1993

ROCKY MOUNTAIN

ANTHROPOLOGY CONFERENCE

JACKSON, WYOMING

SEPTEMBER 30 - OCTOBER 2

FIRST
ROCKY MOUNTAIN
ANTHROPOLOGY CONFERENCE

PROGRAM & ABSTRACTS

SEPTEMBER 30 - OCTOBER 2, 1993
VIRGINIAN LODGE AND CONVENTION CENTER
JACKSON, WYOMING

SPONSORED BY

U. S. FOREST SERVICE, INTERMOUNTAIN REGION

UTAH DIVISION OF STATE HISTORY

METCALF ARCHAEOLOGICAL CONSULTANTS

FIRST
ROCKY MOUNTAIN
ANTHROPOLOGY CONFERENCE

PROGRAM CHAIR:

DAVID B. MADSEN
Antiquities Section, Utah Division of State History

ORGANIZATION:

MICHAEL D. METCALF
Metcalf Archaeological Consultants

LOCAL ARRANGEMENTS:

JAMIE SCHOEN
Bridger-Teton National Forest

COVER ART:

SUSAN MARSH
Bridger-Teton National Forest

FIRST
ROCKY MOUNTAIN
ANTHROPOLOGY CONFERENCE

SCHEDULE

Thursday Afternoon, September 30

1:00 - 5:00 PM	Wyoming Association of Professional Archaeologists, Buffalo Room

Thursday Evening, September 30

5:00 - 10:00 PM	Conference Registration, LOBBY
7:00 - 10:00 PM	Welcome Social and Cash Bar, sponsored by WAPA

Friday, October 1

7:30 AM - Noon	Conference Registration, LOBBY
8:30 AM - 5:00 PM	Publishers' Displays, LOBBY
8:30 AM - Noon	Plenary Session
1:30 PM - 4:30 PM	Presentation of Papers
7:00 PM - 9:00 PM	Buffet and Organizational Meeting, Main Conference Room

Saturday, October 2

8:30 AM - 5:00 PM	Publishers' Displays, LOBBY
8:00 AM - 4:30 PM	Presentation of Papers

PROGRAM

FRIDAY MORNING (10/1/93)

Symposium I - Buffalo Room
Plenary Session: Human Use of High Altitude Environments
Chair: David B. Madsen (Utah Antiquities Section)

8:30 AM	**Robert L. Bettinger** Alpine Villages in the White Mountains: Implications for Adaptive Change
9:00 AM	**David H. Thomas** The Higher You Get, The Higher You Get
9:30 AM	**David W. Zeanah** Transport Costs, Central Place Foraging, and Alpine Land Use Strategies
10:00 AM	**David B. Madsen** Differential Transport Costs and High Altitude Occupation Patterns in the Uinta Mountains, Northeastern Utah
10:30 AM	**George C. Frison** Large Animal Behavior and High Altitude Faunal Assemblages
11:00 AM	**Michael D. Metcalf** Mountains and Mobility: Archaic Settlement in the High Country
11:30 AM	**Discussion/questions**

FRIDAY AFTERNOON (10/1/93)

Symposium II - Buffalo Room
North of Forty: Current Research in the Rocky Mountains of Montana and Alberta
Chair: Brian C. Vivian (University of Calgary)

1:30 PM	**Mel A. Reasoner** The Late Pleistocene - Holocene Environmental History of the Central Canadian Rocky Mountains
1:50 PM	**Don Hanna and Brian C. Vivian** Seeking Simplicity in "Complex" Communal Hunting: A View from the Top-of-the-World
2:10 PM	**Brian Ronaghan** Early Prehistoric Occupations in the Front Ranges of the Canadian Rocky Mountain Front Ranges: Preliminary Results of the James Pass Project
2:30 PM	**Brian Reeves** Mistakis (The Back Bone) Revisited: Piikani and K'tunaxa Oral History and the Northern Rockies Archaeological Record
2:50 PM	**Break**
3:00 PM	**Benjamin S. Munger** Whitebark Pine: A Prehistoric Food Source at Timberline in the Bitterroot Mountains of Montana
3:20 PM	**Brian Reeves and Brian C. Vivian** Thawing the Ice: Discovering the Native American Archaeological Resources of Glacier National Park
3:40 PM	**Alston V. Thoms** Bulk-Processing Features as Evidence of Land-Use Intensification in the Northern Rockies
4:00 PM	**Brian C. Vivian** From Plains to Passes in the Rocky Mountains

Symposium III - Pioneer Room

Nine Mile Canyon

Chair: Ray Matheny (Brigham Young University)

1:30 PM **Jerry Spangler**
Site Distribution of East Nine Mile Canyon to the Green River

1:50 PM **Margene Hackney**
Site Clustering and Settlement Patterns in Nine Mile Canyon, Utah: Observations of the Castle Valley Chapter, Utah Statewide Archaeological Society

2:10 PM **Patty A. Thompson**
Excavations in Nine Mile Canyon: from 1896 to 1990

2:30 PM **Pam Miller and Blaine Miller**
Absence Makes the Head Search Longer: A Study of Artifacts from Nine Mile Canyon

2:50 PM **Break**

3:00 PM **Susan G. Miller and Stephen Ell**
Human Remains from Site 42Ca584: A Descriptive Report from Nine Mile Canyon

3:20 PM **Scott Woodward**
DNA Analysis of a Fremont Burial in Nine Mile Canyon

3:40 PM **Ray T. Matheny, Tom Smith, and Deanne G. Matheny**
Animal Ethology in Nine Mile Canyon Rock Art

4:00 PM **Ray T. Matheny**
The Archaeology of Nine Mile Canyon: a Preliminary View

General Session I - Frontier Room

Contributed Papers

Chair: Kevin Jones (Utah Antiquities Section)

1:30 PM **Steven Daron**
The Post Office Dump Site [48YE73] Yellowstone Lake Area, Yellowstone National Park

1:50 PM **A. Dudley Gardner and David Johnson**
Archaeological Excavations at Fort Bridger

2:10 PM **Ronald V. May**
Incident at Bear River Road; Another Chip at Chinatown

2:30 PM **Dave F. McKee**
Historic Logging in the Sierra Madre Mountains of Southern Wyoming: Preliminary Investigation of Historic Settlement Patterns

2:50 PM **Break**

3:00 PM **Anne Merkley**
Cultural Contrast and Material Change in the Wrensted-Garvey Photographs of Northern Shoshone and Bannock Indians

3:20 PM **Steven G. Baker**
Modeling for Historic Eastern Ute Culture Change

3:40 PM **Patrick M. Lubinski**
Changing Patterns of Pronghorn Antelope Exploitation in the Wyoming Basin

4:00 PM **Dirk Murcray**
The Upper Powder Spring Hunting Complex: Evidence for Large Scale Communal Hunting During the Late Prehistoric and Protohistoric in Southwest Wyoming

General Session II - Carriage Room

Contributed Papers

Chair: Michael Metcalf (Metcalf Archaeological Consultants)

1:30 PM **Richard Dunn** U of Montana
Searching Methodology for Upland Settlement Literature and Source Material on High-Altitude Occupations

1:50 PM **Karin Guernsey** OWSA
Prehistoric Fire Pits in Wyoming

2:10 PM **Wilfred M. Husted** Mont Archaeological Assoc.
The Altithermal, Population Reductions and the Rocky Mountains: Seeing the Forest and the Trees

2:30 PM **Raymond Kunselman**
Obsidian Utilization Studies: Source Variation at the Jackson National Fish Hatchery Site [48TE1291]

2:50 PM **Break**

3:00 **Stan McDonald** Manti-La Sal NF
A Preliminary View of Archaic Use of the Wasatch Plateau Uplands, Central Utah

3:20 PM **David Vlcek** BLM
Prehistoric Settlement Patterns Reflected in the High Altitude Sites of the Upper Green River Basin

3:40 PM **Yvette Widman** OWSA
Trapper's Point: An Early Plains Archaic Antelope Bonebed

4:00 PM **James Winfrey** Challis NF
Preliminary Results of Excavations at PY-060; a Multi-component Site Located on the South Fork of the Salmon River, Idaho

SATURDAY MORNING (10/2/93)

Symposium IV - Pioneer Room

Geoarchaeology in the Rocky Mountains

Chair: William Eckerle (Western GeoArch Research)

8:00 AM **William Eckerle**
Introduction

8:10 AM **James C. Miller**
Character of Carbonate Depositions in Rocky Mountain Basins and Foothills, and Portions of the Great Plains: A Re-evaluation of Climatic Association and Significance

8:30 AM **Michael C. Wilson**
Geoarchaeological Model for Paleoindian Site Discovery

8:50 AM **Kenneth L. Pierce**
Geologic Setting of Archaeological Sites in the Jackson Lake Area, Wyoming

9:10 AM **Mary Lou Larson**
The Archaeology of Geoarchaeology: Geoarchaeology as a Two Way Street

9:30 AM **Robert R. Mierendorf**
Consideration of the Stratigraphic and Geomorphologic Occurrence of Forager Archaeological Assemblages of the Northern Cascade and Rocky Mountain Ranges of the USA

9:50 AM **Break**

10:00 AM **Mort D. Turner, Marvin T. Beatty, Robson Bonnichsen, and Joanne C. Turner**
Geoarchaeology of the Mammoth Meadow Fan Site of Everson Creek/Black Canyon Quarry Complex, Southwestern Montana

10:20 AM **Stanley G. Van Dyke and Frances J. Hein**
The Archaeology and Sedimentology of the Welsh Locality, A Late Paleoindian Killsite in Southwest Alberta, Canada

10:40 AM **William Eckerle**
The Soil Conservation Service Range Site Concept: A Tool for Reconstructing Distributions and Analyzing Prehistoric Procurement Behavior

11:00 AM **John Albanese**
Holocene Paleoclimatic and Cultural Change, Northwestern Wyoming and Southwestern Montana

11:20 AM **Janet I. Hobey**
Paleoenvironmental History of the Trapper's Point Site and its Implication for Early Archaic Adaptations

11:40 AM **Ruthann Knudson**
Discussion

Symposium V - Buffalo Room

Human Settlement of the Foothill-Mountain Environments: A View from the Greater Yellowstone Area

Chairs: Kenneth P. Cannon (Midwest Archaeological Center)
Jamie Schoen (Bridger-Teton National Forest)

8:00 AM **Jamie Schoen**
Introduction

8:10 AM **Kenneth L. Pierce**
Landscapes of the Greater Yellowstone Ecosystem: Uplift above a Thermal Mantle Plume?

8:30 AM **Scott A. Elias**
Insect Fossil Evidence on the Rate of Environmental Change at the Wisconsin-Holocene Transition in the Rocky Mountains: Archaeological Implications for the Yellowstone

8:50 AM **Danny N. Walker**
Late Pleistocene and Holocene Mammalian Faunas of the Greater Yellowstone Ecosystem and Surrounding Regions

9:10 AM **Susan Hughes**
Mummy Cave Revisited: 9200 Years of Hunting in the Absaroka Mountains

9:30 AM **Kenneth P. Cannon and Jamie Schoen**
Cultural Chronology of the Greater Yellowstone Area

9:50 AM Break

10:00 AM **Joel C. Janetski**
Ethnohistory and Human Ecology in the Greater Yellowstone Area

10:20 AM **Stephan A. Aaberg**
The Record of Prehistoric and Historic Native American Plant Use in the Yellowstone Ecosystem

10:40 AM **Julie E. Francis and Mark E. Miller**
They Aren't Just Foragers Anymore: New Perspectives on Early Archaic Adaptation in the Upper Green River Basin

11:00 AM **David J. Rapson**
Linking Intrasite Archaeological Research with Regional Models of Subsistence and Settlement in the Absaroka Mountains of Northwestern Wyoming: Attribute-Based Spatial Analysis at the Bugas-Holding Site

11:20 AM **Jack Fisher**
Discussion

Symposium VI - Frontier Room

Fremont in the Great In-Between: Regional Context and Association

Chair: James Truesdale (Metcalf Archaeological Consultants)

8:30 AM **James A. Truesdale**
Introduction

8:40 AM **James A. Truesdale**
The Uinta Fremont: Who? What? When? Where?

9:00 AM **Byron Loosle, Lynne Ingram, and Lora Broadbent**
The Other Side of Life - Hunting with the Fremont

9:20 AM **Jerry Spangler**
The Tavaputs Variant: Additional Evidence for Cultural Variability among Formative Peoples of the Northern Colorado Plateau

9:40 AM **Steven G. Baker**
Fremont and Numic Archaeology on the Douglas Creek Arch, Rio Blanco, Colorado: Salient Topics

10:00 AM **Break**

10:10 AM **Linda Scott-Cummings**
Vegetal Subsistence in Southwestern Wyoming and Northwestern Colorado

10:30 AM **Julie Francis and Danny N. Walker**
Fremont Occupation in Southwestern Wyoming and Northwestern Colorado

10:50 AM **Lynn Harrell**
A Ceramic Vessel from South Slate Creek Site Near Kemmerer, Wyoming

11:10 AM **Anne McKibbin and Kae McDonald**
Sage Smoke and Fish Fins, or A Bad Day Fishing is Better than a Good Day of Farming: Living on the Fremont Fringe

11:30 AM **Kevin Jones**
Discussion

General Session III - Carriage Room

Contributed Papers

Chair: Tammy Stone (University of Colorado-Denver)

8:30 AM **Karin M. Guernsey and Kathryn Puseman**
Poster: Native Salsola? Charred Salsola Seeds Found in Prehistoric Archaeological Sites.

