = GN 1 .A55. Location = U.W. Coe Library.

**PUBLICATIONS IN ANTHROPOLOGY AND LINGUISTICS.**

Also called *International Journal of American Linguistics, Memoir*. Chicago, University of Chicago Press. Continues *Indiana University Publications in Anthropology and Linguistics* 0893-5807. University of Wyoming holdings = 28-29. Call Number = GN 4 .15. Location = U.W. Coe Library.

**THE WESTERN CANADIAN JOURNAL OF ANTHROPOLOGY.**

Edmonton, Alta., Dept. of Anthropology, University of Alberta. Supersedes *Alberta Anthropologist* 0568-9104. Superseded by *Canadian Journal of Anthropology*. University of Wyoming holdings = [volume 1 = 1969] 1-8. Call Number = GN 1 .W47. Location = U.W. Coe Library.

**ARCTIC ANTHROPOLOGY.**

Madison, University of Wisconsin Press. University of Wyoming holdings = 1-present. Call Number = GN 1 .A81X. Location = Coe Library.

**ANTHROPOLOGICAL LITERATURE.**

Cambridge, Mass., Totter Library, Harvard University. Continues *Anthropological Literature* (Cambridge, Mass.) 0190-3373. University of Wyoming holdings = [volume 11 = 1989] cancelled. Call Number = GN 1 .A65. Location = U.W. Coe Library Reference.

**ANTHROPOLOGICAL LITERATURE.**

Pleasantville, N.Y., Redgrave Pub. Co. Continues *Anthropological Literature*. Continued by *Anthropological Literature* (Cambridge, Mass.) 0190-3373. University of Wyoming holdings = [volume 6 = 1984] 6-10. Call Number = GN 1 .A65. Location = U.W. Coe Library Reference Microfiche.

**ANTHROPOLOGICAL LITERATURE.**

Pleasantville, N.Y., Redgrave Pub. Co. Continued by *Anthropological Literature* (Cambridge, Mass.) 0190-3373. University of Wyoming holdings = [volume 1 = 1979] 1-5. Call Number = GN 1 .A65. Location = U.W. Coe Library Reference.

**ANTHROPOLOGICAL INDEX TO CURRENT PERIODICALS IN THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.**

London, Royal Anthropological Institute. Continues *Index to Current Periodicals Received in the Library of the Royal Anthropological Institute*. Continued by *Anthropological Index to Current Periodicals in the Museum of Mankind Library (incorporating the Former Royal Anthropological Institute Library)*. University of Wyoming holdings = [volume 6 = 1968] 6-14. Call Number = GN 1 .IS. Location = U.W. Coe Library Reference.

**ANTHROPOLOGICAL INDEX TO CURRENT PERIODICALS IN THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.**

London, Royal Anthropological Institute. Continues *Index to Current Periodicals Received in the Library of the Royal Anthropological Institute*. Continued by *Anthropological Index to Current Periodicals in the Museum of Mankind Library (incorporating the Former Royal Anthropological Institute Library)*. University of Wyoming holdings = [volume 6 = 1968] 6-14. Call Number = GN 1 .IS. Location = U.W. Coe Library Reference.

**INDEX TO CURRENT PERIODICALS RECEIVED IN THE LIBRARY OF THE ROYAL ANTHROPOLOGICAL INSTITUTE.**

London, Royal Anthropological Institute. Continued by *Anthropological Index to Current Periodicals in the Library of the Royal Anthropological Institute*.

University of Wyoming holdings = [volume 1 = 1963] 1-5. Call Number = GN 1 .IS. Location = U.W. Coe Library Reference.

**ANTHROPOLOGY JOURNALS AND SERIALS: AN ANALYTICAL GUIDE.**

Compiled by John T. Williams. New York, Greenwood Press, 1986. Call Number = GN 1 .W54 1986. Location = U.W. Coe Library.

**SERIAL PUBLICATIONS IN ANTHROPOLOGY.**

Edited by Sol Tax and Francis X. Grollig. Chicago, University of Chicago Press [1973]. Call Number = Z 5112 .L53 1973. Location = U.W. Coe Library.

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# A MIDDLE RANGE RESEARCH PROJECT IN FIRE PIT TECHNOLOGY

by

Dewey Baars, Janice Baars, and George M. Zeimens

## INTRODUCTION

During recent excavations at the Maneater Cave site (Zeimens and Baars 1996) a number of slab-lined pit features were encountered (Figure 1). All appear to have been used as fire hearths. Three of these yielded corrected radiocarbon dates of BC 4080 (Beta 84881), BC 4340 (Beta 86401), and BC 4320 (Beta 85550). Located adjacent to some of the slab-lined features were shallow basin-shaped depressions. The hardened floor and blackened zone on the inside surface of these depressions indicate that they had also been heated. In three cases, a flat rock was present immediately adjacent to the basin-shaped depression (Figure 2). Similar features were encountered during excavations of the Yarmony Pit House site (Metcalf and Black 1991), and other Early Archaic and Late Paleoindian sites.

Because of questions about the function of these pit features and the associated basin-shaped depressions, we decided that an experimental hearth of the same design might shed light on the use and function of these slab-lined features.

## FIRE PIT CONSTRUCTION

The fire pits at Maneater Cave ranged from 25 x 38 centimeters wide and 24 centimeters deep, to 52 x 60 centimeters wide and 45 centimeters deep. The experimental fire pits were constructed within this size range. Experimental fire pit number one was constructed 38 x 33 centimeters wide and 31 centimeters deep with a usable volume of 22.2 liters, and the second experimental fire pit was built 35 x 36 centimeters wide and 32 centimeters deep with a usable volume of 21.23 liters (Figure 3). The associated basin-shaped depressions were included in both fire pit models. One measured 26 x 30 centimeters wide and eight centimeters deep, and the other 28 x 31 cm wide

and eight centimeters deep.

The sides of the experimental fire pits were lined with flat limestone slabs ranging from three centimeters to seven centimeters thick. One of the tests necessary during the functional analysis of the experimental fire pits was the measurement of temperatures at various locations in both the deep experimental fire pit and the shallow basin-shaped feature. To aid in measuring temperatures in the experimental fire pits, probe sockets were installed through one side of the experimental fire pit wall. The sockets were constructed of 3/8 inches inside diameter tubing with one end closed by either silver soldering or by welding a small plate over the end. During use, the closed end was extended into the hearth and the probe of the pyrometer was inserted into the tube with the pickup end resting against the closed end (Figure 4). The high temperatures at the center of the experimental fire pit melted the silver solder and warped the copper tubing so only steel tubing was usable at temperatures over 645 degrees C.

