

*Blazon
Ranoda 735*

**Society for
American Archaeology**



51st ANNUAL MEETING
April 23-27, 1986
CLARION HOTEL—NEW ORLEANS

PROGRAM AND ABSTRACTS.

ETHNOLOGY MONOGRAPHS

ETHNOLOGY MONOGRAPHS is a publication series of the Department of Anthropology, University of Pittsburgh.

The James A. Ford Library of Anthropology



Florida Museum of Natural History,
Anthropology Division



Gift of: Dr. Kathleen A. Deagan

R.C. Carliste. 121 pages \$11.00

Number 8. From Conquest to Agrarian Reform: Ethnicity, Ecology,
and Economy in the Chancay Valley, Peru: 1533 to 1964
by Louis C. Faron. 158 pages \$12.00

All orders must be accompanied by a check. Address orders to:

Editor, ETHNOLOGY
Department of Anthropology
University of Pittsburgh
Pittsburgh, PA 15260 U.S.A.



PROGRAM AND ABSTRACTS of the Fifty-first Annual Meeting New Orleans, Louisiana April 24-27, 1986

Contents

General Information.....	4
Program.....	15
Abstracts of Symposia.....	43
Abstracts of Papers.....	51
Abstracts of Poster Sessions.....	154
Abstracts of Microcomputer Workshop Poster Sessions.....	155
Exhibitors.....	162

Thurs

9:40 Ard B Classroom
10:20 Ard E Paynter - afs Amer.
11 Salon C Rio/Phd

12:40 - Ard E Hedder

3:20 Hordley Ard A -

4 pm Ard E May/Kenn

6 - cocktails

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.

Published by the
Society for American Archaeology
1511 K Street NW
Washington, DC 20005

Copyright © 1986 by the Society for American Archaeology

All rights reserved. No part of this publication may be reprinted in any form or by any means without prior written permission from the publisher.

Sarkis - Estimation
Academy fees - 3
U. Utah fees - Indiv/r
U OK fees - Doug

SOCIETY FOR AMERICAN ARCHAEOLOGY Fifty-first Annual Meeting

Program Chair: Robert W Neuman
Museum of Geoscience
Louisiana State University

Program Committee: Kathleen M Byrd
Judith A Schiebout
J Richard Shenkel

Local Arrangements Chair: Helen Curley
Christopher Goodwin

Officers of the Society

President: Don D Fowler

President-elect: Dena Dincauze

Secretary: Bruce D Smith

Treasurer: Annetta Cheek

Treasurer-elect: Robert J Sharer

Editor: Patty Jo Watson

Executive Committee Members: Thomas R Hester

Keith Kintigh

Mark Leone

Prudence Rice

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.

Plenary Session Treatment of Human Skeletal Remains, Thursday 8 PM in the Tulane Room.

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

Convention Office Any problems or special requests during the meeting should be reported to the Convention Office in Fleur De Lis Room #8.

Exhibits Exhibits will be displayed in the Exhibit Hall 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 Exhibit Hall during the exhibit hours.

Message and Information Center A self-service message center will be open in the Ballroom Lobby 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 Cypress Room.

Receptions Thursday 6 to 7 PM hosted by the Clarion Hotel, lobby of Tulane and Grand Ballrooms. Friday 7:30 PM cashiered bar, Grand Ballroom lobby.

Placement Service A placement service will be conducted in the Fleur De Lis Room #2 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, and from 7:30 AM to noon on Sunday. Members who preregistered by April 1 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 Fleur De Lis Room #4 from Wednesday at 6 PM and thereafter throughout the meeting for presenters who wish to check their slides before their presentation.

**ANNUAL MEETINGS OF THE SOCIETY FOR AMERICAN
ARCHAEOLOGY**

Meeting#	Place	Date
1st	Andover, Massachusetts	December, 1935
2nd	Washington, DC	December, 1936
3rd	Milwaukee, Wisconsin	May, 1938
4th	Ann Arbor, Michigan	May, 1939
5th	Indianapolis, Indiana	April, 1940
6th	Minneapolis, Minnesota	May, 1941
7th	Cincinnati, Ohio	May, 1942
8th	Because of travel difficulties and other wartime restrictions, the business of the annual meeting in 1943 was conducted by mail by the Executive Committee, whose actions were approved at the next annual meeting.	
9th	Washington, DC	May, 1944
10th	Washington, DC	May, 1945
11th	Indianapolis, Indiana	May, 1946
12th	Ann Arbor, Michigan	May, 1947
13th	Milwaukee, Wisconsin	May, 1948
14th	Bloomington, Indiana	May, 1949
15th	Norman, Oklahoma	May, 1950
16th	Evanston, Illinois	May, 1951
17th	Columbus, Ohio	May, 1952
18th	Urbana, Illinois	May, 1953
19th	Albany, New York	May, 1954
20th	Bloomington, Indiana	May, 1955
21st	Lincoln, Nebraska	May, 1956
22nd	Madison, Wisconsin	May, 1957
23rd	Norman, Oklahoma	May, 1958
24th	Salt Lake City, Utah	May, 1959
25th	New Haven, Connecticut	May, 1960
26th	Columbus, Ohio	May, 1961
27th	Tucson, Arizona	May, 1962
28th	Boulder, Colorado	May, 1963
29th	Chapel Hill, North Carolina	May, 1964
30th	Urbana, Illinois	May, 1965
31st	Reno, Nevada	May, 1966
32nd	Ann Arbor, Michigan	May, 1967

33rd	Santa Fe, New Mexico	May, 1968
34th	Milwaukee, Wisconsin	May, 1969
35th	Mexico City, Mexico	May, 1970
36th	Norman, Oklahoma	May, 1971
37th	Bal Harbour, Florida	May, 1972
38th	San Francisco, California	May, 1973
39th	Washington, DC	May, 1974
40th	Dallas, Texas	May, 1975
41st	St. Louis, Missouri	May, 1976
42nd	New Orleans, Louisiana	April, 1977
43rd	Tucson, Arizona	May, 1978
44th	Vancouver, Canada	April, 1979
45th	Philadelphia, Pennsylvania	May, 1980
46th	San Diego, California	April-May, 1981
47th	Minneapolis, Minnesota	April, 1982
48th	Pittsburgh, Pennsylvania	April, 1983
49th	Portland, Oregon	April, 1984
50th	Denver, Colorado	May, 1985

SOCIETY FOR AMERICAN ARCHAEOLOGY

Past Presidents

(*Deceased)

A C Parker *	1935-36	Richard B Woodbury	1958-59
Diamond Jenness *	1936-37	Jesse D Jennings	1959-60
A V Kidder *	1937-38	Erik K Reed	1960-61
Edgar B Howard *	1938-39	Junius Bird *	1961-62
Neil Judd *	1939-40	David A Baerreis	1962-63
W C McKern	1940-41	James A Ford *	1963-64
Glenn Black *	1941-42	Albert C Spaulding	1964-65
Nels C Nelson *	1942-43	Paul S Martin *	1965-66
Emil W Haury	1943-44	Joe B Wheat	1966-67
J Alden Mason *	1944-45	Gordon R Willey	1967-68
Carl E Guthe *	1945-46	H Marie Wormington	1968-69
Frederick Johnson	1946-47	Ignacio Bernal	1969-70
Douglas S Byers *	1947-48	Robert Lister	1970-71
Waldo R Wedel	1948-49	Richard S MacNeish	1971-72
J O Brew	1949-50	Charles C DiPeso *	1972-73
Frank H H Roberts Jr *	1950-51	Douglas W Schwartz	1973-74
James B Griffin	1951-52	Charles R McGimsey III	1974-75
Irving Rouse	1952-53	Stuart Struever	1975-76
Gordon Ekholm	1953-54	Raymond H Thompson	1976-77
Robert Wauchope *	1954-55	Cynthia Irwin-Williams	1977-79
W Duncan Strong *	1955-56	Fred Wendorf	1979-81
William A Ritchie	1956-57	Richard E W Adams	1981-83
George I Quimby Jr	1957-58	George C Frison	1983-85

AWARDS TO ARCHAEOLOGISTS, 1946-85

Compiled by N Woodbury

The *Viking Fund Annual Awards in Anthropology* (provided by the WennerGren 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

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 inscripted citation.

The awardees have been:

- 1975 Carl Haley Chapman
Charles Robert McGimsey III
- 1980 Gordon Randolph Willey
- 1981 Albert Clanton Spaulding
- 1982 Jesse David Jennings
- 1983 Hannah Marie Wormington
- 1984 James Bennett Griffin
- 1985 Emil Walter Haury

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

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

DIRECTORY OF MEETING ROOMS The Clarion New Orleans

1ST FLOOR (LOBBY LEVEL)