8:50 AM **Cynthia Mosch and Patty Jo Watson**
Collaborative Research at an Unusual High-Altitude Locale in the Southern Rockies

9:10 AM **Bonnie Pitblado**
Paleoindian Occupation of Southwest Colorado

9:30 AM **Ruben C. Mendoza**
The Crescent Archaeological Project: An Investigation into the Human Ecology of the Colorado Front Range

9:50 AM **Break**

10:00 AM **Tammy Stone**
Shifts in Resource Procurement and Regional Organization During the Archaic Period in the Hogback Valley

10:20 AM **Kim Lovett and Jo Kent**
Lithic Material and Settlement Patterns of Middle Archaic Peoples at Crescent Rockshelter

10:40 AM **James W. Kirk**
The Archaic Period Dakota Hogback of the Denver Foothills

SATURDAY AFTERNOON (10/2/93)

Symposium V (continued) - Buffalo Room

Human Settlement of the Foothill-Mountain Environments: A View from the Greater Yellowstone Area

Chairs: Kenneth P. Cannon (Midwest Archaeological Center)
Jamie Schoen (Bridger-Teton National Forest)

1:00 PM **Wilfred M. Husted**
Cultural Chronology of the Absaroka and Beartooth Mountains

1:20 PM **Mary Lou Larson**
Looking Out From Lookingbill

1:40 PM **Walt Allen and Kristin L. Griffin**
The Excavations at Eagle Creek: A Multi-Component Site in the Upper Yellowstone Drainage

2:00 PM **Leslie B. Davis and Ann M. Johnson**
Quarry Research Implications of the 1989 Obsidian Cliff Flow Plateau Reconnaissance, Yellowstone

2:20 PM **Steven D. Creasman and Kevin W. Thompson**
Green River Basin-Yellowstone Interaction: Obsidian Artifacts from Southwest Wyoming

2:40 PM **Richard M. Adams**
Steatite and the Greater Yellowstone Ecosystem: High Altitude Resource Use and Adaptation

3:00 PM **Break**

3:10 PM **Melissa A. Connor**
Stability and Change in Mountain Adaptations: The View from Jackson Hole, Wyoming

3:30 PM **James Winfrey**
"Just Like a Waring Blender": Post-Depositional Disturbance and Lithic Analysis at String Lake (48TE412), Grand Teton National Park, Wyoming

3:50 PM **Mark F. Baumler and David C. Schwab**
The Flying D Ranch Archaeological Research Project

4:10 PM **Robert L. Bettinger**
Discussion

Symposium VII - Pioneer Room

Bringing Rock Art into the Archaeological Mainstream

Chairs: Clay Johnson (Utah Statewide Archaeological Society)
Mike Bies (Bureau of Land Management)

1:30 PM **Alice Tratebas**
New Methods in Rock Art Research

1:50 PM **Michael T. Bies**
Rock Art in the Bighorn Basin, Wyoming

2:10 PM **Nowell L. Morris**
Archaeoastronomy as a Resource in the Archaeology of Rock Art

2:30 PM **Julie Francis**
Chronological Variation within Dinwoody Tradition Rock Art in Northwestern Wyoming

2:50 PM **Break**

3:00 PM **Clay Johnson**
Investigating Site Structure and Season: Rock Art as a Structured Site

3:20 PM **Lynn Fredlund**
The Canyon Creek Sites and A Rock Art Attribute Checklist for Montana

3:40 PM **Larry Loendorf and Dave Whitley**
Dinwoody Rock Art in a Numic Wide Perspective

4:00 PM **General Roundtable Discussion**

General Session IV - Frontier Room

Contributed Papers

Chair: Kevin Black (Colorado Historical Society)

1:30 PM **Kevin D. Black**
Lithic Sources in the Rocky Mountains of Colorado

1:50 PM **Calvin H. Jennings and Susan Collins**
Excavations on the Colowyo Spur, Moffat County, Colorado

2:10 PM **Margaret Jodry, Vince Spero, Mort Turner, and Joanne Turner**
Black Mountain Hunting Camp, Paleoindians in the High County

2:30 PM **Richard Hauck**
Stratigraphic Excavations in NW Colorado

3:00 PM **Break**

3:10 PM **Ann L. Magennis, M. D. Metcalf, and K. D. Black**
An Early Archaic Burial from the Yarmony Site, Eagle County, Colorado

3:30 PM **Elizabeth A. Morris and M. D. Metcalf**
Twenty-two Years of Archaeological Survey in the Rawah Area, Medicine Box Mountains, Northern Colorado

3:50 PM **David Darlington**
The Mayfly Site: A Rose Springs Site on the Green River, Wyoming

Symposia

Symposium I

Plenary Session: Human Use of High Altitude Environments

In the last decade, there has been a dramatic increase in research focused on high altitude occupations in the mountains of western North America. Much of this research has come from the realization that isolated mountain tops are ideal places to explore issues of mobility, transport, storage, and seasonality among hunter-gatherers. As the name of the Rocky Mountain Anthropology Conference implies, the region is characterized by high topographical diversity and understanding high altitude occupation patterns is critical in understanding human behavior in the region generally. In this symposium, several of the scholars who have led this research movement will reflect on their past work, review its implications, and suggest directions for future research.

Chair: David B. Madsen (Utah Antiquities Section)

Symposium II

North of Forty: Current Research in the Rocky Mountains of Montana and Alberta

Cultural historical studies of the Rocky Mountain region of Montana and Alberta have greatly advance since the time when researchers considered the mountains to be simply a barrier betwen the Plains and the Plateau. Rather than an insignificant region on the fringe of cultural developments, recent studies have characterized the Rocky Mountains as a dynamic environment, distinct from neighboring regions. The North of Forty symposium is organized to present the results of recent investigations into the paleoenvironment and human occupation of the Northern Rocky Mountians region.

Chair: Brian C. Vivian (University of Calgary)

Symposium III

Nine Mile Canyon

Systematic surveys have revealed nearly 500 sites within the canyon, from just above Argyle Canyon to the Green River, most of which are Fremont. Evidence for a Late Archaic use of Nine Mile Canyon is present in several sites, however, the relationship to Fremont is not well understood. Many of the sites are Fremont rock art that show accurate rendering of bighorn sheep and other animals in many of their behavioral modes. Excavation of 11 Fremont dwellings/other structures demonstrates the intensity of horticultural activities from ca. A.D. 800s-1100s. A DNA analysis from a child burial found within a Fremont dwelling has yielded a mitochondrial sequence along with life-threatening pathological conditions. Later rock art, assignable to Utes with horses, shows interest in hunting elk. European explorers and settlers also left their names and dates throughout the canyon.

Chair: Ray Matheny (Brigham Young University)

Symposium IV

Geoarchaeology in the Rocky Mountains

Multi-disciplinary research has been an essential element of archaeological investigation in the Rocky Mountain region. Quaternary geologists and soil scientists have established a long and fruitful tradition of working with archaeologists to address the complexities of reconstructing site settings and environments. Theoretical and methodological advances within archaeology have led to an increasingly interdisciplinary approach to address the complex issues of site formation and human habitat reconstruction. Archaeology will continue to profit from both of these approaches. Participants in this symposium present papers on both site specific and synthetic topics. The unifying theme is Rocky Mountain geoarchaeology.

Chair: William Eckerle (Western GeoArch Research)

Abstracts

Aaberg, Stephen A. (Montana State University)
The Record of Prehistoric and Historic Native American Plant Use in the Yellowstone Ecosystem
Symposium V

Over the past five years, plant macrofossil analysis of cultural deposits from archaeological sites in and near the Yellowstone Ecosystem has yielded a wealth of information on native plant use. This developing record indicates varied and widespread plant use from the Paleoindian Period through the Late Prehistoric Period. Paleoethnobotanical data from sites on Yellowstone Lake, the Madison River Valley, the upper Ruby River Valley, and the general area of the Montana Rockies indicates a routine use of plant species in diet, medicine, ceremony, and industry. This data also suggests continuity between historic/contemporary Native American traditions and prehistoric uses. Recovered plant macrofossils indicate a reliance or routine usage of some plant species not present in the archaeological record from other areas. Presence of such species may help elaborate on local subsistence patterns in the Yellowstone Ecosystem. Integration of the plant macrofossil record with the microfossil record and contemporary plant data may also assist in further defining changes in Yellowstone Ecosystem plant communities over the past 10,000 years.

Adams, Richard M. (University of Wyoming)
Steatite and the Greater Yellowstone Ecosystem: High Altitude Resource Use and Adaptation.
Symposium V

Steatite deposits in the Greater Yellowstone Ecosystem (GYE) are truly high altitude resources. The average altitude of prehistorically utilized quarries in the area is over 2790 m above sea level. There are at least six prehistoric quarries within the GYE. Dozens of steatite vessels and a few steatite tubular pipes have been found within the GYE, suggesting that it was the center of the Rocky Mountain Steatite industry. Reviewing the distribution of steatite artifacts leads to the conclusion that steatite may have been preferable to terra cotta pottery because of its ability to be cached for future use.

Albanese, John P. (Consulting Geoarchaeologist, Casper, Wyoming)
Holocene Paleoclimatic and Cultural Change, Northwestern Wyoming and Southwestern Montana.
Symposium IV

In the mountains and basins of the area, the transition from the Pleistocene to the Holocene is reflected in the alluvial record by a depositional change from coarse gravels to braided stream sands. This change in stream regime occurred prior to the Clovis occupation ca. 11,300 B.P., when coniferous forests and gley soils predominated in mountains and grasslands were extant in lowlands, such as the Bighorn Basin. Cool-moist conditions prevailed until about 9000 years ago when a shift to drier conditions is reflected in mountainous areas by slope instability, widespread and rapid colluviation, alluvial fan formation, graded stream deposition, general lack of pedogenesis and a vegetative change from coniferous forest to sagebrush steppe. These changes can be documented at the Barton Gulch, Indian Creek and MacHaffie sites in southwestern Montana. Activation of major sand dune fields in western Wyoming began about 7200 years ago and marked the advent of the Altithermal and Early Archaic. Aridity reached a climax about the time of the Mazama ash fall, ca. 6700 years ago. Climatic conditions were never severe enough to preclude human occupation in basin areas, however, the population numbers were greatly reduced in those locales. A shift to a moister climate, slope stability, and the initiation of widespread pedogenesis took place about 4500 years ago, the approximate time of the arrival of the McKean peoples. The advent of Neoglaciation and cooler conditions, occurred about 3500 years ago in Montana and Wyoming. The transition from the Late Archaic to Late Prehistoric periods, ca. 1200 years ago, coincided with a major drop in the regional water table and the initiation of the present Holocene terrace system. These events signaled a shift to a somewhat more arid climatic regime.

Allen, Walt and Kristin L. Griffin (Gallatin National Forest)
Test Excavations at Eagle Creek: A Multi-Component Site in the Upper Yellowstone Drainage.
Symposium V

The antiquity of the Northern Yellowstone National Park elk herd and its historically known migration route along the upper Yellowstone River has recently received scientific attention. The Eagle Creek site is ideally located within the historic staging area of the Northern Yellowstone herd. Test excavations may provide insight into prehistoric exploitation of this elk herd. At least four Late Prehistoric occupations were recognized at this site as well as features indicating considerable processing of large ungulates. A small sample of ceramics indicates two separate ceramic traditions represented at the site tentatively assigned to "Crow" and "Intermountain" wares. Analysis of the rich deposits at Eagle Creek should at least contribute to our understanding of prehistoric exploitation of large ungulates in the upper Yellowstone region.

Baker, Steven G. (Centuries Research)
Fremont and Numic Archaeology on the Douglas Creek Arch, Rio Blanco County, Colorado: Salient Topics
Symposium VI

Since 1989 this writer has directed a substantial cultural resource management program in an important archaeological locality on the Douglas Creek Arch on the east edge of the Uintah Basin in Rio Blanco County just south of Rangely, in northwestern Colorado. This locality includes the Canyon Pintado National Historic District and an ephemeral resource base primarily associated with local Fremont and contemporaneous and/or subsequent Ute occupations. CRI's work has led to the inventory of a large area and to the investigation of a number of Fremont and Ute sites. This work has been focused on the ephemeral archaeological record and adds a very tightly controlled perspective to the regional archaeological picture.

In this paper, an introduction to CRI's Douglas Creek Arch work will be given and some of the more salient findings will be summarized. These will include: (1) Differentiation of ephemeral Group I (Ute/Numic) and Group II (Fremont) brush-sheltered households; (2) Dating issues and a serious old wood problem which is present on the Douglas Arch; (3) Continuity in Ute site plans and material culture into the historic period; (4) Issues involving the confusion of Ute and Fremont sites, as they may include projectile point styles, ceramics, and lithics signatures; (5) Gaps in our understanding of the regional settlement systems; (6) The overall goals, research strategy, and reasonable expectations involved in the program will also be delineated.

Baker, Steven G. (Centuries Research)
Modeling For Historic Eastern Ute Culture Change.
General Session I

The author's ongoing ethnohistorical and archaeological research continues to demonstrate the efficiency of an initial model of five phases of historic Ute culture change which he has proposed (1988) and has begun to produce enough new data so that further archaeological models can be tailored. This work is rooted in a classic model of repetitive patterns of Native American culture change developed by Eleanor Leacock (1971). It is now possible to discuss Ute archaeological manifestations which represent the phases of Ute culture history in the territories of the Uncompahgre and White River Utes.

In this paper the attributes of the previously-proposed Five Phases of Ute Culture Change will be summarized and corresponding archaeological phases will be initially defined. These commence with the Protohistoric/Early Contact Phase and the corresponding Rivera Archaeological Phase (circa 1600-1775); the Middle Contact Phase and the Robidoux Archaeological Phase (circa 1775-1860); and the Late Contact Phase which has two sequential parts (1860-1881 and circa 1881-1900). These are tied to the specifics of the pre- and post-removal reservation profiles which were quite different. These are designated the Chief Ouray and Chief Douglas Archaeological Phases. There is also a late post-removal archaeological phase which is mostly located in Utah but which, via refugee populations who returned to Colorado in the very late 19th Century, is sometimes present off the reservation in the northwestern portion of the State. It is necessary and appropriate to deal with this archaeologically. This has been designated the Fort Duschene Archaeological Phase. It is believed that critical use of the models can be used to significant advantage in the study of the Ute past.

Baumler, Mark F. and David C. Schwab (Montana Historical Society)
The Flying D Ranch Archaeological Research Project.
Symposium V

Since 1990 the Montana Historical Society has been conducting an archaeological study of the Flying D Ranch in southwestern Montana. The 130,000 acre ranch lies within the upland divide between the Madison and Gallatin Rivers approximately 25 miles south of Bozeman, Montana. The overall goal of the project is to develop a diachronic model of prehistoric settlement and subsistence in the Missouri Headwaters region. Most information in this area currently derives from the major river valleys, with little archaeological data available for the intervening uplands. By comparing new information derived from the Flying D Ranch study with existing data from the Madison and Gallatin River valleys, we hope to develop a broader perspective of regional prehistoric land use and mobility patterns.

