K. Dewyon
2022 Hilton

Program and Abstracts

SOCIETY FOR AMERICAN ARCHAEOLOGY

FORTY-NINTH ANNUAL MEETING

Portland, Oregon **April 11-14, 1984**

SOCIETY FOR
AMERICAN ARCHAEOLOGY
Forty-Ninth Annual Meeting

Ruthann Knudson (1985)

PROGRAM AND ABSTRACTS
of the Forty-Ninth Annual Meeting
Portland, Oregon
April 15, 1984

CONTENTS

The annual meeting of the Society for American Archaeology provides a forum for the dissemination of knowledge and discussion. The views expressed at the sessions are solely those of the speakers and the Society does not endorse, approve, or censor them. Descriptions of events and titles are those of the organizers, not the Society.

Published by the

Society for American Archaeology
1511 K Street NW
Washington DC 20005

GENERAL INFORMATION

Abstracts Abstracts of papers presented at this meeting are included in the Program. Additional copies are available for $5 per copy and may be ordered prepaid from the Society, 1511 K Street NW, Washington DC 20005.

Business Meeting The Society's annual business meeting will begin at 5:30 PM on Friday in the State Ballroom.

Convention Office Any problems or special requests during the meeting should be reported to the Convention Office off the Ballroom Foyer.

Exhibits Exhibits will be displayed in Parlors A, B and C from 9 AM to 6 PM on Thursday and Friday, and 9 AM to noon on Saturday.

Membership Services and Publications SAA publications will be displayed and membership information will be available in Parlors A, B and C during the exhibit hours.

Message and Information Center A self-service message center will be open on the Ballroom Foyer from 5 PM to 8 PM Wednesday, and from 8 AM to 6 PM Thursday through Saturday. To reach the message center, call the Portland Hilton main number (503/226-1611) and ask for the SAA message center.

New Member Reception Officers of the Society will host a reception for all new SAA members and for members attending their first annual meeting on Friday at 8 PM in the Studio Suite.

Open House Everyone is invited to an open reception (cashiered bar) on Thursday at 5:30 PM in the Ballroom Foyer.

Placement Service A placement service will be conducted in the Executive Suite from 5 PM to 8 PM on Wednesday, from 8 AM to 5 PM Thursday and Friday, and from 8 AM to noon on Saturday. Positions open or wanted may be listed with the service throughout the meeting. Message forms will be provided and box numbers will be assigned for use in the placement service message center.

Registration Registration, which includes a copy of the Program and Abstracts, is required for attendance at all sessions. Registration desks will be open from 5 PM to 8 PM on Wednesday, from 8 AM to 4 PM on Thursday and Friday, and from 8 AM to noon on Saturday. Members who preregistered by April 2 should claim their badges and programs at the advance registration desk.

Symposia and Session Chairs Please maintain the established schedule scrupulously in fairness to persons planning to attend sessions at specific times to hear particular speakers; please pause for the period allotted in the program if a scheduled speaker fails to appear.

BUSINESS AND SOCIAL FUNCTIONS

Wednesday, April 11

8:00 AM	Society for American Archaeology Executive Committee Meeting Directors Suite
9:00 AM	US Army Corps of Engineers Annual Meeting Studio Suite
3:00 PM	Society of Professional Archeologists Board of Directors Meeting Cabinet Suite
5:00 PM to 8:00 PM	Cash Bar Studio Suite Hosted by Association for Oregon Archaeology

Thursday, April 12

8:00 AM	SAA Committee on Public Archaeology (COPA) Cabinet Suite
8:00 AM	American Committee to Advance the Study of Petroglyphs and Pictographs (ACASPP) Annual Meeting Studio Suite
12 Noon	National Association of State Archaeologists Business Meeting Studio Suite
1:30 PM	Department of Transportation Archaeologists Open to staff as well as contractors Cabinet Suite
5:30 PM	Open House Cashiered Bar Ballroom Foyer

Friday, April 13

11:30 AM	Presidents' Club Luncheon By invitation only Studio Suite
5:30 PM	Society for American Archaeology Annual Business Meeting State Ballroom
8:00 PM	Reception for New Members Studio Suite
8:00 PM	American Society for Conservation Archaeology Annual Business Meeting Galleria I

Saturday, April 14

9:00 AM	Society for American Archaeology Executive Committee Meeting Cabinet Suite
10:00 AM	Society of Profesional Archeologists Board of Directors Meeting Board Room West
1:30 PM	Society for American Archaeology Executive Committee Meeting (continued) Studio Suite
1:30 PM	Society of Professional Archeologists Board Meeting (continued) Cabinet Suite

Sunday, April 15

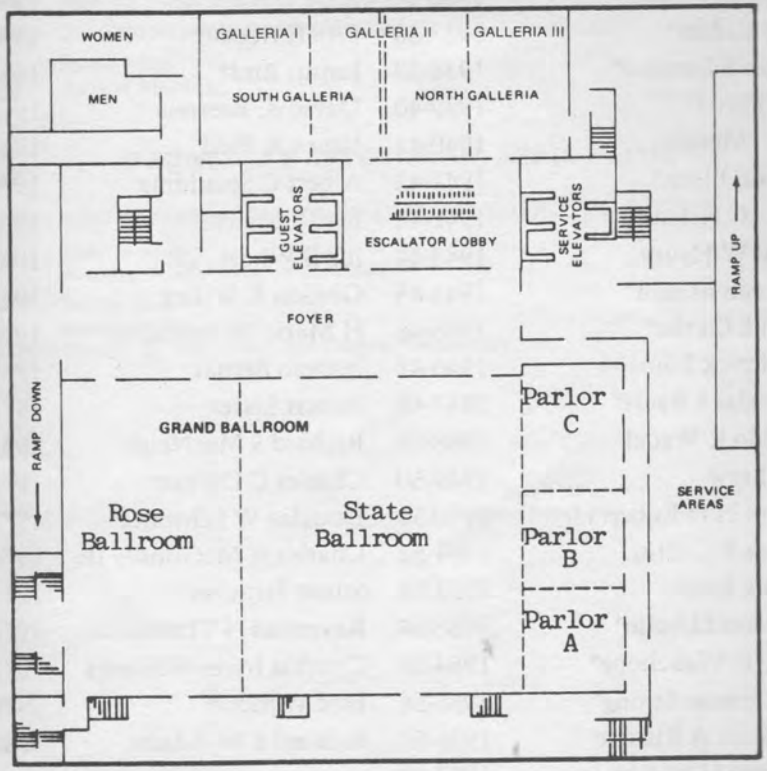
8:00 AM	Coordinating Council of National Archaeological Societies Annual Meeting Studio Suite

DIRECTORY OF MEETING ROOMS

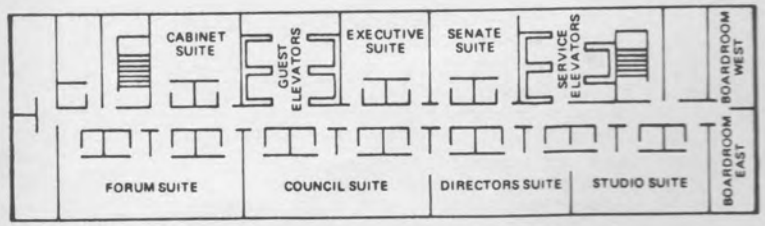
Ballroom Level: Rose Ballroom; State Ballroom; Galleria I, Galleria II and Galleria III; Parlors A, B and C; Ballroom Foyer

Plaza Level: The Pavilion

Third Floor: Cabinet, Council, Directors, Executive, Forum, Senate and Studio



BALLROOM LEVEL



Third Floor Meeting Rooms - Access via elevators

SOCIETY FOR AMERICAN ARCHAEOLOGY

Past Presidents
(* Deceased)

A C Parker*	1935-36	Richard B Woodbury	1958-59
Diamond Jeness*	1936-37	Jesse D Jennings	1959-60
A V Kidder*	1937-38	Erik K Reed	1960-61
Edgar B Howard*	1938-39	Junius Bird*	1961-62
Neil Judd*	1939-40	David A. Baerreis	1962-63
W C McKern	1940-41	James A. Ford	1963-64
Glenn Black*	1941-42	Albert C Spaulding	1964-65
Nels C Nelson*	1942-43	Paul S Martin*	1965-66
Emil W Haury	1943-44	Joe B Wheat	1966-67
J Alden Mason*	1944-45	Gordon R Willey	1967-68
Carl E Guthe*	1945-46	H Marie Wormington	1968-69
Frederick Johnson	1946-47	Ignacio Bernal	1969-70
Douglas S Byers*	1947-48	Robert Lister	1970-71
Waldo R Wedel	1948-49	Richard S MacNeish	1971-72
J O Brew	1949-50	Charles C DiPeso*	1972-73
Frank H H Roberts Jr*	1950-51	Douglas W Schwartz	1973-74
James B Griffin	1951-52	Charles R McGimsey III	1974-75
Irving Rouse	1952-53	Stuart Struever	1975-76
Gordon Ekholm*	1953-54	Raymond H Thompson	1976-77
Robert Wauchope*	1954-55	Cynthia Irwin-Williams	1977-79
W Duncan Strong*	1955-56	Fred Wendorf	1979-81
William A Ritchie	1956-57	Richard E W Adams	1981-83
George I Quimby Jr	1957-58		

PROGRAM

WEDNESDAY MORNING, APRIL 11, 1984

8:00 ***SOCIETY FOR AMERICAN ARCHAEOLOGY***
Directors Suite
Meeting of the Executive Committee

9:00 ***US ARMY CORPS OF ENGINEERS***
Studio Suite
Annual Meeting

WEDNESDAY AFTERNOON, APRIL 11, 1984

3:00 ***SOCIETY OF PROFESSIONAL ARCHEOLOGISTS***
Cabinet Suite
Meeting of the Board of Directors

5:00 to 8:00 Studio Suite
Cashiered Bar
Hosted by Association For Oregon Archaeology

THURSDAY MORNING, APRIL 12, 1984

8:00 ***SAA COMMITTEE ON PUBLIC ARCHAEOLOGY (COPA)***

Cabinet Suite

8:00 ***AMERICAN COMMITTEE TO ADVANCE THE STUDY OF PETROGLYPHS AND PICTOGRAPHS (ACASPP)***

Studio Suite
Annual Meeting

(1) Symposium: THE CONCEPT AND MEASURE OF ARCHAEOLOGICAL DIVERSITY

State Ballroom
Organizers and Chairpersons: Robert D. Leonard and George T. Jones

Participants:

8:00 Robert D. Leonard and George T. Jones, Introduction
8:10 Keith W. Kintigh, Sample Size, Significance and Measures of Diversity
8:30 Jan F. Simek, Diversity Measures in Intrasite Spatial Analysis
8:50 Michael B. Schiffer, Sherd Diversity in the Formation Processes of Mogollon Pueblo Room Fills
9:10 Donald K. Grayson, Taxonomic Richness and Diversity in the Analysis of Archaeological Vertebrates
9:30 George T. Jones, Charlotte Beck and Donald K. Grayson, Measures of Diversity and Expedient Lithic Technologies
9:50 Joseph A. Tainter, Regional Diversity and Interaction Spheres in the Northern Southwest
10:10 Nan A. Rothchilde, Information Theory, Faunal Assemblages and Socioeconomic Status
10:30 David H. Thomas, Diversity in Hunter-Gatherer Cultural Geography
10:50 David Rindos, Diversity, Variation and Selection
11:10 Robert D. Leonard, F. E. Smiley and Catherine M. Cameron, Lithic Assemblages and Measures of Diversity Within an Evolutionary Framework: An Example From the Colorado Plateau
11:30 Patrick V. Kirch, Diversity and Variation in Polynesian Fishing Strategies

(2) General Session: ARCHAEOLOGICAL RESEARCH IN THE MEDITERRANEAN, THE NEAR EAST, ASIA, AFRICA AND EUROPE

Rose Ballroom
Chairperson: Harold L. Dibble

Participants:

8:00 Arthur J. Jelinek, Mousterian Variability and Reduction Intensity: A Comparison of Levantine and Perigordian Industries
8:20 Anta Montet-White, Time-Trends in Lithic Technology: The Example of Laugerie-Haute, Dordogne, France
8:40 Nerissa Russell, Neolithic Hunters? A New View of Vinča Subsistence Economy
9:00 Barbara A. Voytek, Redistribution of Resources in Neolithic Southeast Europe
9:20 Allan H. Simmons and Gary O. Rollefson, New Light on Early Neolithic Adaptations in the Near East: Excavations at 'Ain Gazal, Jordan
9:40 Steve E. Falconer, Pottery Analysis in Village Economy in the Bronze Age Jordan Valley
10:00 Harold L. Dibble, Mousterian Industry From Bisitun (Iran)
10:20 Deborah I. Olszewski, The Late Epipaleolithic of the Levant: A View From Tel Abu Hureyra, Northern Syria
10:40 Ralph S. and Rose L. Solecki, The Pre-Aurignacian of Yabroud (Jabrud) Syria
10:50 Brian E. Hemphill and John R. Lukacs, Dental Pathologies at Sarai Khola: An Analysis of the Effects of Subsistence Patterns on an Iron Age Population in Northern Pakistan

11:10 Andrew M. T. Moore, The Inception of Agriculture in the Mediterranean: A Fresh Interpretation
11:30 Gary S. Webster, Paleoeconomy in West-Central Sardinia: Interim Report
11:40 Kostas Gallis, Regional Analysis of Neolithic Thessaly

(3) Symposium: ENERGY, ENGINEERING AND RESOURCES IN EARLY ANASAZI ARCHITECTURE: EXAMPLES FROM THE DOLORES PROJECT

Pavilion
Organizers and Chairpersons: William D. Lipe and Allen E. Kane

Participants:

8:00 William D. Lipe, Introduction
8:10 Allen E. Kane, Anasazi Architectural Patterns at Dolores, A.D. 650-900
8:30 Richard H. Wilshusen, Engineering Early Anasazi Structures
8:50 Gilbert D. Glennie and William D. Lipe, Replication of an Early Anasazi Pithouse
9:10 Mark Varien, A Replication of Early Anasazi Surface Rooms
9:30 Ricky R. Lightfoot, Roofing the Big One: An Anasazi Great Kiva
9:50 Phillip D. Neusius, Gimme Shelter: The Stones in Anasazi Building Technology
10:10 G. Timothy Gross and Phyllis Wolf, Food Storage Requirements and Anasazi Architectural Solutions
10:30 Timothy A. Kohler and Meredith Matthews, Unraveling Cause and Effect in Changing Wood Use in the Dolores Area
10:50 Discussants: D. R. Richter and D. R. Wilcox

(4) Symposium: EARLY ADAPTATIONS IN HIGH ANDEAN ENVIRONMENTS

Galleria II
Organizers and Chairpersons: John W. Rick and Barbara R. Bocek

Participants:

8:00 Michael A. Malpass, Huachanmanmachay and Tecliomachay: Preceramic and Formative Utilization of the Puna Zone in the Cordillera Negra, Peru
8:20 John W. Rick, Structure and Style at an Early Base Camp in Junin, Peru
8:40 Francis M. Hayashida, Preceramic Settlement Patterns of the Junin Puna, Peru
9:00 Barbara R. Bocek, Hunter-Gatherer Settlement Mobility in Junin, Peru: A View From the Rockshelters
9:20 Deborah M. Pearsall, Prehistoric Adaptation to the Junin Puna, Peru: The Role of Plant Resources
9:40 Grace M. Oseki, Prehistoric Utilization of Lithic Raw Material Resources in the Junin Puna, Peru
10:00 Katherine M. Moore, Animal Procurement and Use in Prehistoric Highland Peru
10:20 Thomas F. Lynch, Early Human Use of the Laguna de Punta Negra, Northern Chile
10:40 Discussant: K. V. Flannery

General Session: ARCHAEOLOGICAL RESEARCH IN SOUTH AMERICA

Chairperson: Robert A. Benfer

Participants:

11:00 Robert A. Benfer, Glendon H. Weir and Elizabeth J. Reitz, The Paloma Project
11:20 Kathryn M. Cleland and Izumi Shimada, Variability and Definition of Sican Ceramics at Batan Grande, Peru
11:40 Cathy Lynne Costin, Specialization in Ceramic Production Among the Late Prehispanic Huanca

(5) General Session: ARCHAEOLOGICAL RESEARCH IN THE EASTERN UNITED STATES

Galleria III
Chairperson: William S. Dancey

Participants:

8:00 Eugene J. Boesch and Ann-Marie E. Cantwell, Ceramic Variability as Observed in Three Lower Illinois River Valley Sites

8:10 Arnold Pickman, Eugene J. Boesch and Howard D. Winters, The Springer Site: A Multi-Component Site in the Lower Illinois River Valley
8:20 William S. Dancey, The 1914 Archaeological Atlas of Ohio: Its History and Significance
8:40 Robert V. Riordan, Investigations at the Pollock Works, 1981-1983
8:50 William A. Lovis, Archaic and Early Woodland Adaptations at the Oak-Hickory Fringe
9:00 R. Barry Lewis, An Examination of the "Vacant Quarter" Hypothesis in the Northern Lower Mississippi Valley
9:20 Janet G. Brashler, Understanding Settlement in Mountainous West Virginia
9:40 Gary Shapiro, The Mississippian Adaptive Niche in the Georgia Piedmont
10:00 John F. Scarry and Claudine Payne, Mississippian Polities in the Fort Walton Area: Application and Interpretation of the Renfrew-Level Xtent Model
10:20 Discussants: D. A. Story and L. Banks

(6) Symposium: BEYOND INVENTORY: PROGRESSING WITH CRM

Galleria I
Organizers and Chairpersons: James T. Rock and Joseph W. Hopkins, III

Participants:

8:00 James T. Rock, Beyond Inventory: Progressing With CRM
8:20 Kathryn Winthrop, Archaeological Assessment of a 19th-Century Oregon Farmstead
8:40 Mark Harlan, Advances in the Study of Indeterminate Lithic Scatters
9:0 Charles D. James, III, Assessing Lineal Features: The Plumas Example
9:20 Dorothy M. Goddard and John J. Rose, Fear and Loathing on the Wild Horse Timber Sale
9:40 Joseph W. Hopkins, III, Just Scratching the Surface: Surface and Minimal Subsurface Techniques for Evaluating Sites
10:00 David A. Fredrickson, The Use of Obsidian Analyses to Establish "Units of Contemporaneity"
10:20 Mary E. Butler, Using Interviews in Archaeological Research
10:40 Elizabeth E. Budy, Ethnoarchaeological Research Along the Pit River, Northeastern California
11:00 Marley R. Brown, III, Toward a Method of Controlled Comparison in Historical Archaeology: Can Cultural Resource Management Studies Contribute?
11:20 Discussant: J. A. McDonald

(7) Symposium: LITHIC EXPERIMENTS IN ARCHAEOLOGY: CASE STUDIES IN REPLICATION AND USEWEAR RESEARCH

Forum
Organizers and Chairpersons: William Andrefsky, Jr. and Paula Bienenfeld

Participants:

8:00 William Andrefsky, Jr., Introduction
8:10 Paul L. Cleghorn, Differential Stoneworking Skill at the Mauna Kea Adze Quarry, Hawaii
8:30 Paula Bienenfeld and William Andrefsky, Jr., Projectile Point Life Cycles and Use-Resharpening Analysis
8:50 George H. Odell, Getting to the Point
9:10 C. Marshall Hoffman, Pointblade Size, Morphology and Edge Angle: Examining Tool-Use Life in a Replicated Biface Assemblage
9:30 Helle Juel Jensen, A Functional Study of Unretouched Flint Tools in the Danish Mesolithic
9:50 Annelou van Gijn, How Fish Might Not Have Been Cleaned
10:10 Lee Spencer, Working Hardwood With Stone Tools: An Atlatl Replication
10:30 Peter E. Siegel, Melody K. Pope, John Dagostino and Mulchand S. Rathod, The Effects of Variable Edge Angles on the Process of Microwear Formation
10:50 Jeffrey J. Flenniken and Anan Raymond, Morphological Projectile Point Typology of the Great Basin: Replication, Experimentation and Technological Analysis
11:10 Amy J. Gilreath, Stages of Biface Manufacture: Learning From Experiments
11:30 Lawrence H. Keeley, Archaeological Experiments as Arguments
11:50 Discussants: D. Stanford and E. J. Dixon

(8) Symposium: THE RICHLAND CREEK PROJECT: MULTIDISCIPLINARY ADVANCES IN THE ARCHAEOLOGY OF NORTH-CENTRAL TEXAS

Council
Organizer and Chairperson: L. Mark Raab

Participants:

8:00 James Bruseth, William Martin and Rob Huggins, A Multi-Phase Remote Sensing Program at the Bird Point Island Site, Richland Creek Project
8:20 Richard G. Holloway, Late Holocene Vegetational Change in Northeastern Texas
8:40 Randall W. Moir, Regional Variations in Rural American Culture: A Distinctly Archaeological Perspective From Eastern Texas
9:00 David Jurney, Rural Architecture and Tree-Ring Dating: An Index to Economic Cycles
9:20 Mark L. Raab and Don McGregor, Prehistoric Mortuary Ceremonialism in the Southern Plains: The Wylie Focus Pits of North-Central Texas
9:40 Woody Frossard, Lessons in Environmental Planning From the Richland Creek Archaeological Project

THURSDAY AFTERNOON, APRIL 12, 1984

12:00 ***NATIONAL ASSOCIATION OF STATE ARCHAEOLOGISTS***

Studio Suite
Business Meeting

1:30 ***DEPARTMENT OF TRANSPORTATION ARCHAEOLOGISTS***

Cabinet Suite
Open to staff as well as contractors.

(1) Symposium (continued): THE CONCEPT AND MEASURE OF ARCHAEOLOGICAL DIVERSITY

State Ballroom
Organizers and Chairpersons: Robert D. Leonard and George T. Jones

Participants:

1:30 Prudence M. Rice, Ceramic Diversity: Implications for Production and Use
1:50 Roy S. Dickens, Jr. and Jack H. Wilson, Jr., Ceramic Diversity and Cultural Interaction in Southeastern North America
2:10 Margaret W. Conkey, The Use of Diversity in Stylistic Analysis
2:30 Discussants: G. L. Cowgill and R. C. Dunnell

Symposium: A BURNING ISSUE? EFFECTS OF FIRE ON ARCHAEOLOGICAL RESOURCES

Organizer and Chairperson: Roger E. Kelly

Participants:

3:10 Stephen Horne and Karen Barnette, Aboriginal and Chaparral Burning and Modern Prescribed Fires in California's South Coast Ranges
3:30 Alan P. Sullivan, Fire Ecology and the Evolution of Food Production in the American Southwest
3:50 A. Trinkle Jones and Robert C. Euler, Effects of Forest Fires on Archaeological Resources in the Grand Canyon National Park
4:10 Pat Welch and Tirzo Gonzales, Archaeology and Prescribed Burns: Heat Treatment Without Heat
4:30 Roger E. Kelly, Spurious and Real Relationships of Field and Laboratory Data in Fire Effect Studies
4:50 Peter G. Pilles, Jr., The Effect of Forest Fires on Archaeological Sites

(2) General Session (continued): ARCHAEOLOGICAL RESEARCH IN THE MEDITERRANEAN, THE NEAR EAST, ASIA, AFRICA AND EUROPE

Rose Ballroom
Chairperson: Steven A. Brandt

Participants:

1:30 Joan Carothers and Gerwulf Schneider, Production and Distribution of Neolithic Pottery From Thessaly, Greece
1:40 Ernestine S. Elster, Studies of Neolithic Tool Technology From Thessaly, Greece
1:50 Steven A. Brandt, Prehistoric Populations and Food Production in Southern Somalia: The Buur Archaeological Project
2:10 Jon M. Erlandson, Evidence for the Early Evolution of Maritime Economies
2:30 Sally McBrearty, Later Pleistocene Technological Change at the Muguruk River Site, Western Kenya
2:40 C. Garth Sampson, Bushman Ceramic Distribution in the Upper Zeekoe Valley, South Africa

General Session: ARCHAEOLOGICAL RESEARCH IN ARCTIC AMERICA AND ASIA AND BOREAL EURASIA

Chairperson: Jean S. Aigner or P. A. Book

Participants:

3:00 James W. Helmer, Report on the Devon Island Archaeology Project, High Arctic, Canada
3:10 Owen K. Mason, Mid-Holocene Low Productivity of the Bering Sea: Implications for Archaeology
3:30 Richard E. Reanier, Geotechnical Aspects of the Utqiagvik Archaeological Project, Barrow, Alaska
3:40 Christopher Nagle, Nephritic Jade in the Eastern Canadian Arctic: Geochemical Composition and Distribution
4:00 Jean S. Aigner, A Continuum of Microlithic Technology in Asia and Arctic America

(9) Symposium: LITHIC SOURCE IDENTIFICATION AS AN ANALYTICAL TOOL IN ARCHAEOLOGY

Pavilion
Organizers and Chairpersons: Howard D. Winters and Lucianne Lavin

Participants:

1:30 Roy R. Larick, Contemporary Pleistocene Synthetic Sources for Paleolithic Artifact Cherts
1:50 R. Michael Stewart, South Mountain Metarhyolite: A Perspective on Prehistoric Trade and Exchange in the Middle Atlantic Region of the Eastern United States
2:10 Barbara E. Luedtke, Analysis and Interpretation of Jasper From Massachusetts Sites
2:30 Stephen G. Pollock, Evaluation of Criteria for Use in the Analysis of Chert Artifacts From the Munsungun Lake Formation, Maine
2:50 Lucianne Lavin, Chert Petrography as an Analytic Tool in Archaeology
3:10 Howard D. Winters, Chert Identification and the Interpretation of Prehistoric Social Systems
3:30 David J. Ives, Trace Element Characterization of Chert: Theory Vs. Reality?
3:50 Timothy G. Baugh and Fred W. Nelson, Trace Element Analysis of Obsidian Artifacts From the Southern Plains
4:10 Discussants: M. L. Fowler and C. Munson

(4) General Session (continued): ARCHAEOLOGICAL RESEARCH IN SOUTH AMERICA

Galleria II
Chairperson: Jane Stone

Participants:

1:30 Clark L. Erickson, Investigations of Prehistoric Andean Agriculture: The Raised Fields of the Lake Titicaca Basin, Peru 1:50 Melissa B. Hagstrum, Technology of Ceramic Production of Huanca and Inca Wares From the Yanamarca Valley, Peru
2:00 Christine A. Hastorf, Political Force in Agricultural Production Change in the Huanca Development of Central Peru
2:20 Jonathan D. Kent, Archaeology and Development: A Titicaca Basin Example
2:40 Jerry D. Moore, Chimu Lower Class Economics: Investigations at Manchan, Casma Valley, Peru
2:50 Glenn S. Russell and Christine A. Hastorf, Stone Tools as a Measure of Agricultural Change in the Andes
3:10 Jane Stone, The Organization of State Production in Major Sites From Four Andean States
3:30 Richard P. Watson, The Nature and Function of the Chicama Valley Irrigation System
3:50 John Isaacson, Volcanic Activity in the Formative Period occupation of the Western Montana of Ecuador
4:10 Peter W. Stahl, Hallucinogenic Perspectives on Early Valdivia Phase Iconography From Loma Alta
4:30 Louis Alberto Borrero, The Archaeology of Continental Patagonia

(10) General Session: ARCHAEOLOGICAL RESEARCH IN WESTERN NORTH AMERICA

Galleria III
Chairperson: Joseph G. Gallagher

Participants:

1:30 Ernest S. Lohse and M. E. W. Jaehnig, The Development of Housepit Settlements: An Interpretation of Cultural Change on the Columbia Plateau
1:50 James D. Wilde, Hunter-Gatherer Settlement and Subsistence in the Northern Great Basin: A Reevaluation of Cave and Surface Collections From University of Oregon Expeditions in the 1930s
2:10 Joseph G. Gallagher, Floating Grids and Talking Rocks: Interpreting Surface Sites in the Northern Great Basin
2:30 John L. Fagan, The Dietz Site: A Clovis Base Camp in Southeastern Oregon
2:40 Dennis Griffin, Archaeology Along the Lower Rogue River
2:50 David Rhode, Surface Archaeology of Upland Areas in the Walker River Watershed, Western Nevada: Individual Findings
3:00 David J. McGuire, An Early Archaic Pit-House Structure in the Hanna Basin, South-Central Wyoming
3:20 Steven B. Dondero and Jerald J. Johnson, Black Butte Lake: A Cultural Resources Survey and Native American Cemetery Relocation Project
3:40 M. C. Hall, Late Holocene Hunter-Gatherers and Volcanism in the Eastern Sierra Nevada, California
4:00 Mark Q. Sutton, Late Prehistoric Social Organization in the Western Mojave Desert, California
4:20 Jerald J. Johnson, A Reassessment of Wintu, Wintun and Yana Boundaries Based on 1983 Excavations

(11) Symposium: NEW PERSPECTIVES IN SANTA BARBARA CHANNEL ARCHAEOLOGY

Galleria I
Organizers and Chairpersons: Chester D. King and Christopher Pierce

Participants:

1:30 Chester D. King, Social Evaluations: Growth of Institu tions
1:50 Christopher Pierce, Analysis of Cooking Stones From a Late Period Chumash Village
2:10 Lynn Gamble, Chipping Detritus and Distribution of Activities
2:30 Michael A. Glassow, Advances in Inferring the Settlement Type of Small Sites With Limited Ranges of Debris
2:50 Julie E. Hammett, Acorn Distribution and Human Behavior
3:10 John R. Johnson, Analysis of Fish Remains and Chumash Fishing
3:30 Michael E. Macko, The Ethnoarchaeology of Bead Production on Santa Cruz Island, California
3:50 Discussant: C. Irwin-Williams

(12) Symposium: EUROPEAN CONTACT IN NORTH AMERICA: ARCHAEOLOGY, DEMOGRAPHY AND HISTORY

Forum
Organizer and Chairperson: Ann F. Ramenofsky

Participants:

1:30 Dean R. Snow and William A. Starna, Sixteenth-Century Depopulation: A Preliminary View From the Mohawk Valley
1:50 Kathleen Deagan, Reconstructing Aboriginal Demographic Change From Historic Contexts: The Eastern Timucua of Florida
2:10 Timothy K. Perttula, The Early Historic Period in the Caddoan Area
2:30 Mark Lycett, Social and Economic Consequences of Aboriginal Population Decline From Introduced Diseases
2:50 Steadman Upham, Adaptive Diversity and Southwestern Populations at Contact
3:10 Sarah K. Campbell, Archaeological Considerations of the Contact Period in the Plateau Region
3:30 Ann F. Ramenofsky, Time and Demography: Methodological Issues of the Contact Period in North America
3:50 Discussant: W. R. Swagerty

(13) Symposium: ARCHAEOLOGICAL, HISTORICAL AND SKELETAL BIOLOGICAL INVESTIGATIONS OF A 17TH CENTURY NARRAGANSETT INDIAN CEMETERY IN RHODE ISLAND

Council
Organizer and Chairperson: Paul A. Robinson

Participants:

1:30 Paul A. Robinson, The Use of Mortuary Data to Evaluate the Persistence of Regulations and Social Values of 17th-Century Narragansett Indians
1:50 Marc A. Kelley and Marc Micozzi, Skeletal Biology of a 17th-Century Rhode Island Indian Cemetery
2:10 William A. Turnbaugh, Sociocultural Significance ofGrave Goods From a 17th-Century Narragansett Cemetery
2:30 Michael S. Nassaney, Composition and Configuration: Spatial-Temporal Attributes of a 17th-Century Narragansett Indian Cemetery
2:50 E. Pierre Morenon, The Village of Narragansett: Exploring the Structure of a 17th-Century Native American Community
3:10 Patricia E. Rubertone, A Model For Inter-Regional Exchange During the Historic Contact Period
3:30 Gerald K. Kelso, Palynological Investigation of Grave From a 17th-Century Narragansett Indian Cemetery

5:30 ***OPEN HOUSE***

Ballroom Foyer
Cashiered Bar

THURSDAY EVENING, APRIL 12, 1984

Plenary Session: CONSERVATION ARCHAEOLOGY—1984!

State Ballroom
Organizers and Chairpersons: William J. Mayer-Oakes and Alice W. Portnoy

Participants:

7:00 William D. Lipe, Conservation For What?
L. Mark Raab, ASCA and a Living Conservation Ethic
Thomas F. King, Has Conservation Really Helped?
William J. Mayer-Oakes, Scholarship as Stewardship: A New Synthesis for Archaeology
Respondents: D. E. Lewarch, J. Douglas, J. J. Hester, and D. D. Fowler
Discussants: L. G. Wildesen, L. Cordell and D. Dincauze

FRIDAY MORNING, APRIL 13, 1984

11:30 ***PRESIDENTS' CLUB LUNCHEON***

Studio Suite
(By invitation only)

(14) Symposium: THE ETHNOARCHAEOLOGY OF REFUSE DISPOSAL

State Ballroom
Organizers and Chairpersons: Edward Staski and Livingston D. Sutro

Participants:

8:00 Roberta D. Baer, Factors Affecting Relationships Between Household Refuse and Individual Food Consumption
8:20 Claudia Chang, Refuse Disposal at Eskimo Sites: An Ethnoarchaeological Study of Site Formation Processes
8:40 John E. Clark, Where the Chips Fall: Stone Tool Manu facture and Debitage Disposal Among the Lacandon Maya
9:00 Susan M. Ekholm, When Refuse Isn't Garbage: Mesoamerican End-of-Cycle Ceremonial Refuse
9:20 Richard A. Gould and Parker B. Potter, Use-Lives of Automobiles in America: A Preliminary Archaeological View
9:40 Ian Hodder, Refuse Disposal as a Social Act: An Ethno archaeological Example
10:00 Kathryn A. Kamp, Waste Disposal in a Syrian Village
10:20 Roderick J. McIntosh, Square Huts in Round Concepts: A Retrospective
10:40 William A. Rathje, What's Your Beef?
11:00 Peter G. Roe and Peter E. Siegel, An Archaeoethnographic Spatial Analysis of Two Shipibo Compounds: Implications for Archaeological Interpretations
11:20 Edward Staski, Where and How the Litterbug Bites: Unauthorized Refuse Disposal in Late 19th-Century American Cities
11:40 Livingston D. Sutro, When the River Comes: Refuse Disposal in Diaz Ordaz
12:00 Discussants: B. Hayden and M. B. Schiffer

(15) General Session: ARCHAEOLOGICAL METHOD, THEORY AND MODELING

Rose Ballroom
Chairperson: Charles L. Redman

Participants:

8:00 Charles L. Redman, Intrasite Research Strategies: A Re-evaluation
8:20 Neal W. Ackerly, Vegetative Cover and Surface Assemblages: Effects on Intra- and Inter-Site Analysis
8:40 Walter A. Dodd, The Use of Domestic Space By Sedentary Households: Some Organizing Principles
9:00 Patricia A. Gilman, Site Structure and the Causes of Architectural Change
9:20 Susan Kent, Sampling Strategies and Research Goals: A Proposed Study of Methods and Methodologies
9:40 George C. Knight and David L. Browman, Theoretical Issues Regarding Site Catchment Analysis and Hunter-Gatherer Site Locational Decisions
10:00 Dana B. Anderson, Through the Looking Glass: Can We Trust Our Eyes?
10:20 Lawrence E. Babits, Modern Regional Landscape Terminology and the Interpretation of an Urban Archaeological Site
10:40 Alice B. Kehoe, The Myth of the Given
11:00 Barbara E. Cohen, Society, Symbols and Architecture
11:20 Charlotte L. Benson, Evolutionary Explanation of Organizational Change

(16) General Session: APPLICATION OF TECHNIQUES AND EXPERIMENTATION TO ARCHAEOLOGICAL RESEARCH

Pavilion
Chairperson: James B. Stoltman

Participants:

8:00 Louise A. Basa, Laboratory Excavation of Fragile Archaeological Remains
8:10 Claudia B. Hemphill, Microcomputer Use in Archaeological Field Cataloguing
8:30 Ian R. Johnson, Microcomputer Database Systems For Archaeology: Design Philosophy of the Minark Archaeological D.B.S.
8:50 William P. McHugh, Shuttle-Born Radar Imagery and Archaeology in the Egyptian and Sudanese Sahara
9:10 Carole J. Robbins and Lee D. Sailer, Producing Artifact Density Maps From Sample Data
9:30 David V. M. Stephen, Microcomputer-Aided Proton-Magnetometer Data Collection and Interpretation
9:40 James B. Stoltman, Petrographic Ceramic Thin-Section Analysis as a Quantitative as Well as a Qualitative Technique
10:00 D. Richard Gumaer, Geophysical Applications and Horizontal Site Structure in New England Historical Sites
10:20 David S. Whitley and Ronald I. Dorn, Chronometric-Age Determinations of Surface Artifacts From Lake Mohave, California
10:40 Richard V. N. Ahlstrom, A Comparative Approach to the Interpretation of Tree-Ring Data
11:00 C. Waddell, J. Fountain and M. S. Aldenderfer, Calcium Diffusion: A Preliminary Report on a New Dating Technique
11:20 Kenneth B. Tankersley, Cheryl Ann Munson and Donald Smith, Coal Contamination: Possibilities, Probabilities and Occurrences

(17) General Session: ARCHAEOLOGICAL RESEARCH IN THE GREAT PLAINS AND ROCKY MOUNTAINS OF THE UNITED STATES

Galleria II
Chairperson: Julie E. Francis

Participants:

8:00 B. J. Earle, Settlement and Subsistence in the Centennial Valley, Southwestern Montana
8:20 Leslie B. Davis, The Late Pleistocene to Mid-Holocene Cultural Succession at Indian Creek, West-Central Montana
8:40 Julie E. Francis, Function and Use of Prehistoric Sites in the Red Desert, Southwestern Wyoming
9:00 Mark E. Miller, Early Plains Archaic Occupation in the Hanna Basin, Wyoming
9:20 J. Donahue, J. M. Adovasio, T. East, T. Jorstad, and R. Stuckenrath, Paleosols and Prehistoric Populations in the High Plains
9:40 Frank W. Eddy, Spatial Analysis of Archaeological Data at the John Martin Dam and Reservoir, Southeastern Colorado
9:50 Elizabeth A. Morris, Richard C. Blakeslee and Kevin Thompson, Excavations at the Kenney Springs Site: Reflections on the McKean Complex in Northeastern Colorado
10:10 Joseph Schuldenrein, The Geomorphic Background to Prehistoric Settlement at Pinon Canyon, Colorado
10:30 William B. Lees, Modeling Site Function in Antebellum Eastern Oklahoma
10:50 E. Mott Davis, The State of Central Texas Archaeology
11:10 Joel Gunn, Holocene Climate and Alluvial and Colluvial Stratigraphy in Southcentral United States
11:30 Susan A. Lebo, Seriation of Utilitarian Stoneware Vessel Fragments on Late 19th and Early 20th-Century Farmstead Sites in Eastern Texas
11:50 James F. Garber, Prehistoric Exploitation Patterns and Site Functions of the San Marcos River Headwaters, Central Texas

(18) General Session: ARCHAEOLOGICAL RESEARCH IN THE SOUTHWESTERN UNITED STATES

Galleria III
Chairperson: Harry J. Shafer

Participants:

8:00 Ronna J. Bradley, Spatial Variability in Playas Red: A Ceramic Ware of Northern Chihuahua and the Jornada Mogollon Region

8:20 Robert J. Hard, Ecological Conditions and Agricultural Dependence in the Greater Southwest
8:40 Harry J. Shafer, Classic Mimbres Architectural Dynamics
9:00 H. Wolcott Toll, The Ethnography and Archaeology of Large Gatherings With Regard to Chaco Canyon
9:20 F. E. Smiley, The Black Mesa Basketmakers: Preceramic Chronometrics and Site Morphology
9:30 Marion F. Smith, Jr. and Jo E. Miles, Assessing Function on Southwestern Ceramics: Restorable Vessels From Black Mesa
9:50 Julie C. Lowell, The Household at Turkey Creek Pueblo, Arizona
10:00 Deborah L. Nichols and Pamela K. Reed, The Basketmaker-to-Pueblo Transition on Northern Black Mesa
10:20 C. W. Shaw, Jr. and Mary Bernard-Shaw, 1983 Archaeological Research in Southeastern Arizona
10:40 Arthur Vokes and Patricia Crown, A Reexamination of Prehistoric Exchange Patterns in Southern Arizona
11:00 John E. Douglas, Spatial Analysis of Artifact Distribution From an Archaic Site in the Tucson Basin, Arizona
11:20 J. Jefferson Reid and Donald A. Graybill, Paleoclimate and Human Behavior in the Grasshopper Region, Arizona
11:30 Margaret M. Lyneis, A Spatial Analysis of Anasazi Architecture A.D. 950-1150, Moapa Valley, Nevada

(19) Symposium: THE RESOURCE PROTECTION PLANNING PROCESS (RP3): CHALLENGES IN IMPLEMENTING THE MODEL

Galleria I
Organizer and Chairperson: Franco Ruffini

Participants:

8:00 Franco Ruffini, Introduction
8:10 Brona G. Simon and Valerie A. Talmage, Planning Vs. Crisis Management
8:30 Alan C. Tonetti, Quality of Data, Resource Types and Significance Criteria in RP3 Ohio
8:50 John J. Knoerl, Implementing Research Goals in Prehistoric Study Units
9:10 Hester A. Davis, Doing It the Hard Way: Arkansas' Two State Plans
9:30 Elizabeth R. P. Henning, Interdisciplinary Conflict in the Definition of RP3 Study Units
9:50 Judith A. Halasi and William G. Buckles, Integration of History With Historical Archaeology
10:10 Christy A. H. Caine, Planning for Effective Use: The Need for User Involvement in the RP3 Process
10:30 Lawr V. Salo and David G. Rice, Applications of the Cultural Resource Protection Planning Process in the Okanogan Highlands and the Channelled Scablands of Eastern Washington State
10:50 Robert J. Mallouf and Glenna Williams-Dean, Comprehensive Planning in Texas
11:10 Discussant: L. Aten

(20) Symposium: STUDIES IN THE ORGANIZATION OF LITHIC TECHNOLOGY

Forum
Organizer and Chairperson: Kenneth E. Sassaman

Participants:

8:00 Kenneth E. Sassaman, Introduction
8:10 Roger W. Moeller, Paleo-Indian Lithic Procurement and Utilization
8:30 Paul R. Fish and John H. Madsen, Patterns of Lithic Manufacture and Dispersal in the Tucson Basin, Arizona
8:50 Michael Shott, Forager Mobility and Technological Organization
9:10 Kenneth E. Sassaman, Middle and Late Archaic Settlement Mobility and Technological Organization in the South Carolina Piedmont
9:30 Margaret Nelson, Eileen Camilli and Neale Draper, Technological Organization and Site Use

9:50 William Andrefsky, Jr., Intensification of Late Archaic Spatial Interaction: An Eastern Woodland Example
10:10 John R. Cross, Lithic Craft Specialization and Social Relations Among Hunter-Gatherers
10:30 Glen T. Hanson, The Organization of Late Archaic Lithic Technology in the Middle Savannah River Region, South Carolina

(21) Symposium: RECENT RESEARCH ON THE PACIFIC COAST AND PIEDMONT OF SOUTHERN MESOAMERICA

Council
Organizers and Chairpersons: Michael Love and Vida Prater

Participants:
8:00 John A. Graham, Sculptural Origins and Early Development at Abaj Takalik
8:20 Ariadne H. Prater, Sculpture: Reflector of Culture
8:40 Marion P. Hatch, New Evidence for Regional Development on the South Coast of Guatemala
9:00 Michael Love, Preliminary Results of the Naranjo Survey
9:20 Rolando Rubio Cifuentes, Archaeological Excavation at El Baul, Guatemala
9:40 Hector Neff, The Development of the Plumbate Pottery Industry
10:00 William R. Fowler, Lithic Analysis as a Means of Processual Inference in Southern Mesoamerica

FRIDAY AFTERNOON, APRIL 13, 1984

(22) Symposium: TAX DOLLARS AT WORK: FEDERAL ARCHAEOLOGY IN THE 1980S

State Ballroom
Organizers and Chairpersons: Annetta L. Cheek and Daphne L. Derven

Participants:
1:30 Daphne L. Derven, The Preservation Ethic, Construction and Cultural Resource Management: A Question of Balance.
1:50 Dean M. Thompson and E. Arthur Bettis, III, Correlations of Alluvial and Archaeological Stratigraphy in the Middle Missouri Basin
2:10 Dwight L. Drager, Environmental Integration in Archaeology
2:30 Stephanie H. Rodeffer, Poverty in the Archaeological Record: The Historic Mitigation Program for the Tombigbee River Multi-Resource District, Alabama and Mississippi
2:50 Lawrence V. Salo, Proton Magnetometry in Columbia Plateau Archaeology: A Methodological dvance Sponsored by CRM Projects
3:10 Mark J. Lynott, Preservation Through Stabilization of Eroding Lakeshore Sites at Voyageurs National Park
3:30 Annetta L. Cheek, The Archaeological Profession at the Public Trough

