Society for
American Archaeology

52nd ANNUAL MEETING
May 6–10, 1987
Royal York Hotel—Toronto

PROGRAM AND ABSTRACTS
ETHNOLOGY MONOGRAPHS

The James A. Ford Library of Anthropology

Florida Museum of Natural History, Anthropology Division

Gift of: Dr. Kathleen A. Deagan

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The annual meeting of the Society of 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.

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SOCIETY FOR
AMERICAN ARCHAEOLOGY
Fifty-second Annual Meeting

Program Chair: Timothy Kaiser
Department of Anthropology
University of Toronto

Program Committee: Elizabeth A Graham
William M Hurley
William N Irving
David M Pendergast

Local Arrangements Chair: Mima Kapches

Acknowledgements

The Program Chair wishes to thank Robin Armstrong, Dean of Arts and Science, University of Toronto, for his financial support of the activities of the 1987 SAA Program Committee, and Susan Julig, for word-processing the Preliminary and Final Programs.

Cover illustration: A popeyed birdstone, ca. 1000 B.C., discovered in Toronto, and now in the collection of the Royal Ontario Museum. Drawing by Emil Hustiu.

Officers of the Society

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Treasurer: Robert J Sharer
Editor: Patty Jo Watson
Editor-elect: W. Raymond Wood

Executive Committee Members: Keith Kintigh
J. Jefferson Reid
Prudence Rice
David Hurst Thomas
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 Ballroom.

Convention Office  Any problems or special requests during the meeting should be reported to the Convention Office in the Toronto Room.

Exhibits  Exhibits will be displayed in the Canadian Room from 9 AM to 6 PM on Thursday and Friday, and 9 AM to 2 PM on Saturday.

Membership Services and Publications  SAA publications will be displayed and membership information will be available in the Canadian Room during the exhibit hours.

Message and Information Center  A self-service message center will be open in the Canadian Room from 4 PM to 8 PM Wednesday, and from 8 AM to 6 PM Thursday through noon Sunday.

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 Wednesday at 8 PM in the Algonquin Room.

Placement Service  A placement service will be conducted in the Tudor 8 and 9 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 4 PM to 8 PM on Wednesday, from 7:30 AM to 4 PM on Thursday, Friday and Saturday. Members who preregistered by April 15 should claim their badges and programs at the advance registration desk. Wearing of the badge is required for admission to all sessions and the exhibits.

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.

Session Smoking Ban  Smoking during sessions will not be permitted.

Slide Screening Room  A 35mm slide projector and screen will be available in the Newfoundland Room from Wednesday at 6 PM and thereafter throughout the meeting for presenters who wish to check their slides before presentation.

ANNUAL MEETINGS OF THE SOCIETY FOR AMERICAN ARCHAEOLOGY

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<td>Richard S MacNeish</td>
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<td>Charles C DiPeso *</td>
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<td>Douglas W Schwartz</td>
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<td>Charles R McGimsey III</td>
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<td>Stuart Stuever</td>
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<td>Raymond H Thompson</td>
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<td>Richard E W Adams</td>
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<td>George C Frison</td>
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<td>Don D Fowler</td>
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AWARDS TO ARCHAEOLOGISTS, 1946–85
Compiled by N Woodbury

The Viking Fund Annual Awards in Anthropology (provided by the Wenner-Gren Foundation) consisted of three Viking Fund Medals, with accompanying Viking Fund Prizes of $1,000 each. These were awarded annually 1946–60 for distinguished research, publication and contribution to science. Scholars were selected by committees of their respective societies—in archaeology by the Society of American Archaeology, in general anthropology by the American Anthropological Association and in physical anthropology by the American Association of Physical Anthropologists.

The awardees in archaeology are:
1946 Alfred Vincent Kidder
1947 John Otis Brew
1948 Alex Dony Krieger
1949 Hallam Leonard Movius, Jr.
1950 Emil Walter Haury
1951 Frank Harold Hanna Roberts, Jr.
1952 Alfonso Caso
1953 Gordon Randolph Willey
1954 William Duncan Strong
1955 John Eric Sidney Thompson
1956 Junius Bouton Bird
1957 James Bennett Griffin
1958 Jesse David Jennings
1959 Irving Rouse
1960 Samuel Kirkland Lothrop

The Alfred-Vincent Kidder Award, a bronze medallion bearing the likeness of Kidder, was established in 1950 as a tribute to the leadership of A V Kidder by the American Anthropological Association. It has been awarded every three years for eminence in American archaeology, particularly in those fields in which Kidder contributed so much, the Southwestern United States and Middle America.

The awardees have been:
1950 Alfred Marston Tozzer
1953 Earl Halstead Morris
1956 Samuel Kirkland Lothrop
1959 Charles Corradino Di Peso
1962 Tatiana Proskouriakoff
1965 Neil Merton Judd
1968 Paul Sidney Martin
1971 Richard Stockton MacNeish
1974 Gordon Randolph Willey
1977 Emil Walter Haury
1980 William Timothy Sanders

1983 Samuel Watson Smith
1986 Ignacio Bernal

The Distinguished Service Award of the Society for American Archaeology was established in 1975. In 1980 it was decided to make the award annually. It consists of a framed inscribed citation.

The awardees have been:
1975 Carl Haley Chapman
1980 Gordon Randolph Willey
1981 Albert Clanton Spaubling
1982 Jesse David Jennings
1983 Hannah Marie Wormington
1984 James Bennett Griffin
1985 Emil Walter Haury
1986 Waldo R Wedel

The Fryxell Award for Interdisciplinary Research was set up by the Society for American Archaeology in 1977 in memory of Roald Fryxell whose career exemplified so well the crucial role of interdisciplinary cooperation in archaeology. The award, consisting of a citation and a medallion, was to be presented annually; however, no award was made in 1984.

The awardees have been:
1978 C Vance Haynes
1979 Peter J Mehringer
1980 James B Griffin
1981 Karl W Butzer
1982 David A Barreis
1983 John E Guilday (posthumously)
1984 (No Award)
1985 Roger T Saucier
1986 Donald K Grayson

The Crabtree Award was established by the Society for American Archaeology in 1985 to recognize major contributions to American archaeology by individuals who have had little if any formal training in archaeology and little if any wage or salary as an archaeologist. The award is named after Don Crabtree of Twin Falls, Idaho, who made significant contributions to the study of lithic technology and whose dedication to archaeology was a lifelong personal and financial commitment.

The awardees have been:
1985 Clarence H Webb, MD
## BUSINESS AND SOCIAL EVENTS

### Wednesday, May 8
- **All Day**  Field Trip—See “Special Events” for details
- **8:00 AM**  Association of Transportation Archeologists—Annual Meeting
- **9:00 AM**  Society for American Archaeology—Executive Committee Meeting
- **9:00 AM**  Society for American Archaeology—Governmental Affairs Committee Meeting
- **9:00 AM**  National Association of State Archeologists—Workshop and Annual Business Meeting
- **1:00 PM**  Society of Professional Archeologists—Executive Board Meeting
- **3:00 PM**  American Society for Conservation Archaeology—Executive Committee Meeting
- **3:30 PM**  Workshop—The Politically Savvy Archaeologist
- **8:00 PM**  New Member Reception

### Thursday, May 9
- **Open House**  Royal Ontario Museum—See “Special Events” for details
- **8:00 AM**  Committee on Public Archaeology
- **9:00 AM**  Archeology Unit for the American Anthropological Association—Executive Committee Meeting
- **12 Noon**  Society of Professional Archeologists—Annual Business Meeting
- **12 Noon**  Society for Archaeological Sciences—Executive Committee Meeting
- **5:00 PM**  Society for Archaeological Sciences—Annual Meeting
- **5:30 PM**  Reception—Royal Ontario Museum
- **9:00 PM**  Distinguished Lectures

### Friday, May 8
- **11:30 AM**  Council of Presidents Luncheon (By invitation only)
- **1:00 PM**  Society of Professional Archeologists—Executive Committee Meeting
- **5:30 PM**  Society for American Archaeology—Annual Business Meeting
- **7:00 PM**  American Society for Conservation Archaeology—Annual Meeting
- **7:00 PM**  World War II Archaeology

See “Special Events” for schedule of Open Houses at the University of Toronto.

### Saturday, May 9
- **9:00 AM**  Society for American Archaeology—Executive Committee Meeting
- **10:00 AM**  American Society for Conservation Archaeology—Executive Committee Meeting

### Sunday, May 10
- **All Day**  Field Trip—See “Special Events” for details
Special Events

**WEDNESDAY, MAY 6**

**Field Trip** A full day field trip for SAA members to the Museum of Indian Archaeology in London, Ontario. Dr. William Finlayson will give a tour of the Museum and the reconstructed Lawson Iroquoian Village, located on the Museum grounds. Lunch is included. In the afternoon, on the return to Toronto, there will be a visit to the Crawford Lake Conservation Area, where Dr Finlayson will discuss the Iroquoian village excavation and reconstruction and the multi-year research project on archaeological sites in the vicinity. Dr. Jock McAndrews of the Royal Ontario Museum Botany Department will give a special presentation on the meromictic lake which has provided an unusual environmental and chronological sequence for the nearby Iroquoian village.

**WEDNESDAY—SUNDAY, MAY 6–10**

**Toronto Historical Board Open Houses** The historic properties of the Toronto Historical Board will be open to attendances of the conference (see map). By showing your registration badge you will gain free admission to Colborne Lodge, Spadina, Mackenzie House, and Marine Museum and Historic Fort York during regular hours (Monday to Saturday 10:00 a.m. to 5:00 p.m., and Sunday 12:00 to 5:00 p.m.), May 6th to May 10th.

**George R. Gardiner Museum of Ceramic Art** The George R. Gardiner Museum of Ceramic Art, (Open Tuesday to Sunday 10:00 a.m. to 5:00 p.m.) is also offering free admission to conference attendees. Located across from the ROM on Queen's Park Crescent, south of Bloor. This Museum houses an extensive collection of ceramics.

**THURSDAY, MAY 7**

**Royal Ontario Museum Open House** On Thursday May 7, behind the scene tours of various Curatorial and Service Departments of the ROM will be offered. Because of ROM security requirements, guided tours, for a limited number of participants, have been arranged for 10:00 a.m., 3:00 p.m. and 4:00 p.m. Departments that will be open are New World Archaeology, Egyptian, West Asian, Ethnology, and Conservation. Information for signing up for these tours will be available at the registration desk. Special requests for access to collections can be directed to specific ROM departments or to the Curator. Afternoon open houses are daily 10:00 a.m. to 6:00 p.m., Tuesday and Thursday 10:00 a.m. to 8:00 p.m. The Botany Department of Royal Ontario Museum, located on the 3rd floor in the Canadina Building, 14 Queen's Park Crescent, will be open on Thursday May 7th from 10:00 a.m. to 4:00 p.m. for drop-in visitors. This department engages in palynological research, and the analysis of botanical specimens from archaeological deposits.

**THURSDAY EVENING, MAY 7**

**Reception** The Royal Ontario Museum At 75. On the evening of Thursday May 7 there will be a reception in the Royal Ontario Museum on the occasion of its 75th anniversary. For this evening, from 5:30 p.m. to 8:00 p.m., the museum galleries will be open. The ROM has arranged also for free access to those at the reception (from 6:30 to 8:00 p.m.) to the major special exhibition Eye of the Beholder: Objects for Personal Adornment, jewellery from the ROM collections and several other international institutions will be on display. This will be a special reception, with the support of the Province of Ontario and the Ontario Heritage Foundation of the Ministry of Citizenship and Culture. It will be held in the Southwest Atrium of the ROM, a three-storey high open space that exhibits the unique architectural details combining the old and new buildings of the museum.

**FRIDAY, MAY 8**

**University of Toronto Open Houses** On Friday May 8, 1987 several departments of the University of Toronto will host open houses for SAA delegates. The IsoTrace Laboratory, directed by Dr. W. Kieser, located in the basement of the McLennan Physical Labs (60 St. George) will give tours of their dating facilities from 9:00 a.m. to 4:00 p.m., on the hour and the half hour. After 4:00 p.m. the lab will host a reception for SAA members. Bring your dates!

The Slowpoke Reactor Facility, directed by Dr. R. Hancock, is located in the Haultain Building (see map). The laboratories are on the ground floor, enter through the doors shown with the arrow on the map. Tours will be offered between 9:00 a.m. and 4:00 p.m.

In the Mechanical Building, north of the Haultain building, Mr. L. Pavlish and Dr. A. V. Jopolin will be presenting a laboratory simulation of fluvial environments to illustrate the movement of stone and bone particles. The flume demonstration will take place between 12:00 and 4:00 p.m. in the Hydraulics Laboratory on the Second Floor North Wing.

The Argon mass-spectrometer facilities are in the laboratories of Dr. Derek York. Dr. York will host a tour of these facilities. Those wishing to take the tour are requested to meet at 11:30 a.m. in the lobby of the McLennan building. Participants will be escorted to the facilities for the tour. Please note that because of the small size of the laboratory only a tour has been arranged.

The Department of Anthropology at the University of Toronto will host an open house in their laboratories at Sidney Smith Hall, room 561A, in the basement, from 12:00 to 4:00 p.m. Displays in the laboratory will highlight the work and the collections of the department. Refreshments will be served. Those wishing special tours are requested to contact the department technician, Mr. John Reid, 416-978-6293 to make arrangements.

In the South Borden Building, 487 Spadina Crescent (see map), two sections of the Department of Anthropology will also have open facilities from 1:00 p.m. to 4:00 p.m. on Friday May 8. Both are located on the 2nd floor. The Northern Yukon Research Programme under the direction of Dr. William Irving, and the Fursan Archaeo-ostegology Laboratory directed by Dr. H. Savage will be open to SAA visitors.

**SATURDAY, MAY 9**

The Archaeological Resource Centre of the Toronto Board of Education will offer S.A.A. members the unique opportunity to tour Toronto on a historic streetcar. Departing from York and Wellington during the morning the historic Peter Witt Streetcar will include a stop at the groundbreaking ceremonies for the Ashbridge Estate Archaeological Project. This estate is the longest single family occupation of an original crown grant in the City of Toronto dating from 1795–1987.

Return trips to the Royal York will be provided. Additional details will be available at the registration desk.

**SATURDAY—SUNDAY, MAY 9–10**

**Fort York** Special tours have been arranged of the ongoing archaeological projects at Fort York for Saturday May 9 from 1:00 to 3:00 p.m. and Sunday May 10 from 10:00 a.m. to 12:00 p.m. Fort York has the largest collection of original War of 1812 buildings in Canada. It played an important role in the war especially during the battle for the Town of York in April of 1813. The American explorer Brigadier-General Zebulon Pike lost his life in this battle. The archaeologists will be on-site for the tours.

**SUNDAY, MAY 10**

**Field Trip** A full day field trip to the Peterborough Petroglyphs, located just north of Peterborough, Ontario in the Petroglyph Provincial Park. The Peterborough Petroglyphs are unusually well-preserved and undated; this Algonquin rock art site is one of the most artistically complex sites in North America. Tour by Dr Ron Vastokai of Trent University.
PROGRAM

THURSDAY MORNING MAY 7, 1987

Poster Session: RECENT ADVANCES IN ARCHAEOLOGICAL RESEARCH

Canadian

Participants
Stephen R. Durrand and Jonathan O. Davis, Direct Video Input of Archaeological Data
James J. Hester, Robert M. Thorne and David L. Ford, Archaeological Site Preservation In Situ: Mitigation Without Excavation
Sheryl G. Oliver and Robert E. Warren, Predictive Modeling of Archaeological Site Location: A Comparison of Two Contrasting Upland Environments in the Midwest
William P. McGowan, Late Woodland Settlement Patterns Around Lake Shelbyville in East Central Illinois
Charles B. Stout, Intrusive Relationships at a Mississippian Town Site in Illinois
Mona L. Colburn, Subsistence Remains from a Mississippian Period Site in Illinois
Anne Frazier Rogers, Upland Sites and Topography in the Southern Appalachians
William J. Parry and F.E. Smiley, Early Agriculture in the Northern Southwest: A Progress Report on Three Fir Shelter, Arizona
Richard Ahlstrom, “Casual” Repeat Photography and Hopi Architecture
Dena Doroszek, Urban Archaeology on the University of Toronto Campus
Duncan Scherberger, The Archaeological Resource Centre

(Session continues until Saturday 12:00 noon, May 9, 1987)

[1] General Session: BONE CHEMISTRY

Chairperson: R.G.V. Hancock

Participants
8:00 Katherine Spielmann, Margaret J. Schoeninger and Katherine Moore, Human Diet at Pecos Pueblo
8:30 Donald Fate, Exchangeable Ions in Bone and Soil as Indicators of Postmortem Diagenesis
8:40 R.G.V. Hancock, M.D. Grynpas and R.P.H. Pritzker, Bones Lie


Chairpersons: Brona Simon

Participants: William A. Fox and Brona Simon

8:00 Franco Ruffini and Paul Hooge, Public Education: A Positive Approach to the Artifact Trafficking Problem
8:40 John R. Halsey and James L. Martindale, The Sack of the Inland Seas: Shipwreck Plundering in the Great Lakes
9:00 Ann M. Early, Profiteers, Paymasters and Public Archaeology: Antiquities Trafficking in Arkansas
9:20 William A. Fox, Looting and Legislation in Ontario
9:40 David A. Walden, The Canadian Cultural Property Export and Import Act
10:00 Ellen Herscher, The Role of Museum Acquisition Policies
Thursday Morning, May 7

10:20 David M. Pendergast and Elizabeth Graham: Dipping Out the Ocean With a Spoon - Plundering on the International Scene
10:40 Discussant: Clemency C. Coggin

Confederation 3
Chairperson: Robert C. Henrickson
Participants
8:00 Rolfe Mandel, Alan Simmons and William Farrand, Preliminary Observations on the Geomorphology of 'Ain Ghazal, Jordan
8:20 Alan H. Simmons, The 'Ain Ghazal Community Study: Preliminary Results of an Archaeological and Geomorphic Survey Near Amman, Jordan
8:40 E.B. Banning and Brian F. Byrd, Renovation in Domestic Architecture: The Changing Residential Unit at PPNB 'Ain Ghazal, Jordan
9:00 Gillian R. Bentley, The Corporate Structure of Early Bronze Age Urban Society at Bab Edh-Dhra, Jordan
9:20 Bruce T. Verbaaren, The Domestic Use of Space at Third Millennium Kurban Höyük
9:40 Guillermo Alzaga, Mesopotamian Expansion and its Consequences: Social Change in the Northern Periphery of Alluvial Mesopotamia in the Late Fourth Millennium B.C.

Quebec
Organizers and Chairpersons: John F. Hoffecker and Cornelia A. Wolf
Participants
8:40 Pierre M. Vermeersch, The Early Upper Paleolithic in Egypt
9:00 Anna Beller-Cohen and Ofer Bar-Yosef, Levantine Upper Paleolithic Cave Sites - A Reappraisal
9:20 Anthony E. Marks and C. Reid Ferring, The Early Upper Paleolithic of the Levant
9:40 Cornelia A. Wolf, Analysis of Faunal Remains from Upper Paleolithic Sites in the Levant
10:00 Craig Hsteller and Lawrence G. Straus, Explorations in the Twilight Zone: The Early Upper Paleolithic in Cantabria and Gascony
10:20 João Zilhão, The Early Upper Paleolithic of Portugal
10:40 Francis B. Harrold, The Chatelperronian and the Early Aurignacian in France
11:00 Randall White, Production Complexity in Early Aurignacian Body Ornamentation: The Case of Ahn Brunchard and La Souquette
11:20 John F. Hoffecker, Early Upper Paleolithic Settlement on the Russian Plain
11:40 Discussant: Michael Jochim

Territories
Organizers and Chairpersons: Bruce E. Byland and Gary M. Feinman
Participants
9:00 Stephen A. Kowalewski, The Production of Cultural Diversity
9:20 Arthur G. Miller, Mural Evidence from Intergenerational Interaction During MA IIIB/IV
9:40 Gary M. Feinman, From Frontier to Semi-Periphery: Prehispanic Settlement Patterns in the Ejutla Region, Oaxaca, Mexico
10:00 Linda M. Nicholas and Gary M. Feinman, Economic Specialization and Exchange in Oaxaca: The Production and Transport of Shell, Cloth, and Obsidian in the Ejutla Region
10:40 Judith Francine Zeitlin, Beyond the Shadow of Monte Alban: Classic Period Affiliations in the Coastal Lowlands
11:00 John M.D. Pohl and Bruce E. Byland, The Nature of Place Signs in the Mixtec Codices

Thursday Morning, May 7

11:20 Bruce E. Byland and John M.D. Pohl, The Reorganization of Political Control in the Tilantongo Valley from Formative to Postclassic Times
11:40 Discussant: Michael E. Whalen

Albarta
Organizers and Chairpersons: Daniel H. Sandweiss and James B. Richardson III
Participants
9:00 Alan K. Craig, Andean Land Snails as Palace- environmental Indicators
9:20 Jeffrey T. Hsa, Uplift of the Peruvian Coast Between 13.5 and 165. Latitude
9:40 Michael E. Moseley, Christopher Ohm Clement and Jorge Elias Tappa, Geoarchaeology of the South Coast of Peru
10:00 Daniel H. Sandweiss, Harold B. Rollins and James B. Richardson III, Geoarchaeology of the Santa/Chao Region, Northern Peru: Alterations in Landscape, Climate, and Human Occupations
10:20 Lisa E. Wells and Jay S. Noller, Holocene Record of El Niño Events and Early Agriculture in the Rio Casma Valley, Peru
10:40 Harold B. Rollins, Daniel H. Sandweiss, Judith C. Rollins and Uwe Brand, Recognition of Large Magnitude El Niño Events Using Andean Coastal Shell Middens
11:00 Mark McConaughy and James B. Richardson III, The Holocene Beach Ridges of the Piura and Chira Rivers: The Impact of Sea Level and Climate Change on Cultural Development in Northwest Peru
11:20 Discussants: Jack Donahue and Thomas Lynch

Confederation 456
Organizer and Chairperson: Richard H. Jordan
Participants
9:20 Robert E. Ackerman, The Early Cultural Horizons of Interior Southwestern Alaska
9:40 R.H. Harrity, A Model for Analysis of Late Prehistoric Occupation of the Naknek Region, Southwest Alaska
10:00 Dan E. Dumond, The Northern Alaska Peninsula in Southwestern Alaskan Prehistory
10:40 Jean S. Aigner, Lydia T. Black, Dominique Desson, Allen P. McCartney and Douglas W. Veltre, Historic Documents and an 18th Century Aleut Village on Unalaska
11:00 Lucy Lewis Johnson, Shumagin Island Research: Results from the Fringe
11:20 Robert E. Nelson, Quaternary Geology and Paleoclimatology of the Karluk Area, Kodiak Island, Alaska
11:40 Thomas Amorosi, The Karluk River and Uvak Bay Archaeoalunas

[8] Symposium: INTERREGIONAL INTERACTION IN PREHISTORY
Library
Organizers and Chairpersons: Patricia A. Urban and Edward M. Schortman
Participants
9:40 Wilfried Cramer, The Role of Ethnic Affiliation in Intergenerational Interaction in North Honduras
10:00 Jane Schneider, Warp, Weft, Pattern and Hue: Aesthetic Issues in the Interaction of Luxury Cloth Traditions
10:20 David Webster, The Study of Maya Warfare: Its Implications for Our Understanding of the Maya and for Maya Archaeology
10:40 Steadman Upham, Interaction and Isolation: The Empty Spaces in Pan-Regional Political and Economic Systems
11:00 Peter S. Wells, Tradition, Identity, and Change Beyond the Roman Frontier
Thursday Afternoon, May 7

11:20 Mary W. Helms, Travel Motives, Elite Aspirations, and the Cosmological Context of Geographical Distance
11:40 Richard A. Pales and Joseph Whitecotton, Culture and Exchange in Mesoamerica and the Southwest

[9] Symposium: DIXIE CUPS AND CROWN JEWELS: ANALYTICAL APPROACHES TO THE ORGANIZATIONAL PROPERTIES OF STONE TOOL TECHNOLOGIES

Ballroom
Organizers and Chairpersons: Steven Kuhn and Signa Larralde

Participants
9:40 Larry R. Kimball and Lawrence H. Keeley, The Detection of Planning in Paleolithic Assemblages
10:00 Randolph E. Donahue, Microwear Analysis in the Study of Curated and Expended Technologies in the Upper Paleolithic
10:20 Steven Kuhn, Resharpening, Re-use and Site Re-occupation in the Central Italian Monsteiran
10:40 Philip W. Volkman, Preliminary Evidence for Diachronic Changes in Curation Habits at Boker Tachtit, Israel
11:00 Nicholas Toth, Organizational Skills and Early Stone Age Sites
11:20 Douglas B. Bamforth, Settlement, Raw Material, and Lithic Procurement in the Central Mogave Desert
11:40 Robert L. Kelley, The Three Sides of a Biface

(10) General Session: MIDWESTERN PREHISTORY: MIDDLE WOODLAND TO MISSISSIPPIAN

Confederation 3
Chairperson: William L. Woods

Participants
10:10 William S. Dancey, The Murphy Site (33-Li-212): A Middle Woodland Settlement in Central Ohio
10:40 William Green, A Prehistoric Frontier in the Prairie Peninsula: Late Woodland Upland Settlement and Subsistence Patterns
11:00 Tom Susenbacher and B. Barry Lewis, "Emergent Mississippian" and its Paradigm: The Perspective from the Cairo Lowland
11:20 Duncan C. Wilkie, Research Update from Excavations at Towosahy State Historic Site
11:40 James M. Collins, George R. Holley and William L. Woods, New Data on an Old Enigma: The Second Terrace of Monks Mound

THURSDAY AFTERNOON MAY 7, 1987

[9] Symposium: DIXIE CUPS AND CROWN JEWELS: ANALYTICAL APPROACHES TO THE ORGANIZATIONAL PROPERTIES OF STONE TOOL TECHNOLOGIES (CONT'D)

Ballroom
Organizers and Chairpersons: Steven Kuhn and Signa Larralde

Participants
1:00 Signa Larralde, Planning Stone Tool Manufacture and Use in the Green River Basin: The Effect of Discrete Raw Material Attributes on Artifact Distributions
1:20 Julie E. Francis, Waste Not—Want Not: Organizational Aspects of Lithic Technological Systems in the Big Horn Mountains of Wyoming
1:40 M.L. Larson, Chipped Stone Debitage and the Organization of Technology
2:00 Robin Torrence, Stone Technology as Risk Management

Thursday Afternoon, May 7

2:20 Michael D. Wiant, Organizational Variability in Chipped Stone Assemblages, Part I: A Middle Woodland Case Study
2:40 Harrold Hassen, Organizational Variability in Chipped Stone Assemblages, Part II: A Late Woodland Case Study
3:00 Patricia A. McNamary, From Family Heirloom to Metate Pecker: The Context of Biface Recycling Within an Enchanted Exchange System
3:20 Discussant: Lewis R. Binford

(7) Symposium: THE ARCHAEOLOGY OF SOUTH ALASKA: SUBSTANTIVE AND THEORETICAL CONTRIBUTIONS (CONT'D)

Confederation 456
Organizer and Chairperson: Richard H. Jordan

Participants
1:00 Philomena Knecht and Margaret J. Schoeninger, Reconstructing Prehistoric Diet/Subistence on Kodiak Island Through an Analysis of Stable Isotope Ratios in Bone Collagen
1:20 Aron L. Crowell, The Regional Economy and Settlement Pattern of Northwestern Kodiak Island
1:40 M.E. Colleen Lazenby, The Ocean Bay Period of Occupation on Kodiak Island, Alaska
2:00 Richard H. Jordan, The Kachemak Cultural Tradition on Kodiak Island, Alaska
2:40 Discussant: Frederica de Laguna

(11) Symposium: THE FOREIGN RELATIONSHIPS OF TEOTIHUACAN

Territories
Organizer and Chairperson: Michael W. Spence

Participants
1:00 Phil G. Weigand, Central Mexico's Influences in Jalisco and Nayarit During the Classic Period
1:20 Louise I. Paradis, Teotihuacan and Guerrero
1:40 Frederick J. Bove, Teotihuacan Impact on the Pacific Coast of Guatemala: Myth or Reality?
2:00 Clemency C. Coggins, Journey Into the Past: Teotihuacan in Mayaland
2:20 Hattula Moholy-Nagy, Teotihuacan Burials at Tikal, Guatemala
2:40 Stan W. Berdan, Teotihuacan and Western Yucatan Exchange
3:00 Robert D. Drennan, Heinz Dehn and Philip T. Fitzgibbon, The Tehuacan Valley and the Teotihuacan Obsidian Industry
3:20 Evelyn C. Rattray, Circular Structures on the Gulf Coast and at Teotihuacan
3:40 Robert S. Santley, Teotihuacan Influence at Mataracapan: Alternative Models and Inadequate Explanatory Frameworks
4:00 Discussant: William T. Sanders

(12) General Session: HUNTER-GATHERER SUBSISTENCE, SETTLEMENT AND EXCHANGE

Quebec
Chairperson: Laurie Cameron Steponaitis

Participants
1:00 Laurie Cameron Steponaitis, Declining Residential Mobility in the Lower Patuxent Drainage, Maryland
1:20 Charles W. Markman, Putney Landing (11 HE3): The Middle to Late Woodland Adaptive Transition in Northwest Illinois
1:40 Stephen C. Lenzskik, Resource Induced Migration in Central North America: The Case of the Soggy Marsh
2:00 Mark Q. Sutton, A Review of Optimal Foraging Theory in the Great Basin
2:40 Richard L. Stromberg, Cache Point [NhTs-2] and Mackenzie Inuit Prehistory
Thursday Afternoon, May 7

3:00 James M. Saville, Collectors to Foragers: Subsistence-Settlement System Change Amongst Arctic Hunter-Gatherers
3:20 Peter H. McCartney, Delayed Return Strategies and Hunter-Gatherer Settlement
3:40 Raymond Mauldin, An Ethnographic Overview of Hunter-Gatherer Subsistence


Alberta
Chairperson: Hélène Silverman

Participants
1:00 James A. Zeidler, Feline Mortars in Andean Ritual: New Evidence from Manabí Province, Ecuador
1:20 Jeffrey Quilter, Animated Objects in Moche Art
1:40 Martha B. Anderson, Wari Pottery: Stylistic Innovation and Imitation in the Middle Horizon 2 Ceramics from the Planned Wari Site of Azangaro (Ayacucho, Peru)
1:50 Patrick H. Carmichael, Nasca Armed Conflict
2:10 Patricia J. Knobloch, The Nasca Legacy
2:30 Hélène Silverman, Is Nasca #8 Nasca?


Library
Organizers and Chairpersons: Fekri A. Hassan and Mary A.M. McDonald

Participants
1:00 Angela Close and Fred Wendorf, Holocene Archaeology in the Southern Western Desert
1:20 Maxine R. Kleindienst, Pleistocene Archaeology of the Dakhleh Oasis, Egypt
1:40 Herbert Haas, Holocene and Late Pleistocene Chronology in the Western Desert and the Nile Valley of Egypt
2:00 Ian A. Brooker, Holocene Sediments of Dakhleh Oasis, S.C. Egypt
2:20 J.C. Ritchie, Holocene Environments of the Eastern Sahara
2:40 Charles S. Churcher, Neolithic Faunas from Dakhleh Oasis, Western Desert of Egypt
3:00 Mary M.A. McDonald, Adaptations in Dakhleh Oasis in the Early- to Mid-Holocene
3:20 William P. McHugh, Holocene Cultural Adaptations in Southwestern Egypt
3:40 Anthony J. Mills, Historical Periods in the Dakhleh Oasis
4:00 D.L. Holmes, The Archaeology of Post-Paleolithic Sites from Northern Kharga Oasis, Egypt
4:20 G. Timothy Gross and Fekri A. Hassan, Holocene Prehistoric Subsistence and Population in Siwa Oasis
4:40 Robert J. Wenke, The Epipaleolithic-Neolithic Transition in Egypt's Fayyum Oasis
5:00 Fekri A. Hassan, Interpreting Regional and Interregional Variability in the Holocene Archaeology of the Western Desert, Egypt

[15] General Session: STUDIES IN TAPHONOMY

British Columbia
Chairperson: L.A. Pavlish

Participants
1:00 A.V. Jopling, L.A. Pavlish and Z. Zhang, Selective Fluvial Transport of Stone and Bone: An Experimental Approach from Hume to Field
1:20 Jeanne M. Moe, The Effects of Trampling on Subsurface Assemblages: An Alywarra Case Study
1:40 Thomas R. Whyte, An Experimental Study of Pit Feature Deposit Formation
2:00 D.M. Gurfitnkle, Difficulties Associated with the Analysis of Organic Archaeological Residues
2:30 Victoria D. Horwitz, Experiments on Cooked Bone Breakage
2:30 Gary Haynes, Spiral Fractures, Flaked Bones, Cutmark Mimics, and Other Characteristics of Non-cultural Elephant-Bone Accumulations in Africa

[16] General Session: EUROPEAN PREHISTORY

Confederation
Chairperson: Peter Bogucki

Participants
3:40 William N. Irving, New Dates from Old Crow
4:00 Wilburn A. Cockrell, Warm Mineral Springs: Deep-Water Excavation at an 11,000 Year Old Site in Southwest Florida

Thursday Afternoon, May 7

Participants
1:00 Philip G. Chase and Harold L. Dibble, Religion and Symbolism in the Middle Paleolithic: A Look at the Evidence
1:20 Todd A. Koetje, Pavement Features from the European Upper Paleolithic
1:40 Anta Montet-White, Grubgraben, a Gravettian Settlement in Lower Austria
2:00 Zilka Kujundzic and Robert Whallon, Paleolithic-Mesolithic Investigations in South Bosnia-Hercegovina
2:20 Peter Sheppard, L.A. Pavlish and R.G.V. Hancock, Sourcing of Early Neolithic and Mesolithic Cherts and Rhyolites from Southern Portugal
2:40 William K. Barnett, The Physical Analyses of Impressed Pottery from Caldeirao and the Portuguese Early Neolithic
3:00 Peter Bogucki, Changing Adaptive Strategies and the Earliest Farming Communities of the North European Plain
3:20 Ernestine S. Elster, Studying Change at Sitagroi
3:40 Janet E. Levy, Danish Metallurgy in the Bronze Age
4:00 Robert M. Ehrenreich, The Introduction and Development of Iron Technology in Iron Age Britain

[17] General Session: NORTHERN AND CENTRAL ANDES

Alberta
Chairperson: M.A. Zeder

Participants
3:20 M.A. Zeder, Subsistence and Ideology in Coastal Ecuador
3:40 Coreen Chiswell, Network Analysis of Chimu Architecture
4:00 Jerry D. Moore, The Chimú Empire and Raised Field Agriculture in the Casma Valley, Peru
4:20 Gordon F. McEwan, The Significance of the Choquepukio Site in the Culture History of the Valley of Cuzco, Peru


British Columbia
Organizers and Chairpersons: Annetta L. Cheek and Mark A. Boster

Participants
3:00 Richard A. Boisvert, Conflict, Cooperation and Compliance: A Summary of Recent Archaeological Investigations in the Ohio Coal Fields
3:20 Cheryl Ann Munson and Charles M. Niquette, Lands Unsuitable for Mining, An Unsuitable Preservation Tool
3:40 Ruth A. Brinker, Cultural Resources in the Coal Fields of Indiana
4:00 James Wojtala and Shane M. Skinner, Archaeology in Southeast Ohio: Recent Changes in the Database
4:20 David R. Bush, Cultural Resource Management Studies on Surface Mining Projects—Examples from Ohio and Kentucky
4:40 Annetta L. Cheek and Mark A. Boster, Coal Mining and Archaeology: OSMRE's View

[19] General Session: EARLY MAN IN THE NEW WORLD

Confederation 456
Chairperson: William N. Irving

Participants
3:40 William N. Irving, New Dates from Old Crow
4:00 Wilburn A. Cockrell, Warm Mineral Springs: Deep-Water Excavation at an 11,000 Year Old Site in Southwest Florida
Friday Morning, May 8

4:20 William J. Mayer-Oakes and Alice W. Portnoy, A Study of the Early Man Lithic Assemblage from San Jose, Ecuador
4:40 Richard S. MacNeish, Early Man Finds from Mizque, Bolivia

THURSDAY EVENING MAY 7, 1987

Reception: THE ROYAL ONTARIO MUSEUM AT 75
5:30 A reception for SAA members on the occasion of the ROM's 75th Anniversary. Museum Galleries will be open to SAA members. Sponsored by the ROM, the Ontario Heritage Foundation, the Ontario Ministry of Citizenship and Culture, and the Society for American Archaeology.

Distinguished Lectures: HISTORY AND ARCHAEOLOGICAL THEORY
Ballroom
Organizers: Program Committee
Speakers
9:00 T. Cuyler Young, Jr., Since Herodotus, Has Prehistory Been A Valid Concept?
9:30 James Deetz, History and Archaeology: Walter Taylor Revisited

FRIDAY MORNING MAY 8, 1987

(20) Symposium: HUNTER-GATHERERS AT THE LAST GLACIAL MAXIMUM: THE GLOBAL RECORD
Ballroom
Organizers and Chairpersons: Clive Gamble and Olga Soffer
Participants
8:00 John Parkington, The End of the Pleistocene in Southern Africa
8:20 Alison S. Brooks, Interior Africa: Central and Southern Africa at 18,000 B.P.
8:40 Fred Wendel, Angela E. Close and Romuall Schind, North Africa During the Last Glacial Maximum
9:00 Harry R. Allen, Archaeology of the Murray-Darling River Basin, Australia, c. 18,000 B.P.
9:20 Rhys Jones, From Kakadu to Kutikina: Varied Responses at 18,000 B.P.
9:40 Chun Chen, The Sanshian Site: A Newly Discovered Upper Palaeolithic Site on the East Coast of China
10:00 Y. Jayaswal, Hunter-Gatherers of the Terminal Pleistocene in Uttar Pradesh, India
10:20 Robin Derrall, 18,000 B.P. in Pakistan and Central Asia
10:40 Richard S. Davis, Central Asian Hunter-Gatherers at the Last Glacial Maximum
11:00 Ofir Bar-Yosef, The Mediterranean: Levant During the Last Glacial Maximum
11:20 G.N. Bailey and C. Gamble, Greece and the Balkans at 18,000 B.P.
11:40 Discussants: George Frison and Tjeerd H. van Andel

(21) Symposium: ECONOMY AND SOCIETY IN THE MEDIEVAL NORTH ATLANTIC
Alberta
Organizer and Chairperson: Thomas H. McGovern
Participants
8:00 Birgitta Wallace, L'Anse Aux Meadows, The Final Outpost
8:20 Karen Marie Christensen, Patterns of Land Use in Norse Greenland
8:40 Thomas H. McGovern, Trade and Subsistence in Norse Greenland

Friday Morning, May 8

9:00 E. Paul Durrenberger, Economy and Law in Commonwealth Iceland
9:20 Gerald F. Bigelow, Taxation, Nutrition, and Trade: Island Economy in the Middle Ages
9:40 Discussant: Susan Kaplan

(22) General Session: EASTERN NORTH AMERICA

British Columbia
Chairperson: Joseph E. Granger
Participants
8:00 Lawrence Jackson, Heather McKittrick, and Susan Wurtzburg, Folsom and Yuma Artifacts, 1934: A Challenge to Canadian Archaeology
8:40 Jean-François Morneau, Maritime and Inland Archaic Adaptations in Mid-Eastern Quebec
9:00 David Rhode, Evolution of Sunflowers, Sunpweed, and the Eastern Agricultural Complex
9:20 Stuart J. Feld, Algonquinorigins: A Problem in Linguistic-Archaeological Correlation
9:40 Joseph E. Granger, Meadowood Mortuary Activity: An Examination of Terminal Archaic/Early Woodland Death Ritual in the Lower Great Lakes

(23) Symposium: RADIOCARBON UPDATE: PROGRESS AND PROBLEMS IN RADIOCARBON DATING

Confederation 3
Organizer and Chairperson: Renee Kra
Participants
8:00 Roelf P. Beukens, Radiocarbon Dating with Accelerator Mass Spectrometry
9:00 Erle Nelson, Accelerator Mass Spectrometry Radiocarbon Dating and Archaeology: Present and Future Impacts
9:20 F.E. Smiley, Old Wood and Early Agriculture in Northeastern Arizona: Approaches to the Interpretation of Radiocarbon Dates
9:40 R.G. Cresswell, Iron Comes of Age
10:00 Renee Kra, Solving Your Dating Problems with the New Radiocarbon Data Base Project
10:20 Minze Stuiver, A Discussion of Radiocarbon Age Calibration
10:40 Discussants: Frank Hole and Minze Stuiver

(24) Symposium: THE EFFECT OF VISIBILITY ON THE INTERPRETATION OF SETTLEMENT PATTERNS

Territories
Organizer and Chairperson: K. Anne Pyburn
Participants
8:20 Suzanne K. Fish, Paul Fish, and John Madsen, Perception and Scale in the Evaluation of Dispersed Phenomena
8:40 Paul E. Reed and Steadman Upham, Limited Activity Sites and Low Visibility Remains
9:00 Arthur A. Joyce and Sissel Johannessen, The La Concha Ethnoarchaeological Study: A Preliminary Report
9:20 Charles Gordon Dean, Northern Honduran Subsistence Household Kitchens and Their Contents
9:40 Glen Davis Stone, The Imprint of One Culture On Two Landscapes
10:00 Claudia Chang, The Visibility of Pastoral Sites: An Ethnoarchaeological Case from Greece
10:20 Steven E. Falconer, Rural Visibility in "Urbanized" Societies: A Study of Growth Through Ruralization
Friday Morning, May 8

10:40 K. Anne Pyburn, The Invisible Universe: Non-Platform Features in the Maya Lowlands
11:00 Discussants: Wendy Ashmore and Bennet Bronson

(25) General Session: ARCHAEOZOOLOGY
Library Chairperson: David R. Hulsebeck

Participants
8:20 David J. Rapson and Lawrence C. Todd, Attribute Based Spatial Analysis: An Example from a Hunter-Gatherer Site in Northwestern Wyoming
8:40 Diane K. Hanson, Subsistence Patterns During the Developed Coast Salish Phase on the Northwest Coast
9:00 Pamela J. Ford, Measuring Change in Shellfish Resources
9:20 Esme Web, Environmental Implications of Dietary Changes Observed on Holocene Atabergic Shell Middens in New South Wales
9:40 Rachel J. Hamilton, The Archaeological Mollusca of Cerros, Belize
9:50 Beverly A. Smith, Dog Burials of Late Prehistoric Algonquin Sites in Northeastern Ontario
10:10 Kathryn M. Holland and C.G. Turner II, Prehistoric Aleutian Dogs
10:30 Virginia L. Butler, Inferring Site Function, Seasonality, and Butchering Patterns with Salmonid Remains
10:50 David R. Hulsebeck, Halibut Live Weight and Prehistoric Fisheries on the Olympic Peninsula
11:00 Sara L. Collins, Really Dead Birds: Human Prehistory and Avian Paleontology in the Hawaiian Islands
11:30 Francisco Men, Faunal Remains and Subsistence in Alero Entrada Baker, Central Patagonia
11:40 R. Lee Lyman, Applied Zooarchaeology

(26) Symposium: AGRICULTURAL LAND-USE VARIABILITY IN THE PREHISTORIC AND HISTORIC SOUTHWEST
Confederation 456
Organizers and Chairpersons: Robert W. Preucel and Sandra L. Marshall

Participants
9:00 Robert W. Preucel, The Paiariot Field House Project: Preliminary Results
9:20 Michael L. Elliott, Small Site ("Field House") Variability on the Southern Jemez Plateau, New Mexico
9:40 Ann L. Wooley, Agricultural Competition and Cooperation on the Taos Plateau
10:00 Sandra L. Marshall, Prehistoric Agriculture and Historic Pastoralism in the Middle Rio Grande Valley: A View from the Cooney Site
10:40 Kurt F. Anschuetz and Timothy D. Maxwell, Agricultural Intensification and Diversification in the Northern Rio Grande
11:00 Rosalind Hunter-Anderson, The Changing Role of Small Structural Anasazi Sites in the Northern Rio Grande
11:20 Discussants: Shirley Powell and David R. Wilcox

(27) Symposium: SITE STRUCTURE AND SPATIAL ORGANIZATION OF SEDENTARY COMMUNITIES
Quebec
Organizers and Chairpersons: Philip J. Arnold III and Michael P. Smyth

Participants
9:00 Garth Bawden, Domestic Space and Social Organization in the Osmore Drainage of Southern Peru
9:20 Walter A. Dodd, Factors Conditioning the Placement of Fire-Related Facilities and Refuse
9:40 Michael P. Smyth, Site Structure and Spatial Organization: The Archaeology of Storage Behavior

Friday Afternoon, May 8

10:00 Lee Home, Reading Village Plans
10:20 Michael Deal, Household Pottery Storage and Site Structure: A View from the Maya Highlands
10:40 Linda Mick-O'Hara, Distributional Analysis: An Attempt to Unravel Complexity in Puebloan Prehistory
11:00 Peter G. Roe and Peter E. Siegel, Village Spatial Organization in the South Amerindian Lowlands: Evidence from Ethnoarchaeology
11:20 Philip J. Arnold III, A Site Structural Approach to Modeling Ceramic Production
11:40 Discussants: Susan Renf and Michael B. Schiffer

(28) Symposium: CURRENT ISSUES IN THE ARCHAEOLOGY OF THE NORTHERN ANDES
Alberta
Organizers and Chairpersons: Patricia J. Netherly and Karen E. Stothert

Participants
10:20 James B. Richardson III, The Archaeological Sequence and the Radiocarbon Chronology of the Chira Region of Northwest Peru
10:40 Thomas F. Aleto, Ecuadorian Chronology from the Gulf of Guayaquil
11:00 Patricia J. Netherly, Behind the Mangrove: Cultural Chronology and Settlement Pattern in the Areillas Valley, Southeastern Coastal Ecuador
11:20 Alfred H. Siemens, Manipulation of Soil and Water in the Xeric Environments of Lowland El Oro, Ecuador
11:40 K.O. Bruhns, Long Distance Exchange in the Late Formative Ecuadorian Highlands

(29) Symposium: THE MEANINGS OF CONSUMPTION: ONGOING RESEARCH IN HISTORICAL ARCHAEOLOGY
British Columbia
Organizers and Chairpersons: Paul A. Shackel, Barbara J. Little and Margaret Purser

Participants
10:20 James Deetz, Afro-American Ceramic Production and Consumption in the Virginia Tidewater
10:40 Parker B. Potter, Jr., The Consumption of Ideas and the Production of Behavior: Past and Present in Annapolis, Maryland
11:00 Lynn Clark, Randall H. McGuire and LouAnn Wurst, Domination, Resistance and Meaning in the Cemetery
11:20 Stephen T. Driscoll, The Emergence of a Pictish Kingdom: Material Culture and Power
11:40 Steven Pendery, Pattern in Material Life in Colonial Charleston, Massachusetts

FRIDAY AFTERNOON MAY 8, 1987

(30) Symposium: HUNTER-GATHERERS AT THE LAST GLACIAL MAXIMUM: THE GLOBAL RECORD (CONT'D)
Ballroom
Organizers and Chairpersons: Clive Gamble and Olga Soffer

Participants
1:10 Andrei A. Velichko, Palaeoenvironments on the Russian Plain at the Valdai Glacial Maximum
1:30 Olga Soffer, Hunter-Gatherers on the Russian Plain at 18,000 B.P.
1:50 Janusz K. Kozlowski, Northern Central Europe at ca. 18,000 B.P.
2:10 Jiří Svoboda, Czechoslovakia at the Second Wurmian Pleniglacial: From the Middle Upper to the Late Upper Paleolithic
2:30 Gerold C. Weniger, Germany at 18,000 B.P.
2:50 Marcel Otte, The Northwest European Plain at 18,000 B.P.
3:10 Françoise Audouze and Beatrice Schmidt, Northern and Central France at 18,000 B.P.
3:30 Jean-Philippe Rigaud and Jan F. Simek, Prehistory of the Périgord Around the Last Glacial Maximum
3:50 Clive Gamble and João Zilhão, The Portuguese Soulstone—A New Appraisal
4:10 Lawrence G. Straus, The Last Glacial Maximum in Iberia: An Interregional Comparison
4:30 Discussants: H. Martin Wobst and Lewis R. Binford

(30) General Session: PRECOLUMBIAN MEXICO: RECENT EXCAVATIONS AND ANALYSES

Confederation 456
Chairperson: Michael E. Whalen

Participants
1:00 Charles D. Trombold, Recent Excavations in the La Quejada Region, Zacatecas, Mexico
1:10 R.B. Brown and L.F. Nieto G., San Miguel Viejo, Mpio. Allende, Guanajuato, Mexico
1:20 Charles A. Kolb, Classic Teotihuacan "Coppied Ware"—Ceramic Technological and Cultural Interrelations
1:40 Veronica M. Rahn, Anthropomorphic Figurines as Ideological Practice: Teotihuacan Figurines at Matacapan, Veracruz, Mexico
2:00 Barbara A. Hall, Mesoamerican Textile Exchange and Spindle Whorls at Matacapan, Veracruz, Mexico
2:20 Michael E. Whalen, Small Community Organization During the Late Formative in Oaxaca, Mexico
2:40 Denise C. Hodges, Political Systems and Health Patterns in the Prehispanic Valley of Oaxaca, Mexico.
3:00 Helen Perlstein Pollard, Tarascan Civilization Within Prehispanic Mesoamerica
3:20 Michael E. Smith, Community Organization at Two Late Postclassic Sites in Morelos, Mexico
3:40 John R. Triggs, A Quantitative Approach to the Reconstruction of Settlement Patterns in the Tehuacan Valley, Mexico
4:00 Marc Thompson, Mesoamerican Icon and Mimbres Mortuary Vessels

(31) Symposium: LITHIC SOURCING AND PROCUREMENT STRATEGIES

Territories
Organizers and Chairpersons: David J. Ives and Lucianne Lavin

Participants
1:00 Barbara B. Luedtke, Chert Source Determination: Getting Down to Basics
1:20 Peter Pagoulatos and Kathleen Furgerson, Terminal Archaic Lithic Procurement and Utilization: A View from the Connecticut River Valley
1:40 Barbara A. Calogero, Local Resource Selection - Connecticut Basalts
2:00 Lucianne Lavin, Prehistoric Procurement of Secondary Lithic Sources: The Case for Characterization
2:20 George P. Nicholas, Jasper Extraction and Thermal Modification Technologies, and Their Behavioral Implications in Southwestern New England
2:40 Kenneth B. Tankersley, In Search of Early Paleolithic Procurement Strategies in the Midwestern United States
3:00 David J. Ives, "Exotic" Cherts and the Hopewell Interaction Sphere
3:20 A.D. Darlington and Julie Francis, Cache and Carry: Lithic Procurement Strategies and Stone Caches in Northeastern Wyoming
3:40 Discussants: Ruthann Knudson and Cheryl Munson

(32) General Session: ISSUES IN ARCHAEOLOGICAL THEORY

Quebec
Chairperson: Douglas K. Charles

Participants
1:00 Rafael Cavallo and Eric C. Gibson, The Scavenging Hypothesis Revisited, Or, Putting 'Man' Back in Early Man Studies
1:20 Frances R. Pickin, Cultural Evolution and Allometric Growth
1:40 Charles Clifford Boyd, Cultural Selectionism and the Prehistory of Upper East Tennessee and Adjacent Regions
2:00 Aubrey Cannon, The Temporal Dimension in the Analysis of Style

Friday Afternoon, May 8

2:40 Judith Habicht-Mauzhe, John Hoopes and Michael Geselowitz, What's the Chief? The Archaeology of Complex Tribes
3:00 Isamu Shimada and John Merkl, Sian Metallurgy: "Holistic" Understanding and the Role of Archaeometry
3:20 David J. Killick, A Technology in Its Social Setting: Historic Iron Smelting in Central Malawi, East Africa
3:30 Neil A.R. Lang, Mortuary Analysis, Its Uses and Abuses: Some Examples from the Iron Age of North West Europe
3:50 D. Arnold, Cultural Process and Changes in Ceramic Technology in Tucul, Yucatan, Mexico