Exhibition Hall

MEZZANINE LEVEL

Tulane

CONFERENCE CENTER, 2ND FLOOR

Azalea
Cypress
Fleur De Lis Rooms 1-8
Mimosa

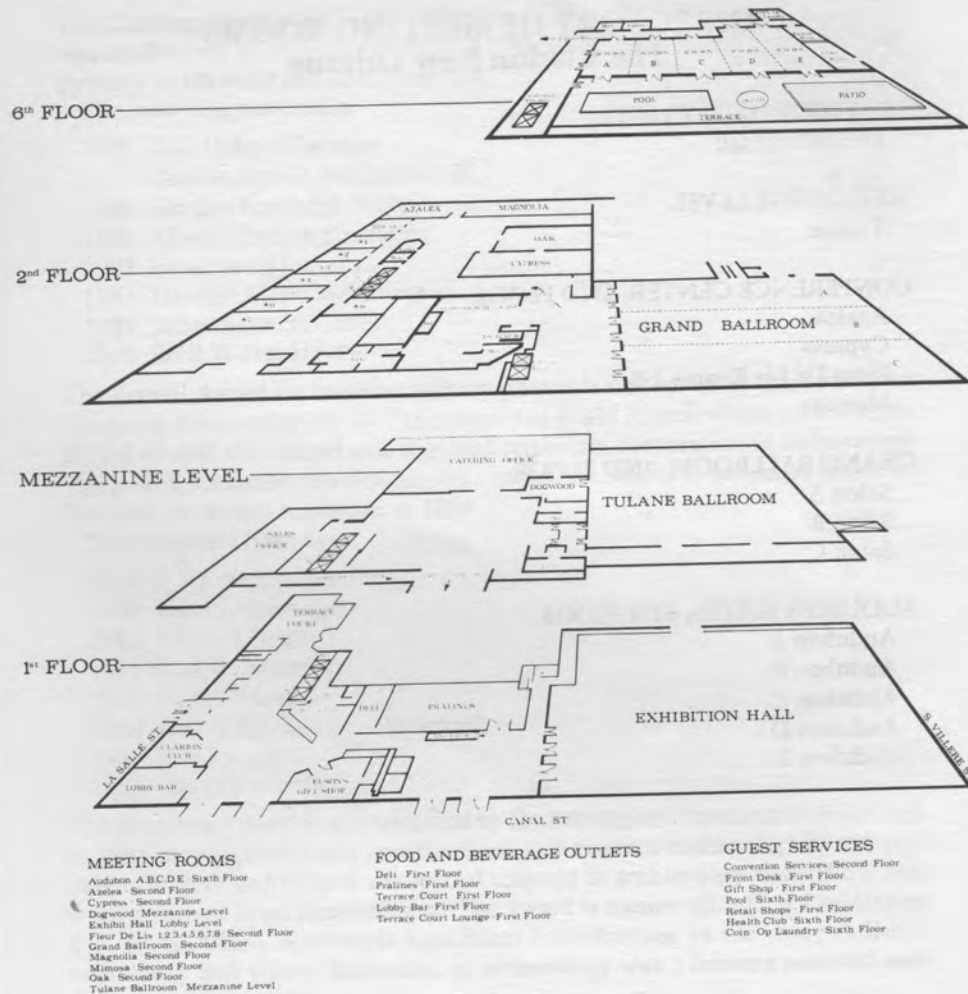
GRAND BALLROOM, 2ND FLOOR

Salon A
Salon B
Salon C

AUDUBON SUITES, 6TH FLOOR

Audubon A
Audubon B
Audubon C
Audubon D
Audubon E

BUSINESS AND SOCIAL EVENTS



Tuesday, April 22

8:00 AM	Society for American Archaeology—Executive Committee Meeting	Azalea Room
8:00 AM	U.S. Forest Service	Fleur De Lis Room #1
8:00 AM	Army Corps of Engineers	Mimosa Room
8:00 AM	Soil Conservation Service	Fleur De Lis #2

Wednesday, April 23

8:00 AM	Workshop on Microcomputers in Archaeology	Tulane Room
8:00 AM	Society for American Archaeology—Executive Committee Meeting	Azalea Room
8:00 AM	U.S. Forest Service	Fleur De Lis Room #1
8:00 AM	Association of Transportation Archeologists	Cypress Room
9:00 AM	National Association of State Archeologists—Workshop	Mimosa Room
1:00 PM	Society of Professional Archeologists—Executive Committee Meeting	Fleur De Lis Room #1
3:00 PM	American Society for Conservation Archaeology—Executive Committee Meeting	Fleur De Lis Room #5
3:00 PM	National Association of State Archeologists—Annual Meeting	Mimosa Room
8:00 PM	New Member Reception	Cypress Room

Thursday, April 24

8:00 AM	Society for American Archaeology—Committee on Public Archaeology	Mimosa Room
11:30 AM	Council of Presidents Luncheon (By invitation only)	Cypress Room
12:00 Noon	Society for Archaeological Sciences—Executive Board	Fleur De Lis Room #1
5:00 PM	Society for Archaeological Sciences—Annual Meeting	Fleur De Lis Room #1
6:00-7:00 PM	Cocktail Party Hosted by Clarion Hotel, New Orleans	Tulane and Grand Ballroom Lobbies
7:00 PM	American Society for Conservation Archaeology—Annual Meeting	Cypress Room
7:00 PM	Society for Archaeology of World War II	Mimosa Room
8:00 PM	Plenary Session—Treatment of Human Skeletal Remains	Tulane Room

Friday, April 25

10:00 AM	World Archaeological Congress	Cypress Room
12:00 Noon	Center for Study of Early Man—Committee on Nomenclature in Bone Modification	Fleur de Lis Room #5
12:00 Noon	Society of Professional Archeologists—Annual Meeting	Oak Room
1:30 PM	Society of Professional Archeologists—Executive Committee Meeting	Fleur de Lis Room #1
2:00 PM	Advisory Council Workshop	Tulane Room
3:00 PM	Moundville Planning Conference	Fleur De Lis Room #6
3:00 PM	Biological and Physical Anthropology of the Moundville Site	Fleur De Lis Room #7
3:00 PM	S.H.P.O. - N.P.S.—Comprehensive Planning for States	Oak Room
5:30 PM	Society for American Archaeology—Annual Business Meeting	Tulane Room
7:30 PM	Cashiered Bar	Ballroom Lobby
7:30 PM	An open Forum Will site Avoidance, Fly Paper, and Scotch Tape Do The Job? . . . Review of Strategies in Archaeological Site Preservation Organizers: James J. Hester and Roger Saucier Discussants: Adrienne Anderson, Hester Davis, Robert M. Thorne, Leslie Wildesen, Bennie Keel and Fred Briuer	Audubon A
7:30 PM	Workshop Application of Accelerated Mass Spectrometry To Radiocarbon Dating Problems in Archaeology	Audubon B

Saturday, April 26

8:00 AM	Society for American Archaeology—Executive Committee Meeting	Cypress Room
10:00 AM	American Society for Conservation Archaeology—Executive Committee Meeting	Fleur De Lis Room #1
9:00 PM	Dance and Cashiered Bar	Tulane Room

PROGRAM

WEDNESDAY EVENING APRIL 23, 1986

8:00 SOCIETY FOR AMERICAN ARCHAEOLOGY
Cypress Room
Reception for New Members

THURSDAY MORNING APRIL 24, 1986

(1) Symposium: NEW RESEARCH IN SOUTHEASTERN MESOAMERICA

Salon A
Organizers and Chairpersons: Ariadne H. Prater and Michael W. Love

Participants

8:00 Arthur A. Demarest, The Evolving Lattice of Middle Formative Culture in Southeastern Mesoamerica
8:20 Michael W. Love, Middle Preclassic Settlements of the Lower Rio Naranjo, Guatemala
8:40 Frederick J. Bove, The Formative-Classic Transition on the South Coast of Guatemala
9:00 David S. Whitley and Marilyn Beaudry, Community Structure and Economic Change at Sin Cabezas
9:20 Marion P. Hatch, Some Inferences of Culture Change at Kaminaljuyu
9:40 Ariadne H. Prater, Kaminaljuyu and the Development of the Sculptural Arts

(2) Symposium: CRAFT PRODUCTION, IDEA SYSTEMS, AND TEOTIHUACAN SOCIETY

Salon B
Organizer and Chairperson: George L. Cowgill

Participants

8:00 Joseph Lokaj, James A. Chiarelli and George L. Cowgill, The Reliability of Surface Collecting at Teotihuacan
8:20 Michael W. Spence, The San Martin Complex: An Obsidian Workshop Area in Teotihuacan, Mexico
8:40 James J. Sheehy, Product Standardization and Ceramic Production in Tlajinga 33, Teotihuacan
9:00 Mary R. Hopkins, What is a "Waster"? Comments on Ceramic Workshop Identification at Teotihuacan, Mexico
9:20 Martin Biskowski, Grinding Tools at Teotihuacan
9:40 Margaret H. Turner, Lapidary Production at Teotihuacan, Mexico
10:00 Saburo Sugiyama, Recent Excavations in High Status Structure at Teotihuacan
10:20 Clemency C. Coggins, Reflections on Teotihuacan
10:40 Esther Pasztory, Participation and Hierarchy: The Structure of the Teotihuacan Composite Censer
11:00 Warren T. D. Barbour, An Analysis of Teotihuacan-Type Host Figurines
11:20 R. David Drucker, The Teotihuacan Pecked Crosses: Models and Meanings

(3) Symposium: PROGRAMA CONTISUYU: REGIONAL ARCHAEOLOGICAL RESEARCH IN SOUTHERN PERU

Salon C
Organizer and Chairperson: Don S. Rice

Participants

8:00 Fernando Cabieses, Programa Contisuyu: An Introduction
8:20 Mark S. Aldenderfer, Archaic Period Settlement Dynamics and Programa Contisuyu

- 8:40 Paul S. Goldstein and Robert A. Feldman, Tiwanaku and its Antecedents in Moquequa
 9:00 Elias Mujica and Michael Moseley, Coastal Research in the Vicinity of Ilo, Peru
 9:20 Garth Bawden, The Tumilaca Site: Settlement Stratigraphy in the Moquequa Valley
 9:40 Geoffrey Conrad and Don Rice, Proyecto Osmore: The 1985 Season
 10:00 Sloan R. Williams and Jane E. Buikstra, Human Remains from Estuquina
 10:20 Charles Stanish, Zonal Complementarity in the Moquequa Valley
 10:40 Luis Watanabe, Inca Occupation in the Osmore Drainage, Peru
 11:00 Prudence Rice and Donna Ruhl, Oeno-archaeology: A Preliminary Report on *Bodegas* (Wineries) of the Moquequa Valley
 11:20 Discussants: Maria Rivera

(4) General Session: CONTRIBUTED PAPERS

Audubon Room A
 Chairperson: Frank W. Eddy

Participants

- 8:00 Lawrence A. Kuzner, An Examination of Sedentism in the Northeastern Archaic
 8:20 James P. Gallagher and Robert F. Sasso, Further Investigations into Oneota Ridged Field Agriculture in Southwestern Wisconsin
 8:40 James N. Hill, Post-Pleistocene Adaptation and the Evolution of Agriculture
 9:00 Suzanne P. De Atley, Ronald L. Bishop, Veletta Canouts, Alfred Qoyawayma and C. W. Aikens, Hopi Social Boundary Maintenance and Exchange Relationships
 9:20 Frank W. Eddy and Timothy G. Baugh, A Reconsideration of Apachaen Ceramic Classification
 9:40 Patricia A. Dean, Direct Dating Potsherds: Distinguishing Fremont and Shoshonean Graywares
 10:00 Amy A. Douglass and David M. Schaller, A Petrographic Analysis and Sourcing Study of Little Colorado White Ware
 10:20 Mary Ann Tisdale, Pottery Technology and Economic Organization in the Central Boreal Forest
 10:40 Brad Bartel, Natural Language Query for Computerized Archaeological Databases
 11:00 Rosemary Gianni, The Identification of Southeast Asian Resin Using Infrared Spectrophotometry
 11:20 Noreen C. Tuross, Biochemical Changes in Bone After Death
 11:40 Peter Bleed, Motor Habits, Efficiency and Long Term Change in Tool Design