During excavations of several slab-lined pits at Maneater Cave, large course-grained flakes of material similar to the slabs were present near the feature. No large, shaped or prepared heavy digging or chopping tools were found. During the construction of the experimental fire pits, it was necessary to shape the slabs for lining both the walls and the bottoms. The reduction debris produced from this fitting were found to match the general shape and size of similar fragments found in the Maneater site (Figure 5). These reduction flakes have the typical bulb of percussion on one side with the opposite side displaying a semi-sharp edge suitable for digging and shaping the hole for the construction of the hearth.



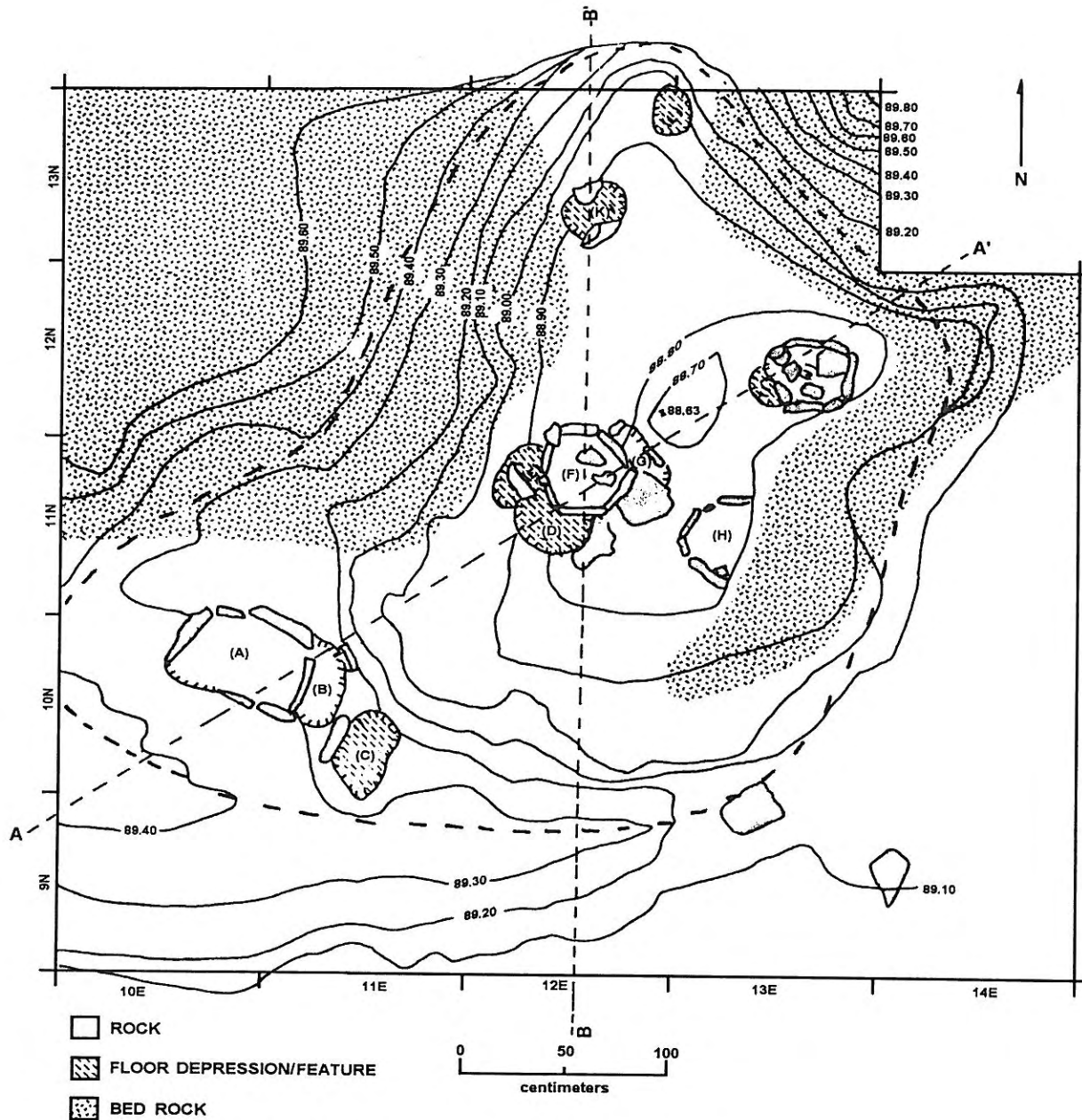


Figure 1: Plan view of fire pits and associated features at Maneater Cave.

**FIRING AND FUEL**

During the fire building process a small kindling fire was built in the bottom center of the experimental fire pit. Wood of one to two centimeters in diameter was added as fuel until a coal bed was formed, then gradually the size of the wood was increased to five to

six centimeters in diameter. We found that this was about the largest that could be easily broken by hand or with the aid of a large stone. Temperatures were recorded at various locations in the experimental fire pits with a pyrometer probe inserted in the probe wells placed in the sides of the pit.

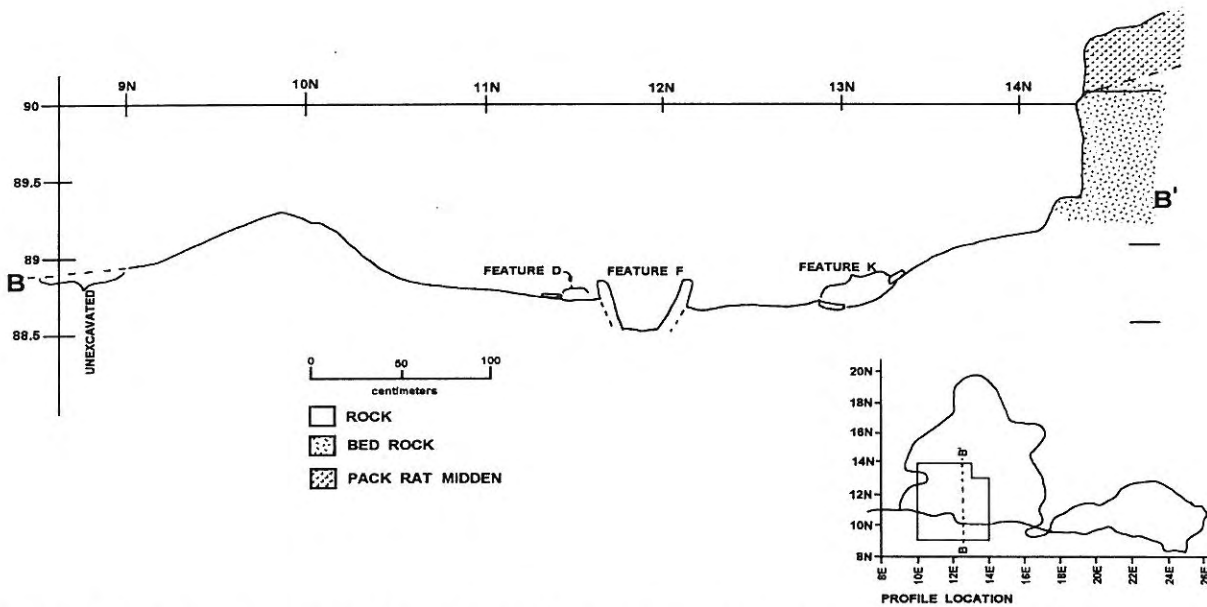


Figure 2: Surface profile across Maneater Cave, showing relationships between fire pits and associated features.