(28) Symposium: CURRENT ISSUES IN THE ARCHAEOLOGY OF THE NORTHERN ANDES (CONT'D)

Alberta
Organizers and Chairpersons: Patricia J. Netherly and Karen E. Stothert

Participants
1:00 Ann M. Mester, Pattern Burnished Ceramics from a Manteno Trading Center
1:20 Maria A. Massucci, Inland-Coastal Interaction: Evidence of Guangala Phase Inland Subsistence Patterns from El Azuay, Ecuador
1:30 Paul Tottori, Investigations in the Basin of the Rivers Santiago and Cayapas, Esmeraldas, Ecuador
1:50 Ronald D. Lippi, The Western Pichincha Project: Survey and Excavations in Ecuador's Western Montevideo 2:10 J. Stephen Athens, Ethnicity and Adaptation: Prehistory in Northern Highland Ecuador
2:30 Gregory Knapp, Irrigation and Culture History in the Equatorial Andes
2:50 Mathilde Tenne, Characteristics and Inter-regional Linkage of Prehistoric Settlement Remains of Putuhais (Southern Ecuador)
3:10 John E. Staller, A Contextual Analysis of a Valdivia House Structure at OCGE-Ch-130
3:30 Discussants: Allison C. Paulsen and J. Scott Raymond

(33) Symposium: PROBLEMS IN ONTARIO PREHISTORY

Library
Organizer and Chairperson: Martha B. Latta

Participants
1:00 Ronald F. Williamson, Early Iroquoians: People in Transition
1:20 Peter Reid, Models for Prehistoric Exchange: southwestern Ontario and Southern Michigan
1:40 Robert Pihl, New Perspectives on Point Peninsula Middle Woodland in Eastern Ontario
2:00 Rodolphe David Fecteau, Late Woodland Cultivated Plant Record in Southern Ontario
2:20 H. Bruce Schroeder, Problems and Prospects for Research Into the Later Archaic of Southern Ontario
2:40 Martha B. Latta, An Historical Overview of Ontario Prehistory

(29) Symposium: THE MEANINGS OF CONSUMPTION: ONGOING RESEARCH IN HISTORICAL ARCHAEOLOGY (CONT'D)

British Columbia
Organizers and Chairpersons: Paul A. Shackel, Barbara J. Little and Margaret Purser

Participants
1:00 Paul A. Shackel, The Archaeology of Manners
1:20 Margaret Purser, Material Culture and the Study of Consumption in Nineteenth Century Forest Valley, Nevada
1:40 Barbara J. Little, The Authority of Media: Print Culture and Material Culture in the Colony and State of Maryland
2:00 Discussants: James Deetz and Mark P. Leone

(34) General Session: SPATIAL ANALYSES

Confederation 3
Chairperson: Peter W. Stahl
Saturday Morning, May 9

1:00 Nina M. Versaggi, Diversity in Hunter-Gatherer Settlements in the Susquehanna Valley of New York
1:20 R.W. C. Buzar, The Spatial Organization of the Batten Kill Phase in Southern Ontario
1:40 Nathan D. Hamilton, The Nevin Site: Reconstructing Subsistence Patterns and Activity Areas

Saturday Morning, May 9

2:00 Nancy R. Coinman and Geoffrey A. Clark, Aspects of Structure in Late Pleistocene (Epipaleolithic) Occupation Sites in West-Central Jordan
2:20 Peter W. Stahl and James A. Zedler, Spatial Analysis and Taphonomy of Vertebrate Fauna from Early Formative Domestic Structures at Real Alto, Ecuador
2:40 Jon S. Czaplicki and John C. Ravesloot, Determining Subsurface Site Boundaries at Hohokam Sites by Intensive Transect Recording
3:00 P. Nick Kardulias, Geophysical Examination of the Byzantine Fortress at Isthmia, Greece
3:10 Richard S. Sleet, Exploration of Cultural Interaction: A Study of Settlement Patterns in the Gallina Region of Northwestern New Mexico
3:30 Robert D. Leonard and Roger Anyon, Comparative Sampling of Varied Landforms in the Regional Survey
3:30 Charles F. Merbs and Judy L. Brunson, Burial Orientation and Afterlife: A Comparison of Models from the American Southwest and the Canadian Arctic

Symposium: APPROACHES TO DATING NORTH AMERICAN ROCK ART

Participants
British Columbia
Organizer and Chairperson: Thor Conway

Participants
3:00 Ian M. Wainwright, Observations of the Structure and Deterioration of Rock Art Sites in Canada
3:20 Ronald Cormier and David S. Whitley, Cation Ratio Dating and Rock Art Chronology in the Western Great Basin
3:40 Charles Cleland and Thor Conway, Dating Algongian Rock Art Through Ethnography, Geomorphology and Archaeology
4:00 Doris Lundy, The Rock Art of British Columbia: A Chronological Review
4:20 Robert J. Salzer, Cultural and Temporal Contexts of the Gottschall Rock Art Site
4:40 Discussant: James Swauger

FRIDAY EVENING MAY 8, 1987

SOCIETY FOR AMERICAN ARCHAEOLOGY
5:30- Annual Business Meeting
7:30PM Ballroom

SATURDAY MORNING MAY 9, 1987

Symposium: IROQUOIS SETTLEMENT AND DEMOGRAPHY

Participants
Quebec
Chairperson: Dean R. Snow

Participants
8:00 Dean R. Snow, Variables and Constants in Iroquoian Settlement Patterns
8:20 William D. Finlayson and David G. Smith, Iroquoian Culture History, Settlement and Demography in the Crawford Lake Region of Southern Ontario

37] General Session: CARIBBEAN ARCHAEOLOGY

Library
Chairperson: William F. Keegan

Participants
8:00 David J. Bernstein and Peter E. Siegel, Site Structure, Settlement Organization, and Sampling: A Case Study from the North Coast of Puerto Rico
8:10 Bruce K. Nodine, The Antillean Ceramic: Preliminary Results from a Survey of Sites on Antigua, West Indies
8:30 William F. Keegan, Structural Determinants of Lucayan Arawak Settlement Patterns
8:50 Samuel M. Wilson, Recent Research on Nevis, West Indies

Symposium: BEYOND COUNTS, CATALOGS AND CHRONOLOGIES: NEW DIRECTIONS IN ROCK ART RESEARCH

Participants
British Columbia
Organizers and Chairpersons: David S. Whitley and Christopher Chippendale

Participants
8:00 Christopher Chippendale, What's It a Picture of? Identifying Prehistoric Pictures in the Southern Alps
8:20 Jay F. Custer, Patterns in Petroglyphs and in Ceramics of the Lower Susquehanna Valley, Delaware
8:40 Knut Helskov, Changing Rock Art, Changing Society? The Case of the Stone Age Fisher-Hunter-Gatherers of Arctic Norway
9:00 David S. Whitley, Ethnography of Communication and Rock Art Study in the Active Voice
9:20 Tamara Koteles McAuley, Low Art in High Culture: A Reanalysis of the Tikal “Graffiti”
9:40 Larry Loendorf, Topophilia and Rock Art in the Northwest Plains
10:00 Megan Bieseke, Oral Learning and the Interpretation of Rock Art
10:20 David Lewis-Williams, The Signs of All Times: Entopic Phenomena in Rock Art
10:40 Royden J. Yates, Anthony M. Manhire and John Parkington, Ethnography, Archaeology, and Rock Engraving in the Western Cape, Southern Africa
11:00 Janette Deacon, Ethnography and Southern San Rock Engravings
11:20 Thor Conway, Shamanic Rituals and the Interpretation of Ojibwa Rock Art
11:40 James Sackett, Beyond Time-Place Systematics in Rock Art Research: A Synthetic View
12:00 Discussant: David Hurst Thomas

Symposium: EXCHANGE SYSTEMS IN NORTH AMERICA: CONNECTIONS AND INTERFACES

Participants
Confederation 3
Chairperson: Mitchell T. Mulholland

Participants
8:00 Mitchell T. Mulholland, Information Flow in Archaeological Data Management
8:30 Harold L. Dibble, The La Quina Computer Data System
8:30 Paul Reilly, Looking at the Past Using Advanced Graphics Systems
8:50 Kathryn M. Cleland, Dwight W. Read and Izumi Shimada, Applications of Digitizing to Analysis of Ceramics from Huaca del Pueblo Batan Grande, Peru

Participants
9:00 Gary A. Warrick, Estimating Ontario Iroquoian Village Duration
9:20 Mary Ann Niemczycki, Demographic Change and the Evolution of Iroquois Culture in West-Central New York
9:40 Dean H. Knight, Morphology of a 17th Century Huron Village
10:00 Wm. C. Noble, Historic Iroquois Settlements of the Ontario-Niagara Frontier Region
Saturday Morning, May 9

8:45   David J. Meltzer, Were There Exchange Systems Among North American Paleo-Indians?
9:00   Roy L. Carlson, Prehistoric Exchange on the Northwest Coast
9:15   Jonathon E. Ericson, Chester King and Clay Singer, Exchange and Epidemics Among California Aboriginal Populations
9:30   Frank W. Eddy, Some Thoughts on Exchange Relationships During the Glaze Period of the Callesteo Basin, Northern New Mexico
9:45   Randall H. McGuire, The Structure and Organization of Hobokam Exchange
10:00  Ronna J. Bradley, Marine Shell Ornament Production at Casa Grandes, Chihuahua: The Role of Shell in Exchange Systems in Northwest Mexico and the Southwest
10:15  Daniel E. Reif, Contact Shock and the Routes of Contagion During the Early Historic Period in the Greater Southwest
10:30  Garman Harbottle and Phil C. Weigand, Turquoise in the Ancient Mesoamerican Trade
10:45  Christopher A. Pool and Robert S. Santley, Connections and Interfaces Between Production—Distribution Systems in Highland Mexico and on the Gulf Coast
11:00  Harry J. Shafer and Patricia A. McAnany, Patterns of Production and Consumption: A Stone Tool Exchange Network from the Eastern Maya Lowlands
11:15  Paysen D. Sheets, Economies of Dependency or Self-Sufficiency in El Salvador and Costa Rica
11:30  Discussants: Cynthia Irwin-Williams and Jeremy A. Sahlof

(41) Symposium: PROVINCIAL INKA: PROBLEMS AND MEANS OF IDENTIFICATION

Alberta
Organizer and Chairperson: Michael A. Malpass

Participants
8:40   Theresa Lange, Topic, The Late Horizon in Huamachucu
9:00   Sue Grosboll, “...And He Said in the Time of the Yoga, They Paid Tribute & Served the Yoga...”
9:40   Katharina J. Schreiber, The Inka Occupation of the Province of Lucanas, Peru
10:00  Geoffrey E. Sparling, Qolla Potters Making Inka Pottery: Ceramic Production at Millarayu
10:20  Michael A. Malpass, Inka Occupation of the Colca Valley, Peru
10:40  Thomas F. Lynch, Searching for the Inkas at Catarpe Tambo and Related Sites in the Chilean Atacama
11:00  Lautaro Núñez Atencio, Ocupación Inka en el territorio atacameño (Norte de Chile)
11:20  Mario A. Rivera, Inka Strategies of Occupation in Northern Chile
11:40  Discussant: Donald Thompson


Territorials
Organizer and Chairperson: Thomas W. Kilson

Participants
9:00   Timothy D. Maxwell and Kurt F. Anschuetz, Variability in Garden Plot Locations in the Lower Rio Chama Valley, New Mexico
9:20   William E. Dooldie, Survey Evidence of Dooryard Gardens in the Southwest
9:40   Ponciano Ortiz Ceballos, The Archaeological Record as an Indicator of Household Gardening Strategies in Prehistoric Mesoamerica
10:00  Thomas W. Kilson, The Use of Space Around the Residence by the Ancient Farmers of the Gulf Coast: Recent Research from the Site of Matabapan, Venacaz, Mexico
10:20  Donna M. McAnany, Garbage and Gardens: The Dynamics of Stone Tool Discard Near Residences
10:40  Peter H. Heelby and Frederick M. Wiseman, The Maya Dooryard Orchard-Garden

Saturday Morning, May 9

11:00  Christian J. Zier, Residential Agriculture in a Post-Eruption Environment, El Salvador
11:20  Robert Eti, A New Method for Identifying Anthrosols with Special Reference to Garden Soils
11:40  Discussants: B.L. Turner II and William T. Sanders

(43) General Session: METHODS OF ARCHAEOLOGICAL RESEARCH AND ANALYSIS

Confederation 3
Chairperson: James Schoenwetter

Participants
9:30   James Schoenwetter, The Logic of Archaeological Pollen Analysis
9:50   A.C. D’Andrea, Limitations on the Interpretation of Archaeological Wood Charcoal
10:10  Rinita A. Dalan, Julie K. Stein, John M. Musser, Jr. and Clyde A. Ringstad, Archaeo-Geophysics and Coring: A Partnership That Works
10:30  Frank J. Vento and Phillip T. Fitzgibbons, Holocene Age Paleosol Development and Archaeological Site Location
10:50  Robert C. Dunnell, Measurement and Archaeological Use of Sediment pH
11:10  K.M. Wilson Yang, J.E. Smeaton, K.M. Matsui, L. Bond and G. Burns, Archaeological Sites as Chemical Systems
11:30  Richelle G. Kelsay, Jennifer T. Taschek and Joseph W. Ball, Intrasettlement Space-Utilization and Residual Soil Phosphate Levels in the Upper Belize Valley, Central America
11:50  James I. Ebert, Eileen L. Camilli, and LuAnn Wandsnider, Recent Erosion of Sites on the Middle Missouri River

(44) Symposium: THE INTERPRETATION OF SPATIAL PATTERNS WITHIN STONE AGE ARCHAEOLOGICAL SITES

Confederation 456
Organizers and Chairpersons: Ellen M. Kroll and T. Douglas Price

Participants
9:30   Ellen M. Kroll and T. Douglas Price, Introduction
9:40   Susan Kent, The Relationship Between Anticipated Mobility Strategies and Site Structure
10:00  J.F. O’Connell, K. Hawkes and N.B. Jones, Hadza Site Structures: An Ethnographic Overview
10:20  Laurence E. Bartram, Ellen M. Kroll and Henry T. Bunn, Variability in Camp Structure and Food Refuse Patterning at Rua San Hunter-Gatherer Camps
10:40  Brian Hayden and Rob Gargett, Spatial Structure in Australian Hunter/Gatherer Campsites
11:00  John E. Yellen, The Effect of Non-Human Predators on Intra-Site Spatial Organization
11:20  Keith W. Kintigh, Susan Gregg, and Robert Whallon, Linking Ethnoarchaeological Interpretation and Archaeological Data: The Sensitivity of Spatial Analysis Methods to Post-Depositional Disturbance
11:40  Discussant: Michael B. Schiffer

(45) General Session: THE MAYA REGION: STRATEGIES AND SYNTHETIC

Library
Chairperson: Grant D. Jones

Participants
9:50   Michael Blake and John E. Clark, Barra, Ocós, and Early Olmec Societies of Coastal Chiapas, Mexico 10:00 Olivier de Montmollin, Shifting Spatial Scales in Studies of Maya Settlement and Politics
10:20  Eric C. Gibson, The Origin of Maya Ceremonial Lithic Artifacts
10:40  Richard M. Leventhal, Southern Belize: The Development of a Maya Region
11:00  Peter S. Dunham, Gravity Analysis and Settlement Boundaries: Intercenter Interaction in Southern Belize
Saturday Afternoon, May 9

11:20 James I. Sheehy, Ethnographic Analogy and the Copaneco Royal Household
11:40 Grant D. Jones, David M. Pendergast and Elizabeth A. Graham, Locating the Maya Towns of Spanish Colonial Belize: Ethnohistorical and Archaeological Strategies

SATURDAY AFTERNOON MAY 9, 1987

[40] Symposium: EXCHANGE SYSTEMS IN NORTH AMERICA: CONNECTIONS AND INTERFACES (CONT'D)

Ballroom
Organizers and Chairpersons: Timothy G. Baugh and Jonathon E. Ericson

Participants
1:00 Cheryl Claassen, Uncovering Trade Routes for Shells
1:15 Christopher L. Nagle, Inuit and Paleo-Eskimo Raw Materials Procurement and Exchange in the Eastern Canadian Arctic: System Structure and Implications for Studies of Other Egaliitarian Societies
1:30 Bruce J. Bourque, Exchange Patterns in Northeastern North America
1:45 Neal C. Trubowitz, New Goods on Old Routes: Exchange in the Contact Era in Eastern North America
2:00 Jay K. Johnson and Samuel O. Brooks, Benton Points, Turkey Falls and Cache Blades: Middle Archaic Exchange in the Southeast
2:15 Jon L. Gibson, Poverty Point Trade and the Archaic: Woodland Transition
2:30 Marvin T. Smith, Early Historic Period Trade in the Interior Southeast
2:45 Ann F. Ramenofsky, Diffusion of Disease at European Contact
3:00 Timothy G. Baugh and Fred W. Nelson, Exchange and Obsidian: Changing Trade Structures in the Southern Plains
3:15 S.C. Vehik, Late Prehistoric Exchange on the Southern Plains
3:30 I. Daniel Rogers, The Social Role of Commodities: An Archaeology of Arikara Trade
3:45 Dennis L. Toom, The Role of Plains Villagers in the Post-Contact Middle Missouri Trade System of the Northern Plains
4:00 Discussants: James B. Griffin and Jerald T. Milanich

[44] Symposium: THE INTERPRETATION OF SPATIAL PATTERNS WITHIN STONE AGE ARCHAEOLOGICAL SITES (CONT'D)

Confederation 456
Organizers and Chairpersons: Ellen M. Kroll and T. Douglas Price

Participants
1:00 Marc G. Stevenson, What Now! Beyond the Formation of Hearth Associated Lithic Distributions
1:20 H.P. Blankholm, Towards a Behavioural Interpretation of Early Post-Glacial Hunter-Gather Site in Southern Scandinavia
1:40 Daniel Cahan, Spatial Organization of the LBK Village of Darion (Belgium)
2:00 Lawrence Keeley, Lithic Production and Use: Implications for Spatial Analysis
2:20 Ian Johnson, Recovery and Classification as a Determinant of Interpretation
2:40 Christopher Carr, Interpreting Artifact Clusters Around Hearths at Pincevent Habitation No. 1
3:00 Jan F. Sinke and Jean-Philippe Rigaud, Site Formation at the Abri Vauvrey (Dordogne, France)
3:20 H. Hietala, Changes in Social Organization at the Middle Paleolithic Transition Site at Boker Tachtit
3:40 Ellen M. Kroll, Help, No Hearths: Interpreting Plio-Pleistocene Intrasite Spatial Patterns
4:00 Discussant: Robert Whallon

[46] Symposium: EASTERN PALEO-INDIAN LITHIC RESOURCE UTILIZATION

Territories
Organizers and Chairpersons: Jonathan C. Lothrop and Chris J. Ellis

Saturday Afternoon, May 9

Participants
1:00 Peter L. Strock and Peter von Bitter, Implications of the Geological Age and Occurrence of Fossil Hill Formation Chert for Early Paleo-Indian Settlement Patterns in Southern Ontario
1:20 D. Brian Deller, Great Lakes Paleo-Indian: Interpretation of Chert Utilization Patterns in the Parkhill Complex
1:40 L.A. Pavlish, To Heat or Not to Heat, That Is the Question?
2:00 F.J. Julig, L.A. Pavlish and R.G.V. Hancock, Late Falcoidan Lithic Procurement, Reduction and Transport in the North-Western Lake Superior Region, Canada
2:20 Arthur E. Spiess, Deborah Brush and John R. Grimes, Patterning in Paleoindian Behavior: The Michaud Site
2:40 Chris J. Ellis, The Explanation of Eastern Paleo-Indian Lithic Procurement Patterns
3:00 Kurt W. Carr, The Role of Quarry Utilization in Paleoindian Settlement Patterns
3:20 J. Randolph Daniel, Jr., The Organization of a Sustained Technology: The View from Harney Flats
3:40 Jonathan C. Lothrop, Paleo-Indian Lithic Raw Material Management in the Northeast
4:00 Michael Shott, Technological Organization in Great Lakes Paleo-Indian Assemblages
4:20 Discussants: Albert C. Goodyear and Henry T. Wright III

[47] Symposium: COASTAL MAYA TRADE AND EXCHANGE

Quebec
Organizer and Chairperson: Heather J. McKillip

Participants
1:00 Heather J. McKillip, Introduction
1:10 Diane Z. Chase and Arlen F. Chase, Routes of Trade and Communication and the Integration of Maya Society: The Vista from Santa Rita Corozal, Belize
1:30 Meredith Drew, An Obsidian Distribution Model for the Belize Periphery
1:50 Rafael Cobos, Shelling In: Marine Molluscs at Chichen Itza
2:10 Anthony P. Andrews, A Typology of Maya Trading Ports
2:30 J. Jefferson MacKinnon, Coastal Maya Trade Routes in Southern Belize
2:50 Heather McKillip and Lawrence Jackson, Defining Coastal Maya Trade Stations and Transportation Routes
3:10 Matthew Bost, Sarneja, Belize and the Maya Postclassic
3:30 Elizabeth A. Graham, A Brief Synthesis of Coastal Site Data from Colson Point, Placencia, and Marco Gonzalez, Belize
3:50 Thomas H. Guderjan, James F. Garber and Herman A. Smith, Maya Transshipment Points and Facilities on Northern Ambergris Cay, Belize
4:10 Discussants: Paul F. Healy

[48] Symposium: DEMOGRAPHY, PRODUCTION, AND EXCHANGE IN THE EVOLUTION OF COMPLEX SOCIAL ORGANIZATION IN LATE PREHISTORIC EUROPE

Alberca
Organizers and Chairpersons: D. Blair Gibson and Michael N. Geselowitz

Participants
1:00 Carole L. Crumley, Toward a Definition of Complexity: Some Burgundian Puzzles
1:20 Stephen Dyson, The Rise of Complex Societies in Italy: Historical Versus Non-Historical Perspectives
1:40 Bettina Arnold, Slavery in Late Prehistoric Europe: Recovering the Evidence for Social Structure in Iron Age Society
2:00 Matthew L. Murray and Margaret J. Schoeninger, Diet, Status and the Emergence of Complex Social Structure in Iron Age Central Europe: Some Contributions of Bone Chemistry
2:20 Discussant: Bernard Wailes
2:40 Janusz Ostos-Zagorski, Demographic and Economic Changes in the Hallstatt Period of the Lusatian Culture
3:00 D. Blair Gibson, Agro-Pastoralism and Regional Social Organization in Late Iron Age Western Ireland
Saturday Afternoon, May 9

3:40 Kathleen Biddick, People and Things: Territorializing Social Reproduction in Early European Development
4:00 Klavs Randsborg, The Town, the Power and the Land: Europe and Denmark in the First Millennium A.D.
4:20 Discussant: Peter S. Wells

(49) General Session: SOUTHERN ANDES
Library Chairperson: Geoffrey W. Conrad

Participants
1:00 Calogero M. Santoro, Transhumance Patterns in the South Central Andes
1:10 Donald L. Brockington, David Pereira, Ramon Sanztenenea, and Ricardo Cespedes, A Preliminary Report on Formative Ceramic Sequences in Cochabamba, Bolivia
1:30 Katherine M. Moore and Margaret J. Schoeninger, Quantitative Reconstruction of Prehistoric Diet in Peru
1:40 Lawrence A. Kuznar, Asana: A Deeply Stratified, Open-Air Archaic Period Site in the South Central Andean Highlands
2:00 Francis A. Riddell, Archaeological Research on the South Coast of Peru
2:20 R.W. Robinson, Hacha: A Late Initial Period Site on the South Coast of Peru
2:40 Jonathan D. Kent, Ground Figures and Roads in Asana, Peru
3:00 Christopher L. Borstel, Keith F. Jacoby, and Geoffrey W. Conrad, San Antonio: Analysis of the Exposed Architecture at an Estupina Phase Site, Moquegua, Peru

(50) General Session: CERAMIC ANALYSIS
British Columbia Chairperson: Karen D. Vitelli

Participants
1:00 Melissa B. Hagastrum, An Ethnoarchaeological Study of Ceramic Use-Life, Breakage, and Discard in the Central Andes, Peru
1:20 W. Longacre, K. Kwamme and M. Kobayashi, Pottery Standardization: Ethnoarchaeological Studies from the Philippines
1:40 Robert C. Hendrickson, Pottery Production and Consumption in an Iranian Bronze Age Town
2:00 Carole A. Stummons, Changes in Prehistoric Ceramic Production Technology in the North American Arctic
2:20 Patricia L. Crown and Ronald L. Bishop, Convergence in Ceramic Manufacturing Traditions in the Late Prehistoric Southwest
2:40 Robert B. Mason, Petrographic Analysis of Pottery from R.O.M. Fieldwork in the Near East
3:00 Patrice A. Telfer, Chronological Implications of Ceramic Paste Variability in Middle Mississippi Ceramics from Southeast Missouri
3:20 Elizabeth P. Hendrickson, Identifying the Function of an Abundant, Enigmatic Vessel Type from an Iranian Chalcolithic Farming Village
3:30 Patricia A. Gilman, Changing Subsistence and the Role of Ceramics
3:50 Barbara J. Mills, Vessels vs. Sherds: An Interpretive Dichotomy
4:10 H.W. Jarvis, INAA Provides Evidence of Efficient Pottery Making Technology at the Kefker Site, Ontario, Canada
4:50 James M. Skibo and Michael B. Schiffer, Organic-Tempered Pottery: An Experimental Study

(51) General Session: GREAT BASIN AND SOUTHWEST
Confederation 3 Chairperson: John M. Andresen

Participants
1:00 J.M. Adovasio, R.L. Andrews and Ronald C. Carlisle, New Evidence for the Diffusion of the Numic Speakers in the Great Basin

Sunday Morning, May 10

1:20 Michael G. Delcorte, The Role of Marriage Networks in Structuring Great Basin Settlement Patterns
1:40 Lonnie C. Pippin, Modeling the Formation of Temporary Camps and Other Site Types in the Archaeological Record of the Nevada Test Site, Southern Nye County, Nevada
2:00 Robert P. Power, The View from the Outside: Archaeological Survey on the Peripheries of Chaco Canyon
2:20 Deborah L. Nichols, Changing Community Patterns and Intensification of Social Networks During the Basketmaker-Pueblo Transition on Northern Black Mesa, Arizona
2:40 Thomas R. Rocek, Economy, Demography, and Social Change: The Navajos of Northern Black Mesa
3:00 John M. Andresen, Classic Period Hohokam Group Structure
3:40 Amy A. Douglass, Exploring Prehistoric Southwestern Ceramic Exchange: Little Colorado Whiteware Distributions and EDA
4:00 Nancy D. Sharp, Resource Selection in Developing Agricultural Systems

(52) Symposium: TIWANAKU AND ITS HINTERLAND: RECENT RESEARCH IN THE TITICACCA BASIN OF BOLIVIA
Library Organizer: Gray Graffam Chairperson: Alan L. Kolata

Participants
3:30 Alan L. Kolata, Proyecto Wila Jawira: An Introduction to Goals, Methods, and Results
3:45 Charles Stanish, Size and Complexity in Core Area Tiwanaku Settlements
4:00 Marc Bermann, Domestic Occupation at a Regional Tiwanaku Site
4:15 Oswaldo Rivera Sundt, Excavations in the Sector of Wilakollu at Lukurtama, Bolivia
4:30 Gray Graffam, Tiwanaku Intensive Agriculture: Evidence of Raised Field Cultivation from Lukurtama, Bolivia
4:45 Michael W. Binford, Mark Brenner and Barbara Leyden, Preliminary Studies of Tiwanaku Limnology
5:00 Charles Ortollo, A Thermo-hydrological Analysis of Raised Fields in the Tiwanaku Hinterland
5:15 Discussants: Thomas F. Lynch and Mario Rivera

SUNDAY MORNING MAY 10, 1987

(53) Workshop: SAS INTERFACES ’87: MICROSCOPY FOR THE ARCHAEOLOGIST
Canadian Organizer and Chairperson: Jonathon E. Ericson

Participants
8:00 Jonathon E. Ericson, Introduction
8:10 Fred Wiseman, Archaeological Pollen Analysis
8:40 George Rapp, Jr. and Susan C. Mulholland, Phytolith Analysis in Archaeology
9:10 Cheryl Claassen, Shellfishing Seasonality: Problems of Recognizing Annulules
9:40 Break
9:50 Michael L. Wayman, Optical Metallography: Metal Artifacts Through the Looking Glass
10:20 Break
10:30 Suzanne P. DeAtley, Ceramic Technology Revealed Through Microscopy
11:00 Sarah Berry and D.B. Bamforth, Microwear Analysis in the 1980’s
11:30 Christopher M. Stevenson, Methods of Obsidian Hydration Rim Enhancement and Measurement

(54) Symposium: CULTURAL RESOURCE MANAGEMENT AT THE CROSSROADS: ASSESSING THE PAST AND PLANNING THE FUTURE
Tudor 789
Organizers and Chairpersons: Renata B. Wolynee and Joseph A. Tainter
Participants
8:00 Renata B. Wolynec, Great Expectations: A Critical Evaluation of the Cultural Resource
Overview of the Allegheny National Forest
8:20 Michael Roberts, An Assessment of the Evolution of One Approach to Large Scale
Comprehensive Planning from 1978 to 1986
8:40 Christy A. Hohman-Caine, The Translation of Law Into Reality, CRM on a National
Forest
9:00 Break
9:20 Patricia L. Parker, Overviews: Do They Fulfill Their Promise?
9:40 Fred Plog, Preservation of and for What?
10:00 John Knoerl, Managing Historic Preservation Legislation
10:20 Ray A. Williamson, Archaeology, Technology, and Public Policy
10:40 Gary D. Shaffer, Sanitized for Your Protection: On the Road with Federal and State
Archaeology
11:00 Joseph A. Taetor, A Skeptical View of Historic Preservation Planning
11:20 Discussants: Michael J. O'Brien, Jacqueline Nichols and George J. Gumerman

(55) Symposium: POST-PROCESSUAL STUDIES IN PACIFIC ISLAND ARCHAEOLOGY AND
ETHNOHISTORY

Territories
Organizer and Chairperson: Jo Anne Van Tilburg

Participants
8:00 J. Peter White, Islands: Mirrors or Mirages of Continents?
8:20 Jo Anne Van Tilburg, Easter Island Monolithic Statues and the Symbolic Depiction of
Rank Differential
8:40 Jeffrey T. Clark, Stranger Chiefs and Younger Brothers: Paradigms for Polynesian
Colonization
9:00 Robert J. Hammon, New Perspectives on Hawaiian Archaeology
9:20 Douglas B. Sutton, The Origins and Operation of the Northern Maori Chieftainship
9:40 John Terrell, Complementary Approaches to Understanding Human Diversity in the Fiji
Islands
10:00 Patrick W. Kirch, Some Explorations in Lapita Iconography
10:20 William S. Ayres, Nan Madol, Pohnpei, and Island Sociopolitical Change 10:40 Frank R.
Thomas, Explorations into the Lapita Decline
11:00 Thomas J. Belley, Reflections in a Lagoon: Marshallse Atolls as Mirrors of High Islands
11:20 Discussant: William F. Keegan

(56) General Session: LITHIC STUDIES

Quebec
Chairperson: Carl J. Phagan

Participants
8:00 Patricia A. Hicks, The Use of Attributes of Debitage Assemblages as Temporal
Indicators
8:20 John P. Naas, Household Archaeology and Functional Analysis as Procedures for
Studying Fort Ancient Communities in the Ohio Valley
8:40 Cathy L. Lebo, Natural Forces and Human Agency — Partitioning Variation in a Lithic
Industry
9:00 William C. Prentiss, M. Lee Douthit and Eugene J. Romanski, Lithic Procurement and
Hunter-Gatherer Organization in the Central Big Horn Basin, Wyoming
9:20 Sally McBratney, The Sangoan and Middle Stone Age of Western Kenya
9:40 John Lindly, An Analysis of Lithic Reduction Sequences and Technology at the Upper
Paleolithic Site 623, West-Central Jordan
9:50 Kim D. Kornbacher, Lithic Technology and Duration of Occupation of a Southern
Northwest Coast Shell Midden
10:10 Edward E. Smith, Swan’s Landing Site: A Stratified Single Component Kirk
Manufacturing Site in Harrison County, Indiana
10:20 Carl J. Phagan, A Preliminary Projectile Point Typology for the Northern Sinagua
10:30 Elizabeth R. Eblin, Heat Treatment on the Northern Hoobicum Periphery

Sunday Morning, May 10

10:40 Alice W. Portnoy, A Formula for Estimating Minimum Number of Lithic Tools
10:50 LuAnn Wandsnider, Chipped Stone Coding Consistency: Testing Results and
Implications
11:00 John Tomenchuk, Determining Prehistoric Loading Rates and Their Significance for
Functional and Technological Interpretations

(57) General Session: SOUTHERN CENTRAL AMERICA

Alberta
Chairperson: Anthony J. Ranere

Participants
8:00 Joseph W. Ball, A Preliminary Review of the Ceramic Situation in the Lower Mopan-
Macal Triangle, Belize
8:20 Jennifer T. Taschek and Joseph W. Ball, Regal-Ritual Residences and Administrative
Hubs: Differential Structure and Function Among the Major Centers of the Upper Belize
Valley
8:40 William M. Ringle, Craig Hanson, Chris von Nagy, Walter Witschey and George Bev,
Continuing Investigations of Ek Balam, Yucatan
8:50 James E. Brady, Trace Element Analysis of Nai Tunic Obsidian: Protoclassic Trade
Implications
9:00 Marilyn F. Beaudry and Eugenia J. Robinson, Operationalizing the Ceramic Sphere
Concept
9:20 Norman Hammond, Investigations at Cuello, Belize, 1987
9:30 Anthony J. Ranere and Richard G. Cook, From Hunting- Gathering to Village
Agriculture in the Humid Tropics: A 4000 Year Long Process in Central Panama
9:50 Patricia Hansell, Craft Specialization, Regional Exchange and Societal Transformation in the
Central Panama Formative

(58) Symposium: INEQUALITY AMONG HUNTER-GATHERERS

Library
Organizer and Chairperson: John H. Pryor

Participants
8:00 John H. Pryor, Gift Baskets and Sale Baskets: Dynamics of Pomo Power Relations
8:20 Elena L. Filios, Thresholds to Group Fissioning Among Hunter-Gatherers
8:40 Glenn W. Sheehan, Accentuation of Inequality in Eskimo Whaling Societies During
Early Contact
9:00 Robert L. Bettinger, Progress, Homeostasis, Contradiction, and Inheritance: Models of
Hunter-Gatherers in Historical Perspective
9:20 Charles A. Bishop and M. Estelle Smith, Northeastern Algonquian Egalitarianism:
Aboriginal or Post-Contact?
9:40 Gary Coupland, Logistics and Coercion: The Evolution of Non-Egalitarian Social
Formations on the Northwest Coast
10:00 Discussant: Margaret Conkey

(59) Symposium: NEW PERSPECTIVES ON NORTHERN BOREAL FOREST LIFE

Confederation 3
Organizer and Chairperson: Wendy H. Arundale

Participants
8:00 Christopher C. Hanks and David Pokorylo, The Mackenzie Valley: A Reconsideration of
the Dene
8:20 Robert R. Janes, Some Methodological Considerations in Northern Athapaskan
Archaeology
8:40 Chris Rabich Campbell, The Néwaatar Pahraw in the Sanyukwan Tingit
9:00 Wendy H. Arundale and Eliza Jones, Historic Settlement and Subsistence Patterns in the
Koyukuk River Area: New Perspectives from Recent Research
9:20 David R. Yesner, Moose Hunters of the Boreal Forest: A Reexamination of Boreal Forest
Subsistence Patterns
ABSTRACTS OF SYMPOSIA

(2) PLUNDERERS, PROFITEERS AND PUBLIC ARCHAEOLOGY: PRACTICAL APPROACHES TO PREVENTING THE LOOTING OF ARCHAEOLOGICAL SITES AND THE TRAFFIC OF ANTIQUITIES.

How did Indiana Jones get away with it? This symposium presents a provocative examination of the cultural values in the United States and Canada which affect those who would plunder and profit by the looting of archaeological sites. Practical approaches used by state or provincial archaeology offices and local organizations to deal with this problem are explored and their relative success evaluated. The symposium will focus on programs which deal effectively with looting and the sale of artifacts taken from sites located on private, state, provincial or municipal lands. The programs feature the strong enforcement of antiquities laws, prosecution of violators, public education, and outreach.

(4) THE EARLY UPPER PALEOLITHIC: EVIDENCE FROM EUROPE, THE NEAR EAST, AND NORTH AFRICA.

The purpose of this symposium is to focus attention on the early Upper Paleolithic as a distinct entity in the archaeological record, yielding important contrasts with both the Middle and later Upper Paleolithic. The papers range from topical concerns (e.g., fauna or art) to areal syntheses for various parts of Europe and the Mediterranean Basin. Temporal boundaries vary geographically, but throughout these regions transitions in the archaeological record may be identified at 40,000-35,000 B.P. (or somewhat earlier) and 25,000-20,000 B.P. The possible implications for human social, economic, and cultural behavior during the intervening period are explored.

(5) RECENT ARCHAEOLOGICAL AND ETHNOHISTORIC RESEARCH IN THE STATE OF OAXACA: A STUDY OF AN ANCIENT CORE AND ITS PERIPHERIES.

This symposium reviews ongoing archaeological, art historical, and ethnographic research from several environmentally diverse regions in the state of Oaxaca, Mexico. Important historical and organizational differences in prehispanic patterns of change and development are noted between the Valley of Oaxaca core and other areas in the state. Various perspectives (including environmental considerations, macro-regional approaches, and historical analyses) are employed to interpret these distinctive evolutionary trajectories. A broader understanding of ancient Oaxaca and its prehispanic diversity should result.

(6) GEOARCHAEOLOGY OF THE ANDEAN COAST: RECENT ADVANCES.

Over the past decade, there has been an increasing awareness among archaeologists working on the Andean Coast of the interrelationships between alterations in the climate and the physical environment on the one hand and prehistoric society and culture on the other. This awareness has been accompanied by a number of important, sometimes controversial, new studies integrating geological and archaeological data. Contributors to this symposium address processes such as coastal uplift, sea level change, beach ridge formation, and the El Nino phenomenon from the perspective of both geological studies and archaeology, in order to understand better the relation of people to environment in the Andean past.

(7) THE ARCHAEOLOGY OF SOUTH ALASKA: SUBSTANTIVE AND THEORETICAL CONTRIBUTIONS.

This symposium will be concerned primarily with the presentation of substantive data from a number of current research projects conducted in the southern Bering Sea, Aleutian, and Kodiak regions of south Alaska. Contributors will examine the time span from the earliest known inhabitants to the Russian-American era. Ethnographically this region was once solely occupied by distantly related Yupic-speaking Eskimos and Aleuts, who, in combination, far outnumbered related cultures ranging from northwestern Alaska to Greenland. Traditional and recent theoretical concerns will address such issues as the evolution of complex hunting societies or "affluent foragers", model building, the reconstruction of ecology, demography, and settlement patterns, the evaluation of the roles of migration, diffusion, and in situ development; and the relationship of human biology, language, and culture over time and space.

(8) INTERREGIONAL INTERACTION IN PREHISTORY.

The purpose of this symposium is to provide an overview of approaches to the question of what role interregional interaction plays in prehistoric processes of social change. This broad subject has excited considerable interest among archaeologists of late as seen, for example, in the development
of trade, world system, and peer polity interaction models. Participants in the symposium will use their diverse research experiences and theoretical perspectives as a base for considering the strengths and weaknesses of different approaches and the variety of interaction processes attested from different parts of the world.

(9) DIXIE CUPS AND CROWN JEWELS: ANALYTICAL APPROACHES TO THE ORGANIZATIONAL PROPERTIES OF STONE TOOL TECHNOLOGIES.

The concepts of curation and expediency have been defined as extremes in a continuum of planned organizational properties of stone tool technologies (Binford 1979). While these ideas are widely referenced, most researchers focus on different aspects within the concept. This symposium will critically examine these ideas by comparing different sites with the same strategies to see if there are any differences in the experimental use of raw materials. The main goal is to determine if this is a valid approach.

(10) THE FOREIGN RELATIONSHIPS OF TEOTIHUACAN.

Although its influence was widespread in the Middle Horizon Mesocentrum, Teotihuacan should not be viewed as a monolithic force in its interactions with other societies. Its effects took a number of forms, and may be seen from a variety of angles. The symposium will explore these effects and look at the evidence for interaction between Teotihuacan and other cultures.

(11) DESERT AND OASIS: HOLOCENE ARCHAEOLOGY OF THE WESTERN DESERT OF EGYPT.

Archaeological and paleoenvironmental investigations in the Western Desert of Egypt highlight the role of desert regions in agricultural origins and human responses to the changing post-glacial environment. The symposium aims to present some of the most recent discoveries in this area.

(12) GOVERNMENT PROCESSES AND THE COAL INDUSTRY: CAN ARCHAEOLOGISTS ADAPT?

Surface coal mining operations affect hundreds of archaeological sites every year. Most coal mining operations in the United States, especially in the East, are permitted by state mining authorities, not the Federal government, although the Office of Surface Mining review. The symposium will explore the different processes that coal mining operations must follow to adapt to the permitting of mining. The papers presented describe these processes from the Federal, State, and private points of view.

(20) HUNTER-GATHERERS AT THE LAST GLACIAL MAXIMUM: THE GLOBAL RECORD.

Contemporary questions about past human adaptations and cultural practices call for the control of data on large spatial scales. This symposium will offer comparative data on environmental conditions in different regions of the world, including the old world and others. The symposium will discuss the problems facing anthropologists attempting to reconstruct past environments.

(21) ECONOMY & SOCIETY IN THE MEDIEVAL NORTH ATLANTIC.

The symposium centers on the archaeology of the Scandinavia and the North Atlantic, with an emphasis on environmental/economic approaches adopted recently. The symposium includes papers on the impact of Norse colonization, the commercial world of the 18th century, and the economy of the 12th century. The papers will address topics such as trade networks, combining social and environmental explanations. All papers present new data from trade networks, combining social and environmental explanations.
(33) Problems in Ontario Prehistory

This symposium addresses these problems for the eastern two-thirds of the United States and offers examples of solutions to this dilemma.

(33) PROBLEMS IN ONTARIO PREHISTORY

This session illustrates a range of theoretical and methodological approaches current in Ontario prehistoric archaeology. There is an emphasis on the time depth and cultural diversity present in this prehistoric archaeological landscape. There are problems in understanding the movement and distribution of people, materials, and ideas across the landscape. There is also a focus on the use of remote sensing and geographic information systems to address questions of site location and distribution.

(35) APPROACHES TO DATING NORTH AMERICAN ROCK ART

The chronological position of rock art in various North American cultural areas remains an unresolved problem. New work from this continent, presented here, takes three complementary directions to go beyond this traditional impasse. Ethnohistorical/ethnographic approaches provide a fuller picture of the art and its role in society. Formal methods of studying the composition of the art provide an ethnographic dimension.

(38) BEYOND COUNTS, CATALOGS AND CHRONOLOGIES: NEW DIRECTIONS IN ROCK ART RESEARCH

Traditional analyses of prehistoric rock art have provided little archaeological or anthropological detail. The emphasis of this symposium is on the types of commodities traded, the intensity of interaction, and the structure of these exchange systems. To better understand these systems' dynamics and to understand the nature of the trade and how it was characterized, the symposium will examine exchange systems and analyze the differences in trade patterns between prehistoric periods and individually.

(40) EXCHANGE SYSTEMS IN NORTH AMERICA: CONNECTIONS AND INTERFACES

Native North American peoples were constantly moving commodities across regional boundaries. Such interactions had social, economic, and environmental impacts on the various exchange groups. The symposium on this theme will examine exchange systems and analyze how prehistoric peoples managed the exchange of goods across these boundaries.

(41) PROVINCIAL INKA: PROBLEMS AND MEANS OF IDENTIFICATION

Within the short span of 100 years, the Inka conquered and incorporated large numbers of ethnically diverse groups into the Inka empire. The historical development of the Inka state and changes in its political and economic systems have been reconstructed from various sources, but documenting this development has been complicated by the Inka's destruction of previous Inka cultural traditions.

(42) THE GARDENS OF PREHISTORY: A LOOK AT CULTIVATION NEAR THE RESIDENCE FROM THE PERSPECTIVE OF THE ARCHAEOLOGIST

The symposium examines recent research by archaeologists and geographers concerning the role of cultivation in prehistoric agriculture. The papers examine the concept of cultivation and its role in prehistoric agricultural settings. The papers examine the identification of gardens in prehistoric contexts using chemical and conventional methods, the identification of changes in prehistoric gardens using chemical and conventional methods, and the use of remote sensing and geographic information systems to address questions of site location and distribution.

(44) THE INTERPRETATION OF SPATIAL PATTERNS WITHIN STONE AGE ARCHAEOLOGICAL SITES

The interpretation of spatial patterns has been dominated by a variety of quantitative methods for the recognition of spatial patterns. Of equal importance is the development of a body of theory for interpreting spatial patterns. This symposium will examine a selection of both stone age archaeological and modern hunter-gatherer sites, focusing on behavioral, depositional, and other aspects of site formation. The program will be organized to trace through the paleolithic record, the number, density, size, shape, and composition of the sites and their changing roles and the changing processes that formed them.

(45) EASTERN PALEO-INDIAN LITHIC RESOURCE UTILIZATION

The theme of this symposium is the treatment of lithic resources as a key for inferring cultural conditions of their adaptation. Besides making significant contributions to our knowledge of Paleo-Indians from Florida to Ontario (such as the sourcing of lithics and its implications for their settlement mobility and exchange), the papers examine important theoretical questions about the organization of archaeology. These include: the causes of lithic procurement patterns, the effects of technological organizational factors like mobility and lithic access on inter-assembly variability, and the explanation of change in lithic industries.

(47) COASTAL MAYA TRADE AND EXCHANGE

This symposium presents the results of recent research on the coast of the Americas that provide new insights into the nature and development of coastal Maya trade and its integration in ancient Maya society. The thematic focus allows a unique opportunity to address: (1) the development and importance of coastal trade, (2) the extent of long-distance versus more localized coastal trade, (3) the relationship between trade and local trade in the coastal Maya region, and (4) various trade models for the coastal Maya region. Obsidian source identifications, qualitative and quantitative studies of local exotic materials, and finished goods, architectural, locational, geological, and distributional data are marshalled.

(48) DEMOGRAPHY, PRODUCTION, AND EXCHANGE IN THE EVOLUTION OF COMPLEX SOCIO-MATERIAL ORGANIZATION IN LATE PREHISPANIC ECUADOR

The cultures of Ecuador since the end of the Inka Empire were marked by the evolution of increasingly complex social systems. At the same time, places such as the Inka and social stratification appeared and developed, but the overall trend was toward the establishment of these forms on a widespread basis and the intensification of social hierarchy. This symposium will evaluate the importance of varying factors which may have promoted or limited this development. The symposium will also examine the importance of various factors which may have promoted or limited this development.

(52) TWANAKU AND ITS HINTERLAND: RECENT RESEARCH IN THE TITICACA BASIN OF BOLIVIA

This symposium presents the results of the last five years of research on the Pre-Columbian Inka civilization. The symposium will examine the development of the Inka state and its impact on the local environment and economy. The symposium will also examine the role of the Inka state in the development of the local environment and economy.

(53) SAS INTERFACES '87: MICROSCOPY FOR THE ARCHAEOLOGIST

SAS interfaces is a workshop program, organized by the Society for Archaeological Sciences for the purpose of introducing archaeologists to the range of analytical techniques that will enhance data recovery and interpretation. This year seven recognized specialists in microscopy will demonstrate their skills in sample preparation, analysis, and interpretation. There are two workshops available to attend.

(54) CULTURAL RESOURCE MANAGEMENT AT THE CROSSROADS: ASSESSING THE PAST AND PLANNING THE FUTURE

Cultural resource management today faces two contrasting trends: increased recognition and increased concern. The focus on the one hand, and considerations of cost questions about past accom-
ABSTRACTS OF PAPERS

ACKERMAN, Robert E. (Washington State)
THE EARLY CULTURAL HORIZONS OF INTERIOR SOUTHWESTERN ALASKA.
The earliest cultural horizon (c. 11,000-8,000 BP) is represented by sites containing artifact assemblages of the Paleo-Asiatic/Beringian Tradition and an as yet poorly defined projectile point tradition. These sites are found on the coastal strandlines of the Koyukuk and Kuskokwim Rivers and on the strandlines of Pleistocene glaciers and probably represent a peripheral occupation during the early warming phases of the Late Wisconsin. The cultural horizon was followed by a shift in the hunting patterns from the foothill zone to the previously glaciated mountain uplands. Assemblages of this period are grouped under the Late Tundra Tradition (c. 8,000-6,000 BP). These two cultural horizons will be explored in terms of site and assemblage relationships against a background of changing paleoenvironmental conditions.[7]

ADOVON, J.M., R.L. ANDREWS and Ronald C. Carlisle (Pittsburgh)
NEW EVIDENCE FOR THE DIFFUSION OF THE NUMIC SPEAKERS IN THE GREAT BASIN.
Analysis of the extensive perishables assemblage from Dirty Shame Rockshelter in that part of the northern Great Basin in southeast Oregon has revealed several major shifts in artifact occurrence and frequency that are most parsimoniously explained by a population replacement model. Changes in two major cordage types, the disappearance of all three major sandal types, and, perhaps most importantly, the appearance of coiled basketry at the site appear to signal the arrival of Numic-speaking populations, probably the Northern Paiute. This interpretation of the perishables is supported by the lithics and other data from this site as well as by data from other Great Basin sites, notably the Monitor Valley caves in Nevada and information from the August, 1986 excavations at Danger Cave, Utah. Collectively, these data appear to offer convincing artifactual evidence for the advent of the Numic speakers in the Great Basin and the chronology of that event.[51]

AIGNER, Jean S., Lydia T. Black, Dominique Desson (Alaska, Fairbanks), Allen B. McCartney (Arkansas, Fayetteville), and Douglas W. Veirle (Anchorage Community)
HISTORIC DOCUMENTS AND AN 18TH CENTURY ALEUT VILLAGE ON UNALASKA.
Unpublished and untranslated documents (ship logs and administrative reports) are valuable aids in reconstructing early Russian period settlement patterns in the Aleutian Islands. Archaeologists can use such source information, specifically in documents of 1759-62 and 1764-66, to describe an 18th century settlement at Reese Bay. Excavations of communal longhouses at this site archaeologically establish the kinds and quantities of trade goods used. Reese Bay is being examined on the basis of internal social ranking of households within the longhouses, reported Russian-Aleut conflict at this site, and possible multiple social policies operating on Unalaska at the time of contact.[7]

AIGNER, J.S. (see McCartney, A.P.)[7]

ALTON, Thomas F. (Illinois, Urbana-Champaign)
ECUADORIAN CHRONOLOGY FROM THE GULF OF GUAYAQUIL.
Recent excavations in La Puna Island reveal that the current culture chronology of Ecuador is grossly inaccurate. Pottery of the Bellavista site represents an early period of the Guayaquil phase defined at the San Pedro de Guayaquil site. The Guayaquil phase is revealed as a regional variant of the Late Formative Chorreroid tradition. Because white-on-red and negative painting are the dominant decorative techniques of the complex, they can no longer serve as diagnostic markers for the Regional Development Period. The lambaye phase is shown to post-date Guayaquil and does not begin before 200 B.C. These data, in conjunction with the revised Valdivia, Machalilla and Guangala sequences, provide the basis for building an accurate period chronology to replace the old stage system.[28]

ALGREEN, Guillermo (Chicago)
MESOPOTAMIAN EXPANSION AND ITS CONSEQUENCES: SOCIAL CHANGE IN THE NORTHERN PERIPHERY OF ALLUVIAL MESOPOTAMIA IN THE LATE FOURTH MILLENNIUM B.C.
One of the most startling discoveries of recent research in the Syro-Mesopotamian plains has been a clearer realization of the magnitude, intensity, and variety of contacts between the civilizations of alluvial Mesopotamia in the Uruk period and communities in its northern periphery. A small number of Uruk sites were established in the Syro-Mesopotamian plains at locations of considerable strategic importance commanding the overland and water-borne routes of communication. This settlement pattern suggests a strategic rationale designed to ensure control of long distance trade. The intrusive
Andouze, Françoise and Beatrice Schmieder

floodplain runoff. The development and ultimate failure of these technologies are discussed in terms of population growth, social interaction, and climatic flux.[26]

Anschuetz, K.E. (see Maxwell, T.D.)[22]

Arnold, Bettina (Harvard)

SLAVERY IN LATE PREHISTORIC EUROPE: RECOVERING THE EVIDENCE FOR SOCIAL STRUCTURE IN IRON AGE SOCIETY.