(5) Symposium: PROCESSUAL STUDIES IN ISLAND ARCHAEOLOGY

Audubon B
 Organizer and Chairperson: William F. Keegan

Participants

- 8:00 David R. Watters, Fundamental Paleoecology: The Neglected Factor in Lesser Antilles Archaeology
 8:20 William F. Keegan, Reproduction and Production During Arawak Expansion in the Bahamas
 8:40 Patrick V. Kirch, Long-Distance Exchange and Island Colonization: The Lapita Case
 9:00 Robert E. Dewar, Early Migrations and Ecological Differentiation in Central Madagascar: Effects and Causes
 9:20 Paul L. Cleghorn, Settlement and Abandonment of Two Hawaiian Outposts: Nihoa and Necker Islands
 9:40 Michael A. Glassow, Biogeography and Ecological Adaptations on the Four Northern Channel Islands of California
 10:00 Terry L. Hunt, Factors of Evolutionary Divergence in Fijian Prehistory
 10:20 Katherine W. Fernstrom, Symbolic vs Utilitarian Value: Some Factors Affecting the Spatial Distribution of Exchange Goods
 10:40 Robert J. Hommon, Factors in the Evolution of Indigenous Hawaiian Polities
 11:00 James Carucci, Prehistoric Complex Societies in Micronesia: Where Have All the Chiefdoms Gone?
 11:20 Jo Anne Van Tilburg, The Evolution and Interaction of Dominant Subordinate Group Ideology on Pre-Contact Easter Island
 11:40 Discussants: Timothy K. Earle and Jared M. Diamond

(6) General Session: ARCHAEOLOGY, SOUTHEASTERN UNITED STATES

Audubon Room C
 Chairperson: Jon L. Gibson

Participants

- 8:00 Charles E. Cantley and Daniel R. Hayes, Archaeological Research in West Central Louisiana: A Study of Prehistoric Mobility Patterns and Land Use History
 8:20 Karolien Debusschere, Bobby J. Miller and Ann R. Ramenofsky, Geomorphic History of Cowpen Slough
 8:40 Jon L. Gibson, Poverty Point Reconsidered
 9:00 Ira C. Beckerman, Settlement and Subsistence in Prehistoric Piedmont North Carolina: Incorporating Environmental Variability
 9:20 Jerome A. Voss and C. Baxter Mann, Stylistic Variation in Historic Choctaw Ceramics

(7) Symposium: POSTGLACIAL HUNTERS-GATHERERS IN EUROPE

Audubon Room D
 Organizers and Chairpersons: T. Douglas Price and Marek Zyslebil

Participants

- 8:00 T. Douglas Price, The Mesolithic of Western Europe: Dynamics in Time and Space
 8:20 Marek Zyslebil, The Mesolithic of Temperate Europe and Asia: Questions of Time, Scale, and Organization
 8:40 Signe E. Nygaard, Subsistence Strategies and Settlement Patterns in the Mesolithic Period Along the West Coast of Norway
 9:00 Hans Peter Blankholm, The Late Mesolithic Hunter-Gatherers and the Transition to Farming in Southern Scandinavia
 9:20 Peter C. Woodman, The Irish Mesolithic—The Development of an Insular Tradition
 9:40 Paul Mellars, Social, Economic, and Ecological Relationships in Early Postglacial Britain
 10:00 Steven Mithen, Modeling Foraging Activity on Oronsay
 10:20 Clive Bonsall, Late Pre-Agricultural Societies in the North-West of England: The Evidence from Eskmeals
 10:40 Peter A. Gendel, Style and Social Evolution in Postglacial Northern Europe
 11:00 Geoffrey A. Clark, Status Differentiation in West European Mesolithic and Neolithic Burial Data
 11:20 James Graham Lewthwaite, Mesolithic Subsistence, Settlement, and Society: A Mediterranean Perspective
 11:40 Discussants: Clive S. Gamble and H. Martin Wobst

(8) Symposium: THE PAST IS THE PRESENT

Audubon Room E
 Organizers and Chairpersons: Margaret Conkey and Randall H. McGuire

Participants

- 8:00 Randall H. McGuire and Margaret Conkey, Critical Theory for Beginners: Introducing the Past in the Present
 8:20 Alison Wylie, Matters of Fact
 8:40 Mark P. Leone, Methods for Using Critical Theory in Archaeology
 9:00 Michael Shanks and Christopher Tilley, Ideology in Aesthetics: The Museum Display as Re-Presentation of the Past
 9:20 Leland Ferguson, Native Americans and Archaeology in the Carolinas
 9:40 Russell G. Handsman, Archaeology and Class Histories of Taste Along "The Great River"
 10:00 Arthur S. Keene, Critical Theory and the Study of Prehistoric Foragers
 10:20 Robert Paynter, The Politics of Afro-American Archaeology
 10:40 Patricia E. Rubertone, The Archaeology of Colonialism
 11:00 Charles E. Orser, Jr., The Death of the Southern Plantation: A Legend for Modern Archaeology

(9) Symposium: CULT ARCHAEOLOGY AND CREATIONISM, ASSESSING AND RESPONDING TO PSEUDOSCIENTIFIC BELIEFS ABOUT THE PAST

Audubon Room C

Organizers and Chairpersons: Francis B. Harrold and Kenneth L. Feder

Participants

- 10:00 William H. Stiebling, Jr., The Nature and Danger of Cult Archaeology
 10:20 Thomas Gray, Psychological Studies of Belief in Unsubstantiated Phenomena
 10:40 Kenneth L. Feder, Pseudoarchaeology and Creationism: A Co-ordinated Research Project
 11:00 Luanne B. Hudson and Bernard Means, East is East and West is West? A Regional Comparison of Cult Archaeology Belief Patterns
 11:20 Francis B. Harrold, Raymond A. Eve, and Mark Plunkett, Patterns of Creationist Belief Among College Students
 11:40 Laurie R. Godfrey, The Paper Response to Scientific Creationism: What, Where and When?
 12:00 Suzanne K. Engler, Ets, Rafts and Runestones: Confronting Pseudoarchaeology in the Classroom
 12:20 Stephen Williams, Fantastic Archaeology: How Should it be Dealt With?

(10) Symposium: CURRENT RESEARCH IN NORTHWEST MESOAMERICA

Salon A

Organizers and Chairpersons: Michael S. Foster and J. Charles Kelley

Participants

- 10:20 Michael S. Foster, Archaeological Sequences from Northwest Mesoamerica
 10:40 Richard H. Brooks, La Cueva de Dos Cuchillos, Chihuahua Mexico: Analysis of Prehistoric and Historic Components
 11:00 Phil C. Weigand, Turquoise Mining Complexes in Northwest Mesoamerica
 11:20 Ronna J. Bradley, Marine Shell Species, Source Areas and Distribution: Implications for Exchange Systems in Northwest Mexico and the Southwest
 11:40 J. Charles Kelley, Trade Goods, Traders and Status in Northwestern Greater Mesoamerica
 12:00 Discussants: David Wilcox and Jonathan E. Reyman

THURSDAY AFTERNOON APRIL 24 1986**(11) Symposium: THE CULTURAL ECOLOGY OF PREHISTORIC ANDEAN AGRICULTURAL SYSTEMS**

Salon C

Organizer and Chairperson: Michael A. Malpass

Participants

- 12:20 Christopher Ohm Clement and Michael E. Moseley, Agrarian Contraction of Coastal Spring-Fed Irrigation Systems at Ilo, Peru
 12:40 Katharina J. Schreiber, The Pukios of Nasca: A System of Underground Aqueducts
 1:00 William H. Isbell, Agricultural Production and Management in the Huari State
 1:20 Helen C. M. Keeley and Frank M. Meddens, Pre-hispanic Agricultural Terracing in the Chicha-Soras Valley, Peru
 1:40 Bruce Winterhalder, Ethnoecological Studies of Terrace Agriculture on the Southeastern Escarpment of the Andes
 2:00 Pablo de la Vera Cruz, Changing Patterns of Land Use Near Cabanaconde, Peru
 2:20 Daniel E. Shea, The Town of Achoma in the Depopulation and Terrace Abandonment of the Colca Valley, Peru
 2:40 Michael Malpass and Charles Stanish, Processes of Agricultural Expansion and Contraction in the Colca and Otoro Drainages, Peru
 3:00 David Browman, Management of Agricultural Risk in the Titicaca Basin
 3:20 Discussant: Michael Moseley

(12) General Session: METHOD AND THEORY

Audubon Room A

Chairperson: Thomas W. Neumann

Participants

- 12:20 Steven A. Tomka, Skill and Style in Lithic Archaeology: A New Perspective
 12:40 Reid C. Ferring, Site Formation in Fluvial Environments: Implication for Settlement-Subsistence Studies
 1:00 Sharon L. Brock, Differences in Bone Remodeling in "Resilient" Compared to "Stable-Based" Populations: An Example of Middle Range Research
 1:20 Thomas W. Neumann, Variation in Embodied Energy Due to Climatic Change: Onondaga Iroquois A.D. 1290-1550
 1:40 Ann Frazer Roberts and Howard H. Earnest, Jr., Archaeology in the Southern Appalachian Uplands: Site Significance Reconsidered
 2:00 Melissa B. Hagstrum, Organization of the Ceramic Production in the Mantaro Valley, Peru: An Ethnographic/Archaeological Study of Time Scheduling and Space Use
 2:20 Don E. Dumond, Ethnoarchaeology from Documents: The Caste War of Yucatan
 2:40 Glenn Davis Stone, The Cultural Ecology of Frontier Settlement
 3:00 Gregory A. Reinhardt, Interpretations of Kodiak Incised Stones from Ethnography
 3:20 Donald L. Hardesty, Toward An Archaeology of Exploration and Emigration: Suggestions from the American West

(8) Symposium: THE PAST IS THE PRESENT (CONT'D)

Audubon Room E

Organizers and Chairpersons: Margaret Conkey and Randall H. McGuire

Participants

- 12:20 Joan M. Gero, National Ideology and *National Geographic*
 12:40 Ian Hodder, The Past, Masking and Revealing the Present
 1:00 Timothy Kaiser, Ideology, Ethnicity and Nationalism: The Role of Archaeology in Socialist Southeast Europe
 1:20 Philip L. Kohl, The Regional Tradition of Soviet Archaeology: Strengths and Weaknesses
 1:40 Ruth Tringham, Who is the Real Socialist Here? The Socio-Politics of European Archaeology
 2:00 Carmel Schrire, The Archaeology of Early Khoi-Dutch Contact at the Cape
 2:20 Susan Kus, The Power of Origins
 2:40 Margaret Conkey and Randall H. McGuire, In Search of Origins Research in Archaeology
 3:00 Discussants: James Faris and Robert McC. Adams