The three types of fuel used during these trials were dry pine branches high in pitch (*Pinus rigida*), dry red cedar (*Juniperus virginiana*), and green big sage (*Artemisia tridentata*). The dry dead pine branches were removed from the lower trunk areas of standing live trees, the dry dead cedar branches from live stands of trees and the big sage from flat pasture land. The green sage was found to be difficult to cut by any method. However, if the dirt was removed from the upper root area, it was easily broken off below ground level. Dead twigs and dry stringy bark from the sage were readily ignited and provide an excellent kindling material.

Both the dry pine and the dry cedar readily sustained the fire. The green sage was harder to keep ignited until the temperature at the top of the coals reached about 700 degrees C, then any added fuel was readily ignited.

Temperatures in the active fire zone fluctuated greatly with the addition of any new fuel, but as the probe became covered with live coals, fluctuations decreased and temperatures became stabilized (Figure 6). The maximum recorded temperatures for dry pine was 850 degrees C, for dry cedar was 804 degrees C, and for green big sage was 876 degrees C.

The next stage of the experiment was to test the shallow basin next to the experimental slab-lined pit. Sufficient live coals were taken from the experimental fire pit to fill the lower half of the basin. Temperatures were taken at the contact zone between the soil surface at the bottom of the basin and the coals, the center of the coals in the basin, and above the coals. Five minutes after the coals were installed in the basin, the temperature at the contact zone was 85 degrees C, far below the approximately 700 degrees C needed to make the reddish orange oxidation of the soil surface. The temperature in the center of the coals was 317 degrees C. A temperature of 226 degrees C (439 degrees F) above the coals was similar to that you would encounter in a back yard charcoal barbecue.

### FOOD PREPARATION

To explore the probable relationship between cooking times and methods and fire pit temperatures (Wandsnider m.s.), we decided to spit roast a fatty meat product over the coals in the shallow basin-shaped depression. We selected polish dogs for ease of preparation and mounting on spits placed over the coal bed. The spits rested nicely on the flat rock



Figure 3: Vertical view of experimental slab-lined fire pit used for research project. Scale = ten centimeters.



Figure 4: Experimental slab-lined fire pit with probe wells installed for taking temperatures.

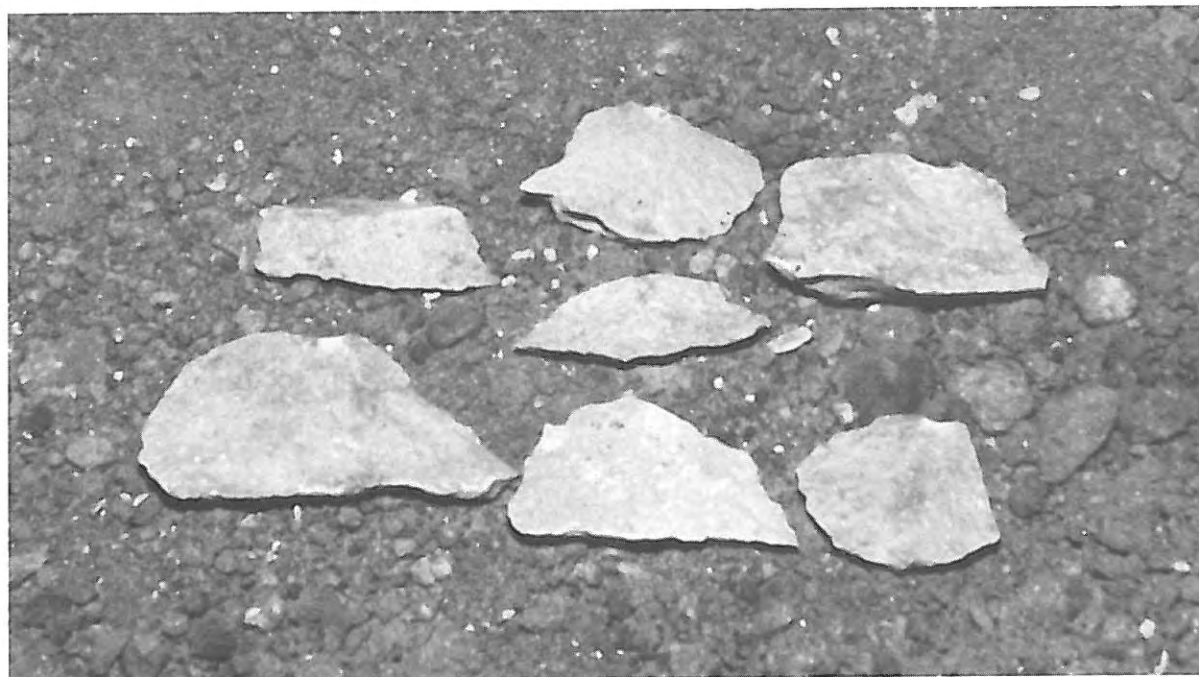


Figure 5: Reduction debris from fitting of limestone slabs into experimental slab-lined fire pit.

located adjacent to the shallow depression and held the meat product about three to five centimeters above the coals (Figure 7). Cooking time to achieve a core temperature above 180 degrees F in the meat ranged from five to seven minutes. With frequent turning the outside of the meat was not overly cooked or charred. The flavor of the meat was excellent with no bad taste from volatile gases, pine saps or pitches.

After all fuels were tried for maximum temperatures in the experimental slab-lined pit, we decided to measure the temperature in the center of the pit full of coals to see what the heat loss would be over an extended period of time. The experimental pit full of live coals was covered with approximately five centimeters of dry dirt. The temperature recorded in the center of the coals started at a high of 575 degrees C and after three hours dropped to 173 degrees C (344 degrees F) (Figure 8). The temperature drop was fairly rapid for the first hour, then gradually slowed until the test was terminated.

From ongoing research on temperature/time requirements for food preparation to derive the maximum utilization of various meat and plant food sources, the temperature curve of the covered experi-

mental pit suggested that it should be suitable for processing meats of either high fat or suspected high fat content. Heat treatment of fatty foods results in lipid hydrolysis which breaks the ester link between glycerol and a fatty acid. The resulting glycerols and short-chain fatty acids are more digestible (Wandsnider m.s.).