The study is designed as a mult-phase, multi-disciplinary research project with an emphasis on understanding the effective environment of the area, how that environment has changed through time, and how prehistoric hunter/gatherers perceived and interacted with their environment. Intensive archaeological survey and site recordation, paleoenvironmental reconstruction, ethnobotanical research, ethnographic and oral history research, Native American participation, lithic source studies, remote sensing applications, and Geographic Information System mapping technologies have all been applied in the investigation. This paper outlines the overall research design, identifies issues encountered in implementing the project, and provides a brief summary of preliminary results.

Beatty, Marvin T., see Turner, M. D.

Bettinger, Robert L. (University of California-Davis)
Alpine Villages in the White Mountains: Implications for Adaptive Change.
Symposium I

Villages with well-built dwellings and extensive chipped-and-ground-stone assemblages found between 3130 m and 3854 m in the White Mountains, California, and Toquima Range, Nevada, indicate intensive seasonal use of both ranges by groups intensively engaged in alpine plant and animal procurement. Lichenometric measurements, radiocarbon assays, and time-sensitive artifacts show that the White Mountain alpine villages postdate A.D. 600, and are temporally distinct from hunting blinds and sparse lithic scatters connected with an older, less-intensive form of alpine land-use centered on hunting. These differences in alpine land use probably reflect adaptive responses to population growth and may be connected with the spread of Numic-speaking peoples from eastern California into the Great Basin and Rocky Mountains.

Bies, Michael T. (Bureau of Land Management, Worland)
Rock Art in the Bighorn Basin, Wyoming
Symposium VII

Recent research allowing chronologic placement of rock art has resulted in an increased interest in rock art as a site type. The distribution of rock art sites within the Bighorn Basin indicates several potential patterns based on current information. The known site localities are used to illustrate these potential patterns. The perceived patterns involve the distribution of pictographs and petroglyphs, and the distribution of different rock art styles through the Basin.

Black, Kevin D. (Colorado Historical Society)
Lithic Sources in the Rocky Mountains of Colorado
General Session IV

This study describes the nature and scope of flaked stone sources used prehistorically in the Rocky Mountains of Colorado. Data on known sources were compiled from a search of the computerized files of the Office of Archaeology and Historic Preservation (OAHP) in Denver, followed by collation of information provided on standard Colorado site forms. Two file searches were done: one on the 29 counties in Colorado all or partially covering the Southern Rocky Mountains physiographic province, and a second on all sources situated at or above 6,000ft (1830m) elevation. Thus defined, the data base includes 179 sources in the 29 mountain counties, and 79 sources above 6,000ft elevation of which 36 high-elevation sources are outside the 29-county area. Factors included in the study of these sources are geologic formation, material type(s), elevation, quarry features present, core reduction strategies, and evidence for associated non-procurement activities. This study attempts to characterize prehistoric procurement systems throughout the upland environments in Colorado, and provides directions for future research.

Black, Kevin D., see Magennis, A. L.

Bonnichsen, Robson, see Turner, M. D.

Broadbent, Lora see Loosle, B.

Cannon, Kenneth P. (Midwest Archaeological Center) and Schoen, Jamie (Bridger-Teton National Forest)
Cultural Chronology of the Greater Yellowstone Area.
Symposium V

The Greater Yellowstone Area is on the edge of a number of cultural and natural areas. Development of the region's cultural history is primarily based on comparison of material remains with the northwestern plains. Over the last thirty years radiocarbon and obsidian hydration dating has developed a biased view of the prehistory. The majority of dates recovered have been from the later prehistoric periods. This paper will critically review the development of the region's cultural history with specific attention to radiometric dating techniques.

Connor, Melissa A. (Midwest Archaeological Center)
Stability and Change In Mountain Adaptations: The View From Jackson Hole, Wyoming.
Symposium V

Anthropologists, while fascinated by the rugged beauty of mountainous areas, have often considered mountains as peripheral to culture areas, rather than as culture areas in themselves. However, mountainous areas have unique environmental properties that encourage specific human adaptations different from those of the surrounding areas. They study area used here as an example consists of the intermountain basin, and surrounding mountain ranges, of Jackson Hole, Wyoming.

The goal of this study was to synthesize the Jackson Lake archaeological data with available regional data in order to better understand human use of the intermountain area. Factors that enhance the stability of mountain adaptations include the geomorphology of the mountains, affecting site location and travel routes; the dispersion of resources which encourages a high level of mobility; and the zonal distribution of resources, which affects the scheduling of the use of an area. Changes in population density, technology, and climate, however, can interact to create an environment conducive to culture change.

The hunter-gatherers in Jackson Hole were not "complex" hunter-gatherers, they did not make a transition to a pastoral or agronomical lifestyle, but they are typical of a large portion of human history. Only by thoroughly understanding this "cold" hunter-gatherer lifestyle can anthropologists unravel the causes or conditions that allowed more complex lifestyles to develop.

Collins, Susan, see Jennings, C.

Creasman, Steven D. (Cultural Resource Analysts) and Kevin W. Thompson (Western Wyoming College)
Green River Basin-Yellowstone Interaction: A Study of Obsidian Artifacts From Southwest Wyoming.
Symposium V

Obsidian projectile points and artifacts from dated sites in the Green River Basin of southwest Wyoming were submitted to the University of Wyoming for sourcing. Trace element analysis using x-ray fluorescence was used to establish the source of obsidian for 133 artifacts, 46 specimens from a single cache. Eleven source areas are represented in the collection and include localities in northwest Wyoming, northeast and southeast Idaho, and southwest Utah. Although most artifacts are from previously identified source areas, several artifacts are from unidentified sources. The paper explores diachronic patterns of obsidian and its implications for cultural influence in the region.

Darlington, David (Western Wyoming College)
The Mayfly Site: A Rose Spring Site on the Green River, Wyoming.
General Session IV

The Mayfly Site is a Late Prehistoric occupation located within the second Holocene terrace of the Green River in Sweetwater County, Wyoming. Butchered and fragmentary large mammal bone, chipped stone tools, ground stone, and projectile points similar to the Rose Spring type common to the Great Basin were recovered. The setting of the Mayfly Site offered the opportunity to compare the subsistence focus of a site located in a riverine environment with the subsistence focus of sites located in sand dune environments several miles from riverine resources. The expected riverine resource remains are absent from the assemblage, and contrary to expectations, floral remains are rare.

Daron, Steven (Midwest Archaeological Center)
The Post Office Dump Site (48YE73) Yellowstone Lake Area, Yellowstone National Park.
General Session I

The Post Office Dump Site is located within 100 m of the Lake Hotel, on the northwest shore of Yellowstone Lake, in Yellowstone National Park. The dump was found 50 cm below ground surface by a US West crew while burying new phone cables. The site was tested in the fall of 1991 by archaeologists from the Midwest Archaeological Center. A large number of historic artifacts were recovered with the primary artifact type being bottle glass. An analysis of the identifiable trade makes indicate that the dump was in use in the late 1800s and early 1900s.

Davis, Leslie B. (Museum of the Rockies/Montana State University) and Ann M. Johnson (National Park Service)
Quarry Research Implications of the 1989 Obsidian Cliff Flow Plateau Reconnaissance, Yellowstone National Park, Wyoming.
Symposium V

The first systematic surface reconnaissance of this 15-square-km obsidian bearing prominence was conducted one season after the fire of 1988. The recordation of 59 quarry and quarry-associated loci on the plateau was assisted by the substantial elimination of heavy duff and lodgepole pine forest. Long-term, intensive, and extensive quarrying for buried obsidian deposits are indicated by the scale of pits, trenches, and depressions and the amounts of obsidian debris. Non-destructive x-ray fluorescence analysis of quarry samples display a high degree of homogeneity. Primary investigation of this long-recognized lithic source area is essential to supplant myth and conjecture with data and evidence.

Dunn, Richard (University of Montana)
Searching Methodology For Upland Settlement Literature and Source Material on High-Altitude Occupations.
General Session II

Unlike many diverse subject disciplines such as chemistry, English literature, sociology, forestry, and even geomorphology, anthropology still lacks a standard, multi-faceted computerized database accessing all of the sub-disciplines of its literature. This is being partially corrected for elements of anthropological research. Using cross-cultural studies as an example, there is a current project for placing data from sources like the Human Relations Area File on compact disk. Yet for more specialized and exact fields of inquiry within the discipline, as exemplified by regional and global work on high-altitude research, electronic searching for literature can be a daunting process. This paper attempts to address this problem by suggesting the use of computerized information avenues which might expand the searching capabilities of the researcher.

Eckerle, William (Western GeoArch Research)
The Soil Conservation Service Range Site Concept: A Tool for Reconstructing Resource Distributions and Analyzing Prehistoric Procurement Behavior.
Symposium IV

Pollen, macrobotanical specimens, and faunal remains have been used to analyze resource use at archaeological sites. These techniques are effective at documenting the types of resources that were utilized by prehistoric peoples, but are less effective at documenting the range of potential resources. Current approaches to studying human behavior, such as behavioral ecology, require quantitative data on the whole range of potential resources. Environmental reconstructions that utilize the relict method of ecological classification, such as the range site concept, can provide such date when used with caution. Range site inventories predict potential natural vegetation rather than modern, Euroamerican disturbed conditions. Range site classification quantifies available edible plants as well as the availability of forage. Thus the potential range of edible plant and animal species can be estimated from range site data. When combined with paleoclimatic reconstructions generated from geomorphic, stratigraphic, pedogenic, and biological data, environmental reconstructions can be detailed enough to address issues such as diet breadth, and the change in availability of high ranked resources over time. Archaeologists can use this detailed data to analyze questions dealing with economic and reproductive maximization strategies, as well as more general issues of prehistoric settlement and subsistence.

Elias, Scott A. (Institute of Arctic and Alpine Research)
Insect Fossil Evidence on the Rate of Environmental Change at the Wisconsin-Holocene Transition in the Rocky Mountains: Archaeological Implications for the Yellowstone
Symposium V

In recent years, archaeological studies of sites in western North America have expanded in scope to include more rigorous paleoenvironmental proxy data for archaeological sites, including a delineation of the timing and intensity of changes during the transition from late glacial to Holocene in the Rocky Mountain Region. The range of paleoenvironments exhibited during this interval is important in the archaeological context of the earliest documented human occupations of the region. A series of late glacial and early Holocene fossil insect sites in north-south transect from Montana to southern Colorado have been studied. A regional synthesis of paleoclimate reconstructions based on these insect fossil assemblages suggests the following scenario. Mean July temperatures in the Rocky Mountain region at 14,500 yr B.P. were depressed by about 9 degrees C, compared with modern values. By about 13,000 yr B.P., mean summer temperatures were about 7 degrees C cooler than present, and at 11,500 yr B.P. summer temperatures were about 5 degrees C cooler than present. By 10,000 yr B.P., the fossil beetle evidence suggests that summer temperatures were essentially modern, and by 9500 yr. B.P., summer temperatures were apparently warmer than present, even at high elevations in the Rockies.

The intensity of climate change during the late glacial-Holocene transition wrought havoc with biological communities, causing extirpations of flora and fauna, and possibly extinctions of megafaunal species that were hunted extensively by Paleoindians. As biological communities broke down, the "cast of characters" changed quickly in a given region, with previously important game species leaving the stage, in some cases never to return. Regional hydrologic changes must also have been rather severe in some cases. This massive perturbation, forcing distributional shifts in species and reshuffling in biological communities, must have been a catalyst for change in Paleoindian lifeways. The insect fossil record, as a sensitive, responsive proxy for climate change, shows how quickly and effectively the "climatic catalyst" was brought to bear in this rapidly changing scene.

Ell, Stephen, see Miller, S. G.

Francis, Julie E. (Wyoming Transportation Department)
Chronological Variation within Dinwoody Tradition Rock Art in Northwestern Wyoming
Symposium VII

Dinwoody rock art in northwestern Wyoming is best known for large, complex interior-line figures. A variety of zoomorphic forms co-occur with the anthropomorphic figures. Dinwoody rock art is spatially restricted to the Wind River and lower one-third of the Bighorn River drainage, and based upon AMS and cation-ratio dates, were manufactured over several thousand years from the Early Archaic to Protohistoric times. Analysis of several sites reveals that the supernatural-appearing humans and animal forms can be classified into multiple types. The available dates are used to examine chronological variation in these types and to offer initial hypotheses regarding the evolution of Dinwoody tradition rock art.

Francis, Julie E. (Wyoming Transportation Department) and Mark E. Miller (Office of the Wyoming State Archaeologist)
They Aren't Just Foragers Anymore: New Perspectives On Early Archaic Adaptation in the Upper Green River Basin.
Symposium V

48SU1006 is a stratified Early Archaic site in the Upper Green River Basin of western Wyoming. Data recovery conducted by the office of the Wyoming State Archaeologist, and sponsored by the Wyoming Transportation Department, documented three distinct levels ranging in age from 6200 to 4700 years B.P. The most spectacular is a 5800 year old pronghorn kill and processing area containing the remains of about 12 animals and over 150 projectile points. The other levels yielded evidence of extensive projectile point manufacture and plant processing activities. Contextual relationships are excellent, and the stratigraphic sequence indicates two periods of soil formation spanning the occupations. Materials recovered provide a much more complete picture of paleoenvironmental conditions and Early Archaic adaptations, including procurement of game animals, than has yet been documented for the Northwestern High Plains.

Francis, Julie E. (Wyoming Transportation Department) and Danny N. Walker (Office of the Wyoming State Archaeologist)
Fremont Occupation in the Northern Green River Basin, Wyoming: Calpet Rockshelter.
Symposium VI

Calpet Rockshelter (48SU354) is a small rockshelter in southwestern Sublette County, Wyoming. Several rock art panels are associated on the same outcrop, including deeply incised drawings attributed to the Fremont culture. Test excavation conducted by the Office of the Wyoming State Archaeologist in 1987 revealed two Late Prehistoric period levels within the shelter and at least three buried components in the colluvial slope below the shelter. Artifacts, primarily grinding stones, recovered from the lower level in the shelter strongly suggest Fremont cultural affiliations. This site may yield more important data on the relations between Great Basin and High Plains cultural groups.

Fredlund, Lynn (GCM Services)
The Canyon Creek Sites and a Rock Art Attribute Checklist for Montana
Symposium VII

Two petroglyph sites were located by the Bureau of Land Management (BLM) in the South Fork of Canyon Creek, Yellowstone County, Montana, on lands which were part of a proposed land sale or exchange. After the inventory, the area had been burned in a range fire, causing damage through accelerated erosion to the rock art sites. Because of the land exchange and damage caused by the fire a mitigation plan called for detailed recording of the sites and testing under the panels. This work was conducted under a BLM contract by GCM Services.