(13) Symposium: SOCIAL DIFFERENTIATION IN MICRONESIA AND ITS ARCHAEOLOGICAL EXPRESSIONS

Audubon Room B

Organizer and Chairperson: Brian M. Butler

Participants

- 12:30 Thomas P. Riley, The Ecological Constraints of the Marshallese Chiefdom: Does it Contradict or Complement the Polynesian Models?
 12:50 William S. Ayres, Political and Administrative Centralization on Pohnpei, Micronesia
 1:10 Robert U. Bryson, Analysis of Ceramics from Nan Madol, Pohnpei State
 1:30 Patricia L. Parker and Thomas F. King, Trukese Social Organization and Its Archaeological Expressions
 1:50 R. L. Hunter-Anderson, An Ecological Approach to Understanding Inter-Island Exchange and Social Ranking in the Western Carolinas
 2:10 Brian M. Butler, Archaeological Correlates of Village Rank in Palau
 2:30 W. Bruce Masse and David Snyder, Small Islands with Large Populations: The Role of the Rock Islands in Palauan Prehistory
 2:50 Douglas B. Hanson, Mortuary Practices in Micronesia: Problems and Prospects of an Emerging Archaeological Database
 3:10 Discussant: P. Kirch

(14) Symposium: SUBSISTENCE IN THE AMERICAN SOUTHWEST

Salon A

Organizers and Chairpersons: Linda J. Scott, Kate Aasen and Johna Hutira

Participants

- 1:00 Scott L. Fedick, Transformations and the Creation of Archaeological Plant Assemblages: An Analysis of Plant Remains from Historic Tempe, Arizona
- 1:20 Johna Hutira, Patterns of Plant Utilization Among the Papaguerian Hohokam
- 1:40 Robert E. Gasser, Subsistence Beyond Diet: Macrobotanical Indicators of Prehistoric Economies
- 2:00 Jannifer W. Gish, Palynology of La Cuidad, Central Arizona
- 2:20 Patricia A. Ruppe', Sosi Shelter: A History of Anasazi Plant Usage at Black Mesa, Arizona
- 2:40 Peter J. Gleichman, Kayenta Anasazi Subsistence—The Floral Components
- 3:00 Kate Aasen, Basketmaker Subsistence—The Coprolite Record
- 3:20 Linda J. Scott, Anasazi Subsistence Activity Areas Reflected in the Pollen Record
- 3:40 Karen H. Clary, A Regional Anasazi Agricultural Subsistence Pattern Reflected in the Pollen Record
- 4:00 Mollie S. Toll, Lessons from 80 Years of Archaeobotanical Collection and Analysis at Chaco Canyon, New Mexico
- 4:20 Richard G. Holloway and Vaughn M. Bryant Jr., Subsistence, Paleoenvironmental Change and Human Occupation in Southwest Texas: The Application of Pollen Analysis to Archaeology

(15) Symposium: INTERNAL VARIATION AT TEOTIHUACAN: THE ARCHITECTURAL, ARTIFACTUAL AND SKELETAL EVIDENCE

Salon B

Organizers and Chairpersons: Evelyn C. Rattray and Sue Scott

Participants

- 1:00 Emily McClung de Tapia, Javier Gonzalez Vazquez, Amie Limon de Dyer and Judith Zurita Noguera, Archaeobotanical Studies at Teotihuacan, 1972-1986
- 1:20 Hasso von Winning, Iconography of a Teotihuacan Slate Mirror Back
- 1:40 Randolph J. Widmer, Production and Economic Distribution of Craft Items at Teotihuacan: Inferences from Tlajinga 33 and Maquixco Bajo
- 2:00 Sue Scott, Terracotta Figurine Complexes in Residential Units, Teotihuacan, Mexico
- 2:20 Ruben C. Cabrera, The Architectural Sequence and Function of the Ciudadela
- 2:40 Enrique Martinez and Ana Jarquin, The Ciudadela: A Functional Analysis
- 3:00 Carlos Serrano, A Comparative Study of Teotihuacan Skeletal Materials
- 3:20 Evelyn C. Rattray, A Gulf Coast—A Maya Enclave at Teotihuacan
- 3:40 Magali Civera Cerecedo, Characteristics of the Osteological Material from the Merchant's Barrio, Teotihuacan
- 4:00 Rebecca Storey, Demographic Profile of the Skeletal Population at Tlajinga 33
- 4:20 Linda Manzanilla, New Data on the "Old City" of Teotihuacan
- 4:40 Glenn R. Storey, Obsidian Utilization at Tlajinga 33, Teotihuacan
- 5:00 Discussants: Jeffrey Parsons and Jaime Litvak King

(16) General Session: EUROPEAN ARCHAEOLOGY

Audubon Room D

Chairperson: Arthur J. Jelinek

Participants

- 1:00 Paul A. Raber, Early Copper Production in the Polis Region, Western Cyprus
- 1:20 Olga Soffer, Bison - Kills - Old World Style
- 1:40 John F. Hoffecker, Upper Pleistocene Loess Stratigraphy and Paleolithic Site Chronology on the Russian Plain
- 2:00 L. Ellis, Archaeological Geology and Settlement Pattern Studies in Eastern Europe
- 2:20 Anne Birgitte Gebauer, Stylistic Variation in the Pottery of Neolithic TRB-culture in Denmark
- 2:40 Arthur J. Jelinek and Andre Debenath, New Excavations at the Paleolithic Site of La Quina (Charente), France

- 2:50 Carole L. Crumley and William H. Marquardt, Regional Dynamics: Environment and Politics in Burgundy (France), 100 B.C. to A.D. 1350
- 3:10 Patricia H. Mangan, An Examination of the Transition from Feudalism to Capitalism through a Locational Analysis of Settlements in Catalunya, Spain
- 3:30 C. Michael Barton, Patterns of Variability in Middle Paleolithic Tools
- 3:50 Barbara A. Voytek, Domestic Production and Exchange: A Contradiction?

(17) General Session: NORTHEAST AND ARCTIC

Audubon Room C

Chairperson: Allan P. McCartney

Participants

- 1:20 Lynn Ceci, Shell Bead Exchange Patterns in New York
- 1:40 Jonathon C. Lothrop, Activity Structure on Northeastern Paleo-Indian Habitation Sites
- 2:00 Peter Pagoulatos, Terminal Archaic "Living Areas" in the Lower Connecticut River Valley
- 2:20 William W. Fitzhugh, Boulder Pits to Longhouses: Socio-cultural Change in the Labrador Maritime Archaic
- 2:40 Aron L. Crowell, Spatial Analysis of Maritime Archaic Longhouse Sites in Labrador
- 3:00 Allen P. McCartney, Thule Eskimo Dietary Habits: A Review

(18) General Session: COASTAL ARCHAEOLOGY

Audubon Room B

Chairperson: Robert E. Ackerman

Participants

- 3:40 Scott Cane and Esmee Webb, Dietary and Environmental Implications of the Excavation of Aboriginal Shell Middens on the Southeastern Coast of New South Wales, Australia
- 4:00 Frank R. Thomas, The Decline of Ceramics on Islands: Some Avenues of Inquiry
- 4:20 Robert L. Spear, An Analysis of Sites from the Tahai Region, Easter Island
- 4:40 R. E. Ackerman, K. C. Reid, J. D. Gallison, M. E. Roe, C. Rabich-Campbell, Early to Mid Holocene Coastal Adaptations, Prince of Wales Island Region, Southeastern Alaska
- 5:00 Frederick J. Dunford, A Critical Examination of Shell Midden Structure
- 5:20 Margaret A. Nelson, Pamela J. Ford and Julie K. Stein, Turning a Midden into Mush: Evidence of Acidic Conditions in a Shell Midden

(19) General Session: MIDWESTERN UNITED STATES

Audubon Room C

Chairperson: Nancy O'Malley

Participants

- 3:40 Lane A. Beck, Regional Heterogeneity in Copena Mortuary Practices
- 4:00 Nancy O'Malley, Adena Mound Ceramics in Retrospect
- 4:20 Mark F. Seeman, Ohio Hopewell "Trophy" Skulls: Revered Ancestors or Defeated Enemies?
- 4:40 Mark J. Wagner, The Jamestown Site (2IC4-14), A Late Woodland Community in Interior Southern Illinois
- 5:00 Charles W. Markman, Above the American Bottom: The Late Woodland—Early Mississippian Transition in Northeastern Illinois
- 5:20 Brenda J. Baker, Mississippian Core - Periphery Relations and the Development of Gateway Communities

(20) General Session: SOUTH AMERICA

Salon C

Chairperson: Patricia J. Netherly

Participants

- 4:00 Karen O. Bruhns and Norman Hammond, Excavations at Pirincay, Ecuador
- 4:20 John S. Isaacson, Archaeological Evidence for Changes in Subsistence and Trade in the Western Montana of Ecuador

- 4:40 Patricia J. Netherly, Cultural Florescence in No Man's Land: The Jambeli Complex in El Oro, Ecuador
- 5:00 Ann M. Mester, Pearl Divers of Los Frailes: Manufacture and Trade in Manteno Chiefdoms
- 5:10 Victoria D. Horwitz, Staten Island, Tierra Del Fuego, Current Research
- 5:20 David R. Yesner, Prehistoric Coastal Adaptations of the Northern Beagle Channel, Tierra Del Fuego, Argentina: A Comparative Perspective

(21) Symposium: THE ARCHAEOLOGY OF WOODLAND ENCLOSURES IN THE MIDCONTINENT

Audubon Room A
Organizers and Chairpersons: Robert V. Riordan and Patricia S. Essenpreis

Participants

- 4:00 Rudolf Berle Clay, Peter Village and Adena Ritual Spaces
- 4:20 Robert V. Riordan, The Pollock Works: Chronology and Construction of a Hilltop Enclosure
- 4:40 Patricia S. Essenpreis, Architectural Examination of Fort Ancient, A Hopewellian Hilltop Enclosure
- 5:00 Robert C. Mainfort and Robert L. Thunen, The "Eastern Citadel": A Circular Enclosure at Pinson Mounds
- 5:20 James A. Marshall, Octagon and Octopus: Influence of the Octagon on Prehistoric Circular and other Earthworks in Eastern United States
- 5:40 Stephanie J. Belovich and David S. Brose, Late Woodland Fortifications in Northern Ohio
- 6:00 Discussants: N'omi Greber and James B. Griffin