(15) General Session (continued): ARCHAEOLOGICAL METHOD, THEORY AND MODELING

Rose Ballroom
Chairperson: Sally T. Greiser

Participants:
1:30 Sally T. Greiser, Micro-Debitage and the Interpretation of Floor Space
1:50 Phillip H. Shelley, Enculturation as a Process in the Formation of Lithic Assemblages
2:10 Marc G. Stevenson, Male/Female Activity Differentiation in Prehistoric Hunting Societies
2:30 Susan J. Bender, Modeling, Validation and the Reconstruction of Mountainous Subsistence and Settlement
2:50 Tamara L. Bray, A Geographical Perspective on the Diferential Distribution of Power Among the Tlingit Indians of the Northern Northwest Coast
3:10 James A. Brown, On the Social Foundations of Large-Scale Interaction Spheres

3:30 Emily H. Garber, Matches and Patches: Marriage Arrangement From an Ecological Perspective
3:50 Robert K. Vierra, Hierarchical Decisionmaking Processes: A Systemic Model
4:10 Ronald L. Wallace, The Evolution of Deviance'
4:30 Stephen H. Lekson, Maximum Settlement Size as an Index of Sociopolitical Complexity
4:50 Bruce F. Ball and Peter T. Bobrowsky, The Non-Concept of Diversity in Archaeology

(16) General Session (continued): APPLICATIONS OF TECHNIQUES AND EXPERIMENTATION TO ARCHAEOLOGICAL RESEARCH

Pavilion
Chairperson: Cynthia A. Bettison

Participants:
1:30 Cynthia A. Bettison, An Experimental Approach to Sickle Sheen Deposition and Archaeological Interpretation
1:50 Roger A. Boydston and Rochelle Lurie, Experiments With Limestone Pestles: Inferences for the Midwest Archaic
2:00 J. Jeffrey Flenniken and A. Lee Novick, Mental Templates and "Arraheads": A Study in Lithic Analysis
2:20 Anan W. Raymond and Gilbert Glennie, The Weighted Atlatl: Experiments in Function and Performance
2:40 Steve Tomka and Raymond Mauldin, Experimental Lithic Reduction as a Guide to Behavioral Inferences
2:50 Christian E. Downum, Tree-Ring Dated Ceramics and the Estimation of Site Occupation Span

General Session: PERSPECTIVES ON PUBLIC AND CRM ARCHAEOLOGY

Chairperson: Richard E. Ross

Participants:
3:20 Victoria Dirst, Getting the Public to Support Archaeology
3:40 Robert C. Hassler, The Kiewit CRM Program: Insight Into the Private Coal Industry and Historic Preservation
4:00 Michael P. Hoffman, Treating With Mine Enemy: Pot Hunters, Collectors, Antique Dealers and Archaeological Responsibility—An Arkansas Case Study
4:20 Gary H. Nurkin and Peter R. Shapiro, Building a House of Cards: Federal Archaeological Legislation
4:40 Richard E. Ross and Esther Stutzman, Two Views of Archaeology

(23) Symposium: ANADROMOUS FISH UTILIZATION AND SOCIOECONOMIC COMPLEXITY: THE SEARCH FOR CORRELATES IN THE ARCHAEOLOGICAL RECORD

Galleria II
Organizers and Chairpersons: David R. Yesner and Randall F. Schalk

Participants:
1:30 Michael Jochim, Paleolithic Complexity and Salmon Productivity
1:50 David R. Yesner, Intensification of Anadromous Fishing and Settlement Pattern Change in the Northeastern United States
2:10 Kenneth M. Ames, Measuring Intensification of Salmon Exploitation in the Pacific Northwest
2:30 Randall F. Schalk, The Columbia Plateau Salmon Fishery: Faunal Evidence for Intensification
2:50 Allan H. Smith, Anadromous Fish and Social Organization on the Columbia Plateau: The Ethnographic Scene
3:10 Dale R. Croes and Steven Hackenberger, Economic Modeling of Anadromous Fish Utilization at the Hoko River Site
3:30 Discussants: R. G. Matson and W. Suttles

(18) General Session (continued): ARCHAEOLOGICAL RESEARCH IN THE SOUTHWESTERN UNITED STATES

Galleria III
Chairperson: Patricia Robbins Flint

Participants:

1:30 Kevin A. Rafferty, Virgin Anasazi Settlement in the Las Vegas Valley, Southern Nevada
1:50 Jeffery L. Eighmy, J. Holly Hathaway and Allen E. Kane, The Dolores Modification: Final Results
2:00 Patricia Robbins Flint and Sarah W. Neusius, Cottontail Rabbit Procurement Among Dolores Anasazi
2:20 Douglas A. Goulding, Anasazi Afield: Variation in Dolores Area Limited-Activity Sites
2:30 Sarah W. Neusius, Garden Hunting and Anasazi Game Procurement: Perspectives From Dolores
2:50 Ruth E. Lambert, A Quantitative Study of Architectural Attributes From Selected Anasazi Sites
3:00 Kenneth L. Petersen, Summer Warmth: A Critical Factor for the Dolores Anasazi

(24) Symposium: GEOARCHAEOLOGY IN THE NORTHWEST: RECENT APPLICATIONS AND CONTRIBUTIONS

Galleria I
Organizer and Chairperson: Judith A. Willig

Participants:

1:30 Patricia F. McDowell, Geomorphic Setting of Archaeological Sites, Southern Willamette Valley, Oregon
1:50 Patricia M. Anderson, Interdisciplinary Research and the Problems of Using Different Time and Space Scales in Geoarchaeology: An Example From Northern Alaska
2:10 S. Neal Crozier, Archaeological Sites and Habitation Potential in Riverine Environments
2:30 Robert R. Mierendorf, Late Pleistocene and Holocene Columbia Drainage Fluvial Processes and Their Effects on Prehistoric Settlement and Subsistence
2:50 Julie K. Stein, Interpreting the Stratigraphy of Northwest Coast Shell Middens
3:10 Barbara R. Stucki, Evaluating Activities at a Northwest Coast Shell Midden Site Using Renewal Processes
3:30 Guy A. Marden, Chemical Analysis of Sweat-House Soils
3:50 John C. Sheppard, Peter E. Wigand and Meyer Rubin, The Marmes Site Revisited: Dating and Stratigraphy Twenty Years After
4:10 Ruth L. Greenspan, Enclosed Basin Fisheries: An Analysis of Their Structure
4:30 Judith A. Willig, Paleogeomorphic Setting of a Clovis Site in Southeastern Oregon
4:50 Discussion

(25) Symposium: THE ORGANIZATION OF HUNTER-GATHERER LITHIC TECHNOLOGY: RECENT ANALYSES

Forum
Organizer and Chairperson: Robert L. Kelly

Participants:

1:30 Catherine Perles, A Study of Lithic Chronological Variability at Franchthi Cave (Greece)
1:50 Martin P. R. Magne, A Multiregional Perspective on Lithic Assemblage Variability, Interior British Columbia
2:10 Robert L. Kelly, Hunter-Gatherer Mobility Strategies and Regional Archaeology
2:30 Douglas B. Bamforth, Technological Efficiency and Tool Curation
2:50 Eileen Camilli, Efficiency Strategies and Their Implications for Interassemblage Variability
3:10 Discussant: Margaret Nelson

(26) Symposium: THE NEW MELONES ARCHAEOLOGICAL PROJECT: PHASE X (1981-1984) INVESTIGATIONS

Council
Organizer and Chairperson: Michael J. Moratto

Participants:

1:30 Michael J. Moratto, Introduction
1:40 Bennie C. Keel, Moss-Bennett Responsibilities of the Secretary of the Interior: A Brief Administrative History of New Melones Archaeology
2:00 Lynn M. Riley, A Brief History of the New Melones Archaeological Project, 1968-1980
2:20 Susan K. Goldberg, Soils and Archaeological Stratification at Clarks Flat and Texas Charlie Gulch
2:40 W. Geoffrey Spaulding, Archaeobotanical and Paleoecological Investigations at Archaeological Sites in the New Melones Reservoir Area
3:00 Michael J. Moratto, 7000 Years of Prehistory in the Central Sierra Nevada
3:20 William L. Singleton, Lithic Industrial Variability at the New Melones Reservoir
3:40 Thomas L. Jackson, Obsidian Studies in the Central Sierra Nevada of California
4:00 Thad M. Van Bueren, Archaeological Implications of Central Sierra Miwok Ethnohistory: A Case Study of Assembly Houses

5:30 ***SOCIETY FOR AMERICAN ARCHAEOLOGY***
State Ballroom
Annual Business Meeting

FRIDAY EVENING, APRIL 13, 1984

8:00 ***RECEPTION FOR NEW MEMBERS***
Studio Suite

8:00 ***AMERICAN SOCIETY FOR CONSERVATION ARCHAEOLOGY***
Galleria I
Annual Business Meeting

SATURDAY MORNING, APRIL 14, 1984

9:00 ***SOCIETY FOR AMERICAN ARCHAEOLOGY***

Studio Suite
Meeting of the Executive Committee

9:00 ***SOCIETY OF PROFESSIONAL ARCHEOLOGISTS***

Cabinet Suite
Annual Business Meeting

10:00 ***SOCIETY OF PROFESSIONAL ARCHEOLOGISTS***

Board Room West
Meeting of the Board of Directors

(27) Symposium: MAMMOTHS, MASTODONS AND ELEPHANTS: PALEOECOLOGICAL, ARCHAEOLOGICAL AND TAPHONOMIC PERSPECTIVES

State Ballroom
Organizers and Chairpersons: Gary Haynes and Dennis Stanford

Participants:

8:00 C. Kang Hu, Late Pleistocene Mammoths of China
8:20 Jeffery J. Saunders, Late Pleistocene Mastodonts of North America
8:40 Rudolfo Casamiquela, Pleistocene Proboscidean Remains From South America
9:00 Dale Guthrie, Paleoecology of Beringian Mammoth
9:20 Richard E. Morlan, Proboscidean Limb Bone Fracture
9:40 Robson Bonnichsen, Ginsberg's Broken Bones
10:00 David L. Carlson and D. Gentry Steele, Excavation of Mammoth Remains at the Duewall-Newberry Site, Brazos County, Texas
10:10 D. Gentry Steele and David L. Carlson, Taphonomy of Mammoth Remains at the Duewall-Newberry Site, Brazos County, Texas
10:20 Larry D. Agenbroad, Clovis Sites With Associated Mammoth Remains
10:40 Diana C. Crader, Elephant Butchery Techniques of the Bisa of the Luangwa Valley, Zambia
11:00 Gary Haynes, Taphonomic Field Studies of African Elephants
11:20 Discussant: D. Stanford

(28) Symposium: REGIONAL ORGANIZATION OF HUNTER-GATHERER POPULATIONS

Rose Ballroom
Organizer and Chairperson: Cynthia Irwin-Williams

Participants:

8:00 Cynthia Irwin-Williams, Strategies for Resource Utilization in the Southwest Archaic
8:20 Robert L. Bettinger, The Alpine Village Pattern in the Great Basin
8:40 Gerrit L. Fenenga, Aboriginal Bedrock Milling in the Fresno River Basin, Madera County, California
9:00 William Hildebrandt, Settlement Change and Site Formation Processes in the Mountains of Northwest California
9:20 Lonnie C. Pippin, Aboriginal Seed Exploitation on an Arid Mountain Range in the Northern Mojave Desert
9:40 Steven Simms, Some Expectations About Hunter-Gatherer Foraging in the Great Basin
10:00 Bradley J. Vierra and William E. Doleman, The Organization of the Southwestern Archaic Settlement-Subsistence System
10:20 John E. Yellen, Hunter-Gatherer Resource Strategy in the Northern Kalahari
10:40 Discussant: D. H. Thomas

(29) General Session: ARCHAEOLOGICAL RESEARCH IN CENTRAL AMERICA AND MESOAMERICA

Pavilion
Chairperson: Norman Hammond

Participants:

8:00 Norman Hammond, A Memorial to H. C. Ball
8:10 Winifred Creamer, The Mesoamerican Boundary and Central America
8:30 Cathy J. Crane, Paleobotanical Research at Cerros, A Late Preclassic Site in Northern Belize
8:40 Norman Hammond, Catherine Clark, Mark Horton, Laura Kosakowsky, Anne Pyburn, Mark Hodges and Logan McNatt, Nohmul, Belize: Recent Research Reviewed
9:00 Kathryn V. Reese and Fred Valdez, Jr., Prehistoric Ceramics at Kichpanha, Northern Belize
9:20 Vernon L. Scarborough, Maya Polities in 1st-Century Northern Belize
9:40 Marilyn P. Beaudry, Prehistoric Occupation in the Gulf of Fonseca
10:00 Janine Gasco, Recent Excavations at Colonial Ocelocalco, Chiapas, Mexico
10:10 Larry Gorenflo, Exploring the Spatial Association of Population and Productivity in the Teotihuacan Valley, Mexico
10:30 Michael S. Foster, The Weiker Site: A Loma San Gabriel Hamlet in Durango, Mexico
10:50 Evelyn C. Rattray, Gulf Coast-Teotihuacan and Maya-Teotihuacan Relationships
11:10 Michael E. Smith, Economic Organization in Postclassic Morelos, Mexico: Changing Patterns of Production and Exchange
11:30 Michael E. Whalen, Middle Formative Household Evolution in Oaxaca, Mexico

(30) Symposium: FROM FOURIER TO FRACTALS: ARCHAEOLOGICAL AND MATHEMATICAL FRONTIERS OF PATTERN ANALYSIS

Galleria II
Organizers and Chairpersons: Ezra Zubrow, Barbara Little and Eric Hanson

Participants:

8:00 Barbara J. Little, Pattern Recognition: A Structured Approach for Archaeology
8:20 Albert Ammerman and Keith Kintigh, Patterns Within Patterns: The Starting Point
8:40 Kim Bartolotta, The Implications of Noise Vs. Pattern in Archaeological Analysis
9:00 Eric Hansen, The Interpolation and the Estimation of Regional Site Density Structures: Problems and Prospects
9:20 Ezra Zubrow, The Applications of Fourier Analysis to Periodic Patterns in Archaeology: A Northeastern Example
9:40 Kathleen Allen Sydoriak, Trends and Filters: An Examination of Pattern Recognition at the Site Level
10:00 David R. Abbott, A Computer Simulation to Estimate the Number of Features at Archaeological Sites
10:20 Frank Schiepatti, Intrasite Structural Analysis Using Semivariograms
10:40 Paul Shackel, Artifact Pattern Recognition at the Nicoll House, Suffolk County, New York
11:00 Discussants: T. Earle, Keith Kintigh and D. Read

(31) Symposium: PERISHABLE FIBER INDUSTRIES FROM EASTERN NORTH AMERICA: CONSERVATION, ANALYSIS AND INTERPRETATION

Galleria III
Organizers and Chairpersons: Nathan D. Hamilton and James B. Petersen

Participants:

8:00 Joan S. Gardner, Conservation of Fragile Fibrous Material
8:20 J. M. Adovasio and R. L. Andrews, The Origins of Basketry and Textile Manufacture East of the Rockies
8:40 Christopher Carr and Kathleen Hinkle, A General Theory of Style Applied to Ohio Hopewell Weavings
9:00 James B. Petersen and Nathan D. Hamilton, Perishable Fiber Industries of Northern New England: Ethnicity and Technological Traditions in the Woodland Period

9:20 Robert F. Maslowski, Cordage, Twist and Ethnicity
9:40 Nathan D. Hamilton, James B. Petersen and Alan McPherron, Perishable Fiber Industries in the Upper Great Lakes: A Late Woodland Case Study From the Juntunen Site
10:00 William Hurley, Pseudo Textiles From Eastern North America
10:20 Discussant: M. E. King

(32) Symposium: COSMOLOGY AND SOCIAL STRUCTURE IN THE ANDES

Galleria I
Organizers and Chairpersons: Jonathan E. Damp and Persis B. Clarkson

Participants:

8:00 Jonathan E. Damp, Organizational Properties for Andean State Development
8:20 James A. Zeidler, Settlement Structure at Real Alto: Implications for Cosmology and Social Organization in Valdivia Society
8:40 Karen E. Stothert, A New Look at Guangala Society and Economy
9:00 Izumi Shimada, The Sican Metallurgy and Interaction Sphere
9:20 Persis B. Clarkson, Archaeological Reconnaissance of the Nasca Pampas
9:40 William H. Isbell, Cosmic Hierarchy and State Administration in Middle Horizon Peru
10:00 Bente Bittmann, Rock Art and World View: A Case From Northern Chile
10:20 Mario A. Rivera, Symbolism in Tiwanaku and Alto Ramirez Phases of Northern Chile: The Andean Sacrifice
10:40 Gary Urton, Social Organization and Public Architecture in Pacariqtambo, Peru

(33) General Session: FAUNAL ANALYSIS, ZOOARCHAEOLOGY, ETHNOBOTANY AND HUMAN DIET

Forum
Chairperson: R. Lee Lyman

Participants:

8:00 Chuan-Kun Ho, Were Peking Men the Hunters Or the Hunted?
8:20 Stanley J. Olsen, Australopithecine Clavicle, Equid Toe or Cetacean Rib?
8:40 Michael J. DeNiro and Christine A. Hastorf, Stable Carbon and Nitrogen Isotope Analysis of Organics Found on Ceramics in the Jauja Area, Peru: Food Processing Vs. Food Production
8:50 Mary J. Adair, Botanical Evidence for the Development of Agriculture in the Central Plains
9:10 Phillip G. Chase, Split Bone and Grease Rendering at Combe Grenal
9:20 Diane Gifford-Gonzalez, Reconstructing Prehistoric Mortality Profiles Using Ages Derived From Dental Crown Heights: A Study of Neolithic Kenyan Cattle
9:40 Dennis C. Dirkmaat, A New Method for Aging Adult White-Tailed Deer
9:50 R. Lee Lyman, Techniques and Goals of Butchering Analysis
10:10 Olga Soffer, Diversity Index as a Measure of Seasonality in Archaeology
10:20 Gary C. Wessen, Shellfish Seasonality, Selection and Starvation Resources
10:40 Lynda E. Spickard, Northwest Coast Prehistoric Cultural Dynamics Reflected in Trophic Level Exploitation
10:50 David R. Huelsbeck, Marine Mammals in the Surplus Economy at Ozette
11:10 Madonna L. Moss and Jon M. Erlandson, Faunal Remains From Hidden Falls: Maritime Subsistence Along the Southeast Alaskan Coast
11:30 Christine R. Szuter, Small Sample Size in Faunal Interpretation: Building Blocks of a Regional Analysis
11:50 Terry Zontek, Aboriginal Fishing at Seal Rock and Neptune: Late Prehistoric Sites on the Central Oregon Coast

(34) Symposium: CULTURAL RESOURCE MANAGEMENT AND CURRENT RESEARCH ON NATIONAL FOREST LANDS, REGION 6 (OREGON AND WASHINGTON)

Council
Organizer: A. William Zukosky, Jr.

Participants:

8:00 Paul G. Claeyssens, CRM and the Research Question: Expectations, Realities and Suggestions

8:20 Sara A. Scott, Sand Spring: A Lithic Workshop on the High Lava Plains of Central Oregon
8:40 A. William Zukosky, Jr., Cultural Resource Management and the Willamette National Forest
9:00 Carl M. Davis and Sara A. Scott, The Lava Butte Site, Central Oregon
9:20 Carol J. Winkler, A Site Location Analysis for the Middle Fork of the Willamette Watershed
9:40 Barbara J. Hollenbeck, Cheryl A. Mack, and Richard H. McClure, Jr., Stripped Cedar Trees: South-Central Cascades, Washington
10:00 Jon Massoglia Silvermoon, Cultural Resources of the Freemont National Forest, South-Central Oregon
10:20 Discussant: J. D. Keyser

SATURDAY AFTERNOON, APRIL 14, 1984

1:30 ***SOCIETY FOR AMERICAN ARCHAEOLOGY***

Studio Suite
Meeting of the Executive Committee (continued)

1:30 ***SOCIETY OF PROFESSIONAL ARCHEOLOGISTS***

Board Room West
Meeting of the Board of Directors (continued)

(35) Symposium: THE HOKO RIVER SITE COMPLEX: 3000 YEARS OF MARITIME ADAPTATION ON THE NORTHWEST COAST

State Ballroom
Organizer: Dale R. Croes

Participants:

1:30 Dale R. Croes and Steven Hackenberger, Predictive Modeling of Prehistoric Economic Patterns in the Hoko River Region
1:50 David G. Miller, Problems With Modeling Intertidal Resource Use: A Case From the Northwest Coast
2:10 Kevin J. Peter, Auger Sampling and Spatial Analysis: A New Application of an Old Method at the Hoko River Rockshelter Site
2:30 Elizabeth J. Miksa, Determination of Past Human Activity Using Archaeological Features at the Hoko River Rockshelter
2:50 Debra J. Ecklund-Johnson, Analysis of Macroflora From a Shell Midden on the Northwest Coast of North America
3:10 Mary Jane Speelman, An Ethnographic Approach to Understanding the Prehistoric Use of Inter-Tidal Resources at Hoko River
3:30 Lorraine S. Gross, Determination of the Nature of Short-Term Changes in Site Function at a Fishing Camp on the Hoko River, Washington

(36) General Session: HOHOKAM ARCHAEOLOGY

Rose Ballroom
Chairperson: David E. Doyel

Participants:

1:30 M. Bernard-Shaw, Hohokam Plant Processing Tools: The Analysis of Tabular Stone Knives
1:50 Douglas B. Craig and John E. Douglas, Architectural Variability and Community Structure at Cerro Prieto
2:10 Patricia L. Crown, The Morphology and Function of Hohokam Small Structures
2:30 David E. Doyel and Mark D. Elson, Hohokam Expansion North of the Salt River Valley, Arizona: Models and Evidence
2:50 Donald A. Graybill, David A. Gregory and Fred L. Nials, Stream Flow Reconstruction and Hohokam Prehistory
3:10 Jill E. Neitzel, The Regional Organization of the Hohokam
3:30 Fred L. Nials and David A. Gregory, Recent Investigations of Hohokam Irrigation Systems

3:50 Lynn S. Teague, The Changing Role of Exchange in Hohokam Economy
4:10 David R. Wilcox, Frank Midvale's La Ciudad Excavations

(29) General Session (continued): ARCHAEOLOGICAL RESEARCH IN CENTRAL AMERICA AND MESOAMERICA

Pavilion
Chairperson: Anthony J. Ranere

Participants:

1:30 Linnea H. Wren and Peter Schmidt, A Sculptured Stone From the Great Ball Court, Chichen Itza, Mexico
1:50 Grant D. Jones, Rebellion and Population Dynamics in the Maya Lowlands: Ethnohistorical Implications for Maya Historical Archaeology
2:10 Daniel R. Potter and Fred Valdez, Jr., The Xe Sphere: A Consideration of the Early to Middle Preclassic Transition in the Maya Lowlands
2:30 Leoncio A. Garza-Valdes, La Venta, the Mythical Tamoanchan
2:40 Patricia Hansell, An Early Formative Community in Central Pacific Panama
3:00 Anthony J. Ranere, An Approach to Dating Surface Lithic Collections From Central Panama

(37) Symposium: THE EVOLUTION OF SOCIOPOLITICAL COMPLEXITY AND SUBSISTENCE ADAPTATIONS IN NON-MARGINAL ENVIRONMENTS: PREHISTORY AND ETHNOHISTORY OF CALIFORNIA HUNTER-GATHERERS

Galleria II
Organizers and Chairpersons: Paul D. Bouey and Mark E. Basgall

Participants:

1:30 John Hayes and William Hildebrandt, Social Organizational Constraints and the Use of Upland Habitats in Northwest California
1:50 G. James West, Holocene Vegetation Changes in the North Coast Ranges, California: The Pollen Record
2:10 Charles Slaymaker, The Political Development of the Coast Miwok and Their Predecessors
2:30 Richard E. Hughes, Obsidian Procurement Patterns and Sociocultural Complexity
2:50 Paul D. Bouey, Hunter-Gatherer Site Structure and Sociopolitical Complexity: The Evidence for Social Differentiation Within a Late Pomo Village
3:10 Mark E. Basgall, Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California
3:30 Helen McCarthy, Sierra Miwok and Yokuts: An Ethnographic Analysis of Hunter-Gatherer Complexity in Central California
3:50 Georgie Waugh, California Hunter-Gatherers: From Subsistence to Production
4:10 Discussants: M. N. Cohen, M. Jochim and J. E. Yellen

(38) Symposium: MODELING AND SURVEYS: MANAGEMENT PARAMETERS AND PREROGATIVES

Galleria III
Organizers: H. Barry Holt and Meade F. Kemrer

Participants:

1:30 Anthony L. Klesert, Predictive Modeling Vs. Sampling: Perspectives From Research and Compliance
1:50 H. Barry Holt, Archaeological Compliance and Sampling: Legal Requirements and Remedies
2:10 Meade F. Kemrer, The Navajo Forest Overview Program
2:30 A. E. Rogge and Thomas R. Lincoln, Predicting the Distribution of Archaeological Sites: A Case Study From the Central Arizona Project
2:50 James I. Ebert, Louanne Wandsnider and Signa Larralde, Theoretical, Methodological and Economic Aspects of Nonsite Surface Surveys, Nonsite Sampling and Predictive Modeling
3:10 Paul R. Nickens, Agency Use of Predictive Models: A Followup Analysis From the Northern Colorado Plateau

3:30 Chris Kincaid, Cultural Resource Predictive Modeling Assessment Project
3:50 Discussant: W. J. Judge

(39) General Session: MORTUARY PRACTICES AND HUMAN SACRIFICE

Galleria I
Chairperson: Diane K. Hanson

Participants:

1:30 Diane K. Hanson, An Explanation for Mummification
1:50 Molly R. Mignon, Human Sacrifice and Adaptation
2:10 George R. Milner, Cemeteries and People: The Spatial Arrangement of Mississippian Mortuary and Habitation Areas
2:30 Anne Pyburn and William L. Rathje, Sex and Status Among the Maya: Evidence From Prehistoric Burials
2:50 John C. Ravesloot, Mortuary Treatment and Social Differentiation at Casa Grandes, Chihuahua, Mexico

(40) General Session: LITHIC TOOL PRODUCTION, ANALYSIS AND INTERPRETATION

Forum
Chairperson: Carl J. Phagan

Participants:

1:30 Gary M. Brown and Debra Foldi, Lithic Acquisition, Production and Use at Chavez Pass, Arizona
1:50 Kathleen L. Hull, Microdebitage Analysis Applied to Intra-Site Spatial Patterning
2:10 Rochelle L. Lurie, Analysis of Lithic Materials From Protohistoric Sites
2:30 Carl J. Phagan, Technological Model for Ground Stone Tool Analysis
2:50 John C. Whittaker, Individual Variation in Flaked Stone Tools: Projectile Points at Grasshopper Pueblo, Arizona
3:10 Patricia A. Hicks, Stylistic and Technologic Variability in Projectile Points as an Indicator of Regional Interaction

SUNDAY MORNING, APRIL 15, 1984

8:00 ***THE COORDINATING COUNCIL OF NATIONAL ARCHAEOLOGICAL SOCIETIES***

Studio Suite
Annual Meeting

ABSTRACTS OF SYMPOSIA

(1) The Concept and Measure of Archaeological Diversity.

Discussions of observed diversity in the archaeological record often address this issue in an intuitive sense only and rarely incorporate the concepts of richness and evenness of class abundances in a formal manner. Recently, attempts have been made to quantify diversity more explicitly, drawing on measures developed in the biological sciences. However, a thorough consideration of the concept and measurement of archaeological diversity has yet to materialize. Papers in this symposium contribute to that end, first, by describing measurement techniques, and second, by examining the role of the diversity concept in explanatory models of archaeological variability and change.

(1) A Burning Issue? Effects of Fire on Archaeological Resources.

Terrain fires as cultural activities in ancient and modern times effect changes in natural environments in which human occupations are located. Archaeological resources of all periods of past occupancy may or may not undergo significant change when subjected to wildfires passing over terrain or to fires prescribed as management practice. Aboriginal burning is a factor in the interpretation of local fire histories and cumulative potential effects upon resources. Analyses and interpretations of archaeological data from environments characterized by growing fuels need to take into account past and present fire histories and practices. Cross-disciplinary management decisions and interdisciplinary approaches to fire effects are needed.

(3) Energy, Engineering and Resources in Early Anasazi Architecture: Examples from the Dolores Project.

Some factors influencing Anasazi architecture in the Dolores, Colorado area between AD 650 and 900 are examined. Anasazi architecture is a product of numerous interacting factors, including household and community organization, patterns of mobility and demographic change, subsistence practices, symbolic needs, available technology, and so on. This symposium explores only a subset of determinants, focusing on energy requirements for building, operating, and maintaining facilities; availability and special properties of construction materials and fuels; constraints introduced by engineering limits and Anasazi technical knowledge; and constraints stemming from minimal requirements for keeping humans comfortable and stored food secure under Dolores area climatic conditions.

(4) Early Adaptations in High Andean Environments.

The Preceramic and Formative periods (11,000-0 BC) of the high Andes demonstrate a record of continuous and concentrated human occupation based in part on the exploitation of camelids. Presented are the results of recent research on the mobility, economy, and interaction of these early populations, emphasizing the topics of pre-pastoral sedentism, camelid domestication, and specific resource utilization. Some papers synthesize the early prehistory of the Junin puna of central Peru, but other high-altitude Andean regions are represented as well. Variability in adaptation is related to local resource structure, varying regional conditions, and the evolving Andean lifeway.

(6) Beyond Inventory: Progressing with CRM.

Cultural Resource Management has reached a point in its development where survey and location of sites alone is simply no longer viable. Today, questions about the data base are being asked. The answers are yielding important information on a number of levels; pure research, management application, and public involvement are basic to advancement in the discipline. A variety of approaches presently being undertaken are illustrated in this symposium.

(7) Lithic Experiments in Archaeology: Case Studies in Replication and Use-wear Research.

This symposium responds to the increasing need for a cohesive program of research in experimental lithic archaeology. Theoretical and methodological issues are addressed by way of case studies which focus on usewear analysis and replication/reduction analysis. Many researchers recognize that experimental results remain somewhat isolated because they address particularistic questions and are not taken further. Since these kinds of studies have great potential for interpretation beyond the particular, we hope to facilitate movement along these broader lines of enquiry.

(8) The Richland Creek Project: Multidisciplinary Advances in the Archaeology of North-Central Texas.

In progress for three of a projected five years, the Richland Creek Project is a multidisciplinary attack on the archaeology of a 50,000-acre area in Texas. Results of a multiphase research design

are presented in relation to historic and prehistoric settlement and paleoenvironmental reconstruction. Methods and results for understanding the socioeconomic system of tenant farming are presented, including analysis of sheet refuse and dendrochronology. Advances in regional prehistory are presented, including use of remote sensing techniques, geology, and palynology. Discovery of a distinctive prehistoric mortuary system is discussed.

(9) Lithic Source Identification as an Analytic Tool in Archaeology.

This symposium introduces recent studies in lithic source identification procedures and their relevance to the solution of anthropological problems. Both the technical and archaeological aspects of sourcing are covered. Discussion ranges from geochemical and petrographic techniques of distinguishing source localities to their utility in the reconstruction of prehistoric patterns of exchange and procurement. They also cover a range of lithic types and geographic regions, including a discussion of materials from western Europe and the Northeast, Mid-Atlantic, and Plains areas of North America.

(11) New Perspectives in Santa Barbara Channel Archaeology.

During the last decade, understanding of Santa Barbara Channel region prehistory has significantly increased. Advances are attributable to the application of new theoretical constructs and to the collection of many types of data which were previously discarded, such as fire-altered rock, chipping detritus, carbonized plant remains, small bones, and pieces of shell discarded during bead manufacture. Simple small sites are also important subjects of research. All lines of research discussed can be applied to understanding prehistory in other regions of the world.

(12) European Contact in North America: Archaeology, Demography and History.

European contact in North America resulted in numerous and far-reaching consequences on aboriginal populations and systems. Following the introduction of European pathogens, Native populations declined and, in some cases, disappeared. In response to a shrinking population base, European technologies, and ecological pressures, new adaptive strategies developed. Given the nature and magnitude of these changes, the period of European contact is unquestionably an area of fruitful research, especially for scholars interested in culture process. Archaeological problems pertinent to this period are explored, with examples drawn from different regions of North America, including the Northeast, Southeast, Southwest, and Northwest.

(13) Archaeological, Historical and Skeletal Biological Investigations of a 17th-Century Narragansett Indian Cemetery in Rhode Island.

The results of a controlled excavation at a 17th-century Indian cemetery containing over 60 individuals are discussed in a series of papers that examines pathological, osteological, and cultural characteristics of the Narragansett Indians during a period of intense European contact. The effects of contact upon the Narragansetts were examined at the level of individual, cemetery, region, and hemisphere. Results suggest widespread disease, persistence of certain religious and social values, craft specialization, and active Narragansett participation in the European market economy.

(Plenary Session) CONSERVATION ARCHAEOLOGY—1984!

Recognizing the tenth anniversary of ASCA and the Moss-Bennett bill, an SAA plenary session is devoted to a special ASCA symposium. Past conservation accomplishments and our present context, as well as projections of these ideas into the future, are assessed by a panel of 11 archaeologists. Four central topics (conservation as research; an ethic; a problem; and a potential) are presented. Each paper has individual respondents, and three discussants respond to the symposium as a whole.

(14) The Ethnoarchaeology of Refuse Disposal.

Though site formation processes have received much attention lately, seldom has the subject of refuse disposal been addressed exclusively. This symposium brings together a set of archaeologists and anthropologists to present their diverse views on refuse disposal with the aim of stimulating an exchange of ideas about the subject. The papers deal with ethnographic examples from as far afield as Peru and Kenya and as close as your local landfill. Wide-ranging topics, including refuse disposal as a social act, the use-lives of automobiles, and the use of garbage as a scientific data gathering tool, are addressed.

(19) The Resource Protection Planning Process (RP3): Challenges in Implementing the Model.

The main purpose of the Resource Protection Planning Process is to develop a systematic management framework for the identification, evaluation, and treatment of cultural resources.

This symposium focuses on challenges encountered by federal and state agencies in implementing the RP3 model through an examination of the planning process and some approaches to its development and use. Papers address planning versus crisis management, quality of data, resource types, significance criteria, research goals, interdisciplinary conflicts, historical archaeological methods, educational opportunities, and user involvement in the planning process.

(20) Studies in the Organization of Lithic Technology.

Recent studies in archaeology focus on ways in which technology is designed to cope with environmental diversity, settlement mobility, and raw material availability, among other problems. Their unifying theme is "technological organization", a concept defined here as the integration of technology with natural and cultural environments. Papers address three problem areas in the organization of prehistoric lithic technologies: lithic reduction and raw material; reconstruction of land-use patterns; and measurement of the social organization of tool production. It is demonstrated that organizational approaches to lithics, in contrast to typological or functional approaches, better facilitate explanations for causes of material variability in cultural systems.

(21) Recent Research on the Pacific Coast and Piedmont of Southern Mesoamerica.

Recent research in the Pacific Coastal zone of southern Mesoamerica is producing a new view of that region's development and changing external relationships. A "Balkans" view of the region, which sees it as a staging ground for successive waves of foreign influence, is being replaced as new data emerge. Papers address some of the fundamental unanswered questions about culture history, emphasizing the development of regional differences within the area. Study topics include stylistic change in ceramics, sculpture, architecture and settlement patterns, and economic development.

(22) Tax Dollars at Work: Federal Archaeology in the 1980s.

This symposium focuses on federal agency contributions to archaeology that are notable for their quality and innovation. Although the geographic areas of discussion are diverse, the results are considered widely applicable. The federal management perspective is presented as an overview. Remote sensing applications include overlapping special studies at a National Landmark site in Oklahoma; proton magnetometer applications in the Columbia Plateau, and archaeological correlations with environmental information in the San Juan Basin. Alluvial and archaeological stratigraphy in the Middle Missouri Basin are used to establish a regional chronological framework. The historic mitigation program at the Tombigbee River resulted in the examination of manifestations of poverty in the formation and preservation of the historic record. A stabilization program to preserve eroding sites at Voyageurs National Park is discussed.

(23) Anadromous Fish Utilization and Socioeconomic Complexity: the Search for Correlates in the Archaeological Records.

Intensification of anadromous fish exploitation, beginning in the Upper Paleolithic, is often associated with increasing socioeconomic complexity. Three aspects of this correlation require examination: archaeological criteria for establishing the degree of dependence on anadromous fishing; environmental and demographic factors associated with increased emphasis on anadromous fishing; and evidence for increasing socioeconomic complexity as reflected in artifactual and faunal inventories and in settlement pattern change.

(24) Geoarchaeology in the Northwest: Recent Applications and Contributions.

Geoarchaeology applies methods and concepts from the earth sciences to analyze the integrity and continuity of the archaeological record. Sedimentary analysis of natural and cultural deposits offers a wealth of information relevant to past environments and prehistoric lifeways. This symposium provides concrete examples of ongoing geoarchaeological analyses throughout the Northwest. Regional coverage includes Alaska, Northwest Coast, Columbia Plateau, Great Basin, and Interior Valleys. Topics range from concrete stratigraphic, geomorphic, and midden analyses to considerations of important theoretical and methodological problems. Papers illustrate the outstanding potential of geoarchaeological studies for answering archaeological questions on both a site-specific and regional scale.

(25) The Organization of Hunter-Gatherer Lithic Technology: Recent Analyses.

The organization of hunter-gatherer lithic technology refers to the ways in which hunter-gatherers manufacture, use, reuse, and discard stone tools and the conditions under which different lithic reduction strategies are implemented. This field has received much attention in the last few years, and much polemic and some tenuous associations between technology and various aspects of hunter-gatherer settlement and subsistence have been generated. Papers in this

symposium present analyses of archaeological data from excavated sites and/or surveys in an effort to evaluate the utility of our current understanding of the relationship between lithic technology and hunter-gatherer lifeways and to suggest productive avenues of research.

(26) The New Melones Archaeological Project: Phase X (1981-1984) Investigations.

Located along the Stanislaus River in the central Sierra Nevada foothills, California, the New Melones Reservoir Project encompasses some 682 known archaeological sites. Prior to 1981, 89 of these sites had been sampled by various investigators. In 1981, INFOTEC excavated 10 historic non-Indian sites and three multi-component Indian sites, which together represent nearly 7000 years of cultural activity. This symposium describes the results of the 1981 fieldwork, summarizes the culture history of the central Sierra, and provides a status report on current and recently completed analyses of materials from sampled sites in the project area.

(27) Mammoth, Mastodons and Elephants: Paleoecological, Archaeological and Taphonomic Perspectives.

This symposium on proboscideans presents papers on fossil sites and collections in North America and the rest of the world, as well as results of recent experimental, ethnoarchaeological, and taphonomic field work on proboscideans. Papers describe the most up-to-date information on proboscidean sites, fossil and modern, and attempt to define "patterns" or differences in the wealth of available data. Controversial issues are given fair coverage, but the main goal of the symposium is to present overview papers that make information centrally available.

(28) Regional Organization of Hunter-Gatherer Populations.

Most models dealing with the relationship between hunter-gatherer culture and resource utilization tend to be of two kinds: site focused and resource focused. The former are most appropriate for spatially limited archaeological phenomena such as single excavated sites. For regional or areal research, locational and gravity models are most effective. These approaches view whole-regional site location and utilization as a function of the location and economic value of significant resources, measured in terms of variables such as critical limiting factors, resource density, distribution, mobility congruity, and so on. Participants present methods and examples of regional spatial analysis for hunter-gatherer populations.

(30) From Fourier to Fractals: Archaeological and Mathematical Frontiers of Pattern Analysis.

The empirical basis for all archaeological analysis requires recognition and interpretation of patterns. The convenors believe that considerable archaeological information remains invisible to us in spite of sophisticated hypotheses and problems because of our inability sometimes to perceive elusive and incomplete patterns in our data. The last decade has witnessed significant innovations in formal techniques in the field of Pattern Recognition. This symposium attempts to summarize many of these developments, analyze their recent application to spatial and temporal archaeological data, and explore their future potential for our field.

(31) Perishable Fiber Industries from Eastern North America: Conservation, Analysis and Interpretation.

Varied facets of perishable fiber industries are explored in this symposium, using a little-known but informative data base from eastern North America. Papers consider methods of conservation, analysis, and interpretation of fiber perishables. Broad synthesis and local case studies for the Archaic and Woodland periods are presented, with particular coverage of the Ozark highlands, Ohio River drainage, Upper Great Lakes, and northern New England. In several papers, particular attention is given to the linkage between perishable fiber industries and ethnicity in the archaeological record.

(32) Cosmology and Social Structure in the Andes.

This symposium is pan-Andean in geographic scope. It focuses on recent work on prehistoric, ethnohistoric, and modern-day cosmology and society in western South America. Papers consider Formative village and later chiefdoms of Ecuador, the Nasca area geoglyphs of Peru, contemporary highland Peruvian social organization and public architecture, and cosmological and symbolic features of prehistoric Bolivia, southern Peru, and northern Chile. The major emphasis goes beyond traditional ceramic typologies and prehistoric chronologies in discussing pre-Columbian ideological and socioeconomic systems in South America.

(34) Cultural Resource Management and Current Research on National Forest Lands, Region 6 (Oregon and Washington).

Under the authority of federal laws and Executive Directives, the U.S. Forest Service is responsible for identifying and protecting prehistoric and historic archaeological resources. Because of potential ground-disturbing activities, the Forest Service is mandated to survey, test evaluate, and mitigate the potential adverse effect of such activities on cultural resources. This symposium presents information about certain projects and discusses the relationship between the compliance process and research.

(35) Hoko River Site Complex: 3000 Years of Maritime Adaptation on the Northwest Coast.

This symposium synthesizes the last four years of a seven-year project that involved the excavation of two sites at the mouth of the Hoko River, Olympic Peninsula, Washington. The Hoko River Rockshelter (45CA21) has received the most attention, providing a detailed analysis of a shellmidden within a spacious rockshelter. Also, a 3000-year-old upriver halibut fishing camp is updated with recent analysis of the actual onshore activity areas. Both sites provide data by which computer models simulating 3000 years of Northwest Coast maritime adaptations can be evaluated.

(37) The Evolution of Sociopolitical Complexity and Subsistence Adaptations in Non-marginal Environments: Prehistory and Ethnohistory of California Hunter-Gatherers.

In the past, hunter-gatherer research has typically focused on modes of adaptation operative in marginal resource areas. This symposium addresses those models, indicates their limitations as general explanatory constructs, and evaluates food foragers in more widespread non-marginal resource contexts. Papers explore the interplay between resource structure, group relationships, and settlement strategies. Data drawn from the California culture area provide evidence that hunter-gatherer sociopolitical organization need not be of the "egalitarian" type. Similar proposals could be, and to an extent have been, formulated for other non-marginal areas, suggesting that hunter-gatherer societies should be re-evaluated both with respect to models of that lifeway and with regard to general sociocultural evolution.

(38) Modeling and Surveys: Management Parameters and Prerogatives.

Predictive modeling and sampling surveys recently have fomented both enthusiam and criticism in the cultural resource management field, especially with regard to their applications on federally administered lands. This symposium attempts to define predictive modeling and sampling, and examines their usefulness in light of specific legal requirements of the National Environmental Policy Act and the National Historic Preservation Act. Several case studies critically review scientific and federal management applications of modeling in terms of methodologies, cost effectiveness, and data acquisition capabilities.

ABSTRACTS OF PAPERS

Abbott, David R. (Arizona State Museum)
A Computer Simulation To Estimate the Number of Features at Archaeological Sites.

The total number of features present at sites is difficult to estimate from archaeological work because spatial units rather than features constitute the excavation samples. When spatial patterns can be recognized and modeled, however, the estimation problem can be successfully handled using computer simulation. This routine assesses prejudices in particular excavation schemes and accurately appraises the number of features at sites by comparing simulated plots of features and excavation samples with actual excavation data. As an example, the number of Sacaton phase pithouses is estimated at Snaketown, a pivotal site for research in the Desert Southwest. (30)

Ackerly, Neal W. (Arizona State)
Vegetative Cover and Surface Assemblages: Effects on Intra- and Inter-Site Analyses.