For baking in the experimental fire pit, two Cornish game hens were chosen with a weight of 18 ounces each for a total weight of 36 ounces or 1020 grams. One game hen was cut into four large pieces and wrapped with aluminum foil as a comparison to modern cooking practices, and the other was left whole. In place of a green or wet grass buffer, the meat was wrapped in moist terry cloth towel. During the first trial the wrapping consisted of two layers of towel, and for the second test a single layer of towel was used. The top one-third of the coals were removed from the experimental fire pit and the wrapped meat package placed in the center of the experimental fire pit with the temperature probe between the two hens and immediately above the wrapping. The entire contents of the experimental fire pit were then covered with the remaining coals and the pit covered with three

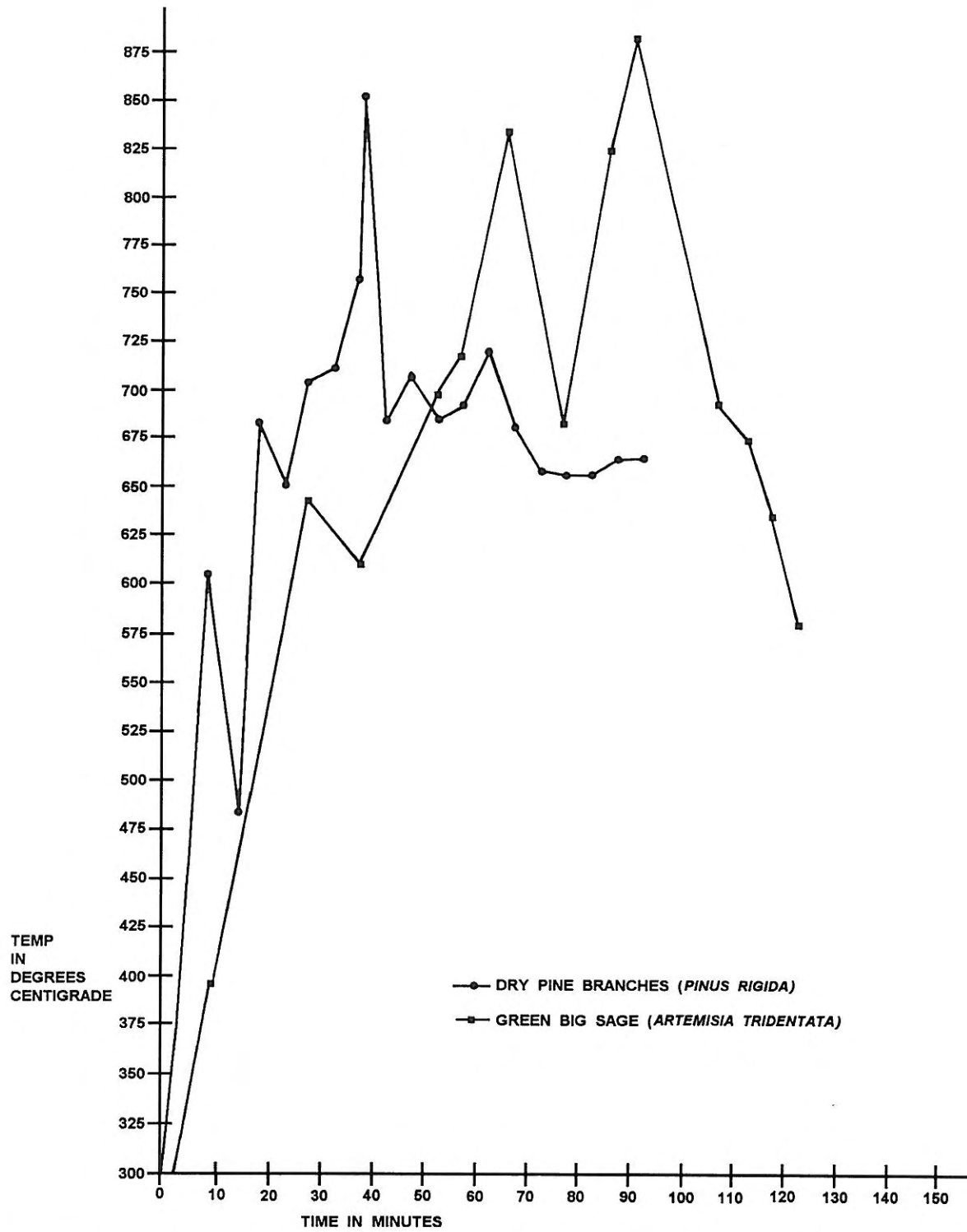


Figure 6: Time/temperature relationship for burning wood in experimental slab-lined fire pit.



Figure 7: Spit roasting over shallow experimental basin-shaped pit.

to five centimeters of dry dirt (Figure 9).

The initial temperatures at the probe were quite low as they reflect the zone between the damp towel and the coals, the cold meat and damp towel causing the temperature next to the meat packet to drop. As the meat and wrapping material heated, the temperature gradually rose to a peak then began a gradual

descent (Figure 10). The first trial ended at 122 minutes after covering the meat packet with coals. The articulated bird had a high temperature of 194 degrees F in the breast. The disarticulated and foil wrapped bird had a high temperature of 184 degrees F in the breast. This is at or above the 180 degrees F to 185 degrees F now recognized as sufficient to