(22) General Session: HISTORIC ARCHAEOLOGY

Audubon Room E
Chairperson: Richard Vernon

Participants

- 4:00 J. Alan May, Some Spanish Mission Influence on Aboriginal Material Culture: An Example from the Georgia Coast
- 4:20 M. E. Collins, Gary Shapiro and N. E. Washer, Pedro-Archaeological Investigations at a Northwest Florida Mission Site
- 4:30 Richard Vernon, 17th Century Apalachee Colono-Ware as a Reflection of Demography, Economics, and Acculturation
- 4:50 Marsha K. King, Archival Archaeology: Using Documentary and Cartographic Data to Explore Historic Trade and Settlement
- 5:10 Don Elliott, Spatial and Seasonal Pattern in Human Death: Evidence from Early Georgia and South Carolina
- 5:30 Joan Gallagher, Archaeology in City Square, Charlestown, Ma., from 1629 to 1775.
- 5:40 Judy A. Rose, Railroad Tie Hacking in Wyoming: A National Forest Perspective

(23) General Session: EASTERN MEDITERREAN ARCHAEOLOGY

Audubon Room D
Chairperson: Alan H. Simmons

Participants

- 4:30 John Lindly, A Preliminary Lithic Analysis of the Mousterian Site 634 from West-Central Jordan
- 4:50 Mark F. Baumler, Harold L. Dibble and John D. Speth, A Reevaluation of the Zagros Mousterian: New Data from Old Collections
- 5:10 Marcia L. Donaldson, Subsistence Variation and Agriculture in the Early Levantine Neolithic
- 5:30 Alan H. Simmons, Gary O. Rollefson and Ilse Kohler-Rollefson, Neolithic Adaptation Strategies and Economy in the Levant: Re-evaluating Some Common Assumptions
- 5:50 Steven A. Rosen, Archaeological Evidence for Pastoral Nomadism During Byzantine Times in the Negev Desert, Israel
- 6:10 Andrew M. T. Moore, Late Pleistocene and Early Holocene Adaptive Change in North Syria: The Contribution of a Recent Survey

(24) General Session: SOUTHWESTERN UNITED STATES

Salon A
Chairperson: Ann W. Stodder

Participants

- 5:00 Deni J. Seymour, The Social Implications of Artifact Distributions at Snaketown, Arizona
- 5:10 Ann W. Stodder, Complexity in Anasazi Mortuary Behavior: Evidence from the Dolores Archaeological Program
- 5:20 William S. Marmaduke, Specialized Shell Ornament Production in the Hohokam Colonial Period

THURSDAY EVENING APRIL 24, 1986

- 6:00- Cocktail Party: Hosted by the Clarion Hotel New Orleans
- 7:00 PM Tulane and Grand Ballroom Lobbies

(25) Plenary Session: THE TREATMENT OF HUMAN SKELETAL REMAINS

8:00-10:00 PM

FRIDAY MORNING APRIL 25, 1986

(26) Symposium: WATER MANAGEMENT IN THE DESERT WEST

Salon A
Organizer and Chairperson: Cynthia Irwin-Williams

Participants

- 8:00 C. Irwin-Williams, Amy Dansie and Jonathan O Davis, Prehistoric Water-Harvesting Techniques in the Northern Great Basin
- 8:20 Lonnie C. Pippin, Ephemeral Water Sources of the Northern Mojave Desert
- 8:40 Catherine S. Fowler, Water Management in the Great Basin: Ethnographic Perspectives
- 9:00 Vern Scarborough, A Pueblo Period Water Adaptation
- 9:20 William Haas, Locational Patterns of Water Storage Facilities and Pueblo Settlements in the Northern San Juan Anasazi
- 9:40 Gary Nabhan and W. Bruce Masse, Floodwater Agriculture in the Sonoran Desert: Ethnographic and Archaeological Perspectives
- 10:00 Paul R. Fish, Suzanne K. Fish and John H. Madsen, Runoff Farming and Intensification in the Northern Tucson Basin
- 10:20 William A. Davis, Winston B. Hurst and Debora Westfall, Prehistoric Water and Soil Conservation Technology in the Mesa Verde Anasazi Hinterland
- 10:40 Suzanne K. Fish, Fred L. Nials, David A. Gregory and Donald A. Graybill, Recent Investigations of Prehistoric Hohokam Canal Systems
- 11:00 R. Gwinn Vivian, Agricultural and Domestic Water Use in Chaco Canyon, New Mexico

(27) Symposium: RECENT ARCHAEOLOGICAL RESEARCH IN THE NORTHERN MAYA LOWLANDS

Salon B
Organizers and Chairpersons: E. Wyllys Andrews and William M. Ringle

Participants

- 8:00 Edward B. Kurjack, Settlement, Environment and Society in Pre-Columbian Yucatan
- 8:20 Fernando Robles C., Archaeological Investigations in Northern Quintana Roo
- 8:40 Jeremy A. Sabloff and Gair Tourtellot, Analysis of Community Patterns at Sayil, Yucatan, Mexico

- 9:00 Ruben Maldonado C., Ake, A Key Site in Northern Yucatan
 9:20 Charles E. Lincoln and Patricia K. Anderson, Settlement Pattern at Chichen Itza, Yucatan, Mexico
 9:40 Alfred Barrera Rubio, The Prehispanic Settlement in the Area of Uxmal, Yucatan
 10:00 Anthony P. Andrews and Tomas Gallareta Negron, An Itza Trading Port on the North Coast of Yucatan: The Isla Cerritos Archaeological Project
 10:40 Tomas Gallareta Negron, Variation and Distribution of Household Units at Coba, Quintana Roo, Mexico
 11:00 Maria Rocio Gonzalez and E. C. Trejo, New Aspects of the Archaeology of Northern Quintana Roo
 11:20 William M. Ringle and George J. Bey, III, Preliminary Reconnaissance of Ek Balam, Yucatan, Mexico
 11:40 Wyllys E. Andrews, Olmec Jades from Northern Yucatan and Early Maya Pottery at La Venta
 12:00 S. Boucher, R. Carrasco and A. Pena, Recent Investigations at Rio Bec, Campeche
 12:20 Discussants: Peter J. Schmidt and William L. Rathje

(28) Symposium: BEYOND TROPHY HEADS, LOOTED TOMBS AND ANCIENT ASTRONAUTS: NEW ARCHAEOLOGICAL AND ASTRONOMICAL PERSPECTIVES ON THE NASCA CULTURE OF PERU

Salon C

Organizers and Chairpersons: Helaine Silverman and Francis Riddell

Participants

- 8:00 Ann H. Peters, Village and Necropolis in the Pisco Valley
 8:20 Sarah Massey, Early Nasca Occupation of the Upper Ica Valley, Peru
 8:40 Helaine Silverman, Not Every Looter's Hole is a Tomb: Recent Research at Cahuachi
 9:00 Francis A. Riddell and Roger Robinson, Tambo Viejo, Acari: The View Thirty Years Later
 9:20 Allison C. Paulsen, Moche Features in Late Nasca Ceramics
 9:40 Donald A. Proulx, A Thematic Approach to Nasca Mythical Iconography
 10:00 Maria Reiche, A Summary of 40 Years Work on the Nazca Lines and Figures
 10:20 Phyllis Pitluga, Astronomical Analysis of the Nazca Ground Figures
 10:40 Anthony F. Aveni, Ray Centers on the Pampa de San Jose, Nazca

(29) Symposium: THE CARROT, NOT THE STICK: STRATEGIES FOR PROTECTING ARCHAEOLOGICAL RESOURCES ON PRIVATE PROPERTY

Audubon Room A

Organizer and Chairperson: Brona G. Simon

Participants

- 8:00 Brona G. Simon, Promoting the Past into the Future: Practical Approaches to Site Protection
 8:20 Franco Ruffino, Public Programs for Private Property Protection
 8:40 Stephen R. Claggett and Mark A. Mathis, Alternatives to "Brute Force" Archaeological Resource Management
 9:00 Nancy W. Hawkins, Louisiana's Public Preservation Strategies
 9:40 Teresa Hoffman and Shereen Lerner, The Use and Abuse of Archaeological Sites: Educating the Public
 10:00 Joel C. Janetski, The Nancy Patterson Project: An Example of Private Involvement in Archaeological Research
 10:20 Thomas M. Kolaz and Mark D. Elson, Pithouses and Townhouses: Cooperation between Archaeologist and Developer

(30) Symposium: ISLAND ARCHAEOLOGY AND MARITIME ADAPTATION IN SOUTHERN CALIFORNIA

Audubon Room B

Organizer and Chairperson: Clement W. Meighan

Participants

- 8:00 Clement W. Meighan, Temporal Fluctuations of Molluscan Species in California Shell Middens
 8:20 Douglas V. Armstrong, Evolution of a Maritime Tool Kit on San Clemente Island
 8:40 Carol F. Goldberg, Maritime Adaptation on San Clemente Island: Dietary Reconstruction Through Bone Chemistry
 9:00 Ellen Hardy, Religious Aspects of the Mortuary Remains from San Clemente Island, California
 9:20 Robert B. Rechtman, A Unique Archaeological Example of Aboriginal Island Use During the Historic Period
 9:40 Roy A. Salls, Environmental Stress Due to Overfishing in Southern California Prehistory
 10:00 Janet L. Scalise, Mollusk Exchange Among the California Channel Islands and Adjacent Coastal Mainland
 10:20 Michele D. Titus and Phillip L. Walker, Skeletal Analysis, San Clemente Island, California
 10:40 Andy Yatsko, San Clemente Island Research Under Navy Auspices

(31) Symposium: CLOVIS-ARCHAIC INTERFACE IN WESTERN NORTH AMERICA

Audubon Room C

Organizers and Chairpersons: C. M. Aikens, Judith A. Willig and John L. Fagan

Participants

- 8:00 C. Vance Haynes, Clovis Origin Update
 8:20 Alan L. Bryan, The Relationship of the Stemmed Point and Fluted Point Traditions in Western North America
 8:40 Steven R. Simms, The Clovis Archaic Interface in the Great Basin: A Case of Increasing Subsistence Variability
 9:00 Donald R. Tuohy, Paleo-Indian/Archaic Culture Complexes from Three Central Nevada Localities
 9:20 Robert G. Elston, Pre-Archaic Assemblage Variability in Grass Valley, Central Nevada
 9:40 Jonathon O. Davis, Two Early Holocene Stratified Sites in Northwestern Nevada
 10:00 Judith A. Willig, Lakeside Settlement Pattern in the Dietz Sub-Basin: Geo-Archaeological Context of Fluted and Stemmed Points
 10:20 John L. Fagan, Clovis and Western Pluvial Lakes Tradition Lithic Technology at the Dietz Site in Southcentral Oregon
 10:40 Robert R. Musil, Functional Efficiency and Technological Change: A Hafting Tradition Model for Paleo-Indian North America