The effect of intervening factors, especially surface visibility, on retrieval of archaeological data has received little attention. This paper explores the effect of vegetation on artifact density estimates and measures of association between artifact classes. A theoretical consideration suggests that these parameters are affected by average cover, variance in cover, and spatial patterns of vegetation on sites. Empirical analyses show that correcting for vegetative cover increases artifact density estimates and decreases correlations between artifact classes. Since these effects are neither systematic nor predictable, vegetative cover appears to be an important factor in examining artifact characteristics based on surface samples. (15)

Adair, Mary J. (Kansas)
Botanical Evidence for the Development of Agriculture in the Central Plains.

Macrobotanical remains have been both systematically and fortuitously collected from many archaeological sites in the Central Plains by various institutions. Previously unpublished data on botanical remains have been combined with published materials to present a chronological overview of the development of agriculture in this area. Specific developments are discussed, including the appearance of the presently recognized six cultigens, the similarities in subsistence strategies between the Illinois Valley and Kansas City Hopewell populations, the importance of native plant seed cultivation, and the intensification of maize agriculture. (33)

Adovasio, J. M. (see Donahue, J.) (17)

Adovasio, J. M. and R. L. Andrews (Pittsburgh)
The Origins of Basketry and Textile Manufacture East of the Rockies.

The genesis and subsequent evolution of aboriginal basketry and textile production east of the Rocky Mountains were examined in terms of process and product. Though relatively uncommon by the "preservational standards" of the Arid West and Southwest, extant basketry and textile remains are sufficient to reconstruct the broad outlines of so-called "perishable production" from the Paleo-Indian period through the Late Archaic. Data from varied and widespread areas indicate conclusively that the manufacture of twining and/or plaiting underlies all subsequent development in perishable manufacture in eastern North America, as in western North America. Further, available evidence indicates that the quality and quantity of aboriginal basketry and textile production is at least as great east of the Rockies as it is in the prehistoric West. Perishable data present an unbroken, if imperfectly documented, developmental sequence throughout the prehistoric period. (31)

Agenbroad, Larry D. (Northern Arizona)
Clovis Sites with Associated Mammoth Remains.

Since 1932, when Clovis points were found with mammoth remains at Dent, Colorado and Blackwater Draw, New Mexico (Clovis type site), Clovis-mammoth associations have been found in a variety of geographic and physiographic localities. Although Clovis lithic materials represent a continent-wide complex at an early temporal horizon, it is the western sites that provide a chronologic and stratigraphic framework for the culture. Erosional processes of the last 100 years have exposed, and are exposing, buried sites containing Clovis artifacts in association with mammoth remains. It is from these sites and their limited data base that the origin, migration and dispersion, lifeway, cultural attributes, and the possible contribution of Clovis hunting techniques to megafaunal extinction and the subsequent cultural adaptations to a changing environment have been obtained. (27)

Ahlstrom, Richard V. N. (Arizona)
A Comparative Approach to the Interpretation of Tree-Ring Data.

In recent years, the Tree-Ring Laboratory has provided Southwestern archaeologists with an

unparalleled body of data consisting of more than 20,000 tree-ring dates. These data have mostly been interpreted piecemeal. By employing an area-wide, comparative approach to interpretation, archaeologists can now enhance greatly their ability to resolve behavioral questions relating to the prehistoric use of wood resources, methodological questions concerning the interpretation of tree-ring data, and problems of culture history at both site and regional levels. The advantages of this approach are illustrated with examples drawn from Anasazi and Mogollon prehistory. (16)

Aigner, Jean S. (Alaska)
A Continuum of Microlithic Technology in Asia and Arctic America.

Recent discoveries of microcore and microblade technology in eastern China are dated 25,000-20,000 years BP. Somewhat younger archaeological materials in north China are contemporary with "Diuktai" of Siberia. Well-known Alaskan examples of this technology are dated up to 11,000 years BP, while newly recovered materials from Bluefish Cave, Yukon Territory, date 18,000-14,000 years BP. This brief synthesis considers the functional as well as historical significance of the Asia-Arctic continuum in microblade technology. (2)

Aldenderfer, M. (see Waddell, C.) (16)

Ames, Kenneth M. (Boise State)
Measuring Intensification of Salmon Exploitation in the Pacific Northwest.

While salmon exploitation became increasingly important during the last 12,000 years in the Pacific Northwest of North America, it has been extremely difficult to document the process of intensification. It is not presently clear when intensification began on the Pacific coast or in the Interior, nor is it possible to measure the rate of intensification in various parts of the region. One approach to this methodological problem is an intensive analysis of settlement pattern changes based on the assumption that intensification will lead to increasing reliance on logistical subsistence strategies. The increasing role of logistical strategies can be observed by measuring assemblage diversity and grain. This method is demonstrated using site data from the Columbia Plateau and the northern Northwest Coast. (23)

Ammerman, Albert (Colgate) and Keith Kintigh (Arizona State Museum)
Patterns Within Patterns: The Starting Point.

When it comes to recognition and interpretation of patterns in archaeology, we are often challenged by situations where patterns are nested within one another. This paper covers some of our recent experience as it relates to the development of the k-means approach to spatial analysis. A basic goal (at least at the current state of the art) may not be so much that of identifying specific patterns as that of sorting out the levels of patterning present in a given situation. This paper looks at several experiences as a means of discussing heuristic strategies that may be productive in this way. (30)

Anderson, Dana B. (Natal Museum)
Through the Looking Glass: Can We Trust Our Eyes?

The sudden popularity of ethnoarchaeology is due to the recognition that archaeological interpretation has always depended upon ethnography and will continue to draw from it in the future. However, this dependence must not be indiscriminant: it requires systematic attention. Cases in point are recent discoveries that many of the commonly held assumptions casually drawn from the modern world and frequently used in interpreting archaeological materials are faulty. This paper discusses recent ethnoarchaeological fieldwork among the Navajo with the aim of assessing the utility of assumed and postulated relationships between behavior and site structure to interpret archaeological data. (15)

Anderson, Patricia M. (Washington)
Interdisciplinary Research and the Problems of Using Different Time and Space Scales in Geoarchaeology: An Example From Northern Alaska.

Inappropriate "homogenization" of archaeological and environmental data can lead to poor interpretations about the past. Such interpretations vary from overly simplistic, causative explanations of culture change to gross misapplications of environmental data inappropriate for the time or area under consideration. If geoarchaeologists wish to make more sophisticated paleoecological interpretations, they must pay attention to the degree of temporal and spatial resolution in the various types of data used in their analyses. These methodological problems are discussed, using a specific example from northern Alaska to illustrate the variability in interpretations as differing spatial scales of analysis are used by archaeologists. (24)

Andrefsky, W., Jr. (see Bienenfeld, P.) (7)

Andrefsky, W., Jr. (7)

Andrefsky, William, Jr. (Alaska)
Intensification of Late Archaic Spatial Interaction: An Eastern Woodland Example.

The analysis of lithic raw material is used to reveal changes in the spatial interaction of prehistoric groups through time. Projectile point data from the Late Archaic through Early Woodland periods in the Upper Delaware Valley are used as a test case. Results of the study indicate an increase in the variety of lithic raw materials used and a simultaneous decrease in the use of distant lithic raw materials. These trends support an hypothesis of gradual intensification of existing prehistoric interaction networks over time. (20)

Andrews, R. L. (see Adovasio, J. M.) (31)

Aten, L. (19)

Babits, Lawrence E. (Armstrong State)
Modern Regional Landscape Terminology and the Interpretation of an Urban Archaeological Site.

Eighteenth-century Savannah, Georgia was subjected to an attack by Franco-American forces in 1779. The area of a key fortification, Spring Hill Redoubt, has been considerably altered in the ensuing 200 years. Its actual location has been the subject of dispute. Utilizing archaeological, pre-building architectural, historical, and oral information, the traditional mythology about the Battlefield Park was re-evaluated, altered, and reinforced. (15)

Baer, Roberta D. (Arizona)
Factors Affecting Relationships Between Household Refuse and Individual Food Consumption.

A variety of cultural factors may affect the accuracy with which household refuse will reflect food consumption of individuals within the household. In a sample from rural and urban areas of Northern Mexico, the extent to which household members of different ages and sexes eat outside the household is discussed. Other factors considered include types of food packaging, or lack thereof, and re-use of packaging and food remains. An understanding of these issues is especially important if data from refuse studies in different areas are to be compared. (14)

Ball, Bruce F. (Archaeological Survey of Alberta) and Peter T. Bobrowsky (Alberta)
The Non-Concept of Diversity in Archaeology.

The use of the concept of diversity in archaeology is reviewed. Diversity is a quantitative measure widely used in ecological studies which may be derived in a variety of ways. The range of computational formulae available, however, may be categorized within three main theoretical groupings of diversity measures: indices of richness, heterogeneity, and evenness. This paper reviews implicit constraints of these three main types of diversity and their use in archaeology. Diversity is shown to be most accurate when examined separately as either indices of richness or evenness. (15)

Bamforth, Douglas B. (California, Santa Barbara)
Technological Efficiency and Tool Curation.

Recent research has attempted to predict technological organization on the basis of subsistence/settlement organization. This paper examines one such prediction, linking Binford's forager/collector subsistence/settlement continuum with his expedient/curated technological continuum: curation is predicted to correlate with collecting because both are "efficient". In opposition to this view, this paper argues that knowledge of local conditions, particularly the nature and distribution of lithic resources, is integral to understanding the relationship between settlement and technology. An example from coastal California, where related settlement and technological changes are opposite to those predicted by the curation/collecting hypothesis, supports this view. (25)

Banks, L. (5)

Barnette, K. (see Horne, S.) (1)

Bartolotta, Kim (New York, Buffalo)
The Implications of Noise vs. Pattern in Archaeological Analysis.

The topic of noise was considered with regard to its influences on pattern recognition in the archaeological record. Is it easier to recognize a pattern or the noise? When can patterns be so small or even so obvious as to be overlooked? How does the persistence of a pattern and noise affect our ability to perceive them? When, if at all, do patterns appear to be only noise, and vice versa? The use of fractals is explored within a methodology to distinguish between patterns and noise in the hope of giving a new and fresh outlook on noise and pattern recognition. (30)

Basa, Louise A. (Vermont)
Laboratory Excavation of Fragile Archaeological Remains.

This paper demonstrates that the recovery of fragile organic materials is enhanced through controlled laboratory excavation. These fragile remains were preserved mostly through copper oxides from contact with copper beads in burials from an Early Woodland (Adena-related) cemetery, the Boucher Site, in Vermont. Unexcavated burial units were removed in earthen blocks, often X-rayed for in situ mapping of the compact skeletal material, then carefully excavated at the University of Vermont Anthropology Department Laboratory utilizing wooden implements, air blowers, and brushes. Rare examples of textiles and small animal remains (complete snakes and fish) were recovered using these controlled methods. (16)

Basgall, Mark E. (California, Davis)
Resource Intensification Among Hunter-Gatherers: Acorn Economies in Prehistoric California.

Acorns, traditionally viewed as a desirable resource, were a staple throughout much of California during the ethnographic period, but saw much lesser emphasis prior to ca. 3000 BP. Two facets of this pattern are explored: reasons for the intensification of balanophagy in California and the role which that subsistence reorientation played in the evolution of California sociopolitical organization. Ecological optimization models are used to show why this seemingly productive resource was initially exploited only marginally. This subsistence shift, related to changes in demography and group interaction, provides the basis for a more generalized discusssion of resource intensification among hunter-gatherers. (37)

Baugh, Timothy G. (Oklahoma) and Fred W. Nelson (Brigham Young)
Trace Element Analysis of Obsidian Artifacts From the Southern Plains.

Several late prehistoric and protohistoric sites in the Southern Plains region have yielded a variety of obsidian artifacts. Because obsidian was an important trade item into the Southern Plains following the Woodland period, a number of flakes from several of these sites were analyzed to determine their trace element composition. These were then compared to several geologic obsidian sources in the western United States. The results of this analysis are presented, and their implications for Southern Plains exchange systems from Woodland through Plains Village periods are discussed. (9)

Beaudry, Marilyn P. (California, Los Angeles)
Prehistoric Occupation in the Gulf of Fonseca.

An extensive ceramic collection from a site in the extreme eastern part of El Salvador was recently classified and analyzed. This geographic area is very poorly known archaeologically and thus the Asanyamba data are extremely important. The materials available indicate occupation during the Late Classic Maya period. Spatial associations point to significant contact with the Lake Yojoa area in Honduras, while influences from the south and the west are lacking. Evidence points to a vigorous cultural and socioeconomic system that probably intermeshed at some level with that of the southeastern Maya periphery, but was distinctive from it. (29)

Beck, C. (see Jones, G. T.) (1)

Bender, Susan J. (Skidmore)
Modeling, Validation and the Reconstruction of Mountainous Subsistence and Settlement.

While mountains are a conspicuous feature of the High Plains landscape, our understanding of the area's prehistory is limited by a general failure to incorporate data concerning past utilization of mountainous areas by aboriginal populations. Archaeological data from the northern Teton Mountains of northwestern Wyoming indicate that mountainous occupations were a part of local prehistory for at least 3000 years. Working from survey data, a process of modeling and validation was used to reconstruct the outlines of the prehistoric subsistence and settlement system located in this mountainous setting. (15)

Benfer, Robert A. (Missouri), Glendon H. Weir (Texas A&M) and Elizabeth J. Reitz (Georgia)
The Paloma Project.

Thirteen months of excavation and 11 months of laboratory work in Peru were recently completed on the stratified Archaic lomas Site of Paloma, Chilca Valley, Peru. Two-thousand pounds of samples were exported for study in late 1982. Work is progressing on settlement pattern, demography, health, and subsistence practice. Findings from probability sample excavations permit informed discussion of maritime and terrestrial faunal resources, as well as utilization

and/or management of plant resources. These data, rather than field impressions, from the Paloma Project are pertinent to the debate on the origin of Andean civilizations. (4)

Benson, Charlotte L. (Washington)
Evolutionary Explanation of Organizational Change.

Although interpretations of social organization and structure are critical in explaining cultural change, their correlates in the archaeological record are ambiguous. The validity of commonly used referents was assessed, and units at the scales of household, corporate group, and community were compared for purposes of addressing functional or evolutionary questions. Evolutionary explanations incorporating transformational and selectionist views of change were compared in an analysis of northern Anasazi community patterns. The selectionist framework is preferred on both theoretical and empirical grounds. (15)

Bernard-Shaw, M. (see Shaw, C. W., Jr.) (18)

Bernard-Shaw, M. (Arizona State Museum)
Hohokam Plant Processing Tools: The Analysis of Tabular Stone Knives.

The analysis of stone tools from Hohokam sites in the Phoenix Basin has associated a particular class of implements with a wide-ranging phenomenon of inter-community exchange involving utilitarian goods. The following aspects regarding tool function were evaluated: the botanical residues preserved on tool surfaces, technical attributes along with use-wear microscopy, raw material sourcing, experimental replication and use of tools in specific tasks, and a comparative study of available collections and ethnographic records concerning similar tool use. The pattern documented relates to a strategy of economic exchange that has broad ecological implications. (36)

Bettinger, Robert L. (California, Davis)
The Alpine Village Pattern in the Great Basin.

Between 1981 and 1983, archaeological research in the western Great Basin disclosed the presence of four alpine villages at elevations between 10,500 and 12,640 feet (3170 and 3850 m.). Each exhibits structural remains and an extensive chipped and ground stone assemblage that suggests occupation for extended periods by family groups. The existence of these villages is unrecorded in ethnographic accounts and does not comport with traditional assumptions regarding aboriginal use of the Great Basin alpine tundra zone. This paper considers alpine villages in terms of the kinds of cost associated with their occupation, the subsistence activities around which they revolved, and their role in regional subsistence and settlement patterns. (28)

Bettis, E. A., III (see Thompson, D. M.) (22)

Bettison, Cynthia Ann (California, Santa Barbara)
An Experimental Approach to Sickle Sheen Deposition and Archaeological Interpretation.

Developing an understanding of the process of sickle sheen (ss) formation is critical in evaluating archaeological interpretations of such deposits, or their absence, on flaked stone tools. Experiments were carried out to evaluate extant hypotheses of plant si deposition on stone tools. The results of experimentation were documented with scanning electron microscopy. Based on the documentation, several conclusions were reached: ss is interpreted as depositional rather than attritional, ss is a result of processing fresh/green plant material, ss is not solely the result of processing large quantities of plant materials, and archaeologists have labeled both forms—attritional polish and "true" sickle sheen—as sickle sheen in hand specimens. (16)

Bienenfeld, Paula (SUNY, Binghamton) and William Andrefsky, Jr. (Alaska Museum)
Projectile Point Life Cycles and Use-Resharpening Analysis.

Results of replication/reduction and usewear experiments are discussed. Chert projectile points were manufactured and experimentally modified by use and resharpening. Both the usewear and resharpening activities were monitored with microscopic analysis. The experimental program addressed two questions: does the life cycle of projectile point form agree with typological assumptions about projectile point classification and how accurate is our ability to reconstruct use stratigraphies on individual prehistoric tools? Results of the study suggest that projectile point use-life cycles do not agree with traditional interpretations of projectile point form and function. (7)

Bittmann, Bente (del Norte, Chile)
Rock Art and World View: A Case From Northern Chile.

This paper analyzes some aspects of the world vision of prehispanic peoples of northern Chile, as symbolized in different forms of rock art (petroglyphs, pictographs, and geoglyphs) found in

the area. Basing the study on an examination of the nature and attributes of particular themes, and using as evidence data from ethnography, ethnohistory, and archaeology, a line of reasoning which offers a plausible explanation of the phenomena described is presented. The model shows the importance of ideological factors for an understanding of the nature of cultural interaction which took place in the South-Central Andes as well as that which developed in other regions of the Andean world. (32)

Blakeslee, R. C. (see Morris, E. A.) (17)

Bobrowsky, P. T. (see Ball, B. F.) (15)

Bocek, Barbara R. (Stanford)
Hunter-Gatherer Settlement Mobility in Junin, Peru: A View from the Rockshelters.

An analysis of seasonal and spatial resource diversity suggests that, in the Junin puna region, the most appropriate hunter-gatherer settlement strategy is probably semi-sedentism. Test excavations at Chupacancha and Huachuamachay, two deep stratified rockshelters near Panaulauca Cave in Junin, were used in conjunction with the Panaulauca sequence to address the problem of puna settlement mobility. While occupation intensity and seasonality vary throughout the early/middle Preceramic, overall mobility is low in comparison with the late Preceramic and Formative periods. Archaeological criteria for defining semi-sedentism are discussed, as is the relevance of these data to the hunting-herding transition in the central Peruvian highlands. (4)

Boesch, E. J. (see Pickman, A.) (5)

Boesch, Eugene J. (New York U) and Anne-Marie E. Cantwell (Rutgers)
Ceramic Variability as Observed in Three Lower Illinois River Valley Sites.

As part of an ongoing project to define the social parameters of the Havana Tradition (ca. 150 BC-AD 400), the present research focuses on ceramic microstylistic variability in assemblages from three sites in the lower Illinois River Valley region. The sites—Kamp Mound Group, Newbridge, and Mortland Island—are distinct spatially and temporally within this area. Both continuity and change among certain ceramic attributes are demonstrated. As a coda, similar patterns are also demonstrated for selected artifact categories. (5)

Bonnichsen, Robson (Maine)
Ginsberg's Broken Bones.

Ginsberg, a 22-year-old female elephant, met a tragic and unfortunate death at the Boston Park Zoo in January of 1978. Shortly thereafter, Dennis Stanford of the Smithsonian Institution and his assistants acquired her carcass for the purpose of conducting a series of butchering and bone-breaking experiments. Stanford invited R. E. Morlan and R. Bonnichsen to participate in formulating and executing an integrated set of experiments important for interpreting fossil bones possibly altered by humans from the Dutton and Selby sites of Colorado and from fossil-collecting localities in the Old Crow Basin of the Yukon. The experiments were conducted at the Smithsonian National Zoo located near Front Royal, Virginia in early March of 1978. Part of the carcass, frozen for subsequent experiments, was transported to Ottawa in March of 1979. Additional butchering, bone-breaking, and bone-flaking activities were documented on videotape and high-speed 16 mm film. Analyses of the film footage and the broken bones have allowed construction of models of bone breakage; these models, in which pattern and process have been linked in an experimental setting, provide important analogues for interpreting fossil proboscidean remains thought to have been altered by humans. (27)

Borrero, Luis Alberto (Buenos Aires)
The Archaeology of Continental Patagonia.

Archaeological information from continental Patagonia (ca. 900,000 km²) for the period from 3000 to 500 BP was obtained mostly from cave sites. On this basis, a pattern of spatially and temporally continuous technological traditions was generated. Subsistence centered on guanaco meat (Lama glama guanicoe), but lack of support for the definition of adaptive systems impedes a real understanding of the situation. Information recovered at a few open-air stratified sites challenges traditional interpretations, showing instead a broad-spectrum subsistence pattern including seals, whales, sea and freshwater shells, rodents, birds, and a variety of plants. A different picture of localized industries that display slight adaptive differences is suggested. Research is oriented toward defining the different distributional boundaries. (4)

Bouey, Paul D. (California, Davis)
Hunter-Gatherer Site Structure and Sociopolitical Complexity: The Evidence for Social Differentiation Within A Late Pomo Village.

Archaeologists long have been interested in the study of sociopolitical organization, but often are limited to information obtained from burial lots, particularly in the case of hunter-gatherers. Recent excavation of a late Southern Pomo village, with intact housepits, provides an alternative perspective. The distribution of artifactual remains, sociotechnic and otherwise, indicates that the occupants of one of the houses were significantly more wealthy than the others. While this evidence does not confirm the existence of a specific form of sociopolitical organization, it does support the presence of a non-egalitarian system and can form the basis from which further questions regarding the processes of hunter-gatherer evolution can be addressed. (37)

Boydston, Roger A. and Rochelle Lurie (Northwestern)
Experiments with Limestone Pestles: Inferences for the Midwest Archaic.

Limestone artifacts called pestles are often found in Midwestern Archaic sites. The use of these tools is not well understood. Experiments were undertaken to identify potentially diagnostic patterns of wear (polish, crushing, flaking). Limestone pestles manufactured by the authors were used with a variety of mortars (stone, wood, hide) and ground substances (seeds, nuts, ochre, jerky). Experimental results are compared with patterns of wear observed on pestles from the Koster Site, Illinois. (16)

Bradley, Ronna J. (Texas, El Paso)
Spatial Variability in Playas Red: A Ceramic Ware of Northern Chihuahua and the Jornada Mogollon Region.

Playas Red is a ceramic ware associated with the Casas Grandes culture of northern Chihuahua which was widely traded throughout the Jornada Mogollon area of south-central New Mexico and West Texas during the Dona Ana and El Paso phases. The wares from Casas Grandes show a great deal of variability, both in composition and stylistic attributes. Recently, it has been suggested that local varieties were manufactured in other locations in the Jornada Mogollon area. X-ray fluorescence was employed in an effort to determine the origin of a limited sample of sherds. These studies were supplemented by stylistic and constituent analyses to provide a more comprehensive inquiry into the variation and distribution of Playas Red wares in the Jornada Mogollon region. The results and their implications are discussed. (18)

Brandt, Steven A. (Georgia)
Prehistoric Populations and Food Production in Southern Somalia: The Buur Archaeological Project.

The first season of the Buur Archaeological Project (BAP) concentrated upon the excavation of one of many rockshelters situated around the granite inselberg of Buur Heybe, southern Somalia. Preliminary analyses of data from the Holocene deposits suggest a transition from an aceramic Later Stone Age tradition based exclusively on hunting and gathering to one incorporating ceramics and rare domesticated cattle, goat, and/or sheep. Eleven human burials were also uncovered, including one individual buried with 13 complete sets of antelope horns. Other BAP studies, including ethnoarchaeological and botanical research, are also discussed and considered in light of the growing body of data on prehistoric human populations and the evolution of food-producing systems in East Africa and the Horn. (2)

Brashler, Janet G. (Monongahela National Forest and Davis and Elkins)
Understanding Settlement in Mountainous West Virginia.

Prehistoric settlement in mountainous West Virginia is poorly understood. Efforts to identify variables responsible for settlement patterns suggested that traditional determinants such as distance from water, elevation, slope, and aspect may not be the most useful criteria in this geologically and topographically complex area. Rather, settlement may best be explained by a thorough understanding of the area's surface geology and landforms. Related soils and vegetation patterns are also useful in explaining the determinants of prehistoric settlement. Data from the Appalachian Plateau and the Ridge and Valley physiographic provinces in east-central West Virginia are presented, and settlement history for the area is described. (5)

Bray, Tamara L. (SUNY, Binghamton)
A Geographical Perspective on the Differential Distribution of Power Among the Tlingit Indians of the Northern Northwest Coast.

The concept of the gateway community is a useful model for explaining the growth of communities situated at geographically advantageous locations within a region. The relationships between location and interregional trade were examined within the Tlingit cultural area of the

northern Northwest Coast. Ethnographic information suggests that certain Tlingit communities exerted greater influence within this region than others. A hypothesis regarding this differential distribution of power is presented within the framework of the gateway community model. (15)

Browman, D. L (see Knight, G. C.) (15)

Brown, Gary M. and Debra Foldi (Abajo Archaeology, Inc.)
Lithic Acquisition, Production and Use at Chavez Pass, Arizona.

An effort was made to synthesize several analyses of lithic remains from Puebloan sites in the Chavez Pass district, a large, complex settlement system in north-central Arizona. The study sought to understand the procurement of various local and nonlocal lithic resources, reduction technologies, and patterns of tool use. Changes in the technological system described are explained in terms of organizational changes that occurred as the nucleated settlement system centered at Nuvakwewtaqa (Chavez Pass Ruin) evolved toward the end of the region's prehistory. (40)

Brown, James A. (Northwestern)
On the Social Foundations of Large-Scale Interaction Spheres.

The interaction sphere has come to stand for the appearance of a common body of cultural conventions found among widely separated societies usually occupying different environmental zones. Unlike trade networks, interaction spheres are conspicuous in the geographic regionalism of variation manifested in shared iconography and other shared cultural content. Two distinctive social models appear to apply to interaction spheres. An evaluation of these models concludes that both probably apply, but to two distinctly different situations, one in which the shared symbolism is controlled by restrictive hereditary elites and the other in which a larger co-residential descent group participates. (15)

Brown, Marley R., III (Colonial Williamsburg Foundation)
Toward A Method of Controlled Comparison in Historical Archaeology: Can Cultural Resource Management Studies Contribute?

Historical archaeology's expanding interest in generalizing about processes of social and economic differentiation is forcing the discipline to confront the problem of controlled comparison of archaeological and documentary data. Suggested ground rules for such a method are presented in terms of research on colonial sites of the Tidewater-Chesapeake and 19th-century sites of the Far West. The implications of this method for coordinated cultural resource planning efforts now underway in several states were explored. It is concluded that such plans must account for the data requirements attending controlled comparison. (6)

Bruseth, James, William Martin and Rob Huggins (Southern Methodist)
A Multiphase Remote Sensing Program at the Bird Point Island Site, Richland Creek Project.

Despite increasing use of "high tech" devices for finding archaeological remains, applications of specific techniques are hampered by lack of information on suitability under varying conditions. A multiphase program for finding archaeological features on a five-acre prehistoric village site was examined in relation to aerial photography, magnetometer survey, computer mapping of surface data, and electromagnetic conductivity. The latter is believed to be a pioneering application. Highly successful results are presented. (8)

Buckles, W. G. (see Halasi, J. A.) (19)

Budy, Elizabeth E. (Lassen National Forest)
Ethnoarchaeological Research Along the Pit River, Northeastern California.

An interpretive framework for understanding late prehistoric and early historic aboriginal sites on the Lassen National Forest is provided by ethnohistoric reconstruction of Pit River Indian and land-use patterns. Aboriginal settlement and resource orientation were reconstructed from ethnographic and historic sources. Historic settlement adjustments derive from allotment documents, census records, and oral histories. Graphic illustrations of traditional land-use and occupancy patterns, together with historic adjustments, were compared to archaeological site distributions. Analysis revealed patterns of continuity, as well as changes, in aboriginal land orientation over time. (6)

Butler, Mary E. (Klamath National Forest)
Using Interviews in Archaeological Research.

The archaeological record contains many gaps. The historical archaeologist may be able to fill some of these gaps with informant interview data. The interview is being used successfully in the study of railroad logging sites. By interviewing men and women who lived and worked on the

sites, historical archaeologists are confirming the location, function, and makeup of the sites. This emic research approach emphasizes the "importance of collecting data from informants in order to preserve the original, i.e., 'native', meaning of the information" (Pelto and Pelto 1979:55). Information from the archaeological record and informant interviews allows the cultural resource manager to more completely reconstruct past historical activities in such situations. (6)

Caine, Christy A. H. (State Archaeologists Office of Minnesota and Chippewa National Forest)
Planning for Effective Use: The Need for User Involvement in the RP3 Process.

RP3 has the potential to focus diverse federal, state, and private archaeological constituencies—both professional and managerial. The state or regional RP3 formulation process must ensure that state master plans do not become simply compliance vehicles, leaving untapped their vast potential for research direction. Examples of one Great Lakes state and one federal agency are presented to demonstrate the need to plan not only for products but for the process itself. These examples demonstrate the need to ensure effective use of the product by communicating basic goals, uses, and management implications to the professional community and agencies during the formulation process. (19)

Cameron, C. M. (see Leonard, R. D.) (1)

Camilli, E. (see Nelson, M.) (20)

Camilli, Eileen (New Mexico)
Efficiency Strategies and Their Implications for Interassemblage Variability.

The efficient organization of a stone tool technology contributes to increased interassemblage variability due to planned production/maintenance and to frequent, unplanned contingencies requiring the production and recycling of additional tools. Current models of efficiency strategies associated with stone tool production assume that these strategies result from constraints on raw material availability and the existence of time/labor constraints on tool production. It is argued that, if constraints exist, they operate upon complete settlement-subsistence practices rather than only upon one class of activities such as stone tool production. Data from Cedar Mesa in southeastern Utah are used in evaluating these ideas. (25)

Campbell, Sarah K. (Washington)
Archaeological Considerations of the Contact Period in the Plateau Region.

Syntheses of Plateau cultural development commonly describe native cultures during the historic period using ethnohistorical and ethnographic rather than archaeological data. As the historic period is defined archaeologically by the introduction of trade goods which may predate written records by as much as 50 years, and the collection of ethnographic data by more than a century, a gap in coverage is evident. Introduction of horses, agriculture, and epidemic disease during this poorly known period may have led to significant culture change. Preliminary synthesis of available archaeological data indicates the importance of archaeology in interpreting cultural development during this period. (12)

Cantwell, A-M. E. (see Boesch, E. J.) (5)

Carlson, D. L. (see Steele, D. G.) (27)

Carlson, David L. and D. Gentry Steele (Texas A&M)
Excavation of Mammoth Remains at the Duewall-Newberry Site, Brazos County, Texas.

Excavation of a single mammoth (Mammuthus columbi) exposed in a cutbank of the Brazos River was conducted in July 1983. Preliminary geological studies indicate that the mammoth died on a point bar of the river deposited about 12,000 to 10,000 years BP. Details of the excavation, the geological setting of the site, and the age and completeness of the individual are discussed. In addition, the potential for the site to provide geological and paleoenvironmental data for the terminal Pleistocene in eastern Texas is considered. (27)

Carothers, Joan (California, Los Angeles) and Gerwulf Schneider (Freie Universität Berlin)
Production and Distribution of Neolithic Pottery from Thessaly, Greece.

X-ray fluorescence analysis results exist for more than 500 pieces of pottery from prehistoric sites in the Eastern Thessalian plain. These data allow investigation of the following characteristics of ceramic production and distribution during successive phases of the Greek Neolithic, a period lasting from about 6000 to 3000 BC: the selection, by prehistoric potters, of specific clays having specific properties; the technological methods of early ceramic production; the character-

ization of ceramic production as localized or centralized; and the spatial distribution of compositionally similar ceramic materials. Results suggest social and economic relationships among early Greek villages. (2)

Carr, Christopher and Kathleen Hinkle (Arkansas)
A General Theory of Style Applied to Ohio Hopewell Weavings.

Variation in the manufacturing details of weavings from 10 Ohio Hopewell mortuary sites were documented and then interpreted in the framework of a general theory of artifact style, based on concepts of Wobst, Braun, and Plog. Manufacturing attributes, both discrete and continuous, are viewed as a hierarchy pertaining to different technological social, artistic, and motor-habit phenomena integrated in a decisionmaking framework. Appropriate statistical techniques of analysis, concordant with the behavioral processes, are discussed. (31)

Casamiquela, Rudolfo (Argentina)
Pleistocene Proboscidean Remains from South America.

(Abstract not available.) (27)

Chang, Claudia (Sweet Briar)
Refuse Disposal at Eskimo sites: An Ethnoarchaeological Study of Site Formation Processes.

The spatial arrangements of modern Eskimo camps from the Barrow, Alaska area are examined with relation to aspects of site formation such as behavioral systems of subsistence in relation to artifact disposal and activity area formation, time-motion studies of human activities and the relationship to material culture patterning, and a comparison of refuse disposal patterns of Native items to refuse disposal patterns of Anglo-American items. The disposal of artifacts, their re-use and curation, and movement over the site area reflect behavioral rules of Eskimo spatial organization. (14)

Chase, Philip G. (Arizona)
Split Bone and Grease Rendering at Combe Grenal.

Although Bouvier described split horse phalanges from the Magdelenian and replicated these fractures using flint wedges, he was unable to explain this practice. Artiodactyl bones from the Mousterian of Combe Grenal, France were split in the same way. The evidence suggests that this splitting may have occurred during the process of extracting bone grease. (33)

Cheek, Annetta L. (National Park Service)
The Archaeological Profession at the Public Trough.

The federal government continues to be the major purchaser of archaeological services. The previous papers illustrate a few of the high-quality projects sponsored by the federal government and the contributions such projects can make to archaeology. However, it is unfortunately true that many government-funded programs are of poor quality, or make only insufficient contributions to our science. The federal government has come to accept the basic value of archaeology and continues to support the need to protect important archaeological resources. However, federal managers' increasing awareness of the nature, goals, methods, and values of archaeology is resulting in a questioning, at the highest policy level, of the value of much of the specific archaeological work done at public expense. The archaeological profession must respond to this challenge by recognizing and fulfilling its responsibilities to the public that has supported us through a willingness to pay good dollars for archaeological research. We need to ensure that those dollars are well spent so that both our public and our shrinking resource base are well served. (22)

Claeyssens, Paul G. (Willamette National Forest)
CRM and the Research Question: Expectations, Realities and Suggestions.

Much recent discussion among CRM professionals and academics has focused on the potentials and needs for CRM-generated archaeology and anthropology to address basic research questions. Legal mandates for CRM have been interpreted by professionals as requiring a research foundation, not just compliance with the minimum standards of program management. Recent proposals for the direction of future CRM-generated research were examined. Federal agencies, the Forest Service in particular, charged with CRM responsibilities and duties were studied regarding the likelihood that a research focus could be supported. Proposals are suggested whereby CRM research can benefit both academic anthropology and land management interests. (34)

Clark, C. (see Hammond, N.) (29)

Clark, John E. (Brigham Young U, New World Archaeological Foundation)
Where the Chips Fall: Stone Tool Manufacture and Debitage Disposal Among the Lacandon Maya.

An issue frequently ignored by those studying lithic workshops is the relationship between a workshop and its refuse. Because of workshop cleaning, byproducts of tool manufacture are seldom left in the work area. A major problem is how to recognize work areas that have been cleaned of manufacturing debris. Study of modern Lacandon blade workshops suggests that such work areas can be identified if special care is taken during excavation to recover microdebitage. Results of this analysis are congruent with what is known about the disposal of lithic or glass refuse among other ethnographic groups. (14)

Clarkson, Persis B. (Calgary)
Archaeological Reconnaissance of the Nasca Pampas.

Failure to recognize the Nasca geoglyphs of southern Peru as a truly anthropological entity, in that they represent a significant component of a once-extant human behavioral system, has resulted in shortcomings in some attempts to discover the purposes of the geoglyphs. Analysis of cultural remains on the pampas suggests that the figure drawings should be considered separately from the lines on the pampas. Furthermore, if the geoglyphs had multi-purpose use spanning at least three cultural epochs (as the remains suggest), then an answer to the purpose of the geoglyphs does not lie in a single explanation. (32)

Cleghorn, Paul L. (Bishop Museum)
Differential Stoneworking Skill at the Mauna Kea Adze Quarry, Hawaii.

Data from five small chipping stations at the Mauna Kea Adze Quarry, located on the island of Hawaii, were analyzed to show that differential stoneworking skill can be determined and used to define the organizational structure at the Quarry. Differential stoneworking skill was approached in two ways: by studying differential flake detachment skill, measured by calculating the ratio of flake length to striking platform thickness; and by determining how many adze preforms were successfully completed at a given chipping station, by calculating the ratio of preforms to flake debitage. (7)

Cleland, Kathryn M. (California, Los Angeles) and Izumi Shimada (Harvard)
Variability and Definition of Sican Ceramics at Batan Grande, Peru.

Analysis of recently excavated ceramics from Batan Grande forced reconceptualization of the range and diagnostics of Middle and Late Sican ceramics. The variety of time-sensitive traditions documented stratigraphically from residential contexts and graves spans the Middle horizon. These include fine brown/orange and black ware and three plate varieties: painted, unpainted oxidized, and unpainted reduced. The sudden emergence of plates in the Early Middle horizon may attest to Cajamarca influence. Fine ware diagnostics include Moche elements and are much broader than the "Sican lord" complex traditionally called the "Lambayeque style." This limited conceptualization has hampered recognition of Sican occupation of the North Coast. (4)

Cohen, Barbara E. (Southern Illinois U)
Society, Symbols and Architecture.

In order to use symbols to reconstruct past behavior and attitudes, archaeologists must determine what elements of recovered material culture were involved in transmitting cultural information. One data set is provided by the ethnohistoric study of architectural symbols and their relationship to culture and society in frontier Illinois (ca. AD 1800-1865). Preliminary conclusions elucidate the structural relationship between ideas, symbols, and information exchange. The primary conclusion: Cultural information is communicated by a building operating as a coherent whole, greater than the sum of its parts. The building consists of meaningful units which gain coherent communicative power when viewed in toto. Therefore, the analysis of parts without consideration for the whole provides a distorted and potentially erroneous basis for the reconstruction of past social processes. (15)

Cohen, M. N. (37)

Conkey, Margaret W. (SUNY, Binghamton)
The Use of Diversity in Stylistic Analysis.

Archaeologists have been particularly interested in the use of diversity measures in studies of style and style elements. Differing patterns of diversity are often linked directly to a number of specific behavioral sources: social interaction, social aggregations, individual or group identity-marking, and so on. These uses of diversity in stylistic analysis were reviewed. However, given our changing notions on the archaeological study of style, the usefulness and appropriateness of

such measures are reconsidered. Some specific case studies are discussed to support the idea that diversity measures should be considered only as "heuristic". (1)

Cordell, L. (Plenary Session)

Costin, Cathy Lynne (California, Los Angeles)
Specialization in Ceramic Production Among the Late Prehispanic Huanca.
Data from extensive surface collections and excavations at late prehispanic Huanca villages in Peru's Central Highlands were used to study the development of occupational differentiation in chiefdom-level polities and the reorganization of production which occurred upon Inca conquest. At both the site and household levels, the ratio of ceramic wasters to all sherds indicates the relative importance of ceramic production as opposed to use. Specifically, high ratios indicate production for exchange, median scores indicate production for use, and the absence of wasters indicates the absence of ceramic production. (4)

Cowgill, G. L. (1)

Crader, Diana C. (Wesleyan)
Elephant Butchery Techniques of the Bisa of the Luangwa Valley, Zambia.
The ethnographic butchery of elephants by the Bisa of the Luangwa Valley, Zambia is described. Data include the number of butchers involved, the type of implements used, the location of cuts and chops, damage to bones, the sequence of carcass dismemberment, meat-stripping techniques, temporary storage of meat, meat distribution, disposition of bony elements, and the ultimate formation of bone scatters on the landscape once the butchery was completed. (27)

Craig, Douglas B. and John E. Douglas (Arizona)
Architectural Variability and Community Structure at Cerro Prieto.
An intensive survey and mapping project was conducted at Cerro Prieto, a large Tanque Verde phase tricheras site in south-central Arizona. Prominent site features include more than 250 dry-laid masonry house foundations, an intricate network of plazas and trails, and a variety of agricultural features, e.g., terraces, gridded gardens, and water diversion devices. The structure and development of the community was examined through formal analysis of house variability and intrasite spatial patterning. The implications of this study for understanding Classic period residential aggregation and community structure are discussed. (36)

Crane, Cathy J. (Southern Methodist)
Paleobotanical Research at Cerros, A Late Preclassic Site in Northern Belize.
Palynology and the analysis of carbonized plant remains from Cerros are contributing significantly to the understanding of subsistence and paleoecology at this Late Preclassic Maya site. Although research is still in its early stages, macrobotanical remains and/or pollen from cultivated crops including maize (Zea mays), squash (Cucurbita pepo), cotton (Gossypium hirsutum), cacao (Theobroma cacao), and possibly the common bean (Phaseolus vulgaris) have been identified in the village midden deposits. Palynology was used to document the crop(s) grown on three groups of raised fields, and modern pollen rain studies at Cerros were used as aids in reconstructing past vegetation. (29)

Creamer, Winifred (Denver)
The Mesoamerican Boundary and Central America.
The term Mesoamerica should be reconsidered since its use has not led to clarification of interaction between the complex and state-level societies of Greater Mexico (Mexico, Guatemala, and Belize) and less complexly organized inhabitants of Central America. The independent cultural development of Central America is hypothesized, based on the dramatically different pace of cultural evolution in each area and the unsuccessful economic exploitation of Central America by Greater Mexico. Supporting data from recent research in Costa Rica and other locations in Central America are presented. (29)

Croes, Dale R. (Pacific Lutheran) and Steven Hackenberger (Washington State)
Economic Modeling of Anadromous Fish Utilization at the Hoko River Site.
As an important part of a coastal subsistence strategy, use of salmon is modeled in conjunction with the use of other coastal resources in the Olympic Peninsula region. A mixed-goal simulation model predicts various emphases on salmon, depending on the degree of storage versus non-storage practices, changes in human population sizes, changes in settlement patterns, environmental shifts, and changes in harvesting efficiencies. Two archaeological fishing camps, the Hoko River and Hoko Rockshelter sites, provide data for testing the accuracy of this regional predictive model. The results demonstrate how significantly other coastal resources can affect the overall use of salmon, thus providing a more realistic view of its importance. (23)

Croes, Dale R. (Washington State/Pacific Lutheran) and Steven Hackenberger (Washington State)
Predictive Modeling of Prehistoric Economic Patterns in the Hoko River Region.
The research design of the Hoko River Archaeological Project has centered on developing and refining computer-based simulation models that predict the evolution of economic decisionmaking, using a substantial mixed-goal subsistence model for prehistoric hunter-gatherer-fishers in this Northwest Coast region. The model predicts through time the potential changes in seasonal resource use, storage activities, population levels, settlement, and labor organization. The predictive economic models are being tested and evaluated through analysis and interpretation of archaeological data pertaining to subsistence activities. Several hypotheses developed from the modeling need to be tested with data from the rockshelter and wet/dry sites. (35)

Cross, John R. (Massachusetts)
Lithic Craft Specialization and Social Relations Among Hunter-Gatherers.
Archaeologists engaged in lithic studies have made significant contributions to our understanding of technoenvironmental factors which account for variation and variability in the archaeological record of hunter-gatherers. Social factors have received less attention. The shift in emphasis proposed here treats the organization of production (division of labor, generation, and manipulation of surplus) as variable rather than constant. In particular, discussion focuses on the implications of lithic craft specialization for social relations in egalitarian and ranked societies. Changes in lithic technology at the end of the Late Archaic period in the Northeast are viewed from this perspective. (20)

Crown, P. (see Vokes, A.) (18)

Crown, Patricia (Arizona)
The Morphology and Function of Hohokam Small Structures.
The study of architectural variability in the Hohokam region has generally lagged behind that in more northerly areas of the Southwest. While variability in structure material, size, and morphology has been recognized, the function of these differences within the larger settlement-subsistence system has largely gone unexplored. One aspect of Hohokam architectural variability which has been previously noted but for the most part ignored is the small structure, 9 m^2 or less in size. Both isolated small structures and those found near larger structures are united by common attributes other than size. Since such small structures served a variety of functions ethnographically in southern Arizona, it is possible to assess the probable function of such small structures. (36)

Crozier, S. Neal (Bureau of Indian Affairs)
Archaeological Sites and Habitation Potential in Riverine Environments.
Changes in depositional environments through time are particularly evident in archaeological sites along river and stream systems. River shorelines, channel beds, and flood plains are continuously in motion. They are dynamic, not static, and even minor shifts dictate when and, more importantly, where archaeological sites may be located. This paper discusses the evidence available to archaeologists in the field as well as in the laboratory. Protohistoric and prehistoric sites situated along ancient and present river shorelines in southwesern Alaska and Washington are examined in detail. (24)

Dagostino, J. (see Siegel, P. E.) (7)

Damp, Jonathan E. (Calgary Real Alto Project)
Organizational Prototypes for Andean State Development.
South American complex societies are thought to be rooted in either an agricultural or a maritime economy. Both perspectives are overly deterministic with the emphasis on technoenvironmental factors. A case study outlining social reproduction as responsible for social transformations is presented for the Valdivia (3300-1500 BC) culture of Ecuador. It is suggested that change in economic productivity, village layout, settlement distribution, and cosmology were dominated by the relations of production in the Valdivia community. Consequently, the organization of the early Valdivia village contained some rudimentary elements of later Andean complex society. (32)

Dancey, William S. (Ohio State)
The 1914 Archaeological Atlas of Ohio: Its History and Significance.
The Atlas published by the Ohio Archaeological and Historical Society in 1914 is a unique achievement that is used even today, almost 70 years later, to locate sites, plot site distributions,

and estimate site density. The site mapping project on which it is based was started by W. K. Moorehead in 1895, taken over by W. C. Mills in 1898, and finished by Mills with the help of H. C. Shetrone in 1913. This paper examines the methodology and history of the project and offers an assessment of the significance of the Atlas for modern archaeological studies. (5)

Davis, Carl M. and Sara A. Scott (Deschutes National Forest)
The Lava Butte Site, Central Oregon.