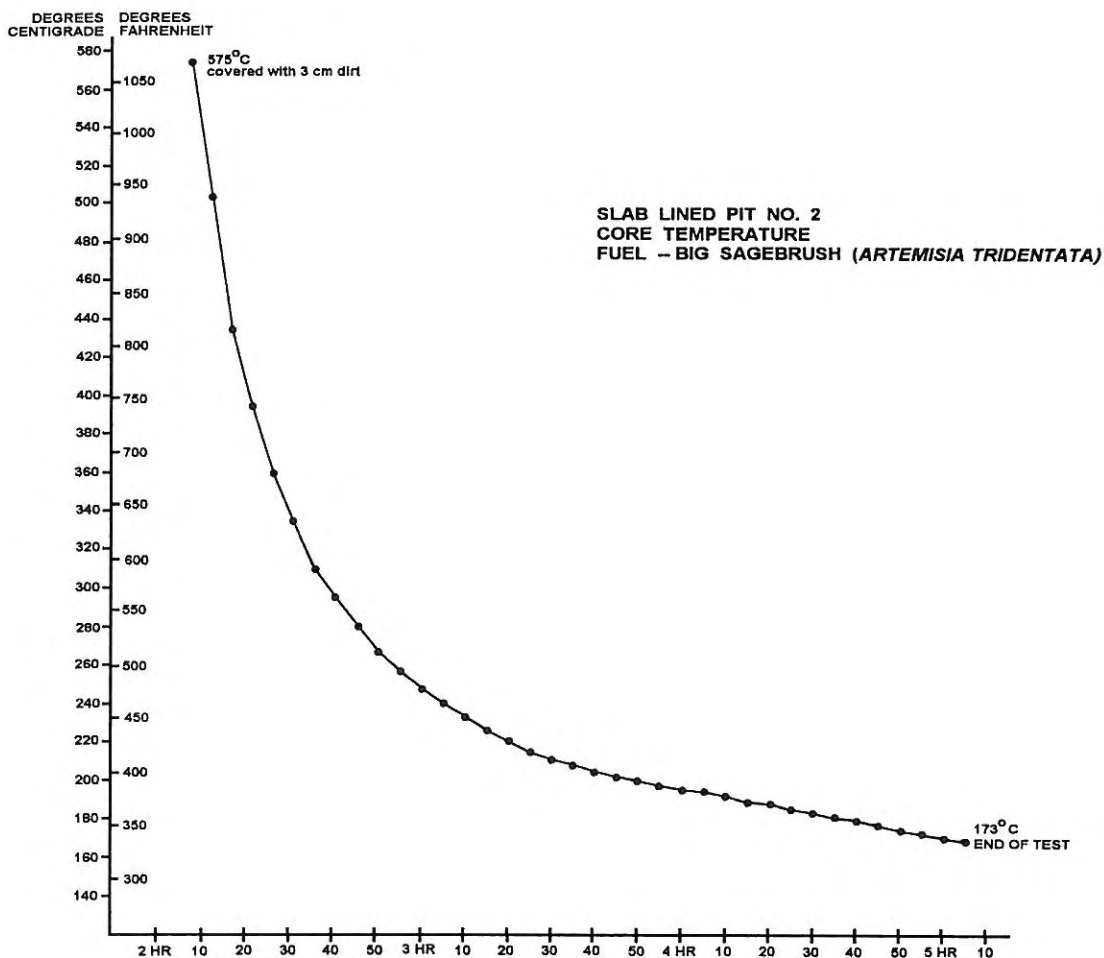


Figure 8: Descending temperature curve for experimental covered slab-lined pit.

insure killing microorganisms in poultry (USDA 1971). The meat of both birds was tender, flavorful, and moist. The second trial remained in the covered experimental fire pit for 110 minutes. The articulated bird reached a temperature of 196 degrees F in the breast and the disarticulated bird a temperature of 203 degrees F in the breast (Figure 11). Both were tender and flavorful, however, the breast meat was slightly dry. In both tests, the towel became heavily scorched in the folded areas, but no part of the meat was burned. The second layer of towel used on the initial test provided added insulation and lowered the final

temperature of the first birds. We feel that all the cooking tests were successful. However, further tests need to be completed with a variety of materials such as grasses and leaves used as a buffer between the coals and the food. A greater variety of lean to fatty meats and vegetable products need to be cooked and the times required to convert the starches, carbohydrates, and complex sugars recorded. The performance of fuel types such as grasses, chips, and wood from various brushes need to be further evaluated.





Figure 9: Experimental slab-lined fire pit full of live coals covered with five centimeters of dry earth.

#### DISCUSSION AND CONCLUSIONS

The slab-lined fire pit is very fuel efficient. The caloric output from smaller sized fuel is efficiently utilized in this contained area. The walls and floor of the slab-lined pit hold the heat in the coals very well. When the temperature at the center of the coals was 740 degrees C, the temperature at the outer side of the limestone slab was only 166 degrees C. When the experimental fire pit full of coals was covered with dry dirt, the heat loss in the core was kept to a minimum. When the fuel level was beneath the lip of the experimental fire pit, the air for combustion flowed over the rim of the pit, down the sides, and fed the combustion process. Heat was directed upward without excessive heat radiating to the sides.

The shallow basin did an excellent job of barbecuing. It also proved to be a good temporary containment area for coals removed from the larger experimental fire pit so a food packet could be placed in the center and covered by coals.

In regions of limited fuel supply, the slab-lined pit is a conservative fuel user. The fill of prehistoric slab-lined fire pits which contain no rocks may indi-

cate that those pits were used as ovens. High concentrations of pollens and phytoliths in the pit fill may indicate what material was used as a buffer between the coals and the food packet. The high heat created during use keeps the lower walls quite clean with little or no soot and carbon buildup on the walls.

If the surrounding matrix is loose and the area subjected to moderate to high winds, an empty pit will be rapidly filled with dirt, small pieces of charcoal, and ash. Analysis of large, coarse-grained rock flakes may show that they were removed from the slabs to assist in fitting the slabs to the pit walls and floor. Edge wear analysis would assist in determining if these flakes were used in digging the pit.

The shallow basin will produce a baked floor but probably will not produce oxidized sides. Flat rocks found adjacent to the shallow basins may indicate spit roasting or other stages of food preparation.

Though they are the most common archaeological feature on the High Plains, fire pit features are a poorly understood phenomenon. For example, little is known about the relationship (if any) between function and various pit styles. Nor is much known about