(32) Symposium: RURAL COMMUNITIES AND EARLY STATE SOCIETIES

Audubon Room D

Organizer and Chairperson: Perry L. Gnivecki

Participants

- 8:00 Perry L. Gnivecki, Introduction
 8:10 Kathryn A. Kamp, The View from the Village: Ethnoarchaeological Perspectives on Urban and Rural
 8:30 Claudia Chang, The Ethnoarchaeology of Specialized Herding Sites: A Model for Rural Land-Use in Early State Societies
 8:50 Allen Zagarell, Urban/Rural Relations in Greater Mesopotamia During the IVth Millennium
 9:10 Brian Hesse, Susan Henson, Mary Metzger, Rural-Urban Exchange in Animal Products in Eastern Mediterranean Complex Societies
 9:30 Richard W. Redding, Tactics of Animal Use from the Early Village through the Parthian Period in Lowland Iran, Mesopotamia, and Environs, with a Note on the Development of Complex Societies
 9:50 Paula Wapnish, Bone, Cuneiform Texts and Folk Taxonomy
 10:10 Naomi F. Miller, Ethnobotanical Perspectives on the Rural-Urban Connection
 10:30 Discussants: Norman Yoffee and Fekri A. Hassan

(33) Symposium: STRATEGIES AND SURVIVAL: NATIVE AMERICAN RESPONSES TO EUROPEAN CONTACT AND COLONIZATION

Audubon Room E

Organizers and Chairpersons: James W. Bradley and Stephen R. Potter

Participants

- 8:00 Marvin T. Smith, The Coosa Chiefdom: Responses to European Contact
 8:15 Gregory A. Waselkov, Culture Change on the Creek Indian Frontier
 8:30 Stephen R. Potter, "... Scatter'd Upon the English Seats:" Culture Change Among Northern Virginia Algonkians
 8:45 Paul Robinson, The Role of Material Culture in Indian Ritual During the European Colonization of Narragansett Country
 9:00 James W. Bradley, Accommodating Change: The Onondaga Iroquois 1500-1650
 9:15 William R. Fitzgerald, The Effects of the European Presence on the Pre-1650 Ontario Iroquoians
 9:30 Discussants: Robert Paynter and Charles Hudson

(34) Symposium: THE COGNITIVE PAST: ONGOING RESEARCH IN HISTORICAL ARCHAEOLOGY

Audubon Room E

Organizers and Chairpersons: Barbara J. Little and Paul A. Shackel

Participants

- 10:00 Parker B. Potter, Ideology in History and the Search for the Past in Annapolis, Maryland
 10:20 Paul A. Shackel, Conspicuous Consumption and Class Maintenance
 10:40 Kristen S. Peters, Religion, Economics and Decision Making: An Example From a Free Black 18th Century Site in Maryland
 11:00 Brian L. Nagel, Forgotten People of the Past: Nineteenth Century Institutional Barriers in Rochester, New York
 11:20 Barbara J. Little, Consuming Ideology: Printing and Printers in the Eighteenth-Century Chesapeake
 11:40 Richard C. Waldbauer, The Transformation of a Rural Ideal: Farm Strategies and Failed Practice
 12:00 Joseph W. Hopkins III, Ideology Writ Large: Three Centuries of the Nicholson Plan in Annapolis
 12:20 Discussant: Mark P. Leone

(35) Symposium: PRESERVATION OF ARCHAEOLOGICAL RECORDS

Audubon Room A

Organizer and Chairperson: Edwin A. Lyon

Participants

- 11:00 Edwin A. Lyon, Toward a Survey of Archaeological Records
 11:20 James R. Glenn, The National Anthropological Archives: In Service to Archaeology
 11:40 F. A. Calabrese, Archaeological Records: Preservation of a Neglected Resource
 12:00 Christopher S. Peebles, The Many Archaeological Records: Problems of Meaning, Access and Preservation
 12:20 Ruthann Knudson, Grey Literature and Records Management in Archaeological Resource Management
 12:40 Discussant: Richard B. Woodbury

(36) Symposium: NEW WORLD DUGOUT CANOES AND CANOEISTS

Audubon Room B

Organizer and Chairperson: Richard P. Kandare

Participants

- 11:20 Robert W. Jobson and W R Hildebrandt, Non-Egalitarian Hunter-Gatherers and Maritime Dugout Canoes: A California Example
 11:40 David S. Brose, Logs and Logistics
 12:00 Lee A. Newsom and B. A. Purdy, Dugout Canoes from Florida

- 12:20 Clarence H. Webb, The Red River Dugout and Caddo I Trade at A.D. 1000-1100
 12:40 Richard P. Kandare, Early Protohistoric Mississippian Dugout Canoeists in the Lower Mississippi Valley
 1:00 Robert H. Lafferty III, Riverine Canoe Facilities of the Eastern United States: Ethnohistoric Implications for Archaeology
 1:20 Margaret E. Leshikar, Indian Canoes of the Basin of Mexico at Spanish Contact

FRIDAY AFTERNOON APRIL 25, 1986**(28) Symposium (continued): BEYOND TROPHY HEADS, LOOTED TOMBS AND ANCIENT ASTRONAUTS: NEW ARCHAEOLOGICAL AND ASTRONOMICAL PERSPECTIVES ON THE NASCA CULTURE OF PERU**

Salon C

Organizers and Chairpersons: Helaine Silverman and Francis Riddell

Participants

- 12:00 Persis B. Clarkson, Cultural, Environmental, and Chronological Parameters of the Nazca Geoglyphs of Peru
 12:20 R. Tom Zuidema, Nazca Lines, Nazca Art and Andean Ritual
 12:40 Jorge Elias Silva, Discussant's Comments
 1:00 Theresa Topic, Discussant's Comments
 1:20 Karen Mohr Chavez, Discussant's Comments
 1:40 Dwight Wallace, Discussant's Comments

(31) Symposium (continued): CLOVIS-ARCHAIC INTERFACE IN WESTERN NORTH AMERICA

Audubon Room C

Organizer and Chairperson: C. Melvin Aikens

Participants

- 12:00 Claude N. Warren and Carl Phagan, Fluted Points in the Mojave Desert: Their Technology and Cultural Context
 12:20 William J. Wallace and Francis A. Riddell, Prehistoric Background of the Tulare Lake, California
 12:40 Michael P. Sampson, A Functional and Technological Analysis of Lithic Artifacts from the Tulare Lake Basin, California
 1:00 David A. Frederickson, The Borax Lake Basin and Early Complexes in California's North Coast Range
 1:20 Discussants: Paul S. Martin, George C. Frison and Robson Bonnichsen

(37) Symposium: MIMBRES MOGOLLON ARCHAEOLOGY AND ETHNOBOTANY

Salon A

Organizer and Chairperson: Harry J. Shafer

Participants

- 12:30 Harry J. Shafer, New Developments in Mimbres Mogollon Archaeology
 12:50 Harold Drollinger, Extramural Areas at a Classic Mimbres Pueblo
 1:10 Henry L. Bruno, Structure Timber and Human-Environment Interaction at the Nan Ranch Ruin
 1:30 Eri Weinstein, Ancient Diet Reconstruction as Inferred from Human Burial Pollen, Nan Ranch Site
 1:50 Marianne Marek, Mimbres Skeletal Material with Presence of Coprolites at the Nan Ruin, New Mexico
 2:10 Karl J. Reinhard, Analysis of Colon Contents Found in Burial Context
 2:30 George H. Michaels, Nan-15: An Examination of the Economic Role of Outlier Villages Among the Classic Mimbres
 2:50 Darrell Creel, An Agricultural Site in the Mimbres River Valley

- 3:10 G. Lain Ellis, Multiple Hypotheses Concerning the Antiquity of a Mimbres Valley Irrigation System

(32) Symposium (continued): RURAL COMMUNITIES AND EARLY STATE SOCIETIES

Audubon Room D

Organizer and Chairperson: Perry L. Gnivecki

Participants

- 12:30 Kathryn Bard, Analysis of the Nagada Cemeteries and the Emergence of the State in Predynastic Egypt
 12:50 Michael Allen Hoffman, Urbanism and the Origins of the Egyptian Civilization: A Regional Approach
 1:10 Perry L. Gnivecki, A Rural Akkadian Community
 1:30 Elizabeth C. Stone, Mesopotamian Urban Population Structures
 1:50 Paul E. Zimansky, The Urartian Monarchy and Pastoralist Populations in Iron-Age Anatolia
 2:10 Susan T. Evans, Land and Liberty: The Role of the Autonomous Agrarian Village in the Aztec World
 2:30 David L. Webster, Excavations in Rural Domestic Complexes at Copan, Honduras
 2:50 William H. Isbell, Traditional Forms of Production and State Revenue: The Rise of Huari in the Central Highlands of Peru
 3:10 Discussants: Fekri A. Hassan and Norman Yoffee

(38) Symposium: THE CLASSIC MAYA COLLAPSE: THE COPAN CASE

Salon B

Organizers and Chairpersons: William T. Sanders and David Webster

Participants

- 1:00 Stephen L. Wittington, Disease Stress in the Lower Classes of Late Classic Copan
 1:20 David J. Rue and John Wingard, Late Classic and Early Postclassic Environmental Impact at Copan
 1:40 Elliot Marc Abrams, The Causes of Deforestation and Its Role in the Collapse of Copan, Honduras
 2:00 John K. Mallory and James J. Sheehy, Terminal Classic Occupation in Group 9M-22: Evidence for Social Continuity After the Collapse of Centralized Rule in Copan
 2:20 Melissa Diamanti, Terminal Classic Occupation in an Elite Residence at Copan, Honduras
 2:40 Ann Corinne Freter, Evidence of Political Decentralization During the Terminal Classic Period in the Copan Valley: A Regional Perspective
 3:00 Nancy Gonlin, Household Archaeology in the Copan Valley
 3:20 William L. Fash and L. Schele, The Inscriptions of Copan and the Dissolution of Centralized Rule

(39) Symposium: CHANGES IN OSAGE AND MISSOURI CULTURE, A.D. 1675-1825, USING AN INTERDISCIPLINARY APPROACH

Audubon Room E

Organizer and Chairperson: Carl H. Chapman

Participants

- 1:00 Carl H. Chapman, Missouri and Osage Indian Technological Adaptations and Changes During the Hide and Fur Trade A.D. 1675-1825
 1:20 Eric E. Voigt and Andrea A. Hunter, Early Historic Environments Along the Margin of the Southern Prairie Peninsula
 1:40 James R. Purdue, Body Size and Age Structure of White-Tailed Deer Utilized by the Osage in Missouri
 2:00 Jeffrey K. Yelton, Changes in Osage-Missouri-Indian Procurement and Use of Animals: 1675-1825
 2:20 Andrea A. Hunter and Deborah M. Pearsall, Paleoethnobotany of the Osage and Missouri Indians: Analysis of Plant Remains from Historic Village Sites
 2:40 Leonard W. Blake, Cultivated Plants from Historic Osage and Missouri Indian Sites