Most of our information regarding social structure in the early Iron Age is based on cemetery evidence which represents only a fraction of the total population and scant regional settlement data. There are three important issues to be investigated: [1] Can some continuity be assumed from the early to the late Iron Age, and if so how can it be archaeologically corroborated? [2] How can new questions be asked of the existing archaeological data to clarify this aspect of early Iron Age society? [3] What research directives do the findings generated by these questions suggest?[46]

Arnold, D. (Wheaton)

CULTURAL PROCESS AND CHANGES IN CERAMIC TECHNOLOGY IN TICUL, YUCATAN, MEXICO.

It is widely believed by archaeologists that changes in ceramic technology are reflective of broader cultural changes in the society. However, there has been a lack of consistency regarding the relationship between cultural changes and ceramic technology. Using a model of feedback processes described elsewhere in Ceramic Theory and Cultural Process, Arnold, 1985), this paper will explore the relationship of various cultural processes and the changes in ceramic technology that occurred in Ticul, Yucatan, Mexico, between 1665 and 1984.[32]

Arnold, Phillip J. (New Mexico)

A SITE STRUCTURAL APPROACH TO MODELING CERAMIC PRODUCTION.

The spatial and temporal distribution of activities within a household provides important clues into the behavioral constraints affecting domestic task performance. Ceramic production, a common activity among sedentary communities, is also subject to these limitations. Ethnoarchaeological research among Mexican potters is used to develop a model of production behavior as reflected in the utilization of space and activity scheduling. Emphasis is placed on the material consequences of activity organization, and the transition in the archaeological record as production becomes more intensive.[27]

Arundale, Wendy H. and Eliza Jones (Alaska, Fairbanks)

HISTORIC SETTLEMENT AND SUBSISTENCE PATTERNS IN THE KOUYUK RIVER AREA: NEW PERSPECTIVES FROM RECENT RESEARCH.

New data from subsistence studies, oral history, linguistic research especially on placenames, and archaeological site surveys related to land claims have become available on the Koyukuk River regions of interior Alaska. Previous work by A. McFadden, Clark and others provided a useful framework for understanding historic subsistence and settlement patterns in the area. This paper shows how these newer data drawn from diverse sources may be brought together to clarify and enhance earlier findings concerning these patterns and how they have changed over time.[59]

Ashmore, W. (24)

Athens, J. Stephen

ETHNICS AND ADAPTATION: PREHISTORY IN NORTHERN HIGHLAND ECUADOR.

Autochthonous development is the single most pervasive characteristic of prehistoric societies of northern highland Ecuador. This is in stark contrast to the customary view of social development for northern highland Ecuador. This is in stark contrast to the customary view of social development for this area, which emphasizes inter-regional ties and diffusion. Recent research in northern highland Ecuador is reviewed from the period of the earliest known agriculturalists until the advent of the Incas. The insular character of the prehistoric societies of this area is argued to be a predictable result of adaptation to inter-group and intra-group competition, which is expressed in terms of well-defined social boundaries and ethno-linguistic markers.[28]

Audouze, Françoise and Beatrice Schmieder (CNRS, Paris, France)

NORTHERN AND CENTRAL FRANCE AT 18,000 B.P.

Archaeological records from Northern and Central France are disparate for the last glacial maximum. The absence of cultural remains from northern France suggests that this region was abandoned during the coldest period. Evidence from Central France, on the other hand, most notably from the Loire valley, indicates that different microworthern environments were occupied by hunter-gatherer groups using Solutrean and Badegoulian industries.[20]
Ayres, William S.

**Ayres, William S. (Oregon)**

**NAN MADOI, POHNEPEI, AND ISLAND SOCIOPOLITICAL CHANGE.**

Archaeological and ethnohistoric evidence is reviewed to assess Pohnpei as an island laboratory useful for examining prehistoric cultural processes spanning a 2000 year period of changing sociopolitical complexity. Critical to this assessment is the formulation of a model that specifically relates archaeological remains to the hierarchical systems of administrative centers and burial complexes. Interrelationships between archaeological data and the ethnohistoric models commonly employed in Pacific island studies are discussed.[55]

**Bailey, G.N. (Cambridge) and C. Gamble (Southampton)**

**GREECE AND THE BALKANS AT 18,000 B.P.**

This region exhibits 1) sharp ecological gradients over short distances from high mountains to sea coasts; 2) an ecological transition between periglacial steppe-tundra to the north and Mediterranean environments to the south; and 3) a principal geographic corridor for north-south population dispersal and contact; 4) a region of recent field investigations with new opportunities for methodological and conceptual improvements in an area of relatively little previous archaeological investigation or destruction. The problem of human settlement during maximum glacial conditions and its archaeological investigation will be reviewed in the light of these points.[20]

**Ball, Joseph W. (San Diego State)**

**A PRELIMINARY REVIEW OF THE CERAMIC SITUATION IN THE LOWER MOPAN-MACAL TRIANGLE, BELIZE.**

Adjoining the prehistoric archaeological community of Baking Pot on its upriver southwest is that of Buenavista del Cayo. Encompassing some 175 km² of the pentagonal valley bottom defined by the lower Mopan and Macal Rivers, this region includes the regal-ruin palace-centers of Xunantunich and Cahal Pech as well as many smaller sites and the major urban administrative center, Buenavista. Based on recent excavations and earlier work, this paper outlines a preliminary ceramic sequence for the Buenavista community and discusses its relationships to those of neighboring polities in Belize and Guatemala. The sequence stretches from the seventh century B.C. into the tenth or eleventh century A.D.[57]

**Ball, J.W. (see Kelkys, R.G.)[43]**

**Ball, J.W. (see Toschek, J.T.)[57]**

**Barnforth, Douglas B. (California, Santa Barbara)**

**SETTLEMENT, RAW MATERIAL, AND LITHIC PROCUREMENT IN THE CENTRAL MOJAVE DESERT.**

This paper explores human exploitation of two quarries in the central Mojave Desert. Technological analysis and carbon-ratio dating of selected core/blade sequences indicate that despite major changes in technology and human mobility, raw material selection and reduction strategies, the range of objects removed from these sites remained constant throughout prehistory. Changes occurred in the rates at which the sites were exploited and in the kinds of objects emphasized in production during different periods. These results indicate that human use of these sites was conditioned by several factors in addition to settlement pattern, including raw material quality and abundance and quarry location.[9]

**Barnforth, D.B. (see Berry, S.)[53]**

**Banning, E.B. and Brian E. Byrd (Arizona)**

**RENOVATION IN DOMESTIC ARCHITECTURE: THE CHANGING RESIDENTIAL UNIT AT PPNB 'AIN GHAZAL, JORDAN.**

One of the most intriguing aspects of Pre-Pottery Neolithic B (PPNB) architecture at 'Ain Ghazal was the frequency of room alterations during structures' use-lives. This paper explores the possibility that renovations are due to changes in the composition of the household groups during the family 'development cycle,' and compares this with some alternative hypotheses.[3]

**Barnett, William K. (Boston)**

**THE PHYSICAL ANALYSES OF IMPRESSED POTTERY FROM CALDERAION AND THE PORTUGUESE EARLY NEOLITHIC.**

Recent excavation at the Gruta do Caldeirao has produced the first example of a stratified Early Neolithic site in Portugal. Technological and thin-section analyses of this small ceramic assemblage and comparison to local clays can be used to propose that Cardialte impressed pottery appeared earlier than other impressed styles and had a more extensive distribution pattern. This information is...
Belfer-Cohen, Anna and Ofer Bar-Yosef (Hebrew, Jerusalem)

LEVANTINE UPPER PALAEOLITHIC CAVE SITES - A REAPPRAISAL. The paper discusses the features of Upper Palaeolithic occupations in Levantine cave sites prior to 20,000 B.P. Aspects of site size, relative density of artifacts, the main traits of lithic assemblages, bone and antler industries, as well as ochre finds, grinding stones, and human remains are briefly reviewed. It is demonstrated that cave occupations present a subsystem within a much larger adaptive system. Changes in the nature of cave utilisation are interpreted as resulting from changes in overall spatial organization of Levantine Upper Palaeolithic entities.[4]

Bentley, Gillian R. (Chicago)

THE CORPORATE STRUCTURE OF EARLY BRONZE AGE URBAN SOCIETY AT BAB EDH- DHRA', JORDAN. The archaeological and skeletal data excavated from the Early Bronze Age shaft tombs at Bab Edh-Dhra', Jordan, together with a comparison of other contemporary, regional, mortuary sites, suggest that a highly corporate, unstratified group structure characterized the social organization of this period. These data imply that kinship and power were not incompatible features during the Early Bronze phase of urban development, nor were the acquisition of social status and the growth of hierarchy inevitable concomitants to increased social complexity.[3]

Bierman, Marc (Michigan)

DOMESTIC OCCUPATION AT A REGIONAL TIWANAKU SITE: Although Tiwanaku monumental architecture has been well described, the domestic component of this altiplano culture is relatively poorly known. Recent excavations at the regional Tiwanaku site of Lukurmata have provided further insight into rural Tiwanaku settlement during the Tiwanaku IV and V periods (400-1200 AD). Complete excavation was made of Tiwanaku habitations associated with a characteristic Tiwanaku civic-ceremonial structure. This has allowed examination of Tiwanaku domestic unit sizes, ceramic preferences, and household artifact assemblages. These data form the basis for an interpretation of Tiwanaku provincial community organization.[52]

Bernstein, David J. and Peter E. Siegel (Centro de Investigaciones Indigenas de Puerto Rico, Inc. and SUNY-Binghamton)

SITE STRUCTURE, SETTLEMENT ORGANIZATION, AND SAMPLING: A CASE STUDY FROM THE NORTH COAST OF PUERTO RICO. Traditionally, in Puerto Rico and throughout the Antilles, little attention has been devoted to understanding the structure and organization of prehistoric settlements. The present study addresses these issues by providing information on the size and structure of a multi-component Saladoid/Elonoid site located on the north coast of Puerto Rico. Results of a two stage sampling program are presented. The first stage employs a series of mechanically excavated auger pits and is found to provide a coarse-grained view of the internal organization of the prehistoric settlement. Intensive excavation in selected areas of the site supplies detailed information on residential, cemetery, and refuse disposal locales.[37]

Berry, Sarah and D.B. Bamforth (California, Santa Barbara)

MICROWEAR ANALYSIS IN THE 1980S. Microwear polishes in conjunction with other traces of use, including striation and edge damage patterns, can yield reliable information on the specific kinds of materials on which prehistoric stone tools were used. This method, pioneered by L.H. Keeley, rests on observations of tool edges at magnifications from 100x to 400x. A series of slides and experimental tools will illustrate the types of polishes and other microscopic traces on tool surfaces resulting from some common processing procedures. Some of the limits on inferences based on polish appearance will be discussed.[53]

Bettinger, Robert L. (California, Davis)

PROGRESS, HOMEOSTASIS, CONTRADICTION, AND INHERITANCE: MODELS OF HUNTER-GATHERERS IN HISTORIC PERSPECTIVE. Because anthropology has always portrayed hunter-gatherers to suit its theories, the changing manner in which certain key concepts have been applied to these societies is particularly instructive regarding the intellectual history of our discipline. In this sense the current debate over the presence and intensity of inequality among hunter-gatherers is best seen not as an argument about fact but about theory and in particular an argument that pits neo-Marxist theory against neo-Darwinian theory. The former emphasizes social relations and internal transformations, the latter technology, environment, and selection.[58]

Binford, Michael W., Mark Brenner and Barbara Leyden

Biekens, Roelf P. (Toronto)

RADIOCARBON DATING WITH ACCELERATOR MASS SPECTROMETRY. The technique of radiocarbon with Accelerator Mass Spectrometers allows smaller and older samples to be dated to the same precision as with conventional radiocarbon dating techniques. The use of small microgram-sized samples of bone, wood, plant remains, seeds, charcoal, shells, and soils or foraminifera solves, in many cases, the problem of which material should be selected in the field for dating. The experience with accelerator mass spectrometric dating over the last two years has provided better answers to questions of optimal number of samples and optimal sample materials.[23]

Bey, G. (see Ringle, W.M.)[57]

Biddick, Kathleen (Notre Dame)

PEOPLE AND THINGS: TERRITORIALIZING SOCIAL REPRODUCTION IN EARLY EUROPEAN DEVELOPMENT. The archaeological study of state formation in early medieval Europe has overturned models of European development long propounded by historians. This paper considers the rectorialization of state power and household formation in medieval England. It argues that the state did not succeed in territorializing the household until the turn of the thirteenth century. The paper then considers the implications of territorializing the household for social reproduction. The paper concludes with suggestions for rephrasing models of development in medieval England. The historic processes of personification and objectification at work in the early English economy have comparative relevance for the study of contemporary indigenous economies.[48]

Biesele, Megan (Rice)

ORAL LEARNING AND THE INTERPRETATION OF ROCK ART. Both rock art and folklore may be considered phases in the systematics of non-literate communication. The understanding of each contributes to the understanding of the other: they share the basic processes of signalization, transmission, and oral hermeneutics encompasses interpretation in both media. Using folklore research indicates narrative information processing bears marked similarity to information storage and innovation in visual media. In fact, since images of rock art and folklore in southern Africa are often cross-referent, important correlations may be made among these images. Past quantitative studies in both fields suggest computer tools for interpretation. Reference is made to an experimental project in the Lower Pecos River area, Texas, on computer storage and manipulation of computer graphics and related documentation. The implications of this approach for southern African research are explored. The paper is organized around a general discussion of the evolutionary success of hunter-gatherer communication systems.[38]

Bigelow, Gerald E. (Rochester Mus.)

TAXATION, NUTRITION, AND TRADE: ISLAND ECONOMY IN THE MIDDLE AGES. Archaeological data indicate that major changes occurred in the domestic economies and material culture of the inhabitants of the Shetland Islands c. 1000-1500 A.D. Artifactual evidence reveals a growing integration with Continental Europe during this period and documentary sources suggest that this was the period when the Shetland Islands were the primary integrating force. When viewed in light of local ecology, and documented contemporary changes in regional politics and commerce, these developments appear to be adaptive responses to stresses from a) demographic expansion, b) the establishment of taxation, and c) the limited range of local food resources.[21]

Binford, L.R.[9]

Binford, L.R.[20]

Binford, Michael W. (Harvard), Mark Brenner (Florida), and Barbara Leyden (South Florida)

PRELIMINARY STUDIES OF TIWANAKU LIMNOLOGY. This paper presents preliminary results of a limnological study in the Lake Titicaca basin. Samples were taken near the Tiwanakua sites of Paichiri and Lukurmata, and in a small lake, Challumpi Kuta. These yielded 7 sediment/water interface cores (estimated to represent 250-1000 years of sedimentation) and one 5.07 cm core which may contain a record of the past 5000 years. The paper reports on results of 14C and 13C dating, physical, chemical, and pollen analysis. The data will also allow examination of hypotheses concerning nutrient efficiency of various kinds of Tiwanakua agriculture, the effects of different land uses on the terrestrial system, and inference of pre-Civilization environmental conditions.[52]
Bishop, Charles A. and M. Estellie Smith

Bishop, Charles A. and M. Estellie Smith (SUNY, Oswego)

NORTHEASTERN ALCANOQUIAN EGALITARIANISM: ABORIGINAL OR POST-CONTACT?
Leacock and Lee (1952) have defined the characteristics of egalitarian societies (e.g., Cree and Montagnais foragers) assuming that historically documented inequality is due to colonialism or observer bias. Such attempts counterproductively ignore, explain away and/or gloss over significant autochthonous disparities of sociocultural 'egalitarianism' that, in point of fact, became elaborated in early contact times. Indeed, in fostering a new variant of individualism, colonialism simultaneously eroded and introduced/enhanced various types of inequality that may have been far more common than those that fit the egalitarian ideal. This can be tested archaeologically.[58]

Black, L.T. (see Aigner, J.S.)[7]

Black, L.T. (see McCartney, A.P.)[7]

Blake, Michael (UBC, Vancouver) and John E. Clark (New World Archaeological Foundation - BYU)

BARRA, OCÓS, AND EARLY OLMEC SOCIETIES OF COASTAL CHIAPAS, MEXICO.
Survey and excavation of Early Formative sites along the Pacific Coast of Chiapas, Mexico, during 1985, provide evidence of a continuous socio-political development from Barra through Ocós to early Olmec times (ca. 1500 B.C. to 800 B.C.). Forty new Barra, Ocós, and Cuadros phase sites were discovered. Excavations at several of these sites allowed us to refine the characteristics and chronological placement of the three phases. An entire Ocós-phase house floor and associated features were excavated, providing details of Early Formative house styles and construction techniques. Excavation of house floors and middens resulted in the recovery of subsistence remains-including 75,000 animal bones and many carbonized fragments of maize, beans, and other seeds. These are the earliest cultivated plant remains recovered from sedentary communities in southeastern Mesoamerica.[45]

Blankholm, H.P. (Aarhus, Denmark)

TOWARDS A BEHAVIORAL INTERPRETATION OF EARLY POSTGLACIAL HUNTER-GATHERER SITES IN SOUTHERN SCANDINAVIA.
The archaeological record of early postglacial hunter-gatherers (10,500-6,500 B.C.) in Southern Scandinavia is extremely rich. Yet, lacking graves and cemeteries, most information on the organization of the society has to be extracted from the settlements. Recent research has revealed a series of analytically delineated hearth floors and established the size of the minimal social unit. Further, analysis has been carried out in search of intrasite behavioral patterns related to site use and social dimensions. These are considered important short-term objectives for the ultimate resolution of settlement systems and social patterns. Results will be outlined and future prospects discussed.[44]

Bogucki, Peter (Praelection)

CHANGING ADAPTIVE STRATEGIES AND THE EARLIEST FARMING COMMUNITIES OF THE NORTH EUROPEAN PLAIN.
The abandonment of Neolithic sites in temperate Europe is often attributed to relatively sudden processes, such as famine, disease, or attack. Recently, archaeologists working in several parts of the world have approached site abandonment in terms of two alternating adaptive strategies, which Upham has termed "power" and "efficiency" strategies. Focusing on the Neolithic settlement at Brzęc Kętowski (Poland) and its environs, this paper argues that its inhabitants had embarked on a "power strategy" that eventually necessitated a shift in their approach to resource exploitation to an "efficiency strategy" and discusses the implications of this shift for the development of the earliest agrarian societies on the North European Plain.[16]

Boisvert, Richard A. (Ohio Historic Preservation Office)

CONFLICT, COOPERATION AND COMPLIANCE: A SUMMARIZED REVIEW OF RECENT ARCHAEOLOGICAL INVESTIGATIONS IN THE OHIO COAL FIELDS.
Prior to September 1985, archaeological surveys conducted in anticipation of surface mining were not being conducted on non-federal lands in Ohio. Since that time there has been an explosion of investigations with an associated increase in archaeological information. Events associated with this change reveal a complex history of confrontations and negotiations among archaeologists, regulatory officials and surface miners. This experience in Ohio is summarized and a prognosis for future developments is offered.[18]
research is a case study of these theories, applying them to the analysis of temporal changes in material culture. Nearly 50 radiocarbon dates are used to temporally order selected artefact collections. Change over time in the functional and stylistic attributes of the artifacts from these collections is then documented by frequency distributions, bivariate plots and multivariate statistical analyses. This study concludes that cultural succession provides the best explanations for the observed changes.[32]

Bradley, Ronna J. (Arizona State, Tempe)

MARINE SHELL ORNAMENT PRODUCTION AT CASAS GRANDES, CHIHUAHUA: THE ROLE OF SHELL IN EXCHANGE SYSTEMS IN NORTHWEST MEXICO AND THE SOUTHWEST.
The site of Casas Grandes is very large and complex in relation to others along the northwestern frontier of Mesoamerica, and has been described as a trading center where trade items were accumulated for redistribution. Shell constitutes the majority of exotic goods stockpiled at the site, and has the potential to address directly questions concerning ornament production and shell exchange systems along the northern frontier. An examination of shell procurement techniques is conducted, and the distribution of shell ornaments is assessed inter-regionally in order to gain a better understanding of the role that Casas Grandes shell in the related areas. Models which address the nature of exchange systems will be evaluated for their applicability in describing interactive relationships on the northwestern Mesoamerican frontier.[40]

Brady, James E. (UCLA)

TRAC ELEMENT ANALYSIS OF NAJ TUNICH OBSIDIAN: PROTOCLASSIC TRADE IMPLICATIONS.
Naj Tunich, a large ceremonial cave in southeastern Peten, Guatemala, has produced the largest and best preserved collection of Protoclassic ceramics. Trace element analysis performed on obsidian from the site found both El Chayal and Ixtapa sources represented. Relative dating obtained through obsidian hydration reveals that about half of the obsidian which is contemporaneous with the Protoclassic ceramics is from Ixtapa. This suggests that trade was being carried on with the southeastern periphery at the time when traits from that area were being introduced into the Maya lowlands.[57]

Brand, U. (see Rollins, H.B.)(6)

Breiner, Ruth A. (Indiana, Bloomington)

CULTURAL RESOURCES IN THE COAL FIELDS OF INDIANA.
Public interest and the active participation of avocational and professional archeologists are the key factors in the progress which has occurred relative to cultural resources in the coal producing area of Indiana. Without regulatory authority, this progress has taken several rather indirect pathways. Methods include a lands unsuitable for mining petition process, informal conferences between coal producers and archeologists, and agreements between the regulatory authority (Division of Reclamation) and coal producers.[18]

Brookin, Donald L. (North Carolina, Chapel Hill, David Pereira, Ramon Saenztenerea, and Ricardo Cespedes (Universidad Mayor de San Simon, Cochabamba, Bolivia)

A PRELIMINARY REPORT ON FORMATIVE CERAMIC SEQUENCES IN COCHABAMBA, BOLIVIA.
Excavations were conducted from 1984-1986 at four sites in the Cochabamba Valley and the Mizque Valley of the eastern Andes. The purpose was to elucidate the ceramic sequence from the poorly-known Formative period of this zone. Two Formative sequences are defined for the Formative of the Cochabamba Valley and are radiocarbon dated to 1,000 B.C. to 600 A.D. In the Mizque Valley one Formative sequence is cross-dated with the Cochabamba Valley. The ceramic zones from this site indicate that during the Formative there existed localized traditions which may reflect small sociopolitical groupings.[49]

Brass, B.(24)

Brookes, Ian A. (Toronto)

HOLOCENE SEDIMENTS OF DAKHLA OASIS REGION, S.C. EGYPT.
Holocene sediments of the Dakhla Oasis region (25.5°N, 29°E) are currently grouped into six informal stratigraphic units using sedimentological and age data. Five are aeolian and one lacustrine. Ages come from 14C dates on ostrich eggshell from occupation sites more or less closely relatative to sedimentary contexts, and from stylistically dated tools, pottery and structures. Aeolian units accumulated in the intervals <1000, ca. 1850-1550, ca. 4200, ca. 5800-5200, and older than 7100 years BP.

Bush, David R.

Lacustrine sediments, recorded only from a plateau basin, shortly pre-date 8300 years BP. A current problem is reconciliation of faunal evidence of early/mid-Holocene moisture with sedimentary indications of arid aeolian conditions. Another is the apparent absence of Holocene lakes from a formerly lowland, 30 km from the plateau lake.[14]

Brookes, S.O. (see Johnson, J.K.)(40)

Brooks, Alison S. (George Washington)

INTERIOR AFRICA: CENTRAL AND SOUTHERN AT 18,000 B.P.
Knowledge of hunter-gatherer populations of the African interior at 18,000 years B.P. has been extremely limited by lack of exploration. Climatic data suggest that this time represented the onset of a generally more arid environment in many areas and resulted in lower population densities and a generally more arid environment in many areas and resulted in lower population densities. Recent data suggest however that river and lakeshore areas, especially in central Africa, may have been intensively utilized as early as the last glacial maximum.[20]

Brown, R.B. (R.N.A.H., Central Regions) and E.F. Nieto C. (R.N.A.H., Guanajuato)

SAN MIGUEL VIEJO, MPIO. ALLENDE, GUANAJUATO, MEXICO.
The "Proyecto Piloto del Atlas Arqueologico" identified San Miguel Viejo as the regional center in the middle Rio Laa. The site is clearly Mesoamerican with its truncated pyramids, sunken patios, plazas, altars and terraces. Superficial analysis of ceramics and architecture indicate that the site was occupied between 600-950 AD, or the apogee of Teotihuacan and the rise of Tula. As such San Miguel Viejo's decline probably corresponds to the initial Chichimec invasions of Central Mexico. During the winter 1986/7 the 'Museo Casa Allende' undertook a salvage operation on part of the site to clarify the local chronology and analyze the habitation patterns.[30]

Bruson, J.L. (see Merbs, C.R.)(34)

Brush, D. (see Spies, A.E.)(46)

Bunn, H.T. (see Bartram, L.E.)(44)

Burgar, R.W.C. (The Metropolitan Toronto and Region Conservation Authority)

THE SPATIAL ORGANIZATION OF THE BATTEN KILL PHASE IN SOUTHERN ONTARIO.
A rigorous quantitative methodology is defined in order to uncover spatial variation of the diagnostic artifact of the Batten Kill phase, the Genesee projectile point. In a multivariate analysis of 37 design variables on several hundred Genesee points, evidence is presented which supports statistically significant regional variation of shoulder and stem elements of this artifact. This variation is found to cluster in 10 regions in Southern Ontario and is interpreted as representing discrete hunting ranges.[34]

Burns, G. (see Wilson Yang, K.M.)(43)

Bush, David R. (Case Western Reserve)

CULTURAL RESOURCE MANAGEMENT STUDIES ON SURFACE MINING PROJECTS—EXAM PLES FROM OHIO AND KENTUCKY.
Recent policy changes by the State Regulatory Authority in Ohio have resulted in the first cultural resource studies being conducted on proposed surface mining permit areas. Since the fall of 1985, thousands of acres have been surveyed resulting in the identification of many significant archaeological sites. Kentucky's State Regulatory Authority has yet to require CRM studies on proposed surface mining permit areas. This paper compares the findings in Ohio with those from surveys in Kentucky (surveys concerning land exchanges between the Daniel Boone National Forest and coal companies) emphasizing the success that can be gained.[18]
Butler, Virginia L. (Washington, Seattle)

INFERIOR SITE FUNCTION, SEASONALITY, AND BUTCHERING PATTERNS WITH SALMONID REMAINS.

Most previous treatments of archaeological salmonid remains in the Pacific Northwest use formal data to address subsistence issues. The ubiquity of such remains in non-western sites, however, suggests they have great potential to inform on site function, seasonality of use, and butchering patterns, much as bison remains have been successfully employed in other areas of the western United States. This paper demonstrates how element surfacism, specimen dispersion, bone fragmentation, size class, and species composition may be used to identify site function, seasonality, and butchering patterns through discussion of the salmonid remains from a Puget Sound shell middlen, the Duwamish No. 1 Site.[25]

Byland, Bruce E. (Lehman, CUNY) and John M.D. Pohl (UCLA)

THE REORGANIZATION OF POLITICAL CONTROL IN THE TILANTONGO VALLEY FROM FORMATIVE TO POSTCLASSIC TIMES.

Changes in the distribution of settlements in the Tilantongo Valley from Formative to Postclassic times suggest two major reorganizations of political control in this part of Oaxaca. Explanation of these transitions can be sought through an examination of changing patterns of conflict and alliance within the Mixteca Alta and of changing interaction with the valley of Oaxaca. Ceramic and settlement pattern analyses are employed to simultaneously examine the local and regional sources of change in the context of tremendous political upheaval depicted in the Mixtec historical codices during these periods.[5]

Byland, B.E. (see Pohl, J.M.D.)[5]

Byrd, B.F. (see Banning, E.B.)[3]

Cahen, D. (IRScNB, Belgium)

SPATIAL ORGANIZATION OF THE LBK VILLAGE OF DARION (BELGIUM).

The LBK village of Darion dated at about 6200 B.P. covers some 2 ha. It is surrounded by a ditch and a palisade with 3 main entrances. The interior space is divided in two zones. The largest one has no houses and contains only a few pits. Some of these pits yield specialized material such as flint waste from the preparation of blades, indicating that flint knapping took place in that part of the dwelling. The southern zone comprises 4 houses surrounded by numerous rubbish pits. Palynological analysis demonstrates that the northern zone is devoted to pasture while the southern one is almost devoid of vegetation. Cereal fields extend along the western and southern sides of the village, between the houses and the southern part of the palisade. Pedological studies demonstrate that the neolithic site is located on a pedological margin, a situation which apparently is often selected by LBK peoples in Belgium. The spatial organization of the Darion village presents several similarities with that of the much more extended and more densely constructed LBK village of Kölín-Lindenthal, in Germany. Both are fortified sites with an interior opposition between a constructed southern part and a northern part devoid of habitation.[44]

Calogero, Barbara A. (Connecticut)

LOCAL RESOURCE SELECTION - CONNECTICUT BASALTS.

For 8,000 years, inhabitants of the Connecticut and Farmington River valleys have utilized locally available basalt for making stone tools. The only sources of basalt in Connecticut are a volcanic ridge and its associated dikes and sills in the central part of the state. The ridge is composed of three separate lava flows which can be distinguished morphologically and by trace element analysis. Country rock and metamorphosed sediments are additional resources utilized by local inhabitants. The question of preference and special selection of certain basalts and contact metamorphosed rock as raw material for stone tools will be discussed.[31]

Camilli, E.L. (see Ebert, I.L.)[43]

Cannon, Audrey (Cambridge)

THE TEMPORAL DIMENSION IN THE ANALYSIS OF STYLE.

The study of temporal changes in the frequency and variety of material culture styles is a key to understanding the processes of socioeconomic change. The development sequence of temporal change is also the context necessary for establishing the meaning of synchronic stylistic variability. A temporal perspective is especially critical for interpreting the use of material culture as a medium for the expression of individual identity and social status. The significance of time in the study of style is illustrated through the examination of variability in nineteenth century English grave monuments.[32]

Chang, Claudia

CARLSON, R.C. (see Adovasio, J.M.)[51]

Carlson, Roy L. (Simon Fraser)

PREHISTORIC EXCHANGE ON THE NORTHWEST COAST.

Trade in obsidian both along the coast and between the coast and the interior can be documented for the last 8000-9000 years. Exchange of other commodities—quartz crystals, soapstone, nephrite, dentalium and ceremonial objects—is only known from about 3000 B.P. The archaeological record is non-specific concerning the mechanisms of exchange. However, the overall patternning of Northwest Coast society seems to have changed little during the last 3000 years preceding contact and those mechanisms of exchange based on seasonal mobility and reciprocal obligations between kin groups probably go back at least that far.[40]

Carmichael, Patrick H. (Calgary)

NASCA ARMED CONFLICT.

Early Intermediate Period iconography from the Peruvian south coast suggests armed conflict was a prominent feature in Nasca society. This paper examines depictions in various craft mediums and compares these with iconographic and skeletal evidence. New data are presented and the nature of armed conflict in terms of its causes, scale, and direction through time is considered. Lessons from ethnography and art history are taken into account and earlier models are reexamined.[13]

Carr, Christopher (Arizona State)

INTERPRETING ARTIFACT CLUSTERS AROUND HEARTHIS AT PINECONE HABITATION NO. 1.

Artifact clusters around hearths can indicate numerous past activities and formation processes. Assigning appropriate meaning to them requires that site-specific evidence derived through exploratory data analysis, as well as multiple alternative interpretive models, be used. Spatial patterning among artifacts and features, including asymmetry patterns within polythetic depositional sets, cluster shape, border characteristics, and size, artifact conjoin patterns, and stratigraphy are examined for the French Magdalenian reindeer hunting camp, Pinnacle habitation no. 1, to illustrate this. Binford's and Leroy-Gourhan's alternative interpretations of the Pinnacle remains are considered.[44]

Carr, Kurt W. (Pennsylvania Historical and Museum Commission)

THE ROLE OF QUARRY UTILIZATION IN PALEOINDIAN SETTLEMENT PATTERNS.

In eastern North America there are two views concerning the significance of lithic resources in the Paleoindian seasonal round. The traditional model argues that annual movements involved traveling between quarries separated by hundreds of miles. In contrast data from the Flint Run Complex suggests that seasonal movements centered around one quarry and band territories were relatively small. The reduction sequence and other site activities from the Shoop site will be compared to sites from the Flint Run Complex to further investigate the role of quarry sites in the Paleoindian seasonal round.[46]

Cavallaro, Rafael (Harvard) and Eric C. Gibson (Trinity)

THE SCAVENGING HYPOTHESIS REVISITED, OR, PUTTING "MAN" BACK IN EARLY MAN STUDIES.

Reduction of Binford's work as described in Bones: Ancient Men and Modern Myths shows that his analyses have problems. Prominent among these are: 1) the small number and inappropriate nature of the comparative actualistic studies used and, 2) less than rigorous statistical treatment of the data. When these flaws are considered, claims concerning the contributions of non-homind agents to early man sites appear greatly weakened if not wholly unsupported. However, Binford's aims and approaches are still an important step which should be followed up by more rigorous studies and compared to actualistic analyses such as Hill's [1975] work on East African vertebrate taphonomy.[32]

Cervone, G.C. (see Sempowski, M.L.)[36]

Cespedes, R. (see Brockington, D.L.)[49]

Chang, Claudia (Sweet Briar)

THE VISIBILITY OF PASTORAL SITES: AN ETHNOARCHAEOLOGICAL CASE FROM GREECE.

Recently, ethnoarchaeologists have noted the difficulty of locating and identifying pastoral sites during regional surveys. This paper argues that the invisibility of pastoral sites stems from inadequacies in conceptual and methodological frameworks used to reconstruct prehistoric pastoralism. It has been assumed that highly mobile pastoral populations left only ephemeral evidence on the cultural landscape. Also, ethnoarchaeological approaches to pastoralism have been considered the most appropriate methods for analyzing pastoral production. Such assumptions have caused archaeologists to overlook the pastoral site as a useful unit of analysis. Ethnoarchaeological observations of modern pastoral
sites in Greece coupled with a review of recent advances in pastoral site analysis suggests the visibility of such sites in regional settlement systems.[24]

Charles, Douglas K. (Wesleyan)

A THEORY OF ARCHAEOLOGY AND THE BURDEN OF HISTORIE.

A theory of archaeology (and history) must encompass the transition from non-human to human as well as the rise of the agricultural state. The focus of the theory must be on change, not subject matter, analogous to the manner in which Darwinian theory can accommodate any grade of biological complexity. Neither the New Archaeology, grounded in a simplistic application of evolutionary theory to socio-cultural phenomena, nor a recent alternative derived from post-Marxist structuralism have sufficient scope. A broader theory of change appreciating the historical constraints on operational configurations and incorporating the role of ideology is presented.[32]

Chase, A.F. (see Chase, D.Z.) [47]

Chase, Diane Z. and Arlen F. Chase (Central Florida - Orlando)

ROUTES OF TRADE AND COMMUNICATION AND THE INTEGRATION OF MAYA SOCIETY: THE VISTA FROM SANTA RITA COROZAL, BELIZE.

Santa Rita Corozal is juxtaposed between the New and Honda Rivers and Chetumal Bay. This location in northern Belize allowed access to both sea and riverine trade. Santa Rita Corozal is flored by the Early Classic and late Postclassic, two areas characterized by external influences and/or trade. While river and ocean routes may be used to predict trade, such routes are also indicative of general networks of communication. The site of the use of such routes throughout the prehistory of Santa Rita reveals the site’s changing role in wider Maya culture.[47]

Chase, Philip C. (Arizona) and Harold L. Bibble (Pennsylvania)

RELIGION AND SYMBOLISM IN THE MIDDLE PALEOLITHIC: A LOOK AT THE EVIDENCE.

Since the early years of this century, Middle Paleolithic scholars have presented evidence that suggests the existence of various kinds of symbolic and/or ritual behavior at that time: cave bear worship, ritual burials, etc. Obviously the presence or absence of such behavior has major implications for our understanding of Middle Paleolithic adaptations. How convincing is the evidence? [16]

Cheek, Annetta L. and Mark A. Boster (Office of Surface Mining Reclamation and Enforcement, Department of the Interior)

COAL MINING AND ARCHAEOLOGY: OSMRE’S VIEW.

The Office of Surface Mining recently promulgated regulations on the protection of historic resources during coal mining operations. Archaeologists and the public can influence how archaeological resources are treated during mine permitting. However, permits are generally issued by State regulating authorities, and Section 106 of the National Historic Preservation Act does not directly apply to permit issuance. Archaeologists seem to be having a hard time interacting effectively with State mining authorities and State permitting processes. This paper presents the views of the Office of Surface Mining on the role of archaeologists in the State permitting process.[18]

Chippindale, Christopher (Cambridge)

WHAT’S IT A PICTURE OF? IDENTIFYING PREHISTORIC PICTURES IN THE SOUTHERN ALPS.

Identifying the subjects depicted in rock art is an intractable problem, even if they sometimes seem ‘obvious’ at first glance. A two-dimensional picture is a representational depiction insofar as it reproduces the characteristic shape of its subject, so grammatical analysis of the geometry of the picture and its comparison with the three-dimensional geometry of the possible subject indicates if the development is likely to be correct, and what confidence can be placed in it. The method is developed, and illustrated by, the ‘prehistoric maps’, supposed plans of prehistoric villages, which have been identified in the rock art of alpine France and Italy.[38]

Chiswell, Coreen (UCLA)

NETWORK ANALYSIS OF CHimu Architecture.

Many Chimú (AD 1000-1400) sites from the North Coast of Peru include complex adobe compounds. Network analysis, which concentrates on the study of permeability, is one means of examining the plans of these complexes. Such analysis suggests the compounds were laid out specifically to direct the flow of traffic and to limit access to particular parts of the compound. Hypotheses generated from network analysis of the plans of one Chimú site, Pacatnamu, are tested against preliminary results of excavation.[17]

Clark, Jeffrey T.

Christensen, Karen Marie (Aarhus)

patterns of land use in norse greenland.

Based on survey work carried out in 1981, 1984, and 1986, a model for upland (over 200 m ASL) land use in the extinct Norse Western Settlement is presented. Seasonal caribou hunting and some sheep and goat herding appear to be the extent of Norse exploitation of the upper elevations. This pattern contrasts with data collected in the larger Eastern Settlement to the south, and with current models for medieval shielding activity in continental Scandinavia. Ecological and demographic factors are proposed to account for these differences.[21]

Churcher, Charles S. (Toronto)

NEOLITHIC FAUNAS FROM DAKKHEL OASIS, WESTERN DESERT OF EGYPT.

Avian, mammalian and molluscan taxa from pottery and pre-pottery Neolithic levels at scattered sites in Dakkhel Oasis show an Ethiopian savannah facies of wild and domestic animals. Wild taxa include molluscan Pila ovata, Melanoidea tuberculata, Gyraulus costulatus, Cacoma fasciata, avian Struthio camelus and large Anseriformes or Oturidae, and mammalian Equus grevyi, Bos primigenius, Syncerus caffer, Aepyceros melampus, Gazella dorcas and Loxodonta africana. Domestic animals include Bos taurus, Capra aegagrus and Equus asinus. Petroglyphs in the oasis reflect these and later domestic taxa, e.g., Camelus dromedarius and Equus caballus, and also Giraffa camelopardalis and possibly Oryx dammah and Capra ibex.[14]

Chua, Chen (McGill)

THE SANDSHAN SITE: A NEWLY DISCOVERED UPPER PALEOLITHIC SITE ON THE EAST COAST OF CHINA.

The Sanshan site is located on a small island (2 km²) in Taihu Lake, the third largest freshwater lake in China, not far from Shanghai. Over 5,000 stone artifacts and some 20 species of mammalian fossils were recovered from the site. The fossils indicate that during the terminal Pleistocene, the Yangtze River delta and Taihu Lake area was a wooded grassland dotted with small lakes and streams, frequented by several mammalian and human groups. Artifacts of the Sanshan assemblage exhibit technological and typological attributes that have not been observed among Upper Paleolithic sites in the loess highland of North China. The assemblage may represent one of the co-existing subsistence patterns in different environmental niches of the terminal Pleistocene in China.[20]

Claassen, Cheryl (Appalachian State)

UNCOVERING TRADE ROUTES FOR SHELLS.

Seventy-three shell beads and non-artifactual shell samples have been chemically assayed using inductively coupled plasma emission spectrometry. The chemical signature created by nine elements measured in parts per million has facilitated the preliminary identification of sources for trade in Busyon columna sections, during Hopewell times.[40]

Claassen, Cheryl (Appalachian State)

SHELLFISHING SEASONALITY: PROBLEMS OF RECOGNIZING ANNUAL.

In this workshop presentation, thin sections of two genera of Atlantic bivalves (Mercenaria, Rangia) and four genera of Pacific bivalves (Nacoma, Protothaca, Clinocardium, Saxidimus) will be examined for annulee microscopically. The microscopic view will be projected for group viewing. The audience will see both growth structure and growth variation which makes determination of shell seasonality so challenging.[53]

Clark, D. [50]

Clark, J.E. (see Blake, M.) [45]

Clark, Jeffrey T. (North Dakota State)

STRANGER CHIEFS AND YOUNGER BROTHERS: PARADIGMS FOR POLYNESIAN COLONIZATION.

In order to better understand Polynesian settlement, we must go beyond variables such as population size and ecological conditions, and also consider culture itself as a motivating factor. This paper explores the implications of a structural/symbolic approach to Polynesian prehistory. Special emphasis is given to the role of fundamental paradigmatic themes of Polynesian culture in the colonization of Polynesia, and in subsequent sociocultural development. The focus of the study is on the paradigmatic themes of "the stranger chief" and "junior usurpation of power," and how these models for behavior stimulated the settlement of the Polynesian Islands.[55]
Clark, Lynn, Randall H. McGuire and LouAnn Wurst

DOMINATION, RESISTANCE, AND MEANING IN THE CEMETERY.
Recent discussions of ideology in archaeology have treated ideology as an instrumentalistphenomenon, where ideology is seen as a means by which an elite group dominates subordinates. Studies of the 19th and 20th century cemeteries in Bloom County, New York challenge this perspective. It is suggested that ideology is a much more complex phenomenon. A dominant ideology is evident in the cemeteries; however, this ideology is not uniform or unchallenged. The ideology documented in the cemeteries also expresses competition between different elite groups and the resistance of the working class.[29]

Cledad, Charles (Michigan State, East Lansing) and Thor Conway (Provincial Archaeologist, Sault Ste. Marie)

DATING ALGONKIAN ROCK ART THROUGH ETHNOGRAPHY, GEOMORPHOLOGY AND ARCHAEOLOGY.
The chronology of Great Lakes area rock art relies on a variety of techniques. The pictographs attributed to the historic and prehistoric Ojibwa can be dated by several methods: (1) the geomorphological position of many sites on recent shorelines; (2) panels dated through native oral history and motifs; (3) artifact associations; (4) relative dating by superimposed pictographs; and (5) cross-dating to portable art objects. Examples of each method and appropriate sites will be illustrated. The rock art tradition that is currently dated by these methods spans the Woodland era from 800 B.C. to 1850 A.D.[35]

Cledad, Kathryn M. (UCLA), Dwight W. Read (UCLA), and Isamu Shinoda (Harvard)

APPLICATIONS OF DIGITIZING TO ANALYSIS OF CERAMICS FROM HUACA DEL PUEBLO RATAN GRANDE, PERU.
Chronologically validated ceramics from Huaca del Pueblo Ratan Grande, Peru, provide data for testing a new method of rim sherd analysis through digitizing. The process generates new variables for multivariate analysis. These would be unavailable if only standard metric and non-metric attributes were analyzed. Work in process suggests that ubiquitous utilitarian rim sherds may be amenable to broader chronological and quality control study that was thought previously. Practical, methodological and theoretical implications will be discussed.[39]

Clement, C.O. (see Moseley, M.E.)[6]

Close, Angela and Fred Wendel (SMU)

HOLOCENE ARCHAEOLOGY IN THE SOUTHERN WESTERN DESERT. Research in the southern part of the Eastern Sahara has revealed a sequence of six distinct, and distinctive, phases of the neolithic, between 9500 and 5500 B.P. All are associated with evidence of food-production and ceramics. Based on the detailed chronology of this sequence, systematic surveys were made in the area where the shuttle imaging radar revealed a complex of buried channel-like features. The surveys indicate that the features are probably pre-paleolithic, that they did not contain rivers during the holocene and that the area was never more than marginal to prehistoric economies.[14]

Close, A.E. (see Wendel, F)[20]

Cober, Rafael (Universidad Autonoma de Yucatan, Merida, Yucatan, Mexico)

SHELLING IN: MARINE MOLLUSCA AT CHICHEN ITZA.
The analysis of marine mollusca recovered from the 1985 excavations at Chichen Itza is presented along with a review of previous reports of archaeological mollusca recovered at the site. Viewed as a whole, the marine shell inventory reflects widespread trade between the Itza capital and all three coasts of the peninsula, while most of the shell was imported from the north coast, significant quantities were traded from the east coast, and a few specimens were brought from the west coast. The east coast sample is particularly significant, as it reinforces growing evidence of Itza ties to the Caribbean.[47]

Cockrell, Willburn A. (Manatee)

WARM MINERAL SPRINGS: DEEP-WATER EXCAVATION AT AN 11,000 YEAR OLD SITE IN SOUTHWEST FLORIDA.
Warm Mineral Springs (88x19), a 70 m deep spring-fed limestone sinkhole in Sarasota County, Florida, has been worked by the author intermittently since 1972. The site has three components: 1) terrestrial; 2) 13 m below once-dry ledge deposits, and 3) debris come on the bottom (30 m high x approximately 75 m wide) extending from 38 m below surface to 70 m below surface. The terrestrial component is producing limited Archaic and Paleo-Indian Stage materials; the 13 m ledge, dry 10-12 thousand years BP, is producing paleo-Indian Stage materials and extinct megafauna; the debris cone has always been covered by the anoxic waters and is currently being excavated.[19]

Cook, Anita G. (SUNY, Binghamton)

THOUSAND YEARS OF CHRONOLOGY, RESISTANCE, AND MEANING IN THE CEMETERY.
Recent discussions of ideology in archaeology have treated ideology as an instrumentalist phenomenon, where ideology is seen as a means by which an elite group dominates subordinates. Studies of the 19th and 20th century cemeteries in Bloom County, New York challenge this perspective. It is suggested that ideology is a much more complex phenomenon. A dominant ideology is evident in the cemeteries; however, this ideology is not uniform or unchallenged. The ideology documented in the cemeteries also expresses competition between different elite groups and the resistance of the working class.[29]

Coggins, Clemency C. (Harvard)

JOURNEY INTO THE PAST: TEOTIHUACAN IN MARYLAND.
The evidence for Teotihuacan's impact on the Early Classic Maya will be reviewed in terms of its specialized contexts and of recent excavations at Tikal which suggest an earlier presence there than previously thought. An ideological aspect of Teotihuacan travels southward will be discussed as well as a complex association with Tikal and the southern lowlands. These ancient beliefs, ancestral to both cultures, were illustrated at Teotihuacan and at Tikal in different media, and survival in sixteenth century Maya scripture. A Maya name for these foreigners will be proposed and its implications considered.[11]

Coggins, G.C.[2]

Colman, Nancy R. and Geoffrey A. Clark (Arizona State)

ASPECTS OF STRUCTURE IN LATE PLEISTOCENE (EPIPALEOLITHIC) OCCUPATION SITES IN WEST-CENTRAL JORDAN.
A 95% sample of lithic debris from Site 1055, a dated geometric Kebaran base camp with multiple deposits and structures in the Wadi Hasa (West-Central Jordan), is analyzed using density distribution maps and cluster analysis to determine (1) what parts of the surface array have integrity, and (2) whether the surface distribution can be interpreted in terms of activity-specific loci. Structural and compositional characteristics of the surface array are compared with excavated samples. Assessments of methods used to detect aspects of structure in surface data from ancient late pleistocene contexts are provided.[34]

Collins, James M., George R. Holley and William I. Woods (Southern Illinois-Edwardsville)

NEW DATA ON AN OLD ENIGMA: THE SECOND TERRACE OF MONKS MOUND.
Archaeological investigations were conducted on the west face of Monks Mound at the Cahokia site, Madison County, Illinois. The project, sponsored by the Illinois Historic Preservation Agency, was prompted by a massive slump which occurred in the second terrace during 1985. Data pertinent to the engineering, construction, age and use of this portion of the mound, as well as documentation of the slump, are presented. This work represents the first excavation into the mound's second terrace and serves to refute earlier interpretations that suggest the second terrace is a late (Moorhead phase) construction.[10]

Collins, Sara L. (U.S. Army Central Identification Laboratory)

REALLY DEAD BIRDS: HUMAN PREHISTORY AND AVIAN PALEONTOLOGY IN THE HAWAIIAN ISLANDS.
Recent research on avian palaeontology and Hawaiian prehistory provides ample data—from both cultural and palaeontological deposits—for the exploration of issues surrounding human/avian relationships. Among these issues are: Methodological Problems (e.g., distinguishing cultural from palaeontological assemblages; the use of extinct, extirpated or introduced species as temporal markers); Cultural Processes (e.g., the roles of domesticated and endemic species in the Hawaiians' diet and changes in their roles); Environmental Changes (e.g., effects of agricultural activities on avian habitats). Data from archaeological excavations on four of the main Hawaiian Islands are used to illustrate these issues.[25]

Conkey, M. [58]

Conrad, G.W. (see Borsetl, C.J.)[49]

Conway, Thor (Ontario Ministry of Citizenship and Culture)

SHAMANIC RITUALS AND THE INTERPRETATION OF OJIBWA ROCK ART.
Ojibwa rock art from the Canadian Boreal forest area is interpreted through the study of shamanic activity. Ethnographic research among shamanic traditions reveals their rock art as the residual product of varied rituals, including vision questing, calendric and solstitial functions, sorcery and bear cult ceremonies. Specific sites are examined in detail through informant identification and historic documentation. Ojibwe art is diverse in origin, with both public and private contexts. The relationship of various shamanic traditions, including Wabenow, Jessicaid and Grand Medicine practitioners is examined in reference to rock art.[38]

Conway, T. (see Cledad, C.)[35]

Cook, Anita G. (SUNY, Binghamton)

THE ECONOMIC DIMENSIONS OF ANDEAN RITUAL IN THE FORMATION OF EARLY POLITIES.
The political organization of early statehood in the Aymara Valley during the 6th and 7th centuries is inferred from settlement pattern studies. A study focused on the ceramics from sites in Aymaracue
Cook, John P.