Lava Butte was originally excavated in 1961 prior to the construction of a gas pipeline. The single cultural component identified was attributed to Late Prehistoric period hunting groups fron the northern Great Basin and Columbia Plateau. A reanalysis of the site assemblage and stratigraphy indicates that this interpretation is an oversimplification of the site record. Rather, a nearly continuous sequence of occupation by northern Great Basin hunting and gathering groups over the last 3000 years or more is a more accurate view. Reanalysis of the site assemblage and stratigraphy are discussed in light of recent data from the Deschutes River Basin. (34)

Davis, E. Mott (Texas, Austin)
The State of Central Texas Archaeology.

This paper, aimed both at persons not familiar with Central Texas and at those working in the area, reviews the current state of archaeological research and proposes directions for future work. The central question is: Why, after 65 years of work, are we not farther along? Chronological controls are reasonably well developed, but problems of formal phase definition remain difficult and studies of cultural adaptation and change are at best in an early stage. The situation is reviewed in relation to archaeological developments in the United States as a whole. (17)

Davis, Hester A. (Arkansas Archaeological Survey)
Doing it the Hard Way: Arkansas' Two State Plans.

In 1978, the Arkansas Archeological Survey received a grant from the NPS to develop a pilot archaeological State Plan. In 1980, the Arkansas Historic Preservation Program also received a grant from the NPS to draft a State Plan for historic and architectural resources. The AHPP used the historic archaeology study units as a base, but the two plans for identification, evaluation, and treatment of cultural resources have been drawn up completely separately thus far. The archaeological Study Units are being used as the base for development of research designs; the AHPP is pursuing its Plan through intensive on-the-ground surveys of historic structures in selected areas. Eventually, the two plans will be made into a single volume. (19)

Davis, Leslie B. (Montana State)
The Late Pleistocene to Mid-Holocene Cultural Succession at Indian Creek, West-Central Montana.

The Indian Creek (24BW626) open-air occupation site in the west-central Montana Rockies consists of +8 m of culturally stratified flood plain alluvium which contains 15 bone-bearing and 11 culture-bearing strata bracketed between Glacier Peak, Layer G, and Mt. Mazama tephras; that part of the Holocene unit above Mazama has not yet been sampled. Ten occupied surfaces have been radiocarbon dated, beginning with the Folsom complex and extending to an early side-notched point association or Bitterroot complex floor immediately beneath Mazama. A shift from subsistence emphasis on bison, marmot, and smaller vertebrates to mountain sheep occurred at ca. 7200 BP. Indian Creek presents a well-preserved natural and cultural stratigraphic record that spans late-glacial to modern times. (17)

Deagan, Kathleen (Florida)
Reconstructing Aboriginal Demographic Change from Historic Contexts: The Eastern Timucua of Florida.

Archaeological knowledge concerning Contact period demography and settlement of Eastern Timucua is limited and insufficient for tracing processes of population decline. Close and consistent contact between the Eastern Timucuans and the Spanish settlers of St. Augustine between AD 1565 and 1760, however, resulted in the widespread and regular incorporation of aboriginal material culture into historic Spanish contexts. Eleven years of excavation in St. Augustine permit a temporally well-controlled depiction of occurrence and changes in frequency of aboriginal materials through time. Used in conjunction with ethnohistory, it is possible to employ archaeological data to more precisely trace Indian population decline and replacement in northeast Florida from the 16th through the 18th centuries. (12)

DeNiro, Michael J. (California, Los Angeles) and Christine A. Hastorf (Minnesota)
Stable Carbon and Nitrogen Isotope Analysis of Organics Found on Ceramics in the Jauja Area, Peru: Food Processing vs. Food Production.

Previous stable carbon and nitrogen isotope analysis of carbonized prehistoric plant material has demonstrated the potential for differentiating between legumes, C_4, plants (maize), and C_3, plants (tubers). Using this technique, carbonized organic residue from inside prehistoric ceramic fragments excavated in the Jauja region of Peru presents information on food processing through the prehistoric record. Crop processing techniques suggested by these vessel residues were compared to the predicted shifts in production mixes for the prehistoric sequence. The changes in crop production are not reflected in equivalent changes in crop processing information. (33)

Derven, Daphne L. (Army Corps of Engineers)
The Preservation Ethic, Construction and Cultural Resource Management: A Question of Balance.

This paper discusses the necessity for balance between the preservation ethic which emphasizes in-place preservation and minimal excavation, the need for accurate information to allow careful management of the resource base, and the impacts and schedules of construction agencies. A case study is the Deer Creek Site, Oklahoma, designated a National Landmark in 1974. Construction impacts place the site within the 50-year flood pool of Kaw Lake. The first phase of the interdisciplinary mitigation plan involved an ethnohistoric study which refuted previous opinions that it was the site of a French fort and substantiated Deer Creek as an early to mid-18th century village of Wichita-speakers utilized by the French as a base for the hunting and processing of bison, deer, and bear. The site had never been professionally excavated, and the special studies conducted include resistivity, radar, soils, magnetometry, and extant floral identification. The results of these studies, plus photogrammetric mapping and true and false-color aerial photography, are compared in terms of information content, cost, and ease of execution. (22)

Dibble, Harold L. (Pennsylvania)
The Mousterian Industry from Bisitun (Iran).

Bisitun, a small cave situated on the flanks of the Zagros Mountains, was excavated by Coon in 1949. Based on the analysis of a portion of the material by Skinner (1965), the site is currently believed to have contained an example of the Zagros Group Mousterian. However, recent examination of this collection revealed many interesting aspects that were not previously described, including Levallois technique and Kostenki knives (=Nahr Ibrahim cores). This paper presents a reevaluation of the Bisitun Mousterian industry and discusses its position in the Mousterian of the Near East. (2)

Dickens, Roy S., Jr. (North Carolina) and Jack H. Wilson, Jr. (North Carolina Division of Archives and History)
Ceramic Diversity and Cultural Interaction in Southeastern North America.

A mathematical measure of diversity (the probability of encountering unlike characteristics in a population) was applied to selected attributes of ceramics from sites in two areas of southeastern North America. One group of sites lies in the Southern Appalachian-Piedmont area and the other in the Carolina Piedmont area. For each area, sites were arranged in chronological order and the ceramics were examined for changes in diversity through time. It is suggested that, in both areas, increases in ceramic diversity can be tied to periods of intensified cultural interaction at regional or inter-regional levels. (1)

Dincauze, D. (Plenary Session)

Dirkmaat, Dennis C. (Pittsburg)
A New Method for Aging Adult White-Tailed Deer.

Odocoileus virginianus (white-tailed deer) skeletal remains dominate most vertebrate faunal assemblages from eastern North American aboriginal sites. Reconstruction of the age composition of kill populations, as well as faunal quantification techniques such as "minimum number of individuals" and "percentages of meat contribution", require accurate estimates of the chronological age of animals represented. Most macroscopic age determinations of adult deer remains are based on comparisons to Severinghaus' (1949) wear stages of the mandibular post-canine dentition. The present analysis provides an additional method for characterizing occlusal enamel wear. Derived from Payne's (1973) work on Old World artiodactyls, schematic representations of wear patterns on all Odocoileus virginianus post-canine teeth provide precise documentation of occlusal wear. Subsequent comparison with a series of wear stages derived from an analysis of modern deer specimens allows for relative age determination of each specimen in the sample. (33)

Dirst, Victoria (Wisconsin, Oshkosh)
Getting the Public to Support Archaeology.

Archaeology benefits society in both practical and intangible ways, but it does not appear that

the public recognizes and values such benefits as much as they might. By increasing our work in the area of public service, we should be able to increase job opportunities and job security, while at the same time developing the sort of archaeological awareness and cooperation needed to protect sites endangered by activities on private land. Marketing of our educational and recreational services is especially recommended. An effective marketing strategy should begin with a critical appraisal of our image. (16)

Dixon, E. J. (7)

Dodd, Walter A. (Utah)
The Use of Domestic Space by Sedentary Households: Some Organizing Principles.

Making inferences about past spatial patterning can be substantially strengthened by seeking to understand the behavioral processes that condition spatial patterning in contemporary settings. Recent ethnoarchaeological research among the Guarijio of western Chihuahua, Mexico provides evidence for several behavioral factors that influence the spatial distributions of activities, artifacts, and refuse in a sedentary context. Using such information, it is possible to state implications and make predictions for the sedentary record on a cross-cultural scale, both archaeologically and ethnographically. (15)

Doleman, W. E. (see Vierra, B. J.) (28)

Donahue, J., J. M. Adovasio, T. East and T. Jorstad (Pittsburgh) and R. Stuckenrath (Smithsonian Institution)
Paleosols and Prehistoric Populations in the High Plains.

Excavations at seven sites (36MZ380A, 32MZ380B, 32MZ380C, 32MZ391B, 32MZ380D, 32MZ319, and 32MZ257B) in the Badlands of McKenzie County, North Dakota unexpectedly revealed the presence of one or more deeply buried paleosols with associated cultural materials at each locality. In some cases, multiple paleosols are present, each truncated by an episode of aeolian deposition. Radiocarbon dates on these paleosols permit the establishment of a tentative chronology of paleosol development for the study area and allows for the equation of this schema with the manifestation(s) of one or another High Plains archaeological complex. Additionally, associated invertebrate faunal materials from these paleosols are summarized in terms of micro- and macro-climatic implications. (17)

Dondero, Steven B. and Jerald J. Johnson (California State)
Black Butte Lake: A Cultural Resources Survey and Native American Cemetary Relocation Project.

This USCOE project in north-central California started as a site survey intended to provide data for management purposes. The location of human remains affected by erosion and vandalism led to the removal of 139 interments after the cemetery had been delineated with a backhoe. Full cooperation was achieved between the Corps, archaeologists, ethnographers, and members of the Native American community. A power auger was used, along with a series of chemical tests, to locate sites buried under recent flood deposits present below gross pool. Video tape was used for recording, interpretive, and educational purposes. (10)

Dorn, R. I. (see Whitley, D. S.) (16)

Douglas, J. (Plenary Session)

Douglas, J. E. (see Craig, D. B.) (36)

Douglas, John E. (Arizona)
Spatial Analysis of Artifact Distributions from an Archaic Site in the Tucson Basin, Arizona.

Although the general distribution of Archaic sites in southern Arizona is fairly well known, the underlying settlement system remains problematic. Difficulties in interpreting Archaic settlement patterns have been compounded when artifacts from sites have been treated as homogeneous assemblages. Research at the Flying V Ranch Site on the northern bajada of the Tucson Basin included the analysis of point provenience data from the surface artifacts. This approach, integrated with artifact analyses, avoided previous difficulties in analysing upland sites and aided in drawing inferences about site formation and function. Implications for Archaic subsistence systems are discussed. (18)

Downum, Christian E. (Arizona)
Tree-Ring Dated Ceramics and the Estimation of Site Occupation Span.

Tree-ring dated ceramic assemblages provide a potentially valuable means of reconstructing

spatial and temporal patterns in the popularity of particular ceramic types. Quantitative characterization of these trends can be used to generate expected assemblage attributes for particular time periods, regions, and site types. A large set of tree-ring dated assemblages from the Flagstaff region was analyzed, and a series of ceramic type popularity curves were generated. Results of the analysis are used to create a probabilistic model for the estimation of site occupation span from surface ceramic assemblages. (16)

Doyel, David E. and Mark D. Elson (Soil Systems, Inc.)
Hohokam Expansion North of the Salt River Valley, Arizona: Models and Evidence.

Hohokam populations began expanding out of the Phoenix Basin around AD 500. Currently popular interpretive themes emphasize population growth and geographic expansion during a climatic regime optimal for agriculture in order to account for the expansion. Frontier adaptations, organized colonization, and resource specialization are also recurring themes. Further consideration of chronometric and site structure evidence, combined with recent fieldwork, provides new relevant evidence. Expectations derived from the models were generated to assist future researchers in the study of Hohokam expansion. (36)

Drager, Dwight L. (National Park Service)
Environmental Integration in Archaeology.

For some time, animal behaviorists have examined where animals occur by using a technique they refer to as habitat modeling. Using a computer program specifically designed for this purpose, this paper attempts to demonstrate how this technique can be applied to determine concentrations of archaeological sites based on environmental information. Basic assumptions which are rarely questioned are discussed for a case study from the Navajo Indian Irrigation Project area in the San Juan Basin of New Mexico. (22)

Draper, N. (see Nelson, M.) (20)

Dunnell, R. C. (1)

Earle, B. J. (Bureau of Land Management)
Settlement and Subsistence in the Centennial Valley, Southwestern Montana.

The study area is a high mountain valley, about 30 miles west of Yellowstone National Park formed by the most southwesterly of the Missouri River headwaters tributaries. The valley is bounded to the south by the Continental Divide. Access to the unusually rich resource base is limited by severe winters. Cultural overlap between Basin and Plains is present. Cultural history begins with Paleo-Indian occupation and closes with Historic Indian subsistence attempts and White ranching. Artifact assemblages are dominated by a local lithic material, "Mud Lake Ignimbrite", but other lithics identify prehistoric relationships with sources in southwestern Montana, Idaho, and Wyoming. (17)

Earle, T. (30)

East, T. (see Donahue, J.) (17)

Ebert, James I., LuAnn Wandsnider and Signa Larralde (New Mexico)
Theoretical, Methodological and Economic Aspects of Nonsite Surface Survey, Nonsite Sampling and Predictive Modeling.

There are compelling anthropological arguments for the adoption of methods of surface survey which focus upon the artifact and feature, rather than on "sites", as the basic units of archaeological recording and analysis. Current interest in predictive modeling, as an approach to large-area sample design, mitigation, and analysis, begs the question of what we need to or want to predict and how this should be accomplished and funded. The results of recent fieldwork in the Green River Basin of southwestern Wyoming shed light on optimal methods for such survey, its costs, and its analytical or theoretical contributions to the science of archaeology. (38)

Ecklund-Johnson, Debra J. (Washington State)
Analysis of Macroflora from a Shell Midden on the Northwest Coast of North America.

Column samples of cultural layers were collected from several locations in the rockshelter shell midden. From these samples, three hypotheses about the macroflora (seeds) present in the rockshelter site were tested: all plant macroflora located in the rockshelter shell midden were deposited by cultural processes; seed identification can be used to generate a model of plant food use by rockshelter inhabitants through time and, further, that plant resources were a vital part of aboriginal subsistence; and macroflora can be used as an indicator of season of collection, if not occupation, in the rockshelter, as determined by the fruiting season of the plant taxa found. (35)

Eddy, Frank W. (Colorado)
Spatial Analysis of Archaeological Data at the John Martin Dam and Reservoir, Southeastern Colorado.

Prehistoric spatial data recovered from the John Martin Dam and Reservoir, Bent County in southeastern Colorado were obtained from 99 sites of the Archaic, Formative, and Buffalo Hunter stages of High Plains archaeology. These data, most of which date to the last 3000 years, were analyzed in order to address four problem topics: site function, site-to-site networking, adaptive practices, and evolutionary trends. These problem domains were examined using cluster and correlation statistics such as an original Nearest Neighbor routine, Z-coordinate cluster mapping, and two computer program packages: NTSYS and SPSS. (17)

Eighmy, Jeffery L. and J. Holly Hathaway (Colorado State) and Allen E. Kane (Dolores Archaeological Program)
The Dolores Modification: Final Results.

In an earlier paper, the authors proposed a modification of the Southwest Archaeomagnetic Master Curve based on 36 archaeomagnetic samples independently dated between AD 700 and 900. During the 1981-83 field seasons, a large number of additional samples independently dated to the same period were collected. The results of the combined set are reported. This set generally confirms the initially proposed modifications, but suggests that polar wandering was slower and covered less distance than originally appeared to be the case. (18)

Ekholm, Susanna M. (New World Archaeological Foundation, Harvard)
When Refuse Isn't Garbage: Mesoamerican End-of-Cycle Ceremonial Refuse.

The Aztecs celebrated the end of 52-year cycles with rituals that included ceremonial dumping of temple furnishings; some such dumps, found archaeologically, are datable to historical rituals. Colonial Yucatec Maya celebrated the end of solar years with series of rituals in which household and temple furnishings were ceremonially dumped. End-of-cycle renewal ceremonies with ritual dumping may go back to Preclassic times and occur throughout Mesoamerica; they are still practiced by the Highland Maya. A Late Classic Maya example was investigated at Lagartero, Chiapas. Many Mesoamerican archaeological finds should be re-examined in the light of this apparently pervasive and persistent trait of ceremonial dumping to mark the end of time cycles. (14)

Elson, M. D. (see Doyel, D. E.) (36)

Elster, Ernestine S. (California, Los Angeles)
Studies of Neolithic Tool Technology from Thessaly, Greece.

Chipped stone tools recovered from the ongoing excavation at Xarkou were compared to assemblages from Macrochori 2 and Achilleion. Study of these qualitative and quantitative samples focused on identification of raw material (and consideration of source) and assessment of technology, production, and use intensity (the latter generated through microwear study). These variables were analyzed in relation to time and space. Results aid in identifying and subsequently evaluating (in concert with other classes of data) social and economic networks among Neolithic sites of the Thessalian plain ca. 6500-3000 BC. (2)

Erickson, Clark L. (Illinois, Champaign-Urbana)
Investigations of Prehistoric Andean Agriculture: The Raised Fields of the Lake Titicaca Basin, Peru.

Recent archaeological investigation has demonstrated that the raised field agricultural systems of the Lake Titicaca Basin in the altiplano of Peru and Bolivia supported dense and well-organized populations by the time of the Early Intermediate period. Research based on traditional archaeological techniques and agricultural experimentation documenting the chronology, evolution, cultural affiliations, production, and ecological aspects of this highly productive form of agriculture was carried out in 1981-1983. A summary of the results of the archaeological survey, the excavation of agricultural and occupation sites, and agricultural experimentation utilizing raised field technology is presented. (4)

Erlandson, J. M. (see Moss, M. L.) (33)

Erlandson, Jon M. (California, Santa Barbara)
Evidence for the Early Evolution of Maritime Economies.

Accumulating archaeological and paleoecological evidence from Pleistocene coastal contexts suggests that traditional theories postulating a late (terminal Pleistocene/Holocene) development for widespread maritime economies are erroneous. The existence of interglacial (130,000-60,000 BP) systematic marine resource exploitation at coastal localities in Gibralter, Libya, South Africa, and Mozambique suggests that cognitive, technological, environmental, and/or demographic explanations for a late development of maritime subsistence are inoperative on a global level. An explicit understanding of the evolution of maritime economies is not possible without considering fluctuations in sea level, including inundation of sites and the effects of migrating coastlines on subsistence strategies conducted at stationary site locations. (2)

Euler, R. C. (see Jones, A. T.) (1)

Fagan, John L. (Army Corps of Engineers)
The Dietz Site: A Clovis Base Camp in Southwestern Oregon.

Fluted point fragments, blanks, and channel flakes have been found at a location interpreted as a base camp of Paleo-Indian Clovis hunters, where maintenance and manufacturing activities were performed. Points broken in use were discarded and replaced by new points which were either made from blanks and preforms of exotic obsidian or from locally available obsidian. The distribution of the artifacts suggests a series of small overlapping camps along the shore of a Pleistocene lake. The occupants were likely a band or bands who used and reused the site while hunting in the area. (10)

Falconer, Steve E. (Arizona)
Pottery Analysis and Village Economy in the Bronze Age Jordan Valley.

Recent excavations at Tell el-Hayyat, a small Bronze Age farming village in the northern Jordan Valley, revealed stratified deposits contemporary with a major non-urban period and the subsequent reestablishment of urban centers in Palestine and Transjordan. The time range represented is ca. 2100-1500 BC. Excavated evidence includes substantial ceramic assemblages, a pottery kiln, and manufacturing debris (wasters and slag). Mineralogical characterization and physical testing of ceramic remains allowed formulation of a set of working hypotheses relating to village economies within non-urbanized and urbanized socioeconomic systems, particularly regarding pottery manufacture. (2)

Fenenga, Gerrit L. (California, Berkeley)
Aboriginal Bedrock Milling in the Fresno River Basin, Madera County, California.

The occurrence and distribution of bedrock milling features associated with processing of acorns and other seed crops provides unique insight into certain hunter-gatherer land-use behaviors. Such tools were utilized specifically for the processing of particular resources, were used exclusively by female members of society, and, most importantly, they occur as fixed points across the landscape. These factors allow for behavioral inferences concerning hunter-gatherer land use that are not available from other classes of archaeological data. The bedrock milling data considered in this analysis have significant implications for researchers concerned with general patterns of land use among hunter-gatherer peoples and for researchers interested in specific regional problems to which these data apply. (28)

Fish, Paul R. and John H. Madsen (Arizona)
Patterns of Lithic Manufacture and Dispersal in the Tucson Basin, Arizona.

Collections are available from total survey coverage of an approximately 100 mi^2 study area in the Tucson Basin, southern Arizona. These collections were obtained from a full range of site types in the region. Among these are quarrying loci which permit definition of sources for manufacturing materials entering into local circulation. In addition, a thorough sample of exotic materials introduced into the region is provided by the collections as a whole. An analysis of attributes and spatial distributions within this large study area enabled an evaluation of models which deal with the strategies of manufacture and dispersal of quarried and non-quarried, local and exotic lithic raw materials. (20)

Flannery, K. V. (4)

Flenniken, J. Jeffrey and A. Lee Novick (Washington State)
Mental Templates and "Arraheads": A Study in Lithic Analysis.

The concept of mental template and how it affects interpretations of lithic artifacts recovered from archaeological sites was examined. As a cognitive type, the mental template does not exist in the mind of the stone tool manufacturer; rather, stone tools are the result of a series of conscious decisions made during the tool production process. Manufacture of chipped stone tools is a permanent, subtractive process, with limitations placed upon the knapper by lithic material, size, shape, function, and so on. A range of acceptability exists throughout the manufacturing process that influences the final product. Since manufacturing decisions are made during the entire manufacturing process, based upon limitations and acceptability, errors are

reflected as discard which enters the archaeological record. Consequently, a stone tool may enter the archaeological record at any time during the reduction continuum. Chipped stone tools are the result of a long decisionmaking process, rather than the simple execution of an ideal or mental template. Unfortunately, concentration on these ideal types or mental templates is hampering current lithic analysis by ignoring other data. Research should focus on recognizing reduction processes from the actual cultural evidence present in the archaeological record. (16)

Flenniken, J. Jeffrey and Anan Raymond (Washington State)
Morphological Projectile Point Typology of the Great Basin: Replication, Experimentation and Technological Analysis.

Morphological typologies of projectile points in the American Great Basin have often been employed as time-sensitive prehistoric cultural markers. This paper conclusively demonstrates that the contingencies of point manufacture, hafting, use, and rejuvenation do create morphological changes that render current "anthropological" applications of these morphological typologies useless as prehistoric cultural markers. Specifically, 15 projectile points were replicated according to the attributes of a commonly employed typological scheme for the Great Basin. Experiments with hafting, penetration, and rejuvenation demonstrate that more than one "time-sensitive" shape may have occurred within the normal use-life of a single point type. (7)

Flint, Patricia Robins (Anasazi Heritage Center) and Sarah W. Neusius (Dolores Archaeological Program)
Cottontail Rabbit Procurement Among Dolores Anasazi.

The Anasazi of the Dolores River Valley, southwestern Colorado relied upon rabbits and other small mammals as an important source of protein. A model suggests that these small mammals were procured close to sites at which they were used. Two species of cottontail rabbit, Nuttall's cottontail (Sylvilagus nuttallii) and desert cottontail (Sylvilagus audubonii), were available within the Dolores area during Anasazi occupation, assuming that the distributions of present-day and prehistoric species coincide. Measurements of approximately 300 cottontail rabbit mandibles confirm the utilization of both species. Differences in species composition at 27 sites supports a model of locally selective hunting strategies for small game. (18)

Foldi, D. (see Brown, G. M.) (40)

Foster, Michael S. (Texas, El Paso)
The Weiker Site: A Loma San Gabriel Hamlet in Durango, Mexico.

The Weicker Site is a small Loma San Gabriel hamlet located in the uplands of the Sierra Madre Occidental southwest of the city of Durango, Mexico. Two compounds surrounded by low, slab stone retaining walls were excavated. These compounds contained the remains of house structures and plaza areas which functioned as activity areas for cooking and other activities. Functional and distributional analyses of the artifacts were utilized to reconstruct activities carried out at the site. Distributional studies were employed in an effort to interpret the utilization and organization of space. (29)

Fountain, J. (see Waddell, C.) (16)

Fowler, D. D. (Plenary Session)

Fowler, M. L. (9)

Fowler, William R. (North Dakota)
Lithic Analysis as a Means of Processual Inference in Southern Mesoamerica.

Within the past 15 years or so, lithic analysis has assumed a prominent role in the study of ancient social process in southern Mesoamerica. The potential of lithic studies for exploring ancient manufacturing behavior and production, function, subsistence patterns, distribution, networks, and regional sociopolitical organization has been richly realized, particularly in the Maya Lowlands and the southeastern highlands. These recent developments in southern Mesoamerican lithic studies are surveyed, and some future trends are suggested. (21)

Francis, Julie E. (Office of the Wyoming State Archeologist)
Function and Use of Prehistoric Sites in the Red Desert, Southwestern Wyoming.

Artifactual assemblages from 28 sites in the Red Desert of southwestern Wyoming were analyzed with the goal of generating a set of site types based on inferred use. Diversity indices were calculated for tool and raw material types found on site, and the interrelationships of these with other site attributes were examined. Results were compared to similar analyses of site assemblages from the Powder River Basin of northeastern Wyoming. Comparison suggests that prehistoric lifeways in the Red Desert fit Binford's (1980) model of foragers, while those in the Powder River Basin better fit the model of logistically organized collectors. (17)

Fredrickson, David A. (Sonoma State)
The Use of Obsidian Anaylses to Establish "Units of Contemporaneity".

Through methods associated with hydration and sourcing analyses of archaeological obsidian, a cultural sequence was defined for the higher elevations of northwestern California, and temporal changes in site distribution patterns were determined for lower elevations in a separate locality. It is suggested that productive results can be achieved by the use of obsidian to develop cultural units of contemporaneity, as contrasted with an exclusive emphasis on the search for calendric dates. (6)

Frossard, Woody (exchange Tarrant County Water and Improvement District, Texas)
Lessons in Environmental Planning from the Richland Creek Archaeological Project.

As a result of the agency building the Richland Creek Reservoir, and funding a multimillion dollar archaeological research effort in the project, many lessons have been derived about environmental planning. Unlike many other projects of a similar type, archaeological work has been well integrated into overall project needs. The success of these efforts is discussed, particularly in relation to principles of research planning and communication. (8)

Gallagher, Joseph G. (Boise National Forest)
Floating Grids and Talking Rocks: Interpreting Surface Sites in the Northern Great Basin.

Open sites, whether surface or buried components, are a large and significant fraction of the prehistoric data base. These sites, however, have rarely been given the attention accorded to cave or shelter sites. In south-central Idaho, a series of large surveys have identified a complex of surface and buried open sites, but no rockshelters from which to develop a local chronology. The interpretation of these open sites, the special analytical and dating methodologies developed for their interpretation, and their implications for regional model development are discussed. (10)

Gallis, Kostas (Archaeological Museum, Larisa, Greece)
Regional Analysis of Neolithic Thessaly.

Begun 13 years ago, an ongoing program of survey, excavation, and analysis of recovered archaeological material is generating a detailed data set for the Eastern Thessalian plain during the Neolithic period (ca. 6500-300 BC). Distribution of these hundreds of Neolithic settlements in their physical and social space is described. Data from two recent excavations, Macrochori II and Plateia Magoula Xarkou, are presented which clarify the chronological sequence for the Late Neolithic. Reports of ceramic and lithic analysis suggest connections between communities. Continuing regional research on Neolithic settlements in Thessaly is examined in detail. (2)

Gamble, Lynn (California, Santa Barbara)
Chipping Detritus and Distribution of Activities.

Methods used to distinguish activity areas within sites by examining chipped stone detritus are discussed. The occupants of a Late period Chumash village preferred to use certain stone materials for particular tools. Point manufacturing was distinguished from other chipped stone activities on the basis of flake size and material. The distribution of these flakes was then used to infer the areas where points were produced. Other activities involving the use of chipped stone tools or their production were distinguished by chipping detritus. Analyses of chipping debitage are important in understanding the range and distribution of activities at sites. (11)

Garber, Emily H. (New Mexico)
Matches and Patches: Marriage Arrangement from an Ecological Perspective.

A survey of the ethnographic literature on hunter-gatherers revealed that marriage arrangement behavioral patterns can be understood with regard to environmental variables of productivity and effective productivity and demographic patterning. Among groups in environments with year-round growing seasons, arrangement of marriage correlates with strict divisions of labor and resource patchiness. Relative freedom in selection of marriage partners correlates with very moderate division of labor and a nexus of resources uniformly spaced and dispersed in the environment. (15)

Garber, James F. (Southwest Texas State)
Prehistoric Exploitation Patterns and Site Functions of the San Marcos River Headwaters, Central Texas.

Research conducted in San Marcos, Texas demonstrates man's presence in the area from Paleo-Indian up through Historic times. This research focuses on man's adaptation to the unique environment created by the intersection of three environmental zones: the Blackland Prairie, the Edwards Plateau, and the spring-fed San Marcos River. Exploitative strategies employed in the area are considered, and the differences in function between three major sites are examined. (17)

Gardner, Joan S. (Carnegie Museum)
Conservation of Fragile Fibrous Materials.

Perishable, fragile fibrous materials such as cordage and basketry fragments are sometimes recovered in archaeological contexts in the eastern United States. Archaeologists and storage facilities such as museums can better ensure the survival of these fragments by using strategies and materials appropriate for their recovery and maintenance. A review of preservation techniques used in the past and suggestions for stabilization and storage, using several different museum collections as examples, are presented. (31)

Garza-Valdes, Leoncio A. (Texas, San Antonio)
La Venta, The Mythical Tamoanchan.

The Altar IV Ruler has the Bird Monster and the Snake (Moan-Chan) iconography, with a central Jaguar represented alone. Many Olmec Jade pieces, with the Moan iconography, were reworked at Costa Rica. The Stirling Acropolis had hydraulic facilities for the Ruler Ritual nocturnal bath (Xippacoya). The pectoral, with the iconography of the Balam Moan-Chan, has the biconical perforations of the Reworked Costa-Rican Jades. According to Sahagun, the Moan-Chan went to the east, to the sea, and departed with their paintings, their gods, and codices. We repostulate that La Venta was the mythical Tamoanchan (Tlalocan). (29)

Gasco, Janine (California, Santa Barbara)
Recent Excavations at Colonial Ocelocalco, Chiapas, Mexico.

Recent excavations at a Colonial period townsite in the Soconusco region of Chiapas, Mexico are discussed. Documentary and archaeological data indicate that the town, identified as Ocelocalco, was occupied between the late 16th and mid-18th centuries. Materials recovered by excavation of residential structures include a range of both indigenous and Spanish goods. Variations between structures are described and evaluated, and preliminary findings regarding the nature of indigenous socioeconomic organization in the Soconusco region during the Colonial period are presented. (29)

Gifford-Gonzalez, Diane (California, Santa Cruz)
Reconstructing Prehistoric Mortality Profiles Using Ages Derived from Dental Crown Heights: A Study of Neolithic Kenyan Cattle.

One way to learn more about prehistoric herd management practices is to construct mortality profiles from the remains of domestic animals found in archaeological sites. Age estimation from enamel crown height of teeth, a method used by Richard Klein with wild faunas from South African sites, was applied to samples of Neolithic cattle teeth from various Kenyan sites. Problems encountered during the application indicated a need to refine the method. Problems encountered, modifications of the method, and results of the study are discussed. (33)

Gilman, Patricia A. (Oklahoma)
Site Structure and the Causes of Architectural Change.

The utility of a site structural approach, which examines the relationships between features and structures on and among sites, is demonstrated. Changes in site structural relationships through time were used to consider the problem of architectural changes, specifically the pithouse-to-pueblo transition in the prehistoric Southwest. The number, size, and type of features, as well as their position inside or outside of structures, are indications of changing social and natural conditions. These changing conditions are analyzed in terms of causes of the pithouse-to-pueblo transition. (15)

Gilreath, Amy J. (Far Western)
Stages of Biface Manufacture: Learning from Experiments.

Conventional ideas about lithic reduction stages are challenged by information obtained from experimental biface manufacture. Debitage produced experimentally by two knappers during biface manufacture using the same reduction sequence, knapping techniques, and material provides the data base for this study. The actual distributions of specific flake attributes throughout a bifacial reduction sequence were documented. The two experimental collections were compared to reveal areas of individual variation as shown by the debitage. Discrepancies between presumed and actual distributions were identified. Finally, the distributions of the attributes indicate the degree to which stages identified by the knappers are analytically distinct. (7)

Glassow, Michael A. (California, Santa Barbara)
Advances in Inferring the Settlement Type of Small Sites With Limited Ranges of Debris.

A number of sites on the Santa Barbara Channel and adjacent regions recently investigated in the context of contract research are small and contain low densities of a small range of cultural remains. Since these sites are significant to the reconstruction of subsistence-settlement systems, efforts were made to expand the variety and precision of inferences made from scanty site data. One research strategy involves the use of data categories often neglected by archaeologists, another the intensification of conventional analytical approaches, and still another the use of new analytical approaches. Examples of each of these strategies are presented. (11)

Glennie, G. (see Raymond, A. W.) (16)

Glennie, Gilbert D. and William D. Lipe (Washington State)
Replication of an Early Anasazi Pithouse.

To obtain estimates of materials and time required to build, maintain, and heat Anasazi pithouses, a pitstructure was built to specifications obtained from an excavated example dating to about AD 800. Results indicate that a 5x5x1.5 m pithouse requires about 470 person-hours to build. Experimental cooking and heating fires suggest that, over the life of the structure, these uses would have consumed much more wood than did construction. Problems encountered in construction and maintenance showed some of the engineering and environmental constraints faced by the Anasazi. Burning the structure at the end of the study provided insights into formation of pithouse fills. (3)

Goddard, Dorothy M. and John J. Rose (Forest Service)
Fear and Loathing on the Wildhorse Timber Sale.

When faced with the withdrawal of 550 acres from timber sale operations for archaeological compliance, it became obvious that a step beyond inventory had to be taken. A multiphased management plan with strategies including collection, testing, excavation, and analysis had to be formulated to integrate with Forest Service logging operations. Different timber sale prescriptions and their effects on our ability to answer questions about prehistoric ethnicity, seasonality, resource exploitation, and site definition are discussed. (6)

Goldberg, Susan K. (INFOTEC Development, Inc.)
Soils and Archaeological Stratification at Clarks Flat and Texas Charley Gulch.

Excavations in 1981 by INFOTEC at 04-Cal-S-347 and 04-Cal-S-286 in the New Melones Reservoir project area, California revealed complex horizontally and vertically stratified midden and sub-midden deposits. Site 04-Cal-S-286 exhibited five major strata: A and B, midden deposits; C, a thin non-anthropic soil; D, sub-midden alluvial overbank sediments (sandy clay); and E, reworked streambed cobbles, all of which contain archaeological materials. A comparable profile of soil stratification was documented at 04-Cal-S-347. These strata are described, and inferences are drawn with respect to their age, paleoenvironmental origins, and archaeological significance. (26)

Gonzales, T. (see Welch, P.) (1)

Gorenflo, Larry (California, Santa Barbara)
Exploring the Spatial Association of Population and Productivity in the Teotihuacan Valley, Mexico.

Given two variables defined over a set of locations, the relationship between them typically is assessed using some well-known measure of correlation, e.g., Pearson, Spearman, or Kendall. Unfortunately, such point-to-point measures ignore the spatial arrangement of the data. In this paper, a method of measuring spatial association is presented which can be used to ascertain the degree to which similar values on two variables appear in spatially proximal locations. This is then applied to the problem of determining the relationship between potential agricultural productivity and population density during the Late Horizon period in the Teotihuacan Valley, Mexico. (29)

Gould, Richard A. and Parker B. Potter (Brown)
Use-Lives of Automobiles in America: A Preliminary Archaeological View.

Controlled observations of wrecked cars in Providence-area junkyards provide an empirical

basis for identifying patterns of automobile use and discard without the interference caused by resale or impressions created by advertising. Results so far, based on an analysis of 304 wrecks along with comparisons with 100 wrecks surveyed in Honolulu junkyards, indicate two main patterns: the average use-life of autos surveyed is 10.56 years (in Honolulu, it is 9.95 years) and there is no positive correlation between the original cost of these cars and their longevity. We urge that these results be tested, using similar controls of an archaeological nature, in other parts of the United States. (14)

Goulding, Douglas A. (Dolores Archaeological Program)
Anasazi Afield: Variation in Dolores Area Limited-Activity Sites.

An attempt to identify discrete functional groups of Anasazi tradition limited-activity sites in the Dolores area was based on assemblage composition of systematically surface-collected artifact scatters. Analysis of assemblages in terms of covariational patterning of the relative frequencies of commonly occurring artifact classes did not reveal discrete assemblage types in the sample considered. However, the apparent continuous distribution of interassemblage variability is useful in understanding the role of limited-activity sites in the local settlement system. A diversity-based scaling of assemblages allows analysis of environmental distribution patterns. (18)

Graham, John A. (California, Berkeley)
Sculptural Origins and Early Development at Abaj Takalik.

Several hundred Preclassic monuments reflect a long developmental sequence. Beginning with natural boulders of unmodified form to which details had been added by grinding and engraving, sculpture developed into early carvings in the full round, grading into a full Olmec style with low and high relief in statuary in the full round. The sculptural sequence ended with the apparently disjunctive appearance of an early but already fully developed relief art, with hieroglyphs reflecting an antecedent to the earliest known Classic Maya style of the lowlands to the north. (21)

Graybill, D. A. (see Reid, J. J.) (18)

Graybill, Donald A. and David A. Gregory (Arizona) and Fred L. Nials (Eastern New Mexico)
Streamflow Reconstruction and Hohokam Prehistory.

Streamflow in million acre feet near Phoenix, Arizona was reconstructed on the Salt River for the period of A.D. 1040 to 1370 and on the Verde River from A.D. 740 to 1370. Modern tree-ring series were used to develop a transfer function with gauged streamflow data. This was used with archaeological series from the upper reaches of the basins to develop the reconstruction. This provides a basis for assessing the conditions under which Hohokam canal systems developed and functioned. A re-evaluation of current interpretations of Hohokam cultural development, especially during the Sedentary and Classic periods, is thus possible. (36)

Grayson, D. K. (see Jones, G. T.) (1)

Grayson, Donald K. (Washington)
Taxonomic Richness and Diversity in the Analysis of Archaeological Vertebrates.

Measures of taxonomic richness and taxonomic diversity have been applied to a wide variety of archaeological faunal assemblages. While such measures can provide important information on human adaptations and on changes in those adaptations, both measures are highly sensitive to sample-size effects. The causes and nature of those effects are explored, and a series of statistical procedures for detecting and, when possible, eliminating them is presented. These techniques are then employed in an analysis of 17 mammalian and 11 avian faunal assemblages from Fremont sites in Utah. (1)

Greenspan, Ruth L. (Oregon)
Enclosed Basin Fisheries: An Analysis of Their Structure.

Fish resources in enclosed basins were analyzed in terms of their structure and economic potential. Through examination of those factors which govern the distribution and abundance of specific types of fish, a model was developed to assess where and when a given fish resource would have been exploitable and what role it may have played in the local economy. Since this framework is applicable throughout the Great Basin, data from three basins in the northwestern Great Basin are discussed in light of this model. (24)

Gregory, D. A. (see Graybill, D. A.) (36)

Gregory, D. A. (see Nials, F. L.) (36)

Greiser, Sally T. (Historical Research Associates)
Micro-Debitage and the Interpretation of Floor Space.

Results of investigation at a multicomponent Middle period site in the Northwestern Plains are used as the basis for an interpretation of floor space at hunter-gatherer campsites. Discrete concentrations of micro-debitage in association with ash and burned bone indicate that flint-knapping debris was intentionally segregated, presumably to free living space of this impediment to comfortable living. Other archaeological cases as well as ethnographic examples are considered as a basis for developing a research framework for floor space interpretation based on the distribution of micro-debitage. (15)

Griffin, Dennis (Corvallis, Oregon)
Archaeology Along the Lower Rogue River.

Recent excavations in the coastal mountains of southwestern Oregon, along the lower Rogue River, revealed a time depth of at least 7000 years. Radiocarbon dated charcoal recovered in 1982 yielded an age of 6485+80 years BP, with cultural material extending at least a meter below this sample. This evidence suggests that thousands of years of occupation probably occurred here prior to that time. Three sites along the river itself are used to establish a chronological framework for the area. (10)

Gross, G. Timothy and Phyllis Wolf (Dolores Archaeological Program)
Food Storage Requirements and Anasazi Architectural Solutions.

Technological and engineering constraints on the form of Anasazi storage structures from the Dolores Project area of southwestern Colorado were evaluated in light of economic practices. The provision of an adequate environment for the storage of food is expected to exert greater influences on the form and construction of storage facilities in periods of relatively high dependence on stored resources. This may lead to an increase in the amount of labor required to build and maintain such facilities as compared to those constructed in periods of lower dependence on stored food. The problems involved in identifying storage facilities are also addressed. (3)

Gross, Lorraine S. (Washington State)
Determination of the Nature of Short-term Changes in Site Function at a Fishing Camp on the Hoko River, Washington.

The Hoko River site contains two contrasting components from a sparsely documented period on the Olympic Peninsula (2800-2500 BP). Using SYMAP techniques and dimensional analysis of variance as exploratory tools, this study evaluated the qualitative and quantitative differences between components. The results of these analyses substantiate inferences concerning short-term changes in site function between the two components. In addition, description of activity areas and artifacts from each component help to clarify the relationship between this part of the Northwest Coast and contemporaneous sites to the east. (35)

Gumaer, D. Richard (Massachusetts)
Geophysical Applications and Horizontal Site Structure in New England Historical Sites.

This paper reports attempts to develop non-destructive survey procedures that uncover site scale horizontal structure. Electrical resistivity, proton magnetometer, and seismic scanning methods were applied over the same areas at two historic sites in New England. The two settings allowed for a comparison of alluvial and glacial till substrates. The results are presented and discussed in terms of the utility of these techniques in New England field conditions and the complementarity of these techniques, which should be of interest to both research and contract archaeologists. (16)

Gunn, Joel (Texas, San Antonio)
Holocene Climate and Alluvial and Colluvial Stratigraphy in Southcentral United States.

The stratigraphy of two sites in the southcentral United States, one (Moccasin Confluence, 41BC71) in central Texas and the other in western Louisiana (Eagle Hill II, 16SA50), generally correlates with the better-known Southern Plains. However, important regional differences detected can be modeled climatically. The interaction of climate and culture in the central Texas region reflects a strong link that apparently relates to an unstable ecotonal environment. (17)

Guthrie, Dale (Alaska)
Paleoecology of Beringian Mammoth.