The two rock art sites were lightly incised to lightly drawn on the sandstone rock and several of the panels showed evidence of superimposition of glyphs. The recordation of the glyphs at 24YL1203 and 24YL782 resulted in; 1) an evaluation of methods of recording, 2) the development of rock art attribute check list and establishment of a data base for rock art sites, 3) a slight refinement of the chronology of rock art styles and motifs, and 4) the development of several hypothetical statements on motif and style distribution and tribal affiliation. This paper will summarize the results of the analysis and discuss the proposed attribute checklist and how it might be applied to further our understanding of rock art in the northern plains.

Frison, George C. (University of Wyoming)
Large Animal Behavior and High Altitude Faunal Assemblages
Symposium I

Data are slowly accumulating on a number of faunal assemblages from high altitude archaeological sites in the Rocky Mountains. Some indications are of different species present in certain localities than are expected based on present-day distributions. Procurement complexes can usually be explained on a basis of animal behavior. Seasonality of animal procurement can be determined in some cases allowing time of year of human occupations. Present thinking on the normal and expected animal responses to seasonal changes cannot always be applied to prehistoric situations. Some of this may be due to a lack of knowledge of prehistoric high-altitude ecological conditions that affected large animal distributions.

Gardner, A. Dudley and David Johnson (Western Wyoming College)
Archaeological Excavations at Fort Bridger.
General Session I

Archaeological excavations at Fort Bridger have shown that between 1843 and 1855, Native Americans were actively involved in trade with Euro-Americans at Fort Bridger and throughout southwestern Wyoming. This paper will focus on evidence of dietary change, and the type of exotic edible plants that were introduced into southwestern Wyoming in the middle of the nineteenth century. The introduction of turnips, barley, and wheat would have an impact on hunting and gathering cycles throughout the area. This paper will also discuss the role of the Shoshone as traders and active participants in an intermountain trade network that actively involved exchange between various Native American groups and the newly arrived Euro-Americans.

Griffin, Kristin L., see Allen, W.

Guernsey, Karin M. (Office of the Wyoming State Archaeologist)
Prehistoric Fire Pits in Wyoming
General Session II

The paper will provide an initial synthesis of hearth characteristics of features excavated around the state of Wyoming. Primary focus will be on botanical attributes. The data presented is based on flotation results gained over the last seven years.

Guernsey, Karin M. (Office of Wyoming State Archaeologist) and Kathryn Puseman (Paleo Research Labs)
Native Salsola? Charred Salsola Seeds Found in Prehistoric Archaeological Sites.
General Session III

This poster session presents a photographic record of charred *Salsola* (Russian thistle) seeds found in samples from prehistoric sites in the Intermountain West and addresses the possibility of a native *Salsola* plant in the United States. *Salsola* is noted in the botanic literature to have been accidentally introduced into South Dakota in a shipment of flax seed around 1873 or 1874. Photographs will compare archaeological and modern seeds. A brief history of the archaeological sites in which charred *Salsola* seeds were recovered will be presented.

Hackney, Margene (Utah Statewide Archaeological Society)
Site Clustering and Settlement Patterns in Nine Mile Canyon, Utah: Observations of the Castle Valley Chapter Utah Statewide Archaeological Society.
Symposium III

Settlement patterns studied by archaeologists and volunteers in Nine Mile Canyon are a static record of occupations that may often have had differing periods of use in the past. Maps of "settlement patterns" of prehistoric sites show intense distribution but contemporaneity of occupation remains a problem. In Nine Mile Canyon, few sites can be separated into periods of occupation through the identification of chronologically sensitive artifact types. In fact, multiple occupation periods for the San Raphael Fremont variant have not yet been established. Some radiocarbon dates are available for a few sites in the canyon. A settlement interpretation is made by the study of site type relationships using spatial information as a basis for future study when more excavations and radiocarbon data are available.

Hanna, Don and Brian C. Vivian (University of Calgary)
Seeking Simplicity in 'Complex' Communal Hunting: A View from the Top-of-the-World
Symposium II

Archaeologists frequently rely on the physical evidence of cairns, drive lanes, weirs and other constructions for inferring the presence of communal hunting activities. As such, communal hunting has often been accepted as an indication of complex, large-scale, cooperative relationships in hunter-gather societies. This interpretation is questioned in the light of several 'communal' hunting systems identified at Top-of-the-World Park. An alternative explanation provided for these constructions argues against the relationship between complex hunting systems and social complexity.

Harrell, Lynn
A Ceramic Vessel From South Slate Creek Site Near Kemmerer, Wyoming)
Symposium VI

More than 300 ceramic sherds, representing one vessel recovered from 10 miles northeast of Kemmerer, Wyoming, are currently being studied by the Bureau of Land Management (BLM). The ceramic sherds were recovered in 1992 from the South Slate Creek Site (48LN2124), during a BLM volunteer project in which members of the Lincoln County Historical Society and local community donated their time to salvage the sherds, originally found eroding out of a cutbank from 1.5 meters below present ground surface. The ceramic level also yielded lithic tools and debitage, faunal remains and charcoal, which produced a radiocarbon age of more than 800 years before present. Community volunteers continue to contribute their time to the project by helping to reconstruct the vessel in an effort to develop an educational exhibit in a local museum. Our investigations in progress hope to answer questions about cultural affiliations, settlement and subsistence patterns, and recent environmental change on the west-central margin of the Green River Basin.

Hauck, F. Richard (Archeological Research Institute)
Research Report: Stratigraphic Excavations In NW Colorado the 1990 through 1993 field seasons at Hanging Hearth (5RB454) and preliminary investigations at KibRidge-Yampa (5MF3687)
General Session IV

Hanging Hearth is a deeply stratified occupation partially exposed in the walls of a cutbank situated within a narrow side canyon in the Cañon Pintado Archaeological District. The occupational and natural stratified units that have been exposed through excavation extend from 2.9 meters below present ground surface (BPGS) to ca. 9.5 meters BPGS. A continuous series of occupational surfaces associated with 28 separate cultural features sampled by 31 radiocarbon dates extend from the Middle Archaic (3360±130 years B.P) at 5.9 meters BPGS through early Formative (1560±70 years B.P.) at 2.9 meters BPGS. In addition to 25 hearth/firepit features, three pithouse occupations and two bell-shaped subterranean storage chambers have been documented to date. The two storage chambers were constructed ca. 1950 B.P. and ca. 2750 B.P. and measure ca. 35 cm. deep by 60 cm. in diameter. The three pithouses have only been partially excavated. They appear to range in diameter from 2.5 to 3.5 meters and were excavated from 20 to 74 cm. deep into the underlying alluvial/cultural levels. Pithouse A at 4 meters BPGS is the oldest structure and stratigraphically dates 2650 to 2700 B.P. Pithouse B dates 2410±50 B.P. (Beta 64309 and is 3.82 meters BPGS. Pithouse C is the most recent structure dating to 1900±70 B.P. (Beta 64308) and 1920±50 B.P. (Beta 64306). The southwest wall of this structure was excavated to a depth of 74 cm. into secondary alluvial gravels. The floor of this structure is 7.06 meters BPGS revealing that it had been constructed in the base of a cut-bank 3.95 meters below contemporaneous occupations. Pollen and flotation materials are in process; results will be available in 1994.

KibRidge-Yampa is a stratified early Paleoindian open occupation situated within an arroyo complex in the Yampa River drainage system. This site was identified and recorded in August of this year through the assistance of local collectors who removed a Clovis/Folsom point from the site in 1991. The site consists of multiple stratigraphic levels situated within a 5.5 meter-deep late Pleistocene aeolian deposit. The Clovis/Folsom point was recovered from a 20 to 25 cm thick occupational level (S-550) that varies from 3 to 4 meters below datum. A radiometric sample of carbon-saturated soil recovered from this provenience is currently being processed. Contemporaneous and earlier Paleoindian cultural occupations on this site are evidenced by strata exposures at 4, 5, 6, and 8 meters below datum. Associated diagnostic artifacts include a beaked scraper and an oblique-parallel flaked lanceolate dart point. Excavations on this site will begin in the fall of this year.

Hein, Frances J., see Van Dyke, S. G.

Hobey, Janet I. (Western GeoArch Research)
Paleoenvironmental History of the Trapper's Point Site and its Implications for Early Archaic Adaptations.
Symposium IV

Geoarchaeological data from the Trapper's Point Site (48SU1006) in the upper Green River Basin, Wyoming, are used to interpret the geological, pedogenic, and site formation histories there. Evidence of paleoenvironmental change and fluctuations in eolian sand mobility reflect changes in the resource structure and settlement potential of the area. Three chronologically and stratigraphically distinct Early Archaic components at the site, including a pronghorn bonebed, represent the exploitation of different resources and demonstrate the complexity of Early Archaic subsistence adaptations to dry Altithermal conditions.

Hughes, Susan (University of Washington)
Mummy Cave Revisited: 9200 Years of Hunting in the Absaroka Mountains.
Symposium V

Between 1962 and 1966, the Buffalo Bill Historical Center in Cody, Wyoming conducted excavations at Mummy Cave, a rockshelter in the Absaroka Mountains of northwestern Wyoming. This site revealed 38 occupations spanning 9200 years and provided one of the finest dated projectile point sequences in the Rocky Mountains. In the original analysis only 12% of the 16,000 bone fragments were identified. A preliminary reanalysis of the entire faunal assemblage reveals: 1) a wide number of taxa are represented with bighorn sheep dominating all levels, 2) 84% of the bone comes from levels dating between 4500 and 5500 BP, and 3) butchering practices can be reconstructed due to excellent bone preservation. Continuing examination of this material will contribute significantly to our understanding of high country adaptations.

Husted, Wilfred M. (Montana Archaeological Society)
The Altithermal, Population Reductions and the Rocky Mountains: Seeing the Forest and the Trees
General Session II

Certain hypotheses refuting the concept of the Altithermal and/or a consequent population reduction on the high western Plains are examined. It is concluded that the evidence supports the reality of the Altithermal and a severe reduction of population in eastern Colorado, western Nebraska, the western Dakotas and eastern Montana between 7500 and 5000 years ago. This evidence also supports the hypothesis of the Middle and Northern Rocky Mountains as an Altithermal refuge. Additional supporting data from the Beartooth Mountains and elsewhere are presented.

Husted, Wilfred M. (Montana Archaeological Society)
Cultural Chronology of the Absaroka and Beartooth Mountains.
Symposium V

The radiocarbon chronology and projectile point sequences for Mummy Cave are reviewed. A cultural chronology for the Absaroka and Beartooth Mountains based on the Mummy Cave data and projectile points in the Vernon Waples Collection is presented. Occupation of these mountain ranges throughout the prehistoric period is indicated with the Early Archaic being one of the more intensive periods of use of the Beartooths. Use of the Beartooth Mountains during the Early Archaic may have been more intensive than in the Absarokas.

Ingram, Lynne, see Loosle, B.

Janetski, Joel C. (Brigham Young University)
Ethnohistory and Human Ecology in the Greater Yellowstone Area.
Symposium V

Ethnographic and historic records documenting pre-European use of the Greater Yellowstone Ecosystem (GYE) suggest a complex picture of human use. Proto-historic occupation of the GYE was primarily by Numic-speaking mobile hunter-gatherers who may also be recent arrivals in the area. Records of these people reinforce the importance of access to a diversity of resources and ecological zones to minimize risk in a seasonally harsh environment. Although the region now known as Yellowstone Park was part of the home district of these people, survival depended on access to a broader region.

Jennings, Calvin H. (Colorado State University), and Susan Collins (Colorado Historical Society)
Excavations on the Colowyo Spur, Moffat County, Colorado
General Session IV

Excavations at three sites along the Yampa River and its tributary Milk Creek have produced a radiocarbon dated projectile point series, resource utilization pattern, and environmental background dated for the period between 300 and 2175 radiocarbon years B.P. Four other sites, which did not produce chronometric data, were also tested on this project. No unequivocal evidence of a Fremont occupation was recovered from any of the sites. At least one site was certainly occupied during the Ute period and includes rock art attributable to protohistoric or historic Native American utilization of the locality. Unexpected evidence of the human consumption of cyprinid fishes was found in a coprolite collected at the Empire Park Site (5MF436). The work was done in 1978 (Reports of the Laboratory of Public Archaeology No. 52, 1981) as a part of mitigation of the effects of the railroad. The final report has remained buried in the files of the project sponsor and the Bureau of Land Management since that time at the sponsor's request.

Jodry, Margaret (Smithsonian Institution), Vince Spero (Rio Grande National Forest), Mort Turner (University of Colorado), and Joanne Turner (University of Colorado)
Black Mountain Hunting Camp, Paleoindians in the High Country.
General Session IV

In 1991 and 1993 the Rio Grande National Forest, the Smithsonian Institute, and Earthwatch, Inc. cooperated in the testing of a Folsom site located at 10,160 feet in elevation near the headwaters of the Rio Grande. Currently, this area of the San Juan Mountains consists of subalpine parks surrounded by mesas and mountain peaks along the Continental Divide. The site is well situated to take advantage of travel routes into the Gunnison River Valley (via Spring Creek Pass, 10,898' elevation) and into the San Juan Basin (via Weminuche Pass, 10,400' elevation).

The lithic assemblage from a 32 square meter test area is strongly dominated by the remains of Folsom point production including preforms, channel flakes, and other biface reduction flakes. Endscrapers, a graver/spokeshave, and a flake knife were also found. This suite of artifacts is compared with different, yet complementary, groups of tools recovered in Folsom bison kill/campsites known from lower elevations. Suggestions are made regarding how this site may fit into regional land use patterns and social interaction networks.

An interdisciplinary program is underway to reconstruct aspects of the Early Holocene environment through the study of glacial sequences, local geomorphology, and insect and pollen remains from lake sediment cores.

Johnson, Ann M., see Davis, L. B.

Johnson, Clay (Utah Statewide Archaeological Society)
Investigating Site Structure and Season: Rock Art as a Structured Site
Symposium VII

Rock art sites are implicitly treated as a palimpsest of construction events occurring more or less at random with regard to time of day and year and exact surface initially selected for use. This assumption has resulted in hypotheses of rock art as art or shamanistic symbolism. Thus, rock art has been neglected as an informative source on seasonal subsistence strategies, daily activities, group size, mode, and other questions of archaeological interest. Of course, the placement of any constructed feature is conditioned by its intended propose, and by environmental and anatomical factors. For a specific class of rock art panels, a conceptual framework is outlined for the study of site structure and seasonal use of rock art sites, illustrated by examples from research in Dinosaur National Monument in Northeastern Utah.