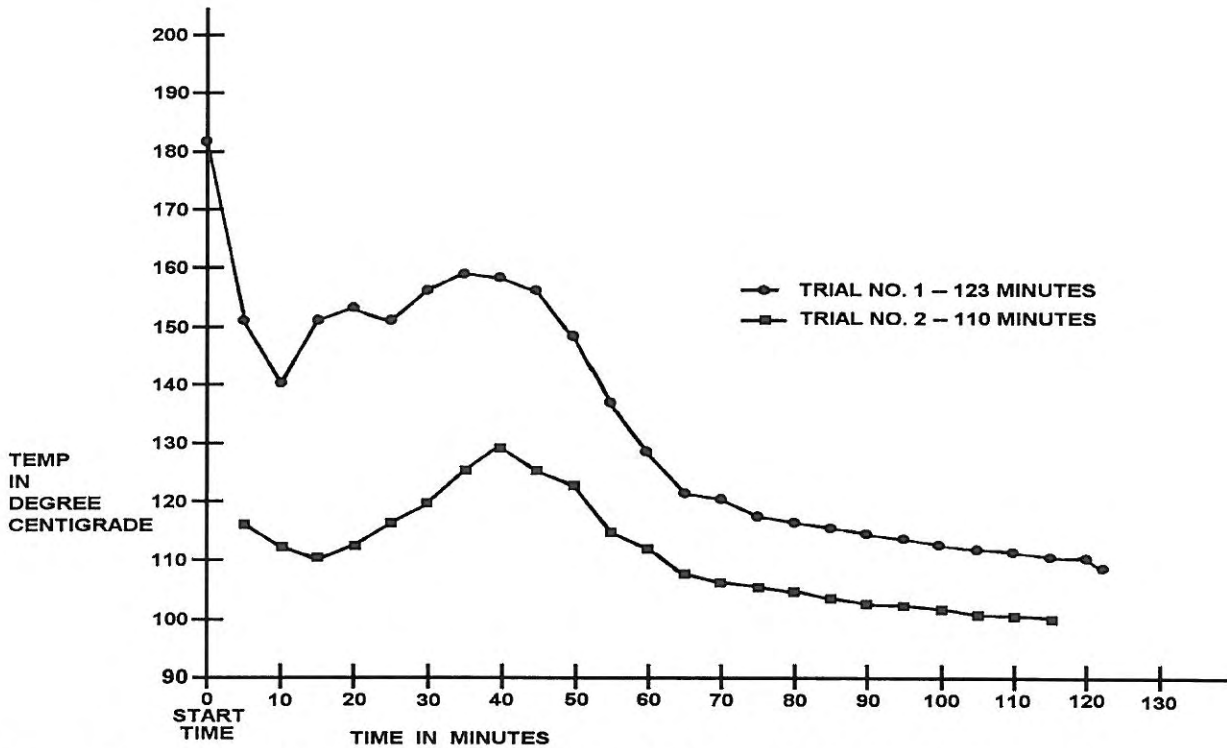


Figure 10: Temperature curves during baking of food packets in experimental slab-lined fire pit.

differences in styles and how they relate to geographical and temporal distributions or the degree to which they reflect subsistence and settlement strategies.

As was anticipated, the experiment described above raised more questions than it answered. New questions should guide modifications in research methods and reporting of fire pit features.

**ACKNOWLEDGMENTS**

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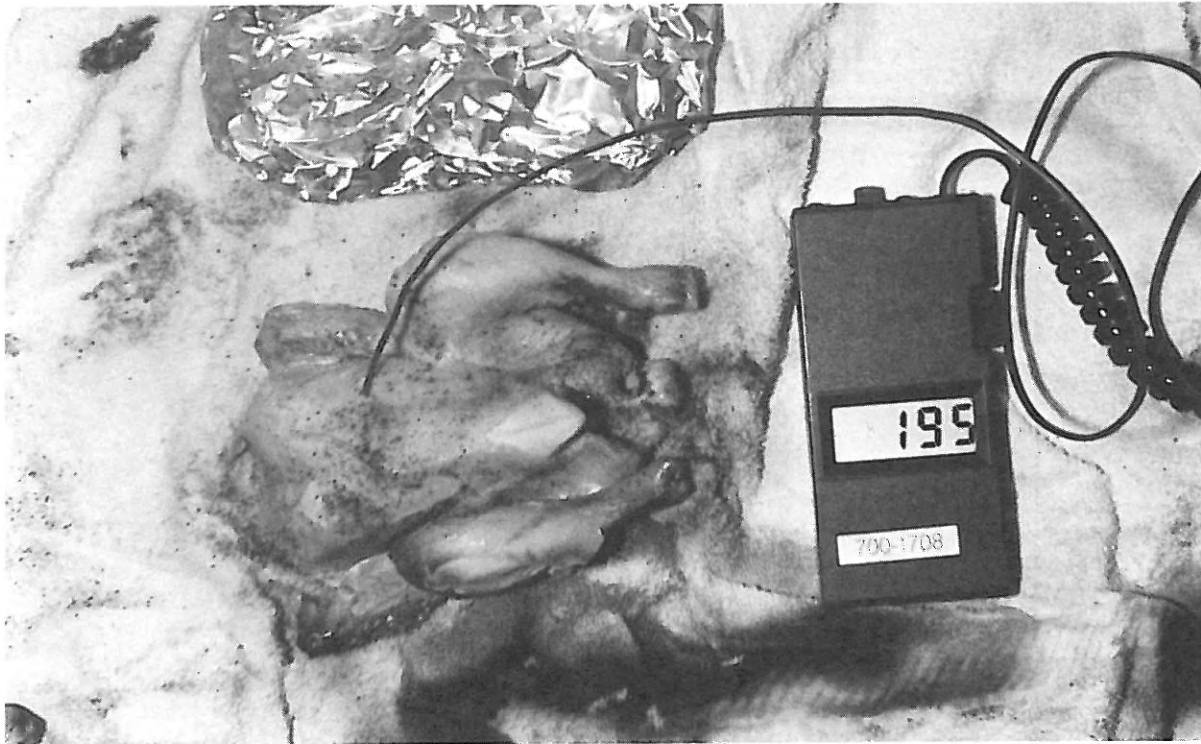


Figure 11: Temperature of cooked game hen after removal from experimental slab-lined fire pit.

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# LOST SOMEWHERE IN THE MIDDLE-RANGE: CURRENT TRENDS IN NORTH AMERICAN ARCHAEOLOGY

by  
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## ABSTRACT

More than thirty years have passed since the ideas of New Archaeology swept through the discipline. Since then, archaeologists have made many advances in archaeological methods and theory. Reviewing the present literature, however, I question if the current trends in North American archaeology are still a part of the New Archaeology's research program. In this paper I first review the developmental stages that New Archaeology has gone through, and then suggest where American archaeology stands within that historic framework:

## INTRODUCTION

Many of today's young archaeologists, including myself, find it difficult to imagine anything but New Archaeology approaches to understanding the past. From the time one enters the discipline, we fill our minds with ideas such as middle-range research, formational processes, actualistic studies, and model building. Staying up-to-date on current literature requires reading from fields diverse as geoarchaeology, ecological anthropology, taphonomy, and ethnoarchaeology, to name a few. We learn we are not only responsible for interpreting past human behavior, but must also account for noncultural aspects of the archaeological record.

As one delves deeper into the literature, however, we must question if current trends in North American archaeology are still part of New Archaeology's original research program. This paper reviews New Archaeology's development from its conception in the late 1950's to the present, and discusses how current trends "fit" into New Archaeology's original research program.

I divide New Archaeology's history into three

phases: early (ca. 1962-1970), middle (ca. 1971-1980), and late (ca. 1981-present). Dates associated with each phase represent points in time when ideas that had been developing for sometime became widely used by professional audiences. This discussion is not a comprehensive review of New Archaeology literature. I select only those works important to the arguments made in this paper. This is not to say other works are unimportant or played no significant role in New Archaeology's development. Rather, my broader purpose is to understand why and how American archaeology gradually drifted away from New Archaeology's original research program.

## HISTORICAL DEVELOPMENT OF NEW ARCHAEOLOGY

The archaeological perspective that gained widespread acceptance in the early 1960s has roots nearly thirty years before. A handful of American archaeologists were calling for change in both methods and theory as early as the mid-1930s. For example, William Strong (1936) argued that ethnographies could provide theoretical leads to aid archaeological interpretations. Kluckhohn (1936, 1940) urged archaeologists to choose between historical studies that attempted to recreate events in all their idiosyncratic detail and scientific research that sought to understand significant trends in cultural change. Similarly, Steward and Seltzer (1936) claimed archaeologists should seek to understand cultural change through an ecological analysis of human behavior. Archaeologists made such arguments well into the late-1950s (Bennett 1943, 1946; Taylor 1948; Spaulding 1953; Caldwell 1959; Asher 1961). However, because great enthusiasm surrounded the then current cultural-historic approach, these efforts gained little support.