- 3:00 Robert Paul Wiegers, Archaeological Evidence for Osage, Caddo, and Pawnee Contact
 3:20 Discussant: Bruce McMillan

(40) General Session: REMOTE SENSING AND COMPUTER APPLICATION

Audubon Room A

Chairperson: Michael E. Whalen

Participants

- 1:20 Paul E. Buck, Steven C. Willis and Milton O. Smith, Application of Multispectral Imagery to Archaeological Problems in Arid Regions
 1:40 Richard D. Gumaer, Dealing with Noise in Geophysical Surveying
 2:00 Mitchell T. Mulholland, Remote Sensing and Computer Analysis: Alternatives in the Evaluation of Unmarked Cemeteries
 2:10 Michael E. Whalen, A Rapid Technique for Three-Dimensional Site Mapping in Southwestern United States
 2:40 Frederic R. Matfield, A New Generation of Photogrammetric Instruments for Archaeology
 3:00 Jane Stone, Image Database Systems for Archaeological Applications

(41) Symposium: CURRENT RESEARCH IN UNDERWATER ARCHAEOLOGY

Audubon Room B

Organizer and Chairperson: Susan B. M. Langley

Participants

- 2:20 Melanie J. Stright, Methods for Locating Inundated Prehistoric Sites in the Marine Environment
 2:40 Phillip J. Wright, Foraging Behavior on Woodland Underwater Sites
 3:00 J. Barto Arnold III, Historic Shipwreck Legislation: Development and Status
 3:20 Peter Engelbert, Ontario's Maritime Beginnings
 3:40 Susan B. M. Langley, Submerged Heritage Management: Underwater Parks

(42) General Session: PERUVIAN ARCHAEOLOGY

Salon C

Chairperson: Richard L. Burger

Participants

- 2:30 Izumi Shimada, Architectural and Functional Characterization of the Sicán Precinct, Batán Grande, Peru
 2:50 Richard L. Burger, Evaluating the Williams' Hypothesis of Initial Period Agro-Religious Centers in Peru
 3:10 Terry Y. Levine, A Comparison of Inka State Storage in Three Central Andean Highland Regions
 3:20 Cathy Lynne Costin, Economic and Social Change Associated with Inka Conquest of the Upper Mantaro Valley, Peru: Ceramic Evidence
 3:50 Charles M. Hastings, Herders in the Jungle: Ethnic Continuity Across Ecological Boundaries in Central Peru
 4:10 Daniel G. Julien, Archaeological Investigations in Cajamarca, Peru

(43) Symposium: PAST PATTERNS OF HUMAN ADAPTATION IN THE EASTERN OZARKS, SOUTHEAST MISSOURI

Organizer and Chairperson: M. J. Lynott

Audubon Room C

Participants

- 2:40 Paul A. Delcourt, Hazel R. Delcourt, E. Newman Smith, Jr., The Ozarks: Key to Interpreting Late-Quaternary Environmental Changes in Southeastern North America
 3:00 E. Newman Smith, Jr., Paul A. Delcourt and Hazel R. Delcourt, Variations in Forest Assemblages in Southern Missouri: Responses to Changes in Temperature/Moisture Gradients through Time
 3:20 Roger T. Saucier, Geomorphic Processes and Landscape Evolution as Related to Human Settlement in the Current River Valley, Missouri

- 3:40 Mark J. Lynott, Two Emergent Mississippian Sites in the Eastern Ozarks, Southeast Missouri
- 4:00 James E. Price, Emergent Mississippian Occupation in the Southeastern Ozarks of Missouri
- 4:20 Thomas W. Boutton, Mark J. Lynott, James E. Price and Peter D. Klein, Stable Carbon Isotope Ratios as Indicators of Maize Agriculture in Southeast Missouri and Northeast Arkansas
- 4:40 Cynthia R. Price, Historic Period Frontier Settlement in the Eastern Ozarks of Southeast Missouri
- 5:00 Discussants: Michael J. O'Brien and John E. Kelly

(44) General Session: COMPARATIVE SOCIETIES

Audubon Room A
Chairperson: James L. Boone

Participants

- 3:40 Samuel M. Wilson, The Prestige Good System in the Prehispanic Caribbean
- 4:00 Joseph A. Tainter, Explaining the Collapse of Complex Societies
- 4:20 A. M. Ulana Klymyshyn, Political and Economic Centralization in Chan Chan, Peru
- 4:40 James L. Boone, Elite Lineage Behavior and the Organization of Early States: From Ethnohistoric Models to Archaeological Evidence

(45) General Session: ARCHAEOLOGY AND THE AMERICAN INDIAN PERSPECTIVE

Audubon Room E
Chairperson: Richard E. Ross

Participants

- 4:00 Richard E. Ross and K. Gorospe, Indians, Archaeologists, and Burials: The Oregon Experience
- 4:20 Anthony L. Klesert, Sacred Sites and CRM: Problems and Solutions from the Navajo Region
- 4:40 Larry Benallie, Archaeological Research on Indian Lands

(46) General Session: EASTERN NORTH AMERICA

Audubon Room B
Chairperson: Steven R. Ahler

Participants

- 4:20 James F. Garber, A Transitional Archaic Post-Hole Pattern and Activity Areas at 41HY163, San Marcos, Texas
- 4:30 Beverly A. Mitchum, Lithic Production Systems in the Chartiers Creek Valley, Washington County, Pennsylvania
- 4:40 Thomas O. Maher, Holding: A Hopewell Community in the American Bottom
- 4:50 Steven R. Ahler, Chronology, Site Formation and Changing Site Use at Modoc Rock Shelter, Southwest Illinois
- 5:00 Jack Steinbring, Richard Callaghan and Eve Danzinger, A Pre-ceramic Context for Petroglyphs in Northwestern Ontario

FRIDAY EVENING APRIL 25, 1986**SOCIETY FOR AMERICAN ARCHAEOLOGY**

- 5:30- Annual Business Meeting
- 7:30 PM Tulane Room
Secretary of Interior Donald P. Hodel is expected to address the members at the annual business meeting.
- 7:30 PM **Cashiered Bar**
Grand Ballroom Lobby

SATURDAY MORNING APRIL 26, 1986**(47) Symposium: EVOLUTION OF AGRICULTURAL SYSTEMS ON BLACK MESA, NORTHEASTERN ARIZONA**

Salon A
Organizers and Chairpersons: Deborah L. Nichols and Jeffrey S. Dean

Participants

- 8:00 Richard I. Ford Introductory Remarks
- 8:05 Jeffrey S. Dean, Environmental Context of Food Production on Black Mesa, Northeastern Arizona
- 8:20 Deborah L. Nichols and K. W. Fernstrom, The Impact of Food Production on Population and Settlement Patterns During Basketmaker Times on Northern Black Mesa
- 8:35 Debra L. Martin, Ann L. Magennis and George J. Armelagos, Diet, Disease, and Death: Analysis of the Black Mesa Skeletal Remains
- 8:50 Robert D. Leonard, Agricultural Production and Animal Utilization in the American Southwest
- 9:10 Patricia A. Gilman, The Impact of Increasing Agriculture on Black Mesa Architecture
- 9:25 Andrew L. Christenson, Changes in Maize Processing on Black Mesa, A.D. 100-1150: The Evidence from Grinding Tools
- 9:40 Discussants: Richard I. Ford, Jeffrey S. Dean and Deborah L. Nichols

(48) Symposium: RECONSTRUCTING MAYA DIET AND SUBSISTENCE: CURRENT RESEARCH APPROACHES

Salon B
Organizer and Chairperson: Molly R. Mignon

Participants

- 8:00 Molly R. Mignon, Ethnohistoric Documents in the Study of Maya Diet and Subsistence
- 8:20 Cathy J. Crane, Late Preclassic Maya Archaeobotanical Remains: Problems in Quantification and Interpretation
- 8:40 Bruno Marino and Michael J. DeNiro, Maya Diet: The Isotopic Evidence
- 9:00 Helen Sorayya Carr, Approaches to Ascertaining the Relative Importance of Various Animals Among the Maya
- 9:20 Martha J. Maori, Plants and Animals in the Maya Hieroglyphic Script
- 9:40 Leslie C. Shaw and Eric C. Gibson, Contextual Analysis of Maya Faunal Remains from Kichpanha, Belize
- 10:00 Sharon L. Bennett, Trace Element Evidence of the Colonial Mayan Diet at Tipu, Belize
- 10:20 Paul F. Healy, Ancient Maya Agricultural Terraces: New Evidence From Belize
- 10:40 Discussants: Alfred Siemens and Norman Hammond

(49) Symposium: NEW PERSPECTIVES ON CAHOKIA: VIEWS FROM THE PERIPHERIES

Salon C
Organizer and Chairperson: James B. Stoltman

Participants

- 8:00 George R. Milner, Mississippian Period Cultural and Demographic Transformations in the American Bottom, Illinois
- 8:20 James W. Porter, Craft Specialization in the American Bottom?
- 8:40 Melvin L. Fowler, Mound 72: Social Differentiation and the Control of Resources at Cahokia
- 9:00 Jeffrey P. Brain, Cahokia from the Southern Periphery
- 9:20 Dan F. Morse, Cross Cultural Similarities Between the Cahokia Region and the Central Mississippi Valley A.D. 800-1150
- 9:40 Patricia J. O'Brien, Cahokia and Steed-Kister: The Edge of the Central Plains
- 10:00 Kevin McGowan and Thomas J. Riley, Collins Phase, Late Woodland-Mississippian Relationships in East Central Illinois at A.D. 1050

- 10:20 Thomas Genn Cook, The Audrey North Site, Greene Co., Illinois: The Stirling Component
 10:40 Alan D. Harn, The Eveland Site: Inroad to Spoon River Mississippian Society

(50) Symposium: CULTURAL DYNAMICS IN THE LATE PREHISTORIC AND HISTORIC PERIODS ON THE CAROLINA PIEDMONT

Audubon Room A

Organizers and Chairpersons: Roy S. Dickens, Jr., H. Trawick Ward and R. P. Stephen Davis, Jr.