The woolly mammoth was a common large mammal across the three Holarctic continents

during the late Pleistocene. Judging from survivorship curves, it had more conservative life-history features, such as age at maturity and life expectancy, than extant proboscidians, although about the same maximum life span. Recent excavations shed light on the taphonomic reasons underlying the high quality of preservation found in Beringia, including soft tissue. Rather than catastrophic anomalies, most mammoth preservation seems to have involved frequent and intense downslope sheet-wash of the ubiquitous mantle of eolian silt. Changes in body size prior to extinction are interpreted as an indicator of environmental changes. (27)

Hackenberger, S. (see Croes, D. R.) (23) (35)

Hagstrum, Melissa B. (California, Los Angeles)
Technology of Ceramic Production of Huanca and Inca Wares from the Yanamarca Valley, Peru.

Examination of the technology of ceramic production of Huanca and Inca wares from the Yanamarca Valley of Peru (AD 1000-1500) reveals evidence for differences in the manufacturing techniques of these wares. Measures of standardization and labor investment in the production sequences—vessel forming, finishing, and firing—permit quantification of different levels of craft specialization. These measures also permit the association of various production modes and distribution situations. Huanca ceramic craft production was executed by independent specialists for intra- or extra-community consumption, and Inca ceramic craft production was executed by specialists attached for elite consumption and state uses. (4)

Halasi, Judith A. (Colorado Historical Society) and William G. Buckles (Southern Colorado)
Integration of History with Historical Archaeology.

The Colorado Historical Society has developed a system for identifying, evaluating, and managing cultural resources in the state of Colorado based on the RP3 model. An integration of history and historical archaeology is provided by combined use of historical archaeology themes with relevant historic themes. The historic themes will provide information regarding the identification of number, condition, and historic events associated with historic resources. The historical archaeology themes provide an overlay which can concentrate on archaeological analysis to answer questions omitted from traditional historical documentation and information regarding anthropological issues. (19)

Hall, M. C. (California, Riverside)
Late Holocene Hunter-Gatherers and Volcanism in the Eastern Sierra Nevada, California.

Recent geologic findings indicate numerous volcanic eruptions ca. 1900-500 radiocarbon years BP in the Long Valley-Mono Basin region of the eastern Sierra Nevada. Obsidian hydration dating of prehistoric hunter-gatherer sites in the region suggests that obsidian stoneworking, and perhaps general land-use and central Sierra economic exchange activities, gradually intensified after ca. 3500 BP, declined abruptly ca. 1750-1250 BP, and continued thereafter on a reduced, relatively intermittent basis. Recurrent volcanism of the last two millennia is examined as a potential key factor in the development of local, regional, and inter-regional economic and demographic patterns. (10)

Hammett, Julia E. (North Carolina)
Acorn Distribution and Human Behavior.

Deposition and preservation of acorn remains in archaeological contexts are caused by both human and nonhuman processes. Preference for different acorn species can reflect human behavior and social status. Acorn basal scars are the most persistent charred acorn part recovered from sites in the Santa Barbara Channel area. Techniques which differentiate the basal scars by species have been employed, and data from a Chumash village site north of Malibu are used to demonstrate the value of this approach. (11)

Hamilton, N. D. (see Petersen, J. B.) (31)

Hamilton, Nathan D. (Pittsburgh) and James B. Petersen (Maine Historic Preservation Commission) and Alan McPherron (Pittsburgh)
Perishable Fiber Industries in the Upper Great Lakes: A Late Woodland Case Study from the Juntunen Site.

Perishable fiber industries, including cordage, textiles, and basketry, were utilized to decorate Late Woodland ceramics in the Upper Great Lakes. This research has examined the surface treatment and decoration of approximately 350 ceramic vessels from all phases of the Juntunen Site at the Straits of Mackinac, located between Lake Michigan and Lake Huron. Analysis of the

diverse perishables includes a study of variability within the identified structural types and a correlation of both perishable and ceramic attributes. "Vessel lot" analysis was employed for the quantification of selected attributes. Interpretation focuses on the spatial and temporal relationship of both ceramics and perishables for the Juntunen, Bois Blanc, and Mackinac phases of Upper Great Lakes prehistory. (31)

Hammond, Norman (Rutgers), Catherine Clark and Mark Horton (Cambridge), Laura Kosakowsky and Anne Pyburn (Arizona), Mark Hodges (Nohmul Project) and Logan McNatt (Belize Department of Archaeology/Peace Corps)
Nohmul, Belize: Recent Research Reviewed.

The large Maya center and settlement of Nohmul, Belize has been known for nearly a century. Survey and excavation in the 1930s and 1970s defined Late Preclassic, Late Classic, and Terminal Classic episodes of occupation, together with earlier and later phases of less intensive use. Further work in the 1980s has developed a new site map, which is partly completed, and has demonstrated a strong Terminal Formative/Protoclassic focus of building activity. The work to date is evaluated. (29)

Hansell, Patricia (Temple)
An Early Formative Community in Central Pacific Panama.

The initial results of a surface survey and test excavation program at the site of La Mula-Sarigua in the Parita Bay region of Central Pacific Panama indicate that it is the earliest known, large sedentary agricultural community, and possibly regional center, in Panama. The site's size (minimally 65 ha) and complexity stands in marked contrast to the small (1-3 ha) hamlets and campsites which characterize the region prior to the growth of La Mula-Sarigua. This paper describes the archaeological evidence for 1st millennium occupation at La Mula-Sarigua (an Early Formative settlement), outlines its regional role, and discusses the nature of social and economic change for the period under consideration (2500-300 BC) in Central Pacific Panama. (29)

Hansen, Eric (SUNY, Buffalo)
The Interpolation and Estimation of Regional Site Density Structures: Problems and Prospects.

This paper focuses on the pattern-generating processes of long-term hunter-gatherer occupations. The concept of regional site density structure is introduced and defined as the number of sites per unit area for a given occupational episode. Various properties of the density structure, such as homogeneity, periodicity, and magnitude, may be used in the investigation of prehistoric locational strategies. Trend surface analysis was used in the interpolation and estimation of site density structure for an area of western New York, and Fourier analysis and probability transition matrices illustrate some ways in which the spatial properties of the density surface can be explored. Issues such as choice of scale and pattern stability are discussed. (30)

Hanson, Diane K. (Simon Fraser)
An Explanation for Mummification.

The cultural materialist approach was used to discover the conditions under which mummification would develop. The environment provides the physical conditions, a political organization of at least chiefdom-level complexity provides the social conditions, and a religion concerned with ancestors and the reinhabitation of the dead body provides the ideological conditions conducive to mummification. Mummification can give archaeologists a clue to beliefs concerning the dead and can provide insight into the social structure of those people, aspects of culture that archaeologists find particularly elusive. (39)

Hanson, Glen T. (South Carolina)
The Organization of Late Archaic Lithic Technology in the Middle Savannah River Region, South Carolina.

Late Archaic lithic assemblages were examined from 75 sites with reference to the articulation of technology with resource structure. Lithic debitage variability was analyzed in terms of flake size, cortex, thermal alteration, and raw material to monitor the utilization of lithic manufacture and maintenance in this logistically based system. Expedient flake tool (utilized flakes) and curated tool analyses focused on the measurement of function within the system. Emphasis in the study centered on the post-procurement aspects of lithic technology. A polythetic method of assemblage analysis is presented which attempts to integrate technology within adaptive strategies employed during the Late Archaic. (20)

Hard, Robert J. (Fort Bliss)
Ecological Conditions and Agricultural Dependence in the Greater Southwest.

It is suggested that the degree of dependence on agriculture at any particular time may relate

to several ecological variables. Correlations between agricultural dependence and ecological conditions at several places across the Greater Southwest at about AD 750 are examined in order to evaluate such a hypothesis. Agricultural dependence is considered to be forced under conditions of population pressure, but population increase is proposed as a variable dependent on other conditions. (18)

Harlan, Mark (Public Service Company of New Mexico)
Advances in the Study of Indeterminate Lithic Scatters.

Lithic scatters of unknown cultural and temporal affiliation frequently form a significant part of the cultural resources encountered by any inventory survey in New Mexico. Prior to the rise of public archaeology, these sites were frequently ignored because they presented substantial analytical problems. Analyses carried out by Public Service Company of New Mexico archaeologists on materials recovered from two widely separated areas of the State indicate that careful study of raw material procurement and lithic reduction may pave the way for making relatively secure cultural and temporal assignments for these sites. Once that hurdle has been passed, it will be possible to analyze patterns of site placement. (6)

Hassler, Robert C. (Kiewit Mining and Engineering Company)
The Kiewit CRM Program: Insights into the Private Coal Industry and Historic Preservation.

Peter Kiewit Sons', Inc., is a billion-dollar-a-year construction and mining corporation. Due to its interests in large surface coal mines in Montana and Wyoming, it has sponsored and conducted cultural resource work. The legal responsibility that Kiewit has toward cultural resources is complex, but primarily stems from the Surface Mining Control and Reclamation Act (SMCRA) of 1977 and the 1980 Amendments to the National Historic Preservation Act. Such work has been carried out at nine surface coal mines since 1971. These studies highlight inherent problems in the program as well as potential solutions. (16)

Hastorf, C. A. (see DeNiro, M. J.) (33)

Hastorf, C. A. (see Russell, G. S.) (4)

Hastorf, Christine A. (Minnesota)
Political Force and Agricultural Production Change in the Huanca Development of Central Peru.

Resource use, food procurement, and access have been recognized as important components in cultural evolution and economic stratification. To examine the relationships of land-use and agricultural production in the internal development of the Huanca ethnic group, archaeological evidence of the onset of social stratification is discussed. Local land-use information is presented, forming models of prehistoric production for several sociopolitical orientations. Archaeobotanical data analyzed from the region provide evidence for changing agricultural production, which coincides with predictions of Huanca political development. (4)

Hatch, Marion P. (Del Valle, Guatemala)
New Evidence for Regional Development on the South Coast of Guatemala.

The evidence revealed by the evolution of ceramic types and sculptural styles on the South Coast of Guatemala is utilized to demonstrate and explain the apparent sequence of events in that region. It is shown that, from a common cultural tradition during the Early Preclassic, there arose in the succeeding periods two different cultural developments (Complex 1 and Complex 2). The Early Classic witnessed profound changes as Complex 1 penetrated into the area of Complex 2 and introduced Teotihuacan influence. Another major sociopolitical reorganization followed in the Late Classic. (21)

Hathaway, J. H. (see Eighmy, J. L.) (18)

Hayashida, Frances M. (Stanford)
Preceramic Settlement Patterns of the Junin Puna, Peru.

Results of a survey conducted within a 10-km radius of Panaulauca Cave, a Preceramic and Formative base camp, indicate both topographic site distribution around Panaulauca and spatial relationships between site distribution and various economic resources. The inferred settlement strategy was compared with those proposed for adjacent puna regions around the Telarmachay and Pachamachay sites. Mobility restrictions due to topography directly influenced settlement patterning. (4)

Hayden, B. (14)

Hayes, John (Sonoma State) and William Hildebrandt (San Jose State)
Social Organizational Constraints and the Use of Upland Habitats in Northwest California.

Between approximately 4500 and 2500 BP, during the mid-Holocene climatic optimum, the mountains of northwestern California contained a diverse resource base exploited by small, mobile groups. Following this interval, a change to cooler conditions coincided with a shift to specialized use of the uplands. During this time, semi-sedentary residences with storage facilities were established proximal to oak zones and adjacent to anadromous fish runs. By the Late Prehistoric period, the upland resource base had improved; however, use of that zone remained specialized due to the development of a status-based organizational structure linked to the storage of resource surpluses and intensified exchange relationships. (37)

Haynes, Gary (Smithsonian Institution)
Taphonomic Field Studies of African Elephants.

Many waterholes in southern Africa are loci of natural mortality for African elephants and other large mammal populations. Age profiles of the assemblages may be biased by death processes, and bones and tusks may be broken both during and after these death processes. The results of several months of field studies are described, and data are compared to selected data from North American Pleistocene assemblages. (27)

Helmer, James W. (Calgary)
Report on the Devon Island Archaeology Project, High Arctic, Canada.

Preliminary archaeological investigations in the Truelove and Sparbo/Hardy Lowlands of Northern Devon Island in the Northwest Territories were undertaken to assess the feasibility of initiating a long-term research programme in the study area, the principal objective of which is the examination of changes in early Paleoeskimo subsistence/settlement strategies through time. Initial site surveys and test excavations revealed a total of 59 discrete sites spanning approximately 4000 years of occupation. Test excavations at selected sites indicate at least four chronologically discrete Paleoeskimo occupations and possibly two discrete economic orientations: one emphasizing the exploitation of terrestrial resources and the other, sea mammal exploitation. (2)

Hemphill, Brian E. and John R. Lukacs (Oregon)
Dental Pathologies at Sarai Khola: An Analysis of the Effects of Subsistence Patterns on an Iron Age Population in Northern Pakistan.

An adaptive and evolutionary perspective was used to analyze the dental pathology profile of the Iron Age skeletal series from Sarai Khola (Northern Pakistan). Recent excavation of this post-Harappan cemetery, dated ca. 3000 BP, has thus far produced human osteological remains of 31 individuals. Dentitions were examined to determine the incidence of caries, hypoplasia, abcesses, alveolar resorption, calculus, ante-mortem tooth loss, and crowding. Since graves at Sarai Khola lack artifacts, insights derived from dental pathology are crucial in reconstructing the subsistence patterns and diet characteristics of this population. (2)

Hemphill, Claudia B. (Oregon)
Microcomputer Use in Archaeological Field Cataloguing.

The 1982 Utqiagvik Archaeology Project field lab catalogued more than 25,000 artifacts using the Apple II+ microcomputer and an available data file program. Considerations in selection of the system were flexibility, reliability, simplicity of operation, and usefulness for post-field analyses. The computer cataloguing protocol developed is described and compared in effectiveness to traditional cataloguing techniques used the previous season at the site and to alternative computer-aided field cataloguing methods. Effectiveness is assessed in terms of both cost efficiency in the field and data manageability in post-field analysis. (16)

Henning, Elizabeth R. P. (Oneota Enterprises)
Interdisciplinary Conflict in the Definition of RP3 Study Units.

RP3 consistently generates conflict over criteria to be considered in the definition of Historical period study units. Conflict appears to result from basic differences in theoretical orientation and method, differences which are not being satisfactorily resolved during the course of RP3 initiation and application. A major consequence of this conflict is the neglect of historical archaeology as a method which can contribute to the definition of research problems, ideal goals, and operational goals. Where specific areas of conflict can be identified, conflict can be ameliorated, if not resolved, resulting in a more uniform, consistent approach to cultural resources planning. (19)

Hester, J. J. (Plenary Session)

Hicks, Patricia A. (Desert Research Institute)
Stylistic and Technologic Variability in Projectile Points as an Indicator of Regional Interaction.

Stylistic and technologic analyses of projectile points assignable to the Bajada phase of the Oshara tradition (6800-5200 BP) from two areas of the American Southwest revealed regional differences in basal thinning technique and overall morphology. While some techniques, first noted at the Bajada type site near Santa Fe, appear to be pan-regional in occurrence, others occur only on projectile points from the Arroyo Cuervo region. This kind of spatial variation may be useful in defining social interaction and levels of information exchange between regions. (40)

Hildebrandt, W. (see Hayes, J.) (37)

Hildebrandt, William (San Jose State)
Settlement Change and Site Formation Processes in the Mountains of Northwest California.

Many ridgetop sites in northwest California contain materials representing thousands of years of occupation. However, due to the geologic context, these materials are often found in close spatial association at shallow depths. Previous application of the concept of the "site type" to these multi-component areas has impeded the study of settlement pattern change. Through the use of extensive transect excavation and obsidian sourcing and hydration, single-component areas have been discovered. This has led to a better understanding of changes in land-use, as well as corresponding changes in the processes of site formation. (28)

Hinkle, K. (see Carr, C.) (31)

Ho, Chuan-Kun (Washington State)
Were Peking Men the Hunters or the Hunted?

Carnivores were apparently overlooked in archaeofaunal studies by most authorities until Washburn published his most provocative paper entitled "Australopithecines: The Hunted or the Hunter" in 1957. Both Brain and Binford have pushed archaeofaunal studies from the era of modern myth into the era of knowledge. By using carnivore-to-ungulate ratio, which Klein has devised, and anatomical parts represented at 13 stratigraphic units from the cave home of Peking man, units four and ten are hominid refuse (low ratio) and others are carnivore refuse (high ratio). Surprisingly, the hunters may have been the meal or toy of the hunted. (33)

Hodder, Ian (Cambridge)
Refuse Disposal as a Social Act: An Ethnoarchaeological Example.

Most ethnoarchaeological work on discard has abstracted the process of disposal from its historical and social context. In this paper, the discard of ash amongst the Ilchamus, Baringo, Kenya is shown to be meaningfully involved in the negotiation of social influence. Unlike other types of "refuse", ash from the domestic hearth is never thrown by women outside the compound. The only time it is taken outside is when men use it to curse others to death. The mundane, domestic uses of ash by women, and the symbolic uses by men, play active parts in the negotiation of social control. (14)

Hodges, M. (see Hammond, N.) (29)

Hoffman, C. Marshall (Arizona State)
Point Blade Size, Morphology and Edge Angle: Examining Tool-Use Life in a Replicated Biface Assemblage.

This study examines changes in point blade size, morphology, and edge angle associated with the maintenance and use of a replicated point assemblage. By systematically recording changes in blade size and edge angle that derive from tool maintenance and use, the use-life sequence can be illustrated graphically. Changes in blade morphology were documented over the life of each tool using a dichotomy of normative and economizing maintenance strategies. Results suggest that the maintenance of normative tool styles frequently shortens the life of a tool, while tool economizing strategies often lengthen it. The use of normative point typologies was evaluated, illustrating the need to identify processes of tool maintenance when constructing typologies. (7)

Hoffman, Michael P. (U of Arkansas Museum)
Treating with Mine Enemy: Pothunters, Collectors, Antiquities Dealers and Archaeological Responsibility—An Arkansas Case Study.

The ethical ambiguities of professional archaeologists' interacting with commercial pothunters, collectors, and antiquities dealers are described and illustrated in an Arkansas case study. Excavation of Mississippian period burials by commercial pothunters has been eternally rampant in

Arkansas and adjacent states, even though the state has had a widely admired public archaeology program for decades. Archaeologists largely have chosen not to interact with commercial pothunters, many collectors, and dealers because of professional ethics. However, archaeologists may have a greater professional ethical responsibility to relate to and work with pothunters, collectors, and dealers in order to record the information ephemerally available about their finds. A recent find of a Mississippian ceramic figurine illustrates these issues. (16)

Hollenbeck, Barbara J., Cheryl A. Mack, and Richard H. McClure, Jr., (Gifford Pinchot National Forest)
Stripped Cedar Trees: South-Central Cascades, Washington.

Cedar trees exhibiting removed bark are located over an extensive area in the Gifford Pinchot National Forest. These trees, occuring predominantly along the Cascade Crest, provide evidence of prehistoric and historic Native American land-use patterns not well represented in the archaeological and ethnographic records. Stripped cedars can provide accurate dates within an approximately 500-year time frame. In the forest ecosystem where site location has traditionally been difficult, distribution of stripped cedars may provide information regarding locations of aboriginal trails, campsites, and other past use areas. (34)

Holloway, Richard G. (Texas A&M)
Late Holocene Vegetational Change in Northeastern Texas.

Palynological investigations have been conducted on both alluvial and bog deposits in northern Texas in conjunction with the Richland Creek Archaeological Project. Analysis of alluvial samples recovered from floodplain deposits revealed a severely deteriorated pollen assemblage which precluded any direct paleoenvironmental interpretation. Analysis of the bog samples, however, provided a well-preserved pollen assemblage representing a 2400-year-old record of vegetational change. Utilizing data recovered from additional bog deposits within the State of Texas, it was possible to develop a more nearly precise interpretation of paleoenvironmental conditions existing in this region during the last 2000 years. (8)

Holt, H. Barry (Bureau of Indian Affairs)
Archaeological Compliance and Sampling: Legal Requirements and Remedies.

Federal archaeological compliance requirements, as revealed by the language of the laws and regulations and by judicial decisions, are discussed specifically in relation to NEPA and Sections 106 and 110 of the Historic Preservation Act of 1966. The role of archaeological sample surveys in fulfilling those requirements, particularly in light of the intended results of the sampling methodology, is explored. The BIA's Navajo Forest Management Program is presented as an example of an agency's attempt to utilize sampling to fulfill the requirements of archaeological compliance. (38)

Hopkins, Joseph W., III (George Mason)
Just Scratching the Surface: Surface and Minimal Subsurface Techniques for Evaluating Sites.

The National Register of Historic Places requires that information be submitted substantiating the eligibility of a site to the Register. This report compares several different approaches to site evaluation. The methods discussed and compared include 100% surface collection, controlled surface collection samples, limited test pitting, auger testing, obsidian sourcing, hydration dating, and site mapping, using applications from northern California and southern Oregon. The successes and failures of these applications offer useful insights into the most economical means of evaluating sites with a minimum of negative impact on a site. (6)

Horne, Stephen and Karen Barnette (Las Padres National Forest)
Aboriginal Chaparral Burning and Modern Prescribed Fires in California's South Coast Ranges.

Deliberate chaparral burning by Chumash Indians of the central Coast Range of California is an unresolved question. Ethnohistoric, ethnographic, historic, and paleoenvironmental evidence suggest that the Chumash did not burn chaparral. Consequently, the Chumash had little effect on the distribution and density of chaparral and on the occurrence of wildfires. The frequency of wildfires in the central Coast Ranges in prehistoric times approximates the modern frequency. Thus, adverse effects of wildfire on the surface of prehistoric archaeological sites are natural events which contribute to information loss. This consequence has important implications for the estimation of effects from modern prescribed burning. (1)

Horton, M. (see Hammond, N.) (29)

Hu, C. Kang (China)
Late Pliestocene Mammoths from China.
(Abstract not available.) (27)

Huelsbeck, David R. (Santa Clara)
Marine Mammals in the Surplus Economy at Ozette.
The Ozette village site, historically, was a winter village of the Nootkan-speaking Makah. Analyses of faunal remains and artifacts from protohistoric water-saturated levels of the site indicate a fully maritime economy, and strongly suggest that more food was harvested than could be consumed by the site's occupants. This surplus consisted primarily of the meat and oil of whales and seals. It is suggested that the historic trade in necessary subsistence commodities such as smoked fish and meat, oil, canoes, and house planks has considerable time depth in this part of the Northwest Coast. (33)

Huggins, R. (see Bruseth, J.) (8)

Hughes, Richard E. (California, Davis)
Obsidian Procurement Patterns and Sociocultural Complexity.
Studies of prehistoric obsidian exchange and procurement in California have been greatly influenced by use of the direct historical approach. Using ethnolinguistic group boundaries established by early ethnographers as a guide, obsidian acquisition patterns have been portrayed largely as univariate phenomena unaffected by variability in interest-group alliances or other sociocultural activities that cross cut ethnolinguistic affiliation. This paper explores alternative accounts for observed source-specific occurrences by explicitly recognizing different behavioral correlates potentially reflected in obsidian disposition patterns. These results indicate levels of sociocultural complexity not anticipated by many models of hunter-gatherer societies. (37)

Hull, Kathleen L. (Calgary)
Microdebitage Analysis Applied to Intra-Site Spatial Patterning.
"Microdebitage", flakes of stone less than 1.0 mm in maximum dimension resulting from lithic tool manufacture, has been recently introduced in the archaeological literature, and several applications of analysis of this material have been suggested. Using data from the Bow Bottom site, a tipi ring site in southern Alberta, the general application of microdebitage analysis to interpretation of intra-site use and disposal patterns is examined. Schiffer's framework for identifying site formation processes is utilized and methods of analysis are discussed. (40)

Hurley, William (Toronto)
Pseudo Textiles from Eastern North America.
(Abstract not available.) (31)

Irwin-Williams, C. (11)

Irwin-Williams, Cynthia (Desert Research Institute)
Strategies for Resource Utilization in the Southwest Archaic.
It is well recognized that a direct relationship exists between the subsistence "value" and structure of the regional resource base and the subsistence strategy and demographic organization of the resident hunter-gatherer population. The regional Archaic archaeological record for the desert Southwest is seen as the result of a patterned system of human behavior, interacting with the enclosing perceived environmental resource system. Within this framework, human activity operates in terms of both long-term and short-term risk minimizing strategies so as to assure access to principal essential resources in the order of their significance to subsistence and essential social functions. (28)

Isaacson, John (Illinois, Urbana)
Volcanic Activity and the Formative Period Occupation of the Western Montana of Ecuador.
Excavations at the Formative site of Tulipe, Pichincha Province, Ecuador provide evidence for a period of major volcanic activity in the northern sierra of Ecuador. Two and possibly three volcanoes erupted between 500 and 300 BC, mantling Formative sites in the montana and the sierra. Analysis of the tephra units represented at the Tulipe Site and correlation of these tephras with the tephra mantle at the sierran site of Cotocollao provides the first tephrochronological data for the northern Ecuadorian Andes. (4)

Isbell, William H. (SUNY, Binghampton)
Cosmic Hierarchy and State Administration in Middle Horizon Peru.
During the Middle horizon, Huari and Tiwanaku became expansionistic states governed by multileveled bureaucracies. Ideological sanctions for hierarchical structures are apparent in the iconographic art shared by both polities. The archaeological record indicates that a crucial transformation in the evolution of Huari-Tiwanaku iconography took place at a temple within the site of Conchopata, prior to expansionistic developments at Huari, and perhaps Tiwanaku as well. This transformation supports the argument that an ideological innovation, the conceptualization of cosmic structure in terms of a multileveled and centralized hierarchy, preceded the emergence of expansionistic state governments in the Central Andes. (32)

Ives, David J. (Missouri)
Trace Element Characterization of Chert: Theory Versus Reality?
Several techniques have been used to characterize prehistoric chert sources, but the methodology involved cannot be used in a "cookbook" fashion. Prior to correlating artifacts to sources, archaeologists must review the theoretical and practical decisions that have to be made concerning sampling, analytical techniques, universe bounding, and the actual identification and definition of chert sources. There is no one "right" decision; a decision is correct if it meets the requirements of a specific research design. Both the research design and concomitant decisions must be fully explicated if such data are to be useful to other archaeologists. (9)

Jackson, Thomas L. (Archaeological Consulting and Research Services, Inc.)
Obsidian Studies in the Central Sierra Nevada of California.
Obsidian sourcing and data analyses completed for archaeological programs in the central Sierra Nevada have yielded a large body of data which has potential theoretical and methodological value, e.g., development of a source-specific hydration rate and studies of prehistoric trade and exchange. The usefulness of these data are, however, compromised by the lack of a coherent sampling strategy and a comprehensive regional research design. Due to funding limitations, the selection of obsidian samples for one type of analysis, e.g., hydration dating, often precludes other kinds of obsidian studies such as trade and exchange. Overall, the potential of obsidian studies is underestimated. (26)

Jaehnig, M. E. W. (see Lohse, E. S.) (10)

James, Charles D., III (Plumas National Forest)
Assessing Lineal Features: The Plumas Example.
Exploitation of an area results in short-term features which, once used, were abandoned. Now historic, their presence conflicts with attempts to reuse the same resource. The lineal nature of a logging chute system exemplifies this conflict. A 1982 archaeological survey on the Plumas National Forest identified such a system as well as conflicts between its presence and the needs of modern logging practices. During 1983, the system's value was assessed, and, although not a panacea for management or archaeology, the results of this study may hold promise for determining the relative value of such systems. (6)

Jelinek, Arthur J. (Arizona)
Mousterian Variability and Reduction Intensity: A Comparison of Levantine and Perigordian Industries.
Middle Paleolithic flake tools can be classified in several general categories based on increasing intensity of reduction (retouch). Such a classification, with simple notches, denticulates, and burins at one extreme and heavily retouched multiple scrapers at the other, is a strong predictor of the standard Mousterian industrial classification and the frequency of particular core tools (bifaces) in the Perigord. This paper examines the similarities and differences in French and Levantine industries revealed by this kind of analysis. (2)

Jochim, M. (37)

Jochim, Michael (California, Santa Barbara)
Paleolithic Complexity and Salmon Productivity.
The role of salmon in Upper Palaeolithic economy has been debated. The author has previously suggested that the distribution of Upper Paleolithic cave art and salmon are causally related. This relationship is further explored here on a smaller scale through an examination of environmental and archaeological features within the Franco-Cantabrian. (23)

Johnson, Ian R. (Queensland, Australia)
Microcomputer Database Systems for Archaeology: Design Philosophy of the Minark Archaeological D.B.S.
By examining the characteristics of archaeological data, specific requirements for computerization are identified: efficient handling of repeating and variable length fields (notably nominal attributes and free-format text), missing values, and databases exceeding on-line disk capacity;

full internal documentation of data and functions for ease of use by unspecialized personnel; independence from programming staff and mainframe computer centres; and flexibility to modify database definitions and to communicate with other programs/packages. The design philosophy of the MINARK archaeological D.B.S. is outlined and compared with the design and functioning of commercial microcomputer D.B.S.s, drawing examples from State site register applications. (16)

Johnson, J. J. (see Dondero, S. B.) (10)

Johnson, Jerald J. (California State, Sacramento)
A Reassessment of Wintu, Wintun and Yana Boundaries Based on 1983 Excavations.

Recent archaeological work in the Proposed Tehama Lake portion of the Cottonwood Creek Project, California suggested artifact and feature types which might help differentiate a cultural boundary between the ethnographic Wintu, Wintun, and Yana. The location of their boundaries have generally been accepted by ethnographers, linguists, and archaeologists, while some surviving Native Americans have voiced some objections. This paper presents evidence which suggests that the boundaries were actually several miles wide and contained mixed elements of which particular items belonged to only one of the cultures under consideration beyond a certain distance from the center of the boundary interface. (10)

Johnson, John R. (California, Santa Barbara)
Analysis of Fish Remains and Chumash Fishing.

Previous studies of fish remains from Chumash sites pioneered in demonstrating that species lists may be obtained through identification of vertebrae, otoliths, teeth, and other elements. Such studies were primarily concerned with demonstrating presence or absence of fish species, habitat preferences, and probable capture methods. Recent work with fish remains assemblages from sites in the Chumash region demonstrates the importance of quantitative analysis, adequate sampling procedures, and consideration of all identifiable elements in order to more accurately reconstruct prehistoric fishing behavior and trading practices. (11)

Jones, A. Trinkle (Western Archeological/Conservation Center) and Robert C. Euler (Grand Canyon National Park)
Effects of Forest Fires on Archaeological Resources in Grand Canyon National Park.

An uncontrolled forest fire on Dutton Point, North Rim, affected surface remains at eight Kayenta Anasazi sites that were occupied ca. AD 1100. Sherds collected after the fire had been burned and were soot covered. This superficial covering disappeared after rinsing in acid and scrubbing with soap and warm water. Lack of fire evidence on artifacts from other North Rim sites where an accurate record of fires is known may be accounted for by long-term exposure of these artifacts to weather. (1)

Jones, George T., Charlotte Beck and Donald K. Grayson (Washington)
Measures of Diversity and Expedient Lithic Technologies.

The Great Basin prehistoric archaeological record often comprises only products of expedient lithic technologies. Although artifact samples of such technologies rarely contain many formal tool classes, variability is commonly measured on this basis. In the Steen Mountain area of the northern Great Basin, samples of surface artifacts composed almost entirely of expedient tools were collected. Measures of functional assemblage variability, especially the variety of classes (richness) and class relative abundances (evenness), are shown to relate, in part, to sample size and depositional history. The strength of such measures as applied to expedient lithic technologies is evaluated. (1)

Jones, Grant D. (Hamilton)
Rebellion and Population Dynamics in the Maya Lowlands: Ethnohistorical Implications for Maya Historical Archaeology.

Recent archival research indicates that, despite Spanish efforts to stabilize missions and encomiendas in Belize and other frontier areas, Maya rebellion and migration frustrated the establishment of permanent tribute-paying communities. Such elusiveness and hostility are examined both as pragmatic responses to conditions of colonialism and as aspects of traditional Maya methods of political control and population management. The implications of an emerging ethnohistorical model of population dynamics and political rebellion for historical archaeology are examined. (29)

Jorstad, T. (see Donahue, J.) (17)

Judge, W. J. (38)

Juel Jensen, Helle (Moesgaard, Denmark)
A Functional Study of Unretouched Flint Tools in the Danish Mesolithic.

It has been demonstrated that unretouched flakes constitute an important part of the tool inventory in modern lithic industries. In order to evaluate whether this was also true in prehistoric times, wear analyses were carried out on unretouched flints from a series of Danish Mesolithic sites. Besides the basic question of quantities, the study has focused on the following issues: were unretouched tools "fortuituous" or selected according to certain morphological principles; do they represent more "primary subsistence activities" than retouched tools; and do use patterns of unretouched pieces indicate exhaustion rates better than resharpening-estimations of retouched tools? (7)

Jurney, David (Southern Methodist)
Rural Architecture and Tree-Ring Dataing An Index to Economic Cycles.

The construction dates for a series of log and frame structures in the Richland Reservoir of north-central Texas were established by tree-ring dating. The entire socioeconomic spectrum from plantation owner to tenant farmer is represented, dating from AD 1848 to 1924. Architecture reveals an initial occupation, recycling of buildings, and renewed building cycles through time in an agrarian setting. In addition to providing absolute dates for buildings, historical and modern tree-ring chronologies for the region provide climatological information for the last 400 years. (8)

Kamp, Kathryn A. (Grinnell)
Waste Disposal in a Syrian Village.

Ethnoarchaeological observations from the Syrian village of Darnaj suggest that waste disposal patterns are affected by economic factors which encourage reuse and recycling. For instance, most organic waste is fed to animals or burned as fuel. Inorganic manufactured items are reused within the household or sold to local factories for recycling, resulting in a paucity of waste. (14)

Kane, A. E. (see Eighmy, J. L.) (18)

Kane, Allen E. (Dolores Archaeological Program)
Anasazi Architectural Patterns at Dolores, AD 650-900.

Trends in architectural patterning for a cycle of Anasazi settlement in the Dolores River Canyon, southwestern Colorado were reviewed. The sizes of pitstructures and surface structures and variability in size increase through time. These trends are viewed as reflections of increased functional complexity and increased investment in architectural facilities. It is proposed that technology and engineering skills possessed by the local Anasazi, and available materials, provided the baseline for architectural form and construction. Within these limits, variations in form and size and investment in architecture relate to the subsistence requirements and technology of the prehistoric local communities. (3)

Keel, Bennie C. (National Park Service)
Moss-Bennett Responsibilities of the Secretary of the Interior: A Brief Administrative History of New Melones Archaeology.

Federal archaeological investigations in the project area have been underway for more than 36 years. In 1979, the archaeological project came under serious attack by the profession and environmental groups. Investigations of allegations concerning the inadequacy of the archaeological mitigation program led the Department of the Interior to soundly criticise work then underway. Once transfer of the Dam and Reservoir to the Department was final, a new mitigation program was implemented. (26)

Keeley, Lawrence H. (Illinois, Chicago)
Archaeological Experiments as Arguments.

Experiments serve a different role in archaeology than in most sciences because our final arbiter is the archaeological record. The best archaeological experiments are, for the most part, heuristic—they teach us what to look for. In other sciences, experiments serve directly as ultimate arbiter. Most archaeological experiments are of limited utility or trivial because they are neither designed to provide information relevant to testing hypotheses against the archaeological record nor do they test such hypotheses directly. The impact and utility of such experiments can be improved by envisioning them as arguments both in the logical sense and the colloquial sense. (7)

Kehoe, Alice B. (Marquette)
The Myth of the Given.

Agassi argues, contra many philosophers of science including those most popular among

archaeologists, that epistemology is vital and fundamental to scientific research: verificationism per se is ultimately rationally absurd. Knorr-Cetina, working within the sociology of knowledge, shows that since "the scientific reasoner is a symbol reasoner", espistemology—the sources of symbols used—is critical. Even within the realist philosophy espoused (as Gibbon claims) by most archaeologists, knowingly or blindly, epistemology is crucial. This paper explains the importance of epistemology and proposes an epistemological approach for use in archaeological interpretation. (15)

Kelley, Marc A. (Rhode Island) and Marc Micozzi (Miami)
Skeletal Biology of a 17th-Century Rhode Island Indian Cemetery.

The controlled excavation of an entire mid-17th-century Indian cemetery from the northeastern U.S. provides investigators with a rare opportunity to assess morbidity, mortality, and paleodemographic patterns during a transitional stage in history. Early ethnographic reports suggest that Indians in the Rhode Island region were spared from the first wave of devastating epidemics in AD 1616-1618 that affected other New England Native populations. The temporal placement of this cemetery is ideal for assessing the immunological status of these Indians in relation to introduced and endemic diseases. (13)

Kelly, Robert L. (Michigan)
Hunter-Gatherer Mobility Strategies and Regional Archaeology.

The relationship between hunter-gatherer mobility and land-use patterns was examined from ethnographic data. Implications for the formation of archaeological sites are discussed, and current methods of hunter-gatherer settlement reconstruction are criticized. It is argued that a method for detecting different types of hunter-gatherer systems lies in understanding the way in which different mobility strategies are implemented in a region over long spans of time, primarily in terms of the degree of redundancy or variability of occupation and particular associations of lithic reduction strategies. Taking geomorphic processes into account, the method was implemented on the surface archaeology of the Carson Sink, Nevada. (25)

Kelly, Roger E. (National Park Service)
Spurious and Real Relationships of Field and Laboratory Data in Fire Effects Studies.

Field test plots, post-wildfire evaluations, and laboratory tests have been developed as responses to basic questions about the effects of terrain fires on archaeological resources. While Park Service studies in recent years have addressed some of the basic issues and have yielded useful information, in what aspects are research conclusions spurious or real? What are we looking for when these data-gathering activities are developed? The human use of fire in the New World during ancient or modern times can be a subject for archaeological inquiry, using data and approaches from other disciplines. (1)

Kelso, Gerald K. (Boston U)
Palynological Investigation of Grave Sediment from a 17TH-Century Narragansett Indian Cemetery.

Systematic palynological testing of the majority of 17th-century Indian graves at RI-1000 confirmed the assumption that pollen in exposed New England archaeological contexts is best preserved in sediments adjacent to metal artifacts. At RI-1000, preservation was better next to brass artifacts than next to iron artifacts. Considerable variation in pollen content was noted among the graves. Some may be due to season of burial, but most seems best attributed to differences in plant materials used for grave linings. (13)

Kemrer, Meade F. (Chambers Consultants and Planners)
The Navajo Forest Overview Program.

Archaeological, ethnohistoric, and ethnographic survey investigations conducted within the Navajo Forest in northeastern Arizona and northwestern New Mexico over the past three years resulted in the development of a comprehensive program for the identification of all significant sites or places requiring protection from land-disturbing forestry activities. The component elements of the program and their operation within a protective management system are discussed. Case studies illustrating the efficacy and cross-checking properties of the program are presented. (38)

Kent, Jonathan D. (California State, San Bernardino)
Archaeology and Development: A Titicaca Basin Example.

One supposed advantage of archaeological anthropology is a diachronic perspective on culture-environmental interactions. Interestingly, this is precisely the perspective needed by developers and planners wishing to gain insight on the long-term effects of proposed policy and

technological changes. In Peru and Bolivia, climatic changes due to natural causes during prehistoric times appear to parallel recent human-induced changes resulting from degradation of the Amazonian forest. The archaeological record of the effects of these changes on Native populations in the Titicaca Basin contains important lessons for guiding developmental policy in this region. (4)

Kent, Susan (New Mexico)
Sampling Strategies and Research Goals: A Proposed Study of Methods and Methodologies.

A single-component early to mid-Pueblo II site is being excavated in order to understand this poorly known period of Mesa Verde Anasazi culture history. Perhaps of more importance, however, is the study of various sampling strategies and their appropriateness for different popular research goals: definition of activity areas, subsistence, exchange networks, and others. Various common sampling strategies for intrasite and cultural material analyses were imposed on site data after the entire site had been excavated and all cultural material analyzed. The sampling strategies are discussed in terms of the research goals for which each is best suited. (15)

Keyser, J. D. (34)

Kincaid, Chris (Bureau of Land Management)
Cultural Resource Predictive Modeling Assessment Project.

The BLM is currently sponsoring a two-year study on the evaluation of predictive modeling as an approach to more efficient and cost-effective cultural resource management. A technical volume planned will address many of the current problems in the use of modeling and will examine its validity, reliability, and applicability as a management tool. The production of additional materials for training is anticipated during the second year. Widespread input from the professional community is solicited. (38)

King, Chester D. (Topanga, California)
Social Evolution: Growth of Institutions.

As social systems evolve, flows of energy are enhanced by the development of institutions. Institutions differentiate from each other, develop ties of interdependence with other institutions, and attempt to increase their degree of control over resource flows. Changes in artifacts found in Santa Barbara Channel region burial lots indicate that changes in the importance of social institutions occurred. A general trend of increased expenditure of effort in producing artifacts used in the maintenance of institutions is evident. Several major readjustments in the amounts of energy spent to maintain different institutions also took place. (11)

King, M. E. (31)

King, Thomas F. (Advisory Council On Historic Preservation)
Has Conservation Really Helped?

The application of a "conservation model" to the practice of American archaeology has undoubtedly resulted in the preservation, in place, of many archaeological sites, at least for the short term. The "ethic" has, however, had unintended negative side-effects that may outweigh its positive features. Notably, it has contributed to the separation between "contract" and "research" archaeology and to the creation of a market for scientifically meaningless fieldwork in pursuit of ostensible "conservation" goals. (Plenary Session)

Kintigh, K. W. (30)

Kintigh, K. W. (see Ammerman, A.) (30)

Kintigh, Keith W. (Arizona)
Sample Size, Significance and Measures of Diversity.

The appropriate application of a measure of diversity depends on archaeological concerns and on its mathematical characteristics, most importantly its sensitivity to sample size and to the particular classification used. The interpretation of results depends on our ability to assess significant differences in diversity values obtained for different assemblages. A recently developed simulation-based technique and an information-statistic-based measure were applied to prehistoric surface assemblages from central Arizona that have widely varying sample sizes. The results are assessed in terms of the cultural problems for the area and in terms of these methodological concerns. (1)

Kirch, Patrick V. (Bishop Museum)
Diversity and Variation in Polynesian Fishing Strategies.

Recent archaeological work on several Polynesian islands and archipelagoes documented con-

siderable spatial and temporal variation in prehistoric fishing strategies. Classic explanations of such variation and diversity in fishing gear emphasize stylistic factors. Functional and ecological analyses of both gear assemblages and faunal remains from several Polynesian sites, however, suggest that adaptation to a number of environmental conditions and constraints may have been more significant in determining the diversity of fishing strategies. This proposition is examined with reference to case studies from Tikopia, the Marquesas, and the Hawaiian Islands. (1)

Klesert, Anthony L. (Navajo Nation)
Predictive Modeling vs. Sampling: Perspectives from Research and Compliance.

Coincident with the rise of predictive modeling and sampling within the framework of CRM, the distinction between the two has become peculiarly muddled. This represents an acute problem, since the one does not necessarily imply the other, and the two actually address entirely different problems. This paper attempts to clarify and explain the importance of maintaining that distinction, and examples of the use (and misuse) of both concepts from the vantage points of archaeological research and legal compliance are provided. (38)

Knight, George C. and David L. Browman (Washington, St. Louis)
Theoretical Issues Regarding Site Catchment Analysis and Hunter-Gatherer Site Locational Decisions.

Hunter-gatherer settlement systems are analyzable relative to resource accessibility from inhabited loci. Site catchment is the implied analytical tool. However, ethnographically observed hunter-gatherer behavior does not support any specific definition of travel-distance limits for exploitation territories; it only suggests that optimum survival conditions rarely accompany a given inhabited locus and that amplitudes of peoples' ranging through various available habitats differ. To operationalize the concept of "settlement choice", it is advantageous to realize that ecological principles and ethnographic observations imply structures of opportunity and risk, both of which concepts are fundamental to theories about human decisionmaking. (15)

Knoerl, John J. (National Park Service)
Implementing Research Goals in Prehistoric Study Units.

One important aspect of the Resource Protection Planning Process is developing goals and operating plans. Research goals need to be implemented in the operating plan in terms of models that are testable and replicable and which articulate with the scale at which planning decisions are made. This is illustrated in one study unit in which the highest-priority goal seeks to determine whether a correlation exists between landform, site function, and season of occupation. This goal was implemented through use of a general site locational model. Results suggest that the model has promise for accomplishing this research goal and is a rational basis for making planning decisions. (19)

Kohler, Timothy A. (Washington State) and Meredith Matthews (Dolores Archaeological Program)
Unreveling Cause and Effect in Changing Wood Use in the Dolores Area.