**ETHNOLOGY, HISTORY, AND ARCHEOLOGY AT HEALY LAKE VILLAGE.**

Robert McKean collected, over several years, considerable ethnographic information from Healy Lake and environs which has not been published. There are also some photographic materials. Unpublished historical information from some early prospectors and missionaries is also available. These data are used in conjunction with archaeological material recovered during the Village site excavations to produce a recent history of the Village and a tentative ethnohistoric "artifact pattern". This is, in turn, compared to collections of the same period from other Alaskan areas.[59]

Cooke, R.G. (see Ranere, A.J.)[57]

**LOGISTICS AND COERCION: THE EVOLUTION OF NON-EQUITARIAN SOCIAL FORMATIONS ON THE NORTHWEST COAST.**

The role of "collector strategies" in the evolution of non-equitarianism among hunter-gatherers is investigated. Large-scale storage and logistical mobility do not require hierarchical arrangements. Rather, they permit a lifting of the sanctions that reinforce strict equitarianism. This paper presents archaeological data from the lower Skeena River area of the Northwest Coast which shows that large-scale storage and semi-permanent village life were in place before ranked society emerged. Hierarchies developed as a result of internal processes, including considerable coercion and violence.[58]

Craig, Alan K. (Florida Atlantic)

**ANDEAN LAND SNAILS AS PALEO-ENVIRONMENTAL INDICATORS.**

The evolutionary conservative land snails of the Family Bulimulidae have made remarkable adaptations to maritime desert environments of extreme aridity along the coasts of Peru and Chile. Several genera and species are reported from archaeological contexts where their presence often has been mis-interpreted. Research on population dynamics, dispersal mechanisms, estivation rates, and ranges, provides new insights into paleoenvironmental reconstructions of habitats below 2800 m. Extinct species involved in ceremonialism and long-distance trade are identified and discussed.[6]

Craig, Douglas B. (Arizona)

**THE HOHIKOM COLONIAL EXPANSION: A TUCSON BASIN PERSPECTIVE.**

The late Pioneer/early Colonial periods witnessed the first widespread appearance of the Hohokam in areas outside the Phoenix Basin "core" region. This so-called "Colonial Expansion" has traditionally been explained in terms of a migration model. An alternative model has also been proposed, one that views diffusion and exchange rather than population movement as the chief mechanisms by which Hohokam traits spread. These models are critically evaluated in light of data obtained from recent excavations at AZ AA:16:49 (ASM), a large ballcourt village in the southern Tucson Basin.[51]

Creamer, Wilfred (School of American Research)

**THE ROLE OF ETHNIC AFFILIATION IN INTERREGIONAL INTERACTION IN NORTHERN HONDURAS.**

Researchers in Honduras have suggested that interregional interaction was promoted or facilitated by the activities of diverse ethnic groups, or by the manipulation of ethnic ties by individuals who mediated transactions between different regions. Recent research in the Sula Valley shows that ethnic affiliation may provide a model for interregional contacts although archaeological verification of the model has difficulties. Using data from the Sula Valley during the period from A.D. 600-900, an archaeological example of the role of ethnic affiliation in interregional interaction is developed.[8]

Cresswell, R.G. (Toronto)

**IRON COMES OF AGE.**

Induction melting of iron and cryogenic trapping of CO₂ gas provides a clean and efficient means of generating samples for radiocarbon dating by accelerator mass spectrometry from only a few grams of material. Basque and Roman[5] nails and fragments from a Frobisher bloom have now been scrutinized, where in the past insufficient material has made analysis by conventional methods either impossible or unviable. The results of over 20 samples clearly outline the feasibility of this technique for dating iron artifacts.[23]

Crowell, Aron L. (Smithsonian)

**THE REGIONAL ECONOMY AND SETTLEMENT PATTERN OF NORTHEASTERN KODIAK ISLAND.**

Survey and excavation data from over 200 coastal and riverine sites in the Kukul, Spiridon, Uyak, and Ugak drainages are synthesized. Settlement size, location, spacing, and seasonality are correlated with significant intra-regional resource variations, particularly along the dimension of salmon vs. sea mammal based subsistence systems. Temporal increase in house and village sizes is discussed (through the Ocean Bay, Kachemak, and Konig phases). Comparisons are drawn between the study area and other parts of the northern Pacific (Aleutians, NW Coast) where complex hunter-gatherer societies developed.[7]

Crow, Patricia L. (Southern Methodist) and Ronald L. Bishop (Smithsonian Institution)

**CONVERGENCE IN CERAMIC MANUFACTURING TRADITIONS IN THE LATE PREHISTORIC SOUTHWEST.**

The Salado Polychromes are among the most widely distributed ceramic types in the prehistoric Southwestern United States. Manufactured between A.D. 1300 and 1450, the distribution of the ceramics has long been attributed to exchange from a single region in central Arizona. Instrumental Neutron Activation Analysis of 200 samples of Gila Polychrome from 22 sites spread throughout the Southwest suggests local manufacture of the material, making this the only known type to have been manufactured in an area crossing most recognized Southwestern cultural boundaries. Ongoing whole vessel analysis reveals considerable variability in technology and styles of design despite the widespread area of manufacture.[50]

Cramley, Carole L. (North Carolina-Chapel Hill)

**TOWARD A DEFINITION OF COMPLEXITY: SOME BURGUNDIAN PUZZLES.**

The argument that society becomes increasingly complex underlies widespread acceptance of the dominant (cultural evolutionary) paradigm of the emergence of ranked society. Much recent analysis, however, has yielded evidence which is difficult to assimilate based on a model in which remains largely undefined. Three examples from Burgundy of economic, social, and administrative complexity are examined and their relation to the concept of ranking explored. Particular attention will be paid to the ability of cultural evolutionists to effectively model these relations. An alternative, hierarchical model of social complexity is proposed.[48]

Coster, Jay E. (Delaware)

**PATTERNS IN PETROGLYPHS AND IN CERAMICS OF THE LOWER SUSQUEHANNA VALLEY, DELAWARE.**

The petroglyphs of the lower Susquehanna Valley, Delaware, have been the focus of archaeological interest for more than 100 years; early studies provided a catalogue of the designs before they were flooded by hydroelectric dams. Recent analysis of the petroglyphs shows that they are located on the border of the Minguanon and Shensk Ferry/Susquehannock archaeological complexes. Design rules can be discerned from analysis of the petroglyphs, and similarities used between petroglyphs design rules are presented. These similarities suggest a late prehistoric age for the petroglyphs, which may have functioned as markers of cultural and ethnic boundaries.[38]

Czaplicki, Jan S. (ASM, Tucson) and John C. Ravesloot (ASM, Tucson)

**DETERMINING SUBSURFACE SITE BOUNDARIES AT HOHIKOM SITES BY INTENSIVE TRANSECT RECORDING.**

Determining subsurface feature distribution is a problem in excavation planning. ITR was developed as a survey/testing tool to aid in excavation planning, and is based on the co-occurrence of major functional classes of artifacts in surface context. It has been selectively used on the Tucson Aqueduct Project, but only recently could ITR be tested by extensive excavation. The utility, application, and future potential of ITR are discussed in light of the results of these excavations.[34]

Dalan, Rinita A. (Geo-Recon, Seattle), Julie K. Stein (Washington, Seattle), John M. Musser, Jr. (Geo-Recon, Seattle) and Clyde A. Ringstad (Geo-Recon, Seattle)

**ARCHAEO-GEOPHYSICS AND CORING: A PARTNERSHIP THAT WORKS.**

Geophysical and coring data were obtained at English Camp, a Northwest Coast shell midden, to aid in determining site formation processes. As excavations at the site have revealed a complex history of deposition and post-depositional change, the definition of pre-occupation topography and post-depositional alterations is needed to address questions regarding site formation. Geophysical tech-
engravings in the northern Cape Province provide a unique testing ground because, first, there is a greater potential for relative dating of engravings than is the case with paintings. Second, there are ethnographic records for the northern Cape that relate to the belief system of the Xam San of the late 19th century that have relevance for the interpretation of the themes in the engravings. Third, these records suggest that there were at least two and possibly more dialect groups in the region, which allows for the investigation of inter-group variability in rock art content, style and related stone artifact assemblages. Some characteristics are shown to be site-specific, others are group specific, and others are common to all sites in the region.[38]

Deal, Michael (Memorial, Newfoundland)

HOUSEHOLD POTTERY STORAGE AND SITE STRUCTURE: A VIEW FROM THE MAYA HIGHLANDS.

Separate and distinct storage strategies are associated with pottery production, consumption, and disposal within the Maya household. This is true of general domestic and ritual vessel use, as well as pottery manufacturing activities and the placement of broken vessels for future reuse (elsewhere termed provisional discard). In this context, storage behavior is viewed as having an influential role in the “evolution” of pottery assemblages within ongoing households. Further, remnants of certain vessel storage configurations are likely to survive in archaeological situations and may be confused with household activity areas.[27]

Dean, C. Gordon (NMSU)

NORTHERN HONDURAN SUBSISTENCE HOUSEHOLD KITCHENS AND THEIR CONTENTS.

A complete inventory of the objects observed in 132 kitchens indicates the range of culinary artifacts currently used by subsistence farming women in two areas of Northern Honduras. The limited kitchen tool kits and the adobe cooking stoves are compared to 1) the size and form of the kitchen work and movement areas, 2) the house structure and, 3) the populations that they support. “Innovacal” and “recycled” objects contribute significantly to the inventory as do a number of specialized objects.[24]

DeAtley, Suzanne P. (Archaeological Research Laboratory, Las Cruces)

CERAMIC TECHNOLOGY REVEALED THROUGH MICROSCOPY.

Petrographic sections of ceramics from American Southwest and other locales will be examined to illustrate manufacturing techniques, material processing and firing conditions employed in the production of the ceramics.[53]

Deetz, James (UC Berkeley)

AFRO-AMERICAN CERAMIC PRODUCTION AND CONSUMPTION IN THE VIRGINIA TIDEWATER.

Analysis of pipetem fragments from a series of sites at Flowerdew Hundred, Virginia, using Harrington's histograms, shows three distinct settlement modes between the early 17th and early 17th centuries. The earliest reflects the depression of the tobacco economy, the second, the rise of an incipient elite based on slavery in the late 17th century, and the third represents settlers who had a stronger commitment to the land prior to slavery. Slave-manufactured pottery appears only on sites of the latest group, although there was a black presence at Flowerdew from 1619. This seeming contradiction may be a function of architectural changes reflecting a great break in servant- planter relations, and might also explain differences in slave pottery from Virginia and South Carolina.[29]

Deetz, J. [29]

Dehn, H. (see Drennan, R.D.,J.1]

Delacorte, Michael G. (U.C. Davis)

THE ROLE OF MARRIAGE NETWORKS IN STRUCTURING GREAT BASIN SETTLEMENT PATTERNS.

Differences between regional settlement patterns across the Great Basin are often taken to reflect variations in local environment, particularly the availability of subsistence resources. Similar environmental settings can, however, support divergent settlement patterns. This suggests a complex relationship between environment, subsistence, and settlement patterns. Comparison of prehistoric settlement patterns between Deep Springs and Owens Valley, California, which share many similarities in environment, indicates that the size of local population and the resulting marriage network plays an important role in linking settlement strategies to local environment.[51]

de Laguna, E. [7]

Deller, D. Brian (McGill)

GREAT LAKES PALEO-INDIAN: INTERPRETATION OF CHERT UTILIZATION PATTERNS IN THE PARKHILL COMPLEX.

Recognition and analyses of chert utilization patterns have played a significant role in the discovery and interpretation of Ontario Paleo-Indian sites. Data from several sites and findspots in southwestern...
de Montmollin, Olivier

Ontario are used to infer band territories and seasonal population movements for the Parkhill complex. These patterns of chert usage differ substantially from that of preceding and later complexes such as Gainey and Crawford. Implements on Parkhill complex sites manufactured elsewhere from Bayport chert suggest interaction with a closely related population in Michigan.[46]

de Montmollin, Olivier (Cambridge)

SHIFTING SPATIAL SCALES IN STUDIES OF MAYA SETTLEMENT AND POLITICS.

Interesting methodological and theoretical issues arise when selecting scales of study for understanding Maya settlement and political structure. In particular, selecting a small scale of study (house groups - households) and extrapolating to comment on larger scale problems (including sites and regions - communities and polities) falls into a reductionist trap. As illustration, implications of shifting scale when studying the locus and determinants of residential decision-making are examined, with primary reference to Classic Maya settlement and politics from the Rosario Valley, Chiapas, Mexico.[45]

Dennell, Robin (Sheffield)

18,000 B.P. IN PAKISTAN AND CENTRAL ASIA.

This paper will cover the sparse archaeological and palaeoenvironmental record for the glacial maximum at 18,000 B.P. in Pakistan, northern India, Afghanistan and Central Asia. Reasons for our almost total ignorance of these sites in this region will be discussed, and suggestions made as to the range of data that need to be collected, and the questions that are worth asking. Given the state of the current data base for the glacial maximum in this region, discussion will be extended to cover the latter part of the last glaciation from 30,000 B.P. onwards.[20]

Desson, D. (see Aigner, J.S.)[7]

Dibble, Harold L. (Pennsylvania)

THE LA QUINA COMPUTER DATA SYSTEM.

New excavations at the Middle Palaeolithic site of La Quina (Charente, France) began in 1985 as a cooperative project involving the Universities of Bordeaux, Arizona and Pennsylvania. During the past season (1986) a fully computerized data system was developed and implemented. This distributed system is described with a focus on the use of an electronic distance meter/thedolite for artefact point proveniencing and mapping. This system should be of interest for all archaeological field applications.[39]

Dibble, H.L. (see Chase, P.G.)[16]

Dodd, Walter A. (Utah)

FACTORS CONDITIONING THE PLACEMENT OF FIRE-RELATED FACILITIES AND REFUSE.

Ethnographic and archaeological research demonstrates that sedentary societies position fires and dispose of their byproducts in spatially diverse ways. Recent site structural studies make it possible to begin understanding why such variable arrangements occur. Data gathered among the Guarija of northwestern Mexico, who employ at least eight different kinds of fire-making facilities, suggest that several spatial determinants are involved. These include climatic conditions, type of architecture, activity structure, and other considerations. Insights derived from observation of the Guarija are used to forge an explanation for some cross-cultural differences and similarities.[27]

Donahue, D.J. (see Long, A.)[23]

Donahue, J.[6]

Donahue, Randolph E. (SUNY Stony Brook)

MICROWAVE ANALYSIS IN THE STUDY OF CURATED AND EXPEDIENT TECHNOLOGIES IN THE ITALIAN UPPER PALAEOLITHIC.

Operationalizing complex theoretical concepts such as curation and expediency as they pertain to Palaeolithic stone tool assemblages is difficult. One problem is that archaeologists often use data such as formal characteristics of stone tools whose relationship to these concepts is ambiguous at best. A method is proposed whereby indications of such human behavior with respect to stone tools are deduced. These deduced properties are recognizable through microwear analyses, especially in association with technomorphological study. Comparison of assemblages can then provide some relative measure of curational behavior as exemplified by analysis of Epigravettian assemblages from Paglicci Cave and Petriolo III South, Italy.[9]

Doolittle, William E. (Texas, Austin)

SURVEY EVIDENCE OF DOORYARD GARDENS IN THE SOUTHWEST.

The prehistoric use of dooryard gardens in arid lands and especially in the Southwest has not been given much consideration even though such gardens are quite common today. Ethnographic data from eastern Sonora, Mexico indicates that dooryard gardens [1] tend to be located downhill of houses, and [2] are marked at their lower ends by low rock walls or terraces. Maps of pre-Hispanic sites in the Valley of Sonora are reviewed for this type of evidence. Suggestions for future research are offered.[42]

Dorn, Ronald (Texas Tech) and David S. Whiteley (UCLA)

CATION RATIO DATING AND ROCK ART CHRONOLOGY IN THE WESTERN GREAT BASIN.

Cation ratio dating of rock varnish has yielded thirty-five absolute dates on petrogllyphs from the western Great Basin. Ages range from approximately 13,000 to 200 B.P. SEM analyses of the micromorphological structure of the dated varnish provides independent support for the Late Pleistocene age assignments of five petroglyphs. Previous stylistic chronologies are not supported by our latest suite of sixteen dates from the Coso Range. The cation dates suggest a very lengthy tradition of ritual activity that extends back into Palaeo-Indian times.[35]

Douglass, Amy A. (ASU)

EXPLORING PREHISTORIC SOUTHWESTERN CERAMIC EXCHANGE: LITTLE COLORADO WHITeware DISTRIBUTIONS AND EDA.

Much recent archaeological research in the Southwest has focused on ceramic exchange and its role in the maintenance of regional political systems during later periods of prehistoric cultural development. However, less research has been directed toward modelling the earlier organization of Southwestern exchange systems. This paper will examine the geographic distributions of Little Colorado Whiteware, one of the earlier known Southwestern tradewares. A literature search of previously recorded sites provides the database. A distance decay study is presented using Exploratory Data Analysis (EDA). Insights into the mode of production and exchange, as well as the locus of production, are offered.[51]

Douthit, M.L. (see Prentiss, W.C.)[56]

Drees, Meredith (Texas, San Antonio)

AN OBSIDIAN DISTRIBUTION MODEL FOR THE BELIZE PERIPHERY.

Trace element studies of obsidian from Belize sites suggest several interesting patterns related to diachronic distribution patterns and use of coastal networks for transport of trade items. Obsidian from the El Chayal source, previously believed to be distributed by inland routes during the Classic Period, was in fact distributed as early as the Late Preclassic by coastal networks along with obsidians from the Bricope source. A regionalized obsidian distribution pattern for the relatively autonomous Belize periphery differs somewhat from the trade models previously established by Nelson and Hammond for the Maya lowlands.[47]

Drennan, Robert D., Heinz Dehn, and Philip T. Fitzgibbons (Pittsburgh)

THE TEHUACAN VALLEY AND THE TEOTIHUACAN OBSIDIAN INDUSTRY.

Commerce, especially involving exportation of obsidian, is often assigned a major position in the economy of classic period Teotihuacan, with Teotihuacan sometimes seen as monopolizing obsidian trade throughout Mesoamerica. Proponents of such models cite evidence that obsidian from sources near Teotihuacan appeared in distant regions. Patterns of obsidian procurement in the Tehuacan Valley during the Formative and Classic, however, are inconsistent with such a view. They suggest that, to the extent that Teotihuacan's obsidian industry produced for export, the major objective was not profit in any meaningful sense, but the acquisition of luxury goods from distant sources.[11]

Driscol, Stephen T. (Glasgow, Scotland)

THE EMERGENCE OF A PICTISH KINGDOM: MATERIAL CULTURE AND POWER.

In the early Medieval period (c. 600-1000 AD), the kingdom of Forthri emerged as a preeminent among the kingdoms of Southern Pictland and came to form the core of the later Medieval Scottish kingdom. Our best understanding of the establishment of this authority derives from these related bodies of material culture, which may be analyzed as distinct fields of social discourse. These are 1) royal sites which may be studied architecturally and in terms of their relationship to the prehistoric landscape, 2) monumental sculptures, including the symbol stones and the early Christian crosses, and 3) the economics of agricultural production and the circulation of prestige goods.[29]
Dumond, Don E. (Oregon)

THE NORTHERN ALASKA PENINSULA IN SOUTHWESTERN ALASKAN PREHISTORY.

Astride the ecological boundary between the arctic Bering Sea and the maritime North Pacific, the northern Alaska Peninsula was occupied over three of the last four millennia by two archaeologically distinctive groups, one of the Bering Sea drainage, the other of the Pacific coast, each of which evolved but continued to maintain its distinction from the other. At about AD 1000, these hitherto distinguishable cultures merged into a single complex in an occurrence that archaeologists have interpreted in opposing ways. A resolution is sought through archaeological, biological, and linguistic data.[7]

Dunham, Peter S. (SUNY, Albany)

GRAVITY ANALYSIS AND SETTLEMENT BOUNDARIES: INTERCENTER INTERACTION IN SOUTHERN BELIZE.

A gravity model from economic geography is adapted to archaeological settlement. Assuming flat terrain, it projects intercenter boundaries based on site sizes and intersite distance. This model is applied to Nimlí Punit and Xnaheb, Belize, neighboring cities of the Lowland Maya from the Late Classic (A.D. 700-900). Field mapping of those cities confirms the great potential of such simulations in predicting settlement drops, clarifying intercenter interaction, and highlighting nongravitational influences on settlement patterns. The intersite boundary was accurately located, however, it was strongly affected by topographic variation, and the two cities proved to be poorly integrated, suggesting relative underdevelopment.[45]

Dunne, Robert C. (Washington, Seattle)

MEASUREMENT AND ARCHAEOLOGICAL USE OF SEDIMENT pH.

Sediment pH is an easily measured property of demonstrated value to archaeological prospection, stratigraphic interpretation, and formation processes. Even so, pH is not routinely used or reported, at least in part, because its utility seems to vary widely from case to case. Research reported shows how details of sample preparation and measurement may introduce extraneous variation. Examples of the use of pH data are drawn from research in Kentucky, Missouri, and Washington. pH determines many kinds of chemical reactions and reaction rates. Understanding the contemporary content of the archaeological record requires the documentation of archaeological pH.[43]

Durrenberger, E. Paul (Iowa)

ECONOMY AND LAW IN COMMONWEALTH ICELAND.

During the Commonwealth from its settlement in the 9th century until its incorporation into the Norwegian State system in 1262, Icelandic society was stratified but had no state (Durrenberger 1985). Such societies are untested in the ethnographic record (Fried 1967). A quantitative analysis of economic and legal transactions is developed as one component of an archaeological-historical systems analysis of medieval North Atlantic societies outlined by McGovern et al. 1985. This is the first quantitative study of the sagas and will help integrate social-historical with archaeological and ecological analyses.[21]

Dyson, Stephen (Wesleyan)

THE RISE OF COMPLEX SOCIETIES IN ITALY: HISTORICAL VERSUS NON-HISTORICAL PERSPECTIVES.

In Italy during the first millennium B.C., two very complex cultures, Etruria and Rome, evolved. Both became literate. While written Etruscan records have only limited value, those of Rome allow an independent historical reconstruction. With both societies, an abundant archaeological record allows another independent reconstruction. Focusing on one question, the evolution of Roman settlement, this paper will consider the way that abundant but flawed literary records can shape the collection and use of archaeological material, prevent its independent use and distort the reconstruction of social and economic processes active in a complex society's rise and fall. Concluding arguments will be made about the need to use archaeology as a primary source even in literate societies.[48]

Early, Ann M. (Arkansas Archaeological Survey)

PROFITERS, PAYMASTERS AND PUBLIC ARCHAEOLOGY: ANTIQUITIES TRAFFICKING IN ARKANSAS.

The destruction of archaeological sites for pleasure and profit in Arkansas is a century old phenomenon characteristic of site destruction elsewhere in the southeastern United States. Rich sites, most on private land, fuel the digging fever and contribute to an interstate antiquities market. The Arkansas Archaeological Survey attempts to deal with this multifaceted problem through strategies directed at landowners, collectors, commercial diggers, dealers, and financiers whose activities are all interre-
Elslelein, Elizabeth R. (Arizona State)

HEAT TREATMENT ON THE NORTHERN HOHOKAM PERIPHERY.

Analyses concerning heat treatment practices among the Hohokam are either reserved to various cryptocrystalline materials or, worse yet, ignored. Experiments were recently conducted with an intermediate siliceous material (dacite) to determine its characteristics after being subjected to heat. The experiment shows that heat treatment of dacite, as well as Jasper, chalcedony and chert, is present at several sites near the New River/Aguia Fria River of Arizona. This paper explores the reasons behind the heat treatment of dacite and stresses the need to study heat treatment in future analyses so as to gain a more accurate picture of the Hohokam. [56]

Ferguson, Jonathan E. (UCI), Chester King (Topanga, CA), and Clay Singer (Santa Monica, CA)

EXCHANGE AND EPIDEMICS AMONG CALIFORNIA ABORIGINAL POPULATIONS.

Although California was not isolated from interregional exchange with the American Southwest and other areas, it appears to have been isolated from the earliest episodes of major epidemics until 1783. Thereafter, epidemics appear as a series of diseases: syphilis in 1791, tuberculosis in 1795, measles in 1806, smallpox in 1832, and malaria in 1843. Analysis of mortuary data and mission registers provides records on exchange, social networks, rates/modes of death and demographic changes. [40]

Falconer, Seven E. (Arizona)

RURAL VISIBILITY IN "URBANIZED" SOCIETIES: A STUDY OF GROWTH THROUGH RURALIZATION.

Early urbanization, exemplified prototypically in southern Mesopotamia, involved population growth and nucleation. However, archaeologically inconspicuous village communities are neglected, and thoroughly “invisible” when urbanization is assumed to be normal in complex societies. Settlement patterns in Palestine/Transjordan show that the appearance of Bronze Age towns was paralleled by a more significant proliferation of villages. A case study from the Jordan Valley demonstrates that villages performed functions often assumed to be urban: for example, providing access to specialized goods and services. It is argued that secondary developments of complex society may involve growth through “ruralization,” rather than “urbanization.” [24]

Farquhar, R.M. (Toronto), J.A. Welthall (Illinois Dept. of Transportation) and S.H. Stow (Oak Ridge)

LEAD ISOTOPE EVIDENCE FOR MINERAL DEPOSIT SOURCES OF GALENA FROM SOME MIDDLE WOODLAND AND MISSISSIPPIAN ARCHAEOLOGICAL SITES IN THE SOUTHEASTERN U.S.

We have undertaken a series of lead isotope ratio measurements on a representative suite of galenas found in middle Woodland and Mississippian grave sites in Alabama and Tennessee to test the applicability of this technique for determining the provenance of the samples. Comparison of the data for the grave site samples with that for galenas from potential mineral source areas in the Upper Mississippi valley, Missouri, and Tennessee suggest that the sources of most of the archaeological galenas lie in the southeast central Missouri Pb-Zn mineral district. Ten to twenty percent appear to originate in the Upper Mississippi Valley region. [10]

Farrand, W. (see Mandel, R. J.) [3]

Fecteau, Rodolphe David (Royal Ontario Museum)

LATE WOODLAND CULTIVATED PLANT RECORD IN SOUTHERN ONTARIO.

Five cultivated plants (corn, bean, squash, sunflower and tobacco) are known from ethnographic and archaeological sources to have been grown prehistorically in southern Ontario. The time period during which cultivars were introduced into and spread throughout southern Ontario extends from A.D. 600 to A.D. 1550. On the basis of available evidence the two earliest sites date to around A.D. 600 and have only corn. They are the Princess Point site in the city of Hamilton at the western end of Lake Ontario and the Dawson Creek site near Rice Lake in south central Ontario. Tobacco appears for the first time in the Princess Point settlement. Beans, squash and sunflower are all introduced by Young Tradition people in the southeast during the 17th century. The diffusion of cultivated plants appears to be from the south, to the east and later north. [33]

Ford, Pamela J.

Feinman, Gary M. (Wisconsin, Madison)

FROM FRONTIER TO SEMI-PERIPHERY: PREHISPANIC SETTLEMENT PATTERNS IN THE EJUTLA REGION, OAXACA, MEXICO.

Preliminary results from the settlement pattern survey of the Ejutla Valley, Oaxaca, Mexico indicates that this mountain area was inhabited later and somewhat more sparsely than the Valley of Oaxaca proper. Coincident with Monte Alban expansion outside of the Valley core, major shifts in the distributions of regional population and civic/ceremonial architecture are noted in Ejutla as the area was transformed from a frontier to a semi-periphery. A second significant restructuring occurred in the Ejutla region following the fall of Monte Alban when there is evidence of decentralization and increased military activities along the region's southern edge. [5]

Feinman, G.M. (see Nicholas, L.M.,[55]

Ferring, C.R. (see Marks, A.E.,[4]

Fiedler, Stuart J. (MALEA)

ALGONQUIN ORIGINS: A PROBLEM IN LINGUISTIC-ARCHAEOLOGICAL CORRELATION.

Most archaeologists currently assume continuous, indigenous development of North-eastern cultures. This model is incompatible with linguists' model of migration of Proto-Algonquans from a homeland near Lake Ontario, ca. 3000-2000 B.P. Attempted identifications of Paleo-Indian or Archaic assemblages as Proto-Algonquian are seriously flawed. Significant discontinuities in the archaeological record of the Early and Middle Woodland periods offer a better context for hypothesized Algonquian expansion. [22]

Fillios, Elena L. (Massachusetts, Amherst)

THRESHOLDS TO GROUP FISSIONING AMONG HUNTER-GATHERERS.

Group composition among hunter-gatherers generally has been seen as resulting from demographic or ecological variables. What these models have failed to consider is the contribution that social processes make to group composition. One of the factors that determines group composition is the facility with which a group can fission. Social processes that actively promote or retard fission do so by decreasing the likelihood of group autonomy or by enhancing group cohesion, thereby contributing to the development of social inequalities. The utility of this approach is investigated by examining archaeological materials from the Early Woodland period in southern New England. [58]

Finlayson, William D. and David G. Smith (Museum of Indian Archaeology)

IROQUOIAN CULTURE HISTORY, SETTLEMENT AND DEMOGRAPHY IN THE CRAWFORD LAKE REGION OF SOUTHERN ONTARIO.

Archaeological study of the Iroquoian occupation of the Oakville and Bronte Creeks over the past two decades has resulted in the discovery and investigation of sixty [60] Iroquoian sites. This paper will examine the Iroquoian culture history of the region. It will include a consideration of the dating of three sites near Crawford Lake for which radiocarbon dates of 1255-1390 B.C., 1435-1545 A.D. and 1650-1630 A.D. are available. It will also explore changes in settlement and demographic patterns and will present possible explanations for these. [36]

Fish, P. (see Fish, S.K.,[24]

Fish, Suzanne K., Paul Fish and John Madsen (Arizona, Tucson)

PERCEPTION AND SCALE IN THE EVALUATION OF DISPERSED PHENOMENA.

Perception and scale proved to be critical factors in recognizing constituent units and overall configuration of multi-site communities in dispersed Hohokam settlement patterns of southern Arizona. Settlement systems deriving major subsistence from valley slopes contrast with expectations based on better known riverine irrigation networks. Large scale full coverage survey was necessary to effectively define land-extensive production complexes and to detect community boundaries within non-compact settlement distributions. Results have implications for recovering and evaluating spatially dispersed phenomena in general. [24]


Fitzgibbons, B.T. (see Vento, E.J.,)[43]

Ford, Pamela J. (Washington)

MEASURING CHANGE IN SHELLFISH RESOURCES.

Abundant shellfish remains in coastal middens provide an unparalleled source of data for measuring the impact of human subsistence strategies upon prey populations. Such research is based on the assumption that trends in shell size are directly related to collection strategies. A shell midden on
primary material for producing tools and weapons began in the Late Bronze Age and was basically complete by the beginning of the Late Iron Age. Simultaneously, other aspects of central European society were achieving levels of social complexity previously unrealized in temperate Europe, including the development of that region’s first towns. This paper examines the correlations and causal connections between the technological development of ironworking and these other social changes.[48]

Geselowitz, M. (see Habicht-Maucho, I.,[32])

Gibson, D. Blair (UCLA)

AGRO-PASTORALISM AND REGIONAL SOCIAL ORGANIZATION IN LATE IRON AGE WESTERN IRELAND: PROBLEMS OF IDENTIFICATION AND INTERPRETATION.

Available ethnobotanical and archaeological evidence suggests that the social landscape of Late Iron Age Ireland was characterized by multi-tiered chieftaindoms and spatially segregated multi-family household units. Analysis of the settlement record of the Burrane region of County Clare supports and elaborates upon this characterization. The role of a cattle-dominated economy is explored as a causal and/or limiting factor with respect to household constitution, polity structure, and political expansion and change.[48]

Gibson, Eric C. (Trinity)

THE ORIGIN OF MAYA CEREMONIAL LITHIC ARTIFACTS.

The “eccentrics” of the southern Maya lowlands are problematic. Previously considered to be the result of diffusion from Teotihuacan in the Early Classic, evidence from northern Belize conclusively shows that Maya lithics developed locally in the Late Preclassic. Apparently, full-time intensive lithic craft specialization emerged as a response to a change in agricultural technology. Later, as a result of improved skills and technological innovations developed by these specialists, an elaborate system of votive lithic artifacts became an integral part of regional ceremonialism. Such skill in lithic technology was never surpassed in prehistory.[45]

Gibson, E.C. (see Cavallaro, R.,[32])

Gibson, Jon L. (Southwestern Louisiana, Lafayette)

POVERTY POINT TRADE AND THE ARCHAIC-WOODLAND TRANSITION.

Fresh data and powerful analytical models are casting new light on Lower Mississippi Valley trade during the Archaic-Woodland transition between 2500 and 400 B.C. Previous conclusions regarding the importance of foreign and local raw materials and the primacy of the Poverty Point site have been reaffirmed. However, instead of a single long-lasting exchange system, a more complicated picture involving several localized networks centered around large strategically located villages now seems indicated. While fulfilling basic domestic needs, it appears that some materials, especially exotic, were not uniformly accessible and may, at the Poverty Point site, have led to institutionalized inequalities.[40]

Gilman, Patricia A. (Amerind Foundation)

CHANGING SUBSISTENCE AND THE ROLE OF CERAMICS.

The role of ceramics in an early agricultural complex is examined. Analysis is based on pottery from the Wind Mountain site, a well dated settlement in southwestern New Mexico. This site has a particularly long sequence, beginning in the earliest Mogollon ceramic period. Specifically discussed in terms both of their first appearances and their changes through time are 1) abundance of ceramics, 2) pottery forms, and 3) design elements. Implications of these changes for understanding the transformations in subsistence strategies are considered.[50]

Goodyear, A.D.,[46]

Gore, B.H. (see Long, A.,[,23])

Graffam, Gray (Toronto)

TIWANAKU INTENSIVE AGRICULTURE: EVIDENCE OF RAISED FIELD CULTIVATION FROM LUKUMARA, BOLIVIA.

The recent excavation of Tiwanaku raised fields at Lukumara, Bolivia is discussed in terms of agricultural production and implications for Tiwanaku economic and political organization. This paper describes the structure and morphology of the Lukumara raised fields, as well as the methods for dating these agricultural constructions, which indicate a Tiwanaku IV-V association. The significance of Tiwanaku raised fields is discussed within the context of indigenous intensive agriculture in the Titicaca basin as a whole. Finally, the paper examines a model for agricultural intensification and land reclamation during the Tiwanaku IV period.[52]
Graham, Elizabeth A. (Royal Ontario Museum)
A BRIEF SYNOPSIS OF COASTAL SITE DATA FROM COLSON POINT, PLACENCIA, AND MARCO GONZALEZ, BELIZE.
A synthesis of the excavation data from several coastal sites in Belize is presented; the sites at Placencia in southern Belize, the Colson Point sites in central Belize, and the Marco Gonzalez site at Ambergris Cay. The coastal communities under discussion have Preclassic to Postclassic components and were utilized as bases for a variety of activities through time. The focus is on delineating those factors of trade, resource procurement, and environment about which useful coastal trade generalizations can be made. [47]

Graham, E.A. (see Jones, G.D.) [45]
Graham, E.A. (see Pendergast, D.M.) [2]

Granger, Joseph E. (Louisville)
MEADOWOOD MORTUARY ACTIVITY: AN EXAMINATION OF TERMINAL ARCHAIC/EARLY WOODLAND DEATH RITUAL IN THE LOWER GREAT LAKES.
Burial ritual at Morrow Site and similar evidence in New York, Vermont, Southwestern Ontario and Quebec is examined by feature analysis for the systematic relationships of these limited activity components in Meadowood culture. The material and structural elements of mortuary activity are shown to have derived directly from the activities found on habitation sites. The ritual of burial treatment is portrayed as a principal means for socially and ideologically reinforcing territorial boundary maintenance and resource control. An explanation is offered for the appearance of the transitional florescent ritual/artifact congregate known as Middlesex/Adena at some of these sites. [22]

Green, William (Wisconsin-Madison)
A PREHISTORIC FRONTIER IN THE PRAIRIE PENINSULA: LATE WOODLAND UPLAND SETTLEMENT AND SUBSISTENCE PATTERNS.
The 700 year "hiatus" between Hopewell and Mississippian is interpreted using a pioneer settlement model. Immediately upon the Hopewell demise Late Woodland groups began intensive use of previously unoccupied upland headwater areas in the Prairie Peninsula. Early Late Woodland pioneers retained traditional nucleated villages and dependence on aquatic and riverine resources. Later pioneer stages were characterized by a successful upland-oriented economy based on individual household rather than village level organization. This pattern prevailed for about 400 years. Maintenance of distinct ethnic group boundaries and structured contacts among neighboring groups assisted in pioneer groups' survival until the arrival of Mississippian influences. [10]

Gregg, S. (see Kintigh, K.W.) [44]
Griffin, J.B. [40]
Grimes, J.R. (see Spiess, A.E.) [46]

Grosboll, Sue (Wisconsin, Madison)
"... AND HE SAID IN THE TIME OF THE YNGA, THEY PAID TRIBUTE AND SERVED THE YNGA".
Early colonial documents for the Huancoco region provide testimony to the character of provincial Inka governance of the region. But beyond the large administrative center of Huancoco Pampa, archaeological evidence for the Inka conquest is minimal in the villages of the region. The scarcity of observable Inka traits in ceramics, architecture, and settlement pattern suggests a low level of interaction between conqueror and conquered. However, this archaeological reconstruction must be evaluated in light of the colonial evidence. Together they provide an outline of the character of provincial Inka influence and suggest new approaches in searching archaeologically for evidence of the impact of the Inka. [41]

Gross, G. (Tiauothy (California, La Mesa) and Fekri A. Hassan (Washington State)
HOLOCENE PREHISTORIC SUBSISTENCE AND POPULATION IN SIWA OASES.
Reconstruction of the amount, kinds, seasonality and spatial patterns of available water and potential food plants and animals was combined with an examination of archaeological remains from a variety of sites around Siwa, Gaza, and El-Areg in order to describe patterns and population size and mobility in the Siwa Oasis region. The results indicate a small regional population composed of several bands. Seasonal availability of resources and water in the desert surrounding the oases apparently led to excursions into the desert during the rainy season and reoccupation of sites around permanent water holes during the dry season. [14]

Hall, Barbara A.

Grynasp, M.D. (see Hancock, R.G.V.) [1]
Gudarjan, Thomas H. (Institute of Texan Cultures), James F. Garber (Southwest Texas State), and Herman A. Smith (Corpus Christi Museum)
MAYA TRANSPIRATION POINTS AND FACILITIES ON NORTHERN AMBERGRIS CAY, BELIZE.
During the Terminal Classic, the Maya established a series of transpiration points along the coast of Ambergris Cay. Artificial canals and port facilities were also constructed. Architectural and ceramic evidence from San Juan, the best known site, indicate that northern Yucatecan influences were strong and that the site was fully participating in the maritime trade network. San Juan is connected to the Caribbean by a km canal which now separates the island from mainland Mexico. Analogous sites have been found on the windward side in equally strategic locations. [47]

Gumnerman, G. [54]

Garfinkle, D.M. (Toronto)
DIFFICULTIES ASSOCIATED WITH THE ANALYSIS OF ORGANIC ARCHAEOLOGICAL RESIDUES.
While the potential applications of organic residue analysis are exciting, major problems exist with the use of this type of analysis as part of an archaeological evaluation. These are due to the fact that organic material is generally very poorly preserved, often only being present in trace amounts and often in an altered and/or degraded state. How these factors complicate a residue recovery analysis and identification will be illustrated from the author's experience with blood residue detection. [15]

Haas, Herbert (SMU)
HOLOCENE AND LATE PLEISTOCENE CHRONOLOGY IN THE WESTERN DESERT AND THE NILE VALLEY OF EGYPT.
Conventional radiocarbon dating has been used to determine paleoclimatic variations and to study prehistoric activity of man. The earliest dates are from gastropol shrubs and from inorganically formed carbonate deposits. Early dates on groundwater or wellwater, on carbonaceous deposits (tufa) and on organic layers found around and in former playa lakes. There is general agreement between evidence of occupation in the area and increase in rainfall with presence of dispersed water bodies. [14]

WHERE'S THE CHIEF?: THE ARCHAEOLOGY OF COMPLEX TRIBES.
This paper examines some of the problems inherent in the identification and interpretation of tribal forms of social organization from archaeological data. In so doing, the concept of the complex tribe is formulated and defined. In complex tribes, rank and status positions exist, but leadership continues to be vested in corporate and familial institutions. The authors believe that, archaeologically, such societies often have been misinterpreted as centralized chiefdoms. Confusion stems from attempts to equate Fried's model of ranked societies with Servio's chieftain model. The archaeological evidence for complex tribes, then, is presented from three culture areas-the American Southwest, Lower Central America, and Temperate Europe. [32]

Haugstrøm, Melissa B. (UCLA)
AN ETHNOARCHAEOLOGICAL STUDY OF CERAMIC USE-LIFE, BREAKAGE, AND DISCARD IN THE CENTRAL ANDES, PERU.
This paper examines the domestic use-life, breakage, and discard of contemporary Wanka ceramic vessels in an effort to quantify demand for these ceramic products. Evidence was gathered from 200 households in 18 villages for each vessel in the household ceramic assemblage. Two vessel types were studied: cooking ollas and liquid storage/transport porongs. As indicated in previous studies, cooking vessels have a considerably shorter use-life than storage/transport vessels and so are in greater demand. The demand for cooking vessels by 100 households supports one specialist ollero producing unit; the demand for storage/transport vessels by 1000 households supports one specialist porongero producing unit. [50]

Hall, Barbara A. (Arizona)
MESOAMERICAN TEXTILE EXCHANGE AND SPINDLE WHORLS AT MATEACAPAN, VERACRUZ, MEXICO.
Cotton cultivation and textile manufacture are known to have been important industries in Mesoa-merica, but have been infrequently studied archaeologically. One byproduct of this industry that
Halsey, John R. and James L. Martindale

preserves well is the spindle whorl. Quantitative and qualitative variation in spindle whorls at Matacapan, Veracruz, Mexico, can be related to other aspects of intrasite household variation. Ethnohistorically the Tuxtla Mountains region was known as an important cotton manufacturing area, and it is suggested that this industry came to prominence with an increase in interregional trade facilitated by contact with Teotihuacan.[30]

Halsey, John R. (Michigan Department of State) and James L. Martindale (Michigan Department of Natural Resources)

THE NEVIN SITE: RECONSTRUCTING SUBSISTENCE PATTERNS AND ACTIVITY AREAS.

Nevin is a stratified site in central Maine with Moorehead complexes, Susquehanna tradition and ceramic period occupations. Detailed analysis of the faunal sample allows reconstruction of the subsistence pattern and seasonal nature of resource procurement. Spatial analysis of all artifact classes is presented to define site activity areas. The most intensive occupation at the site was during the Late Archaic period and faunal remains for this period are well represented. The maritime nature of the subsistence pattern related activity areas are correlated with Archaic and Ceramic period sites elsewhere in local and regional contexts.[34]

Hamilton, N.D. (see Petersen, I.B.)

Hammond, Benjamin (Rutgers)


Extensive excavations at the Early Formative site of Cuello in northern Belize from 1978 through 1980 demonstrated the presence of an early community dated by radiocarbon to the second millennium B.C., with competent pottery, maize agriculture, and plastered-platform architecture marking the inception of the lowland Maya cultural tradition. Major architecture was constructed in the Late Formative period after 400 B.C., and a number of ceremonial features including mass sacrifice and stela erection were documented. The present paper reports on limited further work at the site, including the excavation of Middle and Early Formative buildings and the recovery of very small radiocarbon samples for accelerator dating.[57]

Hancock, R.G.V. (SLOWPOKE Reactor, Toronto), M.D. Grypas (Mt. Sinai Hospital) and K.P.H. Pritzker (Mt. Sinai Hospital)

BONES LIE.

The concept that one may establish ancient diets by the trace element analysis of recovered bones is an enchanting one. Much research has been directed to the analysis of ancient bones and to diagenetic effects on them. This paper presents analytical information on clean modern bone (human), Egyptian mummy bones, soil buried bones, old bone from a Florida bog, and some modern Rhesus monkey bones. These data show that the link between dietary information and trace elements found in ancient bones is extremely tenuous at best.[7]

Hancock, R.G.V. (see J ulig, P.J.)

Hancock, R.G.V. (see Sheppard, P.A)

Haacks, Christopher C. (Prince of Wales Northern Heritage Centre) and David Pokotylo (UBC)

THE MACKENZIE VALLEY: A RECONSIDERATION OF THE DENE.

An increasingly active involvement in archaeology by the Dene of the Mackenzie, and the shift of researchers from the pursuit of cultural historical to ethnoarchaeological research has begun to change the way the archaeological record is viewed. New hypotheses are being posited based upon the integration of oral history, contemporary material culture, land use, and sites. These models are being used to examine culture and land use change via the variability between the prehistoric, historic and contemporary periods.[59]

Hansell, Patricia (Temple)

CRAFT SPECIALIZATION, REGIONAL EXCHANGE AND SOCIETAL TRANSFORMATION IN THE CENTRAL PANAMA FORMATIVE.

Prior to 1000 B.C. human occupation in Central Panama is represented by small mobile egalitarian groups; by the 1st millennium B.C. some groups have begun to permanently settle at a few large sites, with the largest being the 65 ha site of La Mula-Sarigua. Regional settlement data suggest a tremendous reorganization of human groups rather than a significant population increase. Further, an extensive examination of material assemblages, particularly lithic assemblages, from La Mula-Sarigua suggests the initial appearance of craft specialization and regional exchange. This paper describes the evidence for these two features, their role in societal integration and their implications for the development of a hierarchically-ordered power structure.[57]

Hanson, C. (see Ringle, W.M.)

Hanson, Diane K. (Simon Fraser)

SUBSISTENCE PATTERNS DURING THE DEVELOPED COAST SALISH PHASE ON THE NORTHWEST COAST.

Using faunal reports from sites on the eastern coast of Vancouver Island, the adjacent mainland of Washington and British Columbia, and intermediate islands, the picture of regional subsistence during the Developed Coast Salish Phase (1200 B.P. to Contact) becomes clearer. On the mainland the use of diverse large terrestrial mammals, the increased use of salmon versus rockfish on major rivers and the availability of sturgeon and numerous shellfish associated with sand flats is different from island patterns. Subregional heterogeneity is also discussed.[25]

Harbottle, Garman (Brookhaven National Laboratory) and Phil G. Weigand (SUNY, Stony Brook)

TURQUOISE IN THE ANCIENT MESOAMERICAN TRADE STRUCTURE.

Turquoise played an important role in the particularistic trade configurations called networks, and in the perdurable trade structure in ancient Mesoamerica. Its popularity grew exponentially, till in the Postclassic periods it had become more prevalent than jade in many areas. It is the purpose of this study to examine turquoise procurement and exchange through time in order to illustrate the basis that the commodity had in an early trade structure. Mining per se will be discussed, along with the recent results of neutron activation analysis in identifying artifact clusters and sources.[40]

Harrist, R.K. (Oregon)

A MODEL FOR ANALYSIS OF LATE PREHISTORIC OCCUPATION OF THE NAKNEK REGION, SOUTHWEST ALASKA.

A model of the socioterritorial characteristics of historic Eskimo groups of north Alaska, the Bering Sea region and Bristol Bay is presented. The utility of this model is then tested by reviewing ethnographic, linguistic and archaeological data that are currently available from the Naknek Region. The result of this analysis is the conclusion that the late prehistoric occupants of the region comprised a society which possessed its own technological, linguistic and social characteristics. If viewed in this context, the late prehistoric occupants of the region can be viewed as participants in an operable social system rather than as facies of Bering Sea or Kodiak Island cultures.[7]

Harrold, Francis B. (Texas, Arlington)

THE CHATELPERRONIAN AND THE EARLY AURIGNACIAN IN FRANCE.

The beginning of the Upper Paleolithic in France is characterized by two culture-stratigraphic units, the Chatelperronian (or Lower Perigordian) and the early Aurignacian ("Aurignacian O"). Interstratification and other evidence indicate that these traditions were contemporaneous, but the nature of the relationship between them is not at all clear. Do they represent different cultural traditions, different adaptive patterns, or different structural poses of the same adaptive system? Available anthropological, paleoenvironmental, and contextual evidence is reviewed in order to clarify, if not resolve, the problem, and to suggest directions for further research.[4]

Hassan, Fekri A. (Washington State)

INTERPRETING REGIONAL AND INTERREGIONAL VARIABILITY IN THE HOLOCENE ARCHAEOLOGY OF THE WESTERN DESERT, EGYPT.

Interpreting the Holocene archaeological record in the Western Desert of Egypt is best approached from a consideration of the spotty distribution of oases and depressions which served as vital and
nodal points from which regional groups expand and contract, responding to seasonal and climatic changes. Although variations in the kinds of encampments and functions performed are responsible for some changes in lithic assemblages, the intensity of association with a home-asis, spatial distance between water holes, and pervasive demographic flux were causally linked with social interaction.14

Hassan, E.A. (see Gross, G.T.) [14]

Hassen, Harold (Illinois State Museum)

ORGANIZATIONAL VARIABILITY IN CHIPPED STONE ASSEMBLAGES, PART TWO: A LATE WOODLAND CASE STUDY.

An analytical framework for understanding technological responses to contextual variations is developed. Expectations for and variables of the organizational character of expedient and curated assemblages are derived from the model and previous research. Two case studies (see Wiant, this symposium) are used to evaluate the validity of these relationships. This paper concerns Late Woodland chipped stone artifact assemblages from functionally different sites with different access to lithic resources. Bothdebitage and shaped artifacts are analyzed. Difference in the assemblages are attributable to variations in adaptive response. Based on the results of the previous Middle Woodland case study, similarities and differences through time are described and discussed.[9]

Hawkes, K. (see O’Connell, J.E.) [44]

Hayden, Brian and Bob Gargett (Simon Fraser)

SPATIAL STRUCTURE IN AUSTRALIAN HUNTER/GATHERER CAMPSITES.

Little attention has traditionally been devoted to the implications of spatial patterning of individual structures in hunter/gatherer campsites, either archaeologically or ethnographically. Very little data exist to indicate under what conditions hunter/gatherers camp close to each other or far away from specific configurations such as linear or circular arrangements of structures. Data were collected from a large Aboriginal campsite in the Australian Western Desert in order to help elucidate some of the structures of the spatial patterning of campsites.[44]

Haynes, Gary (Nevada, Reno)

SPIRAEAL FRAGMENTATION, FLALED BONE, CUTMARK SIMULATIONS, AND OTHER CHARACTERISTICS OF NONCULTURAL ELEPHANT-BONE ACCUMULATIONS IN AFRICA.

Modern noncultural elephant-bone accumulations in Africa contain attributes identifiable to those interpreted in fossil assemblages as end-effects of human activities. Such attributes include: (1) limb bone fragmentation and flaking due to trauma, carnivore feeding, or butchering; (2) task fracturing in life, creating fractures that can be mistaken for tools; (3) cutmark mimics caused by butchering; (4) skeletal postures that might reflect agency or abruptness of death. The massive elephant-bone accumulations under study are also unique sources of data about the extent of information loss which death processes create in bone samples.15

Hayes, Christopher (SUNY Binghamton)

STORING FOOD AND STORING CORPSES IN PREHISTORIC TENNESSEE.

The burial of corpses in storage pits was a relatively common phenomenon in Southeastern prehistory. Rejecting the traditional explanation of this practice as expedient behavior, this analysis explores the possibility that actively manipulated symbolic links were drawn between the disparate processes of inhumation and food storage. To this end, formal structural similarities between mortuary treatment and food storage techniques are noted at Terminal Archaic and Middle Woodland sites in Middle Tennessee. Data from both ethnohistoric texts and general analyses on mortuary ideology are then considered in an attempt to link the formal similarities to specific ideologies and social strategies.60

Hays, John D. (New Mexico)

CATCHMENT WALLS: ENVIRONMENTAL ENHANCEMENT OF A VOLCANIC MESA ESCARPMENT.

West of Albuquerque, New Mexico a line of small volcanic cones marks the western edge of the Middle Rio Grande Valley rift. Volcanic flows from this rift have formed the impermeable caprock of Albuquerque’s West Mesa. Surveys of the mesa top and escarpment have revealed large numbers of low rock walls along drainages and above and below the escarpment. Many of the walls are only one course high. Originally the walls were thought to mark prehistoric agricultural fields, but subsequent investigations suggest that they may have served to enhance water and soil retention for naturally-occurring plants.[26]

Hediyeh, Peter H. and Frederick M. Wiseman

Hediyeh, P.E. [47]

Heller, Craig and Lawrence G. Straus (New Mexico)

EXPLORATIONS OF THE TWILIGHT ZONE: THE EARLY UPPER PALEOLITHIC OF CANTABRIA AND GASCONY.