Johnson, David, see Gardner, A. D.

Kent, Jo, see Lovett, K.

Kirk, James W. (University of Colorado)
The Archaic Period Dakota Hogback of the Denver Foothills.
General Session III

The Dakota Hogback is located in the foothills of the Rocky Mountains west of Denver, Colorado. It lies between two recognized culture areas -- the Mountain Tradition to the west and the Plains cultures to the east. While there are over 55 recorded archaeological sites and excavation has been conducted in the Hogback Valley for many years, a comprehensive field survey and regional synthesis has yet to be undertaken. Ten of the sites that have been recorded in the area are rockshelters. Rockshelters are used extensively to reveal the developmental sequence of specific cultures and for that reason are extremely important for the analysis of an area. Four rockshelter sites in the Hogback Valley will be examined in this paper: LoDaiska (5JF148), Magic Mountain (5JF223). Swallow (5JF321) and Crescent (5JF148). Using data from these sites and stressing the regional comparison aspects, this paper will address the following question: were the inhabitants of the Hogback Valley mountain oriented, plains oriented, or did they participate in an unique and as yet undefined foothills tradition.

Kunselman, Raymond (University of Wyoming)
Obsidian Utilization Studies: Source Variation at the Jackson National Fish Hatchery Site 48TE1291.
General Session II

As part of the proposed construction of a new parking lot at the Jackson National Fish Hatchery a program of archaeological survey, testing, and excavation has been carried out at the site over the last two summers. X-ray fluorescence (XRF) analysis of 60 obsidian artifacts from this site indicates utilization of a substantial number of sources from the surrounding region. Preliminary results of this analysis suggest that the smaller local source areas were exploited more commonly than the larger more distant sources, suggesting an expediently-oriented pattern of obsidian procurement, utilization, and discard at the site. Not enough information is available to consider changing patterns of utilization over time. These data can be compared with other collections from the region.

Larson, Mary Lou (University of Wyoming)
The Archaeology of Geoarchaeology: Geoarchaeology as a Two Way Street.
Symposium IV

Interdisciplinary studies are necessary to all forms of archaeological research. However, neither the archaeologist nor other specialists should forget that the interdiscipline goes both ways. The use of archaeological techniques and analyses to address geoarchaeological problems of site formation, when combined with pedological and geological analyses, strengthens the understanding of past processes. Use of information normally considered to be "archaeological" data aids the investigations of site formation processes at several sites in northwestern Wyoming. This paper discusses the ways in which archaeology can contribute to geological understanding and how the two are intricately intertwined.

Larson, Mary Lou (University of Wyoming)
Looking Out From Lookingbill.
Symposium V

The stratified, open air Helen Lookingbill site located north of Dubois, Wyoming is known for its Early Plains Archaic and Paleoindian deposits. Excavations in the Late Prehistoric and possible Shoshonean (protohistoric) levels at the site are yielding information on occupation during these later periods of prehistory. Of particular interest to research in the Greater Yellowstone Ecosystem is the environmental record documented at the site, the nature of human response to these conditions, the chronological indicators present within the deposits, and how these data apply to understanding regional ecology and interactions.

Loendorf, Larry (University of Arizona), and Dave Whitley (UCLA Rock Art Archives)
Dinwoody Rock Art in a Numic Wide Perspective
Symposium VII

For more than four decades, Dinwoody petroglyphs have been recognized as a significant component of Wyoming archaeology. In the past few years we have discovered a close relationship between the petroglyphs and Numic ideology. Many of the characters in Wind River Shoshoni lore that are interlinked with rock art are also closely tied to rock art elsewhere in the Great Basin. For example, the Water Ghost Woman in Wyoming has parallels to the female water babies in Nevada and both are responsibie for rock art.

Loosle, Byron, Lynne Ingram, and Lora Broadbent (Ashley National Forest)
The Other Side of Life - Hunting With the Fremont.
Symposium VI

For the last three years Ashley National Forest personnel with assistance from Passport in Time volunteers have excavated Summit Springs Rock Shelter (42 DA 545), a high altitude (8,200 ft.) hunting camp located on the north slope of the Uinta Mountains. This site provides a unique opportunity to examine the poorly understood "Uinta Fremont" in a setting where a site from this group has yet to be excavated. Although excavations have been limited and only preliminary analysis completed, important insights have been gained. The inhabitants of the site were hunting bighorn sheep and gathering local wild plants. The site provides a glimpse of the Late Archaic - Fremont transition period, supporting the notion the Uinta was an early"Fremont" tradition. The site also provides a chance to explore the influence of Plains groups on the Fremont living near the Green River.

Lovett, Kim and Jo Kent (University of Colorado)
Lithic Material and Settlement Patterns of Middle Archaic Peoples at Crescent Rockshelter.
General Session III

The Crescent Rockshelter (5JF148) is a multicomponent site containing deep stratified deposits and a variety of artifacts along the shelter and down the slope in front of the shelter. Data obtained indicates that Crescent Rockshelter was occupied from the Late Paleoindian to Early Woodland periods. The site contains evidence of hunting and gathering with exploitation of local flora and fauna. Lithic materials recovered are primarily of quartz with evidence of some utilization of chert, petrified wood and quartzite. The lithic evidence leads us to believe that the Middle Archaic peoples may have inhabited Crescent Rockshelter on a year-round basis. This paper will use the lithic material from Crescent and similar sites in the hogback region of the Rocky Mountains to determine if year-round occupation over a long period of time occurred or if shorter term, seasonal movement is indicated.

Lubinski, Patrick M. (University of Wisconsin-Madison)
Changing Patterns of Pronghorn Antelope Exploitation in the Wyoming Basin.
General Session I

In the late prehistory-protohistory of the Wyoming Basin, there appears to have been a shift in the exploitation of pronghorn, including an increase in the importance of pronghorn in the diet and an increase in communal pronghorn hunting. A dissertation project designed to document and test explanations for this shift will involve analysis and/or re-analysis of several Green River Basin faunal assemblages, including Firehole Basin #11. The study will focus on the use of pronghorn age structures for determining procurement method and includes an analysis of a modern death assemblage for comparison.

Madsen, David B. (Antiquities Section, Utah Division of State History)
Differential Transport Costs and High Altitude Occupation Patterns in the Uinta Mountains, Northeastern Utah.
Symposium I

Investigative survey programs, based on directed wandering, in the central Uinta Mountains have identified 41 high altitude prehistoric sites and a variety of isolated tools. The mid-Archaic to late-Prehistoric sites appear to be primarily hunting related, although limited ground stone, pottery, and a possible structural site suggest a more varied use of the area. Toolstone is from local sources or from areas on the north slope and the sites are characterized by large quartzite bifaces used both as a knives and as sources of flake tools. The differential distribution of these sites is marked, with locations limited to the north slope or areas with easy access to the north. This pattern may be due to differential transport costs. Distances to canyon mouths are substantially shorter to the north and the southern foothills appear to be outside efficient logistical transport range.

Magennis, Ann L. (Colorado State University,) Michael D. Metcalf (Metcalf Archaeological Consultants), and Kevin D. Black (Colorado Historical Society)
An Early Archaic Burial From the Yarmony Site, Eagle County, Colorado.
General Session IV

Human burials dating to the Archaic in general and the Early Archaic in particular are rare in the southern Rocky Mountain region. The recovery of a burial from the Yarmony site adds to a small but growing inventory of human remains dating to the Early Archaic. The multicomponent Yarmony site (5EA799) evidenced occupations dating to the Early and Late Archaic, and Late Prehistoric periods. The site is situated at an elevation of about 7140 ft. on a broad ancient terrace of the Colorado River. Excavations were conducted in 1987 and again in 1988 and are reported by Metcalf and Black (1991). Of particular importance at the site is the presence of at least two pit houses dating to around 6300 and 6050 BP respectively. A human burial was observed near one of the pit houses eroding from the ground surface. The burial was excavated in June 1992, subsequently analyzed and returned for repatriation in May 1993. The interment is a 60+ year-old female who was placed in a shallow grave in a flexed position. Two manos were included as grave goods. An uncorrected AMS 14c date of 6480 $\pm$ 60 (CAMS-5888) was obtained from bone collagen. This date considered together with four radiocarbon dates obtained from charcoal from pit house 1 are not statistically different at $p < .05$ suggesting contemporaneity between the burial and occupation of the pit house. The recovery of human burials from habitation contexts during this time period is rare and it offers the opportunity to begin testing hypotheses about human adaptation during the Early Archaic in the Southern Rocky Mountain region.

Matheny, Deanne G., see Matheny, R. T.

Matheny, Ray T. (Brigham Young University)
The Archaeology of Nine Mile Canyon: A Preliminary View.
Symposium III

Surveys have recorded nearly 500 prehistoric and historic archaeological sites in Nine Mile Canyon representing Late Archaic, possibly Early Fremont bighorn sheep hunters, later horticultural Fremont, individual dwellings and a few small villages (9-10th centuries), post Fremont ephemeral horticulturalists' cliff storage units (12-13th centuries), Ute/Numic elk hunters (18-19th centuries), 19th century EuroAmerican explorers and settlers, and 20th century ranchers and farmers. All investigations, including excavations, indicate that archaeological manifestations appear to have been for brief periods of exploitation for unusual abundance of fauna, or during ideal climatic conditions for practicing horticulture, and in the case of EuroAmerican occupation, their sophisticated culture briefly overcame variations in climatic conditions and the physical alterations to the landscape, that allowed limited success until now there is near abandonment. A small prehistoric endemic population may have inhabited the Tavaputs Plateau and its canyons, from early Fremont times, exploiting resources when advantageous, retreating when not, but maintaining distinct relationships both to the north and south, that we may eventually recognize as a division of the Fremont.

Matheny, Ray T. (Brigham Young University), Tom Smith (Department of the Interior), and Deanne G. Matheny (Brigham Young University)
Animal Ethology in Nine Mile Canyon Rock Art.
Symposium III

The Native American rock art found in considerable examples in Nine Mile Canyon presents challenges to archaeologists and other specialists who attempt to understand it in terms of prehistoric occupation of the canyon. We know from other examples that Native Americans were keen observers of natural phenomena and they often memorialized such knowledge in enduring forms on rock faces, earthen and rock structures. In Nine Mile Canyon the rock art reflects the ample knowledge of Native Americans concerning ethology or animal behavior on a seasonal basis. These examples provide information about Archaic, Fremont. and Ute/Numic exploitations of animal populations.

May, Ronald V. (County of San Diego, Planning and Land Use)
Incident at Bear River Road; Another Chip at Chinatown
General Session I

Construction of Bear River Road in Evanston, Wyoming impacted another portion of the 19th century Chinatown. The lack of a comprehensive archaeological investigation of the Evanston Chinatown serves to illustrate a wider problem in the region. The Wyoming Office of Historic Preservation does not closely monitor local agency construction projects that might involve co-mingled federal and local funding, let alone state or local funded projects. Prehistorians have to fight hard to test one in ten sites, let alone survey for historic archaeology. The Joss House Museum in Evanston memorializes a heritage of local disregard for the Asian experience in America. The good citizens of Evanston burned Chinatown to the ground in 1922 and drove all but two residents to the county line. Local prejudice evolved to apathy until the Evanston Urban Renewal Agency built a replica of the Joss House, the Asian religious temple. Artifacts salvaged from the graded fill will be used to address several important scientific research problems that should be addressed in Asian archaeological contexts in "the Great Unknown."

McDonald, Stan (Manti-La Sal National Forest)
A Preliminary View of Archaic Use of the Wasatch Plateau Uplands, Central Utah.
General Session II

Recent archaeological survey in the Wasatch Plateau of central Utah documented evidence of Paleoindian, Archaic, Formative and Protohistoric use of glaciated alpine valleys. At elevations ranging from 8,500 feet to over 10,500 feet elevation, documented archaeological phenomena consist of isolated artifacts, small and large lithic scatters and lithic source material workshops. Survey and other data indicate that prehistoric populations used these uplands during the summer and early fall months as plant and animal resources became seasonally available. Early and Middle Archaic sites are well represented in the data, while sites of later periods occur with less frequency. A preliminary view and possible explanations for the seeming disproportionate representation of Archaic sites will be explored.

McDonald, Kae, see McKibbin, A.

McKee, Dave F. (Medicine Bow National Forest)
Historic Logging in the Sierra Madre Mountains of Southern, Wyoming; A Preliminary Investigation of Historic Settlement Patterns.
General Session I

Historic logging operations began during the late 1800's within the Sierra Madre Mountains of southern Wyoming. Carbon Timber Company established centrally located commissary camps while loggers established base and side camps in the timber at higher elevations. A preliminary investigation has been conducted in order to identify base and side camps containing evidence of horse teams, women, and children. Analysis of spatial and material data from logging camps in the East Fork Encampment River drainage can provide information on settlement patterns and other aspects of social organization established during logging operations at the turn of the century. Preliminary data can be utilized to develop more in-depth research designs and target certain sites for more intensive investigations.

McKibbin, Anne and Kae, McDonald (Metcalf Archaeological Consultants)
Sage Smoke and Fish Fins, Or, a Bad Day Fishing Is Better Than a Good Day of Farming: Living on the Fremont Fringe.
Symposium VI

The Pescadero site (48LN2068) is a Late Prehistoric Uinta Phase site along the Hams Fork in Lincoln County, Wyoming. Excavations have identified at least four separate cultural levels and activity areas, representing both different occupations and subsistence strategies. Over thirty "notched" pebbles approximately double the number previously represented in the regional literature, and add a new dimension to Uinta Phase sites. Faunal remains include at least four fish species, as well as a diverse mammalian and avian assemblage. Immunological analysis of several chipped stone tools returned positive results for deer. Rose Spring points, large hafted knives, groundstone, stone beads, incised and modified bone, and small unmodified bivalve shells are also found in the assemblage. Data from this site will allow refinement of regional Uinta Phase settlement and subsistence practices, including riverine subsistence strategies, and is suggestive of a Fremont "fringe element" site.