Wood use for fuel and construction in two localities was compared against three models: no change through time, change due to local resource depletion, and change due to climatic factors. As quantified either by number of occurrences or absolute frequency of species, strong evidence was found for change through time, and the relative merits of the depletion versus the climatic change hypotheses are discussed. This is accomplished by proposing and provisionally testing various causal models to explain perceived changes. (3)

Kosakowsky, L. (see Hammond, N.) (29)

Lambert, Ruth E. (Washington State)
A Quantitative Study of Architectural Attributes from Selected Anasazi Sites.

Architectural characteristics of selected Anasazi archaeological sites, with recognized or suspected Chacoan characteristics, were quantitatively described and evaluated to investigate possible inter-site architectural similarities. Cluster Analysis and Principal Components Analysis were tested to determine their viability to quantitatively describe architectural similarities. Cluster Analysis created three groups representing Bonito phase, McElmo phase, and generalized Northern San Juan Anasazi architectural characteristics. Sites with suspected Chacoan characteristics group with the Chacoan McElmo phase cluster or the Northern San Juan Anasazi cluster. Principal Components Analysis suggests that variation between clusters is primarily due to kiva location, construction techniques and materials, and room arrangement. (18)

Larick, Roy R. (Direction des Antiquités Préhistoriques d'Aquitaine, Bordeaux)
Contemporary, Pleistocene and Synthetic Sources for Paleolithic Artifact Cherts.

Two kinds of chert sources were investigated in the Perigord (SW France): those presently observed (contemporary) and those quarried during the Paleolithic (Pleistocene). Locational differences between the two confounded estimates for the movements of artifacts. A third type of source resolves these differences and helps predict the places where Pleistocene sources should be sought. Synthetic sources, products of the spatial analysis of contemporary sources, estimate the availability of cherts throughout the region. Synthetic sources identify the geographic zonation of chert resources within the Perigord that helps explain the transport of implements and the locations of Paleolithic sites. (9)

Larralde, S. (see Ebert, J. I.) (38)

Lavin, Lucianne (Yale)
Chert Petrography as an Analytic Tool in Ardhaeology.

A recent survey of chert-bearing rock units in and adjacent to the Delaware Valley yielded chert samples which were analyzed by employing macroscopic and microscopic techniques. Results of the pilot project indicated that primary chert types and much of the secondary chert types can be distinguished from one another. Ongoing research involving petrographic analysis of additional source localities and artifacts from selected archaeological sites supports findings of the original study. The data confirm the value of the petrographic method and provide valuable data on prehistoric lithic acquisition patterns. (9)

Lebo, Susan A. (Southern Methodist)
Seriation of Utilitarian Stoneware Vessle Fragments on Late 19th and Early 20th-Century Farmstead Sites in Eastern Texas.

Utilitarian stoneware fragments were recovered on late 19th and early 20th-century farmsteads in the Richland/Chambers area of eastern Texas. They occurred as low-frequency phenomena in sheet refuse deposits extending up to 1500 m^2 in area. Using a sample of 10-20 tenant and landowner sites, two stylistic attribute classes, vessel form and ceramic type, were examined. A relative chronological ordering suggested is compared with the order(s) indicated by reference to other sources. Previous studies that include a discussion on seriating late 19th and early 20th-century utilitarian stonewares are also discussed. (17)

Lees, William B. (ArchaeoPress)
Modeling Site Function in Antebellum Eastern Oklahoma.

This paper examines the use of individual artifact types in defining basic differences between the functions of Antebellum sites in eastern Oklahoma. Three models of site function presented are based on the occurrences of tobacco pipes and buttons at a series of commercial, domestic-residential, and military sites dating between AD 1830 and 1860. These include a model capable of distinguishing between commercial and non-commercial sites on the basis of the differential occurrence of tobacco pipes and two models which define a dichotomy between military and civilian sites based on the differential occurrence of buttons. (17)

Lekson, Stephen H. (National Park Service)
Maximum Settlement Size as an Index of Sociopolitical Complexity.

Archaeologists have viewed maximum settlement size as a binary index of complexity, with systems characterized as either urban or non-urban. This view of settlement, derived from ethnological concern with rural-urban systems, overlooks the original formulation of such systems as continuums rather than categories. In fact, settlement size correlates with incremental increase in complexity. A cross-cultural index of sociopolitical complexity was calibrated and applied to archaeological data from Chaco Canyon, New Mexico. (15)

Leonard, R. D. and G. T. Jones (1)

Leonard, Robert D. (Washington) F. E. Smiley (Southern Illinois, Carbondale), and Catherine M. Cameron (Albuquerque)
Lithic Assemblages and Measures of Diversity within an Evolutionary Framework: An Example from the Colorado Plateau.

Changes in lithic assemblage variability over time have important implications for inferring concomitant changes in technological and social organization in prehistoric populations. Temporal variability in Black Mesa, Arizona assemblages dating from early Archaic to middle Pueblo III times was documented through the application of diversity measures to assemblages of varied size and content. Trends occurring over this period of approximately 7000 years are interpreted, incorporating a selectionist perspective on culture change. (1)

Lewarch, D. E. (Plenary Session)

Lewis, R. Barry (Illinois)
An Examination of the "Vacant Quarter" Hypothesis in the Northern Lower Mississippi Valley.

Several researchers have recently argued that portions of the Mid-South comprised a so-called "vacant quarter" following the end of the 14th century AD. According to this view, Native populations ceased to occupy fortified towns and ceremonial centers in the affected area and new population centers grew up elsewhere. The late prehistoric and protohistoric portion of the archaeological record for southeastern Missouri and western Kentucky was examined in light of this hypothesis. It is shown that the "vacant quarter" is more apparent than real. (5)

Lightfoot, Ricky R. (Dolores Archaeological Program/ Washington State)
Roofing the Big One: An Anasazi Great Kiva.

A late 8th century AD Anasazi Great Kiva from the Dolores River Valley, southwestern Colorado is discussed in terms of its structural engineering requirements and the labor and resources invested to build it. A possible reconstruction developed from excavation data was analyzed using modern engineering formulae to determine the required size and load-bearing properties of the main structural elements. The basic architectural principles and building techniques are seen as developing from pithouse construction, but the size of the Great Kiva pushes this technology to its limits. (3)

Lincoln, T. R. (see Rogge, A. E.) (38)

Lipe, W. D. (3)

Lipe, William D. (Washington State)
Conservation for What?

Conservation archaeology is not an end in itself, but promotes effective use of non-renewable resources. Principal uses are acquisition of new information, preservation of symbolically important remains, and enhancement of public understanding. Progress toward these goals in American archaeology during the past decade was assessed. It is concluded that adoption of a conservation ethic has contributed importantly to such progress as has been made, and that this is most evident in the area of information return. (Plenary Session)

Lipe, W. D. (see Glennie, G.) (3)

Little, Barbara J. (State U of New York, Buffalo)
Pattern Recognition: A Structured Approach for Archaeology.

The field of Pattern Recognition is overviewed in order to provide archaeologists a glimpse of a wide range of techniques that have been successfully applied within many disciplines. Emphasis is on spatial problems in discussing possible applications of Pattern Recognition's two major approaches: statistical and syntactic. Some methods of the latter approach are applied in various ways to Highland Maya ethnoarchaeological data. Artifact distribution on household living floors was examined for patterning, which was also then compared among the households. (30)

Lohse, Ernest S. (Washington) and M. E. W. Jaehnig (Washington State)
The Development of Housepit Settlements: An Interpretation of Cultural Change on the Columbia Plateau.

As documented at the Chief Joseph Dam Project, human adaptation along the middle Columbia River centered around band-size housepit settlements, heavily dependent upon hunting and shellfish collection for overwintering since at least 5000 BP. Although temporal distinctions in diagnostic artifacts, tool kits, and domestic structures have prompted definition of three archaeological phases, socioeconomic organization was remarkably stable. Cultural change on the Columbia Plateau cannot be characterized as a series of adaptive failures nor of sudden advances predicated on a single resource or new technology. A behavioral-processual model is offerred which promotes meaningful integration of the current spate of competing explanations. (10)

Love, Michael (California, Berkeley)
Preliminary Results of the Naranjo Drainage Survey.

An intensive survey of the Naranjo Drainage in Guatemala began in 1983. The results highlighted here indicate that during the Early Preclassic small hamlets were scattered throughout the area of the survey, up to 15 km inland. The rise of large settlements with public architecture occurs in the Middle Preclassic and is closely linked to a poorly understood Olmec presence. The strong coincidence of Conchas and Ocos ceramics at these centers suggests that the Ocos style is a social marker during the Middle Preclassic and not a temporal indicator of the Early Preclassic. (21)

Lovis, William A. (Michigan State)
Archaic and Early Woodland Adaptations at the Oak-Hickory Fringe.

Recent data on Middle Archaic and Late Archaic plant and animal exploitation from the Saginaw Valley of Michigan, postdating establishment of oak-hickory habitat in the region, were compared against published data from the Schultz and Green Point Early Woodland components. The temporal model of subsistence derived from the analysis suggests early establishment of adaptations utilizing cervids and various nut species, as well as Chenopodium. Participation in the Eastern Agricultural Complex is not evident, while the role of Early Woodland cucurbits appears to have been minimal but potentially significant. (5)

Lowell, Julie C. (Arizona)
The Household at Turkey Creek Pueblo, Arizona.

Turkey Creek Pueblo, excavated from 1958 to 1960, is a 325-room 13th-century community in the Point of Pines region of east-central Arizona. Since it was almost completely excavated, information from this site, available in the Arizona State Museum, offers a unique research opportunity. Analysis of the data permits interpretations concerning how households as basic social units functioned and changed through time in the first aggregated pueblo in the region. Illustrated are some of the pitfalls and promises of working with museum materials and collections. (18)

Luedtke, Barbara E. (Massachusetts)
Analysis and Interpretation of Jasper from Massachusetts Sites.

Archaeologists working at prehistoric sites in Massachusetts frequently identify flakes and artifacts as jasper, and usually find them to be associated with Middle Woodland components. Speculations as to the origin of these jaspers refer both to local and distant sources. Neutron activation analysis data now available for artifacts from several sites and for samples from three major possible source areas are sufficient to rule out two sources and to suggest Pennsylvania as the source of much of the jasper. These findings have implications for the interpretation of trade and interaction patterns in New England during the Middle Woodland period. (9)

Lukacs, J. R. (see Hemphill, B. E.) (2)

Lurie, R. (see Boydston, R. A.) (16)

Lurie, Rochelle L. (Loyola)
Analysis of Lithic Materials from Protohistoric Sites.

Until recently, research on protohistoric sites in northeastern Illinois has focused on the relationship between groups inhabiting these sites and their historic counterparts. Ceramic stylistic variation has provided data for these investigations, while lithic materials have contributed little. Current research has shifted to the explication of protohistoric subsistence-settlement patterns, i.e., the relative importance to agriculture, seasonal use of marshlands, and length and season of village occupation. Stone tools and debris from tool manufacture can provide useful data relevant to these problems. Materials from the Oak Forest Site in Cook County, Illinois (Oneota, Huber phase) are used to demonstrate this utility. (40)

Lycett, Mark (New Mexico)
Social and Economic Consequences of Aboriginal Population Decline from Introduced Disease.

Archaeologists concerned with the Contact period in North America have long noted the devastating effects of European pathogens on aboriginal populations. Nevertheless, the transgenerational impact of infectious disease upon non-immune, or virgin soil, population structure has seldom been addressed. Several examples of disease introduction are provided. It is argued that an appreciation of this process is necessary to understanding the Contact period in North America. Implications of this process for parts of the North American Southwest are considered. (12)

Lyman, R. Lee (Oregon State)
Techniques and Goals of Butchering Analysis.

Analysis of prehistoric butchering practices has gone through phases at two levels. At one level, analysis was largely culture history and/or anthropologically oriented. While these remain sought-after goals, analysis is now more ecologically oriented, reflecting the culture process school orientation. At the former level, analytic techniques focused first on macroscopic patterns of modification to bones and then on purposes of carcass modification and microscopic patterns of modification. Arguments for a more wholistic and integrative approach at both levels are offerred. (33)

Lynch, Thomas F. (Cornell)
Early Human Use of the Laguna De Punta Negra, Northern Chile.

Unlike the Salar de Atacama, which has no outlet, the Salar De Punta Negra (100 km south, at about 3000 m elevation) used to flow north into the Atacama drainage. Probably overflowing as late as 10,000 BP, the Laguna de Punta Negra was surely a freshwater lake in full glacial times, 15,000 to 13,000 BP. Major bodies of fresh water are extremely scarce in the Atacama Desert and Puna. Survey of the beaches and outlet above the Salar de Punta Negra provides an excellent test for the hypothesis of glacial-age occupation of this region. (4)

Lyneis, Margaret M. (Nevada, Las Vegas)
A Spatial Analysis of Anasazi Architecture AD 950-1150, Moapa Valley, Nevada.

Household units consisting of living and storage rooms can be identified in middle and late Lost City phase times. They consist of roofed areas 11-13 m^2 and multiples thereof. Households of similar size have been recognized elsewhere, at Betatakin and Walpi, for instance. During the final phase of Anasazi occupation, after AD 1100, the type site, Mesa House, exhibits a more formal organization of roofed space. Its layout is consistent with the emergence of multi-family corporate groups, suggesting that the trend toward communal storage identified in other western Anasazi areas was also operative in lowland Virgin Branch development. (18)

Lynott, Mark J. (National Park Service)
Preservation Through Stabilization of Eroding Lakeshore Sites at Voyageurs National Park.

Two seasons of survey by the University of Minnesota and two seasons of survey and site testing by the Midwest Archeological Center provided convincing evidence that aboriginal adaptation in the region is linked to a lacustrine settlement pattern. Enlargement of natural lakes during the lumber era in the early 20th century resulted in the construction of dams at key rapids or falls and the subsequent enlargement of the lakes for hydroelectric power. The enlargement of the lakes has had a severe impact upon prehistoric and historic Indian sites located along the margins of the lakes. Only about 25% of the recorded sites retain any intact archaeological deposits. In an effort to preserve remaining archaeological resources, the National Park Service is undertaking a program of site stabilization. (22)

Mack, C. A. (see Hollenbeck, B. J.) (34)

Macko, Michael E. (Applied Conservation Technology, Inc.)
The Ethnoarchaeology of Bead Production on Santa Cruz Island, California.

An examination of archaeological, ethnographic, and experimental data on Olivella biplicata bead production at four historic villages on Santa Cruz Island, California is presented. The economic and temporal implications of Olivella beads and associated production debris are discussed, and a classification of debris forms is used to distinguish temporal components, social differentiation, and occupational specialization at sites where Olivella bead production is evident. The potential for similar analyses of bead production in other regions is considered. (11)

Madsen, J. H. (see Fish, P. R.) (20)

Magne, Martin P. R. (British Columbia)
A Multiregional Perspective on Lithic Assemblage Variability, Interior British Columbia.

This paper discusses research undertaken with lithic assemblages from four regions of interior British Columbia. Three hypotheses concerning raw material factors, maintenance practices, and site occupation purposes were evaluated using an experimentally obtained debitage reduction stage classification and a "functional" method for grouping tools. Results suggest substantial modification to existing models of lithic assemblage variability. It is proposed that the single most important determinant of hunter-gatherer lithic assemblage variability is site occupation span. (25)

Mallouf, Robert J. and Glenna Williams-Dean (Texas Historical Commission)
Comprehensive Planning in Texas.

The Texas Historical Commission began approaching comprehensive, interdisciplinary, long-term management of cultural resources in 1978 after re-evaluating its existing State Plan. One experiment with the various concepts of the "study unit" resulted in the Texas RP3 document in 1980. Since 1980, comprehensive planning has emphasized computerization of all types of cultural resources. Comprehensive planning also involves the education of individual segments of the public, from school-age children to landowners. Even if not yet fully implemented in Texas, the RP3 approach is valuable for providing a reasoned rallying point for personnel otherwise caught in the reactive mode of "crisis management." (19)

Malpass, Michael A. (St. Lawrence)
Huachanmanmachay and Tecliomachay: Preceramic and Formative Utilization of the Puna Zone in the Cordillera Negra, Peru.

Formative and Preceramic occupations have been identified in two caves located in the puna zone of the Cordillera Negra east of Casma. While some mixing of deposits is apparent in both caves, the deeper levels include large, stemmed projectile points similar to the Paijan points of the Casma Valley, while Formative period artifacts are found in the upper levels. Faunal remains from the Formative levels show high percentages of camelid bones, but occasional use of cervids as well. Possible seasonal and transhumant patterns of resource utilization between the puna zone and coastal and intervalley zones are discussed. (4)

Marden, Guy A. (Washington State)
Chemical Analysis of Sweathouse Soils.

Chemical analysis of sweathouse soils was conducted in an attempt to develop a method of positive identification of archaeological features as the remains of prehistoric Indian sweatlodges. A list of sweat constituents was compiled from previous biological research. Soil samples from inside and outside four known contemporary sweathouses were analyzed for 14 inorganic mineral sweat constituents. Comparison of inside and outside samples indicated that one sweat constituent (chlorine) was higher inside all four sweathouses than outside. Behavior characteristics of chlorine in soils indicate that chlorine could remain in an archaeological site to permit positive identification of sweathouses. (24)

Martin, W. (see Bruseth, J.) (8)

Maslowski, Robert F. (Army Corp of Engineers)
Cordage Twist and Ethnicity.

Cordage analysis is an integral part of reports on sites containing perishable textiles or cord-marked pottery. In the western United States, cordage and textiles are used to determine prehistoric and ethnographic cultural boundaries. In the Ohio Valley, similar results were obtained by analyzing latex or clay impressions of cordmarked and textile-impressed pottery. The association of cordage attributes and various decorative and ceramic attributes is summarized, and the possibility that cordage twist patterns may correspond to macro-linguistic groupings is discussed. (31)

Mason, Owen K. (Alaska)
Mid-Holocene Low Productivity of the Bering Sea: Implications for Archaeology.

Recent oceanographic research has led to the hypothesis that the Bering Sea was significantly lower in surface salinity during the middle Holocene (ca. 6000-3200 BP). As a consequence of this lower salinity, primary productivity likely also declined. The present research focuses on the basis for the hypothesis and its ramifications for ice conditions, sea mammal populations, and other ecological conditions relevant to humans. The archaeological record of the Aleutian Islands and western Alaska is analyzed in connection with the likely decrease in sea mammal populations. (2)

Matson, R. G. (23)

Matthews, M. (see Kohler, T. A.) (3)

Mauldin, R. (see Tomka, S.) (16)

Mayer-Oakes, William J. (Texas Tech)
Scholarship as Stewardship: A New Synthesis for Archaeology.

For archaeology, the problems and opportunities of the real world of big science, formal professionalism, government bureaucracy, and public service cannot be successfully faced with a "scholarship as usual" attitude. Scholarship must now always include stewardship, which requires preservation (protection) and conservation (wise utilization) of both non-renewable and constantly generating resources for understanding human heritage. These resources include both in situ and previously recorded/collected manifestations of human behavior. Archaeology is developing a new, world-wide paradigm which includes, but is not limited to, anthropology. This model must be broad enough to support archaeologists of all backgrounds. Such a "holistic" paradigm will ensure the future of archaeology. Characteristics of the holistic archaeology of the future are indicated. (Plenary Session)

McBrearty, Sally (Illinois, Urbana)
Later Pleistocene Technological Change at the Muguruk River Site, Western Kenya.

Perceptible changes in stone tool technology accompanied the appearance in the later Pleistocene in Subsaharan Africa of modern Homo sapiens. Recently excavated lithic material from this time range from the Muguruk Site was examined in terms of typological and technological features. The Sangoan-Lupemban assemblage from the base of the sequence was found to contain a greater variety of formal tools, but a less standardized flake production technique than later Middle Stone Age assemblages at the site. (2)

McCarthy, Helen (California, Davis)
Sierra Miwok and Yokuts: An Ethnographic Analysis of Hunter-Gatherer Complexity in Central California.

Models of hunter-gatherer adaptation have focused on societies that maintain themselves in resource-restricted environments and then are portrayed as having simple sociocultural organizations. Such environmental areas are uncommon and thus a bias in hunter-gatherer research has resulted. In contrast, the California culture area possessed a richer and more varied resource base more typical of global patterns. Models constructed for marginal hunter-gatherers were reviewed and tested against ethnographic and ethnohistoric data drawn from the Sierra Miwok and Yokuts of central California. These groups had greater organizational complexity and are probably more typical of the real hunter-gatherer adaptation. Particular attention is given to the relationship between the evolution of social networks and subsistence strategies. (37)

McClure, R. H. (see Hollenbeck, B. J.) (34)

McDonald, J. A. (6)

McDowell, Patricia F. (Oregon)
Geomorphic Setting of Archaeological Sites, Southern Willamette Valley, Oregon.

The landscape of a region commonly consists of several geomorphic surfaces of different ages. A geomorphic surface is a mappable unit of the landscape which includes a variety of landforms having a common history. A single geomorphic surface, therefore, may contain a range of microenvironments, and the microenvironments present on the geomorphic surface today may have been different in the past. In the southern Willamette Valley, the distribution of sites on geomorphic surfaces is not random, but suggests that certain geomorphic positions were selected. The potential for and problems concerning a time-dependent geomorphic model of site location are discussed. (24)

McGregor, D. (see Raab, L. M.) (8)

McGuire, David J. (Mariah Associates, Inc.)
An Early Archaic Pit-House Structure in the Hanna Basin, South-Central Wyoming.

During the 1983 field season, archaeologists from Mariah Associates, Inc., uncovered the burned remains of a 5000-year-old pit-house structure in the Hanna Basin in south-central Wyoming. The structure was occupied during the altithermal climatic episode. Floor features, architectural remnants, artifacts, and biological remains yielded new and significant clues regarding settlement and subsistence during this period. This paper explores the pit-house with its associated features in detail and discusses data analysis. (10)

McHugh, William P. (GAI Consultants, Inc.)
Shuttle-Born Radar Imagery and Archaeology in the Egyptian and Sudanese Sahara.

The November 1981 Columbia shuttle mission produced radar imagery of the Eastern Sahara in southern Egypt and Northern Sudan. Preliminary interpretation by USGS and JPL scientists identified previously unrecognized, extensive drainage systems beneath the nearly featureless desert surface. In September 1982 and October 1983, geomorphic evidence of the buried rivers and related archaeological sites was recovered. This fieldwork demonstrated the widespread existence of Middle Paleolithic sites and Terminal Paleolithic/Neolithic industries, with some limited late Acheulean as well. Artifacts have been recovered from waterlaid gravels, and sites are associated with drainage channels. A long, hyperarid period, suggested by the absence of late Paleolithic sites, is not also apparent in the geomorphic record. (16)

McIntosh, Roderick J. (Rice)
Square Huts in Round Concepts: A Retrospective.

An ethnoarchaeological project over a four-year period treated a hierarchy of gross settlement and individual building change at the West African village of Hani, Ghana. Models of taphonomic sorting and movement of building materials and of compound evolution and devolution were developed in order to improve recognition of analogous features at a nearby Medieval trade center. This retrospective paper assesses the approach and assumptions of the Hani project as part of a general critique of the model-building process in ethnoarchaeology. (14)

McNatt, L. (see Hammond, N.) (29)

McPherron, A. (see Hamilton, N. D.) (31)

Micozzi, M. (see Kelley, M. A.) (13)

Mierendorf, Robert R. (Washington State)
Late Pleistocene and Holocene Columbia Drainage Fluvial Processes and their Effects on Prehistoric Settlement and Subsistence.

From the viewpoint of prehistorically important environmental determinants, the Columbia River drainage system is distinguished by its large areal extent and topographic relief, its abundant water supply, and the productivity of its salmon resource. Although most archaeological investigations conducted over the last 55 years have been along the Columbia and its main tributary, the Snake River, only a rudimentary, localized alluvial chronology presently exists. Through examination of the climatic and hydrologic controls within the Columbia drainage system, it is suggested that late Pleistocene and early Holocene near-riverine landscapes of the Columbia and Snake rivers responded differently to changing climate. (24)

Mignon, Molly R. (Simon Fraser)
Human Sacrafice and Adaptation.

Human sacrificial practices documented in three prehistoric Mesoamerican cultural groups were examined from an information-theoretic point of view. Kinds of information conveyed to the observer through such sacrificial rites and system-serving ways in which this information is utilized to promote group adaptation were identified. The adaptive functions of human and blood sacrifice in Mesoamerica are then used to construct a general model describing cultural situations in which such sacrificial practices are most likely to occur. (39)

Miksa, Elizabeth J. (Washington State)
Determination of Past Human Activity Using Archaeological Features at the Hoko River Rockshelter.

This study establishes a methodology which identifies types of features in a site and consistent relationships between feature types and other site constituents. For this study, conducted at the Hoko River Rockshelter, features were identified as discrete, primary deposits representing a specific activity or activity complex. Size, stratification, content diversity, and constituent volume comprise the variables used to discriminate feature types. These variables were analyzed through the use of cluster analysis, SYMAPs, isometric maps, and ethnographic records. The results provide a framework for classifying features into functional types, thus contributing to interpretation of activities and activity areas in the site. (35)

Miles, J. E. (see Smith, M. F., Jr.) (18)

Miller, David G. (Washington State)
Problems with Modeling Intertidal Resource Use: A Case from the Northwest Coast.

An economic model based on the assumption of maximum returns for minimum energy expenditure was applied to data on intertidal resources obtained from a Northwest Coast site, the Hoko River Rockshelter. The model failed to accurately rank species or predict their expected frequency of occurrence except in the cases of the most and the least important species. Cultural factors, derived from ethnographic analogy, were used to explain the poor fit of the model. Important factors not incorporated in the model include cultural preferences and taboos concerning species and collection localities, as well as ownership of collection areas and the procurement of species in large quantities for special social events. (35)

Miller, Mark E. (Mariah Associates, Inc.)
Early Plains Archaic Occupation in the Hanna Basin, Wyoming.

Recent archaeological investigations in south-central Wyoming have yielded new evidence of Early Plains Archaic occupation of the Hanna Basin. Three radiocarbon dated sites investigated

since 1982 and data from earlier research suggest a greater and more prolonged utilization of the basin floor environment during the altithermal climatic episode than previously believed. Both paleoenvironmental and cultural evidence were analyzed, and existing hypotheses regarding Early Plains Archaic settlement and subsistence on the Northwestern Plains were re-evaluated. Additional directions are proposed for continuing research. (17)

Milner, George R. (Smithsonian Institution)
Cemeteries and People: The Spatial Arrangement of Mississippian Mortuary and Habitation Areas.

The spatial arrangement of habitation and mortuary areas provides much otherwise unobtainable information on American Bottom (Illinois) Mississippian culture. The location of elite cemeteries within large sites, such as Cahokia, supports inferences about rank differentiation based on artifacts. Social and geographic distance, as measured from the most important positions in society and in sites, respectively, are congruent. In addition, the positioning of nonelite cemeteries with respect to small communities was related to the degree of regional social integration. Changes in cemetery location accompanied a 14th century AD dissolution of the socially complex Cahokia area culture. (39)

Moeller, Roger W. (American Indian Archaeological Institute)
Paleo-Indian Lithic Procurement and Utilization.

A detailed analysis of the chert, jasper, and quartz debitage from a single component at the Templeton Site in Washington, Connecticut has been completed. Only chert and jasper cobbles were reduced for manufacture of unifacial and bifacial implements. Although quartz cobble and chunk reduction was practiced much more extensively, no bifaces or retouched unifaces were recovered. Recent replicative experiments suggest that quartz reduction was intended to produce flakes suitable, without retouching, for scraping and cutting functions. (20)

Moir, Randall W. (Southern Methodist)
Regional Variations in Rural American Culture: A Distinctly Archaeological Perspective from Eastern Texas.

The archaeological record from historical sites contains abundant information on regional variants of American culture. Site layout, architecture, and dispersed "sheet refuse" distributions associated with 35 eastern Texas farmsteads convey information about both locally and regionally distinct behaviors related to use of living space, foodways, and other variables. Many of the activities specifically responsible for such patterning are either unrelated to "quick time" ethnographic events or are poorly visible in the documentary and oral records. Sheet refuse from these sites, for example, reveals the pervasive nature and long continuation of certain aspects of traditional lifeways after their demise in other regions. (8)

Montet-White, Anta (Kansas)
Time-Trends in Lithic Technology: The Example of Laugerie-Haute, Dordogne, France.

This paper summarizes results of analyses of blade and tool samples from Late Perigordian, Solutrean, and Early Magdalenian levels from Laugerie Haute, Dordogne, France. The initial objective of analysis was to identify technological and morphological variability within and between the blade samples. Patterns of change were identified. Possible interpretations were examined and tested by attempting to correlate changes in blade technology with major cultural divisions and/or climatic episodes. The collections used in the study were excavated by F. Bordes. Data consist of metric and discrete attributes collected by the author, as well as tool and artifact counts published by Bordes and P. Smith. (2)

Moore, Andrew M. T. (Yale)
The Inception of Agriculture in the Mediterranean: A Fresh Interpretation.

The traditional model of agricultural dispersal throughout the Mediterranean Basin was revised in the light of recent evidence. It is argued that elements of an agricultural and herding economy spread rapidly westward from the Near East about 6000 BC. A marked contrast exists between the east and west Mediterranean in the subsequent development of a Neolithic way of life, which may be partly explained by differences in the nature of the indigenous Mesolithic adaptations in these two regions. (2)

Moore, Jerry D. (California, Santa Barbara)
Chimu Lower Class Economics: Investigations at Manchan, Casma Valley, Peru.

One phase of excavations at the Chimu regional center of Manchan—located in the Casma Valley—investigated a barrio of cane-walled residences. The barrio excavations yielded data on

variability in domestic economic activities and the extent of state involvement in lower class economic life. A range of economic activities was documented, including copper metallurgy, maize beer making, and the production of lime. A general pattern of "cottage industry production" is indicated for the barrio, suggesting a relatively low level of state involvement in the supply and maintenance of specialized production. (4)

Moore, Katherine M. (Michigan)
Animal Procurement and Use in Prehistoric Highland Peru.

Abundant camelid bone remains from sites on the cold, high-altitude grasslands of Junin, Peru indicate that hunting and subsequently herding of these forms have dominated the local economy beginning in preceramic times. Implications of models for camelid exploitation, including seasonality, intensity of occupation, selectivity of hunting, and the development of herding, were compared with a large sample of bone from Panaulauca Cave. Variability in animal processing reflects evolving human-animal relationships, providing another axis with which to examine the archaeological remains. Data are presented from both living floors and trash deposits outside the cave. (4)

Moratto, M. J. (26)

Moratto, Michael J. (INFOTEC Development, Inc.)
7000 Years of Prehistory in the Central Sierra Nevada.

Excavations by INFOTEC in 1981 at the Redbud Site (04-Cal-S-347) and Texas Charley Gulch Site (04-Cal-S-286) within the New Melones Reservoir project area in east-central California disclosed stratified components representing six cultural phases: Texas Charley (4500-3500 BC), a hiatus (3500-2500 BC), Calaveras (2500-1000 BC), Sierra (1000 BC-AD 600), Redbud (AD 600-1300), Horseshoe Bend (AD 1300-1848), and Peoria Basin (AD 1848-1910). Texas Charley phase manifestations have not been described previously. The most intensive occupations relate to the Sierra, Horseshoe Bend, and Peoria Basin phases and to intervals of relatively mesic climatic conditions, as inferred from studies of soils, plant macrofossils, and pollen. (26)

Morenon, E. Pierre (Rhode Island College)
The Village of Narragansett: Exploring the Structure of a 17th-Century Native American Community.

Rhode Island had an impressive Indian population in the early 1600s which underwent extraordinary social and biological changes in a 50-year period. Although this era is documented in the archaeological record of three major Contact period cemeteries, nothing is known about the associated communities. While extensive contact between European and Native American groups is evident from artifacts and skeletal evidence, little is known about how communities were organized. This paper uses settlement data collected in the search for the Village of Narragansett during 1983-1984 excavations to test hypotheses about Narragansett Indian communities drawn from mortuary studies. (13)

Morlan, Richard E. (Archaeological Survey of Canada)
Proboscidean Limb Bone Fracture.

In addition to enormous size, proboscidean limb bones exhibit structural characteristics that limit their susceptibility to fracture. Their medullary cavities are relatively small and are packed with cancellous tissue that acts as a shock absorber. Most post-mortem fractures observed in fossil collections were induced after weathering or permineralization had opened split lines and initiated exfoliation. These processes reduce the structural integrity of the bone so that fluvial processes, animal trampling, and other agencies can cause breakage. Fresh proboscidean limb bones are known to be broken only rarely by accidents during life and more commonly by hammerstone-wielding people soon after the death of the animal. (27)

Morris, Elizabeth A., Richard C. Blakeslee and Kevin Thompson (Colorado State)
Excavations at the Kinney Spring Site: Reflections on the McKean Complex in Northeastern Colorado.

The Kinney Spring Site, which contains Early Ceramic, Late Archaic, McKean complex, and earlier unidentified remains, yielded radiocarbon dates ranging from 1510+70 BP (Beta-7328) to 5410+70 BP (Beta-7332). Two dates associated with McKean-bearing levels are 3160+130 BP (Beta-7330) and 3950+150 BP (Beta-6846). Bone remains include fragmented bison and smaller fauna, some tools, and a few scattered unarticulated human remains. The McKean remains are compared to other Middle Archaic assemblages. (17)

Moss, Madonna L. and Jon M. Erlandson (California, Santa Barbara)
Faunal Remains from Hidden Falls: Maritime Subsistence Along the Southeast Alaskan Coast.

The Hidden Falls Site on Baranof Island has yielded faunal evidence of marine resource exploitation within three components spanning nearly 10,000 years of prehistory. Component I (ca. 10,000-9000 BP) and II (ca. 4500-3000 BP) produced relatively limited faunal assemblages, while Component III (ca. 3000-1500 BP) fauna are extensive. Component II postdates Fladmark's hypothesized period of coastal/riverine stabilization and reflects the concomitant establishment of productive salmon populations. Component III contains abundant vertebrate and invertebrate fauna, and dietary reconstructions indicate that shellfish served as at least a seasonal protein staple. Evidence for a winter/spring occupation is presented, as is the seasonal importance of fish other than salmon. (33)

Munson, C. (9)

Munson, C. A. (see Tankersley, K. B.) (16)

Nagle, Christopher (Smithsonian Institution)
Nephritic Jade in the Eastern Canadian Arctic: Geochemical Composition and Distribution.

Nephrite, one member of the jade family of minerals, was widely used in the Eastern Arctic by Dorset Paleo-Eskimo and later Thule peoples, probably because of its toughness. Some results of an ongoing study to characterize the geochemical composition of artifactual and geologic source samples from the region are presented; a full complement of analytical techniques was employed to identify major mineral phases, together with major and trace element contents. These data are combined with distributional evidence of manufacturing debris to suggest the likely role of nephrite in Dorset lithic materials exchange. (2)

Nassaney, Michael S. (Massachusetts)
Composition and Configuration: Spatial-Temporal Attributes of a 17th-Century Narragansett Indian Cemetery.

The spatial arrangement of 45 Narragansett Indian burials were used to help understand the attitudes of the living toward the dead in a culture contact situation. The spatial-temporal characteristics of the cemetery were used to understand the structure of the cemetery, its duration of use, and the social organization of the mourners. The study used a series of analytical techniques designed to discern spatial patterning, and provided multiple hypotheses from which test implications were derived. (13)

Neff, Hector (California, Santa Barbara)
The Development of the Plumbate Pottery Industry.

This paper defines the spatial and temporal origins of the plumbate pottery industry and describes some aspects of its development. The source of plumbate raw materials was on the coastal plain of southern Mesoamerica, near the Chiapas-Guatemala border. The earliest variety, Guayabal, is stylistically and compositionally distinct from the more well-known San Juan and Tohil plumbate. Its occurrence is apparently restricted to the littoral zone near the mouth of the Rio Naranjo. During the Late Classic period, the volume of production of plumbate increased dramatically, and some workshops began to specialize in a limited range of vessel categories. The San Juan and Tohil sources were opened up during this period as well. (21)

Neitzel, Jill E. (Arizona State)
The Regional Organization of the Hohokam.

The significance of recent settlement pattern studies of the Hohokam has been obscured by the outdated assumption that the decorated ceramics found throughout the Desert Southwest are all stylistically the same. The presence of such uniformity does not conform either to theoretical expectations generated by information theory or to the results of studies of black-on-white pottery from the Plateau. A stylistic analysis of red-on-buff ceramics dating to the period from AD 1100 to 1900 is used to evaluate these opposing views and to generate conclusions about the regional organization of the Hohokam. (36)

Nelson, F. W. (see Baugh, T. G.) (9)

Nelson, M. (25)

Nelson, Margaret (SUNY, Buffalo) and Eileen Camilli and Neale Draper (New Mexico)
Technological Organization and Site Use.

This paper summarizes analyses of 20 surface assemblages of chipped stone. Analyses of formal characteristics of chipped stone and of their distribution were conducted in conjunction, as part of a larger project, the purpose of which was to evaluate variation in regularity and continuity of site use as an aspect of how technologies are organized for land use. The sites analyzed all represent the lowest density surface deposits. Most are the product of an encounter strategy of resource procurement, a strategy that is consistent with the characteristics of natural resources in the environment. (20)

Neusius, Phillip D. (Dolores Archaeological Program)
Gimme Shelter: The Stones in Anasazi Building Technology.

As Anasazi architecture increased in complexity, the energy requirements for building and maintaining the facilities also increased. These energy requirements relate directly to the constraints of the existing technology. In exploring these constraints, it was necessary to determine what portion of the technology was used in facility construction. A microwear analysis of one aspect of the Dolores Anasazi technology, the lithic tool kit, indicated an increasing proportion used for construction and maintenance of facilities. This changing proportion viewed relative to overall lithic production cost is used as an index of relative energy expenditure in the overall economy. (3)

Neusius, S. W. (see Flint, P. R.) (18)

Neusius, Sarah W. (Dolores Archaeological Program)
Garden Hunting and Anasazi Game Procurement: Perspectives from Dolores.

A garden hunting model has recently been proposed for Anasazi game procurement. This model identifies the principal locus of game procurement as fields, gardens, and their immediate environs. The rationale is that garden areas would have been characterized by higher than average diversities and densities of animal species. A second argument is that exploitation of these species would have reduced crop destruction. Investigations of the Dolores Archaeological Program are providing an opportunity to examine the validity of this model. This has required some rethinking of concepts as well as the development of test implications. (18)

Nials, F. L. (see Graybill, D. A.) (36)

Nials, Fred L. (Eastern New Mexico/Arizona State Museum) and D. A. Gregory (Arizona State Museum)
Recent Investigations of Hohokam Irrigation Systems.

Recent investigations in the Phoenix Basin, Arizona resulted in the re-evaluation of ideas pertaining to the morphology, flow characteristics, spacing, and age of Hohokam canals. The relationship of canals to Hohokam platform mounds is briefly discussed. Dendroclimatological retrodiction of streamflow in the Salt River and its major tributaries allows more informed discussion of water availability and irrigation technology models. New information is presented which demonstrates that downcutting of the Salt River may have affected irrigation systems during the Hohokam occupation. (36)

Nichols, Deborah L. and Pameia K. Reed (Southern Illinois, Carbondale)
The Basketmaker-to-Pueblo Transition on Northern Black Mesa.

The Basketmaker-to-Pueblo transition represents one of the most significant and complex issues in Southwestern prehistory. Data from a large sample of excavated sites on northern Black Mesa, Arizona document changes associated with this transition. During Basketmaker II times, a mixed subsistence strategy emerged, based on corn farming and exploitation of wild resources, that increased productivity and reduced uncertainty. This pattern remained essentially unchanged during the subsequent Puebloan occupation. The earliest Puebloan sites, however, exhibit markedly different architectural and morphological patterns. In view of the continuity in subsistence strategies, it is argued that these changes reflect alterations in organizational components of adaptive systems. (18)

Nickens, Paul R. (Nickens and Associates)
Agency Use of Predictive Models: A Followup Analysis from the Northern Colorado Plateau.

Over the past few years, many federal agencies have contracted for the creation of predictive models which are primarily designed to assist agencies in more productive management of cultural resources on lands under their jurisdiction. This paper provides a followup analysis of five such models provided to the Bureau of Land Management in western Colorado and eastern Utah over the past five years. This examination is intended to determine what inhouse functions the models have served, the degree of their usefulness to land managers, and the overall effectiveness of these models in contributing to efficient cultural resource management on public lands. (38)

Novick, A. L. (see Flenniken, J. J.) (16)

Nurkin, Gary H. and Peter R. Shapiro (Nassau County District Attorney's Office)
Building a House of Cards: Federal Archaeological Legislation.

The several sources of federal law pertaining to the protection, regulation, and management of archaeological resources have suffered inconsistent interpretation and enforcement in federal jurisdictions. This circumstance has arisen, in part, from the variant forms of archaeological materials sought to be protected, the frequent social and religious dimensions to archaeological preservation, and the difficulties of articulating theoretical assumptions of the jurist and the academic. This paper examines the results of this disparate application, interpretation, and enforcement of these laws for both the academic and legal communities, in particular the problems associated with developing, interpreting, and enforcing archaeological legislation. (16)

Odell, George H. (Center for American Archeology)
Getting to the Point.

Experimentation in projectile point usage has revealed characteristic forms of wear from this activity. This knowledge was applied to nine well-dated Archaic and Woodland components from sites in west-central Illinois. Results indicate that only a minority of the wear on morphological "projectile points" can be attributed to propulsion, most of the functional points being found in other categories. The percentage of this activity in assemblages varies with time and with site function. The large proportion of points made of exotic materials during certain periods has interesting ramifications for prehistoric social identification. (7)

Olsen, Stanley J. (Arizona)
Australopithecine Clavicle, Equid Toe or Cetacean Rib?

It is becoming apparent from the literature that a growing number of paleoanthropologists do not have an adequate background in mammalian paleontology from which to make critical determinations that are appearing in print. The Makapansgat "australopithecene clavicle" is in reality a partial, lateral metapodial of the equid Hipparion (="Stylohipparion"). A hominid clavicle reported from Libya may well be a porpoise rib. These problems are discussed. (33)

Olszewski, Deborah I. (Arizona)
The Late Epipaleolithic of the Levant: A View from Tell Abu Hureyra, Northern Syria.

The late Epipaleolithic of the Levant, 10,000 to 8500 BC, has been attributed by most researchers to the Natufian tradition. This is true regardless of the geographical and/or environmental location of a given site. Based upon analysis of the chipped stone assemblage from the late Epipaleolithic component at Tell Abu Hureyra, northern Syria, it is suggested that the late Epipaleolithic of this area (northern Syria) merits consideration as a technologically and environmentally distinct development. (2)

Oseki, Grace M. (Stanford)
Prehistoric Utilization of Lithic Raw Material Sources in the Junin Puna of Peru.

Raw material samples collected from 58 sources in the Junin puna provide information on the prehistoric exploitation of lithic resources. Archaeological cherts from the Preceramic and Formative periods, identified through the use of unaltered and heat-treated comparative samples, reveal patterns in local lithic resource utilization. Survey strategy, raw material classification, and other methodological aspects of the 1982 raw material survey and stone tool analysis are briefly discussed. The results of the study have implications for puna hunter-gatherer technology, resource strategy, and social organization. (4)

Payne, C. (see Scarry, J. F.) (5)

Pearsall, Deborah M. (Missouri)
Prehistoric Adaptation to the Junin Puna, Peru: The Role of Plant Resources.

Flotation of soil from excavations in the Junin puna, Peru resulted in recovery of a wealth of charred plant remains. Using the results of quantitative analysis of identified seeds, charcoal, and tuberous roots, four important issues concerning prehistoric adaptation to the puna are addressed: importance of gathered plant resources; impact of zonal differences within the puna on procurement of resources; role of plant resources from outside the puna zone; and the Junin puna as a locus of plant domestication. (4)

Perles, Catherine (Paris, France)
A Study of Lithic Chronological Variability at Franchthi Cave (Greece).

Covering the late Upper Paleolithic through the Neolithic, and with environmental studies, Franchthi Cave offers an opportunity to study lithic assemblage chronological change. After stating postulates concerning the nature of lithic assemblages, five factors accounting for lithic change are suggested: tool function, raw material, non-lithic technology components, technological traditions, and/or technological optimization; all are related to change in the socioeconomic sphere. Each factor is discussed and expected effects on lithic assemblages are modeled and compared with the Franchthi sequence. No single factor explains all changes in the sequence and, while most changes in the Upper Paleolithic are explained, the Paleolithic/Mesolithic transition is not accounted for by the models. (25)

Perttula, Timothy K. (North Texas State)
The Early Historic Period in the Caddoan Area.