Models of Middle Paleolithic and late Upper Paleolithic (Solutrean and Magdalenian) hunter-gather adaptations in Cantabrian Spain and adjacent SW France have been put forth recently by Freeman, Butzer, Strozy, and others. However, less has been done with the early Upper Paleolithic (Aurignacian and Perigordian) in these regions, perhaps due to the relative lack of evidence for modern excavations. While there were changes in human anatomy and tool technology at ca. 35,000 B.P., changes in faunal exploitation and settlement pattern are less evident, suggesting that the full shift to "modern" patterns of adaptation was rather more gradual, perhaps taking as long as ca. 15,000 years. These involved organizational changes.[4]

Helmst, Mary W. (North Carolina, Greensboro)

TRAVEL MOTIVES, ELITE ASPIRATIONS, AND THE COSMOLOGICAL CONTEXT OF GEOGRAPHIC DISTANCE.

Understanding the significance of interregional interaction requires understanding indigenous motives and meanings involved in long-distance contacts. Ethnographic and ethnohistoric data are utilized to illustrate the cosmological significance accorded geographic distance in native perceptions of and space; 2) to review the diverse motives underlying long-distance travel, especially those relating to the acquisition of political-ideological esoteric knowledge; 3) to summarize the major contexts in which political elites are involved in long-distance travel or with foreigners. It will be generally argued that knowledge of and association with long-distance phenomena affects the legitimacy accorded leaders as exceptional persons with fuller understanding of the "inherent" powers and processes of their society’s cosmos.[8]

Helskog, Knut (Trondheim Museum)

CHANGING ROCK ART, CHANGING SOCIETY? THE CASE OF THE STONE AGE FISHER-HUNTER-GATHERERS OF ARCTIC NORWAY.

The analysis of the rock-carvings in Alta indicate that there are five contemporaneous changes between the carvings and other spheres of culture among the area’s fisher-hunter-gatherer population. The changes in the carvings are particularly noted in the form of the figures and partly in what is depicted. There are, in addition, some continuities in form as well as in the selection and frequencies of the figures. The paper discusses to what degree the relationship between rock art and the general archaeological record extends beyond chronology and reflects changes in society and beliefs.[38]

Henning, W. (see Taylor, R.D.) [23]

Henrickson, Elizabeth E. (Royal Ontario Museum)

IDENTIFYING THE FUNCTION OF AN ABUNDANT, ENIGMATIC VESSEL TYPE FROM AN IRANIAN CHALCOLITHIC FARMING VILLAGE.

More than a third of all sherds excavated in the Period VII levels at Seh Bagh (ca. 3100-2900 B.C.) are from a distinctive pottery vessel type of uncertain function, perhaps used for bread-making or grain processing. These often smoke-blackened vessels, made of chaff-tempered coarse ware, have slightly convex bases and incurved walls. Below their rim, a row of small holes pierce the vessel wall. Distribution within excavated houses and trash deposits, and vessel use-wear patterns provide evidence for vessel function. Similar vessels from other archaeological and ethnohistoric contexts are also discussed.[50]

Henrickson, Robert C. (Royal Ontario Museum)

POTTERY PRODUCTION AND CONSUMPTION IN AN IRANIAN BRONZE AGE TOWN.

Detailed stylistic analysis of painted pottery vessels found in situ Level 4 of Period III (ca. 2000 B.C.) at Godin Tepe, Iran, yields definition of a limited number of distinct yet inter-related groups based on choice, arrangement, and rendering of motifs. Examination of morphological and technical attributes indicate each group probably represents the work of an individual potter/painter. Analysis of the overlapping distributions of these groups among the excavated houses and graves delineates ceramic marketing patterns within the settlement, valley and region.[50]

Herlihy, Peter H. (Southeastern Louisiana) and Frederick M. Wiseman (MIT)

THE MAYA DOORWAY ORCHARD-GARDEN.

In this paper, the Maya doorway orchard-garden is described from field work in northern Belize and elsewhere in the Maya area. Recent archaeological evidence and the ethnohistoric record support the
argument that the dooryard orchard-garden has played an important role in Maya subsistence since pre-Hispanic times. Maya dooryard orchard-gardens are intensively managed agro-ecosystems that place heavy emphasis on the cultivation of semi-domesticated fruit trees. The gardens, in part, help explain the dispersed pattern of pre-Hispanic Maya settlement and are the most prominent component of the ancient Maya landscape away from the large ceremonial centers.[42]

Herscher, Ellen (American Association of Museums)
THE ROLE OF MUSEUM ACQUISITION POLICIES.

Museums are widely recognized as an important link in the commercial chain of the antiquities market, and the museum profession has formally acknowledged the relationship between that market and the often destructive initial taking of an object. To play an active role in combating the illicit trade, individual institutions and professional organizations have, over the past two decades, developed ethical codes and policies governing acquisitions. Most comprehensive among these is the Code of Ethics of the International Council of Museums (ICOM), adopted in November 1986. While it is impossible to police adherence to such voluntary standards, evidence suggests widespread acceptance by museums of public responsibility in this area.[3]

Hicks, Patricia A. (Desert Research Institute)
THE USE OF ATTRIBUTES OF DEBITAGE ASSEMBLAGES AS TEMPORAL INDICATORS.

In many areas a large portion of the archaeological record is composed of surface scatter of flaked stone tools and debitage that are undatable by traditional methods. Lacking temporal control, these sites are eliminated from consideration in model building and testing. This can lead to erroneous regional and cultural interpretations because a considerable portion of the data base has been omitted. This paper examines the potential for using debitage attributes as temporal indicators. The results of a temporally oriented analysis of a large sample of debitage from 34 dated and undated contexts in north-central New Mexico are then presented and evaluated.[56]

Hietala, H. (Southern Methodist)
CHANGES IN SOCIAL ORGANIZATION AT THE MIDDLE PALEOLITHIC TRANSITION SITE AT BOKER Tachtit.

The Middle to Upper Paleolithic transition site of Boker Tachtit, Israel, possesses three undisturbed occupational floors from which distinct spatial patterns emerge. These patterns are interpreted according to a settlement model proposing a local Middle to Upper Paleolithic transition from a radiating pattern to a circulating pattern. The intrinsic patterns are then explored relative to changes in social organization.[44]

Hodges, Denise C. (Connecticut Health Center, Farmington)
POLITICAL SYSTEMS AND HEALTH PATTERNS IN THE PREHISTORIC VALLEY OF OAXACA, MEXICO.

Changes in political systems and concomitant social changes may potentially affect a population's health. Health patterns are examined with the development of a regional political system in the Valley of Oaxaca. Human skeletal remains (n = 232) from the Early Formative through the Postclassic were examined for stress markers. The frequencies of the markers are compared among three groups: before the development of the regional system (1400-500 B.C.), as the system matured (500 B.C. - A.D. 650), and after its decline A.D. 650-1400. No significant differences in marker frequencies are observed among the groups, suggesting that the development of a political system had not deleterious health effects.[30]

Hoffecker, John F. (Argonne National Laboratory)
EARLY UPPER PALEOLITHIC SETTLEMENT ON THE RUSSIAN PLAIN.

Upper Paleolithic industries were probably established on the Russian Plain by the end of the first half of the Middle Pleniglacial (i.e., >40,000 B.P.). Sites occupied prior to the end of the Bryansk Interglacial (ca. 25,000 B.P.) may be considered "early Upper Paleolithic." Most sites are concentrated in the Middle Dnestr Valley and along the Middle Don River, the vast Dnepr-Desna Basin appears to have been largely uninhabited during this period. West and Central European culture-stratigraphic classifications cannot be effectively applied on the Russian Plain, where artifact assemblages manifest a robust native character and considerable diversity. Symbolic items (ornaments and decorated pieces) have been recovered from many localities. There is some evidence of a Middle/Upper Paleolithic transitional industry in the Middle Dnestr Valley.[4]

Hohman-Caine, Christy A. (USDA Forest Service/Minnesota State Archaeologist's Office)
THE TRANSLATION OF LAW INTO REALITY: CRM ON A NATIONAL FOREST.

NHPA, ARPA, AIRFA, NEPA, and the NFMA — what is the reality of applying these laws to actual management of cultural resources on the ground? This case example of the Chippewa National Forest

Hsu, Jeffrey T.

in Minnesota looks at the translation of law and regulation into practice. The Chippewa overlaps with the Leech Lake Indian Reservation, shares CRM responsibilities with other bureaucracies, and has an interspersed state, private, and Indian ownership pattern. This paper examines the past track record and looks ahead to future practice including the application of the newly completed Forest Plan, part of the Forest Service's "Integrated Resource Management" approach.[54]

Hulse, F. (23)

Holland, Kathryn M. and C.G. Turner II (Arizona State)
PREHISTORIC ALEUTIAN DOGS.

Stratigraphic, association, and absolute dating demonstrate that dogs were present in the eastern Aleutian Islands in the prehistoric period. Prior to excavations at Chulka on Akun Island it was generally believed that dogs did not exist in the prehistoric Aleutian culture. The discovery of prehistoric dog remains at Chulka requires revision of this viewpoint. Analysis of the dog crania suggest a closer affinity with Kodiak dogs than with other dog populations in Alaska which indicates an interaction between Chulka and Kodiak that extended back at least 1000 years.[25]

Holley, G.R. (see Collins, J.M.[10])

Holmes, D.L. (Institute of Archaeology, London)
THE ARCHAEOLOGY OF POST-PALEOLEITHIC SITES FROM NORTHERN KHARGA OASIS, EGYPT.

An archaeological survey and analysis of lithic artifacts from sites in Umni El-Dababid area, Kharga reveal that the sites, called here "post-paleolithic," date to the middle Holocene and are associated with playa deposits of a moist phase. The majority of the assemblages belong to a single tradition to which the later sites from Kharga Airport "Neolithic" sites are related. The assemblages show close similarities to those from Dakhla, and some similarities with others from Baharia, Lobo, W. Bakht and Dungul. Similarities with the Tanfan of the Nile Valley and between late Post-Paleolithic assemblages in Kharga and Predynastic sites indicate frequent Saharan-Nilotic cultural exchanges.[14]

Hommon, Robert J. (U.S. Navy, Pearl Harbor, Hawaii)
NEW PERSPECTIVES ON HAWAIIAN ARCHAEOLOGY.

Concepts developed in recent work of Sahlins, Valeri, and others generate powerful new perspectives from which to view the Hawaiian archaeological record. Aspects of Hawaii's pre-contact history, including the formation of territorial units and polities, the decoupling of the aristocratic and common classes, and the nature of the high status settlements at Kealakekua Bay, Hawaii Island are discussed as they related to notions such as hierarchical solidarity, heroic segmentation, heroic history, the performative nature of Hawaiian society, and the importance of sacrifice in Hawaiian culture.[55]

Hooge, P. (see Ruffini, E.[2])

Hoopes, J. (see Habicht-Mauhe, J.[32])

Home, Lee (Pennsylvania)
READING VILLAGE PLANS.

The spatial layout of architectural sites and structures carries information potentially valuable to those trying to make sense of the past. Order in settlement plans takes forms such as common orientation of structures, organization around focal space or structures, repeating house shapes or blocks, and enclosures. The absence of order itself carries information. An anthropological approach to contemporary Middle Eastern villages helps to expose the ways in which layouts are shaped by climate, terrain, social relations, tenure arrangements, and world view and to discuss them in terms useful to archaeologists. (27)

Horowitz, Victoria D. (Kentucky, Lexington)
EXPERIMENTS ON COOKED BONE BREAKAGE.

Experiments on cooking bone several different ways and then breaking them with various techniques aimed at controlling the breaking mark left on cooked bones. The same breaking pattern was performed on fresh bone first and then applied to boiled and barbequed bone as well. Bones were then buried and will be monitored year after year. Also, a second set of bones will be left weathering and will be monitored in order to see weathering patterns under controlled conditions.[18]

Hsu, Jeffrey T. (Cornell)

UPLIFT OF THE PERUVIAN COAST BETWEEN 13.5 AND 165 LATITUDE.

Raiated abrasion platforms between 13.5 and 165 latitude on the Peruvian coast represent the geomorphic expression of paleo-sea levels. These features are firm evidence that this segment of the
Huelsbeck, David R.

Peruvian coast has risen during the late Pleistocene. A maximum possible uplift rate of 1.2 mm/yr is found at 15.35° latitude near San Juan de Marcona. Other parts of this coastal segment have been rising more slowly. Though different from other parts of the Peruvian coast some of the principal results of this study, such as magnitudes of uplift rates and causes for tectonic uplift, can still be applied to better understand the tectonic environment of other study areas. This purely geologic investigation is concerned with events on a much longer time scale than most archaeological studies, but provides some criteria with which to evaluate to what extent uplift may affect the coastal geomorphology of inhabited areas.[6]

Huelsbeck, David R. (Santa Clara)

HALIBUT LIVE WEIGHT AND PREHISTORIC FISHERIES ON THE OLYMPIC PENINSULA.

Accurate estimates of live weight are important components of many archaeological questions, e.g., MNI, amount of represented food, exploitation strategies, etc. Linear regression equations are derived relating halibut vertebral width and live weight within narrow confidence limits. Application of the equations to archaeological specimens demonstrates that the halibut captured prehistorically off the Olympic Peninsula were smaller than historic averages, does not affect MNI estimates (in these cases), and suggests variation in fish size through time/space and/or variation in resource area control.[25]

Hunt, T.L. (Washington)

CERAMIC STYLE AND PATTERNS OF PREHISTORIC HUMAN INTERACTION IN THE FIJI ISLANDS.

Analysis of stylistic variation in Fijian ceramics from widespread geographic and temporal contexts is the basis for a model of change in the pattern and scale of human interaction. Such interaction is considered a key element in explaining the evolution of human similarities and differences known for the Fijian Islands. The available evidence points to the importance of isolation as a condition allowing diversification. However, isolation is shown to be not simply geographic, but also results from dynamic social and historical factors.[55]

Hunter-Anderson, Rosalind L. (Guam)

THE CHANGING ROLE OF SMALL STRUCTURAL ANASAZI SITES IN THE NORTHERN RIO GRANDE.

The role of small structural Anasazi sites in the changing settlement system and pattern of land use in the northern Rio Grande during A.D. 1175 to A.D. 1450 is investigated. Data indicating small site functional differences over time come from three areas: Cochiti Reservoir/Dam, Bandelier National Monument, and the northern Pajarito Plateau. Three hypotheses accounting for these differences and some of their archaeological implications are presented.[26]

Irving, William N. (Toronto)

NEW DATES FROM OLD CROW.

Flakes of protosubordinate bone excavated from strata below a stratum deposited by a pro-glacial lake of late Wisconsin age in the Old Crow Basin, Yukon, have been radiocarbon dated by AMS (isotrace) to between 22,000 and 43,000 B.P. This paper will discuss these specimens and their significance for early man studies in the New World.[19]

Irwin-Williams, C. (40)

Ives, David J. (Missouri-Columbia)

"EXOTIC" CHERTS AND THE HOPEWELL INTERACTION SPHERE.

The Hopewell Interaction Sphere was a socio-cultural phenomenon based, in part, on the procure ment/exchange of non-local raw materials. One of these materials - chert - usually is cited as originating at one of several specific quarrying areas. However, the criteria for such source assignments seldom are explicative and may be based on second-hand data, "looks like" cognition, incomplete knowledge of the raw material's variability, or archaeological folklore. The scope of this problem, and its implications, are examined, models such as the HSS may be strengthened through explicative and quantitative resolutions.[31]

Jackson, Lawrence (Northern Appalachian Archaeological Associates), Heather McKillop (California, Santa Barbara), and Susan Wurtzburg (SUNY, Albany)

FOLSON AND YUMA ARTIFACTS, 1934: A CHALLENGE TO CANADIAN ARCHAEOLOGY.

This paper discusses the role of Canadian Palaeo-Indian material in the original conceptualization of Folsom culture by Jesse Figgins, Director of the Colorado Museum of Natural History. It investigates the discovery of fluted points in Ontario in 1933 and attempts by Figgins and Canadian colleague W.J.

Johnson, Jay K. and Samuel O. Brookes

Patterson to alert Canadian authorities to its existence. Background events are examined in the light of correspondence between Figgins and Patterson and other documents surviving from the 1930's. Insight is provided into the historic development of Canadian Palace-Indian studies.[22]

Jackson, L. (see McKillop, H.)[47]

Jacobi, L.P. (see Borstel, C.L.)[49]

Janes, Robert R. (Science Institute of the N.W.T., Canada)

SOME METHODOLOGICAL CONSIDERATIONS IN NORTHERN ATHAPASKAN.

The deliberate observation of contemporary northern hunters is one way of enhancing the interpretation of archaeological records in the western Canadian Subarctic. This paper is based on six months of archaeological ethnography, followed by archaeological excavation at the same residential camp in the Mackenzie Valley, Northwest Territories, Canada. This allowed the investigation of relationships between observed behavior and its material expressions. Suggested guidelines for recognizing tips in the absence or architectural remains are discussed, as are considerations for discerning activity patterns within this type of dwelling.[59]

Jervis, H.W. (Buffalo)

INAA PROVIDES EVIDENCE OF EFFICIENT POTTERY MAKING TECHNOLOGY AT THE KEEFER SITE, ONTARIO, CANADA.

Samples from the Keefer Site [Huron pottery] were compared with clay samples from the immediate area using a suite of trace elements obtained through the SLOWPOKE Reactor Facility, University of Toronto. The results indicate that the Huron potter was using locally naturally tempered clay in his manufacturing technology. This factor would have made the potter more efficient, and may contribute to our understanding of the Keefer site's location which is the one the Huron sites, insofar as it is actually indefensible.[50]

Jayawal, V. (Banaras Hindu)

HUNTER-GATHERERS OF THE TERMINAL PLEISTOCENE IN UTTAR PRADESH, INDIA.

The archaeological records of the Upper Palaeolithic phase in Uttar Pradesh suggest occupation of three different geographical settings by the hunter-gatherers. Incidentally, evidence for the geo-chronology and the habitat of the terminal Pleistocene population is best preserved in this region. On technologeological considerations the culture debris of the period seems to form two groups. The earlier (c. 33,000-17,000 B.C.), was confined to the slopes of the adjoining hills where artefact flaking spots are located near the source of raw material. The later group (post c. 17,000 B.C.), with presumably greater population density, was occupying not only a wider area but also varying geographical settings, such as the rockshelters, slope of the hills, banks of the rivers and the lakes.[20]

Jochim, M. (4)

Johannesen, S. (see Joyce, A.A.)[24]

Johnson, Ian (Arkansas Archaeological Survey, Fayetteville)

RECOVERY AND CLASSIFICATION AS A DETERMINANT OF INTERPRETATION.

The concepts of randomness, clustering, and association are examined in relation to pre- and postdepositional factors of archaeological patterning. It is argued that randomness is an inappropriate concept in an archaeological context, and merely reflects an inability to discriminate the patterning present. In addition to the effect of different methods, it is argued that artifact recovery procedures and a priori interpretation embodied in artifact classification can have a significant effect on the results and interpretation of statistical analysis. These effects will be illustrated with examples from Princeveint sector 36 and simulated distributions.[44]

Johnson, Jay K. (Mississippi) and Samuel O. Brookes (Corps of Engineers, Vicksburg)

BENTON POINTS, TURKEY TAILS AND CANE BLADES: MIDDLE ARCHAIC EXCHANGE IN THE SOUTHEAST.

One of the earliest and most extensive distribution systems in the Southeast centers on the Tennessee River Valley during the Middle Archaic. The high quality tabular chert which is exposed in the shales and slopes of the Middle Tennseee in northern Alabama was transformed into a distinctive stemmed biface, a preform type that appears to have been made for export and large, extremely well made bifaces which were probably never intended to be utilitarian. This paper begins at the extensive source area quarry sites, traces the distribution of artifacts and raw material south into the Coastal Plain, and discusses coincident evidence for complex ritual. Distributional networks as large as this one do not occur again in this region until the terminal Archaic, 2000 years later.[40]
sedentary populations. New data on house forms, features, subsistence economy, external relations, and human disposal patterns will be presented. Surveys and excavations both indicate that Kodiak was a major population center in south Alaska throughout the late Kachemak period. The changing tool styles recovered in successive stratigraphic layers suggest that Kachemak evolved directly into Kodiag, contrary to earlier views.[7]

Joyce, Arthur A. (Rutgers) and Sissel Johannessen (Illinois) THE LA CONCHA ETHNOARCHAEOLOGICAL STUDY: A PRELIMINARY REPORT

The La Concha ethnoarchaeological study examines the material remains of a recently abandoned residential unit in rural Mexico consisting of four thatch houses including a kitchen and three living/sleeping quarters. By using interviews with informants the material patterns observed at the site are considered relative to the activities performed during site use and abandonment. Results demonstrate that the processes of site abandonment are not inevitable even within a single occupation and can significantly affect the material patterns preserved in the archaeological record and, therefore, the behavioral reconstructions of archaeologists.[24]

Julig, P.L., L.A. Pavlish and R.G.V. Hancock (Toronto) LATE PALEOINDIAN LITHIC PROCUREMENT, REDUCTION AND TRANSPORT IN THE NORTH-WESTERN LAKE SUPERIOR REGION, CANADA.

Late Paleoindian lithic technological organization is examined in regard to: [1] sources of raw materials, [2] production system for tools, biface preforms and flake blanks, and [3] lithic transport and caches. INAA is used to chemically characterize exotic archaeological lithics as well as significant geological sources. Lithic assemblages are dominated by material from local sources, although some southern exotics are represented. Evidence from recent investigations at the very extensive Cummins Flano period quarry/workshop site in Thunder Bay, Ontario is presented.[46]

Full, A.J.T. (see Long, A.)[23]

Kanu, Veronica M. (Illinois-Urbana) ANTHROPOROMORPHIC FIGURINES AS IDEOLOGICAL PRACTICE: TEOTIHUACAN FIGURINES AT MATACAPAN, VERACRUZ, MEXICO.

Teotihuacan's dominance during the Middle Classic Period is in part evidenced by a wide distribution of artifacts which stylistically link contemporaneous polities with the Central Mexican site. A consideration of the ideological messages encoded in Teotihuacan artifacts found throughout Mesoamerica elucidates the economic and political structure of Middle Classic, Teotihuacan-focused society. A functional and stylistic comparison of the locally-produced Teotihuacanoid figurines recovered from Matacapan with figurines from Teotihuacan reveals a set of codes concerning Matacapete social positioning vis-à-vis Teotihuacan. Figurines are analyzed as material representations of ideological practices which served to shape and reflect the structure of socio-political domination at the site of Matacapan. These figurines are seen as an indigenous reinterpretation of a foreign ideology rather than an imposition of that ideology through conquest, colonization, or economic domination. Implications for the reconstruction of the political and economic nature of Teotihuacan-Gulf Coast interactions are discussed.[30]

Kaplan, S. [21]

Kardulias, P. Nick (Ohio State) GEOPHYSICAL EXAMINATION OF THE BYZANTINE FORTRESS AT ISTHmia, GREECE.

Geophysical surveying within the Early Byzantine Fortress at Isthmia in the northeastern Peloponnese has yielded substantial data on the interior layout. The techniques employed include magnetometry, electrical resistivity, soil conductivity, and self-potential. A systematic surface collection has been conducted to correlate surface concentrations with subsurface features. Isthmia was the site of the Panhellenic sanctuary of Poseidon (7th century B.C.-4th century A.D.). The Fortress, dating to the early 5th century A.D., represents a major transformation in site function. The site may thus serve as a laboratory to study the transition from Late Antiquity to the Medieval period in the Aegean.[34]

Keegan, William E (South Carolina) STRUCTURAL DETERMINANTS OF LUCAYAN ARAWAK SETTLEMENT PATTERNS.

Settlement pattern studies tend to emphasize the spatial dynamics of economic production. The result has been a reliance on descriptive economic models of resource allocation to explain settlement-subistence systems, and a corresponding failure to recognize that economic logic is socially constituted. In this paper the structural logic of tropical forest social organization is used to examine the
distribution of prehistoric social units in the Bahamas. Regional, community, and household patterns of social aggregation and dispersion are considered. At each level, matrilineal descent, dual organization, and sacred natural formations are shown to condition the location and arrangement of Lucayan Arawak settlements.[37]

Keegan, W.F. [55]

Keelley, Lawrence (Illinois, Chicago Circle)
LITHIC PRODUCTION AND USE: IMPLICATIONS FOR SPATIAL ANALYSIS.
The use of space on a site cannot be simply 'read off' from the distribution of functionally-identified artifacts. The complicating factors include disposal as refuse and the retooling of hafted tools. Examples from the author's work on Meier, Verberie, and other sites illustrate these points. Methods by which these complications are dealt with are discussed.[44]

Keelley, L.H. (see Kimball, L.R.,)[9]

Kelly, Robert L. (Louisville)
THE THREE SIDES OF A BIFACE.
The effect of mobility on hunter-gatherer lithic technology is discussed in terms of three different roles of bifacial tools: by-products of the shaping process, as cores, and as long-use-life tools. The relationship between these tool roles and mobility, as well as their archaeological consequences are discussed. Temporal trends in the use of bifacial tools in the Carson Sink and Stillwater Mountains of west Nevada are briefly discussed to show how the proposed perspective on lithic technology can elucidate temporal change in mobility strategies.[9]

Kelsay, Richard C. (San Diego State), Jennifer T. Tschek (Oregon, Eugene) and Joseph W. Ball (San Diego State)
INTRASETTING SPACE-UTILIZATION AND RESIDUAL SOIL PHOSPHATE LEVELS IN THE UPPER BELIZE VALLEY, CENTRAL AMERICA.
Analysis of residual soil phosphates resulting from the deposition and decomposition of human and animal wastes is an effective means of defining the extent and pattern of prehistoric settlements and intersite land-use. This paper reports on a soil phosphate sampling program to define the limits of several residential loci or houselots within two Classic period settlements in the upper Belize Valley: Buenavista del Cayo, a small urban administrative center, and Guerra, a plaza-focused residential farming suburb. The sampling procedures and analytical techniques used are described and their results are discussed.[43]

Kent, Jonathan D. (Metropolitan State, Denver)
GROUND FIGURES AND ROADS IN ACARI, PERU.
Survey during the 1986 field season revealed the existence of hitherto unknown geometric ground figures and pre-Inca roads in the lower Acari Valley of southern coastal Peru. The figures are probably associated with Early Intermediate Period (Early Nasca) occupation in the area. Pre-Inca roads were associated with the Late Intermediate Period to judge from structural remains and sherds scattered adjacent to the roads, and they were reused during Inca times. Interestingly, these roads lead to other valleys of the coast, rather than upstream or downstream, suggesting the importance of inter-valley communication. The association of traditional caravan trails with both roads and ground figures is discussed.[49]

Kent, Susan (Old Dominion)
THE RELATIONSHIP BETWEEN ANTICIPATED MOBILITY STRATEGIES AND SITE STRUCTURE.
Ethnoarchaeological research provides a vehicle in which to test variables influencing Stone Age archaeological site structure and the general organization of space. The frequency of monofunctional to multipurpose activity areas at a site is analyzed as a function of one or more of three potential factors: mobility strategies (nomadic versus sedentary), economy (hunter-gatherers, farmers, or a mixture of each), and/or ethnicity (modern Basarwa or ‘Bushmen’ versus Bantu-speakers). Anticipated mobility, rather than actual, is deemed most influential in determining site complexity in terms of monofunctional loci. The implications of this study for spatial studies of Old to New Stone Age sites are explored.[44]

Kent, S. [27]

Kenyon, Denny M.E. (SUNY-Binghamton)
DECONSTRUCTED THULE STRUCTURES.
A deconstruction of McGhee’s 1977 article ‘Ivory for the Sea Woman: the symbolic attributes of a prehistoric technology’ was done to expose the weaknesses, as well as the contributions, of a struc-

Kirch, Patrick V.
TURALIST APPROACH IN THE INTERPRETATION OF A SPECIFIC SET OF THULE ARTIFACTUAL REMAINS AND THEIR POSSIBLE SIGNIFICANCE. ETHNOGRAPHIC ACCOUNTS AND ARCHAEOLOGICAL DATA, ADDITIONAL TO THOSE USED BY McGhee, WERE EXAMINED TO PROVIDE DIACHRONIC AND SYNCHRONIC DEPTH TO MCGHEE’S WORK. FROM THIS STUDY IT APPEARS THAT A CAREFULLY CONSTRUCTED STRUCTURALIST ARGUMENT PROVIDES NEARLY APPEALING EXPLANATIONS, THESE ARE NOT NECESSARILY SUFFICIENT. BY CONSIDERING THE MATERIALS CONTEXTUALLY, NON-STRUCTURALIST ARGUMENTS CAN PROVIDE EQUIVALENTLY PLAUSIBLE EXPLANATIONS.[40]

Killick, David J. (Yale)
A TECHNOLOGY IN ITS SOCIAL SETTING: HISTORIC IRON SMELTING IN CENTRAL MALAWI, EAST AFRICA.
The technology and social organization of iron production in central Malawi (extinct since 1930) has been studied through interviews with former ironworkers, archival research, excavation of historic smelting sites, and an anthropological survey. The surveys and alluvial technologies were recorded. The variety reflects the belief that failed smelting operations were caused by deliberate acts of sorcery by rivals. Fear of sorcery inhibited the exchange of information between peers. Information was transmitted primarily from each master to his apprentices, giving rise to a large number of parallel mini-traditions in the region.[32]

Killion, Thomas W. (School of American Research, Santa Fe, New Mexico)
THE USE OF SPACE AROUND THE RESIDENCE BY THE ANCIENT FARMERS OF THE GULF COAST: RECENT RESEARCH FROM THE SITE OF MATACAPAN, VERACRUX, MEXICO.
The investigation of prehistoric agriculture has often focused on out-field production, relict agricultural features, and paleobotanical remains. This paper examines the use of space and its material consequences in residential contexts as an aid to understanding the livelihood patterns of tropical cultivators in ancient Mesoamerica. The nature and form of activity areas within the tropical garden residence are examined and a model of the use of near residential space is presented. The model forms the basis for the analysis of archaeological data from residential contexts at the site of Matacapan on the Gulf Coast of Veracruz, Mexico.[42]

Kimball, Larry R. (Northwestern) and Lawrence H. Keelley (Illinois, Chicago)
THE DETECTION OF PLANNING IN PALEOЛИTHIC ASSEMBLAGES.
The detection of planning in the archaeological record of Paleolithic hunter-gatherers is of concern in certain unresolved problems. First, the evaluation of the cognitive abilities of early hominids and sapiens is crucial to the understanding of the emergence of systematic hunting strategies and mobility systems, which presume a viable ability to anticipate future needs and fit these goals with information of the location, abundance, and periodicity of natural resources. Second, the degree to which early hominids and sapiens could predict future foraging opportunities was probably acted on by selection. Third, an important aspect of interassemblage variation is due to the relative importance of planned versus situational activities. The detection of planning in the Paleolithic record must be accomplished by partitioning assemblage composition by the planning context of activities as well as whether the activity took place on-site or off-site. A framework for detecting planning in Paleolithic assemblages is outlined. Anticipated and situational activities are distinguished by patterned relationships between procurement, manufacture, and use of tools employing raw material sourcing, reduction method, refitting, and microwear analysis. Several Paleolithic cases are evaluated in this regard.[9]

King, C. (see Ericson, J.E.),[40]

Kintigh, Keith W. (California, Santa Barbara), Susan Gregg (Northern Iowa) and Robert Whallon (Michigan)
LINKING ETHNOARCHAEOLOGICAL INTERPRETATION AND ARCHAEOLOGICAL DATA: THE SENSITIVITY OF SPATIAL ANALYSIS METHODS TO POST-DEPOSITIONAL DISTURBANCE.
K-means and unconstrained clustering analyses of artifact distributions from recently-abandoned Bushman camps indicate patterning that is readily interpretable in the context of Yellen's ethnographic observations. However, because the camps were recorded shortly after abandonment, the distributions analyzed were not subject to the disturbance and destruction that would be seen in archaeological deposits. To examine the sensitivity of our methods to post-depositional processes, the same distributions were reanalyzed after simulated locational disturbance and artifact class-specific decay. The results show that most behaviorally interpretable patterning can be detected by these methods in spite of severe dislocation and decomposition.[44]

Kirch, Patrick V. (Washington)
SOME EXPLORATIONS IN LAPITA ICONOGRAPHY.
The Lapita Cultural Complex, representing initial incursion of Austronesian speakers into the southwest Pacific, spread rapidly between 1600-1200 B.C., over distances up to 5,000 km. This paper
examines the iconography of Lapita ceramic assemblages, and explores the hypothesis that the highly elaborated early Lapita ceramics played a significant role in long-distance, prestige-good exchange. Iconographic change in ceramics is examined in relation to parallel changes in the distribution of other exotic items. It is suggested that Lapita ceramics encoded important information regarding the relative socio-political positions of local nodes in the larger Lapita exchange network. [5]  

Klein, Maxine R. (Toronto)  
PLEISTOCENE ARCHAEOLOGICAL SITES OF THE DAKHLEH OASIS, EGYPT: BACKGROUND TO THE HOLOCENE ADAPTATIONS.

Recent geochronological research by I. Brooks and M. Klein. The Dakhleh Oasis has established the presence of human habitation at the Dakhleh Oasis and Paleolithic, dating from Upper Acheulean (late Middle Pleistocene) through Upper Pleistocene times. The distributions of stone artefact assemblages, and indicates that they were adapted to in landforms and depositional contexts within the oasis. The regional chronology based upon geochronology and the analyses of large surface assemblages is compared with evidence from elsewhere in the Western Desert. [14]  

Knapp, Gregory (Texas, Austin)  
IRRIGATION AND CULTURE HISTORY IN THE EQUATORIAL ANDES.

Canal networks in dry Andean basins are often comparable in size and complexity to networks in coastal Peru and in Venezuelan valleys. Existing maps of these canals are filled with inaccuracies. Recent research has allowed mapping of canal networks in selected valleys of northern highland Ecuador. Many canals still exhibit rustic construction features characteristic of pre-Hispanic technology. Colonial documentation and archaeological context provide clues for establishing canals’ age. The importance of canal irrigation helps explain the political geography of late pre-Inca chieftains and the subsequent history of ethnic displacement and replacement. [28]  

Knecht, Philip (Harvard)  
RECONSTRUCTING PREHISTORIC DIET/SUBSISTENCE ON KODIAK ISLAND THROUGH AN ANALYSIS OF STABLE ISOTOPE RATIOS IN BONE COLLAGEN.

Archaeological applications of stable isotope analysis derive from the fact that the isotope ratios present in an animal’s bone collagen reflect the isotopic ratios of its diet. This study compares the ratios of stable nitrogen and carbon isotopes in bone collagen from prehistoric populations on two sites in the western side of Kodiak Island. The Our Point site in Uyar Bay, where the skeletal sample comprises individuals from both the Kachemak and Konig phase, and the Karluk One site at the terminus of the Karluk River: a Konig site. Although these two sites are separated by a distance of not more than twenty coastal miles, they present different resource profiles. The possibility exists that differences in diet were mitigated by social distribution and organization, inter-regional feasting, or trade, and this is discussed in terms of the stable isotope evidence. [7]  

Knecht, Richard (Bryn Mawr)  
THE KONIG: ETHNOGENESIS AND DEVELOPMENT OF A RANKED PACIFIC ESKIMO SOCIETY.

Archaeological work on Kodiak Island, Alaska since 1953 has yielded significant new data which clarifies the formerly sketchy information available on prehistoric Konig culture, and necessitates a re-interpretation of views on Konig cultural origins. Excavation of Karluk One, a wet site with exceptional conditions of preservation, revealed a sequence of Konig houses and more than 5,000 artifacts. The known range of Konig material culture can now be seen to be primarily an in situ development, rather than the result of influxes of immigrants from the Alaska Peninsula or Cook Inlet. [7]  

Kling, Dean H. (Wilfrid Laurier, Waterloo)  
MORPHOLOGY OF A 17TH CENTURY HURON VILLAGE.

Twelve seasons of excavation have uncovered approximately three quarters of the 10 acre Ball Site, an early 17th century Huron village near Orillia, Ontario. All or parts of 56 structures as well as large portions of the surrounding palisade have been exposed. This work has revealed a rather systematic arrangement of structures throughout the village suggesting some type of planned organizational principles were used during village construction. It is suggested that the village was organized around sociopolitical precepts that are physically represented by groups of houses surrounding open areas. The recovery of 18 burials from the site indicates some of the demography of the population as well as information about a little understood burial practice of the Huron. [36]  

Koob, Charles C. (Mercyhurst)  
CLASSIC TOTHUACAN "COPOID WARES - CERAMIC TECHNOLOGICAL AND CULTURAL INTERPRETATIONS."

"Copoidal wares" (polished glass, cups and small thin-walled vase forms) dating to the later Classic Totonacan phases (ca. 300-750 A.D.) have been reported by Selzer (1915), Gamio (1922), Linné (1934, 1942), Sejourne (1966), Kolb (1965) and Miller (1966), among others. Considered a unique "elite" ceramic, the ware has never been adequately described in the literature, but was related to Totonacan "Polished Wares" and possibly the floresco and Taloc effigy traditions. Ceramic technological studies and cultural contexts are detailed, and uses in mortuary and ceremonial practices are demonstrated. [40]  

Kornbacher, Kim D. (British Columbia)  
LITHIC TECHNOLOGICAL AND DURATION OF OCCUPATION OF A SOUTHERN NORTHWEST COAST SHELL MIDDEN.

Ethnographic accounts of the southern Northwest Coast's Gulf Islands report seasonal patterns of resource exploitation involving short-term use of island sites for extraction and processing of important, storables. Archaeological evidence suggests this pattern may not accurately describe the prehistoric occupation of the Harrison Bay site on San Juan Island, Washington. Lithics from the site have been analyzed to test the hypothesis that Harrison Bay functioned as a residential base for a wide range of procurement and non-procurement activities. The specific variables chosen for analysis, examining both tool use and stage of manufacture, are discussed. [56]  

Kornbacher, Kim D. (British Columbia)  
THE NASCA LEGACY.

Iconographic similarities between Phase 8 Nasca style and Middle Horizon Epoch 1 Huari style ceramics indicate that Nasca originated many Huari decorative attributes. Recent research suggests
Kowalewski, Stephen A. (Georgia)

THE PRODUCTION OF CULTURAL DIVERSITY.

Contrary to a widespread opinion, neither geographic isolation, topographic reticulum, nor an autonomous linguistic clock produced cultural diversity in the State of Oaxaca, Mexico. Evidence from linguistics, archaeology, history, and ethnography contradicts these suggested explanations, and points instead to several distinct social processes: 1) formation of initial ranked and territorial societies, 2) Balkanization of oft-contested corridors, and 3) marginalization in primate systems. These processes are cross-culturally common, potentially generalizable, and significant for theories of diversification.[5]

Kozlowski, Janusz K. (Jagellonian, Krakow, Poland)

NORTHERN EUROPE AT CA. 18,000 B.P.

The paper documents the environmental changes in North Central Europe between 45,000 and 15,000 B.P. It then examines population shifts and cultural developments in specific regions. The eastern zone shows more stable settlement with periodic oscillations of population shifts between upper Dniezr and Volhynia. With the exception of several regions of favorable microclimates in western Slovakia, important Gravettian centers disappear from the western zone after 22,000 - 21,000 B.P. The main part of the Gravettian population from the western zone shifts to the south, making way for the origin of Epipalaeolithic in the middle Danube and the Balkans and later to the east, contributing to the origin of Kostienki tradition on the Russian Plain. The divergence of ecological conditions between the western and eastern zones during the Second Pleniglacial can explain the main differences in cultural evolution.[20]

Kra, Renee (Yale)

SOLVING YOUR DATING PROBLEMS WITH THE NEW RADIOCARBON DATA BASE PROJECT.

Radioarbon dates are essential to the understanding of chronological frameworks in every archaeological investigation. Revolutionary advances in dating techniques and dendro-chronological calibrations juxtaposed with antiquated methods of reporting radiocarbon data have generated imbalances in managing and utilizing radiocarbon data. A universal computerized Radiocarbon Data Base has been implemented to update, store, and maintain a centralized, standardized, and comprehensive record of radiocarbon dates which will be easily accessible to researchers. A high level format for data entry has been designed. Data disks will be uploaded to the mainframe at the Yale Computer Center from which data may be retrieved and disseminated.[33]

Kroll, Ellen M. (Wisconsin, Madison)

HELP NO HEARTS: INTERPRETING Plio-Pleistocene Intrusive Spatial Patterns.

Ethnoarchaeological observations of the camps of contemporary hunter-gatherers are demonstrating that hearts are a social focus for nuclear families, a physical focus for the location of activities, and a magnet-like focus for small-size refuse discarded from a variety of activities. For upper paleolithic sites in which hearts are found surrounded by concentrations of refuse, archaeologists frequently rely on the aforementioned observations as a means to interpret prehistoric hominids structured their use of space and organized their activities. Many of the Plio-Pleistocene archaeological sites from East Africa, however, despite the absence of hearts, have distinct intrusive spatial patterns; this paper will examine those patterns and the range of interpretive options in the absence of hearts or direct evidence of other habitational structures.[44]

Kroll, E.M. (see Bartram, L.E.)[44]

Kuhn, Steven (New Mexico)

RESHARPENING, RE-USE AND SITE RE-OCCUPATION IN THE CENTRAL ITALIAN MOUSTERIAN.

The concept of curation, in the strategic sense, is central to the investigation of the changing adaptive role of technology over the course of human evolution. Many of the analytical criteria presently used to support inference of curation are within technical, chronological, and spatial boundaries of materials. This paper presents results from an ongoing study of assemblages from Moustieran strata in Central Italy, in which data from faunal assemblages are employed in concert with several types of lithic and technological evidence, in order to reduce analytical ambiguities.[9]

Kujundzic, Zilka (Zemaljski Muzet, Sarajevo) and Robert Whallon (Michigan)

PALAEOLETHIC-MESOLITHIC INVESTIGATIONS IN SOUTH BOSNIA-HERCEGOVINA.

In 1986 a joint project was begun by the Zemaljski Muzet in Sarajevo and the University of Michigan Museum of Anthropology, the long-term aim of which is investigation of Palaeolithic-Mesolithic occupation in the Adriatic-Mediterranean zone of Bosnia-Hercegovina. Regional survey results so far will be discussed briefly, followed by a presentation of the 1986 excavations at Badanji, the first known site of Palaeolithic-Mesolithic age in the area. These excavations have recovered materials from both Mesolithic and Epipalaeolithic periods.[15]

Kutscher, W. (see Taylor, R.E.)[25]

Kuznar, Lawrence A. (Northwestern)

ASANA: A DEEPLY STRATIFIED, OPEN-AIR ARCHAIC PERIOD SITE IN THE SOUTH CENTRAL ANDEAN HIGHLANDS.

Northwestern University Archaic Project tested Asana, a large, open-air stratified Archaic period deposit located in a major stream valley in the high sierra zone of southern Peru. The site, at an elevation of 3450 m, is unique because Archaic stream bottom sites are rarely preserved in this highly erosional environment. At least 14 occupational levels were found. The site's deep stratigraphy (3 m) and excellent organic preservation are described. Due to the site's well preserved stratigraphy and organic material, it promises to yield important information regarding Archaic mobility patterns, the development of sedentism, and the domestication of camids in the South Central Andes.[49]

Kwamwe, K. (see Longacre, W)[50]

Lang, Neil A.R. (Durham, England)

MORTUARY ANALYSIS, ITS USES AND ABUSES: SOME EXAMPLES FROM THE IRON AGE OF NORTH WEST EUROPE.

In British archaeology, initial interest in the possibilities of reconstructing social behaviour从 symbolism employed in mortuary nial has been restricted by criticism, drawn largely from ethnographic research. While some of the earlier viewpoints taken by the "New Archaeology" may now seem extreme, the attempts to produce a more rigorous approach to the study of mortuary analysis can be seen as an important step forward. Despite this, a truly cohesive approach to the archaeology of death has rarely been achieved on either side of the Atlantic. Using examples from the North West European Iron Age, this paper will consider some of the premises from which social and demographic inferences have been drawn and will set out a framework through which such a cohesive methodology can be approached.[32]

Larradle, Signa (New Mexico)

PLANNING STONE TOOL MANUFACTURE AND USE IN THE GREEN RIVER BASIN: THE EFFECT OF DISCRETE RAW MATERIAL ATTRIBUTES ON ARTIFACT DISTRIBUTIONS.

The planning of stone tool manufacture and use is likely to be conditioned by raw material availability, material attributes as well as by the cultural context. Implications of differential tool planning are examined by comparing two spatial data sets: small and large scale maps of the distributions and attributes of these two raw material types, and small scale maps of stone tool and debitage distributions.[9]

Larson, M.L. (California, Santa Barbara)

CHIPPED STONE DEBITAGE AND THE ORGANIZATION OF TECHNOLOGY.

The relationship between debitage, technological organization and cultural behavior is imperfectly understood, even though debitage remains one of the most common archaeological sites. This paper identifies some of the variables of technological organization that affect the chipped stone manufacturing debris in the archaeological record. It is argued that debitage studies can provide information about the technological system not otherwise available from assemblage level analyses. The inferred relationships of technology and debitage are then applied to the analysis of material from an Early Plains Archaic site in northeastern Wyoming.[9]

Latta, Martha A. (Toronto)

AN HISTORICAL OVERVIEW OF ONTARIO PREHISTORY.

This paper surveys the past century of archaeological research in Ontario, focusing specifically on issues which appear to be unique to Canadian archaeology or at least to differ from common practices in the United States. Examples of these issues are (A) the close interaction between historical and prehistoric archaeology in Canada, (B) the supportive work of the amateur community, and (C) the importance of ethnographic analogy in prehistoric interpretation. This difference cannot be attributed to British or other European influences to any great extent. Rather, it reflects the events which shaped Ontario archaeological thought and, through the universities which disseminated this theoretical orientation, shaped the whole of Canadian archaeology today.[33]
Loendorf, Larry

The first occurrence within southern Belize appears to have occurred in the western part of the region at the sites of Putulha and Uxkenka. This model will attempt to explain the development of these and other cities within the region. Even as the population of southern Belize focused upon numerous centers, this region remained internally cohesive as one of many functioning regions throughout the Maya lowlands.[45]

Leyton, Janet E. (North Carolina, Charlotte)

DANISH METALLURGY IN THE BRONZE AGE.

The non-equalitarian social organization of European Bronze Age societies has been analyzed by several scholars, with research often based on distributions of metal objects in graves and hoards. Chronological, typological, and distributional analyses of these bronzes date to the 19th century. Much remains to be said, however, about the techniques and organization that produced the bronzes. Metallographic analysis of several bronze artifacts from Denmark is the foundation of a study of the technological organization of Bronze Age metallurgy in this significant area of Europe. The role of metallurgy in the non-equalitarian social organization is discussed.[16]

Lewis, R.B. (see Sussenbach, T.)[10]

Lewis-Williams, David (Witwatersrand)

THE SIGNS OF ALL TIMES: ENTOPIE PHENOMENA IN ROCK ART.

Research in southern Africa suggests that entopic phenomena play a role in San rock art. Because these phenomena are human universals it has been possible to formulate hypotheses regarding non-human world views. The principal goal of this project was to examine the role of entopic phenomena in the rock art of southern Africa, the European paleolithic, and the Coso Range of North America.[38]

Leving, B. (see Binford, M.W.)[52]

Lindsey, John (Arizona State)

AN ANALYSIS OF LITHIC REDUCTION SEQUENCES AND TECHNOLOGY AT THE UPPER PALEOLITHIC SITES 623, WEST-CENTRAL JORDAN.

The refitting of archaeological lithic assemblages from the Levant allows archaeologists to examine lithic reduction sequences in detail. Site 623 in west-central Jordan is a discrete Upper Paleolithic knapping location which provides an almost unique opportunity for the reconstruction, description, and analysis of reduction technologies. The results of this analysis are compared to similar data from the Middle/Upper Paleolithic transitional site of Bokev-Tacrit, in the central Negev, to examine similarities and differences in lithic reduction sequences during the Paleolithic of the Levant.[56]

Linick, T.W. (see Long, A.)[53]

Lippi, Ronald D. (Museo del Banco Central del Ecuador, Quito, and Ripon College)

THE WESTERN PICHINCHA PROJECT: SURVEY AND EXCAVATIONS IN ECUADOR’S WESTERN MONTANA.

The results of a preliminary archaeological exploration of 6,000 km2 of rugged, sparsely populated terrain between the crest of the Cordillera Occidental and the coastal lowlands west of Quito are presented. Substantial new data from the 1985-1986 field season, including some excavation of a multi-component montaña site, permit the construction of a rough chronological scale from 1500 B.C. to A.D. 1600. Additional discussions include the prehistoric road system and highland-montaña exchange, the identification of “lost” proto-historic Yumbos settlements, and the possible climatic affinities of the Yumbo and Nigua Indians.[26]

Little, Barbara J. (SUNY-Buffalo)

THE AUTHORITIES OF MEDIA: PRINT CULTURE AND MATERIAL CULTURE IN THE COLONY AND STATE OF MARYLAND.

The consumption and production of information and its uses in social and political discourse are examined in this study of a family of printers in Annapolis, Maryland. It is assumed that material culture, including printed matter, both reflects and influences cognition and social behavior. Not all forms of oral, non-verbal, written, printed, and material media possess similar degrees of authority, however. It is a challenge to determine varying degrees of authority recognized historically and today in various forms of communication prevalent in the eighteenth century. Such a ranking of media influence should contribute to an understanding of the meanings of all varieties of material culture.[79]

Loendorf, Larry (North Dakota)

TOPOPHILIA AND ROCK ART IN THE NORTHWEST PLAINS.

One variety of rock art found in the Northwest Plains of North America includes fine incised petroglyphs that depict scenes of horses and their trappings with riders who carry guns and coup
sticks. These scenes are similar to those on hides or those in ledger books that show the war deeds of Plains Indian warriors. Another distinct variety of rock art contains therianthropic figures and other shamanic imagery. The geographical settings of these two kinds of art are quite different. The incised petroglyphs showing war deeds are often on large prominent cliff faces adjacent to major stream valleys and travel routes or found associated with campsites. Shamanic art is often found in caves or secluded locations with difficult access. This difference in the geographical settings of the types of art lends credibility to our interpretation of its function. On a more refined level it appears that the position of a site and its surroundings influence the content of the art. [38]

BONE DATING AT THE ARIZONA TANDEM ACCELERATOR MASS SPECTROMETER FACILITY.

The fundamental problem with 
C dating of bones is that the longer they have remained buried, and the harder the burial environment, the more degraded the collagen becomes, and the greater the likelihood of more recent carbon contamination in the bone. Often it is the older, more difficult to date specimens that are also the rarer and more interesting archaeologically. If no structural collagen is recognizable in a bone, it may yet contain polypeptide fragments in sufficient abundance for AMS
C analysis. In order for the 
C dating result to be convincing, at least two size fractions must yield concordant dates. Application of this approach to specimens of "known" age has yielded encouraging results. We will also illustrate results of total amino acid AMS
C analysis of bone specimens, and suggest standardizing of bone age dating. [23]

Longacre, W., K. Kyme, and M. Kobayashi (Arizona)
POTTERY STANDARDIZATION: ETHNOARCHAEOLOGICAL STUDIES FROM THE PHILIPPINES.

Archaeologists assume that products of specialists will be standardized and that standardized pottery reveals the presence of full-time potters. To test this, two populations of contemporary Philippine cooking pots are studied: those made on a household basis by the Kalinga, a "tribal" society, and from a neighborhood of full-time potters. The data indicate that pots from the latter are much more standardized than those from the former. Pots from the Grasshopper site (Arizona) also are examined and the data suggest that their degree of standardization is most similar to the Kalinga sample, strengthening the inference of prehistoric household production there. [50]

Lothrop, Jonathan C. (SUNY-Binghamton)
PAMERICAN LITHIC RAW MATERIAL MANAGEMENT IN THE NORTHEAST.

The spatial incongruity between many Northeastern Paleo-Indian sites and the lithic sources from which their assemblages were derived is well-documented. However, disagreement exists over how Paleo-Indian groups coped with these disparities and how, if at all, their strategies are reflected in lithic assemblages at Paleo-Indian sites. In this paper, different models of how Paleo-Indians managed their raw materials are evaluated and new methods are presented based on reference to excavated assemblages from the entire Northeastern Paleo-Indian sites. [46]

Luedtke, Barbara E. (Massachusetts, Boston)
CHERT SOURCE DETERMINATION: GETTING DOWN TO BASICS.