Mendoza, Ruben G. (University of Colorado)
The Crescent Archaeological Project: An Investigation Into the Human Ecology of the Colorado Front Range, 7500-1000 B.P.
General Session III

An archaeological reinvestigation of the Crescent Rockshelter locality (Site 5JF148) west of Denver, Colorado, has been initiated with the intent of generating a comparative data base for assessing the human ecology of the Colorado Front Range for the period encompassing the altithermal transition and subsequent developments. This report provides a preliminary overview of the archaeological research methods, objectives, and results of the 1992 and 1993 University of Colorado at Denver field investigations at the Crescent Rockshelter. In addition, preliminary indications pertaining to the identification of potential Early Archaic and Paleoindian period components at the Crescent Rockshelter is briefly considered. Finally, implications arising from a preliminary analysis of the data are reviewed for the purpose of delineating the objectives of continuing investigations into the human ecology of the Crescent Rockshelter locality and within the larger regional context of the Colorado Front Range.

Merkley, Anne (Idaho State University)
Cultural Contrast and Material Change in the Wrensted-Garvey Photographs of Northern Shoshone and Bannock Indians.
General Session I

This paper addresses the place of the culture shown by photographs of Northern Shoshone and Bannock Indians in the Wrensted-Garvey Collection at the Idaho Museum of Natural History and at the National Archives and Records Administration in changing lifeways on the Fort Hall Reservation between 1895 and 1918. I analyze the material culture in the photographs and acknowledge the impact of Euro-American contact on the form it takes.

For example, the fact that Benedicte Wrensted photographed her Native American subjects differently than she did Euro-American ones may be a reflection of psychological distance on her part, but also may have depended to some extent on her subjects. That they are mainly portrayed in frontal, full-figure positions might be for the purpose of displaying their items of attire--important in establishing identity--or it might indicate their concept of the whole person. The Shoshone-Bannock were dressed in an agglomerative fashion, typifying the marginality of the region. Outside of the multiple necklace and certain beaded designs which were characteristically Shoshone, perhaps a mixing of styles was itself "Shoshone." A challenge that has only begun to be met is sorting out which items were obtained from where and how in this material culture--what was traded, what borrowed, and what made locally.

While it has been speculated that the photographs were not only editorialized but also censored before being accessioned into museums, I do not see much evidence of this, partly because the Wrensted images portray a full range of subjects, dressed in everything from everyday to best attire, from Euro-American to Native American in style. As for the predominance of "Indian markers," it is possible that the Shoshone and Bannock, as Dr. Sven Liljeblad has concluded, held onto "tradition" longer than did many other tribes in the region. This paper serves as a model of reading cultural text. It combines ethnographic and ethnohistorical sources of information with the photograph as a record of activity that occurred in the past.

Metcalf, Michael D. (Metcalf Archaeological Consultants)
Mountains and Mobility: Archaic Settlement in the High Country.
Symposium I

Traditional notions concerning Archaic mobility strategies in the Rocky Mountain region have, as a common background, the idea that movement was relatively free within fairly wide-ranging annual territories. Evidence from the Yarmony site in the upper Colorado River valley challenged that idea, suggesting Early Archaic seasonal sedentism within a restricted territory. Continued work within the Colorado, Yampa and Green River basins is beginning to provide evidence that mobility throughout the Archaic period was more restricted within the mountains and western plateaus than on the Plains, in the Great Basin, or within the Wyoming Basin. Evidence for this includes distributions and dates of pit structures, projectile point assemblages that are more variable stylistically than is typical in the Great Basin or on the Plains, and from lithic material type distributions that show strong local tethers with relatively few exotics. The pattern of cold season sedentism and a restricted annual range

evinced at Yarmony during the Early Archaic is also evident in Archaic sites in the Yampa River Valley dating as late as 3000 BP and in the Green River valley of Northeastern Utah dating as late as 1800 BP. It is hypothesized that relatively high carrying capacities tempered by strong seasonal resource incongruity led to a low mobility, "packed" settlement system more similar to the Eastern Woodlands or coastal regions than to neighboring portions of the lowlands. This system developed in response to the high productivity of high elevation environments and the altitudinal zonation characteristic of mountain topography but was limited by the short season of productivity and the need to store resources for the long winter.

Metcalf, Michael D., see Morris, E. A.

Metcalf, Michael D., see Magennis, A. L.

Mierendorf, Robert R. (North Cascades National Park)
Consideration of the Stratigraphic and Geomorphic Occurrence of Forager Archaeological Assemblages of the Northern Cascade and Rocky Mountain Ranges of the USA.
Symposium IV

Throughout a vast area of mountainous terrain between the northwestern Rocky Mountains of Montana and the northern Cascades Range of Washington and beyond, archaeologists have investigated prehistoric assemblages derived from soil B-horizons displaying varying degrees of pedogenic redness. Such soils typically form under dense forests in cool and humid environments, in silty to gravelly parent materials of glacial terraces, moraines, alluvial fans, colluvial slopes, and other montane landforms. Artifact depositional stratigraphy and intact features. Important factors in the formation of such polygenetic soils include podzolization and other horizon forming processes, and agents of disturbance and mixing that tend to homogenize soil horizons and disperse the artifacts in them. Elucidation of the processes of soil B-horizon and site formation is important for deciphering the Holocene archaeological record of dispersed upland forager camps related to subsistence resource procurement and processing, travel and residential base camp occupations in the mountains.

Miller, Blaine, see Miller, P.

Miller, James C. (University of Wyoming)
Character of Carbonate Deposition in Rocky Mountain Basins and Foothills, and Portions of the Great Plains: A Re-evaluation of Climatic Association and Significance.
Symposium IV

Carbonate deposits in latest Pleistocene and Holocene sediments in the Rocky Mountains and northern Plains regions are classified as a product of eluviation (in-place weathering), or deposited at the phreatic evaporation, vadose evaporation, or evapotranspiration limits. These deposits are the culmination of eluviation, advection and diffusion transport, and calcareous aerosol deposition. The contribution of each mechanism varies with local conditions; eluviation, advection, and diffusion account for the bulk of carbonate deposition. Calcium produced via eluviation is derived from plagioclase, pyroxene, other calcium bearing minerals, and detrital limestone and dolomite. Carbon dioxide is an important nuclei of condensation for meteoric waters and provides the anions for carbonate mineral formation in the form of carbonic acid. Carbonic acid is the important reactant in hydrolysis and calcite production. Evidence for eluvial weathering is provided by the distribution of secondary calcite with depth through time in late Quaternary deposits, and in particle size reduction of calcium bearing mineral and rock clasts. Advection and diffusion transport via phreatic water is important locally, and accumulations are strongly linked to provenance. Carbonate deposition is commonly associated to the so-called Altithermal soil, however, carbonate production and deposition is correlated to times of increased stored soil moisture (vadose waters) and ground water flux, and directly linked to cooler intervals in sediment body microenvironments. Carbonates commonly associated to the Altithermal are the result of Neoglacial weathering, or in alluvial deposits, due to high ground water levels coincident with renewed incision during the early Neoglacial.

Miller, Mark E., see Francis, J. E.

Miller, Pam (College of Eastern Utah Prehistoric Museum) and Blaine Miller (Bureau of Land Management, Price)

Absence Makes the Head Search Longer: A Study of Artifacts From Nine Mile Canyon.

Symposium III

The relative lack of lithic and ceramic artifacts in Nine Mile Canyon has been noted in the literature for more than 60 years. This phenomenon is surprising with the abundance of rock art sites, habitation and storage sites and the number of perishable artifacts reported. Also, it does not appear to fit the pattern for Formative occupations in Castle Valley to the south and the Uinta Basin to the north. A preliminary analysis of artifacts found during recent archaeological investigations in Nine Mile Canyon has provided some data on the meager artifact assemblages, but this study results in more questions than clear understanding. One result confirms that Fremont horticultural implements, including "shovels" first reported by Gunnerson in 1962, indeed can be attributed to the Fremont.

Miller, Susan G. (Utah Department of Transportation) and Stephen Ell (Veterans Administration Medical Center)

Human Remains From Site 42Ca584: A Descriptive Report From Nine Mile Canyon.

Symposium III

The human remains of a single individual were archaeologically recovered by the BYU Field School, Nine Mile Canyon project, from an 11th century Fremont habitation site 42Ca584. A descriptive analysis of the burial was completed with the intent that the resulting data collected be comparable and as complete as possible. Interestingly, the pathological conditions exhibited in the skeletal remains shed new light on the relative health of the Fremont, while the archaeological context of the burial suggests that the Fremont way of life possibly included violent conflict.

Morris, Elizabeth Ann (Arizona State Museum), and Michael D. Metcalf (Metcalf Archaeological Consultants)

Twenty-two Years of Archaeological Survey in the Rawah Area, Medicine Box Mountains, Northern Colorado

General Session IV

Sixty-three prehistoric sites have been recorded in the higher forests and tundra of the Rawah area in the headwaters of the North and South Platte rivers. Recollection of most of them at least annually since their discovery has resulted in much larger and more informative artifactual collections. Chronological periods represented range from Paleo-Indian to the historic present with only the short Historic Indian contact period not being recorded so far. Site types include base camps with artifactual inventories that tend to be larger, more diverse and multi-component in nature, as well as stopovers, and kill/butchering sites with fewer finds. Settlement patterns indicate site concentrations near water, on level dryer ground near the forest-tundra border. Kill and butchering sites are on or near modern game trails, often on steeper terrain. The highly informative results of annual recollection in terms of identifying age of occupation and function of known sites and discovery of new sites will, hopefully, be continued in future years.

Morris, Nowell L.

Archaeoastronomy as a Resource in the Archaeology of Rock Art

Symposium VII

The large oddly shaped Fremont zipper glyph at Parowan Gap, UT has eluded interpreters and many thousands of casual observers for the last one hundred years or more. Now a simple isomorphic correspondence between the glyph's tick marks (the zipper's teeth) and a half year count reveals a detailed calendar incorporating the dates of seasonal passage and the plausible times to plant and harvest Fremont corn. Once these correspondences have been defined, the glyph becomes a surprisingly simple representation of the narrows at Parowan Gap with solar observation points designated by the glyph itself. These observation points comprise a system of outlier cairns to observe solar alignments on key dates for resynchronization of the calendar. The glyph matches the narrows which create the alignments. The alignments match the numbers which define the dates. The numbers are incorporated in the glyph using simple isomorphism. The dates outline for us the entire Fremont year at this site. There are still more dates designated by the glyph that are not yet understood and need further research.

Mosch, Cynthia and Patty Jo Watson (Washington University)
Collaborative Research at an Unusual High-Altitude Locale in the Southern Rockies
General Session IV

Approximately 8000 years ago, a 35 year-old mountaineer entered a small cave at an altitude of approximately 11,200 feet in the southern Rocky Mountains. He died there of a cause or causes unknown. His physical remains were found many millennia later by a group of speleologists, who contacted appropriate Federal authorities, Native American representatives, and academic and privately-based researchers. In this paper we describe and discuss preliminary results of the study, with emphasis on the unusually broadly-based, cross-disciplinary nature of the research.

Munger, Benjamin S. (Midland School)
Whitebark Pine: A Prehistoric Food Source at Timberline in the Bitterroot Mountains of Montana
Symposium II

Whitebark pine is a nutritious food source found at the timberline in the Bitterroot Mountains of western Montana. Evidence suggests that, in addition to hunting, prehistoric people exploited this resource while camping at high elevations. Both hunting and collecting whitebark pine nuts may have contributed to the high density of archaeological sites in a survey section of the Bitterroot Mountains.

Elevation of the broad-spectrum model in the high-country of the Bitterroot Divide suggests that hunter-gatherers, beginning in the Middle Prehistory Period (5500 B.C.- A.D. 500) intensified their use of upland resources. Settlement patterns suggest that groups accessed the alpine zone, on a logistical basis, to hunt and gather from base camps at the headwaters of major water courses draining the survey area. Field camps were established on the Bitterroot Divide and were the locus of hunting and gathering trips into the high-country.

Murcray, Dirk (Western Wyoming College)
The Upper Powder Spring Hunting Complex: Evidence For Large Scale Communal Hunting During the Late Prehistoric and Protohistoric Periods in Southwest Wyoming.
General Session I

During the 1992 excavations by Archaeological Services of Western Wyoming College of three sites along Questar Corporation's Skull Creek Pipeline, members of the excavation crew discovered a number of unrecorded rock art panels and rock shelter sites. Further investigations resulted in the discovery of the remains of a cribbed juniper log drift fence encircling the 3 x 1 mile Upper Powder Spring Basin. The drift fence occurs in close proximity to a variety of hunting blinds, and with a number of wickiup shelters and the remnants of drying racks. The method of construction of the drift fence, the presence of early Euroamerican trade artifacts, and evidence provided by pictographs and petroglyphs suggest the hunting complex originated during the Late Prehistoric and experienced continued use and maintenance until the settling of the area by Euroamericans. Because the hunting complex is situated in a natural corridor leading to an important antelope wintering area in the Little Snake River Valley, it is believed the drift fence was constructed to concentrate and ambush seasonally migrating herds of antelope and possibly bighorn sheep.

Pierce, Kenneth L. (U.S. Geological Survey)
Geologic Setting of Archeological Sites in the Jackson Lake Area, Wyoming
Symposium IV

The Jackson Lake basin was excavated during the last (Pinedale) glaciation. Since then the following geologic processes have produced changes in lake levels and shorelines: (1) isostatic rebound, (2) downfaulting on the Teton Fault, and (3) build out into the lake of fans and deltas. Archeological sites are common on beach deposits (the Lawrence and Gull Island sites) as well as on slightly higher areas in the delta area. The abundant artifacts of the Lawrence site range in age from Paleoindian to late Prehistoric and mostly occur on a descending sequence of sandy beach deposits. These beaches range in age from late Pleistocene through early Holocene to mid-Holocene, with a McKean association in and on the 6743-ft beach, the lowest prominent beach. This descending sequence probably results from glacio-isostatic uplift relative to the lake outlet.

Archeological sites in the Snake River delta mostly occur on either (1) two beach sets that are anchored to Gull Island and have depositional and archeological ages as old as about 2,000 yr BP, (2) along the meander belt of the Snake River with archeological ages up to about 2,000 yr BP, and (3) on the gentle ridge and basin terrain with archeological ages up to about 4,000 yr BP. Offsets and associated earthquakes on the adjacent Teton fault appear important to this history; on episode about 4 ka caused lurching action that formed the gentle ridge and basin terrain; another episode about 2 ka down dropped and backflooded the delta and thereby caused the Gull Island beach sets to be deposited on top of Snake River alluvium.