**THE EARLY PHASE: 1962-1970**

While early attempts to change American archaeology turned few heads, Lewis Binford sent heads spinning when he stepped atop the theoretical soapbox in 1962. In the seminal publication, *Archaeology as Anthropology*, Binford (1962) claimed the cultural-historic paradigm, along with its normative view of culture, failed to accomplish the traditional goals of archaeology. Binford argued such an approach lacked the theory to delineate cultural processes, and the methods to explain cultural histories and past life ways. In short, American archaeology was not shouldering its full responsibility within Anthropology.

Binford's arguments were not new. However, by the early 1960s many American archaeologists were frustrated with the results gained from a cultural-historic approach. The idea that the past was knowable seemed a breath of fresh air to many archaeologists. Three major developments characterize the Early Phase: 1) a conscious move away from cultural-historic paradigm, 2) a new definition of culture, and 3) an increased interest in the philosophy of science.

In a flurry of publications, Binford (1962, 1964, 1965, 1967, 1968a, 1968b), Longacre (1963), Hill (1965), and Flannery (1967), to name a few, showed "traditional" approaches could not fully explain the archaeological record. Using new methods, they began addressing anthropologically significant issues rather than simply reconstructing cultural histories. For example, Longacre (1963) and Hill (1965) used stylistic variations in pottery to address residential patterns and social organization at the Carter Ranch Site and Broken K Pueblo respectively. Flannery (1967) employed principles of General Systems Theory to explain the development of plant domestication in Mesoamerica.

As New Archaeologists began addressing anthropologically significant questions, they realized a normative view of culture was inadequate. Binford argued a normative view of culture:

tacitly assume that artifacts, regardless of their functional context, can be treated as equal and comparable "traits." Once differences and similarities are "defined" in terms of these equal and comparable "traits," interpretation proceeds within something of a theoretical vacuum that

conceives of differences and similarities as the result of "blending," "directional influences," and "stimulation" between and among "historical traditions" defined largely on the basis of postulated local or regional continuity in the human population (Binford 1962:218).

If archaeologists hoped to move beyond simply constructing cultural histories, they needed a new definition of culture. Following White (1959:8), New Archaeologists defined culture as human's extrasomatic means of adaptation, consisting of three interrelated subsystems: technological, sociological, and ideological. Binford (1962) argued that because any material item has its primary functional context within one of these subsystems archaeologists could understand them as different technological units: technomic, sociotechnic, and ideotechnic. Technomic artifacts are associated with coping directly with the physical environment. Sociotechnic artifacts are associated with the extrasomatic means of social cohesion and group organization. Artifacts that symbolize the ideological rationalization of a social system are ideotechnic. This definition not only explained the organization of cultural systems, but more important, allowed archaeologists to explain human behavior and cultural processes from archaeological remains.

The archaeologist's job then was to develop theoretical models that could identify the cultural subsystem that artifacts had their primary functional context. However, early attempts at model-building produced more questions than answers. Arguing the archaeological record was a contemporary phenomena, archaeologists were quickly faced with how to make reliable statements about past behavioral systems. This problem caused a resurgence in the interest of ethnographies and analogy.

Binford (1967) argued "traditional" archaeologists had used ethnographic analogy as an end, when in reality it was the starting point. Although ethnographic accounts could not be used for direct inferences, they could aid in producing generalization about cultural phenomena and material culture. These generalizations could then be used to make statements about the archaeological record. However, Binford (1967, 1968b, 1968c) argued these statements must be testable with evidence from both the archaeological record and ethnographic data.

As archaeologists started using ethnographic data, they questioned the accuracy of their inferential statements. It was at this point that New Archaeologists turned to philosophy. The philosophical school of empirical positivism swept through many disciplines during the mid-1960s (Gibbon 1989). The attraction for many social sciences was that this approach concentrated on *how* to make reliable statements. Termed deductive-nomological (e.g., Hempel 1966), this approach offered a step-by-step method for constructing arguments to test general statements that connect two variables. Attempting to make archaeology a scientific discipline, advocates of New Archaeology quickly adopted the deductive-nomological approach (e.g., Binford 1968a). The goal was not only to test anthropologically significant questions, but by doing so archaeologists could establish archaeological laws.

One could characterize Early Phase methodologies as "let's keep trying until we get it right." Only through trial and error were new methods developed. No handbook told archaeologists which methods were best.

#### **MIDDLE PHASE: 1971-1980**

Four important publications separate the Middle Phase from the Early Phase. These are: *Explanation in Archaeology* (Watson et al. 1971), *For Theory Building in Archaeology* (Binford 1977), *Behavioral Archaeology* (Schiffer 1976), and *Nunamiut Ethnoarchaeology* (Binford 1978b).

In *Explanation in Archaeology* (Watson et al. 1971), Watson and colleagues argued that hypothesis formation was an inductive inference from archaeological material and had no place in a strictly scientific, deductive approach. Based on these arguments, they pulled away from Binford's suggestion that archaeologist's priority should be to test archaeological laws. Watson and colleagues (1971) viewed "testing" to mean the testing the accuracy of explanatory statements.

*Explanation in Archaeology* spends a considerable time discussing the philosophical basis of what they still called New Archaeology. There was, however, a great deal of misinterpretation of both Carl Hempel's (1966) text and Binford's original research program. As stated above, they argued there was no room for inductive arguments in a "strictly scientific" approach. However, Hempel

(1966:14) explicitly shows that inductive arguments are the basis for hypothesis formation, and that only when a hypothesis is formulated does deductive reasoning become important.

In retrospect, Binford notes that because of the widespread circulation and attention given to Watson et al. (1971):

there arose a view of the new archaeology as a school dedicated exclusively to the testing of propositions within a deductive-nomological framework using a covering law model of explanation. Ironically, the failure to analyze the particular problems of inference that archaeologists have to face ensured that this is the very thing that archaeologists cannot do as long as they sought to use the archaeological record as their empirical domain for testing (Binford 1983:16).

The next influential publication during the Middle Period was Michael Schiffer's (1976) *Behavioral Archaeology*. This text not only offered new methods for understanding and explaining cultural processes, but also recognized the importance of natural factors in the archaeological record's formation. Schiffer argued:

that archaeological remains are a distorted reflection of a past behavioral system. However, because the cultural and non-cultural processes responsible for these distortions are regular, there are systematic relationships between archaeological remains and past cultural systems (Schiffer 1976:12).