There are now a variety of methods for determining the geologic sources of chert artifacts, each of which appears to work very well in some cases and not so well in others. The time is ripe for a comprehensive approach that synthesizes many of these methods to allow archaeologists to determine the sources of archaeological artifacts as simply, cheaply, and accurately as possible. The structure of such an approach is described and illustrated, using data from a number of Midwest chert sources. [31]

Lundy, Doris (British Columbia Provincial Museum)
THE ROCK ART OF BRITISH COLUMBIA: A CHRONOLOGICAL REVIEW.

There are at present few accurate, reliable dating techniques available to researchers of rock carving and rock painting in Canada's western province. Stylistic analysis, ethnographic information, design content and other somewhat subjective clues are used to suggest chronologies. This paper will examine these techniques and their results, plus look at one instance of radiocarbon dating of a coastal petroglyph, while also suggesting other possible methods for establishing chronologies. [35]

Lyman, R. Lee (Missouri-Columbia)
APPLIED ZOOARCHAEOLOGY.

Wildlife management decisions are often based on historic data that may be biased by effects of industrialization. Recent attempts to establish new populations of sea otters on the eastern Pacific Rim and debates over management choices regarding descendant herds of historically transplanted

Markman, Charles W.
MOUNTAIN GOATS IN WESTERN WASHINGTON STATE ILLUSTRATE THAT ZOOARCHAEOLOGY CAN PROVIDE WILDLIFE MANAGERS WITH UNIQUE DATA OF CRITICAL IMPORTANCE TO MANAGEMENT DECISIONS. [25]

Lynch, Thomas E. (Cornell)
SEARCHING FOR THE INKAS AT CATERPE TAMBO AND RELATED SITES IN THE CHILEAN ATACAMA.

In the Chilean Atacama zone, Provincial Inka sites may have several functions but are often associated with a system of roads and trails. A brief examination of four supposed tambos (Caterpe, Peine, Quenaqueros and Rio Prio) shows as many differences as similarities in architecture, while ceramics, wooden artifacts and spatial orientations continue to provide more promise for the identification of the Inka imprint. Building techniques and materials vary considerably and may relate to functional differences as well as maintenance of local habits and preferences. [41]

Lynch, T.E. [52]

MacKinnon, J. Jefferson (Wiscconsin, Madison)
COASTAL MAYA TRADE ROUTES IN SOUTHERN BELIZE.

Over the years research on the coast and cays of the Stann Creek and Toledo Districts of Belize provides evidence that changes in settlement patterns reflect significant differences in the nature, routing, and termini of maritime trade in the Classic, Early Postclassic, and Late Postclassic. Local and short distance canoe trade which hugged the coast and moved in relative security may have predominated in the Classic. As long distance maritime trade developed in the Early Postclassic, it still moved near the coast. Late Postclassic trade moved along the outer reef cays to Nito and Naco. [47]

MacNeil, Richard S. (Andover Foundation for Archaeological Research)
EARLY MAN FINDS FROM MIQUEZ, BOLIVIA.

In July, 1986 the author visited Donald Brockington's Mayra site in Miquez, just south of Cochabamba, Bolivia. Previous excavations in the last season had revealed "pre-ceramic" remains under a meter of Formative Boors. The July reconnaissance indicated that the pre-ceramic materials at six loci came from two superimposed strata. Further, bones of extinct horse at two loci were associated with tools made on flakes from quartzite pebbles in the upper dark strata. The lower brown strata at two loci yielded quartzite pebbles tools, not unlike those from Pedro Parada Cave, Brazil, dated as early as 35,000 years ago. The implications of these finds and future plans will be discussed. [19]

Madsen, J. (see Fisk, S.K.) [24]

Malpass, Michael A. (St. Lawrence)
INKA OCCUPATION OF THE COLCA VALLEY, PERU.

The Colca valley of southern Peru was known as an Inka breadbasket, yet preliminary investigations failed to identify a significant Inka occupation there. However, recent research on terrace and irrigation systems indicate a marked Inka presence, and nascent architectural studies suggest distinct Inka and pre-Inka variations exist in both building design and settlement patterns as well. Ceramic studies suggest that the initial confusion was due to the apparent melding of Inka and local ceramic traditions, with few "pure" Inka wares present. Such a melding should be looked for in other areas of purported minimal Inka influence. [41]

Mandel, Rolfe (Kansas), Alan Simmons (Desert Research Institute) and William Farrand (Michigan)
PRELIMINARY OBSERVATIONS ON THE GEMOLOGY OF 'AIN GHAZAL, JORDAN.

'Ain Ghazal is a major Neolithic settlement located near Amman, Jordan. Unlike many neolithic sites, it is situated in a relatively favorable environmental setting and this undoubtedly influenced the economic parameters of its inhabitants. Four excavation seasons have been completed, and some preliminary geomorphic data have been gathered. This report summarizes these data, and discusses how geomorphic factors may have affected Neolithic use of the area. Included in the discussion are considerations of site formation processes and environmental variables related to Neolithic adaptations. [5]

Manshane, A.M. (see Yates, R.I.) [38]

Markman, Charles W. (Northern Illinois)
PUTNEY LANDING (11HEL): THE MIDDLE TO LATE WOODLAND ADAPTIVE TRANSITION IN NORTHWEST ILLINOIS.

Putney Landing is located on the Mississippi River about 60 miles downstream from Rock Island, Illinois and consists of a high-density Haven-Hopewell village and mound complex with a significant
assemblage of exotic raw materials. Extensive areas of dense midden were encountered in the 1986 excavations along with 70 features, two of which are Late Woodland intrusions. A comparative analysis of Middle Woodland feature contents with Late Woodland features provides data regarding the transition to a Late Woodland subsistence regime. [12]

Marks, Anthony E. (SMU) and C. Reid Ferring (North Texas State, Denton)

THE EARLY UPPER PALEOLITHIC OF THE LEVANT.

Unlike Western Europe, it is not necessarily simple to draw a line between the Middle and the Upper Paleolithic because there was an actual developmental transition between the two. Thus, any division is somewhat arbitrary. This paper will examine traditional views and more recent perceptions of the question of the technological and typological definition of the Upper Paleolithic, sensu lato, and of the specific manifestations found in the Levant. Both data from the Lebanon and from Israel will be considered, including questions of stone tool production, curation, and settlement systems. The Levantine case is particularly important because the Upper Paleolithic there develops prior to 40,000 B.P. [4]

Marshall, Sandra L. (New Mexico)

PREHISTORIC AGRICULTURE AND HISTORIC PASTORALISM IN THE MIDDLE RIO GRANDE VALLEY: A VIEW FROM THE COONEY SITE.

The Cooney Site is a multi-component four-room structure in the foothills of the Sandia Mountains, northeast of Albuquerque, New Mexico. Historic period shepherds modified and inhabited the ruins of a Rio Grande Classic agricultural fieldhouse. The Cooney Site is the first site excavated that represents either type of activity in the area. It provides evidence for a discussion of regional settlement, and dryland agriculture and pastoralism in the Middle Rio Grande Valley. [26]

Martindale, J.L. (see Halsey, J.R.)

Mason, Robert B. (Royal Ontario Museum)

PETROGRAPHIC ANALYSIS OF POTTERY FROM R.O.M. FIELDWORK IN THE NEAR EAST.

Pottery from fieldwork in North Yemen, Sudan, and Iran has been in examined in this section in order to obtain information pertinent to technological and economic development of the study areas. Examination of the texture and microstructure of the pottery can provide evidence of manufacturing and decorative technique, including method of construction and the application of slips, paints and glazes. Mineralogical determination of included grains and rock fragments can lead to the characterization of fabric types, and by attributing these fabrics to production centres, evidence of trade and industrial development is obtained. [50]

Masucci, Maria A. (SMU)

INLAND-COASTAL INTERACTION: EVIDENCE OF GUANGALA PHASE INLAND SUBSISTENCE PATTERNS FROM EL AZUCAR, ECUADOR.

Evidence from excavations 25 km inland near El Azucar, Guayas Province, indicates that coastal resources played an important role in Guangala Phase inland subsistence patterns. Recent excavations throughout southern Ecuador have revealed similar evidence which suggests that intensive exchange systems involving coastal and inland dwellers may have been a key adaptive strategy to the semi-arid environment throughout Ecuadorian prehistory. Data from El Azucar is used to discuss subsistence patterns and the evidence for exchange between inland and coastal areas during the Guangala Phase. Emphasis is placed on the consideration of material correlates of exchange for archaeologically demonstrating trade and interaction. [28]

Matsu, K.M. (see Wilson, Yang, K.M.)

Mauldin, Raymond (New Mexico, Albuquerque)

AN ETHNOGRAPHIC OVERVIEW OF HUNTER-GATHERER SUBSISTENCE.

Using refined measures of environmental productivity, this paper considers hunter-gatherer subsistence as a function of food availability. Employing a cross-cultural sample of cases, the percent of the diet derived from gathering is shown to be highly correlated with effective temperature, a measure of the amount and intensity of solar radiation. Patterns in hunting and fishing dependence are then explored. The study concludes by assessing changes in subsistence practices, including the shift to agriculture, in light of this strong ethnographic patterning. [12]

Maxwell, Timothy D. and Kurt E. Anschoetz (Museum of New Mexico, Laboratory of Anthropology, Santa Fe)

VARIABILITY IN GARDEN PLOT LOCATIONS IN THE LOWER RIO CHAMA VALLEY, NEW MEXICO.

Identification of early Pueblo IV (A.D. 1325-1450) agricultural complexes in the lower Rio Chama has identified a variety of rock-bordered and cobble-mulched features that suggest labor intensive and specialized farming practices. The structure of some of these plots resembles ethnographically documented dooryard gardens, and although garden features are found in association with pueblo ruins, most occur on scattered terrace remnants that overlook the Rio Chama floodplain. The purpose of this paper is to examine the ethnographic use of dooryard gardens with the role these plots played within a prehistoric agricultural system that required planting in diverse settings. [22]

McAnany, Donna M. (O.M.D. Inc.)

GARBAGE AND GARDENS: THE DYNAMICS OF STONE TOOL DISCARD NEAR RESIDENCES.

The process of agricultural intensification produces changes in the use of the landscape—where things are done and how they are done. The agricultural labor force, organized at the level of the household domestic unit, is often restructured to meet these new labor demands. The utilization and ultimate discard of agricultural tools is a material consequence of these agricultural dynamics. Lithic data from the agriculturally intensive (Pre-Hispanic) Maya settlement of Pulpotzun Swamp are examined in light of several propositions regarding the relationship between tool use, maintenance, and discard and the location and intensity of agricultural activities. [42]

McAnany, Patricia A. (Cincinnati)

FROM FAMILY HEIRLOOM TO METATE PECKER: THE CONTEXT OF BIFACIAL RECYCLING WITHIN AN ENTRANCED EXCHANGE SYSTEM.

Stone tool and bone recycling are conditioned both by the means of raw material acquisition. In mobile societies, groups may map onto resources and lithic procurement can be expected to be embedded in the seasonal procurement of food resources. Tool recycling is likely to be situational and dependent upon temporal and spatial removal from zones of lithic availability.

Among sedentary agriculturists, recycling may be conditioned not by the environmental structure of the resource habitat but by social and economic links between stone tool producers and consumers. The institutionalization of exchange networks polarizes the lithic reduction sequence into [1] a component of production with expedient use ofdebitage from early stage reduction, and [2] a component of use with recycling of tool fragments. Lithic data from an ancient Maya settlement zone in northern Belize are used to illustrate the relationship between raw material acquisition and tool recycling. [9]

McAnany, P.A. (see Shafer, H.J.)

McAuley, Tumara Rotele (UCLA)

LOW ART IN HIGH CULTURE: A REANALYSIS OF THE TIKAL "GRAFFITI".

The low relief wall art at the important Maya site of Tikal, Guatemala, has been dismissed as Postclassic "graffiti", resulting from defacement/decoration associated with site abandonment. Although these incisions do not display overt stylistic similarities to more formal Maya art, they comprise a rich iconographic inventory, with a limited range of depicted motifs and themes. In addition, they have been identified as belonging in a number of other Classic contexts. Reconsideration of this corpus, using formal iconographic and ethnography of communication-based analyses, suggests that it is the result of ritual activities conducted in the building in which it is found and that it represents a previously unrecognized record of Classic Maya ritual. [38]

McBrearty, Sally (Yale)

THE SANGOAN AND MIDDLE STONE AGE OF WESTERN KENYA.

Both continuity and innovation in stone artifact design are demonstrated between Sangoan-Lupemban and Middle Stone Age occurrences at the stratified site of Maguruk, in western Kenya. Techniques of flake manufacture remain unchanged throughout the sequence, but formal tool manufacture is radically different in the Sangoan-Lupemban from that in the succeeding MSA. Climatic models of
the Sangoa as a forest adaptation, in contrast with the MSA as a Savannah industry, are not adequate to explain this difference, because fauna from the newly discovered Sangoan site of Simbi include large herbivores who are known to be grassland dwelling forms. [56]

McCartney, Allen P (Arkansas, Fayetteville), Joan S. Aigner (Alaska, Fairbanks), Douglas W. Veltre (Anchorage Community), Nancy G. McCartney (Arkansas, Fayetteville) and Lydia T. Black (Alaska, Fairbanks)

SETTLEMENT PATTERNS OF UNALASKA ISLAND, EASTERN ALEUTIANS, ALASKA.

Coastal surveys conducted between 1984-1986 around Unalaska Island provide recent site, topographic, and biological data for the description of prehistoric and early historic settlement patterns. The dozen early historic sites known, briefly described by such Russian chroniclers as Sarychev (1708) and Veniaminof (1828) and characterized by multiple family longhouses, are all located on the Bering Sea shore and are coincident with prehistoric sites. Major prehistoric middens are found adjacent to protected embayments, while smaller camp sites are usually found at stream mouths. Site location is heavily influenced by shore elevation and exposure and protection from tsunamis. [7]

McCartney, A.P. (see Aigner, J.S.) [7]

McCartney, Peter H. (Calgary)

DELAYED RETURN STRATEGIES AND HUNTER GATHERER SETTLEMENT.

Food storage, reciprocal sharing and other social mechanisms provide a means for overcoming some of the difficulties, and rates of food production, which may be quite low in the arctic, and rates of consumption, in which a much lower range of uneasiness is tolerated. Strategies for delaying returns can have noticeable effects on settlement decisions for hunter gatherers in highly seasonal environments. This point is illustrated in a comparison of the annual rounds of historic tune groups in Arctic Canada and Greenland whose settlement at certain seasons is more dependent on the location of food stores and social contacts than on the temporal and spatial parameters of resource availability and procurement activities. [12]

McCartney, N.G. (see McCartney, A.P.) [7]

McConaughy, Mark (Illinois State Museum) and James B. Richardson III (Carnegie Museum of Natural History)

THE HOLOCENE BEACH RIDGES OF THE FIURA AND CHIRA RIVERS: THE IMPACT OF SEA LEVEL AND CLIMATE CHANGE ON CULTURAL DEVELOPMENT ON NORTHWEST PERU.

Three sets of beach ridges emanate from the mouths of the Fiura and Chira Rivers. These are among the best dated Holocene beach ridges in South America. Discussion will focus upon the formation of the ridges through alluviation, the slowin of sea level rise, El Nino flooding, and possibly by tectonic uplift. The reconstructed course of the coastal environment will be placed in the context of the associated peat and shell deposits. [6]

McDonald, Mary M.A. (Royal Ontario Museum)

ADAPATIONS IN DAKHILEH OASIS IN THE EARLY-TO MID-HOLOCENE.

Site location and artifact inventories suggest that three Late Prehistoric cultures identified in Dakhileh represent quite different patterns of adaptation to the oasis and environments during a period of climate change. The rare Epipaleolithic sites are confined largely to the plateau above Dakhileh, and their closest ties may be with the Nile Valley. The earlier of two Neolithic cultures represents nomadic pastoralists who range widely through the desert, using the oasis only for periodic aggregations. Later Neolithic sites may reflect more settled groups confined, in increasingly arid times, to the oasis itself. [14]


THE SIGNIFICANCE OF THE CHOPEKUKUJO SITE IN THE CULTURAL HISTORY OF THE VALLEY OF CUZCO, PERU.

The strategically located, large architectural complex known as Chopekukujo dominates the southern entrance to the valley of Cuzco. It has played a significant role in the cultural history of the valley from at least the Early Intermediate Period onward. The results of study of the architectural remains and artifact evidence from surface collections and excavations indicate that this site is very important for several reasons: (1) it is the only large architectural complex of the Late Intermediate Period to survive in the valley of Cuzco, (2) it represents a stylistic transition in architecture from the Wari-imposed forms of the Middle Horizon to those of the Imperial Inca style of the Late Horizon, (3) it is the only known site of Inca origin in the Valley of Cuzco, whose overthrow was a crucial event in the forging of the early Inca State. [17]

Mena, Francisco (UCLA)

FAUNAL REMAINS AND SUBSISTENCE IN ALERO ENTRADA BAKER, CENTRAL PATAGONIA.

Alaro Entrada Baker is a rock shelter located in an ecozone between the Andean forests and the open steppe plains in Central Patagonia [47]. Stratigraphic excavations reveal a series of occupations by hunter-gatherers between the first and eighteenth centuries AD, a period punctuated by
the adoption of the bow and arrow, ceramics and perhaps the horse. A large and well preserved sample of animal bones has been studied in order to reconstruct some aspects of the subsistence system (diet breadth, processing selectivity, seasonality, foraging range). The results show some light on the characteristic of resource use pattern in this particular environmental setting, and raise questions concerning the relationships between subsistence stress, social competition, and technological change.(25)

Merbs, Charles E. (Arizona State) and Judy L. Brunson (Arizona State)
BURIAL ORIENTATION AND AFTERLIFE: A COMPARISON OF MODELS FROM THE AMERICAN SOUTHWEST AND THE CANADIAN ARCTIC.
The Hohokam Indians of southern Arizona and the Thule Eskimos of the Northwest Territories appear to have oriented their dead in relation to the position of the sun at sunrise — toward sunrise in the case of the Indians, and toward or directly away from sunrise in the case of the Eskimos. This study makes use of archaeological and ethnographic evidence to establish the relationship that likely existed between orientation and afterlife, evaluates the use of orientation data in determining burial seasonality, and examines the stability of orientation patterns during periods of stress.(34)

Merkel, J. (see Shimada, I,32)
Mester, Ann M. (Illinois, Urbana-Champaign)
PATTERN BURNISHED CERAMICS FROM A MANTENO TRADING CENTER.
The Manteno Phase is distinguished by smudged bowls, pedestal plates, and jars with pattern burnished decoration. Burnishing indicates limbs and garments on anthropomorphic pots, while complex geometric designs appear radially apparent on comports and open bowls. Recent excavations from the Manteno trading center of Los Frailes provide the samples for a detailed analysis of burnished designs. These motifs are then compared to those of the Libertad and Guangala Phases of Ecuador, and to Cahuachi pattern burnished ceramics of coastal Peru. Finally, an assessment is made of the relations among these styles and their possible significance to an understanding of Andean long-distance maritime trade.(28)

Mick-O'Hara, Linda (New Mexico)
DISTIBUTIONAL ANALYSIS: AN ATTEMPT TO UNRAVEL COMPLEXITY IN PUEBLOAN PREHISTORY.
Present site structural studies have concentrated on mobile, non-Western populations to gain knowledge about material distributions that might be observable archaeologically. Since the archaeological remains of sedentary populations are more a degree different from those of hunter-gatherer sites, our task is to reconcile our present knowledge of site structure and gain new understanding about sedentary site restructuring, reuse, and disposal patterns. Material patterning from both the ethnographic and archaeological record is discussed in terms of Pueblian site complexity. The distribution of structures and remains allows us a better understanding of site processes and the behaviors that could have produced the archaeological record of the Puebloan Southwest.(27)

Millanich, J.T. (40)
Miller, Arthur G. (Maryland, College Park)
MURAL EVIDENCE FOR INTERREGIONAL INTERACTION DURING MA III/IV.
The facade of Monte Albán Tomb 125 bears the most artypical examples of Zapotec mural painting known from the Valley of Oaxaca. The painting was done in two episodes, which were executed in two distinct styles, each associated with tomb recency episodes during period MA III/IV. These recently recorded and analyzed murals reveal that one of two styles is associated with stone carving in both the Mixteca Baja and El Tajin and that the other resembles mural painting from northern Yucatan. This paper examines the evidence for these observations and explores their implications for understanding what appear to be external influences at Monte Albán.(5)

Miller, Anthony J. (Royal Ontario Museum)
HISTORICAL PERIODS IN THE DAKKHLEH OASIS.
The Dakkhleh Oasis provides an opportunity to study man’s development in the changing landscape of its environmentally sensitive area. (1) Pharaonic Egyptian settlers’ arrival in mid-third millennium in this area largely unadapated to their agrarian technology and their interaction with local Neolithic population. (2) The massive influx of settlers/farmers during the period of Roman rule (1-400 AD) is made possible by new technology, an altered landscape and an expanding economy. When conditions change, the trend fal ters and the population declines. The material for this paper arises from an ongoing field project in the Dakkhleh Oasis, Egypt.(14)

Moore, Katherine M. and Margaret J. Schoeninger
MILLS, Barbara J. (New Mexico)
VESELS VS. SHERDS: AN INTERPRETIVE DICHTOMY.
Functional interpretations using archaeological ceramics have burgeoned in recent years. These interpretations may be very distinctly divided into two categories based on their sources of data and methodological goals: (1) inferences about subsistence, based on the analysis of vessels; and (2) inferences about settlement, based on the analysis of sherd assemblages. This paper argues that this is a fundamental dichotomy and yet there is need to integrate the two areas of research. The two interpretive approaches are summarized, and potential methods for their integration are discussed.(50)

Moebly-Nagy, Hattula (Michigan)
TEOTHUACAN BURIALS AT TIKAL, GUATEMALA.
Evidence of Teotihuacan contact in the form of architectural, iconographic, ceramic and other artifactual styles, and in the presence of actual objects apparently imported from Central Mexico, has long been known at Tikal. Another class of evidence has now been recognized: A group of 8 tombs that closely resemble some Classic period burials from Teotihuacan. Characteristics of the Tikal burials and their temporal and spatial distribution suggest the existence of an enclave of Teotihuacanos on the SW peripheries of Central Tikal during the Period that the Manik’ 3A ceramic complex was in use. Some of the social and political implications of a physical presence of Teotihuacanos at Early Classic Tikal will also be explored.(11)

Moest-Witte, Anna (Kansas)
GRUBGRAVEN: A GRAVETTIAN SETTLEMENT IN LOWER AUSTRIA.
The primary objective of the Grubgraben research project was to investigate changes undergone by late Gravettian settlements under the pressure of increasingly cold and dry climatic conditions at the onset of the last Pleniglacial.
Grubgraben is a large, multicomponent, open-air site in Lower Austria, 4 occupation layers are stratified in a series of loess deposits. The uppermost level is an in situ occupation site. Evidence suggests a briefly occupied campsite. The lower level is formed by the presence of stone structures, abounds faunal remains and highly reduced tools at the junction of 2 loess deposits. The archaeological is based on a series of layers 5-9 at Willendorf.(16)

Moore, Jerry D. (California-Santa Barbara)
THE CHIMU EMPIRE AND RAISED FIELD AGRICULTURE IN THE CASMA VALLEY, PERU.
The Chimú Empire (AD 900-1470), located on the North Coast of Peru, expanded into the Casma Valley early in the 14th century. The Casma Valley was integrated into the Chimú Empire in diverse ways. One example of this was the construction of a complex of raised agricultural fields, the only fields reported for the Peruvian coast. The fields were constructed by workers who lived in an adjacent planned settlement that was partially maintained by the Chimú state. Data from 1986 excavations in the fields and the settlement are presented, and the significance of these data for understanding prehistoric imperialism is discussed.(17)

Moore, Katherine M. (Michigan and Harvard) and Margaret J. Schoeninger (Harvard)
QUANTITATIVE RECONSTRUCTION OF PREHISTORIC DIET IN PERU.
Analysis of archaeological remains from the cold, high altitude grasslands of Junin, Peru, allowed estimates of the make up and quality of the precarrion diet. Faunal remains suggest that hunting and herding dominated agricultural activity in this area, which is above the limits of agriculture. Bone composition data provide quantitative estimates of the human diet: humans, herbivores, and carnivores. Invertebrates were analyzed for trace elements in bone, and for stable isotopes of N and CO2 in bone collagen. The NH4+ values for humans \( x = +10.2 \) show a clear separation from the herbivores, suggesting carnivory.(49)
Moore, K. (see Spielmann, K.)[1]

Moreau, Jean-François (Québec, Chicoutimi)
MARITIME AND INLAND ARCHAIC ADAPTATIONS IN MID-EASTERN QUEBEC

Recent archaeological work in the head and mouth areas of the Saguenay river shows that Archaic occupations exhibit much more variation than is usually thought to be seen in a subarctic environment. In the head area numerous sites are akin to the southwestern Laurentian Archaic tradition. Northerners as well as Western influences and/or intrusions are also noticeable. However, these outside influences are counterbalanced by continuous long-term occupation since the first millennium BC. In the mouth area, a 5,000 BP occupation is characterized by a very intensive seal exploitation, associated with a lithe assemblage of essentially Laurentian Archaic style. This whole pattern of Archaic heterogeneity is probably a relatively small region may be accounted for by peculiarities of the ecological setting since this whole area is not of the boreal forest type but of mixed forest type and by the very numerous waterways. Saint-John lake playing the role of a center place into which rivers flow from the North James Bay and the West Saint-Maurice area and drain towards the Saint-Lawrence.[22]

Moseley, Michael E. (Florida), Christopher Ohm Clement (Florida) and Jorge Elias Tapia (San Marcos)
GEOARCHAEOLOGY ON THE SOUTH COAST OF PERU

Recent research on the south coast of Peru focuses on the effects of tectonically induced coastal uplift on local subsistence practices. Two problem areas are defined: (1) the changes in diet and foodways of an early preceramic, maritime culture resulting from a fluctuating littoral zone and, (2) the effects of changing hydrological patterns on irrigation agriculture systems. Examining changes in the relative accumulation of shellfish species in a midden deposit through time allows the tracking of a changing littoral zone caused by coastal uplift. Changes in the hydrological regime which affect irrigation agriculture lead to specialized farming techniques which are better evaluated following an understanding of the selective pressures which cause their adoption.[6]

Mulholland, Mitchell T. (Rensselaer Polytechnic Institute)
INFORMATION FLOW IN ARCHAEOLOGICAL DATA MANAGEMENT

Some of the challenges that archaeologists face in the management of archaeological data are: 1) how to store and retrieve information efficiently, 2) how to share data among different users, 3) how to integrate data from different sources, 4) how to ensure data quality, and 5) how to manage data over time. In the past, these challenges have often been addressed by developing specialized software tools and systems. However, the increasing availability of digital information and the widespread adoption of digital technologies have made it clear that a more systematic approach to data management is needed. This approach requires the development of standardized data models and formats, as well as the implementation of advanced data management techniques. The goal is to create a flexible and scalable system that can be adapted to the specific needs of each archaeological site or project.[39]

Mulholland, S.C. (see Rapp, G, Jr)[53]
Magson, Cheryl Ann (Glen A. Black Laboratory of Archaeology, Indiana) and Charles M. Niquette (Cultural Resource Analysts, Inc.)
LANDS UNSUITABLE FOR MINING, AN UNSUITABLE PRESERVATION TOOL

In the eastern coal states, where regulatory options that serve to protect significant archaeological sites are severely limited, the lands unsuitable for mining (LUM) petition process would appear to provide at least one tool for preservation. Two LUM petitions, filed in Indiana and in Kentucky, provide contrasting examples for examining this process as a viable preservation mechanism. The LUM process is shown to generate legal muddles and antagonism. As such, the process is considered an abysmal preservation tool.[18]

Manson, C.A. [31]
Murray, Matthew L. (Harvard) and Margaret J. Schoeninger (Harvard)
DIET, STATUS AND THE EMERGENCE OF COMPLEX SOCIAL STRUCTURE IN IRON AGE CENTRAL EUROPE: SOME CONTRIBUTIONS OF BONE CHEMISTRY

Techniques of bone chemistry analysis are used to test recent models of Iron Age social organization based on traditional archaeological, historical and ethnographical observations. Human remains from twenty burials at Magdalenska Gora, Slovenia, are selected for isotopic analysis. These burials represent different depositional phases and varied burial wealth. A complement of early Iron Age floral and faunal remains is analysed to supplement the chemical dietary evidence. When compared to the archaeological evidence for status, these isotopic data offer a fresh perspective on the social organization of an early Iron Age community, and show considerable promise for the study of the evolution of complex European society.[48]

Netherly, Patricia J. (Massachusetts, Amherst)
BEHIND THE MANGROVE: CULTURAL CHRONOLOGY AND SETTLEMENT PATTERN IN THE ARELLANAS VALLEY, SOUTHEASTERN COASTAL ECUADOR

Continuing archaeological research in the Arenillas Valley indicates that this region has a ceramic chronology and cultural history somewhat different from that of the better-known Guayas, Santa Elena Peninsula, and Manabí regions. A regional chronology based on ceramics and C-14 dating will be presented and correlated with settlement pattern and subsistence strategies. The data from the survey of the Middle and Lower Arenillas Valleys will be used together with the results of test excavation at selected sites in the Middle and Lower valleys. The relationship between the mangrove and the other coastal environments will be considered.[28]

Masse, J.M., Jr. (see Dalan, R.A)[43]
Nagel, Christopher L. (Smithsonian)
INUIT AND PALEO-ESKIMO RAW MATERIALS PROCUREMENT AND EXCHANGE IN THE EASTERN CANADIAN ARCTIC: SYSTEM STRUCTURE AND IMPLICATIONS FOR STUDIES OF OTHER EGALITARIAN SOCIETIES

The Paleo-Eskimo and later neo-Eskimo (Inuit) inhabitants of the Eastern Arctic required a wide variety of organic and inorganic materials on which their technologies and ideologies were based. Although they were procured directly, as a consequence of seasonal movements and activities, these materials were obtained from great distances by exchange. Focusing on the geographic distributions of sources for various kinds of materials, and exploring the relationships between procurement of different materials, it has been possible to reconstruct the structure and details of their procurement and exchange systems. These data have important implications for similar investigations of other egalitarian, hunting/gathering societies.[40]

Nass, John P., Jr. (Ohio State)
HOUSEHOLD ARCHAEOLOGY AND FUNCTIONAL ANALYSIS AS PROCEDURES FOR STUDYING ANCIENT COMMUNITIES IN THE OHIO VALLEY

The smallest unit of the archaeological community is the social arrangement known as the house and its architectural correlate called the household unit. The household serves as a synthesizing unit in that it brings together a variety of classes of data such as artifacts, dwellings, features, burials, and activity areas. Once identified, households afford the opportunity to study variation within both material and social organization aspects of communities. The role of functional or use-wear analysis in the study of households in general, and Fort Ancient in particular is discussed. Problems of artifact sample size, selection of use-wear data, and methods of household identification will also be reviewed.[56]

Nelson, Erle (Simon Fraser)
ACCELERATOR MASS SPECTROMETRY RADIOCARBON DATING AND ARCHAEOLOGY: PRESENT AND FUTURE IMPACTS

The new method of Accelerator Mass Spectrometry radiocarbon dating was invented almost exactly one decade ago. Since that time, the procedure has slowly matured to the point that it is now having a significant impact on archaeological research. Using examples drawn from the experience of the RIDDL Group, this paper will discuss the powers and limitations of the method, provide descriptions of present-day applications to archaeology, and attempt to predict the future benefits that we may expect from continued development of this method.[23]

Nelson, E.W. (see Baugh, T.G)[40]
Nelson, Robert E. (Colby)
QUATERNARY GEOLOGY AND PALEOECOLOGY OF THE KARLUK AREA, KODIAK ISLAND, ALASKA

Surficial geology of the Karuk area is complex and includes deposits left by at least two incursions of glacial ice from Shelikof Strait. Uppermost deposits in the area around Karuk consist mainly of outwash derived from inland glaciation on Kodiak Island itself. Postglacial downcutting by the Karuk river has left numerous fragmental terrace surfaces, known archaeological sites are typically located on the lower terraces, but deposits of volcanic ash may mask minor sites on upper slopes. Local tezcanic activity has probably played a role in the past in determining coastal settlement patterns. Shrub alders invaded the landscape immediately following deglaciation, regional vegetation has changed little in postglacial time.[7]

Netherly, Patricia J. (Massachusetts, Amherst)
BEHIND THE MANGROVE: CULTURAL CHRONOLOGY AND SETTLEMENT PATTERN IN THE ARELLANAS VALLEY, SOUTHEASTERN COASTAL ECUADOR

Continuing archaeological research in the Arenillas Valley indicates that this region has a ceramic chronology and cultural history somewhat different from that of the better-known Guayas, Santa Elena Peninsula, and Manabí regions. A regional chronology based on ceramics and C-14 dating will be presented and correlated with settlement pattern and subsistence strategies. The data from the survey of the Middle and Lower Arenillas Valleys will be used together with the results of test excavation at selected sites in the Middle and Lower valleys. The relationship between the mangrove and the other coastal environments will be considered.[28]
Nicholas, George P. (Massachusetts-Amherst and American Indian Archaeological Institute)

JASPER EXTRACTION AND THERMAL MODIFICATION TECHNOLOGIES, AND THEIR BEHAVIORAL IMPLICATIONS, IN SOUTHWESTERN NEW ENGLAND.

A new lithic source area has been identified in the Berkshires of northwestern Connecticut and western Massachusetts where jasper and jasperoid are found in the quartzite conglomerate of the Dalton Formation. At the Carlson 1 site, NW Connecticut, there is evidence that jasper was extracted from the matrix by a combination of percussion and thermal tracquering, and then possibly modified by additional heat treatment. One feature consists of 15m² of fire-redened soil, charcoal, production debris, hammerstones, and other artifacts. The behavioral implications of this apparently labor-intensive technology are discussed, as are source area locations and site distribution patterns. [31]

Nicholas, Linda M. (Wisconsin, Madison) and Gary M. Feinman (Wisconsin, Madison)

ECONOMIC SPECIALIZATION AND EXCHANGE IN OAXACA: THE PRODUCTION AND TRANSPORT OF SHELL, CLOTH, AND OBSIDIAN IN THE EJUTLA REGION.

Despite its demographic and political marginality, the Ejutla Valley was surprisingly important as an economic gateway involved in the production and exchange of certain exotic goods. Shell, obsidian, and spindle whorls were relatively more abundant in the Ejutla region than in the Valley of Oaxaca proper, and their spatial distributions may indicate one route by which these products entered Central Oaxaca. For Ejutla, the advent of these economic activities seems to be tied to the development of a more integrated regional system in the Central Valley of Oaxaca. [35]

Nichols, Deborah L. (Dartmouth)

CHANGING COMMUNITY PATTERNS AND INTENSIFICATION OF SOCIAL NETWORKS DURING THE BASKETMAKER-PUEBLO TRANSITION ON NORTHERN BLACK MESA, ARIZONA.

Southwestern archaeologists have long recognized the importance of site community patterns for inferring prehistoric social networks. Results of systematic surveys of a 289 km² area of northern Black Mesa, Arizona, supplemented by a large body of excavation data, provide an excellent opportunity to examine changes in community patterns during the Basketmaker-Pueblo transition in light of recent models of Anasazi sociopolitical organization. Specifically, this paper examines the development of standardized habitation site layouts as evidence of social network intensification in response to changing social, and possibly physical, environmental conditions. [31]

Nichols, J. [54]

Niemczycki, Mary Ann (Southeast Missouri State)

DEMOGRAPHIC CHANGE AND THE EVOLUTION OF IROQUOIS CULTURE IN WEST-CENTRAL NEW YORK.

Traditional views of In prehistoric communities take into account under attack due to their inability to identify specific causal factors which trigger the evolution of tribal organization. Analysis of archaeological data from west-central New York reveals that changes in settlement patterning associated with the evolution of Seneca Iroquois tribal society are preceded by the movement of an Ontario Iroquois population into this region. This data further suggests that Seneca tribalization may be viewed as the development of an effective adaptive response to a situation of increasing risk due to environmental uncertainty [see Baum & Plog 1982] associated with demographic changes which follow this event. [36]

Nieto G., J.F. (see Brown, R.B.) [30]

Niles, Susan A. (Lafayette)

THE PROVINCES IN THE HEARTLAND: STYLISTIC VARIATION AND ARCHITECTURAL INNOVATION NEAR INCA CUZCO.

The architectural style that spread with the Inca Empire is one that shows, on the face of it, remarkable uniformity. A closer analysis reveals a style that is admirably suited to the realization of Inca imperial goals, and to expressing the hierarchical relations that prevail in the Inca social order. The sites that show the greatest range of stylistic variation are the estates built by particular Inca lords. Study of the standing architecture remains on the royal estates near Cuzco helps us to understand the Incas' perception of their relationship to subject populations, and suggests that the estates modeled the social order expressed in the organization of the provinces. [41]

Nigrette, C.M. (see Musson, C.A.) [18]

Noble, Wm. C. (McMaster, Hamilton)

HISTORIC IROQUOIS SETTLEMENTS OF THE ONTARIO-NIAGARA FRONTIER REGION.

Settlement patterns of the 17th century Neutral, Erie, and certain Iroquois are examined for the Ontario-Niagara Frontier region. Various levels of inquiry help to define [1] site distributions

Orloff, Charles (California, Santa Clara)

A THERMO-HYDROLOGICAL ANALYSIS OF RAISEDIELDS IN THE IWANAKU HINTERLAND.

This paper addresses the thermal and hydrological properties of raised fields within the Pampa Coa zone of Lake Titicaca, Bolivia. The analysis focuses on a computer model of the thermal properties of the raised fields within a theoretical twenty-hour diurnal cycle. The analysis also examines the general hydrological characteristics of the fields within their lacustrine setting. The variability of thermal and hydrological properties within different field formations is further considered. [52]

Ortloff, Charles (California, Santa Clara)

THE ARCHAEOLOGICAL RECORD AS AN INDICATOR OF HOUSEHOLD GARDENING STRATEGIES IN PREHISTORIC MESOAMERICA.

Most recent research on prehistoric subsistence in Mesoamerica has dealt with plant production systems. Often neglected is the dooryard garden, which ethnohistorical sources suggest provided substantial inputs to household subsistence. This paper examines the classes of residues dooryard gardening might leave in the archaeological record. Four kinds of evidence are specifically discussed: archaeological, relic gardening features, site spatial organization, and regional settlement patterns. Illustrative materials are provided by recent research in Mexico and Central America. [42]

Ortloff, Charles (California, Santa Clara)

The thermohydrological analysis of raised fields in the Iwannak Hinterland.

This paper addresses the thermal and hydrological properties of raised fields within the Pampa Coa area of the Lake Titicaca, Bolivia. The analysis focuses on a computer model of the thermal properties of the raised fields within a theoretical twenty-hour diurnal cycle. The analysis also includes the general hydrological characteristics of the fields within their lacustrine setting. The variability of thermal and hydrological properties within different field formations is further considered. [52]
and the Kalahari fringe show variable patterns of dates with a general trend of increase after the LGM. Questions of uneven survival of datable samples, uneven research emphases and the relationship between dates and human population densities are discussed. Some role for environmental change in influencing population numbers and distribution seems unavoidable.[20]

Parkington, J. (see Yates, R.J.),[38]

Pate, Donald (Brown)
EXCHANGEABLE IONS IN BONE AND SOIL AS INDICATORS OF POSTMORTEM DIAGNOSIS:

The chemical composition of human and faunal bone excavated from archaeological sites can provide the paleopathologists with a wide range of information including relative and chronometric dates, paleodiet, and paleohydrology/paleoclimate. However, meaningful inferences from bone chemistry are dependent upon a control for postmortem diagenetic alterations in the burial environment. X-ray diffraction and infrared absorption analyses indicate that dissolution and recrystallization do not occur until thousands of years after burial. However, ionic exchanges between the soil solution and calcium phosphate crystal surfaces may still occur. Exchangeable ions in bone and soil are examined to address these postmortem exchanges.[1]

Paul, M. (see Long, A.J.),[23]

Paulsen, A.D. [28]

Pavlish, L.A. (Toronto)
TO HEAT OR NOT TO HEAT; THAT IS THE QUESTION!

A major problem encountered in attempts to understand the use of heat in lithic technologies is the difficulty of distinguishing between intentionally and accidentally heated materials. A method for doing this is proposed and applied to eastern Paleo-Indian site assemblages. The method reveals examples of partial heating which appear to have been important, hereafter unrecognized variant of the process. The presence of partial heating may improve our understanding of the skills possessed by the ancient technologist, and will go a long way towards setting straight the confusion that surrounds the concept of heating stone in the ethnographic literature.[46]

Pavlish, L.A. (see Jakling, A.V.),[15]

Pavlish, L.A. (see Jallig, P.J.),[46]

Pavlish, L.A. (see Sheppard, P.),[16]

Pendergast, David M. and Elizabeth Graham (Royal Ontario Museum, Toronto)
DIPPING OUT THE OCEAN WITH A SPOON: FLUNDERING ON THE INTERNATIONAL SCENE

Although the passage of legislation ratifying the UNESCO convention appeared to be a major step in reducing international trade in archaeological material, in fact the problems remain at least as severe as in earlier years. This paper explores the field situation in Belize, and the Maya area in general, as an example of the current difficulties. It also reviews the course and effectiveness of local and international legal action in attempting to bring the destruction of archaeological remains to a halt, and suggests steps that might help to produce this result in the future.[2]

Pendergast, D.M. (see Jones, G.D.),[45]

Pendery, Steven (Boston Landmarks Commission)
PATTERN IN MATERIAL LIFE IN COLONIAL CHARLESTON, MASSACHUSETTS.

This paper examines the active role of material lifestyle in expressing and perpetuating social and economic differences among occupational groups in a colonial new England seaport [Bourdieu 1984; Nash 1979]. It is argued that occupational status, as much as wealth, conditioned both general and specific patterns of investment in goods of production and consumption in colonial Charleston, Massachusetts, indicated by archaeological and documentary evidence. Converging trends in consumer behavior and marketing methodology since the eighteenth century merchants and craftsmen masked an increasing concentration of wealth in merchant hands.[29]

Perreire, D. (see Brockington, D.L.),[49]

Peterson, James B. (Maine, Farmington) and Nathan D. Hamilton (R.S. Peabody)
THE PISCATAQUIS ARCHAEOLOGICAL PROJECT: 1985 AND 1986 SEASONS.

Excavations at five stratified sites in the Piscataquis Archaeological Project study area have revealed deep stratigraphy and a long human occupational sequence from 10,300 B.P. onward. A local cho-
Phagan, Carl J. (NAU-MNA, Flagstaff)

A PRELIMINARY PROJECTIVE POINT TYPOLOGY FOR THE NORTHERN SINAGUA

A preliminary projectile point typology for the Southern Colorado Plateau's Sinagua cultural sequence is presented. The typology is morphological, with temporal, spatial, and technological variability correlated independently with types. Variables are quantitatively assessed and selected, and types are produced with multivariate procedures. This research is a result of the 1986-87 Southern Colorado Plateau Distinguished Scholar-in-Residence program, sponsored jointly by the Museum of Northern Arizona and Northern Arizona University. [56]

Pickin, Frances R. (SUNY, Buffalo)

CULTURAL EVOLUTION AND ALLOMETRIC GROWTH

The study of cultural evolution often employs analogies from other disciplines. In the 1950s, Raoul Naroll attempted to transfer the principle of allometric growth (the tendency for parts to grow in a constant proportion to the size of the entire body) from biological to cultural evolution. His research indicates that such relationships exist in ethnographic data. Based on the assumption that allometry is not confined to contemporary societies, this study uses a sample of eleven prehistoric sequences to examine the evolutionary relationships between cultural heterogeneity and population size. The results and methodological considerations of this type of cross-cultural archaeological study are discussed. [32]

Pfiil, Rovert H. (Western Ontario)

NEW PERSPECTIVES ON POINT PENINSULA MIDDLE WOODLAND IN EASTERN ONTARIO.

The traditional view of Point Peninsula as a homogeneous culture based on egalitarian principles is now open for re-evaluation. Two important aspects are considered: 1) inter-regional cultural differences identified in terms of varying ceramic and other artifact styles, and 2) localized indications of complex social and political organization in specific economic and mortuary patterns and osteological evidence. Illustrative materials are provided by research in the Trent River-Rice Lake region and St. Lawrence Valley of eastern Ontario. Archaeological problems with Point Peninsula are also reviewed. [33]

Pippin, Lonnie C. (Desert Research Institute)

MODELING THE FORMATION OF TEMPORARY CAMPS AND OTHER SITE TYPES IN THE ARCHAEOLOGICAL RECORD OF THE NEVADA TEST SITE, SOUTHERN NYE COUNTY, NEVADA.

Great Basin archaeologists have long recognized the difficulties in assigning functional interpretations to archaeological site types and, during the last decade, much attention has been paid to how archaeologists may or may not make these determinations (Betten 1975, 1980, Binford 1980). Thomas 1983: 20, 72-91). This paper reviews the existing middle range theory concerning the transformation of hunter-gatherer site types into the archaeological record and then examines several different types of ethnographic/taxonomic temporary camps on the Nevada Test Site in order to develop a baseline site formation model for this area of the Great Basin. [51]

Plog, Fred (Celeron/Goodyear Archaeological Research Laboratory / New Mexico State, Las Cruces)

PRESERVATION OF AND FOR WHAT?

New Mexico State University has undertaken work for private enterprise and government agencies. This paper contrasts experiences in dealing with institutions of various types and identifies problems that arise when cultural resource managers represent private enterprise in government regulations. The criteria of cultural resource management as Programmatic Memoranda of Agreement and "NART's" is considered. The Celeron/Goodyear Archaeological Research Laboratory is used as a case study to indicate the varying roles of CRM, private enterprise, and government. It is argued that a stronger role for cultural resource managers and private enterprise in relation to government is desirable. [54]

Pohl, John M.D. (UCLA) and Bruce E. Byland (Lehman, CUNY)

THE NATURE OF PLACE SIGNS IN THE MIXTEC CODICEs.

Place signs have long been important to the decipherment of the group of Mexican manuscripts known as the Mixtec codices. Since they identify the locations of historical events, place signs are fundamental to studying political interaction among ancient Mixtec elites. A broad concept of scale has led many previous studies to place principal historical events from these documents within a broader geographical sphere than now seems tenable. The distribution of Postclassic sites in the Tilantongo valley suggests a much different picture. [8]

Pohl, J.M.D. (see Byland, B.E.) [58]

Pokorny, D. (see Hanks, C.C.) [59]

Pollard, Helen Perlstein (Michigan State)

TARASCAN CIVILIZATION WITHIN PREHISPANIC MESOAMERICA.

The Tarascan State (A.D. 1350-1520) has long been viewed as an anomaly among Mesoamerican Prehispanic civilizations. This state has been characterized as either alien, and barbaric, or the product of wholesale importation of Mesoamerican beliefs from central and/or southern Mexico. Utilizing the concept of the elite prestige social system, this paper will focus on the Tarascan elite social system as a source of interaction with other cultural traditions and a contributing variable in the development of Tarascan civilization. Data drawn from archaeology, ethnohistory, and linguistics will consider elite ideology, population movements, and the structure of prestige and power. [30]

Pool, Christopher A. (Tulane) and Robert S. Santley (New Mexico)

CONNECTIONS AND INTERFACES BETWEEN PRODUCTION-DISTRIBUTION SYSTEMS IN HIGHLAND MEXICO AND ON THE GULF COAST.

Exchange is one of the principal mechanisms by which goods are distributed in complex societies. Such distribution systems may be local or involve the movement of goods across system boundaries. In Highland Mexico and on the Gulf Coast certain production-distribution systems were large, internally differentiated, and spatially segregated; others were much smaller in scale, relatively undifferentiated, and oriented primarily to local clienteles. Exchange also involved the movement of "information" across the landscape, as reflected by the presence of horizon styles. In this paper data on ceramics and obsidian working are used to illustrate these fundamental differences in system structure, articulation, and function. The effects of transportation mode on system structure and scale are also discussed. [40]

Portnoy, Alan M. (Texas Tech)

A FORMULA FOR ESTIMATING MINIMUM NUMBER OF LITHIC TOOLS.

In order to account for both complete and fragmentary tools in a lithic assemblage and so gain a more accurate idea of relative proportions of different tool types, a simple formula for estimating the minimum number of individual tools represented in each tool class has been devised. The formula was developed while working on a large assemblage of unifacial flake and blade obsidian tools and is being tested on other kinds of assemblages. The formula is explained, applications of the formula are shown and its limitations discussed. [56]

Portnoy, A.W. (see Mayer-Oakes, W.F.) [9]

Potter, Parker B., Jr. (Brown)

THE CONSUMPTION OF IDEAS AND THE PRODUCTION OF BEHAVIOR: PAST AND PRESENT IN ANNAPOLIS, MARYLAND.

While most of the papers in this collection are about the production and consumption of material goods, this paper takes a slightly different focus: the consumption of ideas and the production of behavior, in both the past and the present in Annapolis, Maryland. This entails three main issues. The first is the recursive nature of material culture as a theme in the analysis of archaeological material in Annapolis. The second is the presentation of this idea, and the results it produces, to residents of and visitors to Annapolis, in the context of archaeological site tours or museum exhibits. The third issue is the presentation to the public of the idea that versions of the past, just like material goods, are produced, consumed, and used. And just as material culture teaches and shapes behavior, so too do various versions of the past call for particular responses and behaviors from those who accept them. [39]

Powell, S. [26]

Powers, Robert P. (National Park Service)

THE VIEW FROM THE OUTSIDE: ARCHAEOLOGICAL SURVEY ON THE PERIPHERIES OF CHACO CANYON.

Recent archaeological survey of 6220 acres added to Chaco Culture National Historical Park provides new data on 709 Chaco Anasazi sites on the peripheries of Chaco Canyon, N.M. Areas surveyed include portions of Chacra Mesa, South Mesa, and two nearby Chacoan outliers, Kin Klizhin and Kin Bincolm. Analyses of Anasazi settlement, demography, environment, and surface assemblages...
Prentiss, William C., M. Lee Douthit and Eugene J. Romanski

(ceramics and lithics) establish a critical "outside" perspective on Anasazi cultural adaptation in the central San Juan Basin. The purported role of Chaco Canyon as a regional socio-economic center during the Anasazi occupation is clarified, complementing prior extensive studies in the canyon proper.[51]

Prentiss, William C. (B.L.M.), M. Lee Douthit (B.L.M.) and Eugene J. Romanski (Florida State University)

LITHIC PROCUREMENT AND HUNTER-GATHERER ORGANIZATION IN THE CENTRAL BIG HORN BASIN, WYOMING.

In the central Big Horn Basin of northwestern Wyoming, archaeological materials are scattered almost continuously along Pleistocene terraces containing large quantities of quartzite, chert and basalt cobbles. This research demonstrates the existence of complex patterning through the analysis of factor analysis to data generated from a "transite" survey in this region. Pattern recognition is facilitated with an experimental study of debitage variability from different core reduction and tool production strategies. Conclusions are drawn regarding lithic resource utilization strategies and regional settlement and subsistence systems.[56]

Pencel, Robert W. (UCLA)

THE PAJARITO FIELD HOUSE PROJECT: PRELIMINARY RESULTS.

The Pajarito Field house Project was conceived as a problem-oriented research program focusing on the adaptive significance of the "field house strategy." The theoretical orientation of the project is provided by the concentric zone model drawn from economic geography which predicts that field houses should be located only near those fields which are relatively distant from a large pueblo. In order to test this model, the Pine Springs study area was surveyed and several field houses were excavated. The results generally support the model although other kinds of small structural sites are located near pueblos.[26]

Pizzi, K.R.H. (see Hancock, R.G.V.)

Pyro, John H. (SUNY-Binghamton)

GIFT BASKETS AND SALE BASKETS: DYNAMICS OF FOMO POWER RELATIONS.