Pierce, Kenneth L. (U.S. Geological Survey)
Landscapes of the Greater Yellowstone Ecosystem: Uplift Above a Thermal Mantle Plume?
Symposium V

The high, mountainous landscapes of the Greater Yellowstone Ecosystem may result from a thermal mantle plume that has caused uplift, volcanism, and faulting in the southwest-moving North American plate. Large-caldera eruptions arrived in Yellowstone 2 Ma, and left in their wake the eastern Snake River Plain, a hotspot tract that formed above the mantle plume. The Yellowstone crescent of high terrain curves around this hotspot track. Pleistocene glaciers had largely melted by 12-15 ka, and by 11 ka climates similar to present and most plants (and animals?) of the modern Yellowstone ecosystem were present.

Pitblado, Bonnie (Briggsdale, Colorado)
Paleoindian Occupation of Southwest Colorado
General Session III

One-hundred and sixty-six projectile points, from 100 sites in southwest Colorado, are documented and analyzed. It is suggested that the majority of artifacts can be subsumed under the label "Foothills-Mountain Complex" and related to finds in other mountainous regions of Colorado and Wyoming. Moreover, the Foothills-Mountain Complex is viewed as a generalist adaptation, more closely related to Paleoindian occupation of the Great Basin than to occupation of the Great Plains. Evidence for this position is offered in the form of morphological and functional characteristics of the projectile points, raw material selection, and site characteristics.

Puseman, Kathryn, see Guernsey, K.

Rapson, David J. (University of Wyoming)
Linking Intrasite Archaeological Research With Regional Models of Subsistence and Settlement in the Absaroka Mountains of Northwestern Wyoming: Attribute-Based Spatial Analysis at the Bugas-Holding Site.
Symposium V

Evaluating models of Late Prehistoric subsistence-settlement in high altitude settings involves interpretation of the distributional patterning of material remains at individual localities. A program of attribute-based spatial analysis addresses the form and function of faunal remains in conjunction with the principles of site structure. Concepts and techniques for interpretation of intrasite patterning are developed, emphasizing the multidimensional character of the relationships between material remains and human decision sets. Topics include seasonally selective decisions on the procurement and processing of bighorn sheep and bison. These factors are related to hunting tactics, processing techniques, transport choices, storage, and consumption patterns.

Reasoner, Mel A. (University of Alberta)
The Late Pleistocene - Holocene Environmental History of the Central Canadian Rocky Mountains.
Symposium II

Palaeoenvironmental reconstructions for the central Canadian Rocky Mountains are derived from radiocarbon and tephra dated sediment cores recovered from Lake O'Hara (subalpine) and adjacent Opabin Lake (alpine) in Yoho National Park, and Crowfoot Lake (subalpine) in Banff National Park. Lake O'Hara and Opabin Lakes are situated in cirques directly west of the Continental divide whereas Crowfoot Lake is located adjacent to the Crowfoot moraine type locality in the Bow Valley approximately 10 km from the headwaters of the Bow River. Late Quaternary vegetational and climatic changes are based on pollen, macrofossil, pigment, diatom, and Rock-Eval carbon analyses.

An interval of inorganic sediments from Crowfoot Lake cores bracketed by AMS radiocarbon dates of ca. 11,330 and 10,100 14C yrs BP is associated with the Crowfoot moraine. The Crowfoot advance is therefore approximately synchronous with the European Younger Dryas (YD) cold event. In Crowfoot Lake and Lake O'Hara cores, "Crowfoot age" sediments are separated from overlying organic gyttja by a very sharp contact which suggest the YD termination was abrupt in western Canada. The postglacial colonizing vegetation prior to ca. 10,100 yr BP at Lake O'Hara and before ca. 8530 years BP at Opabin Lake was a shrub herb community dominated by *Artemisia*, Gramineae and *Alnus*. Pioneering forests in the Lake O'Hara area were composed of *Pinus* cf. *albicaulis/flexilis* and *Abies* with lesser abundances of *Picea* and *Pinus cf. contorta*. Timberline remained above the elevation of Opabin Lake, at least 90 m above modern timberline elevation, during the period ca. 8500 years BP to ca. 3000 years BP in response to warmer climatic conditions associated with restricted glacial activity. Forest compositions resembling the modern subalpine *Picea-Abies* forest had developed by the end of this period. The period ca. 3000 years BP to present was marked by deteriorating climatic conditions associated with renewed glacial activity in the Opabin Cirque and declining timberlines to below the elevation of Opabin Lake. The main pulse of glacigenic sediment input during the neoglacial interval of the Crowfoot record is dated to ca. 500 ^{14}Cyrs BP.

Reeves, Brian (University of Calgary)
Mistakis (The Back Bone) Revisited: Piikani and K'tunaxa Oral History and the Northern Rockies Archaeological Record.
Symposium II

Piikani and K'tunaxa oral histories recorded at the turn of the Century and still recalled today by Elders are quite clear in stating that it was here that the tribes originated; K'tunaxa on the western slopes in the Kootenay Valley and Piikani & the other two tribes of the Nitsitapii, the Siksika and Kainaa, on the eastern slopes in the Oldman River Basin (today's Southwestern Alberta). The Piikani and K'tunaxa are easily identifiable in the archaeological record of the last 1000 years by distinctive artifact assemblages and lithic use patterns. Traditionally the Piikani bands wintered in the foothills and summered out on the plains. One band of the Piikani, however, traditionally summered in the Foothills and Eastern Slopes. The majority of the K'tunaxa bands wintered in the Kootenay Valley, travelling eastward over the divide to hunt buffalo and bighorn sheep, fish and camp at various times of the year in the eastern valleys and foothills. The Raven's Nest (Crowsnest) band of the K'tunaxa often wintered on the eastern slopes. The small pox epidemic of ca.1730 resulted in their extinction. The K'tunaxa also hunted the high country along the Continental Divide in the summer. The Precontact archaeological settlement pattern of the last 1000 years is generally the same as that of 200 years ago. Precontact K'tunaxa sites are not found in the plains grasslands, supporting the conclusion of a number of ethnohistorians that the existence of the "Plains Kootenay" like that of the "Plains Salish" and "Plains Shoshone" is an anthropological fiction.

Reeves, Brian, and Brian C. Vivian (University of Calgary)
Thawing the Ice: Discovering the Native American Archaeological Resources of Glacier National Park.
Symposium II

Until recently the documentation of Native American Archaeological sites within Glacier National Park, Montana, has been largely the result of reports to the Park by staff and visitors, compliance and reconnaissance surveys and limited text excavations. Some 53 sites have been recorded in this manner. The United States National Park Service has designed and is implementing a four year program beginning in 1993 to systematically survey and record Native American archaeological sites within the Park for National Register and Park management purposes. This study is being carried out through a cooperative agreement with the Museum of the Rockies. The survey is designed to target areas of known or high archaeological potential in the valleys and alpine areas. The results of the first year which focused on the northeastern portion of the Park are most promising. They include sheep hunting complexes on sheep migration routes in the lower valleys, bison kills and major base camps adjacent to lake exits, and a well defined pattern of quarrying and hunting in the remote high alpine along the Continental Divide. Problem specific studies in 1993 included location of mountain top vision quest sites along the Front and valley floor lithic sources on the North Fork of the Flathead.

Ronaghan, Brian (Provincial Museum of Alberta)
Early Prehistoric Occupations in the Front Ranges of the Canadian Rocky Mountains: Preliminary Results of The James Pass Project.
Symposium II

As with other major river valley systems along the Eastern Slopes of the Canadian Rockies, the Red Deer River valley has high potential for the presence of prehistoric occupations during the early post glacial periods. Of particular importance in this region are the high elevation grassland ecosystems present inside the Front Ranges. Although considerable numbers of prehistoric sites have been recorded along the Upper Red Deer River in association with these ecosystems, archeological sampling has only begun recently. Small scale excavations at a stratified locale within a large constellation known as the James Pass Meadow Complex have resulted in preliminary description of three cultural components dating to between 7,000 and 10,000 B.P. The latest of these contains stylistic elements unlike those present on the adjacent Plains during the same interval and, along with accumulative evidence elsewhere, suggests cultural differences between mountainous and lowland regions of Alberta during the Mid-Wisconsinan climatic maximum. While diagnostic elements are rare in earlier occupations, the strength of their expression and their early dates indicate that visible vegetation communities and ungulate populations had been established inside the mountain Fronts relatively soon after deglaciation.

Schoen, Jamie, see Cannon, K. P.

Schwab, David C., see Baumler, M. F.

Scott-Cummings, Linda (Paleo Research Labs)
Vegetal Subsistence in Southwestern Wyoming and Northwestern Colorado.
Symposium VI

Pollen and macrofloral samples provide the basis for identifying the vegetal portion of the subsistence base in the basins of southwestern Wyoming and adjoining northwestern Colorado. Local vegetation usually is dominated by varying quantities of sagebrush and grass. A review of this evidence for sites with Archaic and Late Prehistoric occupations indicates that the occupants gathered and processed more than the obvious bison, antelope, and rabbits. Groundstone recovery at a variety of sites has hinted at the importance of processing of small seeds. A recent breakthrough in the identification of starch granules along with pollen promises to add to our understanding of often elusive subsistence patterns.

Smith, Tom, see Matheny, R. T.

Spangler, Jerry (Brigham Young University)
The Tavaputs Variant - Additional Evidence for Cultural Variability among Formative Peoples of the Northern Colorado Plateau.
Symposium VI

Variation in the cultural record of Formative peoples north of the Colorado River has long been a focus of professional researchers who have employed different techniques in describing that variability. Among the characteristics commonly employed to describe variability are ceramics, architecture and subsistence, which collectively support the concept of regional culture variation. From 1989-1991, Brigham Young University conducted intensive surveys of the lower 13 miles of Nine Mile Canyon on the West Tavaputs Plateau, a roadless area previously ignored by professional researchers. When combined with data derived from the middle portion of Nine Mile Canyon by the Castle Valley chapter of the Utah Statewide Archaeological Society, from Steven Creasman's work in Douglas Creek and from a reevaluation of the San Rafael Fremont by Alan Schroedl and Patrick Hogan from their work at Innocents Ridge, the lower Nine Mile Canyon data supports the hypothesis that Formative peoples of the West and East Tavaputs plateaus (as far north as Douglas Creek) and the Book Cliffs are culturally distinct and largely undescribed in traditional definitions of the Fremont culture. The data derived from 180 sites in lower Nine Mile Canyon suggest that Formative peoples of this region were largely aceramic and predominately horticulturalists who erected elaborate and energy-expensive dwellings of dry-laid stone masonry, many in arguably defensive postures. They also constructed large cliff storage structures that would appear excessive for the relatively small population suggested by scattered dwellings. While the area has traditionally been assigned to the Northern San Rafael Fremont variant, evidence from Nine Mile Canyon, Hill Creek Canyon, Willow Creek and Douglas Creek all suggest Formative peoples of this region were specifically adapted to unique environmental conditions that allowed the manifestation of cultural traits generally dissimilar to Formative peoples of the San Rafael Swell to the Southwest or the Uinta Basin to the north and west. Hence, the label Tavaputs Variant is suggested.

Spangler, Jerry (Brigham Young University)
Site Distribution of East Nine Mile Canyon to the Green River.
Symposium III

Numerous attempts to predict site locations on the northern Colorado Plateau were initiated in the late 1970s and early 1980s, all of which were based on various sampling techniques. The random nature of those Class II surveys ignored environmental realities and those attempts generally were not as informative as they could be. The Brigham Young University surveys of 1989-91 marked the first large-scale intensive survey anywhere on the West Tavaputs Plateau. Some 180 sites were recorded in the lower 13 miles of Nine Mile Canyon, a west-east drainage that features an environmental transition from high alpine to pinyon-juniper to desert scrub vegetation zones. The immediate availability of permanent resources appears directly related to the distribution of prehistoric sites in this region: permanent water, arable land and pinyon-juniper resources. The elimination of any one of those resources corresponds with a dramatic decrease in site density. In optimal zones, site density ranged from 12-15 sites per square mile. In zones with no pinyon-juniper resources, but with arable land and permanent water, site density ranged from 2-4 sites per square mile. In zones with no pinyon-juniper and no arable land, prehistoric sites were virtually non-existent. Despite the paucity of pinyon-juniper resources at the mouth of Nine Mile Canyon, the density of prehistoric sites increases, presumably due to the immediate availability of abundant cottonwood resources and the proximity of the Green River. The maximum density of sites were located between 5200 and 4800 feet elevation. Most of the sites were assigned a cultural affiliation consistent with Formative horticulturalists and bighorn sheep hunters.

Spero, Vince, see Jodry, M.

Stone, Tammy (University of Colorado)
Shifts in Resource Procurement and Regional Organization During the Archaic Period in the Hogback Valley.
General Session III

The Crescent Rockshelter (5JF148) is located at the Hogback Valley, an intermontane zone west of Denver, Colorado. The site contains over two meters of deposits representing approximately 6000 years of deposition beginning with the Late Paleoindian-Early Archaic transition. This paper will discuss the chipped stone material recovered from deep stratigraphic units with regards to changes in resource procurement strategies through time. This study will aid in understanding the changes in regional organization patterns that were precipitated by changes in mobility, subsistence patterns, and demographics in the area over the 6000 years of occupation of the site.

Thomas, David Hurst (American Museum of Natural History)
The Higher You Get, The Higher You Get
Symposium I

For the past quarter-century, we have been investigating the archaeological record in the uplands and higher elevations of the Reese River and Monitor valleys of central Nevada. In the *uplands* (that is, between about 6,000 and 10,000 feet), we excavated several stratified sites (including Gatecliff and Triple T Shelters, Toquima, Jean Springs and Butler Ranch Caves); our research team also executed ten distinct regional randomized surveys. In the *higher elevation zones* (that is, areas higher than 10,000 feet), field crews from the American Museum of Natural History excavated two domestic sites (Alta Toquima and North Flats) and mapped four others. We also systematically surveyed roughly 3000 acres on the Mt. Jefferson tablelands.

This paper situates new findings from Alta Toquima and other higher elevation locales within the overall upland perspective of the Monitor and Reese River valleys. We also integrate the high altitude archaeological evidence with similar results from elsewhere in the Great Basin. Finally, we address a few myths that have arisen recently regarding the nature of high elevation adaptations in the Great Basin.