Investigation of the Contact archaeological record in the Caddoan area is concerned with developing an understanding of aboriginal culture changes in dimensions of social, political, and economic organization. Aspects of this record are viewed from both an ethnohistoric and historic archaeological perspective. Particularly emphasized are the consequences of aboriginal depopulation caused by acute European diseases, the decreasing complexity of social and political organization, the development of confederacies, the changing patterns of inter-tribal relationships, and material and economic changes from the adoption of European goods. Conclusions address aboriginal responses resulting from European contact as seen within particular regions of the Caddoan area. (12)

Peter, Kevin J. (Washington State)
Auger Sampling and Spatial Analysis: A New Application of an Old Method at the Hoko River Rockshelter Site.

Use of augering and coring devices generally focuses on determination of only the presence or absence of cultural materials. Adopting an alternate approach, this study tested the utility and reliability of sample collection with an auger as a method for examining site structure and composition. This research program, implemented at the Hoko River Rockshelter site, initially identified distributions of primary and secondary refuse deposits. Based on the composition and areal limits of such deposits, activity areas were defined. The resulting description of activity area patterning at this site demonstrates the efficacy of auger sampling as a tool for spatial analysis. (35)

Petersen, J. B. (see Hamilton, N. D.) (31)

Petersen, James B. (Maine Historic Preservation Commission) and Nathan D. Hamilton (Pittsburgh)
Perishable Fiber Industries of Northern New England: Ethnicity and Technological Traditions in the Woodland Period.

Data and interpretations of a comparative attribute analysis of prehistoric aboriginal fiber industries from northern New England are presented for the entire Woodland period sequence, ca. 1000 BC to AD 1600. The available sample reveals the early diversification and technological sophistication of fiber perishables, both of which are indicative of a long span of prior development and regional differentiation. Moreover, long-term continuities in local sequences indicate the early presence of several distinct technological traditions across the region. These observations are used to further explore the relationship between perishable fiber industries and ethnicity in the archaeological record. (31)

Petersen, Kenneth Lee (Dolores Archaeological Program)
Summer Warmth: A Critical Factor for the Dolores Anasazi.

A shortening of the growing season at 6800 feet elevation in the Dolores River Valley, southwestern Colorado ca. AD 900 may have contributed to local Anasazi abandonment. Historic frost-free periods for the Dolores area (average 130 days) were calibrated to a long record of bristlecone pine tree-rings from high elevations near Pikes Peak, central Colorado. Decadal agreement between the two areas is good. Tree-rings narrower than any that have been produced historically suggest that the first decades of the 10th century AD had growing seasons that averaged less than 110 days. Such short growing seasons would have made corn farming very risky. (18)

Phagan, Carl J. (Dolores Archaeological Program)
A Technological Model for Ground Stone Tool Analysis.

Recent advances in recognizing and interpreting production or use characteristics of flaked stone tools have not been paralleled by similar analytic developments for ground stone tool production and use which permits consistent definition, recognition, and technofunctional in-

terpretation of tool attributes. An example of the model's utility is provided from Dolores Archaeological Program data. (40)

Pickman, Arnold, Eugene J. Boesch and Howard D. Winters (New York U)
The Springer Site: A Multi-Component Site in the Lower Illinois River Valley.

Test excavations were conducted during the summer of 1983 at the Springer site complex, Pike County, Illinois. The site includes 17 low earthern blufftop mounds, divided structurally into three groups. Cultural affiliations have been tentatively assigned to the Middle-Late Woodland periods. The presence of cremated human remains together with a number of shell beads and two unusual shell "buttons" in one of the mounds point to the existence of Middle Woodland mortuary practices hitherto unknown from the lower Illinois Valley region. Tests in the floodplain at the base of the bluff yielded evidence of deeply stratified occupational deposits. Artifacts recovered from the plow zone and from a sub-plow zone pit suggest that some of the floodplain occupations were contemporaneous with the ridgetop mounds. (5)

Pierce, Christopher (Desert Research Institute)
Analysis of Cooking Stones from a Late Period Chumash Village.

Ethnographic and archaeological information strongly suggests that cooking with heated stones, as practiced by many Native Americans, included the selection of particular rock types for use in specific cooking activities. Experiments with heated stones show that this selection was probably influenced by differences in the thermal properties of the rock types employed. The distributional patterns of fire-altered rocks and other cultural materials recovered from a village site in the central Santa Monica Mountains seem to indicate that dietary differences existed between members of separate status groups within Chumash society. (11)

Pilles, Peter G., Jr. (Coconino National Forest)
The Effect of Forest Fires on Archaeological Sites.

During the summer of 1977, the "Radio Fire" near Flagstaff, Arizona and the "La Mesa Fire" near Santa Fe, New Mexico burned over 19,000 acres of land. Both fires were in areas of high archaeological site density and more than 200 specific sites were burned. A number of sites were tested later to determine whether they had been affected by fire itself and firefighting activities. In general, effects by burning were not severe. The greatest impacts were caused by heavy equipment used in fire suppression and by fire crews during mop-up operations. Fire effects were found to be generally restricted to the surface and upper few inches of ground surface. Artifacts were blackened, often had a residue deposited on them, and were cracked by heat. Construction stones were spalled. Heat alterations of surface artifacts did adversely affect potential for thermoluminescence and obsidian hydration dating. (1)

Pippin, Lonnie C. (Desert Research Institute)
Aboriginal Seed Exploitation on an Arid Mountain Range in the Northern Mojave Desert.

An analysis of the spatial distribution of archaeological sites on Yucca Mountain, southern Nye County, Nevada revealed site patterning thought to correspond with ethnographic references to the use of this area by historic Numic speakers for the procurement of chia (Salvia columbariae). This patterning, radiocarbon dated to historic times, reflects a major change in prehistoric resource procurement strategies on Yucca Mountain and provides insight into the processes of site location not obtainable from the ethnographic record. (28)

Pollock, Stephen G. (Southern Maine)
Evaluation of Criteria for Use in the Analysis of Chert Artifacts from the Munsungun Lake Formation, Maine.

Five criteria relate source outcrops of chert to archaeological artifacts: geological mapping of source areas; hand specimen identification; petrographic analysis; mineralogy; and chemical analysis. This approach established a hierarchy by which artifacts may be identified as having originated in the Munsungun Lake region of northern Maine. Used singly, the second, third, and fourth criteria illustrate the uniqueness of the cherts. Used together, they allow confident identification. Chemical analyses reinforce the other criteria, but are more expensive to obtain than the other methods. (9)

Pope, M. K. (see Siegel, P. E.) (7)

Portnoy, Alice W. (Plenary Session)

Potter, Daniel R. and Fred Valdez, Jr. (Harvard)
The Xe Sphere: A Consideration of the Early to Middle Preclassic Transition in the Maya Lowlands.

Recent archaeological investigations in northern Belize provided new data on the Early and Middle Preclassic. A comparison of ceramics belonging to the Xe Sphere at Colha and Cuello established stylistic connections and continuities between northern Belize, the Peten, and the Pasion regions for the early Middle Preclassic. The context of Xe Sphere and Xe Sphere-related components at various sites is outlined, and a brief review of artifactual data is presented. (29)

Potter, P. B. (see Gould, R. A.) (14)

Prater, Ariadne H. (California, Berkeley)
Sculpture: Reflector of Culture.

From the pre-Classic through the Early Classic, stone sculpture is a significant feature of the cultures of the Pacific Piedmont and Coast of Guatemala and Chiapas. Its style, form, and content reflect the rapid growth and increased complexity of the region. Combined with studies of more traditional artifact types, the analysis of stylistic and iconographic attributes of sculpture provide the archaeologist with another valuable source of information on regional development, diversity, and interregional contact and influence. This paper discusses the sculptural traditions which were part of the cultural development of the region. (21)

Prater, V. (21)

Pyburn, A. (see Hammond, N.) (29)

Pyburn, Anne and William Rathje (Arizona)
Sex and Status Among the Maya: Evidence from Prehistoric Burials.

Several authors have explored the possibility that Maya economic or political alliances were formed by the exchange of elite women. These studies are based mainly on epigraphic analysis, but complementary information on the status of Maya women is available from burial assemblages. Data already compiled from 1009 Maya burials are examined in conjunction with newly published burial data for evidence of male/female status distinctions, changes in female status through time, and contrasts between the burial assemblages of central Peten females and those from outlying areas. (39)

Raab, L. Mark (Southern Methodist)
ASCA and a Living Conservation Ethic.

Unlike other national archaeological societies, ASCA has an organizing principle that cross-cuts all of archaeology. Where other societies are concerned primarily with technical problems, professionalism, field work, or other issues, ASCA is concerned with conservation of archaeological resources. This idea is underdeveloped in the field today, but is pertinent to developing a coherent archaeological ethic for the future. From a conservation perspective, otherwise disparate issues such as student training, ethics, artifact curation, and standards for work in other countries are brought into a single evaluative framework. In a time of professional and intellectual fragmentation, archaeology badly needs a coherent ethic. (Plenary Session)

Raab, L. Mark and Don McGregor (Southern Methodist)
Prehistoric Mortuary Ceremonialism in the Southern Plains: The Wylie Focus Pits of North-Central Texas.

Large prehistoric pit structures, characteristic of the Wylie focus of north-central Texas, have long been puzzling as regards age and function. Recent excavations of two such pits indicate an age of construction around AD 1, an age at least one millenium earlier than previously suspected. Evidence suggests that the pits functioned as mortuary monuments to high-status persons. This pattern may represent an attenuated expression of eastern United States "Woodland" mortuary ceremonialism, but with a distinctive regional character. (8)

Rafferty, Kevin A. (Nevada, Las Vegas)
Virgin Anasazi Settlement in the Las Vegas Valley, Southern Nevada.

Beginning in the 7th and 8th centuries AD, the Las Vegas Valley was a center of occupation for the Virgin River Anasazi expanding out from the Muddy/Virgin Valley region. Population pressure was one factor in the expansion. However, it was the role of the Virgin Anasazi in the Pan-Southwestern turquoise trade, a trade integrated into the larger Mesoamerican "World System" of trade and political relationships, that was the major factor in this expansion. Evidence for the expansion and involvement in the turquoise trade by the Virgin Anasazi is discussed. (18)

Ramenofsky, Ann F. (Lousiana State)
Time and Demography: Methodological Issues of the Contact Period in North America.

The multidisciplinary nature of the period of European contact in North America has had positive and negative consequences on archaeological treatment of the period. While documentary sources provide additional and important data sets, these sources have been used nearly to the exclusion of the archaeological record. Behind this approach is the assumption that the archaeological record is incomplete relative to the historic record. Consequences of this approach and assumption were considered in relation to two methodological issues: time of European contact and archaeological estimates of population. Intellectual origins and examples of both issues are given, and alternative approaches are suggested. (12)

Ranere, Anthony J. (Temple)
An Approach to Dating Surface Lithic Collections from Central Panama.

A survey by the "Proyecto Santa Maria" in Central Pacific Panama has recorded 370 sites to date, more than half of which are represented by surface lithic collections only. The need to place these aceramic sites in a temporal framework prompted an attempt to construct a lithic chronology for the region. Utilizing radiocarbon dated assemblages from Central Panama sites spanning the time from 5000 BC to AD 1000 and surface collections (assigned dates based on seriational arguments), a 10,000-year provisional chronology has been established which permits dating surface lithic remains with varying degrees of specificity. (29)

Rathje, W. (see Pyburn, A.) (39)

Rathje, William L. (Arizona)
What's Your Beef?

Social scientists usually interview people to learn about their behavior. They have begun to realize, however, that what people say they do and what they actually do are two very different realities. By using an archaeological perspective to study what modern householders discard, the Garbage Project is finding unique new information on patterns in the way purchase and consumption behavior is mis-reported to interviewers and on the relationship between the American diet and cancer. The value of sorting garbage will be illustrated with interview and refuse data on red meat. (14)

Rathod, M. S. (see Siegel, P. E.) (7)

Rattray, Evelyn C. (Instituto de Investigaciones Antropologicas, Mexico)
Gulf Coast-Teotihuacan and Maya-Teotihuacan Relationships.

In recent excavations at Teotihuacan on the northeast edge of the city, excellent evidence for the presence of a foreign Gulf Coast and Maya affiliated community that maintained strong links over a period of time with those regions was recovered. The relationship is expressed in ceremonial architecture, ceramic artifacts, and other objects imported from the Gulf Coast. The function of the community and its integration in Teotihuacan society are two problems that may be elucidated by continuing research. (29)

Ravesloot, John C. (Southern Illinois, Carbondale)
Mortuary Treatment and Social Differentiation at Casas Grandes, Chihuahua, Mexico.

Relatively few studies of social complexity through analyses of mortuary data have been attempted within the Greater Southwest since large burial populations are rare. Excavations at Casas Grandes, Chihuahua, Mexico produced a sample of 576 burials dating between the 12th and 14th centuries. Social complexity was investigated at Casas Grandes by analyzing a series of burial attributes, including location and type of grave facility, method and technique of corpse processing and disposal, and kinds of associated grave goods. Analysis defined several possible dimensions of social differentiation as indicated by covarying attributes of mortuary treatment. (39)

Raymond, A. (see Flenniken, J. J.) (7)

Raymond, Anan W. and Gilbert Glennie (Washington State)
The Weighted Atlatl: Experiments in Function and Performance.

This paper briefly reviews proposed models and previous experiments in the function and performance of weighted and non-weighted atlatls when throwing darts. In light of contributions and shortcomings of this work, described here are three new experiments conducted using replicas of archaeologically recovered atlatls and darts. The experiments demonstrated that a weighted atlatl imparts greater distance, speed, and force to darts than does the same atlatl without a weight. Radar and highspeed motion picture photography were used in two of the experiments. (16)

Read, D. (30)

Reanier, Richard E. (Washington)
Geotechnical Aspects of the Utqiagvik Archaeological Project, Barrow, Alaska.

A permafrost coring program was developed for both geotechnical investigation and archaeological planning at the Utqiagvik site. Coring of frozen house mounds produced a detailed record of 14 mounds, and revealed that they were formed by midden deposition on surfaces with little natural relief. Coring for planning purposes was done in mounds under excavation to determine the extent of the still-frozen midden. Erosion and retreat of the bluff upon which sites lie are active Holocene processes that presently threaten the site. Erosion has been accelerated by curio hunters who mine the bluff for artifacts. (2)

Redman, Charles L. (Arizona State)
Intrasite Research Strategies: A Reevaluation.

Twenty years ago, Binford's seminal article on research design was published in American Antiquity. Fifteen have passed since Redman and Watson's intensive surface collection paper was presented at the SAA meetings. In that period, problem-oriented fieldwork, probability sampling, intensive surface collecting, and multistage research designs have become commonplace in American archaeology. It is now time to scrutinize their application. All too often, techniques cited in the literature have been blindly applied without full appreciation of their implications. Alternate intrasite field strategies were reviewed in an attempt to clarify misunderstandings and to suggest productive sets of techniques to be employed in the future. (15)

Reed, P. K. (see Nichols, D. L.) (18)

Reese, Kathryn V. (Texas A&M) and Fred Valdez, Jr. (Harvard)
Prehistoric Ceramics at Kichpanha, Northern Belize.

The Kichpanha ceramic sequence, which begins in the early Middle Preclassic and terminates with a veneer of Postclassic material, was reviewed. This sequence was compared to ceramic chronologies of better sampled sites in Northern Belize, specifically Colha, Cuello, and Cerros. Comparisons are based on the Type-Variety-Mode method of analysis, as well as the analysis of the form and function of the ceramics. Northern Belizean ceramic complexes were then compared to appropriate complexes from the Peten, Pasion, and Rio Bec zones to provide a larger framework in which to place the Kichpanha sequence. (29)

Reid, J. Jefferson and Donald A. Graybill (Arizona)
Paleoclimate and Human Behavior in the Grasshopper Region, Arizona.

Modern tree-ring data and regional climatic data from 1912 to 1979 were analyzed to develop a transfer function that describes the relationship between the two time series. Further statistical procedures were used to verify the utility of the transfer function, which was used with tree-ring series from AD 1040 to 1370 to reconstruct inches of precipitation and the Palmer Drought Severity Index. The paleoclimatic reconstruction provides a framework for investigating conspicuous alterations in prehistoric settlement and organization behavior. (18)

Reitz, E. J. (see Benfer, R. A.) (4)

Rhode, David (Washington)
Surface Archaeology of Upland Areas in the Walker River Watershed, Western Nevada: Initial Findings.

The Walker Watershed Archaeological Project was designed to document and account for variability in the archaeological record of the Walker River watershed, westernmost Great Basin. Initial field studies involved large-scale sampling of the surface archaeology of two upland areas, the Wassuk Range and the Pine Grove Hills. Despite their close proximity, these areas differ starkly in the distribution and content of sites. The differences can be explained as functional in nature, as manifestations of stylistic discontinuities, or as a product of noncomparable samples. These explanations were addressed through stylistic and functional analysis of artifacts. (10)

Rice, D. G. (see Salo, L. V.) (19)

Rice, Prudence M. (Florida State Museum)
Ceramic Diversity: Implications for Production and Use.

Variability in archaeological pottery is typically ordered by means of classification schemes

and interpreted chronologically. Alternative frameworks for explaining ceramic variability can be found by attention to the structure of diversity within certain attribute classes of pottery. The amount of variability in technological, formal, and decorative properties can be assessed quantitatively through diversity indices and interpreted in terms of the production and use of the materials. Recent applications of this approach to pottery are discussed, together with problems of interpretation. (1)

Richter, D. R. (3)

Rick, John W. (Stanford)
Structure and Style at an Early Base Camp in Junin, Peru.

The Panaulauca Cave Site, in the central Peruvian puna, bears abundant evidence of base camp usage in the Preceramic and Formative periods. Evidence for both spatial organization within the cave and stone tool stylistic variability was used to infer the organization, mobility, and interaction of Panaulauca's inhabitants in early Junin social and ecological contexts. Comparisons with nearby contemporary Pachamachay Cave data suggest strong social differentiation between small hunter-gatherer or herder groups of similar organization and economy. (4)

Riley, Lynn M. (INFOTEC Development, Inc.)
A Brief History of the New Melones Archaeological Project, 1968-1980.

Between 1968 and 1980, government personnel and contractors undertook more than 25 separate studies of historic and archaeological resources, comprising nine phases of field and archival work, in the New Melones Dam and Reservoir project area of the central Sierra Nevada foothills in Calaveras and Tuolumne Counties, California. Approximately 682 cultural properties were documented; of these, 62 Indian sites and 27 historic non-Indian sites were tested or excavated extensively. By the end of 1980, a large corpus of archaeological data remained to be analyzed and reported, and additional fieldwork was needed at significant sites jeopardized by reservoir filling and related developments. Accordingly, early in 1981, the federal government programmed a tenth and final phase of archaeological work at New Melones Reservoir. (26)

Rindos, David (Illinois, Urbana)
Diversity, Variation and Selection.

Diversity is a perceived pattern in variation. Measures of diversity seek to integrate two descriptive statistics: the number of discrete members present in a data set and their relative abundances. Variation, as a precondition to diversity, is ordered by natural selection. Selection may maintain, increase, or reduce specific variant forms, yielding different patterns of diversity. Variation is presumed to be generated randomly with respect to selection; hence, natural selection is the only force ordering diversity patterns. Proper analysis of changing patterns of diversity may give insight into the specific forces controlling cultural evolution. (1)

Riordan, Robert V. (Wright State)
Investigations at the Pollock Works, 1981-83.

The Pollock Works, a hilltop enclosure in southwestern Ohio, has been under excavation since 1981. Features located date to the Early and Middle Woodland periods. These features are interpreted in terms of their contribution toward an understanding of the construction and use of the site. (5)

Rivera, Mario A. (Tarapaca, Arica, Chile)
Symbolism in Tiwanaku and Alto Ramirez Phases of Northern Chile: The Andean Sacrificer.

From the archaeological material recovered at several sites in Tarapaca, Azapa, Vitor, and Lluta, it is hypothesized that Northern Chilean coastal valleys developed inclusively within a pan-Andean scope. This was part of a political and economic system based on the circum-Titikaka area (Pukara-Chiripa-Early Tiwanaku) since early times (ca. 800 BC), even before the Tiwanaku expansion. The symbolic and ontologic meaning of the sacrificer is therefore further explored, representing for the Alto Ramirez and Tiwanaku societies a key element in the ideology of complementarity and Andean reciprocity. (32)

Robbins, Carole J. and Lee D. Sailer (Pittsburgh)
Producing Artifact Density Maps from Sample Data.

Comparison of contour and trend surface maps of artifact densities from sampled sites showed that contour interpolation is the more reliable by far. Repeated sampling and mapping of three different sites demonstrated that reliable density maps of complete sites can be produced from sample data. Although data from simple random samples produced the best contour maps, the contour interpolation algorithm used by SYMAP is quite robust. It will produce reliable maps from a severely clustered sample, e.g., a transect sample in which only two transects cross the site. (16)

Robinson, Paul A. (Rhode Island Historical Preservation Commission)
The Use of Mortuary Data to Evaluate the Persistence of Religious and Social Values of 17th-Century Narragansett Indians.

The persistence of religious and social values of a society's culture is suggested by 20th-century studies of culture contact. However, the persistence of Native culture during the 17th century in the northeast has been questioned by some archaeological and historical studies. Data from a 1982-83 excavation of a 17th-century Narragansett Indian cemetery were used to evaluate the persistence of Native culture during a period when disease, values, and materials introduced by Europeans were potentially important acculturative factors. (13)

Rock, James T. (Klamath National Forest)
Beyond Inventory: Progressing with CRM.

Cultural Resource Management has reached a point in its development where survey and location of sites alone is simply no longer viable. Today, questions about the data base are being asked. The answers are yielding important information on a number of levels; pure research, management application, and public involvement are basic to advancement in the discipline. Various approaches presently being undertaken are illustrated. (6)

Rodeffer, Stephanie Holschlag (National Park Service)
Poverty in the Archaeological Record: The Historic Mitigation Program for the Tombigbee River Multi-Resource District, Alabama and Mississippi.

Although numerous factors influence the nature and integrity of archaeological resources, excavations in the Tombigbee River Multi-Resource District in Alabama and Mississippi have shown how profoundly some factors have affected the formation and preservation of historic sites. The effects of poverty, recycling, and salvaging are examined on 19th-century plantations, farmsteads, towns, and a mill community. The net result of these forces appears to be a reduction in the number and type of attributes that can be used to differentiate among these sites archaeologically. (22)

Roe, Peter G. (Delaware) and Peter E. Siegel (SUNY, Binghamton)
An Archaeoethnographic Spatial Analysis of Two Shipibo Compounds: Implications for Archaeological Interpretation.

The spatial structures of two Shipibo house compounds are considered. One compound, described by DeBoer and Lathrap in 1979, represents the ongoing systemic context, while another abandoned compound in the same village represents the archaeological context. The ethnographic and archaeological contexts were evaluated using the same methods. The relative fit/disparity between the contexts was examined, and insight was gained into those elements of the ongoing system which persist or change during site formation. Functional/spatial associations between artifact classes are suggested, and theoretical expectations and sampling considerations are proposed for the expectation of prehistoric settlements in the South American lowlands. (14)

Rogge, A. E. and Thomas R. Lincoln (Bureau of Reclamation)
Predicting the Distribution of Archaeological Sites: A Case Study from the Central Arizona Project.

The issue of whether recent enthusiasm for predictive modeling actually represents something new was addressed. Then the value of predictive modeling as a strategy versus our ability to actually implement it was explored. A series of Class I (overview), II (sample), and III (total intensive) surveys performed within a cultural resource management context are used as a case study. Models developed during each stage of survey are reviewed in light of subsequent survey results to evaluate their predictive power. It is concluded that the amount of information gained with each survey is a greater source of comfort than is the robustness of the models. (38)

Rollefson, G. O. (see Simmons, A. H.) (2)

Rose, J. J. (see Goddard, D. M.) (6)

Ross, Richard E. (Oregon State) and Esther Stutzman (Coos Tribal Council)
Two Views of Archaeology.

Archaeology lacks an ethical relationship with Native Americans. A brief look at the history of American archaeology and its relationship to the Native American community suggests strongly that archaeologists, until recently, have generally ignored Native American sensitivity about archaeological sites and that archaeologists have little understanding of Native American perceptions of prehistory. This lack of sensitivity and understanding seriously hampers the rela-

tionship between the two communities. A Native American view of archaeology and archaeologists is offerred along with a few thoughts on what the idea of ethics means to archaeologists. (16)

Rothschild, Nan A. (Barnard, Columbia)
Information Theory, Faunal Assemblages and Socioeconomic Status.

Recently, faunal analysts have suggested that the assessment of the diversity of a faunal assemblage provides useful insight into social questions. In this paper, diversity measures are applied to a series of assemblages from the Historic period in New York City. The utility of this method in answering questions about socioeconomic differences in subsistence (both the acquisition and the consumption of food) and the appropriateness of these measures for this analysis are discussed. (1)

Rubertone, Patricia E. (Brown)
A Model for Inter-Regional Exchange During the Historic Contact Period.

Many archaeological studies of historical contacts between Indians and Europeans have assumed perhaps erroneously that typological models can be developed for classifying artifacts which provide insights into the contact situation. This paper proposes that Historic period artifacts cannot be understood when divorced from their historical, cultural, and ecological contexts. Materials excavated from a 17th-century Narragansett Indian cemetery provide a case study for developing an approach to account for the complexity of interactions. Evidence suggests the existence of strong Narragansett craft specialization traditions, which may have provided them with opportunities for entrepreneurial behavior involving exchanges with Europeans and other Indian groups. (13)

Rubin, Meyer (see Sheppard, J. C.) (24)

Rubio Cifuentes, Rolando (Del Valle, Guatemala)
Archaeological Excavations at El Baul, Guatemala.

El Baul, Escuintla was one of the largest Late Classic centers on the Guatemalan Pacific coast. Excavations conducted at the site by the Universidad del Valle de Guatemalan in 1982 and 1983 examined the eastern periphery of the ceremonial zone. The emergence of a formal architecture style in the Cotzumalhuapan region is shown. Examples documented by the Del Valle investigations are illustrated and discussed. (21)

Ruffini, F. (19)

Russell, Glenn S. (California, Los Angeles) and Christine A. Hastorf (Minnesota)
Stone Tools as a Measure of Agricultural Change in the Andes.

Incorporation of the Central Andes into the Inca Empire involved a shift from pre-state to state organization. Associated with this shift was a major change in agricultural production, with increased production of maize, used by the Inca in state finance. The use of stone hoes in maize agriculture is indicated by their distribution among land-use zones, morphology, and use wear. It is proposed that changing agricultural production will be reflected by change in relative frequencies of stone hoes and other agricultural stone tools, such as prismatic blades, from Late Intermediate period and Late horizon settlements from the Mantaro Valley. (4)

Russell, Nerissa (California, Berkeley)
Neolithic Hunters? A New View of Vinča Subsistence Economy.

The subsistence economy of the Middle-Late Neolithic Vinča culture of southeastern Europe is usually thought to be based on agriculture and stockbreeding emphasizing cattle and pigs. The difficulties of agriculture in the plains north of the Danube and the heavy reliance of local early Neolithic groups on cattle might suggest a largely pastoral, cattle-herding economy during Vinča. These expectations are contradicted by preliminary faunal evidence from Opovo, a Vinča village site in this region. Here, wild species provided virtually all of the meat, and grain may have been cultivated. A more complex view of Vinča subsistence economy must now be taken. (2)

Sailer, L. D. (see Robbins, C. J.) (16)

Salo, Lawr V. (Army Corps of Engineers)
Proton Magnetometry in Columbia Plateau Archaeology: A Methodological Advance Sponsored by CRM Projects.

Plateau site occupations, including houses, typically occur as small scattered lenses of debris. Finding them and characterizing their variability by test excavation usually is time consuming and expensive. Two recent CRM projects pioneered the use of proton magnetometry for the region, successfully identifying buried houses and living floors. Signatures of other kinds of features being developed have far-reaching consequences for future CRM work in the region. Excavations may be directed immediately to features of interest, and it may be possible for construction to avoid them selectively. (22)

Salo, Lawr V. and David G. Rice (Army Corps of Engineers)
Applications of the Cultural Resource Protection Planning Process in the Okanogan Highlands and the Channelled Scablands of Eastern Washington State.

Trial applications of the Resources Protection Planning Process (RP3) illustrate its facility in two case studies. Preliminary findings point out major gaps in our knowledge of cultural resource distribution, quality, condition, and study level. Discrepancies are noted between theoretical assertions in the literature and the actual data base in their support. A framework is presented that will aid in the generation of more practical testable research hypotheses and that will also serve to establish cultural resource management priorities. (19)

Sampson, C. Garth (Southern Methodist)
Bushman Ceramic Distribution in the Upper Zeekoe Valley, South Africa.

A little-known Bushman ceramic tradition on the high central plateau was analyzed. The grass temper of their crude bowls can be directly dated by radiocarbon dating, and several dates fall between AD 1300 and 1750. Sherds from 500 surface sites, representing 1443 vessels, were grouped into 29 classes based on punctate designs on the outer surfaces. Some of these patterns have restricted distributions on the landscape which conforms with a territorial boundary already proposed from other field evidence, namely on the basis of rock-sourcing studies and stone windbreak base design distributions. (2)

Sassaman, K. E. (20)

Sassaman, Kenneth E. (Massachusetts)
Middle and Late Archaic Settlement Mobility and Technological Organization in the South Carolina Piedmont.

Changing patterns of residential mobility during the Middle Archaic-Late Archaic transition in the Carolina Piedmont appear to be associated with shifts in the organization of subsistence, social relations, and technology. This paper examines implications for changes in technological organization resulting from decreased residential mobility. Surface collections from Middle and Late Archaic sites in varied microenvironments of the Piedmont were analyzed for differences in lithic assemblage diversity, raw material selection, tool use-life, and tool discard. Results suggest variability at these sites that is often independent of site function. (20)

Saunders, Jeffrey J. (Illinois State Museum)
Late Pleistocene Mastodonts of North America.

Recently completed or ongoing excavations in the central Midwest seek to understand the taphonomies of Mammut americanum sites. Combined with the temporal/spatial distribution of localities and with reports of previous investigations, these focus on the paleobiology of the American mastodont. During the late Pleistocene (Rancholabrean Land Mammal Age, commencing ca. 400,000 BP), mastodonts occurred from Alaska to Mexico and from the Pacific to the Atlantic coasts. By the terminal Pleistocene (ca. 12-11,000 BP), mastodonts were concentrated around the Great Lakes and along the Atlantic coast. In the Great Lakes region during the latest Pleistocene, mastodonts are usually associated with biota indicating coniferous forest habitat; in marginal areas, associated biota indicate open coniferous, open mixed coniferous and deciduous, or open deciduous, woodland. Mastodonts typically occur as single (or several) individuals in bogs and less typically but abundantly in artesian spring deposits. The geological and biological frameworks of mastodont sites are variable, as are mastodonts themselves, but patterns appear which point to mastodont diet, behavior, evolution, and extinction, as well as to the natural patterning of mastodont remains. (27)

Scarborough, Vernon L. (Texas, El Paso)
Maya Polities in 1st-Century Northern Belize.

Evidence was marshalled in support of the existence of polity divisions in northern Belize during the Late Preclassic period. First-order centers of Cerros, Nohmul, Lamanai, and Colha are suggested as seats of authority for each polity, respectively. Community ranking in northern Belize is presented in terms of architectural investment and population densities. Implications of polity divisions during this critical transition in complex society is addressed. The collapse of polity divisions during initiation of the Early Classic period and the subsequent appearance of primary centers are discussed. (29)

Scarry, John F. and Claudine Payne (Florida Bureau of Archaeological Research)
Mississippian Polities in the Fort Walton Area: Application and Interpretation of the Renfrew-Level XTENT Model.

The boundaries and structures of Mississippian chiefdoms in the Fort Walton area of the southeastern United States were modeled using the Renfrew-Level XTENT simulation model. The resulting simulations were compared to archaeological data and ethnohistorical accounts of the Apalachee Indians. The study provides the basis for suggested refinements to the XTENT model and it also provides support for models of the origin and early evolution of the several Fort Walton systems and the persistence of aboriginal social structure among historic groups. (5)

Schalk, Randall F. (Washington)
The Columbia Plateau Salmon Fishery: Faunal Evidence for Intensification.

The archaeological record of the Columbia Plateau has generally been interpreted as reflecting a trend or shift toward increasing dependence on anadromous fish. Based on the existence of major variations in the distribution, abundance, and season of arrival of fish runs in various regions of the Plateau, it is expected that the potential for intensification of the fisheries would be quite variable. To test this expectation, archaeological faunal assemblages from sites of varying ages and settings were evaluated and compared. (23)

Schiepatti, Frank (New York State Department of Environmental Conservation)
Intrasite Structural Analysis Using Semivariograms.

This paper examines the use of the semivariogram (the intrinsic function of regionalized variable theory) as a representation of the spatial density structure of artifacts within an archaeological site. It is shown that this function can be used to gauge the spatial continuity and isotropic nature of a variable and as an indicator of the zone of influence around sample data points. The theoretical background of this statistic is discussed, and its archaeological application demonstrated through the use of both computer-simulated and actual site data. (30)

Schiffer, M. B. (14)

Schiffer, Michael B. (Arizona)
Sherd Diversity and the Formation Processes of Mogollon Pueblo Room Fills.

The nature of room fills in published Mogollon pueblo site reports is usually problematic. This paper reports several quantitative analyses, emphasizing diversity of pottery (sherd) types, that seek to illuminate the formation processes of these deposits. Although sample size is the strongest determinant of pottery diversity, some traces of formation processes can be discerned. (1)

Schmidt, P. (see Wren, L. H.) (29)

Schneider, G. (see Carothers, J.) (2)

Schuldenrein, Joseph (Gilbert/Commonwealth)
The Geomorphic Background to Prehistoric Settlement at Pinon Canyon, Colorado.

Ancient landscapes and the late Quaternary stratigraphy of a 380-square-mile semi-arid catchment of southeastern Colorado were investigated in summer of 1983 as part of an interdisciplinary CRM study funded by IAS-Denver. Geomorphologic studies were directed toward both elucidating prehistoric environments and establishing locational parameters for predicting site distributions. Early reconnaissance suggested that monitoring and dating of channel changes and alluvial fills was an optional strategy for examining changing environments and occupational strategies in complementary perspective. Preliminary radiometric results show that presently incised arroyo fills are relatively recent, mid-Holocene, or later, but that major differences in Holocene channel dynamics account for differential settlement as well as preservation between the principal drainages in the catchment. (17)

Scott, S. A. (see Davis, C. M.) (34)

Scott, Sara A. (Deschutes National Forest)
Sand Spring: A Lithic Workshop on the High Lava Plains of Central Oregon.

Test excavations of the Sand Spring Site revealed two Archaic components separated by a thick layer of Newberry pumice deposited some 1600 years ago. X-ray fluorescence sourcing showed that obsidian from the site was obtained from the nearby Quartz Mountain obsidian quarries. Statistical analysis of the site debitage and debitage produced experimentally provide insight into stoneworking and biface manufacture in the northern Great Basin. The site analysis p ides a useful approach for understanding quarrying and tool production in a region where

obsidian sources are numerous. Further, the investigations emphasize the need to understand local volcanology and its effects on the prehistoric record. (34)

Shackel, Paul (SUNY, Buffalo)
Artifact Pattern Recognition at the Nicoll House, Suffolk County, New York.

This paper tests Stanley South's Carolina artifact pattern of immigrants of English origin in colonial United States. He used a bimodal t-test to predict the data in eight artifact categories with a 95% chance of probability. This pattern was compared to the Nicoll's House, Suffolk County, New York data and appears not to fit. This paper reconsiders the unicausal effects which determine this pattern, and calls for multicausal effects when considering any pattern in archaeological data. (30)

Shafer, Harry J. (Texas A&M)
CLASSIC MIMBRES ARCHITECTURAL DYNAMICS.

Recent intensive archaeological excavations at the NAN Ranch ruin, a large Classic Mimbres period pueblo in the Rio Mimbres Valley, provided new information on the dynamics of room block development, room maintenance, and abandonment. Using information gathered over the past five seasons, it is possible to define Mimbres household composition, room use patterns, document evidence of room restoration, remodeling, and, in certain instances, trace the realignment of room suites and note sequences of room abandonment. These findings have a significant bearing on previous concepts of Classic Mimbres pueblo behavior. (18)

Shapiro, Gary (LAMAR Institute, Inc.)
The Mississippian Adaptive Niche in the Georgia Piedmont.

It has been suggested that much of the variation in Mississippian settlement patterns can be explained by reference to the availability and distribution of suitable horticultural soils and aquatic resources. Unlike the Mississippi Valley, where these important resources are found in close juxtaposition, favored horticultural soils and aquatic resources often have a complementary distribution in the Georgia Piedmont. These environmental differences dictated a somewhat modified settlement strategy for Mississippian peoples of the Piedmont. In this light, variability in the use and function of excavated sites in an archaeologically recognized Mississippian society of the Georgia Piedmont is examined. (5)

Shapiro, P. R. (see Nurkin, G. H.) (16)

Shaw, C. W., Jr., and Mary Bernard-Shaw (Arizona)
1983 Archaeological Research in Southeastern Arizona.

Recent work on the Gila River in southeastern Arizona added to knowledge of Mogollon and Pueblo occupations in a region devoid of extensive research. Excavation near Clifton documented a site of virtually continuous use from an early pithouse phase (AD 300-500) to Pueblo III times. Analysis indicates cultural affiliation, with maintenance of contact through site occupation, with groups to the north. This work helps better understand an acknowledged, yet poorly explained, relationship between prehistoric groups in southeastern Arizona and those to the north. It stimulates new ideas about late Pueblo manifestations in southeastern Arizona termed Western Pueblo or Salado. (18)

Shelley, Phillip H. (Eastern New Mexico)
Enculturation as a Process in the Formation of Lithic Assemblages.

Variation in lithic materials resulting from processes of enculturation are seldom considered in archaeological analyses and interpretations. Archaeologists consistently treat all materials in a lithic sample as the products of adults. Experimental debitage and core data collected over a nine-year period from experienced and inexperienced flintworkers were compared. No one was ever born a flintworker and, like other kinematic-dependent learning experiences, there is a recurrent realm of beginners' mistakes. Results indicate that beginners not only make consistent errors, but that they make more frequent errors and may contribute disproportionately to the archaeological record. (15)

Sheppard, John C., Peter E. Wigand (Washington State), and Meyer Rubin (Geological Survey)
The Marmes Site Revisited: Dating and Stratigraphy Twenty Years After.

Eighteen radiocarbon dates for the Marmes Rockshelter Site (45FR50), located at the confluence of the Snake and Palouse rivers, have been presented in a series of reports, theses, and papers, but have never been analyzed as a group. Some of the reported dates have led to mislead-

ing interpretations in the literature, and some dates have not been reported at all. All relevant stratigraphic data, reports, and correspondence related to these dates were collected in order to analyze them in a coherent manner and relate them to the archaeology, volcanic ashes (Glacier Peak and Mazama), and post-Mazama climatic records for the area. (24)

Shimada, I. (see Cleland, K. M.) (4)

Shimada, Izumi (Harvard)
The Sican Metallurgy and Interaction Sphere.

Recent fieldwork in Batan Grande on the Peruvian north coast documented 17 arsenical bronze smelters dating to Middle and Late Sican (ca. AD 900-1200). They not only represent the earliest identified smelters of this metal in Peru but also attest to the scale and intensity of production by AD 1000. For example, size and shape variability and quantity of "double-T copper money" from Middle Sican funerary contexts are comparable to those from contemporary coastal Ecuadorian cultures. The broader implications of these findings for characterization of the Sican culture, as well as the latter's relationship to Peruvian north highland (source of arsenical ore) and coastal Ecuadorian cultures, are discussed. (32)

Shott, Michael (Michigan)
Forager Mobility and Technological Organization.

Functional requirements of activities do not alone explain variability in the technologies of forager groups. Rather, they are one among a larger set of factors that determine how technologies are organized within cultural systems. Failure to consider these factors can impair interpretations of prehistoric behavior based on analysis of artifact assemblages. One promising avenue of research involves the relationship between technology and settlement mobility. Ethnographic evidence shows that systematic differences in technological organization occur with variability in forager mobility. The implications of this research for archaeology are far-reaching, and they deserve careful future study. (20)

Siegel, P. E. (see Roe, P. G.) (14)

Siegel, Peter E., Melody K. Pope, John Dagostino, and Mulchand S. Rathod (SUNY, Binghamton)
The Effects of Variable Edge Angles on the Process of Microwear Formation.

A study was conducted to evaluate the relationship between tool edge angles and the process of microwear formation. A series of flint wedges with a range of edge angles was manufactured using a rock saw. Experiments were performed in which activity, force, length of stroke, worked material, angle of tool with respect to worked surface, and lithic raw material were held constant. By holding constant these variables and only varying tool edge angle, we were able to monitor the effect of edge angle on microwear formation. The results of the study are presented and implications for interpreting the formation of microwear damage are suggested. (7)

Silvermoon, Jon Massoglia (Willamette National Forest)
Cultural Resources of the Fremont National Forest, South-Central Oregon.

An increasingly rigorous, scientifically based cultural resource management program has inventoried more than 400 prehistoric and 150 historic sites. Preliminary analyses indicate a primarily seasonal use of this upland periphery of the northwestern Great Basin, although evidence suggests the presence of winter villages in four localities, with possible Albert Lake, Surprise Valley, and ethnographic Klamath-Modoc affiliations. Projectile point evidence indicates use of the Sycan Marsh area as early as 11,000 to 8000 BP, with use of other areas beginning between 9500 and 8000 BP. Integration of research questions into future management activities is discussed. (34)

Simek, Jan F. (Washington)
Diversity Measures in Intrasite Spatial Analysis.

Traditional spatial analysis measures the association of artifact classes, assuming that co-occurrence of individual classes reflects behaviorally meaningful relations. Yet, actualistic studies show that complex site formation processes result in the accumulation of many classes in given locations that are related only in their context of disposal. Examination of the content diversity among artifact concentrations from two Upper Paleolithic sites (Pincevent and Le Flageolet) suggested that this may be a better way to measure basic structural characteristics of sites related to multiple formation processes. Two diversity profiles were identified in analyzing these two sites. One is contextually related to hearth features and represents repeated bouts of material deposition into a limited area. The second profile reflects a more limited refuse disposal mode in functionally specific parts of the sites. (1)

Simmons, Alan H. (Kansas) and Gary O. Rollefson (Yarmouk, Jordan)
New Light on Early Neolithic Adaptations in the Near East: Excavations at 'Ain Ghazal, Jordan.

Many modern theories attempting to explain the Neolithic view food production as having occurred within a stressful, marginal environment. Recent excavations at 'Ain Ghazal, Jordan, a Prepottery Neolithic B site, produced data that required reevaluation of some basic concepts. Particularly significant is 'Ain Ghazal's location in a favorable environment with access to abundant resources. The site, three times larger than contemporary Jericho, has yielded abundant data, including some of the earliest known human statues. This paper summarizes these findings and discusses how 'Ain Ghazal will help to better understand the complex processes involved in man's transition to food production. (2)

Simms, Steven (Utah)
Some Expectations About Hunter-Gatherer Foraging in the Great Basin.

General models, clearly linked to theory about how and why behavioral change occurs, can assist with various levels of explanation. Among other things, theoretical models can identify expectations about the form and content of an archaeological record frequently so fragmented that it is composed largely of negative evidence. Here, simple cost/benefit data were cast in a theoretical framework of evolutionary ecology to develop expectations about foraging in the Great Basin. Topics illustrating this perspective include the inception of pine nut utilization and the potential for a year-round, narrow-spectrum hunting adaptation to have developed in the Holocene Great Basin. (28)

Simon, Brona G. and Valerie A. Talmage (Massachusetts Historical Commission)
Planning vs. Crisis Management.

Massachusetts adopted a state preservation plan for both historic buildings and archaeological sites in 1979. This plan was developed as a pilot study under the preliminary resource protection planning process (RP3) outlined by the National Park Service. Since 1979, the Massachusetts plan has evolved in different directions than the formal planning process finally advocated by the National Park Service. Although the structure of planning differs, the benefits of strong state planning for preservation is a fundamental point of agreement between the National Park Service and Massachusetts programs. Implementation of the Massachusetts plan has increased confidence in decisionmaking, reduced crisis management, and allowed the building of an effective preservation constituency. (19)

Singleton, William L. (INFOTEC Development, Inc.)
Lithic Industrial Variability at New Melones Reservoir.

Analysis of lithic assemblages from two prehistoric sites excavated in 1981 defined two previously unknown industries. Each has a typologically distinct biface assemblage and materials which by their nature or abundance suggest unique trade and/or territorial patterns. The industry from 04-Cal-S-347 is an obsidian-based assemblage dominated by Bipoints and dating between Elko and Rosegate times. The assemblage from 04-Cal-S-286, older than 3570+170 BC, contains large percussion-flaked bifaces and is dominated by various scraper types. Neither industry has been described previously in the archaeology of the central Sierra Nevada foothills. Correlations with other areas were attempted, and new territorial and trade models are posited to account for the observed differences. (26)

Slaymaker, Charles (California, Davis)
The Political Development of the Coast Miwok and their Predecessors.