This paper will reanalyze ethnographic and ethnohistoric data to show the role of baskets as a material medium in the negotiation of power relations between men and women, elders, and youth, and between families in the hunter-gatherer Indians of Northern California (Pomo). It will show that inequality was marked by a strong ideology of equality, which obscured the true power relations. The dynamics of these relations are explored by showing the effect of women basket makers entering the market economy of white society.[58]

Pursel, Margaret (UC Berkeley)

MATERNAL CULTURE AND THE STUDY OF CONSUMPTION IN NINETEENTH CENTURY PARADISE VALLEY, NEVADA.

In historical archaeology, maternal culture is both the meaning-bearing context of human behavior, and the expressive power of a "artifact" of the behavior. The archaeology of 19th-century Paradise Valley, Nevada demonstrates the critical role maternal culture played in how the relationships of production of goods, national marketing and distribution systems, and the reorganization of social groups were established and then manipulated at a local scale. At a more national or cultural level, the study illustrates how maternal culture served as a vehicle for interpreting, manipulating, and integrating the social changes of the time into the social structure of a given community.[29]

Pyburn, K. Anne (New Mexico State)

THE INVISIBLE UNIVERSE: NON-PLATFORM FEATURES IN THE MAYA LOWLANDS.

Non-platform features have been recorded from many sites in the Maya Lowlands, but their function has seldom been determined. Testing of several such features at the site of Nohmul in northern Belize supports their interpretation as full-time habitations and suggests that a surprising density of invisible domestic features may exist at Nohmul. The implications of these findings for previous estimates of lowland Maya population densities and for future settlement pattern research are reviewed.[24]

Quick, P. McW. (59)

Quilter, Jeffrey (Ripon)

ANIMATED OBJECTS IN MOCHE ART.

Animated objects are shown attacking humans in few but important scenes in Moche Art. Scholars have previously discussed this theme as an event described in both Andean and Mesoamerican contact period traditions. But serious objections to this link have been made. The objects in question are specific to warfare weapons and regalia. This paper will discuss the Attacking of the Weapons Theme and related artwork in the light of recent studies of Moche iconography. Concluding remarks will touch upon the cross-cultural aspects of animated, aggressive objects, from the ancient Greek Sorcerer's Apprentice to modern Go-Bots and Transformers.[13]

Rabin Campbell, Chris (USDA Forest Service)

THE NEZADKI PHRATRY OF THE SANYAKWAN TILLINGIT.

The Sanyakwan are unique among the Tlingit because they have three exogamous phratries and the remaining kwan have only two. The anomalous phraternity is the Nezadi. Previous researchers speculated that the Nezadi splintered from the Tsesuats Athapaskans and became Tlingitized, but Tlingit origin myths disclose the Nezadi as being recognized as Tlingit since migrating to the coast from the Unuk River Drainage. The Nezadi, like all of the Sanyakwan, had intermarried and traded with their Tsesuats Athapaskans neighbors. This synthesis will shed light upon the cultural dynamics of the region including strong economic ties to the boreal forest environment.[59]

Razenski, Ann A (LSU Baton Rouge)

DIFFUSION OF DISEASE AT EUROPEAN CONTACT.

A major focus of contact period studies concerns whether or not epidemic diseases decimated native populations during the sixteenth century. While some outbreaks are described in local histories, the question of whether and how far pathogens spread beyond the points of origin is debated. In this paper, the question of sixteenth century disease diffusion in the Southeast is approached from several perspectives: Known or suspected microbial imports are considered epidemiologically to determine their diffusion potential. The archaeological record is evaluated to determine possible diffusion pathways, and whether the record demonstrates the kind of demographic change warranted by disease contact. Experimental evidence derived from geographic diffusion models suggests how suspected pathogens might have spread.[40]

Randsborg, Knut (Copenhagen)


Three major social processes took place in Europe, the Mediterranean Basin and adjacent areas to the East during the 1st millennium A.D.: The decline of the ancient societies in the disuse of the Roman Empire, the emergence of the successful Medieval West and the integration of the "Barbarian" World into the 'World' processes. An archaeological perspective of the socio-economics of these developments is given, based on studies of settlement, production, distribution and exchange, etc. Denmark (and northern Europe) is the focus of the discussion.[48]

Ranea, Anthony J. (Temple) and Richard G. Cooke (Smithsonian Tropical Research Institute)

FROM HUNTING-GATHERING TO VILLAGE AGRICULTURE IN THE HUMID TROPICS: A 4000 YEAR LONG PROCESS IN CENTRAL PANAMA.

A recently completed regional study in Panama has documented an 8500 year long sequence of continuous occupation. In this paper, the 4000 year period from the initial appearance of domesticated plants at ca 7000 B.P. to the eventual emergence of intensive agriculture is examined using evidence from (1) settlement patterns, (2) paleoecological and paleogeographic reconstructions, (3) botanical remains, (4) human skeletal remains, (5) faunal remains and (6) lithic and ceramic assemblages. We argue that these data document a largely in situ development albeit with extraregional influences at three critical junctures.[57]

Rapp, George, Jr. and Susan C. Mulholland (Minnesota, Duluth)

PHYTOLITH ANALYSIS IN ARCHAEOLOGY.

Phytoliths are microscopic mineral deposits that form in and between plant cells, specialized grass silica cells accumulate abundant and distinctive phytoliths. Our primary classification, based on modern grass phytoliths, has eight shape types: dumbell, cross, saddle, rod, smilax, triangle, pentagon. Grass subfamilies are characterized by assemblages of these types; further research will refine identification to tribes or possibly genera.

Phytoliths are preserved in sediments from the present to the Paleocene. Phytolith analysis at Big Hidatsa, a late prehistoric-carly historic Plains Village, indicates that differential use and discard of plants is important. Specific sediment provenience can yield fine-tuned microstratigraphic information.[55]

Rapson, David J. (New Mexico, Albuquerque) and Lawrence C. Todd (Denver, Colorado)

ATTRIBUTE BASED SPATIAL ANALYSIS: AN EXAMPLE FROM A HUNTER-GATHERER SITE IN NORTHEASTERN WYOMING.

Analysis of a hunter-gatherer occupation site examines the differences between the interpretation of distributional and attribute patterning at the level of activities and/or events versus patterning
Rattray, Evelyn C.
derived from the integration of a number of discrete activity sets. Patterns of faunal assemblage content including proportional skeletal frequencies, population age/sex structure, anatomical refits, evidence of butchery from cut marks, impact fractures, and burning will be considered in terms of their spatial distribution in an attempt to relate specific activities to the organizational structure of the archaeological site's inhabitants.\(^\text{[25]}\)

Rattray, Evelyn C. (UNAM, Mexico)
CIRCULAR STRUCTURES ON THE GULF COAST AND AT TEOTIHUACAN.
The presence of foreign portable objects (Gulf Coast and Maya ceramics, shell, jade, chert) at Teotihuacan has been well documented. Recent excavations at the "Merchants" Barrio, Teotihuacan, reveal that a distinctive style of architecture, round structures with ramps, was probably introduced by a group of foreigners in the Early Classic Period. The structures bear close resemblance to those reported on the Gulf Coast. The significance of these finds and their spatial and temporal distribution will be discussed.\(^\text{[11]}\)

Raveslot, J.C. (see Czaplicki, J.S.),\(^\text{[34]}\)
Raymond, J.S.\(^\text{[28]}\)
Read, D.W. (see Cleland, K.M.),\(^\text{[39]}\)

Reed, Paul E. and Steadman Upham (New Mexico State)
LIMITED ACTIVITY SITES AND LOW VISIBILITY REMAINS: IMPLICATIONS FOR INTERPRETING SOUTHWESTERN PREHISTORY.
The prehistory of various regions of the American Southwest has been written as though long term developmental sequences, encompassing hundreds of years of developmental continuity within a single cultural tradition, were the rule rather than the exception. Recent research in several geographic areas indicates that such continuity is rare, that discontinuous and episodic patterns of cultural development were more frequent. This paper examines issues related to models of developmental continuity/discontinuity by focusing on the low visibility archaeological remains, especially limited activity sites, which have been incorporated in regional culture histories.\(^\text{[24]}\)

Reif, Daniel T.
CONTACT SHOCK AND THE ROUTES OF CONTAGION DURING THE EARLY HISTORIC PERIOD IN THE GREATER SOUTHWEST.
Epidemics involving Old World diseases frequently spread northward from Mesoamerica into northwest Mexico and the southwestern United States during the sixteenth and seventeenth centuries. As a consequence of repeated exposure to smallpox and other maladies, native populations were reduced by as much as 90% prior to ca. 1675. The rate and magnitude of population decline was not, however, uniform and was dependent in part on a group's involvement in native and Spanish trade networks. This point is illustrated through an examination of Spanish and native exchange networks and a comparison of population trends among groups such as the Opatas and Tarahumara.\(^\text{[40]}\)

Reid, Peter (Windsor)
MODELS FOR PREHISTORIC EXCHANGE: SOUTHWESTERN ONTARIO AND SOUTHERN MICHIGAN.
Four examples of prehistoric exchange in the Middle Great Lakes region are tested against models of "distance decay" of social interaction: the distribution of Kettle Point chert in, respectively, the Archaic, Early and Middle Woodland, and Late Woodland periods, and the distribution of Bayport chert in late prehistoric times. Problems in measuring the variables 'distance' and 'decay' are briefly discussed. The utility of the results of such analyses is also examined.\(^\text{[33]}\)

Reilly, Paul (IBM UK Scientific Centre, Winchester, England)
LOOKING AT THE PAST USING ADVANCED GRAPHICS SYSTEMS.
The application of powerful, three-dimensional colour graphics systems used in conjunction with flexible data-management systems make it possible for archaeologists to record and analyse very large volumes of spatial and contextual information in new and exciting ways. Such systems are being used in Britain to assist in the investigation of both excavation and survey data. They are particularly interesting in that they allow archaeologists to reconstruct their primary data (to the level of detail it was recorded at), thus facilitating re-examinations of the material formations revealed. The material can be "viewed" from perspectives which would be impossible in any other way. This often stimulates the formulation of new types of questions which can be asked of the computer model. The potential of exploring data graphically will be illustrated using several UK organised projects the IBM UK Scientific Centre is involved in. The approach, however, has a much wider application.\(^\text{[39]}\)

Rhode, David (Washington, Seattle)
EVOLUTION OF SUNFLOWER, SUMPWEEF, AND THE EASTERN AGRICULTURAL COMPLEX.
Sunflower and sumpweed have long been considered prehistoric domesticates of eastern North America based on increases in the size of their seeds. The pattern of morphological evolution of this trait in both plants allows insight into the nature of their coevolution with humans from Archaic through late prehistoric periods. The plants differ slightly in seed size evolution as a result of basic biology, but seed size trajectories are alike in general form and indicate consistent selection for symbiotic relationships between the plants and human agriculturalists through the late prehistoric period, despite competition with maize, other small seeds, and each other.\(^\text{[22]}\)

Richardson, James B. III (Carnegie Museum, Pittsburgh)
THE ARCHAEOLOGICAL SEQUENCE AND THE RADIOCARBON CHRONOLOGY OF THE CHIR TA REGION OF NORTHWEST PERU.
Sixty-five radiocarbon dates will be used to discuss the preceramic and ceramic period complexes in the Parisas, Chira and Paita regions of the coast of northwest Peru. The ceramic assemblages will be presented in terms of their cultural affinities to the north in Ecuador and to the south in Peru. Currently, the author feels that the preceramic and ceramic period complexes have close relationships with Ecuador up to the advent of the late Intermediate and Late Horizon in Peru.\(^\text{[35]}\)

Richardson, J.B. III (see McConaughy, M.),\(^\text{[6]}\)
Richardson, J.B. III (see Sandweiss, D.H.),\(^\text{[6]}\)

Riddell, Francis A. (California Institute for Peruvian Studies)
ARCHAEOLOGICAL RESEARCH ON THE SOUTH COAST OF PERU.
Portions of the south coast of Peru have experienced limited attention by professional archaeologists. CIPS is a not-for-profit corporation designed to direct, support and otherwise expedite studies in archaeology and related disciplines centering in the Acari and Yauca valleys, and the Atiguipata and Chala regions of the south central coast of Peru. The area is rich in archaeological remains from lower Early Horizon through the Colonial period. Of priority is the salvage of textiles and ceramics from various sites. Site survey, mapping and test excavations greatly facilitate the understanding of the temporal and cultural relationships and local expression of style in relationship to neighboring, better-known regions of Peru.\(^\text{[49]}\)

Rigaud, Jean-Philippe (DAFA, Bordeaux, France) and Ian E. Simek (Tennessee, Knoxville)
PREHISTORY OF THE PERIGORD AROUND THE LAST GLACIAL MAXIMUM.
While the southwestern part of modern France provides this paper's focus, data from other parts of south France will also be discussed. The region has yielded a long series of C14 dates that can be integrated with geological, palynological and paleontological observations to provide a detailed chronology at the 18,000 B.P. time slice. Lithic assemblages are variable in terms of typology, technology, and material utilization: this variability can be explained in both functional and cultural terms. Integration of lithic and faunal data suggests that major changes in human adaptations occurred at or near the 18,000 B.P. time period.\(^\text{[20]}\)

Rigaud, J-P (see Simek, J.E.),\(^\text{[44]}\)

Riley, Thomas J. (Illinois, Urbana-Champaign)
REFLECTIONS IN A LAGOON: MARSHALLESE ATOLLS AS MIRRORS OF HIGH ISLANDS.
Ethnographic data from the Marshall Islands suggest that a well developed chieftain existed there despite limiting factors of small populations, limited landmass and high potential for natural disaster. The chieftain, based on a matrilineal clan system, is partially correlated with the dispersal of clan membership north-south, but it is based on principles of land tenure similar to those of high islands where clan resource use maximizes environmental diversity over the landscape. This is shown in the division of taro pits at Laura village on Majuro where strips of clan controlled land meet. Excavations at the borders of these taro pits suggest that they date to the initial settlement period at Laura village ca. A.D. 500. Exploitation of this environmental diversity was an important aspect of initial colonization of this part of Majuro atoll, and perhaps of the Marshalls as a whole.\(^\text{[55]}\)

Ringle, William M. (Davidson College/M.A.R.I. Tulane), Craig Hanson, Chris von Nagy, Walter Wittekind and George Bey (Tulane)
CONTINUING INVESTIGATIONS OF EK BALAM, YUCATAN.
Results of the 1986 field season at the northern Maya site of Ek Balam are reported. Efforts centered on a laser transit map of the site center and limited excavations within that area. Test pitting has so
far revealed a largely Late to Terminal Classic occupation, but with evidence of earlier Middle to Late Formative occupations. Test pitting of one of the encircling defensive walls showed it too was of Terminal Classic date. Similar walls are found at contemporaneous sites in northwest Yucatan, where ceramic ties are also strongest. Possible implications for the prehistory of the Terminal Classic are discussed.

**Ringstad, C.A. (see Dalan, R.A.).**

**Ritchie, J.C. (Toronto)**

**HOLOCENE ENVIRONMENTS OF THE EASTERN SAHARA.**

Buried lacustrine sediments from four widely separated sites in northwest Sudan have yielded informative data on the environment of the early to mid-Holocene. Analyses of the sediments (physical and chemical) and of the contained algal pigments and pollen are reviewed, and some palaeoenvironmental reconstructions are offered. A humid period, with fluctuating lake levels, resulting from a northward transgression of the monsoon, occurred between ca 8500 and 4500 B.P.[14]

**Rivera, Mario A. (UTA/Arica, Chile)**

**INCA STRATEGIES OF OCCUPATION IN NORTHERN CHILE.**

The northern Chile area is explained under its main ecological zones and interpreted following the Inca strategies of occupation. According to regional cultural development, conditions and accessibility to local natural resources, the following Inca patterns are reviewed: (1) Administrative centers, (2) Tambo, (3) Minor installations, (4) System road. Spatial economic approaches to Inca installations are also illustrated, mainly related to oasis/valley agricultural production; Puna installations for herding of llamas and alpacas, and mining centers.[41]

**Rivera, M.**

**Rivera, Oswaldo (Instituto Nacional de Arqueología de Bolivia)**

**EXCAVATIONS IN THE SECTOR OF WILAKOLLU AT LUKURMATA, BOLIVIA.**

This paper describes the results of archaeological excavations in the semi-subterranean temple and Kalasaya structures located in the uppermost platforms which surmount the Cerro Wilakollu sector at Lukurumata. This sector represents the principal civic-ceremonial zone of this ancient Tiwanaku urban center. The research complements the information from Wendell Bennett's 1938 excavations, and permits a more refined analysis of the details of construction of these two ceremonial structures. Finally, this research allows a reinterpretation of the functions of the Wilakollu sector with respect to raised fields at the base of the Cerro, and within the context of state formation in Tiwanaku.[52]

**Roberts, Michael (Timelines, Inc.)**

**AN ASSESSMENT OF THE EVOLUTION OF ONE APPROACH TO LARGE SCALE COMPREHENSIVE RESOURCE PLANNING FROM 1978 TO 1986.**

For close to ten years, the author has prepared large-scale comprehensive cultural-resource plans and observed their use and evolution. This paper describes the overview of the Green Mountain National Forest in Vermont, probably the first use of the RPS concept after its development; comprehensive management plans for sections of the Outer Continental Shelf; management guidelines and interpretive recommendations for the Massachusetts Park and Forest System, including new approaches to interpretation and public education; and the resource protection plan for the Commonwealth of the Northern Marianas, which integrates traditional cultural values into the planning process.[54]

**Robinson, E.F. (see Beaudry, M.P.)**

**Robinson, R.W. (Antelope Valley)**

**HACHA: A LATE INITIAL PERIOD SITE ON THE SOUTH COAST OF PERU.**

Research over the past three years in the Acari Valley on the south coast of Peru has yielded significant data bearing on the question of cultural development in the late Initial Period. Survey and limited test excavations at the Hacha site have answered some questions and raised many others in regard to this early settlement. Recent radio-carbon dates are presented as are data concerning architecture, ceramics, and mortuary practices. Earlier thinking on this well known archaeological site is reexamined in light of these new data.[49]

**Rocov, Thomas R. (Oregon State University)**

**ECONOMY, DEMOGRAPHY, AND SOCIAL CHANGE: THE NAVAJOS OF NORTHERN BLACK MESA.**

The archaeological record of Navajo settlement on northern Black Mesa, Arizona, is used to examine the relationship of change in social organization, with demographic and economic conditions. Population and economy are monitored using dwelling and livestock structure data. Cluster, nearest

**Sackett, James (UCLA)**

**BEYOND TIME-PLACE SYSTEMATICS IN ROCK ART RESEARCH: A SYNTHETIC VIEW.**

Traditional approaches to rock art study have emphasized the definition of rock art "styles" and chronologies, resulting in cultural-historical frameworks but little in the way of anthropological

**Sackett, James (UCLA)**

**NEIGHBOR, AND QUADRANT ANALYTIC MEASURES ARE USED TO ASSESS CHANGES IN SETTLEMENT PATTERNS. RESULTS SUGGEST THAT INTER-RESIDENCE AGGREGATION AND DECREASED RESIDENCE UNIT SIZE ACCOMPANY GROWTH OF A PASTORAL ECONOMY. RISING POPULATION AND WAGE ECONOMY GROWTH CORRELATE WITH INTER-RESIDENCE DURATION. THESE SETTLEMENT SHIFTS ARE LINKED TO CHANGES IN ETHNOGRAPHICALLY KNOWN COOPERATIVE SOCIAL UNITS.[51]**

**Sackett, James (UCLA)**

**VILLAGE SPATIAL ORGANIZATION IN THE SOUTH AMERINDIAN LOWLANDS: EVIDENCE FROM ETHNOARCHAEOLOGY.**

Archaeologists are increasingly interested in the dynamics of intra-settlement spatial organization as well as the total site context. This paper employs a combination of ethnoarchaeological and archaeological data to gauge changing settlement organization within the South Amerindian tropical rain forest. A comparative approach, involving different societies of disparate adaptations within related, but distinct, ecotones is utilized to develop two models of village and circum-village spatial organization as well as to document a shift from the first to the second in response to raiding. The possibility of change between the models supports an over-arching "meta-model" of the organization of space in the lowlands.[27]

**Rogers, J. Daniel (School of American Research)**

**THE SOCIAL ROLE OF COMMODITIES: AN ARCHAEOLOGY OF ARIKARA TRADE.**

In the early historic period the Arikara, a horticultural group in South Dakota, participated in an international trading system dealing in furs and other commodities. With the advent of the fur trade and its special brand of economics and interaction, Arikara modes of artifact preference and usage acquired new dimensions not completely like any previous system. Within the framework of contact, there were transformations of the dialectic of interaction. The changing composition of artifact assemblages from excavated Arikara sites suggests a complex set of interactions associated with the selective adoption or rejection of Euro-American trade goods.[40]

**Rollins, Harold B. (Pittsburgh), Daniel H. Sandweiss (Cornell), Judith C. Rollins (Pittsburgh) and Uwe Brand (Brock, Ontario)**

**RECOGNITION OF LARGE MAGNITUDE EL NIÑO EVENTS USING ANDEAN COASTAL SHELL MIDDENS.**


**Rollins, H.B. (see Sandweiss, D.H.).**

**Rollins, J.C. (see Rollins, H.B.).**

**Romanski, E.J. (see Prentice, W.C.).**

**Ruffini, Franco (Ohio Historical Society) and Paul Hoege (Licking County Archaeological and Landmark Society)**

**PUBLIC EDUCATION: A POSITIVE APPROACH TO THE ARTIFACT TRAFFICKING PROBLEM.**

The problem of artifact trafficking is seen as a manifestation of a larger problem, i.e., the public's lack of knowledge and appreciation of archaeological resources. A Licking County, Ohio group provides an example of how this problem may be addressed within a larger context. A multi-faceted approach involving local constituency building, providing public education and research opportunities, promoting archaeology through travel and tourism, conducting surveys, monitoring threatened sites, and assisting in data recovery from sites being destroyed is used to heighten public awareness of the problem. Of particular note is the production of several video cassettes, including the one featured today entitled: Ethics in Archaeology: Conflicts in Collecting.[2]

**Sabloff, J.A.**

**Sackett, James (UCLA)**
inference, while "interpretation" of meaning has been left to the realm of the avocationalist or fringe researchers. While the time-place-systematics studies made their contributions to general cultural history, this approach has left the study of patricial art up against a paradigmatic wall with no method nor technique for further interpretation nor inference. The new approaches to interpretation, running the gamut from formalist quantitative studies, in contexts lacking ethnography, to ethnographic studies using informants to provide the context and meaning of historic rock art sites, are assessed and their utilities and applicabilities reviewed.[38]

Salzer, Robert J. (Beloit College)
CULTURAL AND TEMPORAL CONTEXTS OF THE GOTTSCHELL ROCK ART SITE.
Excavations at a recently-discovered rockshelter in southwestern Wisconsin have provided stratigraphic and artifactual associations, radiocarbon dates, and evidence of at least two different patterns of use associated with portions of a group of more than forty anthropomorphic, zoomorphic, and unidentified painted figures. Enhancement of the paintings using infrared and ultraviolet spectral ranges and computers has revealed details that indicate that several art styles are present, implying that the paintings were done at different times. One composition of four figures exhibits motifs that reflect aspects of Mississippian and Caddoan ideologies, as well as indicating ties with Ioway and Winnebago oral traditions.[35]

Sanders, W.T. (11)
Sanders, W.T. (42)
Sandweiss, Daniel H. (Cornell), Harold B. Rollins (Pittsburgh) and James B. Richardson III (Pittsburgh)
GEOARCHAEOLOGY OF THE SANTA/CHAO REGION, NORTHERN PERU: ALTERATIONS IN LANDSCAPE, CLIMATE, AND HUMAN OCCUPATIONS.
In the Santa/Chao region of the Peruvian north coast, several interacting geomorphic and climatic factors have been observed in association with prehistoric human occupations. The coast has progressed by circa 5 km in the past 5000 years due to tectonic uplift and beach ridge formation. The beach ridges which emanate from the mouth of the Santa River may record flooding episodes associated with major prehistoric El Niños. Nearby middens associated with a fossil beach date to 5000 B.P. and have a warm-water fauna. These changes in the topography and climate of the Santa/Chao area caused significant alterations in the prehistoric settlement patterns and resource utilization.[6]

Sandweiss, D.H. (see Rollins, H.B.),(6)
Sanfoty, Robert S. (New Mexico)
TEOTIHUACAN INFLUENCE AT MATACAPAN: ALTERNATIVE MODELS AND INADEQUATE EXPLANATORY FRAMEWORKS.
Matacapan is one site with an archaeologically record strongly influenced by Teotihuacan. Explorations of that influence have ranged from participation in a Teotihuacan interaction sphere to the presence of a Teotihuacan enclave, a port-of-trade, and direct military conquest. This paper summarizes the evidence for Teotihuacan contact and influence at Matacapan. Special attention is paid to variation in the spatio-temporal patterning of Teotihuacan-style materials. The adequacy of that data base, or data bases like it, for testing various competing models of Teotihuacan influence is then explored and some suggestions for future research offered.[11]

Sanfoty, R.S. (see Poole, C.A.),(40)
Sanfotor, Calogero M. (Cornell, Ithaca)
TRANSUMANCE PATTERNS IN THE SOUTH CENTRAL ANDES.
The study of patterns of transhumance in the South Central Andes - southern Peru, northern Chile, and northwestern Argentina - has led to the discovery of several different expressions adapted to "micro-ecological zones". One, a case with less seasonal emphasis, focuses on hunting in the highland "dry puna" niche. This contrasts with a more seasonal model of the "desert puna" with emphasis on hunting and gathering, centered along the incised pre-cordillera valleys. Both basic patterns are still in practice in the Aymara annual cycles of pastoralism. (Illustrative materials are provided).[49]

Sanzenetten, R. (see Brockington, D.L.),(8)
Saunders, L.P. (see Sempowski, M.L.),(36)
Salvador, James M. (Cambridge)
COLLECTORS FOR FORAGERS: SUBSISTENCE-SETTLEMENT SYSTEM CHANGE AMONGST ARCTIC HUNTER-GATHERERS.
Recent surveys and excavations in the central Canadian Arctic indicate substantial changes in Thule Eskimo site type frequencies, regional and local site distributions, and faunal characteristics from the 'classic' Thule Eskimo period (ca. A.D. 1000-1400) to the 'modified' Thule-historic Eskimo period (ca. A.D. 1400-1900). These changes are shown to correspond to a shift from a subsistence-settlement system based on collecting strategies (sensu Linford) to one based on foraging strategies, and are seen as a response to a decrease in the predictability and abundance of both bowhead whales and barren ground caribou resulting from deteriorating climatic conditions.[12]

Sciffter, M.B. (27)
Sciffter, M.B. (44)
Sciffter, M.B. (see Skibo, J.M.), (50)
Schild, B. (see Wendorf, E.),(20)
Schmid, B. (see Audouze, E.) (20)
Schneider, Jane (Graduate Center, CUNY)
WARE, WEB, PATTERN AND HUE: AESTHETIC ISSUES IN THE INTERACTION OF LUXURY CLOTH TRADITIONS.
Luxury cloth traditions mobilize labor, materials, capital and ideas to produce fabrics of aesthetic reputation that, historically, participated in the formation and interaction of politics. Awesome indices of rank, spectacular accessories to ritual, coveted gifts for exacting and rewarding loyalty, luxury cloths also enhanced diplomatic missions and earned foreign exchange. Power holders, however, had to worry that the cloths on which they relied for these purposes would be upstaged by rival fabrics, whose production and distribution were beyond their control. In considering this problem, it helps to identify the parameters that drove interacting cloth makers in particular aesthetic directions as they riled each other in creating luxury cloth.[8]

Schoening, M.J. (see Knecht, P.),(7)
Schoening, M.J. (see Moore, K.M.),(49)
Schoening, M.J. (see Murray, M.E.),(48)
Schoening, M.J. (see Spielmann, K.) (1)
Schoenwetter, James (Arizona State, Tempe)
THE LOGIC OF ARCHAEOLOGICAL POLLEN ANALYSIS.
Pollen of sediment samples from archaeological sites has the same botanical and statistical characteristics as the pollen of other deposits, so is traditionally interpreted by the same logical operations that apply to biological inclusions in geological strata. One can argue, however, that these qualities of site-context pollen spectra are less significant than their archaeological characteristics of context and direct and indirect association with artificial information. Archaeological pollen analysis accepts this argument and proceeds to the conclusion that site-context pollen spectra should logically be treated as arrays of archaeological data. Archaeological pollen analysis also recognizes a continuous, systemic relationship between cultural activities and the biological context in which they are embedded.[43]

Schortman, Edward M. (Kenyon)
DIFFUSION VS. EVOLUTION: AN OLD DEBATE AND A CURRENT PROBLEM.
Recent efforts to model processes of intersocietal interaction are hampered by a persistent debate in anthropology. This controversy poses two unrealistically simple alternatives to explaining social change: either as the result of contact with other societies (diffusion) or adaptation to the physical environment (evolution). Related issues concern questions of the primacy of historical accident or behavioral laws in governing processes of change. The present paper explores the development of this debate in the mid-20th century and considers its implications for current studies of the relationship between intersocietal contact and local social change.[8]

Schreiber, Katharina J. (UC Santa Barbara)
THE INKA OCCUPATION OF THE PROVINCE OF LUCANAS, PERU.
An archaeological survey of the territory of the Andamarca Lucanas yields evidence of the Inca occupation of the province of Lucanas. The Inca occupation may be distinguished archaeologically from the pre-Inca local culture on the basis of changes in settlement patterns, intervillage road networks, styles of architecture, and ceramics. Ethnohistoric documents are used to provide details not visible archaeologically; the archaeological data suggest that in some respects the ethnohistoric documents are not entirely accurate.[41]
Schroeder, H. Bruce (Toronto)

PROBLEMS AND PROSPECTS FOR RESEARCH INTO THE LATER ARCHAIK OF SOUTHERN ONTARIO.

In their investigations into the 10,000 year prehistory of southern Ontario, archaeologists have largely bypassed the Archaic for the homestead richness of the Late Woodland or the temporal priority of the Paleo-Indian period. In contrast to the abundance and ubiquity of Archaic [surface] finds, the poverty of research into the Archaic is striking. This has been due partly to data limitations, perceived and actual, but more importantly to the absence of clearly defined research objectives. Recent publications plus personal experience through test excavations at two promising locations have served to highlight this contradiction. This paper will attempt to resolve this dilemma by suggesting realistic research directions appropriate to data of the Archaic.[35]

Sanogowski, M.L., J.P. Saunders and G.C. Cervone (BMSC)

THE EARLY HISTORIC SENECAN: SETTLEMENT PATTERNS AND DEMOGRAPHIC TRENDS.

Artifactual, osteological and mortuary evidence from several early Seneca sites is examined for its potential to provide insights into Seneca settlement patterns. The study is based on the extensive collection of materials currently under investigation by the members of the Seneca Archaeology Project at the Rochester Museum. Issues considered here include the substantial population increase and consolidation of the late 16th century and the processes underlying it. Concerning the composition of the Seneca population, tentative conclusions are offered regarding local precursor populations, interaction and affiliation with neighboring Iroquoian groups, and the possible assimilation of war captives.[36]

Shackel, Paul A. (SUNY, Buffalo)

THE ARCHAEOLOGY OF MANNERS.

This paper will examine the development of manners and the material culture associated with them from the late medieval times in Europe to early nineteenth century Annapolis, Maryland. Civility, as it was known in the eighteenth century, was considered by philosophers, such as Voltaire, to be embedded in nature. The emergence of this world view led to an increasingly stratified society which used fine-tuned signals of behavior and the consumption of different types and amounts of material culture to maintain social segmentation between classes while still creating a common denominator of standardized behaviors. This research is grounded in an extensive survey of courtesy and etiquette literature, probate inventories, and the archaeological record from Annapolis, Maryland.[29]

Shafer, Harry I. (Texas A&M) and Patricia A. McAnany (Cincinnati)

PATTERNS OF PRODUCTION AND CONSUMPTION: A STONE TOOL EXCHANGE NETWORK FROM THE EASTERN MAYA LOWLANDS.

Throughout the Late Preclassic and Classic periods a system of interloper stone tool exchange operated in the eastern portion of the Maya Lowlands. Subtractive data from the tool-producing community of Colha and the tool-consuming communities around Fulltromer Swamp are presented. The organization of this specialized production is characterized as the role of Colha in a regional settlement hierarchy. The consumer role of Fulltromer Swamp is documented using settlement and lithic data. The structure and stability of this interloper exchange network are discussed.[40]

Shafer, Gary D. (Louis Berger & Associates)

SANITIZED FOR YOUR PROTECTION: ON THE ROAD WITH FEDERAL AND STATE ARCHAEOLOGY.

Implementation of the National Archeological Data Base Project in 14 states is described. The project, sponsored by the National Park Service and designed to provide a planning tool for federal agencies, necessitated many months of data acquisition in State Historic Preservation Offices. Personal recording of over 8000 cultural resource reports in the computerized, annotated bibliography provided a unique perspective on the evolution of contract archaeology in the United States. The success of compliance archaeology is considered in the light of economic constraints and the call to problem-oriented research.[54]

Shaffer, M.R. (see Vitelli, K.D.)[50]

Sharp, Nancy D. (Washington, Seattle)

RESOURCE SELECTION IN DEVELOPING AGRICULTURAL SYSTEMS.

Increased dependence on maize agriculture is often linked to decreases in both abundance and diversity of faunal resources exploited by prehistoric groups in the Greater Southwest. However, an alternative model of resource selection predicts equal or even expanded use of nondomesticated faunal and floral resources as domesticates are added to the subsistence system. Analysis of resource exploitation at Nawth's Village in central Utah, and comparison of subsistence data from selected Fremont and Anasazi sites, are used to test these alternative models. Results suggest a reevaluation of the impact of agricultural expansion north of the Anasazi.[51]

Sheehan, Glenn W. (Bryn Mawr)

ACCENTUATION OF INEQUALITY IN ESKIMO WHALING SOCIETIES DURING EARLY CONTACT.

A native economy based upon whale hunting led to a hierarchical social system during the recent prehistoric period on the Arctic coast of Alaska. Coastal Eskimo villages of up to 1300 people were politically and religiously organized by umialiiks (whaling captains) who operated out of kargis (ceremonial centers) that they owned. Less important umialiiks did not have kargis, but every whaling captain was responsible for feeding the members of his whaling crew and their families, and all participants to some extent in feeding the community in general. Native inequality was accentuated during the early contact period, as umialiiks traded baleen for Western goods.[58]

Sheedy, James J. (Pena State)

ETHNOGRAPHIC ANALOGY AND THE COPANECO ROYAL HOUSEHOLD.

Ethnographic descriptions relating to the internal differentiation of structure and function within palaces and royal households in various societies in Africa, Southeast Asia, the Pacific and the Americas are compared. The comparative data form the basis for generating a composite model of palaces and royal households in chiefdom and state-level societies. The model is then employed to interpret the archaeological data pertaining to the Main Group of Copan, the presumed royal household at this Late Classic Maya center in western Honduras.[45]

Sheets, Payson D. (Colorado, Boulder)

ECONOMIES OF DEPENDENCY OR SELF-SUFFICIENCY IN EL SALVADOR AND COSTA RICA.

The largely egalitarian societies of Costa Rica, with their low population densities, contrast with the more complex Salvadoran societies with greater population densities and instabilities. Costa Rican villages achieved relative independence in productive and extractive economies. In contrast, Salvadoran villages fell under dependency relationships, having to rely on exchange for distant, needed commodities. Intra-settlement specialization resulted in lesser familial self-sufficiency. Differing exchange systems have significant implications for societal longevity.[40]

Sheppard, Peter (Waterloo), L.A. Pavlish (Toronto) and R.G. V. Hancock (Toronto)

SOURCING OF EARLY NEO-LITHIC AND MESOLITHIC CHIRTS AND RHYLITES FROM SOUTHERN PORTUGAL.

As part of a joint Portuguese/Canadian research project on the Mesolithic/Neolithic transition in Southern Portugal, a programme of lithic raw material sourcing using INAA and petrographic analysis has been established. The raw materials from three Early Neolithic/Mesolithic sites and two geological sources have been analyzed. Results of this preliminary work have shown that rhylites as well as cherts were extensively used by coastal hunter-gatherers in the production of microlithic tool kits. The study of geological materials has demonstrated that the rhylite is found 30 km inland. This information may provide support for seasonal movement of coastal populations.[16]

Shimada, Izumi and John Merkell (Harvard)

SICAN METALLURGY: "HOLISTIC" UNDERSTANDING AND THE ROLE OF ARCHAEOLOGY.

Nine years' research has yielded perhaps the most comprehensive, integrated picture of any ancient technological system in the New World - that of the Sicán copper alloy metallurgy (A.D. 850-1532) of the northern Peruvian coast. Our "holistic" understanding encompasses technological, behavioral, organizational, and ideological aspects of mining, smelting, metalworking, and the use and distribution of final products. Data derive from an interdisciplinary approach incorporating field experiments utilizing local materials, reconstructed and original furnaces, and complementary archaeological techniques. From the vantage of such a unique perspective, extant views on "culture and technology" and the role of archaeometry in archaeology are assessed.[52]

Shimada, I. (see Cleland, K.M.),[39]

Shott, Michael (U.S. Army Corps of Engineers, Detroit)

TECHNOLOGICAL ORGANIZATION IN GREAT LAKES PALEO-INDIAN ASSEMBLAGES.

Lithic assemblages were crafted for task performance, but their form and content reflect other cultural behavior as well. Stone tools, in short, tell us about more than how stone tools were made...
Siemens, Alfred H. (UBC, Vancouver)
MANIPULATION OF SOIL AND WATER IN THE XERIC ENVIRONMENTS OF LOWLAND EL ORO, ECUADOR.

Past resource use is under investigation south of the Guayas estuary (El Tahuin Project). Agriculture in periodically inundated depressions has a long history. Air photo analysis, ground reconnaissance and test excavations indicate related or antecedent expedients. Hundreds of previously undocumented and apparently artificial shallow circular depressions dot the Tertiary sediments between stream valleys. Removal of sandy topsoil exposes clay, the resulting pans retain open water long after the rains, favor useful plants and attract deer. They promise a new perspective on ancient subsistence in coastal Ecuador.[25]

Siegel, P.E. (see Bernstein, D.J.)[37]
Siegel, P.E. (see Roe, P.G.)[27]

Silverman, Helaine (Illinois, Urbana)
IS NASCA 8 NASCA?

Although the Nasca ceramic style of the south coast of Peru is divided into nine phases, the penultimate phase, Nasca 8, exhibits so much continuity with the previous phases and so many foreign attributes as to make its current style designation a misnomer. The Nasca 8 loss of import and diagnostic Nasca vessel shapes, demise of mythical iconography, and notable technological advances are explained in terms of dramatic changes in the sociopolitical milieu of the Nasca region. These changes coincide with the rise of the Wari state in the adjacent Ayacucho highlands and emerge out of the increased militarization, hierarchization, and economic expansion of late Nasca society. The Nasca 8 relative and absolute chronology are discussed and the iconography of the phase is illustrated. The possible causes of the ritual entombment of a temple room at the early Nasca site of Cañhuchu by Nasca 8 people are assessed.[13]

Simsek, Jan E (Tennessee) and Jean-Philippe Rigaud (DAFA, Bordeaux)
SITE FORMATION AT THE ABI VAUFREY (DORDOGNE, FRANCE).

Recent analyses of spatial patterns, along with studies of artifacts, faunal materials, and sediments, show a complex set of processes leading to formation of couche VIII (Mesolithic) from the Abi Vaufray. It is evident that both humans and non-human predators contributed to the patterning observed at differing degrees; the precise contribution of each agent is the focus of spatial analysis. Based on analyses of spatial cluster contents, it is argued that while non-human predators scavenged the deposit, humans were the primary agents producing observed spatial configurations.[44]

Simsek, J.E. (see Rigaud, J-P.)[20]

Simmons, Alan H. (Desert Research Institute)
THE 'AIN GHAZAL COMMUNITY STUDY: PRELIMINARY RESULTS OF AN ARCHAEOLOGICAL AND GEOMICRO SURVEY NEAR AMMAN, JORDAN.

The first campaign of excavations at 'Ain Ghazal, near Amman, Jordan, has revealed it to be one of the largest and most significant prehistoric villages in the Near East. Investigations to date have focused primarily on the site itself, and have yielded tremendous amounts of new data on Neolithic life. However, we know little of the surrounding area in terms of settlement and land-use patterns. A reconnaissance survey was recently undertaken in an attempt to define the broad outlines of an 'Ain Ghazal community. This paper discusses the survey findings and their implications for settlement at 'Ain Ghazal.[3]

Simmons, A. (see Mandel, R.K.)[4]

Singer, C. (see Erickson, J.E.)[40]

Skilbo, James M. and Michael B. Schiffer (Arizona, Tucson)
ORGANIC-TEMPERED POTTERY: AN EXPERIMENTAL STUDY.

The hypothesis, suggested by Kenneth Reid, regarding the susceptibility of organic-tempered pottery to breakdown by freeze-thaw processes is tested. In addition, the results of testing technological and technofunctional hypotheses (offered by Reid and others), also concerning the effects of organic temper, are presented. This study made use of materials science techniques to compare the performance characteristics of untempered, mineral, and organic-tempered briquettes and vessels. Among the properties tested are impact resistance, abrasion resistance, porosity, thermal shock resistance, and heating effectiveness. Organic-tempered ceramics are superior in porosity and this may explain the preference for these vessels in prehistoric times. Moreover, it is found that all low-fired ceramics, but especially organic-tempered ceramics are susceptible to complete breakdown in a moist environment under freezing conditions. Frost-wedging is not only thought to be responsible for an underestimation of Late Archaic organic-tempered ceramics in the northern latitudes, but also the destruction of any low-fired pottery subject to a moist depositional environment and freezing temperatures.[50]

Skinner, S.M. (see Wojtula, J.)[18]

Sleeter, Richard S. (New Mexico State)
EXPLORATION OF CULTURAL INTERACTION: A STUDY OF SETTLEMENT PATTERNS IN THE GALLINA REGION OF NORTHWESTERN NEW MEXICO.

Traditionally, researchers have written about cultural interaction while utilizing very little cumulative data from area syntheses. The use of locational analytical techniques on large data sets is more likely to result in accurate interpretations of cultural interaction. In this paper, these analytical techniques will be utilized to explore settlement patterns and cultural interaction.[34]

Slota, P.J., Jr. (see Taylor, R.E.)[23]

Smeaton, J.E. (see Wilson Yang, K.M.)[43]

Smiley, E.E. (Southern Illinois, Carbondale)
OLD WOOD AND EARLY AGRICULTURE IN NORTHEASTERN ARIZONA: APPROACHES TO THE INTERPRETATION OF RADIOCARBON DATES.

In radiocarbon dating, the potential error between the age of wood and an archaeologically linked cultural event is greater than any source of error but contamination. This study examines the effects of age disparity on the interpretation of a large suite of radiocarbon dates from Black Mesa Basketmaker II sites. An investigation of the distribution of wood age on Black Mesa historic-period Navajo sites provides quantitative control of age-overestimation factors. Finally, the paper discusses the impacts of such factors on prehistoric chronology, particularly that of the early agricultural occupation of Black Mesa.[23]

Smith, Beverly A. (Michigan State)
DOG BURIALS OF LATE PREHISTORIC ALGONQUIN SITES IN NORTHEASTERN ONTARIO.

Dog burials have been excavated from three major archaeological sites in northeastern Ontario. These sites, Whitefish Island, Providence Bay, and Frank Bay, fall within the historic homelands of the Saulteaux (Ojibwa), Ottawa (Ontario), and Nipissing respectively. All dog skeletons produced cut marks on the cervical vertebrae but the burials do differ in other respects. Osteometric analysis of the dog individuals, circumstances of interment, and ethnohistoric and ethnographic data are presented to demonstrate the similarities and differences among these groups with respect to their ritual treatment of dogs.[25]

Smith, D.G. (see Finlayson, W.D.)[36]

Smith, Edward E. (Indiana, Bloomington)
SWAN'S LANDING SITE: A STRATIFIED SINGLE COMPONENT KIRK MANUFACTURING SITE IN HARRISON COUNTY, INDIANA.

The Swan's Landing site (12HR304) is a deeply buried, stratified single component lithic reduction and tool manufacturing site located in the out bank of the Ohio River. The site is buried beneath 4-6m of sterile Holocene overbank alluvium. Projectile points recovered from stratified context are exclusively variants of Kirk Corner Notched, Small Variety. The site is closely associated with exposures of high quality cryptocrystalline Wyandotte chert. The site appears to be a major locale for tool discard and replacement. Virtually the entire tool assemblage of the early Kirk period is represented in the deposits.[56]

Smith, H.A. (see Guderjan, T.H.)[47]

Smith, Marvin T. (Garrow et Associates)
EARLY HISTORIC PERIOD TRADE IN THE INTERIOR SOUTHEAST.

Mechanisms of the introduction of European artifacts into the Ridge and Valley Province of Georgia, Alabama, and Tennessee before AD 1670 are explored. These mechanisms include direct trade by
European explorers such as Hernando de Soto and Juan Pardo, indirect trade from aboriginal group to aboriginal group, and long distance aboriginal trade. Direct trade by Europeans is important only during the sixteenth century. The abundance of European goods found on early seventeenth century sites indicates that aboriginal exchange systems were still in operation although political systems and population were collapsing following contact.[40]

Smith, Michael E. (Loyola)

COMMUNITY ORGANIZATION AT TWO LATE POSTCLASSIC SITES IN MORELOS, MEXICO.

This paper presents new data on community organization at two Aztec period settlements in western Morelos, Mexico. Extensive excavations were conducted in 1986 by the Postclassic Morelos Archaeological Project at the village site of Copilco and the town site of Cuautlaco. Fieldwork involved a combination of complete excavations and limited testing of a random sample of houses, and horizontal cleaning of other houses and non-residential structures. Preliminary results discussed here indicate the importance of the function of structures, spatial patterns within and around settlements, household economies (production and exchange activities, wealth levels), and agricultural technology. Comparisons are made between the two sites.[80]

Smith, M.E. (see Bishop, C.A.)[58]

Smyth, Michael P. (New Mexico)

SITE STRUCTURE AND SPATIAL ORGANIZATION: THE ARCHAEOLOGY OF STORAGE BEHAVIOR.

Archaeologists have generally recognized the important role of storage in the development of complex societies. Despite this acknowledgment, archaeological identification of storage, especially at the domestic level, has remained problematic. Current ethnoarchaeological research on spatial usage and domestic storage behavior in Yucatan has revealed patterned material relationships between household structure and spatial and scheduling requirements of storage activities. These data are used not only to suggest new directions for recognizing storage, but also to provide a means to monitor status differences and agricultural intensity.[27]

Snow, Dean R. (SUNY, Albany)

VARIABLES AND CONSTANTS IN IROQUOIAN SETTLEMENT PATTERNS.

Mohawk Iroquois longhouse villages provide an archaeological basis for measuring populations and their change over time. Constants that have been defined through the use of documentary and archaeological evidence include longhouse compartment dimensions, average family size, village area to population ratios, warrior to population ratio, catchment size, and bateares per person under cultivation. Variables include length of village occupation, village population size, longhouse length, migration, and occupation dates. The definition of constants and our increasing control of variables has allowed the development of an algorithm for plotting gross Mohawk demographic change over time.[36]

Sofer, Olga (Illinois, Urbana)

HUNTER-GATHERERS ON THE RUSSIAN PLAIN AT 18,000 B.P.

Over a hundred years of archaeological research and a large number of recently obtained radiocarbon dates indicate that the Russian Plain was 1) extensively inhabited during the Valdai glacial maximum, and that 2) groups clustered in distinct regions. Sparse occupation is documented for both the Molooda (Dnepr) and the Kostenki-Borschevo (Don) regions. More numerous sites are known from the Dnepr/Desna region on the central part of the plain. The extent of occupation in the southern steppe region and in Crimea remains uncertain. This paper documents the loci of human occupation and examines reasons for the disparate records from the different regions.[20]

Spielmann, Katherine (Iowa, Iowa City), Margaret J. Schoeninger (Harvard) and Katherine Moore (Harvard and Michigan, Ann Arbor)

HUMAN DIET AT PECOS PUEBLO.

Between AD 1450 and 1600, the agriculturalists at Pecos exchanged corn for bison meat with Plains dwelling hunter-gatherers. Analysis of bone strontium levels and carbon and nitrogen stable isotope ratios of bone collagen indicate that the meat:vegetable and corn:non-corn ratios of diet were relatively stable throughout this period. The delta-15N values of human bone collagen and of diet components (corn, beans, bison) suggest that in terms of calories, the diet was 75% corn, 15% beans, and 10% meat. A check using the delta-13C values supports this estimate. This diet should have been adequate in protein and other required nutrients.[7]

Steponaitis, Laurie Cameron

Spies, Arthur E. (Maine Historic Preservation Commission), Deborah Brush (Main Historic Preservation Commission) and John R. Crimes (Peabody Museum, Salem)

PATTERNING IN PALEOINDIAN BEHAVIOR: THE MICHAUD SITE.

The Michaud site is a completely excavated, short-term fluted-point Paleoindian site preserving 8 minimally active loci. Dominant raw materials are red Munsungan chert from northern Maine, a grayish rhylite apparently from the Neponset river basin south of Boston, and a series of cherts from sources south of Burlington, Vermont. Two types of chert dominate in one group of 3 loci, and the Neponset rhylite dominates the other 5. Each group of loci exhibits spatial patterning differences which indicate differences in social organization of the inhabitants. Reconstructions of tool curation and manufacturing strategy have been elicited by flake examination and refitting. These data show significant Paleoindian movement patterns between the widely separated lithic source areas, and a number of socially differing adaptations to short or long term temporally varying resources.[46]

Sprung, Geoffrey E. (Cornell and AMNH)

QOLLA POTTERS MAKING INKA POTTERY: CERAMIC PRODUCTION AT MILLIRAYA.

This paper summarizes ethnohistorical and archaeological research conducted at Milliraya, located to the north of Lake Titicaca, within the Qolla region. Eighteenth-century land litigation records reveal that the Inka established an artisanal settlement at Milliraya, recruiting 1,000 weavers and 100 potters from the surrounding area. The analysis presented focuses on interpreting surface collected material from Milliraya within the context of information, derived from archival sources, on the organization and administration of production. Particular stress is placed on 1) the archaeological visibility of ceramic production, and 2) the combination of Inka and local-altiplano stylistic elements and vessel forms.[41]

Stahl, Peter W. (Londen) and James A. Zeidler (ESPOL, Guayaquil/Pittsburgh)

SPATIAL ANALYSIS AND TAPHONOMY OF VERTEBRATE FAUNA FROM EARLY FORMATIVE DOMESTIC STRUCTURES AT REAL ALTO, ECUADOR.

The spatial distribution of three variables recorded for vertebrate faunal remains from a domestic structure at Real Alto, Ecuador, is examined to assess a proposed contextual reconstruction of Early Formative households. The differential patterning of size, density, and weight classes, in the face of a number of identifiable and/or potential taphonomic agents, suggests a biased distribution of bone survivability which correlates well with expectations based upon a reconstruction derived from non-faunal remains.[34]

Staller, John E. (Southern Methodist)

A CONTEXTUAL ANALYSIS OF A VALDIVIA HOUSE STRUCTURE AT OGSHE-CH-150.

The Early Formative (3400-1500 B.C.) Valdivia site of OGSHE-CH-150 is located in the Rio Verde Drainage about 12 km north of Real Alto. Excavations of a portion of a house structure and associated burial indicate that shed materials found below the surface do not represent the accumulation of habitation debris, but rather are the result of a single episodic event involving house construction and household burial. The consequences of such activities for site formation processes and ceramic senator in Valdivia sites are discussed.[28]

Stanish, Charles (Illinois, Chicago)

SIZE AND COMPLEXITY IN CORE AREA TIWANAKU SETTLEMENTS.

The core area of Tiwanaku sites remains obscure due largely to a lack of regional settlement data and a prior research focus on civic-ceremonial architecture. This paper utilizes data from two major Tiwanaku IV and V period sites, Lukurmata and Pajchiri. Both sites include residential and non-residential areas greater than 1.5 km² with dense concentrations of elite and non-elite domestic occupations near the ceremonial center, as well as along peripheral, raised field agricultural zones. Utilizing intensive surface survey and mapping data, this paper assesses existing models of Tiwanaku settlement size and complexity, and proposes refined models for the southern Titicaca basin.[52]

Stein, J.K. (see Dalan, R.A.)[43]

Steponaitis, Laurie Cameron (SUNY, Binghampton)

DECLINING RESIDENTIAL MOBILITY IN THE LOWER PATUXENT DRAINAGE, MARYLAND.