Schiffer purposed several methods to delineate between what he called C-transforms (cultural) and N-transforms (natural), both of which play a significant role in an archaeological site's formation. From my reading of Schiffer (1976), Schiffer believed that understanding site formational processes was a necessary first step in archaeological interpretations. Only when archaeologists understood the activities, both natural and cultural, that "distorted" the contemporary archaeological record, could discussions of past human behavior proceed.

One would think Schiffer's work would have pleased Binford. However, Binford could not get past Schiffer's idea that cultural processes "distorted" the archaeological record. For example, Binford

states:

It is clear from Schiffer's statement that he considers C-transforms potentially distorting. From my perspective, archaeologists must understand formation processes -- the dynamics of cultural systems that yield derivative residues both in properties of form and spatial distribution -- while from Schiffer's perspective, archaeologists must identify distortions between the "systemic" and the "archaeological" contexts (Binford 1981:200).

It is unfortunate that the differences between Binford and Schiffer sparked such a bitter debate since I think both misunderstood what the other was attempting to say.

Soon after the publication of *Explanation in Archaeology* (Watson et al. 1971) and *Behavioral Archaeology* (Schiffer 1976), Binford attempted to refocus the discipline's understanding and use of the term "explanation" with the publication of *For Theory Building in Archaeology* (1977). Although Binford had earlier urged archaeologists to develop methods to generate archaeological theories, he now realized these methods were different from those needed to assess general theory (e.g., 1977, 1978a, 1978b). Building on the earlier argument (e.g., Binford 1965) that the archaeological record was a contemporary phenomenon, Binford (1977) argued there was a need for theory building on two levels: middle-range and high-range (or general theory).

In archaeological terms, the artifactually based observations we make are considered low-range theories. These theories are highly speculative and tentative at best. They are empirical statements about observed phenomena in the archaeological record resulting from field work. Archaeology is concerned with making meaningful, anthropologically oriented, statements about past human behavioral systems, which are high-range theories. Binford (1977) argued the focus of model-building needed to be directed toward developing "bridging arguments" or middle-range theories. "Middle-range theory is made up of ideas, models, and other interpretative assumptions necessary to structure a link between the low-level artifactual observation on the one hand and the high-level general theories on the other" (Bell 1994:16).

Binford (1977) proposed that once archaeologists

understood the processes responsible for the archaeological record's formation they could be used to make significant statements about cultural processes and organizational properties of living systems. "Only with developments in both general and middle-range theory can the scientific method be appropriately employed" (Binford 1977:37).

Binford's *Nunamiut Ethnoarchaeology* (1978b) offered archaeologists an example of what he meant by "middle-range research" and showed how it might be applied to high-range theory. This text played a pivotal role in the directing New Archaeology, causing two important trends. First, an increased interest in ethnoarchaeology, and second, the importance of taphonomic research in faunal studies, both of which still play an important role in American archaeology.

#### **LATE PHASE: 1980-PRESENT**

What began as a paradigmatic revolution had, by the early 1980s, become a revolution in methodology (Moore and Keene 1983:4). American archaeologists had engraved into their minds that the past was knowable. They believed they now had the methods needed to explain past human behaviors. Schiffer (e.g., 1976) had offered the tools needed to understand site formational processes, and Binford (1978b) had spurred an interest in both ethnoarchaeology and the importance of taphonomy.

Archaeologists now realized there was a wealth of information in the archaeological record and that it was much more complex than previously thought (e.g., Rapson 1990, Todd 1983). These two realizations quickly spurred an interest in understanding "formational processes." However, whereas in the Middle Phase the term "formational processes" was most closely associated with Schiffer's *Behavioral Archaeology* it now took on a new meaning. Studies ranging from natural disarticulation patterns of bison (e.g., Burgett 1990), and landscape-scale archaeology (e.g., Wandsnider 1989) were often discussed within the context of "site formational processes." This is not to say these studies were not productive. In fact, they took American archaeology to a new level. These advances greatly increased the resolution with which we can view the archaeological record. We are now able to reconstruct, in much greater detail, *what* occurred in the past and *when*. However, in what I think was a grave misinterpretation of the

purpose of middle-range theory (as defined by Binford), American archaeologists began viewing the subject matter of "formational processes" and "middle-range research" as the same. The current trends in American archaeology have added little to our ability to explain *how* or *why* these activities took place, nor have we greatly increased our ability to address long-term changes in cultural forms. As Moore and Keene (1983:4) state, "In our rush to demonstrate that the past is knowable, little effort was directed toward demonstrating that the past was understandable."

### CURRENT STATUS OF NORTH AMERICAN ARCHAEOLOGY

I began this paper by questioning if the current trends in North American archaeology are still part of the original "New Archaeology's" research program. However, from a historical perspective this question is difficult to answer with a simple 'yes' or 'no'.

The current trends in North American archaeology are part of New Archaeology's original research program because processual archaeology is still in its infancy as a school of thought. The whole of the New Archaeology's history has been characterized by an attempt to lessen our ignorance of the archaeological record. American archaeology is still very much a part of the "let's keep trying until we get it right" standard that characterized the Early Phase.

In an attempt to expose our ignorance, however, we continue to drift further away from explaining general anthropological theory. In this sense we are no longer part of the original New Archaeology research program. As has been the case throughout New Archaeology's history, current trends are the result of accumulating ideas and methods. More often than not, archaeologists have misinterpreted and misused these methods.

In one of the most seminal publications to come out of the New Archaeology movement, Binford said that:

as archaeologists, with the entire span of culture history as our "laboratory," we cannot afford to keep our theoretical heads buried in the sand. We must shoulder our full share of responsibility within anthropology (Binford 1962:224).

If American archaeologists hope to fulfill this

obligation -- and it is an obligation -- we must reassess the purpose of 'middle-range theory'. Even some of the most respected archaeologists have still failed to grasp the purpose of middle-range theory. It is rare to find an author discussing how their "middle-range" research helps explain an important anthropological problem.

### CONCLUSIONS

Moore and Keene best characterized the whole of New Archaeology's history in the following passage.

In reviewing the advances within archaeology, the Law of the Hammer comes to mind. Stated in its most elementary form, the law predicts that given a hammer, a young child will find the world poundable (Kaplan 1964). The image of the hammer provides a robust metaphor for much of contemporary archaeology. Methods are tools . . . although the methods we use are often appropriate to the task, too frequently a given method is used because it is the tool currently in hand (Moore and Keene 1983:4).

As we have seen, the development of models has been the central purpose of the New Archaeology. However, archaeologists have misinterpreted and misused many methods. If methods are our tools, as Moore and Keene suggest, then American archaeologists currently have an excellent tool belt. With the vast array of methods archaeologists have developed over the past three decades, American archaeologists are more ready than ever to begin high-level theory building.

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