Thompson. Kevin W., see Creasman, S. D.

Thompson, Patti A. (Brigham Young University)
Excavations in Nine Mile Canyon: from 1896 to 1990.
Symposium III

Excavations in Nine Mile Canyon from Montgomery's 1896 work to the BYU's Field School efforts in 1989-1990 are reviewed in an attempt to understand the diversity of archaeological remains, and what these mean in terms of human occupation over time. Dwellings are found between Argyle Canyon and just downstream of Bull's Canyon, however, only a few of these have been excavated, giving us scant information about permanent settlement during the ninth and tenth centuries. Those investigated indicate small efforts in construction, and a short period of occupation by horticulturalists. Affiliation to other Fremont areas appears divided between the Uinta Basin and the San Raphael with the greater influence with the latter.

Thoms, Alston V. (Texas A&M University)
Bulk-Processing Features as Evidence of Land-Use Intensification in the Northern Rockies.
Symposium II

Beginning about 4,000 B.P. in the Northern Rocky Mountains, the patterned occurrence of large earth ovens used to cook up to a metric ton of camas bulbs (Camassia quamash) arguably signals land-use intensification among hunter-gatherer populations. Intensively used camas processing sites are represented archaeologically by high densities of fire-cracked rock and carbon-stained sediments, and by very low densities of chipped stone artifacts and faunal remains. Ethnohistoric data attest to population aggregation during the camas digging season and to large-scale storage of processed camas. Ethnoarchaeology underscores the labor-intensive aspect of bulk processing root foods.

Tratebas, Alice M. (Newcastle, Wyoming)
New Methods in Rock Art Research
Symposium VII

The advent of direct dating has stimulated analysis of rock art as archaeological data. Even without available dates, applying archaeological techniques to rock art can provide extensive information about prehistory. Because archaeologists in the past have relegated rock art studies to the fringe of archaeological research, valuable data have been ignored. Examples from the analysis of the Whoopup Canyon petroglyphs show the value of analyzing rock art as archaeological data. Because it reflects a culture's thought system, rock art can provide a more accurate picture of cultural continuity and change than the aspects of technology and subsistence presently used to define cultures.

Truesdale, James A. (Metcalf Archaeological Consultants)
The Uinta Fremont: Who? What? When? Where?
Symposium VI

This paper will be used to introduce the 'Fremont in the Great-In-Between' symposium. The symposium will present many of the topics briefly mentioned below. Who? Past and present Great Basin and Plains archaeologists have presented perspectives and theories on the Uinta Fremont. What? The perspectives and theories have addressed topics such as: the Uinta Fremont and their unique diversity and adaptability in settlement and subsistence from other Fremont variants, their technologies and chronology, the Numic and the ultimate fate of the Fremont. These topics will be briefly discussed with emphasis on the Uinta Fremont core area. When? A brief summary of past and present archaeological investigations adjacent, and in the core (Uinta Basin) area, will be presented. These recent data support an emergence of the 'Fremont' from an in situ Archaic culture via the introduction of horticulture and the bow and arrow technologies. This Archaic/Fremont transition (cir. AD 100) is considered to be the Formative period to Great Basin archaeologists while in the intermountain basin of southwestern Wyoming the 'Uinta Phase' of the Late Prehistoric period is used. From AD 100 to AD 1250 the Fremont acquired many technologies which were uniquely adapted to fit the needs of a semi-sedentary Horticultural/Hunter/Gatherer lifestyle. The uniqueness of the Uinta Fremont is partially attributed to their ecological and cultural isolation from other groups, and the complexity of their social structure. What of Fremont influence upon other groups in other regions?, and other groups upon them? How?, and at what level(s) did the 'Numic' and their migration enculturate the Uinta Fremont. Where? Future anthropological needs and avenues for studying the Fremont in the 'Great-In-Between' will be discussed.

Turner, Mort D. (University of Colorado), Marvin T. Beatty, (University of Wisconsin-Madison), Robson Bonnichsen (Oregon State University), and Joanne C. Turner (University of Colorado)
Geoarchaeology of the Mammoth Meadow Fan Site of Everson Creek/Black Canyon Quarry Complex, Southwestern Montana.
Symposium IV

Archaeology, geology, soil science, and geophysics have been carried out concurrently at the Mammoth Meadow Fan Site, part of the Everson Creek/Black Canyon Quarry Complex, southwestern Montana, since 1985. Hydrothermally-altered Tertiary valley fill sediments have been quarried for tool-grade chalcedony over an area of several square km to form the economic base for occupation sites, such as Mammoth Meadow, over at least 12,000 years. A complex sequence of geologic and pedologic processes have operated in the late Pleistocene and Holocene to build up a small alluvial fan that has been continually occupied by several different groups of people. Coarse stream-laid sediments, that contain human and animal hair and crude stone tools, in the base of the fan, were dissected to form terraces. Fine-textured sediments covered these terraces. Glacier Peak volcanic ash, 11,200 yBP, fell on this fan surface. A Protosol, that includes a concentration of Cody age (8,200-9, 400 yBP) artifacts, then loessal sediments, with Protosols, covered much of the fan in the Altithermal. Contemporary soils have developed in a meter or more of post-Altithermal loess. Carbonates have been leached from the fan. Organic matter amounts are high in the contemporary soils.

Turner, Joanne C., see Jodry, M.

Turner, Joanne C., see Turner, M. D.

Turner, Mort D., see Jodry, M.

Van Dyke, Stanley G. (Bison Historical Services), and Frances J. Hein (University of Calgary)
The Archaeology and Sedimentology of the Welsch Locality, A Late Paleoindian Killsite in Southwest Alberta, Canada.
Symposium IV

The Welsch Locality is situated on the north bank of the Oldman River north of Cowley, Alberta, Canada. Investigations at the locality in 1990 yielded evidence of two campsites and a major kill site of Late Paleoindian age and cultural affiliation associated with a variety of paleo drainage systems. The occupations span the period between 8,180 B.P. to 7,780 B.P. Excavations yielded 188,857 bone specimens, 1,152 pieces of lithic debitage and 137 tools which provide evidence for a transition from a mountain stemmed point complex similar to "Lovell constricted" to an early "Side-notched" point complex similar to Salmon River. Sedimentological studies are based on 77 geological logs and 13 stratigraphic sections which provide evidence for sedimentation which may correspond to early Post Glacial to Altithermal climatic change. The chronology of this evolution is supported by 29 radiocarbon dates.

Vivian, Brian C. (University of Calgary)
From Plains to Passes in the Rocky Mountains
Symposium II

A survey of high altitude regions in Banff Park was undertaken to shed light on the nature of prehistoric use of high alpine regions. Results of this survey are discussed within the context of historic misconceptions of how the Rocky Mountains were used by indigenous peoples. When site concentrations, high mountain passes and recognized wintering regions are integrated together, a more comprehensive picture emerges of how prehistoric populations moved through and subsisted within the Rocky Mountain region of Banff National Park.

Vivian, Brian C., see Hanna, D.

Vivian, Brian C., see Reeves, B.

Vlcek, David (Bureau of Land Management, Pinedale)
Prehistoric Settlement Patterns Reflected in the High Altitude Sites of the Upper Green River Basin.
General Session II

High altitude sites in the upper Green River Basin of southwestern Wyoming frequently form patterns of settlement or prehistoric use, resource exploitation and assumed routes of aboriginal passage. Sites found in the Bridger Wilderness are understood only from surface examination. but their alpine setting frequently allows for substantial information collection. Presumed ceremonial sites are also identified in mountainous terrain. Lithic extraction locales include steatite quarrying while the preferred tool stone found on sites in the Wind River mountains frequently is nonlocal. The settlement patterns inferred from these data are compared with those known for the historic Shoshone.

Walker, Danny N. (Wyoming State Archaeologist's Office)
Late Pleistocene and Holocene Mammalian Faunas of the Greater Yellowstone Ecosystem and Surrounding Regions.
Symposium V

In recent years, there has been an increase in the research on the Late Pleistocene and Holocene mammalian faunal localities of the Greater Yellowstone Ecosystem area. New localities are being examined with the results just beginning to become available. When the data are examined in connection with previously studied localities from the surrounding region, an extensive regional fauna is beginning to become known. At the end of the Pleistocene and its accompanying climatic and environmental changes, several species became extinct. After these extinctions occurred, and then throughout the Holocene, this fauna remained relatively constant in its members. Some fluctuations in distributions have been noted, primarily altitudinally, but the Greater Yellowstone Ecosystem mammalian fauna of 8-9000 years ago was still present when Euroamericans first reached the area in the early 1800s. Since that time, some of the more drastic changes since the end of the Pleistocene have been seen, but this time, not because of environmental changes.

Walker, Danny N., see Francis, J.

Watson, Patty Jo, see Mosch, C.

Whitley, Dave, Loendorf, L.

Widman, Yvette (Office of the Wyoming State Archaeologist)
Trappers Point: An Early Plains Archaic Antelope Bonebed
General Session II

Trappers point (48Su1006) is located just west of Pinedale in Sublette County, Wyoming. The Office of the Wyoming State Archaeologist (OWSA) excavated Trappers Point Site in the summer of 1992. The site contains intact buried deposits including culturally diagnostic projectile points, several hearths, and a dated Early Plains Archaic antelope bonebed. The bonebed is one of the earliest antelope bonebeds recorded in Wyoming. A preliminary spatial analysis of the bonebed artifacts will provide information on the structural integrity of the bonebed and may offer clues to antelope procurement strategies.

Wilson, Michael C. (Museum of the Rockies)
Paraglacial Processes and a Geoarchaeological Model For Paleoindian Site Discovery in the Canadian Rocky Mountains.
Symposium IV

Paleoindian site discovery strategies for formerly glaciated terrain must take into account the fundamentally different characters of late Pleistocene and modern landscapes. During and after retreat of glaciers, Rocky Mountain landscapes underwent a phase of dramatic reshaping as formerly ice-supported and/or frozen deposits became mobile. These processes, which M. Church and J. Ryder call "paraglacial," varied in rate but peaked in early postglacial times. Periglacial and paraglacial processes are easily confused but fundamentally different. Periglacial processes occurred as a result of low temperatures in proximity to ice masses. Paraglacial processes occurred as a result of rising temperatures and continued in tapering fashion long after ice disappearance. Of great significance in terms of the visibility of archaeological sites is the fact that formerly ice-supported deposits on high slopes underwent mass-wasting in the form of debris flows and slides. Early Paleoindian occupations in valley floors through the Canadian Rockies may be buried, sometimes deeply, by debris-flow diamicts that resemble glacial till. Raising of valley floors by such material brought widespread hydrologic responses as well. Early in the debris-flow period, coarse sediment was distributed far downstream because of high valley gradients, and downstream reaches were typically braided. Subsequent development of cross-vailey fans, as debris flows continued, dammed rivers and trapped alluvial sediments in the upper valleys. Downstream reaches then metamorphosed to a meandering state, while braided streams immediately above the newly formed lakes became anastomosing. Thus the debris flows that buried some valley-floor sites caused others to be inundated. On upper slopes, early sites may well have been lost through flowage in the mass-wasting events. Despite these influences, archaeological sites dating back at least 11,500 years have been discovered (for example, the Vermilion Lakes site) and properly applied search strategies offer great potential to improve the discovery rate.

Winfrey, James (Payette National Forest)
"Just Like a Waring Blender": Post-Depositional Disturbance and Lithic Analysis at String Lake (48TE412), Grand Teton National Park, Wyoming.
Symposium V

Site 48TE412 has been extensively altered through natural and historic events. The combination of thin soils (10-15 cm) and burrowing rodents has resulted in the constant churning of the sediments at the site. The site has been picnicked and camped on by visitors to the String Lake area. Artifacts have been removed by both archaeologists and park visitors. Natural weathering, fire, and trampling all have affected the site in one way or another. Regardless of the impacts, information concerning the nature of the occupation at the site can be discerned using the remaining lithic material. This paper will briefly describe the disturbance and then, using the lithic material, proceed to define the reduction technologies related to different materials, the sources of some of the obsidian, and the age and frequency of the prehistoric occupation. This information is then used to comment on the subsistence and mobility of the prehistoric people using the site.

Winfrey, James (Payette National Forest)
Preliminary Results of Test Excavations at PY-060; a Multi-Component Site Located on the South Fork of the Salmon River, Idaho.
General Session II

Site PY-060 consists of a rock shelter, a pictograph panel, a large lithic scatter, and a historic homestead. Site testing at PY-060 was initiated by the fisheries biologist of the Payette National Forest in 1993 with the goal of determining the presence of fish remains in the prehistoric rock shelter, Preliminary analysis of the material collected during the test excavation in the rock shelter does not indicate an intense use of lithic material directed at the production and use of projectile points, the intense processing of game, and the use of riverine and botanical resources. Preliminary results of the analysis of faunal remains, lithic materials, and botanical sample will be presented.

Woodward, Scott (Brigham Young University)
DNA Analysis of a Fremont Burial in Nine Mile Canyon
Symposium III

The ability of amplify DNA from ancient organisms has made it possible to answer a number of important questions about the past. The DNA of an individual contains a record of the previous generations. When that individual dies the record is frozen and not confused by subsequent migrations and influxes of new genes. We have isolated and amplified DNA fragments corresponding to the Class II HLA DQ A1 gene of an individual human tooth and from the cytochrome B gene of a bighorn sheep skull found in Nine Mile Canyon, eastern Utah. These and subsequent DNA sequences obtained from these individuals and others will allow us to answer questions concerning the origin and fate of the initial residents of the Great Basin area.

Zeanah, David W. (University of Utah)
Transport Costs, Central Place Foraging, and Alpine Land Use Strategies.
Symposium I

Prehistoric high elevation exploitation strategies differed in the western Great Basin and the Rocky Mountains. In the Rocky Mountains, residentially mobile hunter-gatherers seasonally mapped onto upland patches. Western Great Basin hunter-gatherers initially logistically exploited alpine resources but later residentially occupied high altitudes in semi-sedentary villages. Variability in alpine exploitation strategies is understandable when resource distributions are modeled in light of diet breadth, transport costs, and central place foraging theory. A specific model is presented for the White Mountains of the western Great Basin. However, principles of the model illuminate variability in alpine exploitation strategies throughout the Intermountain West.