The political development of the Coast Miwok and their predecessors from the ethnographic present into the archaeological past was examined. Only recently have the nature and extent of Coast Miwok political groups been described in detail. Based on archaeological, historic, and ethnographic data, there are indications of increasing social cohesion through time, with smaller, autonomous political groups coalescing to form larger, more complex, sovereign units. This development occurred in conjunction with the intensification of an acorn-based economy, private ownership of natural resources, and sophisticated exchange using clam shell bead currency. (37)

Smiley, F. E. (see Leonard, R. D.) (1)

Smiley, F. E. (Southern Illinois, Carbondale)
The Black Mesa Basketmakers: Preceramic Chronometrics and Site Morphology.

More than 30 preceramic (Basketmaker II) sites dating between approximately 600 BC and AD 100 were excavated on Black Mesa over the last 11 years. This report provides an appraisal of

variability in site morphology and spatial distribution in terms of 130 radiocarbon assays thus far derived from these sites. The large Black Mesa sample of open sites will increase our knowledge of poorly understood Basketmaker II populations who were the Colorado Plateau's first agriculturalists. (18)

Smith, Allan H. (Washington State)
Anadromous Fish and Social Organization on the Columbia Plateau: The Ethnographic Scene.

Three types of societies within the Columbia Plateau can be recognized ethnographically: those in normal seasons with an abundance of anadromous fish within their own territory; those with limited access to such resources through possessing fisheries of but meager productivity, through fishing as visitors in the country of more richly endowed neighbors, or through convenient barter; and those with essentially no anadromous fish in their customary food supply. The social organizational correlates of these three resource environments are suggested and contrasted to the extent the ethnographic data allow. Possible archaeological implications of these data are briefly examined. (23)

Smith, D. (see Tankersley, K. B.) (16)

Smith, Marion F., Jr., and Jo E. Miles (Southern Illinois, Carbondale)
Assessing Function on Southwestern Ceramics: Restorable Vessels from Black Mesa.

The most important factor affecting the general design of ceramic tools is their function. Ethnographic and theoretical considerations allow ceramic correlates of different functions to be stated. The correlates involve such vessel characteristics as shape, marks of use including abrasion and fireblackening, and surface treatment. A sample of more than 500 restorable Anasazi vessels from Black Mesa, Arizona was examined to compare the probable functions of various subsamples of the vessels: vessels contrasted in terms of archaeological context, type, ware, and time period. (18)

Smith, Michael E. (Loyola)
Economic Organization in Postclassic Morelos, Mexico: Changing Patterns of Production and Exchange.

Ethnohistorical sources paint a picture of densely populated, socially-stratified city-states in most parts of Morelos at the time of Spanish conquest. There was widespread use of irrigation in the production of foodstuffs and cotton for both internal consumption and external trade and tribute payment. The archaeological record provides time depth for these patterns and allows the course of Postclassic economic evolution to be traced. From AD 950 until 1519, both excavated and surface data reveal trends of population growth, agricultural intensification, increased textile production, and shifts in external trade orientation. These and other economic developments may be attributed to a combination of local demography, regional political and social changes, and external trade and tribute relationships. (29)

Snow, Dean R. (SUNY, Albany) and William A. Starna (SUNY C Oneonta)
Sixteenth-Century Depopulation: A Preliminary View from the Mohawk Valley.

A principal goal of the Mohawk Valley Project is the examination of demographic changes from preepidemic times to AD 1635, when documentary evidence allows relatively accurate estimates of village sizes and numbers. A variety of favorable conditions allows archaeological access to the problem and raises the probability that this important issue can be argued from more complete data within a few years. Preliminary indications are that the Mohawk were not seriously affected by 16th-century epidemics and suffered less from 17th-century epidemics than some other Northeastern peoples. (12)

Soffer, Olga (CUNY)
Diversity Index as a Measure of Seasonality in Archaeology.

Numerous methods have been proposed heretofore for estimating the season of occupation at archaeological sites. This report offers a modified version of the Shannon-Weiner Diversity Index as another suitable measure. Ethnographic data on seasonal hunting patterns and on the taxa taken by Nunamiut and Ojibwa were used to test the viability of this measure. The index was then applied to the faunal data from 29 Upper Paleolithic sites on the Central Russian Plain. Results indicate that all of the sites were occupied seasonally and that they do not represent year-round occupations. (33)

Solecki, R. L. (see Solecki, R. S.) (2)

Solecki, Ralph S. and Rose L. Solecki (Columbia)
The Pre-Aurignacian of Yabroud (Jabrud) Syria.

A recent attribute analysis of the Yabroud Shelter I collection at the University of Koln, with special emphasis on the cultural materials from levels 15, 13, and 9 (included in Rust's Pre-Aurignacian), yielded some new observations. Levels 15 and 13 appear to be actually an artificial division made by the excavator from a single assemblage. Cultural level 9 is quite distinct from the former, although both contained a very high blade element. (2)

Spaulding, W. Geoffrey (Washington)
Archaeobotanical and Paleoecological Investigations at Archaeological Sites in the New Melones Reservoir Area.

This study incorporates the analyses of fossil pollen, wood and charcoal, and seed floras principally from two sites: the Texas Charley Site (04-Cal-S-286) and the Redbud Site (04-Cal-S-347). The results provide both paleoecological and paleoethnobotanical information. From these arise some insights on the history of natural vegetation during the Holocene, observations on which plant resources were important to humans living in the area, and deductions concerning the ecological effects of localized human disturbance in prehistoric times. (26)

Speelman, Mary Jane (Pacific Lutheran)
An Ethnographic Approach to Understanding the Prehistoric Use of Inter-Tidal Resources at Hoko River.

Ethnographic literature of the Northwest Coast provides information on the use of inter-tidal resources and on the decisionmaking processes which determined such use. Tribal elders confirm the continuity of this exploitation into the present and explain the traditions which affect the decisions. Information from these sources is being entered onto a computerized ethnoarchaeology human-activities file. Use of these computerized data facilitates the interpretation of archaeological remains, since potentially the data reflect the role of inter-tidal resources in the prehistoric subsistence patterns at the Hoko River site complex. (35)

Spencer, Lee (Oregon)
Working Hardwood with Stone Tools: An Atlatl Replication.

Interesting conclusions were reached with regard to stone tool edges when used on a hardwood (Cercacarpus ledifolius). These conclusions refer to the complementary use of retouched and unretouched working edges. Some of the retouched edges were purposely retouched by pressing them against the surface being worked; this form-fit them to the surface. The most important unretouched edges used were fracture faces (generally the ventral/fracture face edge) and flake dorsal ridges. On the basis of this work, it is suggested that the number of flake scars per centimeter may be an important index to the type and stage of work done. This information is presented within the context of stages in the manufacture of an atlatl out of mountain mahogany. (7)

Spickard, Lynda E. (Broome Community College)
Northwest Coast Prehistoric Cultural Dynamics Reflected in Trophic Level Exploitation.

Procedures utilized to reconstruct prehistoric dietary resource abundance have typically focused on individual species availability based on contemporary biomass estimates. It is argued that trophic level exploitation patterns are better indicators of resource availability in situations of increasing cultural complexity. A 6000-year cultural sequence at Namu, British Columbia was examined to evaluate frequencies of individual faunal species and their trophic level relationships as indicators of dietary resource change in relation to cultural evolution. (33)

Stahl, Peter W. (Illinois)
Hallucinogenic Perspectives on Early Valdivia Phase Iconography from Loma Alta.

Early Valdivia phase (3000-2400 BC) ceramic iconography from the Loma Alta Site, Guayas Province, Ecuador was compared with repeated eidetic imagery common to wide-ranging hallucinogenic experiences. The contextual relationships of form and color were examined in relation to recent lowland South American ethnography and the status of psychotropic substances to argue the use of spiritually altering substances in Early Formative stage archaeological context. (4)

Stanford, D. L. (7) (27)

Starna, W. A. (see Snow, D. R.) (12)

Staski, Edward (New Mexico State)
Where and How the Litterbug Bites: Unauthorized Refuse Disposal in Late 19th-Century American Cities.

Urban geographers and others have reached tentative conclusions concerning the nature of trash disposal in unauthorized locations. Patterns of littering appear dependent on several variables, including the size and use of the object discarded, population density and available space for authorized refuse disposal, and the general visibility of all refuse. This paper explores the nature of littering in late 19th-century American cities. It is suggested that research designs which limit excavation to known, authorized disposal contexts, e.g., privies and trash pits, very likely disallow the recovery of specific artifact assemblages representative of specific urban behaviors. (14)

Steele, D. G. (see Carlson, D. L.) (27)

Steele, D. Gentry and David L. Carlson (Texas A&M)
Taphonomy of Mammoth Remains at Duewall-Newberry Site, Brazos County, Texas.

Remains of a Mammuthus columbi have been recovered from a Late Pleistocene point bar of the Brazos River. Noteworthy are the distribution of the remains and the presence of long bones broken when fresh. The fine sands of the point bar and the overlying clays indicate that the river did not break or significantly distribute the bones. The presence of more fragile and complete bones indicates that compaction and sediment creep were not the cause of disturbance and destruction. Based on the pattern of breakage and the selection of long bones broken, it is suggested that the major taphonomic agency was man. (27)

Stein, Julie K. (Washington)
Interpreting the Stratigraphy of Northwest Coast Shell Middens.

Shell middens result from the activities of prehistoric people collecting shelled animals and disposing of the remains in heaps. Because the shells were discarded with organic remains, animal bones, tool fragments, and other cultural debris, every midden has a unique composition. On the Northwest Coast, many middens are composed of the same two strata: a dark organic-rich layer (6.7% organic matter) with 50% shell-derived carbonate and a lighter colored layer (2.9% organic matter) with more abundant shell (75% carbonate). The dark and light layers observed in so many middens result from similar subsistence activities that changed at some time in the past. (24)

Stephen, David V. M. (Pima Community, Arizona)
Microcomputer-Aided Proton-Magnetometer Data Collection and Intrepretation.

Manual data recording and interpretation of proton-magnetometer data is a labor-intensive procedure. To expedite this process, a hand-held computer (Hewlett-Packard 41cv) was used to record field magnetometer data coordinates. This information can either be stored or transferred to a field computer (Hewlett-Packard 85). Base magnetometer readings are also transferred to the field computer at the end of each day. More than 3200 readings can be collected in a day. Output is either in numeric or graphic form. No additional manual entry of data is required and turnaround to output is about one hour. (16)

Stevenson, Marc G. (Prince of Wales Northern Heritage Center)
Male/Female Activity Differentiation in Prehistoric Hunting Societies.

Patterning across several densely occupied living surfaces at the Peace Point Site, a rapidly buried and deeply stratified workshop/habitation site in northern Alberta, is suggested to result from activity differentiation between men and women in prehistoric hunting societies. Specifically, the lack of spatial congruity between biface/projectile point resharpening debitage and finely crushed bone (remains likely relate to the repair of hunting equipment and production of bone grease/soup, respectively) led to recognition of other patterns that would be expected to monitor role differences between men and women in hunting societies. These expectations form the basis of a model which was tested independently (with data from Port Refuge in the high Arctic) and found to be supported. Broader implications of the model are discussed. (15)

Stewart, R. Michael (Berger and Associates, Inc.)
South Mountain Metarhyolite: A Perspective on Prehistoric Trade and Exchange in the Middle Atlantic Region of the Eastern United States.

The appearance of metarhyolite artifacts and raw material on archaeological sites in the Middle Atlantic serves as one means of evaluating prehistoric trade and exchange through time.

Primary sources of the material are limited to a relatively small area of the Blue Ridge physiographic province of Maryland and Pennsylvania. Metarhyolite is easily identified by macroscopic features, is not readily mistaken for other lithic types, and is referenced in archaeological literature dating from the 19th century. Artifacts fashioned from the material occur in Early Archaic through Late Woodland contexts (ca. 8000 BC-AD 1600), several hundred miles from primary sources. Analysis of geographic distributions of artifacts, frequencies of occurrence, intra-site contexts, and the types of artifacts fashioned from metarhyolite is the basis for characterizing the nature and extent of prehistoric trade and exchange in the region. (9)

Stoltman, James B. (Wisconsin)
Petrographic Ceramic Thin-Section Analysis as a Quantitative as Well as Qualitative Technique.

While well known in principle, petrographic ceramic thin-section analysis, in practice, has yet to realize its full potential in the service of archaeology. Best known for its capacity to identify mineral inclusions in ceramics, petrographic analysis can provide invaluable quantitative data as well on ceramic paste characteristics. Using a point-count technique on sherd samples from Wisconsin, Illinois, and the Mimbres Region of New Mexico, quantitative along with qualitative data on ceramic paste variation are shown to be relevant to making behavioral sense of within-site and between-site ceramic paste variation, especially the respective roles of function, style, and regional interaction. (16)

Stone, Jane (Montana State)
The Organization of State Production in Major Sites from Four Andean States.

Labor recruitment strategies and spatial organization of state-level population activities have been reported for four major prehistoric sites belonging to temporally and spatially distinct Andean states: Huanuco Viejo (Inca), Chan-Chan (Chimu), Huari (Huari), and Pampa Grande (Moche). Each site appears to exemplify unique organization of production. All were compared for relative size of buildings devoted to specific activities, relative position of buildings for each activity, access restrictions, and labor recruitment. A general pattern of spatial and labor recruitment principles for state production within large-scale sites (cities) in Andean States is hypothesized. (4)

Story, D. A. (5)

Stothert, Karen E. (Texas, San Antonio)
A New Look at Guangala Society and Economy.

The Guangala sociopolitical organization and economy (200 BC-AD 600) in southwestern Ecuador are described. The Guangala people may have been organized in very small chiefdoms which were much influenced by more hierarchical political systems in neighboring regions. Guangala economy involved non-intensive agriculture, fishing, crafts, and trade of items including luxury goods. The evolutionary stability of human adaptation in southwestern Ecuador is noted, and a speculative history of the evolution of chiefdoms in the region is attempted. (32)

Stuckenrath, R. (see Donahue, J.) (17)

Stucki, Barbara R. (Washington State)
Evaluaitng Activities at a Northwest Coast Shell Midden Site Using Renewal Processes.

Type and frequency of site activities were reconstructed using a stochastic renewal process model of site formation. This model was used to examine the variable quantities and types of cultural remains found in more than 1000 layers of shell midden at the Hoko River Rockshelter, Olympic Peninsula, Washington. These remains were deposited as a result of activities that occurred with unpredictable frequency and duration. The probability of occurrence of specific midden constituents was calculated to determine the probability density distribution of different activities. Variations in the rate of occurrence of different deposits are examined to assess changes in site use. (24)

Stutzman, E. (see Ross, R. E.) (16)

Sullivan, Alan P. (Arizona State Museum)
Fire Ecology and the Evolution of Food Production in the American Southwest.

Theories and hypotheses regarding the origin and development of food production in nondesert portions of the American Southwest were reviewed. From an evolutionary perspective, it is argued that they have not satisfactorily described how food production arose and became incorporated in hunting and gathering economic systems. A new model, based on the ecological con-

sequences of systematic burning, is offerred to account for the appearance and slow adoption of food production in the prehistoric Southwest. Among others, a major effect of burning is to produce a set of exploitable plants whose productivity can be enhanced with no change in prevailing technological, economic, and settlement systems. The evidence for this model is discussed, and implications for understanding Southwestern food production evolution are described. (1)

Sutro, Livingston D. (Arizona)
When the River Comes: Refuse Disposal in Diaz Ordaz.

A major concern of modern archaeology is refining the reasoning process involved in transforming static archaeological facts into past dynamic activities or processes. In the spirit of this "middle range theory" construction effort, this paper is offerred. Data for the paper derive from fieldwork performed in the village of Diaz Ordaz, Oaxaca, Mexico through observation and interview in 1981. The presentation covers the different kinds of refuse, means of disposal, extent of reuse, durability of activity traces, and the possibilities for activity identification from village refuse. (14)

Suttles, W. (23)

Sutton, Mark Q. (California, Riverside)
Late Prehistoric Social Organization in the Western Mojave Desert, California.

The late prehistoric period (post-2200 BP) in the western Mojave Desert is complex and has been extensively investigated, although results of this work is poorly represented in the literature. The social systems of the late prehistoric period exhibit complexity beyond those known for the ethnographic period and atypical for the western Great Basin. These systems are examined diachronically and their relationship to the economic, settlement, and ecological systems are discussed. (10)

Swagerty, W. R. (12)

Sydoriak, Kathleen Allen (SUNY, Buffalo)
Trends and Filters: An Examination of Pattern Recognition at the Site Level.

Archaeologists are concerned with the recognition and identification of patterns in the archaeological record. However, patterns can always be found, and it is crucial that meaningful patterns reflecting actual behavior be distinguished from "noise" resulting from post-depositional events. This paper details the specific application of trend surface analysis to a small site in western New York. Several filtering techniques were utilized to smooth the data, and interpretations are permitted based on the underlying distributional patterns at the site. (30)

Szuter, Christine R. (Arizona)
Small Sample Sizes in Faunal Interpretation: Building Blocks of a Regional Analysis.

One major assumption in the zooarchaeological literature is that a large sample size of bones (2000 or more) is required for adequate analysis. While many sites yield such quantities, the majority of southwestern Hohokam sites do not. Zooarchaeologists in this region therefore face the problem of basing their interpretations on relatively small sample sizes of faunal material. This paper argues that researchers can produce more than expanded "laundry lists" from small samples of bones. An approach emphasizing intra- and intersite variability is advocated, one which incorporates the analysis of Hohokam faunal remains into a regional economic framework. (33)

Tainter, Joseph A. (Forest Service)
Regional Diversity and Interaction Spheres in the Northern Southwest.

Cultural diversity in the region of the San Juan Basin was investigated in the context of environmental diversity, resource fluctuations, and sociopolitical networks. From the Archaic through Puebloan periods, alliance systems and interaction spheres served to link widespread populations in production, exchange, and consumption networks of a regional scale. The evolution of these systems can be traced from egalitarian reciprocity to hierarchical management and ultimately to collapse. (1)

Talmage, V. A. (see Simon, B. G.) (19)

Tankersley, Kenneth B. and Cheryl Ann Munson (Indiana) and Donald Smith (CAIS)
Coal Contamination: Possibilities, Probabilities and Occurrences.

Coal (C12) has been suggested as a contaminant in radiocarbon samples from some archaeological sites. Chemical and physical weathering of coal releases microscopic particles and coal volatiles which are dissolved in and transported by groundwater. The affinity of charcoal for organic contaminants necessitates recognition of mechanisms that transport coal (C12) atoms and those that result in admixtures of coal and charcoal. Hydrogeologic processes by which bedrock, alluvial, and anthropogenic coal contaminants reach radiocarbon samples were investigated through percolation replication experiments, groundwater dye tracing, and scanning electron microscopy. Radiocarbon dating of several archaeological sites in the eastern United States is discussed. (16)

Teague, Lynn S. (Arizona)
The Changing Role of Exchange in Hohokam Economy.

Using data from the Salt-Gila Aqueduct Project in conjunction with information from previous studies, it was possible to systematically evaluate distributions of non-local commodities in Hohokam habitation sites. These distributions provide evidence of significant change in systems of exchange, beginning by the Sedentary period and continuing through the Classic period. The development of networks centered on platform mound sites is indicated. This is associated with evidence of increased specialization in crafts and agricultural products. Some implications for the development of Classic period organization are examined. (36)

Thomas, D. H. (28)

Thomas, David Hurst (American Museum of Natural History)
Diversity in Hunter-Gatherer Cultural Geography.

Only recently have archaeologists given even passing thought to the meaning of assemblage size and assemblage diversity in the archaeological record of hunter-gatherers. Although it is now generally agreed that these sites can be grouped along a residential-logistic continuum, there is virtually no agreement on how these terms can be provided with operational definitions. Too often, archaeologists view big sites as base camps, small sites as "task-specific loci", or (even worse) "temporary chipping stations". This simplistic equation between assemblage size and presumed settlement functions is particularly apparent in CRM studies, but contract archaeology is hardly the only offender; the problem pervades some of the more methodologically sophisticated endeavors as well. This paper explores the relationship between assemblage size and assemblage diversity, and suggests more concrete ways of linking the behaviorally viable with the archaeologically visible. (1)

Thompson, Dean M. (Soil Conservation Service) and E. Arthur Bettis, III (Iowa Geological Survey)
Correlations of Alluvial and Archaeological Stratigraphy in the Middle Missouri Basin.

Holocene alluvial stratigraphy in the Middle Missouri River Basin is the subject of ongoing study. Six major episodes of erosion and sedimentation are recognized within a sequence of alluvial fills with distinct lithologic, pedologic, and stratigraphic properties and characteristics. Absolute and relative dating methods establish that alluvial fills are time-synchronous in drainages of similar order or size. This chronologic and stratigraphic framework is used throughout the region to locate, date, and correlate buried archaeological deposits and to explain discontinuities in the distribution of time-sequences of the Holocene archaeological record. (22)

Thompson, K. (see Morris, E. A.) (17)

Toll, H. Wolcott (National Park Service Chaco Center)
The Ethnography and Archaeology of Large Gatherings with Regard to Chaco Canyon.

Discontinuities among projected population, quantities of faunal and ceramic remains, and span of deposition raised the prospect of periodic large gatherings in Chaco Canyon during the period AD 1000-1050. Limited Southwestern and Mesoamerican ethnographic information on markets, fairs, and large ceremonial gatherings was briefly reviewed in order to assess the materialist functions and conceivable archaeological manifestations of such events. The combination of depositional characteristics, architectural features, and the environmental necessity for the movement of goods in Chaco suggests that such gatherings may have been an integral part of the adaptation to the San Juan Basin. (18)

Tomka, Steve and Raymond Mauldin (Texas, Austin)
Experimental Lithic Reduction as a Guide to Behavioral Inferences.

Previous studies which have dealt with the identification of lithic reduction sequences have yielded contradictory results, a fact potentially related to inadequate control of intervening variables. This paper reports a study designed to correct this problem. Debitage from a series of

carefully controlled core reductions was used to evaluate variables frequently employed in lithic analysis. A preliminary model was developed which may allow an effective estimation of reduction stages under certain conditions. (16)

Tonetti, Alan C. (Ohio Historic Preservation Office)
Quality of Data, Resource Types and Significance Criteria in RP3 Ohio.

RP3 is forcing State Historic Preservation Offices to reexamine their approach to the identification, evaluation, and treatment of archaeological resources. In Ohio, such reflection has been most successful in exposing severe problems with the quality of the existing data base, the categorizing of resource types, and the development of local criteria by which significant resource determinations can be adequately justified. Similar problems occur in other states, and Ohio's planned response to the inadequacies of prior historic preservation planning exposed by RP3 is presented. (19)

Turnbaugh, William A. (Rhode Island)
Sociocultural Significance of Grave Goods from a 17th-Century Narragansett Cemetery.

This paper offers an analysis and interpretation of grave goods recovered from a mid-17th-century Narragansett Indian cemetery in Rhode Island. Stylistic attributes of several classes of European artifacts from the site yielded chronological information and also indicated the tribe's active participation in international trading systems. Functional and contextual analyses of the artifacts helped document the acculturation process among the Narragansetts. A study of overall artifact distribution patterns and individual grave lot associations augments ethnohistorical accounts and skeletal data to reveal some aspects of the internal chronology and sociocultural structure of the cemetery. (13)

Upham, Steadman (New Mexico State)
Adaptive Diversity and Southwestern Populations at Contact.

During the last several decades, anthropologists have generated estimates of aboriginal populations in the Southwest at contact that are relatively low compared to other areas of the New World where groups were sedentary and relied on agriculture. More recent research has challenged the notion of historically low population estimates both at contact and during the immediately preceding protohistoric period. This paper explores the reasons behind discrepancies in population estimates and attempts to resolve the controversy by focusing on differences in Southwestern adaptive strategies. It is argued that initial population reconstructions are too low because they do not incorporate a large number of mobile groups. (12)

Urton, Gary (Colgate)
Social Organization and Public Architecture in Pacariqtambo, Peru.

This paper explores the relationships between social organization and public architecture in the community of Pacariqtambo. Since the late 17th century, one of the principal means for maintaining and reordering the hierarchal relations among the ayllus and moieties of Pacariqtambo has centered around the performance of communal labor in the repair of an adobe wall surrounding the church. The church wall, which is divided into strips of ritual territory, serves as a historical model of the interaction among the ayllus and provides a context for the reorganization of social relations and ritual within the community. (32)

Valdez, F., Jr. (see Potter, D. R.) (29)

Valdez, F., Jr. (see Reese, K. V.) (29)

Van Bueren, Thad M. (INFOTEC Development, Inc.)
Archaeological Implications of Central Sierra Miwok Ethnohistory: A Case Study of Assembly Houses.

Contacts between the Central Sierra Miwok and Euroamericans were examined using ethnographic and historic accounts. Special attention is given to sociocultural changes that have archaeological manifestations in the New Melones project area. Changes in the construction and use of assembly houses provide an informative example. The transition from semi-subterranean, earth-covered structures to above-ground plank and shingle houses reflects changes in architectural competence, a shift from religious to secular uses of such structures associated with the decline of Miwok religious life, and progressive integration into the Euroamerican economic system. These themes are illustrated with archaeological data. (26)

van Gijn, Annelou (IPP, Amsterdam)
How Fish Might Not Have Been Cleaned.

Since it is known from archaeozoological data that fish continued to play an important role as a subsidiary resource in Neolithic subsistence strategies in coastal Holland, various species of fish were cleaned experimentally with flint tools. However, no archaeological parallels to the resulting type of wear could be determined on the flint assemblages from four Dutch Neolithic sites associated with preserved fish remains. The possible explanations for this absence are discussed, and suggestions are made for further experiments with fish following ethnographically known fish preparation techniques. (7)

Varien, Mark (Dolores Archaeological Program)
A Replication of Early Anasazi Surface Rooms.

To estimate the labor and raw material investments needed for construction and maintenance, Anasazi Pueblo I period surface rooms were replicated using local raw materials. Forms of the experimental structures and the materials used in construction were based on archaeological analogues from the Dolores Archaeological Program and from examples reported in the literature. After construction, use of the facilities was simulated by placing foodstuffs in the storage rooms and by firing a hearth in the living room. Data related to the internal winter environment of Pueblo I surface structures and the fuel resources needed to heat surface rooms were gained during the study. (3)

Vierra, Bradley J. and William E. Doleman (New Mexico)
The Organization of the Southwestern Archaic Settlement-Subsistence System.

The organization of the Southwestern Archaic settlement-subsistence system is discussed in terms of Binford's (1980) foraging/collector model. It is argued that the Archaic system was organized like the Shoshonean system, which is characterized by a summer/fall foraging organized strategy and a collecting organized strategy in the winter. Summer/fall is represented by residential moves to areas for seed gathering and hunting activities, and winter by living off stored foods in conjunction with logistical trips out from the residential site. Data from Archaic sites in the San Juan Basin of northwestern New Mexico are presented. (28)

Vierra, Robert K. (Nevada, Reno)
Hierarchical Decisionmaking Processes: A Systemic Model.

In arid and semi-arid environments, climatic change such as drought is often invoked as an explanatory model for culture change. Such models tend to be univariate in causation. This paper argues that a systemic approach that entails hierarchical decisionmaking processes has greater explanatory power than univariate causation models. Sociocultural systems are more than a complex of variables directly or indirectly related in a causal network; they all are responsive to environmental limiting factors. As such, systemic variables can be ranked in order of importance based on Liebig's law of the minimum. (15)

Vokes, Arthur and Patricia Crown (Arizona)
A Reexamination of Prehistoric Exchange Patterns in Southern Arizona.

Artifacts recovered in prehistoric Southwestern sites demonstrate the long-distance movements of specific types of goods into and out of the Hohokam area in southern Arizona. The distribution of marine shell and intrusive ceramics in Southwestern sites reveals patterning in the direction in which objects of exchange moved from source to destination. Trails documented or reconstructed from historic and ethnographic information may have had a long history in this area. The place of the Salt-Gila Basin Hohokam in regional exchange networks changed through time. A reconsideration of some of the traditionally held views of Southwestern exchange patterns is indicated. (18)

Voytek, Barbara A. (California, Berkeley)
Redistribution of Resources in Neolithic Southeast Europe.

Redistribution systems are an important part of a society's production process. As such, changes in the nature of such systems are basic to the analysis of socioeconomic change. This paper examines the nature of redistribution systems involving stone resources during the Neolithic in Southeast Europe. A model is presented which focuses on the social context of exchange and the dialectics of exchange relationships. Recent data from two Neolithic sites in Yugoslavia were used to test the model. The paper links the modeling of redistribution systems with the analysis of artifactual remains. (2)

Waddell, C. and J. Fountain (SUNY, Buffalo) and M. Aldenderfer (Northwestern)
Calcium Diffusion: A Preliminary Report on a New Dating Technique.

Investigation of calcium migration across clay-cement interfaces in building bricks and other similar artifacts ranging in age from approximately 6800 to 3800 BP found that apparent calcium

diffusion coefficients in the samples' clay layers are equivalent in all of the artifacts studied to date. Consequently, the age of the samples may be estimated from the distance that the calcium migrated from the cement to the clay. Artifacts studied during these preliminary analyses include mud brick, fired clay brick, and mortar samples from sites in diverse environments ranging from temperate western New York to arid Bronze Age samples from Israel. That the diffusion coefficient was equivalent across these samples from very different environments and time periods suggests that the technique holds considerable promise for the development of a new dating technique. The results of ongoing development of this technique are presented. (16)

Wallace, Ronald L. (U Central Florida)
The Evolution of Deviance.

Prehistorians have been largely concerned with discovering the norms of the past. Recently, vigorous emphasis has been placed on explaining change in the norms, especially with regard to ecological factors. For theoretical-historical reasons, there has been little paralleling emphasis on prehistoric systems of norm violation. The material record of archaeology may shed some light on this issue. The relationship of lithic technology to cognitive-perceptual processes suggests a Pigetian model for the evolution of the deviant "mind". (15)

Wandsnider, L. (see Ebert, J. I.) (38)

Watson, Richard P. (San Juan)
The Nature and Function of the Chicama Valley Irrigation System.

The controversy on the nature and function of the Chicama-Moche Intervalley Canal (Ortloff, Moseley, and Feldman 1982, 1983; Pozorski and Pozorski 1982; Farrington 1983) was evaluated with respect to the larger Chimu, Chicama Valley irrigation system. Recent investigations of the north bank irrigation systems shed important light on Chimu agricultural technology and planning. Analysis and comparison of construction methods and building sequences suggests that a major agricultural project was undertaken by the Chimu on the north bank of the Chicama River at approximately the same time as the collapse of the Chicama-Moche Intervalley Canal. (4)

Waugh, Georgie (California, Davis)
California Hunter-Gatherers: From Subsistence to Production.

Past and current discussions of hunting and gathering complexes in prehistoric California have focused on ecological and typological comparisons between alternative adaptive strategies. It is proposed that within the context of the "affluent forager", such as many societies in aboriginal California seem to represent, analysis of the production process can provide better insights into the emergence or non-emergence of cultural complexity. Ethnographic and archaeological data from California are evaluated from this perspective. (37)

Webster, Gary S. (Penn State, Mont Alto)
Paleoeconomy in West-Central Sardinia: Interim Reoprt.

Faunal studies provide an important data base for reconstructing paleoeconomies in the western Mediterranean. Archaeofaunal remains excavated from Nuragic Culture villages in the Macomer region of west-central Sardinia by Pennsylvania State University provide preliminary evidence for percentages of species in the diet, stock ratios, slaughter and butchering practices, patterns of meat distribution, and stock management and land-use practices during the Iron Age (900-500 BC), Punico-Roman (238-44 BC), and Roman (AD 217-321) phases of occupation at Nuraghe Toscono. (2)

Weir, G. H. (see Benfer, R. A.) (4)

Welch, Pat and Tirzo Gonzales (Bureau of Land Management).
Archaeology and Prescribed Burns: Heat Treatment Without Heat.

If you cannot see the sites because of dense chaparral cover, then you may need a prescribed burn! Conflicts arise between the need to identify archaeological sites and the inability to conduct surveys because of dense ground cover. This paper presents experimental data regarding an assessment of the impact of prescribed burns on archaeological sites. Two artificial sites were created and burned, one at wildfire temperatures and another under prescribed burn conditions. Temperatures were monitored using an electronic device. Results of these studies have implications for areas outside southern California. (1)

Wessen, Gary C. (Kirkland, Washington)
Shellfish Seasonality, Selection and Starvation Resources.

Seasonality and size class distributions for 110 Littleneck clams (Protothaca staminea) from late prehistoric deposits at the Ozette archaeological site indicate that this animal was collected throughout much of the year and that size class selectivity varied seasonally. Therefore, its use as a food resource was not confined to episodes of starvation or low terrestrial productivity. While late winter-early spring collection was relatively unselective of size and may reflect starvation use, clam harvesting during late spring and summer, which clearly emphasized the larger individuals, was probably associated with the preparation of dried shellfish meat. (33)

West, G. James (Bureau of Reclamation)
Holocene Vegetation Changes in the North Coast Ranges, California: The Pollen Record.

Six pollen profiles from California's North Coast Ranges provide complementary evidence of Holocene vegetation change. Within that record, four pollen zones are equated with various shifts in climatic conditions. The data support a warm, mid-Holocene period with temperatures 1-2° C warmer than today and the development of present-day vegetation patterns within the last 3000 years. Two minor, short-term fluctuations in the record are suggested as having been the result of past fires. This climatic-vegetation variability has obvious implications for California prehistory, but the interrelationships between culture and environment must be explored cautiously. Too frequently, archaeologists fail to evaluate the type or extent of vegetation changes and, thereby, ultimately misrepresent the nature of prehistoric culture change. (37)

Whalen, Michael E. (Tulsa)
Middle Formative Household Evolution in Oaxaca, Mexico.

Early Formative households have received considerable attention in Oaxacan archaeology, much less is known about their Middle Formative successors. It has been assumed that Early and Middle Formative households involved the same sorts of nuclear family groups. Reexamination of old and new data indicated that this characterization may not be valid. Household construction and mortuary data are used to argue that residential groups were becoming larger and more formally defined throughout the Middle Formative. Rather than simply continuing the Early Formative pattern, Middle Formative households functioned in the formation of new and more complex linkages between the individual and society. These new linkages were required by the increasing size and complexity of Middle Formative societies. (29)

Whitley, David S. and Ronald I. Dorn (California, Los Angeles)
Chronometric-Age Determinations of Surface Artifacts from Lake Mohave, California.

Age determinations of surface artifacts from the Lake Mohave region, based on cation-ratio dating of rock varnish, are presented. Samples from the Baker Site, considered on typological grounds to date from the hypothetical Pre-Projectile Point horizon, are shown to be Archaic in age. Although certain cation-ratio dated tools from the region are Pleistocene in age, the results of this study allow for a reassessment of the chronological placement of certain California desert lithic industries and a reappraisal of the evidence for a Pre-Projectile Point horizon in this area. (16)

Whittaker, John C. (Arizona)
Individual Variation in Flaked Stone Tools: Projectile Points at Grasshopper Pueblo, Arizona.

The ability to trace the products of individuals in the archaeological record can enhance our knowledge of economic and social structures. Ethnological and experimental information combined with archaeology are necessary to study individual stylistic variation. Projectile point sets from burials at Grasshopper Pueblo were examined using dimensional attributes and also attributes that describe patterns of flake scar orientation. Point sets were internally consistent and readily separable using both kinds of attributes. The attributes were tested using point sets replicated by five modern knappers. Similar results support the conclusion that such attributes do distinguish individuals. A few conclusions regarding the nature of individual variation and craftsmen at Grasshopper can be drawn. (40)

Wigand, P. E. (see Sheppard, J. C.) (24)

Wilcox, D. R. (3)

Wilcox, David R. (Tempe, Arizona)
Frank Midvale's La Ciudad Excavations.

Frank Midvale's excavations at the Hohokam site of La Ciudad in Phoenix are described. Data on file at the Mesa Museum revealed the complex stratigraphy of the first Hohokam platform mound professionally explored (in 1927-1928), as well as settlement patterns within the site and their relation to nearby canals and sites. The surprising depth of late Pioneer and Colonial period deposits suggests that population in the Salt River Valley was greater at that time than pre-

viously thought. The early Classic was a time of settlement reorganization and mound construction. A sequence of construction on top of the mound culminated in a large Civano phase room block. (36)

Wilde, James D. (Oregon)
Hunter-Gatherer Settlement and Subsistence in the Northern Great Basin: A Reevaluation of Cave and Surface Collections from University of Oregon Expeditions in the 1930S.

The large collections of artifacts from cave excavations and surface collections made during the 1930s provide opportunities to refine a mathematical projectile point typology, produce a local chronology based on this typology, and reconstruct stratigraphic locations and develop components within excavated cave sediments. These procedures allow interpretations of both intra- and intersite activity sets, as well as provide the bases for comparisons between these sites and those recorded during the recently completed Steens Mountain Prehistory Project. (10)

Wildeson, L. G. (Plenary Session)

Williams-Dean, G. (see Mallouf, R. J.) (19)

Willig, Judith A. (Oregon)
Paleogeomorphic Setting of a Clovis Site in Southeastern Oredon.

Preliminary archaeological investigations at the Dietz Site (35LK1529) yielded more than 50 Clovis artifacts, which occur on or near the surface in a kilometer-long zone on the shoreline of the Pleistocene predecessor of Alkali Lake in southeastern Oregon. Based on excavations, as well as topographic and aerial photo studies, the geomorphic position of the site is described and related to prominent late-Pleistocene and neo-pluvial high stands. Analysis of site-specific depositional history and reconstruction of the paleogeomorphic setting help to explain the distribution, condition, and context of recovered artifacts. (24)

Wilshusen, Richard H. (Dolores Archaeological Program)
Engineering Early Anasazi Structures.

Several catastrophically burned Pueblo I pitstructures and surface structures excavated as part of the Dolores Archaeological Program provided the archaeological data for reconstructions of Pueblo I architecture. A recent firing of a modern pitstructure provided an analogue with which the archaeological data could be compared. The reconstructions were then evaluated using basic architectural engineering principles. The results of this evaluation showed that there are a number of structural regularities, as well as a number of previously unknown constraints, in Pueblo I architecture. An understanding of these regularities and constraints obviously helps in any reconstruction of the society that lived in these structures. (3)

Wilson, J. H., Jr. (see Dickens, R. S., Jr.) (1)

Winkler, Carol J. (Willamette National Forest)
A Site Location Analysis for the Middle Fork of the Willamette Watershed.

All sites recorded before 1983 within the Middle Fork of the Willamette Watershed (primarily those within the Lowell, Oakridge, and Rigdon Ranger Districts of the Willamette National Forest) were analyzed according to the relationship between geomorphic and other physical features of the environment, as well as specific site characteristics (size, artifact types, and artifact materials). The computer analysis (SPSS) was designed to determine features of the environment which may be related to the locations of prehistoric sites, as a preliminary step toward formulating a predictive model for site location in the Willamette National Forest. (34)

Winters, H. D. (see Pickman, A.) (5)

Winters, Howard D. (New York U)
Chert Identification and the Interpretation of Prehistoric Social Systems.

Data from Paleo-Indian sites in Illinois and sites of the Middle Woodland Havana, Crab Orchard, and Allison traditions show that the role of exotic cherts varied. Their presence in Paleo-Indian sites in western Illinois are best explained in terms of a settlement system involving seasonal movements along a north-south axis. Middle Woodland lithic procurement was primarily a secular activity involving several considerations, ranging from the acquisition of chert as wealth, as an essential raw material, or even as a luxury item. However, mortuary linkage is rare. (9)

Winthrop, Kathryn (Winthrop & Winthrop)
Archaeological Assessment of a 19th-Century Oregon Farmstead.

Hanley Farm, Jacksonville, Oregon has been occupied from the 1850s to the present. Now

owned by the Southern Oregon Historical Society, the farm will be developed as a "living history" museum for public education in the prehistory and history of Jackson County. In 1983, an P + archaeological assessment conducted preliminary to further development of the site revealed prehistoric as well as historic remains. This paper presents data from the study, and makes suggestions for extending the role of cultural resource management in the private sector. (6)

Wolf, P. (see Gross, G. T.) (3)

Wren, Linnea H. (Gustavus Adolphus) and Peter Schmidt (INAH)
A Sculptured Stone from the Great Ball Court, Chichen Itza, Mexico.

A stone monument from Chichen Itza was recently located in the storeroom of the Merida Museum by Peter Schmidt. The presence of two scenes depicting human decapitation and of a hieroglyphic inscription was recognized by Linnea Wren in August 1983. The hemispherical stone was discovered in 1936 during the INAH investigation of the Great Ball Court. Despite its importance, no photographs or drawings of the stone were published and no direct study of the stone was undertaken. This paper will illustrate the ball court stone and discuss its significance, particularly in the context of recent theories that peoples of different cultural traditions may have occupied Chichen Itza in overlapping time periods. (29)

Yellen, J. E. (37)

Yellen, John E. (National Science Foundation)
Hunter-Gatherer Resource STrategy in the Northern Kalahari.

The !Kung, a Khoisan-speaking group in the northern Kalahari of Botswana and Namibia, followed primarily a hunting-gathering way of life. Data collected by a number of observers has been synthesized to permit conclusions which pertain to both short and longer range resource utilization strategy. These in turn affect settlement pattern and the pattern of debris available for potential incorporation into the archaeological record. Data call into question the applicability of optimal foraging strategy models to the northern Kalahari and by implication to other semi-arid environments as well. (28)

Yesner, David R. (Southern Maine)
Intensification of Anadromous Fishing and Settlement Pattern Change in the Northeastern United States.

Atlantic salmon and other anadromous fish became established in northeastern United States rivers in early Holocene times, in response to a variety of geomorphological changes. The opening up of this ecological niche, coupled with a decline in the productivity of other fauna, forced human populations into competition for this important resource. This change is reflected in increases in numbers of sites and diversity of lithic assemblages, as well as in settlement pattern shifts in critical zones for anadromous fishing. Confounding the analysis of these patterns is the development of "landlocked" salmon and catadromous fisheries. (23)

Zeidler, James A. (Politecnica del Litoral, Ecuador)
Settlement Structure at Real Alto: Implications for Cosmology and Social Organization in Valdivia Society.

This paper analyzes aspects of community plan and domestic proxemics at the Early Formative Valdivia site of Real Alto (southwest coastal Ecuador) as a basis for inferring certain cosmological and social organizational principles which may have determined the site's rigid spatial configuration, especially during the Phase 3 occupation. A specific analogical argument is presented which compares Real Alto's settlement structure with that of the Ge-Bororo groups of central Brazil. It is argued that the Valdivians shared certain organizational principles common to many South American societies and that their archaeological definition is largely specifiable and testable. (32)

Zontek, Terry (Bureau of Reclamation)
Aboriginal Fishing at Seal Rock and Neptune: Late Prehistoric Sites on the Central Oregon Coast.

Analysis of fish remains from two late prehistoric sites on the central Oregon coast, Seal Rock (35-LC-14) and Neptune (35-LN-3), indicate significant differences between prehistoric subsistence practices and available ethnographic descriptions. The effects of the screen mesh size employed during excavation and the potential problem of fish sample contamination by the stomach contents of sea mammals butchered on site and other variables can seriously affect the archaeological interpretation of fish remains from coastal sites. (33)

Zubrow, Ezra (SUNY, Buffalo)
The Applications of Fourier Analysis to Periodic Patterns in Archaeology: A Northeastern Example.

Archaeological information such as thickness of cultural deposits or intra-site spatial distribution of artifact density often takes the form of signals which may be viewed as being composed of three parts: a trend in the average value of the signal, periodic or cyclic components, and a random noise component. This paper demonstrates the value of Fourier analysis in extracting the dominant periodic patterns. Applications are demonstrated on the spatially periodic character of activity areas and habitations in the Martin Site and other Northeastern sites. (30)

Zukosky, A. William, Jr. (Willamette National Forest)
Cultural Resource Management and the Willamette National Forest.

Archaeological test evaluations were conducted on 46 prehistoric sites during the 1982 and 1983 field seasons to determine the eligibility of the sites to the National Register of Historic Places. Full-scale excavations for data recovery were conducted on two of those archaeological sites. The results of these excavations suggest that peoples from the Willamette Valley and the Great Basin were inhabiting the central Cascades on a seasonal basis. This seasonal occupation can be dated to at least 8000 BP. The hypothesis of year-round occupation of the Cascades is discussed. (34)

INDEX OF EXHIBITORS

The Portland Hilton Hotel
Exhibit Area—Parlors A, B & C