Regional survey data are used to investigate the transition from mobile to sedentary lifeways in coastal Maryland between 4000 B.C. and A.D. 1600. The evidence suggests that Late Archaic and Early Woodland populations were small and fairly mobile. It was not until the Middle Woodland that several changes took place that may indicate greater sedentism and a shift to "logistical" resource procurement. These are: 1) pronounced functional differentiation among tool assemblages; 2) an increase in the relative frequency of "special-purpose" sites; and 3) an increase in artifact density
Sutton, Mark Q.

Stow, S. H. (see Farquhar, R. M.) [10]

Straus, Lawrence G. (New Mexico) THE LAST GLACIAL MAXIMUM IN IBERIA: AN INTERREGIONAL COMPARISON.
The Last Glacial Maximum was a time of significant cultural developments in the coastal regions of the Iberian Peninsula. Cantabria, Levant and Portugal saw apparent increases in population (perhaps in part due to human abandonment of northern Europe at the height of the Upper Paleoglacial), although the high, harsh mountains of central Iberia were apparently spanned intermittently. The period of 21,700 BP corresponds to the Solutrean of Spain, Portugal and Southern France, which is characterized by increasingly sophisticated, complex technologies, settlement patterns and subsistence strategies. It heralds the appearance of truly "modern" hunter-gatherer adaptations in the late Upper Palaeolithic, 15,000 years after the appearance of anatomically modern humans in Western Europe.[20]

Straus, L. G. (see Heller, C.) [4]

Strumberg, Richard L. (Toronto) CACHE POINT (NH Ts-2) AND MACKENZIE INUIT PREHISTORY.
The lower Ewart Channel of the Mackenzie River in western Arctic Canada was the centre of a highly specialized Eskimo adaptation. Excavations at Cache Point have extended the cultural sequence back to ca. AD 1400 with three main results. First, the local cultural pattern was always focused on beluga hunting and fishing. Second, it is now clear that the Mackenzie Inuit were part of the Western Thule tradition. Third, there is evidence for phases within the Mackenzie sequence which reflect both local conditions and sustained contact with neighbouring Thule groups.[12]

Stuiver, Mitze (Washington, Seattle) A DISCUSSION OF RADIOCARBON AGE CALIBRATION.
A conventional radiocarbon age of a sample is derived from the ratio of the currently remaining radiocarbon activity to its radiocarbon activity when part of a living organism. The latter activity is estimated by assuming identical radiocarbon specific activity, after correction for isotopic fractionation, for all living organisms over the entire interval for which radiocarbon dating is applicable. Thus, the correctness of a radiocarbon age not only depends on the precision and accuracy of the laboratory measurement but also on the extent to which the assumption of constancy of past radiocarbon levels is met. The importance of these factors on radiocarbon age calibration will be discussed.[23]

Stuiver, M. [23]

Sussenbach, Tom and R. Barry Lewis (Illinois, Urbana) "EMERGENT MISSISSIPPIAN" AND ITS PARADIGM: THE PERSPECTIVE FROM THE CAIRO LOWLAND.
The concept of "Emergent Mississippian" requires a stage-like perspective of prehistory. We examine this concept and the extent to which it promotes the scientific understanding of the late prehistory of Eastern North America. Our reservations are illustrated with data from the Cairo Lowland and comparisons with the American Bottom and northern Arkansas sequences. We conclude that the scientific understanding of Mississippian societies will benefit greatly from avoiding concepts like "Emergent Mississippian" and its underlying paradigm.[10]

Sutton, Douglas G. (Auckland) THE ORIGINS AND OPERATION OF THE NORTHERN MAORI CHIEFDOMSHIP.
Current reconstructions of northern Maori sociopolitical organization are based on nineteenth century descriptions and cross-cultural comparisons with the classic Polynesian chiefdoms. The historic descriptions post-date fundamental changes in Maori society. The comparative approach has masked the distinctiveness of pre-European Maori culture. Research in Central Northland has shown that economy there was based on geographically separated resources: inland gardens and coastal fishing. It involved the seasonal coastal-inland movement of family groups (whanau). This formed subtribal units (hapu). The size and composition of units varied over time. Leadership was based on consensus, not the authority of political office. This consensus was reached within a complex hierarchy of values in which age, gender, descent and action were pre-and/or partial determinants of rank. The tribal organization of Northern Maori society, and hence large scale chieftdomship there, are recent phenomena.[56]

Sutton, Mark Q. (California, Riverside) A REVIEW OF OPTIMAL FORAGING THEORY IN THE GREAT BASIN.
The current trend in the use of optimal foraging theory in the Great Basin is based on the use of the diet-breeds model using a single currency, energy. It is argued here that a patch-choice model,
coupled with linear programming and multiple currencies, should be applied. Included in these other currencies are cultural factors that form an important aspect of dietary choice and economic system formation.[12]

Svoboda, Jiří (Brno)

THE SECOND WURMIAN PLEISTOCENE IN CZECHOSLOVAKIA.

1. Early Pleistocene adaptations (28-330,000 B.P.). The Pavlovian (Gravettian) of Moravia provides behavioral innovations [settlement concentration in large stations, specialization in food economy, imports of lithic materials]. 2. Evolved Pleistocene adaptations (23-200,000 B.P.). The settlement centers shift from Moravia to Slovakia. Kostenki tool-types become more frequent. 3. Pleistocene maximum and recession (20-150,000 B.P.). No evidence of settlement is proved in Czechoslovakia, but scarce occupation in S Poland could mediate contacts with E Europe. The Gravettian continues to evolve in Hungary and the Balkans. 4. Late Glacial colonization (after 15000 B.P.). Moravia has been resettled by the Late Gravettian and Bohemia and Moravia by the Magdalenian. Cultural change from the East European-oriented Pavlovian to the Magdalenian with Franco-Cantabrian affiliation was the main consequence.[20]

Swager, J.[35]

Tainter, Joseph A. (USDA Forest Service)

A SKEPTICAL VIEW OF HISTORIC PRESERVATION PLANNING.

That cultural resource management faces challenges as a fact widely known and intensely debated. Very often it is suggested that the solution to most or all CRM problems is preservation planning. Planning is thought to be a panacea for the vagaries of such diverse activities as deciding survey levels, evaluating significance, and making preservation decisions. This paper evaluates the planning approach from the perspectives of the philosophy and the sociology of science, and raises questions about the usefulness of long-range planning.[54]

Tankersley, Kenneth B. (Indiana)

IN SEARCH OF EARLY PALEOINDIAN PROCUREMENT STRATEGIES IN THE MIDWESTERN UNITED STATES.

The lithicographic and geographic distribution of high quality chert resources in Indiana, Kentucky, and Ohio, have recently been identified. The petrologic composition of these chert source areas has also been identified and compared with those cherts which have been manufactured into fluted projectile points. These data are used to identify chert exploitation strategies among early Paleoindians of the Midwestern United States. A methodology for discriminating “look-alike” cherts is presented.[31]

Tankersley, K.B. (see Vitelli, K.D.[50])

Tapiya, I.E. (see Moseley, M.F.[6])

Taschek, Jennifer T. (Oregon, Eugene) and Joseph W. Ball (San Diego State)

REGAL-TRITAL RESIDENCES AND ADMINISTRATIVE HUBS: DIFFERENTIAL STRUCTURE AND FUNCTION AMONG THE MAJOR CENTERS OF THE UPPER BELIZE VALLEY.

Recent characterizations of large-scale Classic Lowland Maya centers reflect increasing interpretive sophistication. Superseding the once “ceremonial center” arc now the populated or vacant “organizational center,” “civic center,” or “major center.” As yet, however, there exist few attempts to differentiate these other than by size and architectonic elaborateness. Using urban anthropological concepts, two functionally and morphologically distinct major center types are identified within the same Belize Valley sociopolitical realm. These are described and their implications for overall societal organization are considered. The probable existence of yet a third functionally distinct type at nearby Naranjo is also discussed.[57]

Taschek, J.T. (see Kelsay, R.G.[4])

Taylor, R.E. (California, Riverside), P.J. Slota, Jr. (California, Riverside), W. Henning (Technical, Munich), W. Kutschera (Argonne National Lab, Illinois) and M. Paul (Hebrew, Jerusalem)

RADIOCALCIUM (Ca) DATING: CURRENT STATUS AND POTENTIAL APPLICATIONS IN ARCHAEOLOGY AND PALEONTHROPOLOGY.

The usefulness and practical feasibility of using a long-lived (1/2 = ca. 8 x 10^10 yrs) isotope of calcium (Ca) as a means of dating bone, CaCO3, in various sedimentary deposits, and other calcium-bearing materials in the age range of up to ca. one million years is currently being evaluated. The extremely low natural Ca concentrations in terrestrial samples—recently measured in a bone sample at Ca/ Ca = 2.0 ± 0.4 x 10^-14 by a group headed by Henning, Kutschera and Paul, using the Argonne Tandem Linac Accelerator System (ATLAS)—requires the use of Accelerator Mass Spectrometry (AMS). The current status of research on the issues and problems of sample pretreatment and preparation, evaluation of potential severity of environmental and diagenetic effects, and problems in AMS analysis will be summarized.[23]

Teltscher, Patrice A. (Washington, Seattle)

CHRONOLOGICAL IMPLICATIONS OF CERAMIC PASTE VARIABILITY IN MIDDLE MISSISSIPPI CERAMICS FROM SOUTHEAST MISSOURI.

Ceramics from the County Line Settlement in southeast Missouri reveal substantial use of clay temper, (ordinarily associated with earlier Baytown ceramics), and a wider range of paste preparation than previously recognized for Middle Mississippi ceramics. Since the distribution of Baytown ceramics does not extend to this particular area, the manner in which broad shifts in ceramic temper have become embedded into many eastern U.S. chronological frameworks must be questioned. Perhaps useful as a broad scale time marker, ceramic temper is a functional dimension and unlike style, cannot be expected to vary unidirectionally through time.[50]

Temme, Mathilde (Kentucky, Lexington)

CHARACTERISTICS AND INTER-REGIONAL LINKAGE OF PREHISTORIC SETTLEMENT REMAINS OF PUTUSHIJO (SOUTHERN ECUADOR).

The site, situated in the upper dry valley of Rio Jubones, was occupied for more than three thousand years with a complex settlement pattern with extensive terrace-building, water systems, remains of houses and edifices, a large metallurgical workshop probably for gold smithing, and signs of mining activities. Remains from the late Formative and Regional Development periods are related to cultures of Pacific coast areas as well as to the wider surrounding highland region, and show a peculiar affinity to Narro cultures.[28]

Terrell, John (Field Museum/Northernmost)

COMPLEMENTARY APPROACHES TO UNDERSTANDING HUMAN DIVERSITY IN THE FIJI ISLANDS.

Variability in biology, language, and culture within the Fijian archipelago has usually been attributed to a single cause or process: the historical inheritance of particular traits (with differing amounts of hybridization) from two separate historical sources, one “Melanesian,” the other “Polynesian.” Research is in progress to assess the relative and undoubtedly variable weight of a number of potential contributors to human diversity in Fiji, including geography, settlement systems, demography, patterns of communication and marriage migration, as well as historical contact and immigration with external populations.[55]

Thomas, D.I.[38]

Thomas, Frank R. (Hawaii, Manoa)

EXPLORATIONS INTO THE LAPITA DECLINE.

The elaboration of social complexity in West Polynesia may be linked to trading relationships of prestige items through monopoly. Such relationships were facilitated by geographic distribution of various island communities. The transformation of ceramics from common trade objects to restricted status goods took place within the framework of these trade relationships. Change and continuity in ceramic design motifs are examined within the context of similar processes observed in related design motifs in other media.[55]

Thompson, D.J.[41]

Thompson, Marc (Calgary)

MESOAMERICAN ICONS AND MIMBRES MORTUARY VESSELS.

Iconographic interpretation based on comparative analysis of repeated motifs and attribute clusters indicates painted Mimbres bowls reflect Panmesoamerican ideologies, mythic traditions and underworld conceptions. Anthropomorphic and zoomorphic Mimbres figures are demonstrably cognate with celestial bodies, culture heroes and ethnohistoric beings known from southern, central and northern Mesoamerica. Analysis of a cutout in narrative scenes portrayed on both Classic Maya and Classic Mimbres incised ceramics emphasizes 1) structural relationships in mythic and metaphorical content and 2) the importance, as well as the temporal, geographical and cultural extent, of Popol Vuh imagery. The foregoing data are correlated with ethnographically recorded Pueblo mythology.[30]

Todd, L.D. (see Rapson, D.J.[25])

Tolstoy, Paul (Montreal)

INVESTIGATIONS IN THE BASIN OF THE RIVERS SANTIAGO AND CAYAPAS, ESMERALDAS, ECUADOR.

A brief reconnaissance in 1983/84 suggested a fairly dense prehistoric occupation of the region, ranging in time from the Late Formative (Chorrera equivalent) to recent (historic Cayapa). New field
Tomenchuk, John

work in 1985 aimed at adding substance and searching for earlier occupations now provides a refined chronology and a better understanding of subsistence and settlement.(28)

Tomenchuk, John (Harvard)

DETERMINING PREHISTORIC LOADING RATES AND THEIR SIGNIFICANCE FOR FUNCTIONAL AND TECHNOLOGICAL INTERPRETATIONS.

Certain fracture surface features on chipped stone tools and debitage can be measured in order to ascertain the instantaneous crack velocity. Patterns of variations in track speed produced experimentally by different loading rates are usually sufficiently distinctive that it is possible to discriminate among at least three taking technique and three in-service loading rate regimes.(56)

Toom, Dennis L. (Colorado, Boulder)

THE ROLE OF PLAINS VILLAGERS IN THE POST-CONTACT MIDDLE MISSOURI TRADE SYSTEM OF THE NORTHERN PLAINS.

The Middle Missouri fur trade was structured similarly to the central Canadian fur trade, but its operation was somewhat different. The use of permanent villages as centers of trade and the interaction of the horse and gun frontiers in the Middle Missouri subarea allowed the Arikara, Hidatsa, and Mandan to establish themselves as preeminent middlemen traders during the early post-contact period. From this position the villagers effectively controlled the flow of European commodities between eastern and western nomadic groups. The pivotal role of the villagers in the trade system was lost with the establishment of local trading posts.(40)

Topic, Theresa Lange (Trent)

THE LATE HORIZON IN HUAMACHUCO.

This paper will examine the Incaic occupation of the Huamachucos area in the north sierra of Peru. The paper will discuss Inca installations (administrative center and storerooms), imposed settlements related to the Inca presence (mitimaes settlements), and the influence of Inca ceramics on the local tradition. In this area architecture, especially storage facilities, appears to be a better indicator of the Inca presence than ceramics. Both Inca and mitimaes settlement are closely related to the major roads, with less impact in more isolated areas.(41)

Torrence, Robin (Sheffield)

STONE TECHNOLOGY AS RISK MANAGEMENT.

Anthropologists exploring human strategies for coping with risk and uncertainty have overlooked the important role of tool-use for solving problems which occur on very short time scales. Variability in the nature of hunter-gatherer tool-kits as well as in patterns for the procurement of raw materials, production, repair and discard of artifacts are explained as solutions to differences in the character and severity of risk experienced. A comparison between parallel changes in the stone tool assemblages of Europe and Australia illustrates how technological and social strategies co-operate to handle different forms of risk.(9)

Toth, Nicholas (Indiana)

ORGANIZATIONAL SKILLS AND EARLY STONE AGE SITES.

The organizational patterns of modern humans and nonhuman primates are compared and contrasted with the inferred patterns of early stone age hominids. Oldowan and early Acheulean assemblages from Koobi Fora, Kenya and Penin, Lake Natron, Tanzania are used as case studies. Criteria are proposed for assessing organizational patterns in the prehistoric record, and potential methodological problems are noted. The concepts of “expedition” and “curation” are considered, with ethnographic and primatological examples.(9)

Triggs, John B. (Tucson)

A QUANTITATIVE APPROACH TO THE RECONSTRUCTION OF SETTLEMENT PATTERNS IN THE TEHUACAN VALLEY, MEXICO.

Settlement patterns within the Tehuacan Valley, Mexico, as reconstructed by MacNeish (1976), are based primarily upon site distribution, area and function. As an alternative to the qualitative identification of site function the Shannon Index is employed as a statistical measure of assemblage diversity. Presented are reconstructed settlement patterns within the Tehuacan Valley from the late Pleistocene to the Middle Formative periods. Population dynamics, as a mobile subsistence system moves towards sedentism, are discussed in light of the conceptual framework provided by Bintliff’s (1982) model of hunter-gatherer subsistence settlement systems.(30)

Trombald, Charles D. (Washington, St. Louis)

RECENT EXCAVATIONS IN THE LA QUEMADA REGION, ZACATECAS, MEXICO.

A summary is presented of excavations of a large village site in the immediate La Quemada hinterland involving a joint project by Washington University, St. Louis and the Mexican government.

Velichko, Andrei A.

This 7-month phase was the second step in a long range plan to identify cultural occupations and affinities with outside regions, and to understand the nature of interaction between the Quemada and its more than 250 satellite sites in the Malpas Valley. Results of this work are discussed in terms of obsidian, ceramic, faunal/iblical, site layout, and chronology.(30)

Trubowitz, Neal E. (Indiana, Indianapolis)

NEW GOODS ON OLD ROUTES: EXCHANGE IN THE CONTACT ERA IN EASTERN NORTH AMERICA.

As Europeans contaded native peoples, new products were incorporated into prehistoric exchange systems. The native response to European trade reflected fluctuating factors such as the nature and accessibility of European goods and ideas, and the size, social structure, and health of native populations. Comparison of contact era archaeological sites in eastern North America suggest that subregional explanations are needed to accommodate varied diachronic exchange patterns. An example of a region specific exchange model is presented for the Caddo Indians of the Red River in Arkansas between A.D. 1500-1800.(40)

Turner, B.L. II(24)

Turner, C.G. II (see Holland, K.M.) (25)

Upham, Steadman (New Mexico State)

INTERACTION AND ISOLATION: THE EMPTY SPACES IN PAN-REGIONAL POLITICAL AND ECONOMIC SYSTEMS.

Many models of large scale political and economic systems, and especially those that emphasize locational analyses, are based on conceptions of regional connectivity that presume interactive homogeneity within and between regions. The identification of population centers that were participating in particular regional interactive networks is used as a kind of proxy currency for describing the interactive patterns of entire regions. In this paper, the “nodal” approach to interaction is examined. A single region on the southeastern periphery of the American Southwest is analyzed in relation to its links to the local Casas Grandes regional system, to larger regional Southwest alliance networks, and to the Mesaamerican world system.(8)

Upham, S. (see Reed, P.J.) (24)

van Andel, T.H. (20)

Van Tilburg, Jo Anne (UCLA)

EASTERN ISLAND MONOLITHIC STATUES AND THE SYMBOLIC DEPICTION OF RANK DIFFERENTIAL.

Symbolic paradigms, when integrated with ecological, demographic, technological and socio-political approaches, are relevant to the interpretation of the material record, producing synthetic explanations of implied human behavior. Analysis of architectural and sculptural components of one major ceremonial site on Easter Island incorporates concepts of monumentality, successive use, directional symbolism and temporal change in the characteristics of monolithic statue type. The result of the integration of this synthetic paradigm with existing ecological, demographic and structural data is a re-evaluation of the nature of social hierarchy and a re-interpretation of the statue as symbolic of more than one aspect of that hierarchy.(55)

Velik, S.C. (Oklahoma)

LATE PREHISTORIC EXCHANGE ON THE SOUTHERN PLAINS.

The Late Prehistoric period on the southern Plains was associated with an exchange system which moved numerous products over a wide area. The interregional trade has attracted much discussion, both descriptive and theoretical. This paper will address the seldom considered aspect of interregional trade, especially exchange system structure, and will assess the relevance of several competing explanatory models. Also to be considered will be the nature and potential causes of post-European changes in exchange system structure.(40)

Velichko, Andrei A. (IGAN, Moscow, USSR)

PALEOENVIRONMENTS ON THE RUSSIAN PLAIN AT THE VALDAI GLACIAL MAXIMUM.

The reconstruction of Late Pleistocene environments has received a great deal of research attention in the USSR in the last twenty years. Extensive multi-team efforts have been directed to the recovery of pertinent geological, botanical, and faunal data. Information on land today permits us to offer a detailed paleoenvironmental reconstruction of the climate and biotic resources present on the Russian Plain from 20,000 to 18,000 B.P. This paper presents these data and discusses their significance for Upper Paleolithic human adaptations.(20)
Veltre, D.W. (see Dugan, J.S.)[7]

Veltre, D.W. (see McCarty, A.P.)[7]

Ventos, Frank J. (Clarion University of Pennsylvania) and Phillip T. Fitzgibbons (Pennsylvania and Pittsburgh)

HOLOCENE AGE PALEOSOL DEVELOPMENT AND ARCHAEOLOGICAL SITE LOCATION.

Recent archaeological and georearchological investigations conducted by Ventos and Fitzgibbons (1986) in northcentral Pennsylvania document a correlation between the presence of buried Late Holocene age paleosols and the occurrence of archaeological sites. The pedogenic development of palaeosols on Holocene-age low terraces along levees in floodplain contexts within the Upper Susquehanna River drainage basin documents past episodes of fluvial stability during cooler-moistur climatic conditions. Late Holocene hiatuses in overbank deposition allowed for relatively long-term aboriginal utilization of these terrace surfaces and subsequent A-horizon development. Paleosols when encountered may serve as stratigraphic time lines.[43]

Verhaeren, Bruce T. (Chicago)

THE DOMESTIC USE OF SPACE AT THIRD MILLENNIUM KURBAN-HYK.

Recent ethnoarchaeological investigations of Middle Eastern village households have highlighted the way in which the daily sweeping of rooms and courtyards and daily cleaning of hearths and ovens, combined with the removal of ash and debris some distance from domestic compounds, makes distinguishing use areas on the basis of artifact distribution extremely difficult. In this study, architectural features recovered from the final Bronze Age occupation of Kurban Höyük in southeastern Turkey are compared with similar features of contemporary village architecture to determine their function. These results are tested against functions suggested by the distribution of artifacts during this phase.[3]

Vermeersch, Pierre M. (Leuven, Belgium)

THE EARLY UPPER PALEOLITHIC IN EGYPT.

In Egypt the early Upper Paleolithic is restricted to the Nile valley. Information on this stage is still scanty but recent Belgian excavations have provided new data. The origin of the local Upper Paleolithic and its relations with the Sudanese and the Egyptian Middle Paleolithic is discussed. The early Upper Paleolithic in the northern Nile valley is mainly a Mediterranean phenomenon with levalloisian techniques, whereas in the southern Nile valley Sub-Saharan influences with Levalloisian technological can be observed.[4]

Versaggi, Nina M. (SUNY-Binghamton)

DIVERSITY IN HUNTER-GATHERER SETTLEMENTS IN THE SUSQUEHANNA VALLEY OF NEW YORK.

Systematic survey of the Susquehanna Valley during planning of Interstate 88 in New York provided in-situ and regional data to address hunter-gatherer subsistence and settlement patterns. This paper focuses on one method of differentiating sites prior to regional modeling. The dimension of site size was plotted with artifact diversity and artifact cluster diversity (using Kintigh's method) to characterize sites along a simple to complex continuum. The resulting classification is interpreted within the context of forager/collector strategies. This interpretation has implications for how hunter-gatherer sites are distributed along a major river valley and an upland tributary.[34]

Vitelli, Karen D., Kenneth B. Tankersley and Nelson R. Shaffer (Indiana)

MORE PROBLEMS WITH ARCHAEOLOGICAL SOURCING OF ARCHAEOLOGICAL CERAMICS.

Most archaeological ceramics have a high porosity, a property which encourages adsorption. It seemed possible, therefore, that, in the course of burial and chemical weathering, ceramic objects might absorb additional clay minerals and trace elements from the surrounding sediments and ground water to an extent that would distort archaeometric fingerprints of their original raw materials. Controlled experiments, using x-ray diffractometry and trace element spectrochemical analyses of known material before and after simulated burial and weathering, confirm that this is the case. Archaeologists can no longer assume that the archaeometric fingerprint of a ceramic object is the fingerprint of the original raw materials.[50]

Volkman, Phillip W. (Southern Methodist)

PRELIMINARY EVIDENCE FOR DIAECHRONIC CHANGES IN CURATION HABITS AT BOKER TACTTI, ISRAEL.

Recent spatial distribution data from the reconstructed core artifacts at the Middle to Upper Paleolithic transitional site of Boker Tachti (Central Negev, Israel) have provided preliminary evi-

dence for the differential curatorial treatment given some lithic artifact and tool classes. As a result, some tool class productions are spatially separated from others. These data also provide some insights into diachronic changes in curation habits, since the site's four primary context levels span a technologically transitional period. Early in the transition, the recons tructions show that cores were probably curated more often than tools. In the latter part of the transition, this pattern is reversed. These spatial patterns provide supportive intrasite data for a model of diachronic environmental adaptation and change proposed for the southern Levant.[9]

von Bitter, Peter (see Starck, P.I.)[46]

von Nagy, C. (see Ringle, WM)[57]

Walles, B.[48]

Wainwright, Ian N.M. (Canadian Conservation Institute)

OBSERVATIONS OF THE STRUCTURE AND DETEORIATION OF ROCK ART SITES IN CANADA.

Scanning electron microscopy, x-ray analysis and x-ray diffraction examination of rock painting samples from Canada reveal cross-sectional consistency showing a discontinuous, red ochre pigment layer held between layers of amorphous, or crypto-crystalline, deposits originating from ground water seepage. These silicate or calcite layers frequently occur in parallel, rhythm bands. They preserve rock paintings until increased thickness obscures the art and causes pigment loss. Frost weathering and lichen growth are discussed and dismissed as dating techniques. Specific examples of pictograph and petroglyph superimpositions and weathering are examined for dating and conservation research.[58]

Walden, David A. (Dept. of Communications, Ottawa)

THE CANADIAN CULTURAL PROPERTY EXPORT AND IMPORT ACT.

The Canadian Cultural Property Export and Import Act was passed in 1977 to better ensure the preservation in Canada of the best examples of the nation's cultural, historic and scientific heritage, and to prevent the uncontrolled export of cultural property in the national treasure category. The export of such property is controlled through regulations which define the age and value limits of categories of objects subject to control. Import controls are also included which prohibit the import into Canada of cultural property illegally exported from other countries which are signatories to the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. As well, the legislation contains special tax incentives to encourage individuals to sell or to donate their national treasures to Canadian institutions.[2]

Wallace, Birgitta (Environment Canada, Parks, Halifax)

L'ANSE AUX MEADOWS, THE FINAL OUTPOST.

Evidence indicates that the Norse occupation of L'Anse aux Meadows in northern Newfoundland took place around the last decade of the 11th century. The settlement, including up to eighty-five individuals, lasted only a few years. Its chief function was that of an overwintering camp, permitting the Norse to exploit resources in the southern Gulf of St. Lawrence. Factors limiting the Norse expansion into the New World will be considered as well as the socio-economic aspects leading to the establishment and abandonment of the site.[21]

Walthall, J.A. (see Farquhar, R.M.)[10]

Wandsdaler, LuAnn (New Mexico)

CHIPED STONE CODING CONSISTENCY: TESTING, RESULTS AND IMPLICATIONS.

Patterns in chipped stone assemblages inform us of the differential prehistoric use of places, but also contain information about the perceptions of the lithic analyst. The BLM Navajo-Hopi Land Exchange Archaeological Project, conducted in southcentral New Mexico, used in-field artifact analysis to rapidly recover descriptive information for some 40,000 artifacts. The field analysts, who received in-depth training to ensure coding consistency, also each coded a subset of assemblage of 200 chipped stone artifacts. Patterned in the resulting of this consistency test are discussed as are implications for the analysis of the archaeological data base.[56]

Wandsdaler, L. (see Ebert, L.I.)[43]

Warrick, Gary A. (McGill)

ESTIMATING ONTARIO IROQUOIAN VILLAGE DURATION.

Ontario Iroquoians inhabited longhouse villages that were periodically relocated for economic reasons. Except for some ambiguous historic references, however, the length of time that any particular village was occupied is unknown. Given the importance of site duration in any construction of culture
the Imperial frontier of the Rhine, the limes, and the Danube were a variety of Iron Age cultural groups with different economies, political structures, cultural traditions, and ethnic identities. The different kinds of social changes that took place within these groups provide instructive examples for developing models of the potential role of interregional interaction in effecting profound cultural change.\(^8\)

Wells, P.S.\(^{48}\)

Wendorf, Fred (SMU), Angela E. Close (SMU) and Roumudl Schild (Polish Academy of Sciences, Warsaw)

**NORTH AFRICA DURING THE LAST GLACIAL MAXIMUM.** The Sahara Desert was hyperarid and unpopulated at 18,000 B.P. The Nile Valley, the Maghreb, and the intervening Mediterranean coast were occupied by the makers of backed bladelet industries who belonged to the particular human type called “Mechinoids.” These populations were well established shortly before 20,000 B.P., but the archaeological record immediately before then is extremely poor, and, for much of the area, blank.\(^{20}\)

Wendorf, E (see Close, A.\(^{14}\))

Weiniger, Gerd-C. (German Archaeological Institut, Madrid)

**GERMANY AT 18,000 B.P.** At this time Germany is lying right between the two icefronts less than 1000 km apart. This bottleneck situation seems to produce such severe environmental conditions that a break in settlement history is probable. The Gravettian occupation ends about 21,000 B.P. although sedimentation continues in the sites, and the Magdalenian starts at 17,000 B.P. Into this gap of about 3,000 years falls only one site from Northern Germany dating to 18,100 B.P. The sparse finds and the singularity of the site suggest that man only sporadically entered the ‘dead zone’ between the glaciers during their maximum expansion.\(^{20}\)

Wanke, Robert J. (Washington, Seattle)

**THE EPIPALEOLITHIC-NEOLITHIC TRANSITION IN EGYPT’S FAYUM OASIS.** The Fayum contains Egypt’s earliest and most extensive evidence of the use of domesticated crops and animals. Yet the origins of Fayum cultures, their settlement and subsistence systems, and the nature of the Epipaleolithic to Neolithic transition there have never been clearly established. Recent research has provided evidence regarding these issues. Differences between Epipaleolithic and Neolithic economies are documented in terms of an analysis of the spatial distributions of faunal remains and artifacts. Fayum agricultural origins are placed in the context of general models of agricultural origins.\(^{14}\)

Whalen, Michael E. (Tulsa)

**SMALL COMMUNITY ORGANIZATION DURING THE LATE FORMATIVE IN OAXACA, MEXICO.** Late Formative (ca. 300-100 B.C.) cultural systems of highland Mesoamerica have been studied mostly at the regional level and at the tops of local settlement system hierarchies. We know much less about the structure of small communities. Data from a minor Oaxacan site are used to identify two aspects of this community’s internal and external organization: [1] a status-graded set of household units headed by an elite family, itself part of a valley-wide ruling stratum, and [2] workshop-level ceramic production for supra-community consumption.\(^{30}\)

Whalen, M.E.\(^5\)

Whallon, R.\(^{44}\)

Whallon, R. (see Kintigh, K.W.\(^{44}\))

Whallon, R. (see Kujandžič, Z.\(^{16}\))

White, J. Peter (Sydney, Australia)

**ISLANDS: MIRRORS OR MIRRAGES OF CONTINENTS?** The environments of Pacific islands are, to various extents, the creations of their inhabitants. On islands close to the Pleistocene continent of Sahul, it can be shown that the current wild mammalian fauna is the result of a partial, deliberate, long-term re-creation of an original continental situation. Data from New Ireland will substantiate this. Further east, differences increase with distance from the source continent, and deliberate (if not adventitious) changes are restricted to “domestic” fauna and flora which are more directly under human control.\(^{55}\)
White, Randall M.  

Williamson, Ray A. (OTA, U.S. Congress)  
ARCHAEOLOGY, TECHNOLOGY, AND PUBLIC POLICY.  
The efficient use of techniques, equipment, and methods is critical to cost-effective management of our cultural resources. If advanced technologies are to assume a greater role in archaeology, it is crucial to find more effective means of transferring technology developed in other fields to archaeology and historic preservation. A federally-funded national Center for Preservation Technology could coordinate research, disseminate information, and provide training about new technologies. This paper discusses options for such a center and presents other major findings of OTA’s recent report on Technologies for Prehistoric and Historic Preservation.[54] 

Williamson, Ronald E (Archaeological Services Inc.)  
EARLY IROQUOIS: PEOPLE IN TRANSITION.  
Recent archaeological surveys and excavations in southern Ontario, conducted within a regional settlement framework that allows for the examination of functional variability in the use of sites, demonstrate that Early Iroquois had mixed economies involving both horticulture and a considerable reliance on naturally-occurring subsistence resources. Their settlement-subsistence strategies can therefore be seen to differ significantly from those documented for either earlier hunter-gatherers or Late Iroquois. This suggests that the economic and socio-political organization of Iroquoian society developed over a much longer period than was previously thought.[33] 

Wilson, A.T. (see Long, A.L)[33]  
Wilson, Samuel M. (Chicago)  
RECENT RESEARCH ON NEVIS, WEST INDIES.  
This paper reports the results of three seasons of archaeological research on Nevis, a 36 square mile volcanic island in the Leeward arc of the Lesser Antilles. Emphasis is placed on relating changes in ceramic and settlement distributions with changes in the faunal representation in sites spanning a 3000-year period. The correlation of the Nevis material with other islands, and the implications of this research for Caribbean prehistory, generally are discussed.[37] 

Wilson Yong, K.M., J.E. Smeaton, K.M. Matsui, J. Bond and G. Burns (Toronto)  
ARCHAEOLOGICAL SITES AS CHEMICAL SYSTEMS.  
The consideration of archaeological sites as definable chemical systems extends the practice of archaeometry from that of the investigation of objects in isolation. Studies at ancient Egyptian sites will be used to illustrate how computational, analytical and physical techniques can be used to investigate ongoing physico-chemical processes. The information obtained from this approach to the study of ancient materials is of immediate interest to archaeological conservation and pure and applied sciences.[43] 

Wiseman, Fred (MIT)  
ARCHAEOLOGICAL POLLEN ANALYSIS.  
Archaeological pollen analysis takes two forms. The first, almost identical to standard paleoecological palynology, uses long cores from lake sediments to reconstruct regional climates, vegetation patterns, and people-environmental relations. The second is the hand-maiden of archaeology and samples sediments from sites to understand small scale problems such as use areas or food processing. Both methods have much to contribute to archaeology. This workshop will compare and contrast these two methods to show how they can yield complimentary insights into the human past.[53] 

Wiseman, F.M. (see Herlihy, P.H.)[42]  
Withrow, Randall M. (Minnesota, Minneapolis)  
ASPECTS OF MEETING IN EASTERN DAKOTA MORTUARY PRACTICES: AN INVESTIGATION USING ETHNOHISTORIC AND ARCHAEOLOGICAL DATA.  
Archaeological and ethnohistoric evidence concerning Eastern Dakota mortuary practices is presented for the period A.D. 1800 - 1862. Significant changes are noted in several aspects of practice during the period of Euro-American contact, including an increasing use of material associations and use of coffins. In contrast, a persistent pattern of post-mortem treatment is noted, characterized by placement of the dead on aerial platforms with subsequent interment in earthen mounds. A symbolic contrast of "interment" above-ground and below-ground is suggested and linked to a set of conceptual principles manifested in contrasting notions of spirit/body and sky/earth.[60]
Zeitlin, Robert N.

household distances in a series of "traditional" societies. While factors such as the degree of sharing clearly affect spacing, it is argued that the presence or absence of non-human mammalian predators plays an important role. The wider implications of this fact are considered.[44]

Yenner, David R. (Southern Maine)

MOOSE HUNTERS OF THE BOREAL FOREST: A REEXAMINATION OF BOREAL FOREST SUBSISTENCE PATTERNS.

Classical subsistence patterns for the boreal forest have focused on moose, and to some extent caribou, as the large game animals that provided sufficient sources of meat, skins, and other materials. Moose hunting plays an important role in models of boreal forest social organization, and ethnoarchaeological studies have projected such models into the past. Ethnohistoric, ecological, paleoecological, and faunal data all suggest that moose did not move into subarctic areas until the last few hundred years, thus moose hunting is a relatively recent phenomenon. Data from sites on Alaska's Kenai Peninsula suggest some alternative models for the organization of boreal forest hunters.[59]

Zeder, M.A. (Smithsonian)

SUBSISTENCE AND IDEOLOGY IN COASTAL ECUADOR.

Faunal remains from the Jambeli period (500 B.C.) cemetery of San Lorenzo, coastal Ecuador, are used to examine the evolution of local subsistence economy and its impact on regional ideological values. Diet remains from human burial matrices evidence the nature of animal procurement during a period of increasing reliance on maize. The use of dogs as offerings conveys information on social organization and local cosmology. Contrasted with the neighboring cemetery at Ayalán (710-1200 A.D.), it is possible to bracket the period during which domestic species, including camels, were introduced and became increasingly important components in both the subsistence and ideology of coastal Ecuador. The impact of expanding Andean states on cultural developments in these more marginal areas is discussed.[17]

Zeidler, James A. (Pittsburgh)

FELINE MORTARS IN ANDEAN RITUAL: NEW EVIDENCE FROM MANABI PROVINCE, ECUADOR.

This paper sheds new light on the origins and development of the so-called "cult of the feline" in the northern Andean area by considering one of its basic items of ritual paraphernalia: the feline-effigy ground of palm or polished stone. After a brief review of the existing archaeological evidence of these mortars and a discussion of their probable ritual use in the preparation and consumption of hallucinogen substances, new evidence is presented which demonstrates their presence in a Terminal Valdivia (Phase VIII) context at the rich, multicomponent site of San Isidro, northern Manabi Province, Ecuador, where they are found in association with faunal remains identified as jaguar (Felis onca) or puma (Felis concolor). The implications of this discovery are then evaluated with reference to the antiquity and development of tropical forest/highland interaction spheres in the pre-Chavin time period of the northern Andean Area.[13]

Zeidler, J.A. (see Stahl, PW)[34]

Zeitlin, Judith Francis (Brandeis)

BEYOND THE SHADOW OF MONTE ALBAN: CLASSIC PERIOD AFFILIATIONS IN THE COASTAL LOWLANDS.

Rather than retreating into purely localized concerns following the territorial settlement of Monte Albán during the Classic period, the southern isthmus of Tehuantepec and other coastal areas of Oaxaca appear to have asserted interregional ties through a loosely structured cultural and economic network encompassing what Lee Parsons designated the "peripheral Coastal Lowlands." Using excavation data from the isthmus as a base, this paper offers a preliminary consideration of the stylistic components of the perceived lowland Middle Classic horizon, the horizon's Oaxaca distribution and its potential significance for assessing the importance of El Tajín in the political structure of pre-Hispanic Mesoamerica.[5]

Zeitlin, Robert N. (Brandeis)

THE ISTHMUS AND THE VALLEY OF OAXACA: QUESTIONS ABOUT MONTE ALBAN IMPERIALISM IN THE PACIFIC LOWLANDS.

Mounting evidence depicts the early Zapotec state at Monte Albán as a conquest-bent economic predator. Fired by a demand for non-local goods, this imperialism is currently thought to have been confined mainly to surrounding highland regions. But there are suggestions that the Zapotec realm extended to the southern isthmus of Tehuantepec where an exchange system that for centuries supplied Oaxaca Valley elites with desired coastal lowland commodities may have been replaced by...
Monte Alban with a system of procurement founded upon political subjugation. Should proposed investigations lend further support to this hypothesis, the Late Preclassic frontier of the Zapotec empire will need to be redrawn considerably beyond its presently estimated bounds.[5]

Zhang, Z. (see Jopling, A.V.)[1.5]

Zier, Christian J. (Centennial Archaeology, Inc.)
RESIDENTIAL AGRICULTURE IN A POST-Eruption ENVIRONMENT, EL SALVADOR.

The Ceren site is a non-elite residence occupied in the late 6th century A.D., approximately 300 years after a catastrophic volcanic eruption. Portions of two fields exposed by excavation indicate that maize agriculture was being practiced in a nutrient-poor soil developing in light-colored silicic tephra. Coring of unexcavated areas indicates house spacing of 100 meters, with intermediate fields or garden plots. The demographic implications of resettlement by agriculturalists on such a poorly developed volcanic soil are explored, as is the probable composition of the overall agricultural system of which the Ceren fields are a part.[42]

Zilhão, João (Lisboa, Portugal)
THE EARLY UPPER PALEOLITHIC OF PORTUGAL.

Evidence for pre-solutrean assemblages in Portugal is reviewed, with particular emphasis on the Rio Maior area, where extensive but never published field work was carried out between 1935 and 1952 by the National Museum of Archaeology's former director, Manuel Hellen. Conclusions are that only one assemblage can be positively identified as Aurignacian and another as possibly gravettian or 'gravettoid'. Possible explanations for this scarcity as opposed to the richness of the known occupation of central Portugal in solutrean and magdalenian times are discussed.[4]

Zilhão, J. (see Gamble, C.)[20]

ABSTRACTS OF POSTERS

Ahlstrom, Richard (Arizona Archaeological and Historical Society)
"CASUAL" REPEAT PHOTOGRAPHY AND HOPI ARCHITECTURE.

Since the 1880s, one response of the Hopi Indians of Arizona to Anglos does not mean there is a change in the relationship between the two cultures. However, documentation of this change can be seen in the change in the number of photographs taken of the Hopi people. In the past, photographs were primarily taken by the Hopi people for their own personal use. Now, photographs are taken by non-Hopi people for their own personal use. This change in the way photographs are taken has had a significant impact on the Hopi people's lives.

Colburn, Mona L. (Illinois State Museum, Springfield)
SUBSISTENCE REMAINS FROM A MISSISSIPPIAN PERIOD SITE IN ILLINOIS.

Faunal remains from the 900 year old Lundy site in northwestern Illinois are analyzed in order to assess subsistence practices, seasonality, and habitat utilization. Preliminary findings indicate that a broad range of animals were procured from the Apple River and associated backwaters, open woods, and forest-edge. Deer and fish remains predominate in the assemblage. Species diversity, seasonality indicators, and suspected debris density suggest that the site was occupied year-round as a small village, hamlet, or major base camp.

Czaplicki, J.S. (see Raveshoot, J.C.)
Davis, J.O. (see Durand, S.R.)

Doroszenko, Dana (Toronto)
URBAN ARCHAEOLOGY ON THE UNIVERSITY OF TORONTO CAMPUSS.

During 1985 and 1986, salvage excavations on the Northwest campus of the University of Toronto concentrated on determining the presence of structural and/or cultural features related to the preurban landscape of this area, as well as late nineteenth century urban rear yards. The project emphasized examining residential patterns and consumer behavior in this area and how they changed during the nineteenth century.

Durand, Stephen K. and Johnathan O. Davis (Desert Research Institute)
DIRECT VIDEO INPUT OF ARCHAEOLOGICAL DATA.

Much primary archaeological data is visual. The automated direct input of this data serves two complementary purposes. First, the acquisition of data, already part of archaeological analysis, can be accomplished more efficiently and accurately using inexpensive microcomputers and video technology. Second, digital imagery allows new forms of analysis that increase our ability to understand and explain the past. We demonstrate acquisition, measuring of distance and angles, and enhancement of microscopic and macroscopic images of archaeological subjects.

Ford, D.L. (see Hester, J.J.)

Hester, James J. (US Army Corps of Engineers, Waterways Experiment Station), Robert M. Thorne (Mississippi) and David L. Ford (US Army Corps of Engineers, Waterways Experiment Station)
ARCHAEOLOGICAL SITE PRESERVATION IN SITU: MITIGATION WITHOUT EXCAVATION.

Archaeological site preservation in situ is a rapidly developing field. Nationwide, sites are subject to a multitude of impacts including streambank erosion, wind deflation, groundwater leaching, compaction, plowing, chemical contamination, animal burrowing, vehicular traffic, and vandalism. Research in progress is focused on the development of suitable technologies for preservation and evaluation of their effectiveness over time. Techniques being studied include site burial, installation of protective structures, fences, and signs, soil stabilization, revegetation, site camouflage, remote sensing of erosion rates and incursions by vandals, faunal control and the impact of these control measures on site components. Results of ongoing research will be presented by means of a videotape.

McGuowen, Kevin P. (Illinois, Urbana)
LATE WOODLAND SETTLEMENT PATTERNS AROUND LAKE SHELBYVILLE IN EAST CENTRAL ILLINOIS.

Survey data from the environs surrounding Lake Shelbyville in East Central Illinois are examined for correlations between physiographic variables and site locations. Special emphasis is placed on sites attributable to the Late Woodland Period (AD 400 - 1000) to allow examination of the effects of maize introduction on local settlement patterns. Maize is reported to date to the early part of the
period, in limited amounts, with more extensive finds near the end of the period. Computer generated graphics are provided to illustrate the results of this settlement pattern study.

**Oliver, Sheryl G. and Robert E. Warren (Illinois State Museum)**

**PREDICTIVE MODELLING OF ARCHAEOLOGICAL SITE LOCATION: A COMPARISON OF TWO CONTRASTING UPLAND ENVIRONMENTS IN THE MIDWEST.**

Because the settlement decisions of prehistoric societies were conditioned, to some extent, by the natural environment, it is possible to develop models of archaeological site location by analyzing the environmental context of known sites. Using ARC/INFO, a geographic information system, a series of environmental variables are derived from source maps. Based on these variables, a stepwise logistic regression produces and tests predictive algorithms. Our exhibit compares the results of probability-based predictive models for two contrasting upland areas in the Midwest, with: (1) a graphic display of statistical procedures, (2) computer generated illustrations of selected environmental variables, and (3) computer generated contour maps showing site-presence probabilities.

**Parry, William J. and E.E. Smiley (Southern Illinois)**

**EARLY AGRICULTURE IN THE NORTHERN SOUTHWEST: A PROGRESS REPORT ON THREE FIR SHELTER, ARIZONA.**

Three Fir Shelter is a large Basketmaker II (ca. 550 B.C. to A.D. 250) habitation site near the northern escarpment of Black Mesa, Arizona. Excavation of 10% of the sheltered area exposed one small structure, over 20 storage features (pits and cists), 7 thermal features, and a large slab-lined roasting pit. Fragments of perishable artifacts and subsistence remains were abundant, including a large sample of maize and cucurbits. The recovered remains provide important new data on the earliest agricultural adaptation in the Kayenta region. This presentation provides a visual update on the results of excavations and analysis.

**Ravesloot, John C. and Jon S. Czaplicki (ASM, Tucson)**

**THE TUCSON AQUEDUCT PHASE II PROJECT: NEW DATA ON THE TUCSON BASIN HOHOKAM.**

Excavation at 15 sites in the Avra Valley west of Tucson, Arizona, provided new information on non-riverine Hohokam adaptation. Excavation focused on a Snaketown phase (A.D. 300-500) and two Rillito phase (A.D. 700-900) sites. Because so few sites from these time periods have been excavated, our research emphasized evaluating poorly defined chronology, in addition to examining site organization, exchange, and subsistence.

**Rogers, Anne Frazer (Western Carolina)**

**UPLAND SITES AND TOPOGRAPHY IN THE SOUTHERN APPALACHIANS.**

Recent surveys of high altitude sections of the Southern Appalachians have resulted in the identification of a number of archaeological sites. These represent different temporal periods as well as various activities. Analysis of the distribution of these sites has provided the basis for a predictive model related to physiographic features. Factors which affect location of these upland sites are identifiable through examination of topographic details and assessment of nearby resources. This presentation provides a graphic interpretation of specific situations in which sites are most often found.

**Scherberger, Duncan J. (Toronto Board of Education)**

**THE ARCHAEOLOGICAL RESOURCE CENTRE.**

The Archaeological Resource Centre is the first facility within a North American school system established for the purpose of offering hands-on programmes in archaeology to both students and interested members of the general public. This combined educational and research institution explores Toronto’s heritage through a six-month excavation including a summer Grade 11 and 12 accredited Archaeological Field School in which students play the most significant role. Winter classes for students, night school courses for adults and volunteer opportunities make the Archaeological Resource Centre a year-round educational experience.

**Smiley, E.E. (see Parry, W.J.)**

**Stout, Charles B. (Illinois, Urbana-Champaign)**

**INTRASITE RELATIONSHIPS AT A MISSISSIPPIAN TOWN.**

Intra-community relationships of an archaeological chiefdom-level society can be studied through distributional and formal analyses of controlled surface collections from large, complex sites. A western Kentucky Mississippian center comprised of a mound group and surrounding habitation area serves as a case study. Spatial, functional and typological analyses of artifacts recovered in a 100% controlled surface collection at this site are used to locate and identify activity areas, determine cultural and functional relationships between these areas, assess the extent and bases of community segmentation, and delineate patterns of site growth and maintenance.

**Thorne, R.M. (see Hester, J.J.)**

**Warren, R.E. (see Oliver, S.G.)**
| Tables 14, 15 & 16 | Academic Press Inc  
Orlando FL 32887  
Books and journals relating to archaeology will be displayed. |
| Tables 1 & 2 | Association of American University Presses  
One Park Av  
New York NY 10016  
Scholarly books in a wide range of disciplines published by university presses from all regions of the US, Canada, and abroad presented in a cooperative exhibit by the members of the Association of American University Presses. |
| Tables 5, 6, & 7 | Cambridge University Press  
32 E 57th St  
New York NY 10022  
Academic books and journals |
| Table 24 | Center for the Study of Early Man  
495 College Av  
Orono ME 04473  
Books and periodicals of the Peopling of the Americas publication program, and the Center's Pleisto-Scenes Merchandise. |
| Table 22 | Fromm Applied Technology  
13129 N Greenbay Rd  
Mequon WI 53092  
The exhibit will have photos, technical notes, and video tapes demonstrating the use of geophysics in archaeology. |
| Table 23 | Historic Preservation Program  
University of Nevada-Reno  
Reno NV 89557  
The Historic Preservation Program will be displaying materials (brochures, etc.) advertising and promoting its newly formed and ongoing Continuing Education Program in Cultural Resource Management designed primarily for CRM professionals. |
| Table 11 | Plenum Publishing Corporation  
233 Spring St  
New York NY 10013  
Featuring, JOURNAL OF WORLD PREHISTORY, edited by Wendover/Cole; the Interdisciplinary Contributions to Archaeology series (Jochim); Soffer—THE PLEISTOCENE OLD WORLD; and Spencer-Wood—CONSUMER CHOICE IN HISTORICAL ARCHAEOLOGY. |
| Table 18 | Quantitative Systems  
PO Box 509  
Fayetteville AR 72702  
MINARK Microcomputer DBMS QMS Mapping System (brochures and computer demonstration). |
| Table 26 | Royal Ontario Museum  
100 Queen's Park  
Toronto Canada M5S 2C6  
ROM archaeology publications |
| Table 17 | Smithsonian Institution Press  
955 L'Enfant Plaza #2100  
Washington DC 20560  
Scholarly books in the fields of archaeology and anthropology |
| Table 19 | Thames and Hudson Inc  
500 Fifth Av  
New York NY 10110  
Books |
| Table 25 | The UCLA Institute of Archaeology  
The University of California, Los Angeles  
Los Angeles CA 90024  
Publications of Archaeological Site reports, Symposia papers, scholarly works covering the Old, the New World and Asia. |
| Table 8 | University of Arizona Press  
1615 E Speedway  
Tucson AZ 85719  
Books |
| Tables 9 & 10 | The University of Chicago Press  
5801 S Ellis Av  
Chicago IL 60637  
Scholarly books and journals including the prehistoric archaeology, and ecology series. |
| Tables 20 & 21 | University of New Mexico Press  
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Quality scholarly books pertaining to American archaeology and related fields of interest. |
| Tables 12 & 13 | University of Texas Press  
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We will be displaying our books on archaeology and related subjects will be displayed. |