Participants

- 8:00 Roy S. Dickens, H. Trawick Ward and R. P. Stephen Davis, Jr., Introduction
 8:20 Linda F. Stine, The First Hundred Years of Atlantic Piedmont Fur Trade
 8:40 Daniel L. Simpkins and Gary L. Petherick, Settlement Pattern Changes in the North Carolina Piedmont During the Contact Period
 9:00 Linda F. Carnes, Euroamerican Trade Artifacts from Occaneechi Town, North Carolina
 9:20 H. Trawick Ward and Homes H. Wilson, Mortuary Behavior, Human Skeletal Remains, and Culture Change in the North Carolina Piedmont
 9:40 Kristen Johnson Gremillion and Mary Ann Holm, Analysis of Precontact and Postcontact Subsistence Remains from North Carolina Piedmont Sites
 10:00 R. P. Stephen Davis, Jr., Native Pottery of the Historic Occaneechi Indians
 10:20 V. Ann Tippitt, Late Prehistoric and Historic Lithic Assemblages on the North Carolina Piedmont
 10:40 Julia E. Hammett, Shell Ornaments as Social Identity Markers in Native North America
 11:00 Discussants: David S. Phelps and Jeffrey P. Brain

(51) Symposium: PROTECTING OUR ARCHAEOLOGICAL HERITAGE: HOW EFFECTIVE IS THE ARCHAEOLOGICAL RESOURCE PROTECTION ACT

Audubon Room B

Organizers and Chairpersons: Gary H. Nurkin and Annetta L. Cheek

Participants

- 8:00 Annetta L. Cheek, ARPA—The Washington Perspective
 8:20 Gary H. Nurkin, Practical Problems in Commencing an Archaeological Prosecution
 8:40 Kristine O. Rogers, Practical Problems in ARPA Prosecutions
 9:00 Sherry P. Herrgott, Preparing for Trial: The Difficulties in Undertaking an ARPA Prosecution
 9:20 C. Melvin Aikens, Testifying Under ARPA as an Expert Witness
 9:40 Leslie E. Wildesen, ARPA and the Concept of Moral Absolutes
 10:00 Martin E. McAllister, The Forensic Archaeologist: The Role of the Archaeologist as a Professional Expert Witness

(52) Symposium: FORM AND DESIGN IN ARCHAEOLOGY: A GRAMMATICAL APPROACH

Audubon Room C

Organizers and Chairpersons: Robin B. Boast and Christopher R. Chippindale

Participants

- 8:00 George Stiny, Parallel Rule Systems in Design
 8:20 Christopher R. Chippindale, Composition and Order in Mont Bego Rock-Art
 8:40 Frank Brown, A Rule-Based Approach to the Generation of Building Patterns in Medieval London
 9:00 Dorothy K. Washburn, The Significance of Motif Shape
 9:20 Scott C. Watson and Jay F. Custer, Middle-Late Woodland Ceramic Design Grammers of the Middle Atlantic Region, Eastern United States
 9:40 Robin B. Boast, Ceramic Design Systems: A Non-Typological Approach
 10:00 Terry W. Knight, Transformations of the Meander Motif on Greek Geometric Pottery
 10:20 Jon Muller, Structure and Form of the Mud Glyph Cave Art
 10:40 Ezra B. W. Zubrow, Prehistoric Style and the Archaeological Frame of Reference
 11:00 Christopher Carr and Beryl Rosenthal, Determinacy and Indeterminacy in Artifact Style Analysis: Hierarchy, Meaning and Context
 11:20 Discussant: George Cowgill

(53) General Session: AFRICA

Audubon Room D

Chairperson: Garth C. Sampson

Participants

- 8:00 Nicholas Toth, Modeling Early Hominid Behavior and Adaptation
 8:20 Sally McBrearty, The Sangoan Industry in East Africa
 8:40 Stanley H. Ambrose, Why African Hunters Gather
 9:00 John W. Fisher, Jr. and Helen C. Strickland, Spatial Organization of Modern Efe Pygmy Campsites, Zaire
 9:20 Kenneth W. Russell, The Evolution of Cereal Husbandry and Pastoral Subsistence Strategies: Production Marginality or Relative Energetics?
 9:40 Garth C. Sampson, Spatial Organization of the Seacow Valley San, South Africa A.D. 13-1800

(54) General Session: HISTORIC ARCHAEOLOGY

Audubon Room E

Chairperson: Richard A. Fox

Participants

- 8:00 Alexy Simmons, Red Light Ladies: Entrepreneurs and Companions
 8:20 Margaret Purser, Welcome to Miller Time: American Beer Bottles and the Archaeological Study of Consumption
 8:40 Rikki Rubenstein and Kenneth L. Brown, Always A Haven for the Wealthy?: Archaeology and the Founding of Houston, Texas
 9:00 Richard A. Fox, Jr., Establishing the Battlefield Pattern: A Case Study from the Custer Battlefield
 9:20 James Schoenwetter, Palynological Applications in Historic Archaeology

(55) Symposium: ESTABLISHING A RADIOCARBON DATA BASE

Audubon Room E

Organizer and Chairperson: Renee Kra

Participants

- 10:00 Renee Kra, A Proposal for a Radiocarbon Data Base
 10:20 R. E. Taylor, Radar: ¹⁴C Dates from *Radiocarbon* in Computer Based System
 10:40 T. W. Linick, A. Long, P. E. Damon, D. J. Donahue, A. J. T. Jull, and R. Gillespie, Database management of Beta-Counting and Accelerator Mass Spectrometry (AMS) Radiocarbon Analysis at Arizona
 11:00 Roger McNeely, The Geological Survey of Canada Date Locator File: A Progress Report
 11:20 Herbert Haas and Willy Wolfli, Extension of the Data Base for Egyptian Chronology
 11:40 Willy Wolfli, Radiocarbon Dating with the Zurich AMS Facility
 12:00 Discussants: Minze Stuiver and Andrew Moore

(56) General Session: SOUTHWESTERN UNITED STATES

Salon A

Chairperson: Cathy J. Lebo

Participants

- 10:20 M. Steven Shackley, Diachronic Variability in Obsidian Procurement in the American Southwest: A Trace Element Exploration of Southwest Obsidian Sources
 10:40 David L. Carmichael, Obsidian Hydration and Old Wood Radiocarbon Dates: A Case Example From the Jornada Mogollon
 11:00 Richard V. N. Ahlstrom, If Tree-ring Dates Are So Accurate, Why Aren't Our Chronologies More Exact?
 11:20 Cathy J. Lebo and Keith P. Jacobi, Chronological Resolution and Population Dynamics in Northern Arizona
 11:40 Robert W. Preucel, Prehistoric Agricultural Land-Use on the Pajarito Plateau: A Consideration of the Field House Strategy
 12:00 Neal W. Ackerly, Jerry Howard and Randall H. McGuire, Structure and Dynamics of Hohokam Irrigation Systems: Evidence from La Ciudad

- 12:20 W. Nicholas Trierweiler, The Marginal Cost of Subsistence Production on the Pajarito Plateau
 12:40 Mark D. Elson, The Tanque Verde Wash Site: Rincon Phase Settlement in the Tucson Basin
 1:00 Alexander J. Lindsay, Late 13th-Century Pit Houses and Pueblo Occupations at the Point of Pines Ruin, Arizona

(57) Symposium: ALTERNATIVE APPLICATIONS OF LITHIC ANALYSIS

Audubon Room D
 Organizers and Chairpersons: George Odell and Donald Henry

Participants

- 10:20 Anthony E. Marks, The Use of Conjoins in Typological Studies
 10:40 Richard W. Yerkes, Lithic Analysis and Activity Patterns at Labras Lake
 11:00 James Sackett, New Approaches to Upper Paleolithic Assemblage Variability
 11:20 George H. Odell, Making Rocks Speak: Detailed Lithic Comparisons in the Illinois Valley
 11:40 Richard MacNeish, Lithic Materials from the Organ Mountain Project
 12:00 Angela E. Close, Studying Rocks in the Real World
 12:20 Donald O. Henry, Correlations Between Patterns in Reduction and Settlement
 12:40 Jacques Tixier, Reading Prehistoric Stone Tools
 1:00 Discussant: Barbara Luedtke

(58) Symposium: INFORMATION AS A CULTURAL RESOURCE

Audubon Room B
 Organizer and Chairperson: David M. Evans

Participants

- 10:40 Henry Cleere, The Rationale of Information Systems at the National Level
 11:00 F. Alan Aberg, The National Monuments Record for England: Its Functions and Purpose
 11:20 Bennie C. Keel, Cultural Resource Automated Data Bases in the Federal Government
 11:40 Malcolm G. Wood, The Marketing and Interpretation of England's Heritage
 12:00 David R. Prince, Information Management and Strategic Planning
 12:20 David M. Evans, Information Technology: A Discussion of Its Implications for the Historic Environment
 12:40 Walter Jamieson, Heritage Education: From Primary School to Professional Mid Career Development

SATURDAY AFTERNOON APRIL 26, 1986**(49) Symposium (continued): NEW PERSPECTIVES ON CAHOKIA: VIEWS FROM THE PERIPHERIES**

Salon C
 Organizer and Chairperson: James B. Stoltman

Participants

- 12:00 Mark A. McConaughy, The Rench Site Emergent Mississippian Farming Hamlet from the Central Illinois River Valley: Food for Thought
 12:20 Fred A. Finney and James B. Stoltman, The Fred Edwards Site, A Case of Stirling Phase Culture Contact in Southwestern Wisconsin
 12:40 Guy E. Gibbon and Clark A. Dobbs, The Mississippian Presence in the Red Wing Area, Minnesota
 1:00 Joseph A. Tiffany, Mississippian-Mill Creek Interaction
 1:20 Elden Johnson, Cambria and Cahokias' Northwestern Periphery
 1:40 Robert L. Hall, The Mechanisms of the Cahokia and Oneota Interactions
 2:00 Discussants: John E. Kelley, Bruce D. Smith and James B. Griffin

(59) Symposium: THE MIDDEN MOUNDS: A LARGE SCALE INVESTIGATION OF THE ARCHAIC STAGE IN THE MID-SOUTH

Audubon Room A
 Organizers and Chairpersons: Judith A. Bense and Rochelle Lurie

Participants

- 12:00 Ernest W. Seckinger, Jr., Federal Perspective on the Midden Mounds Project, Upper Tombigbee Valley, Mississippi
 12:20 Chung Ho Lee, Archaeology of the Midden Mound
 12:40 Dallas A. Blanchard, Judith A. Bense and Rochelle Lurie, Research Design for Investigating Stratified Archaic Midden Mounds in the Upper Tombigbee Valley, Mississippi
 1:00 David E. Pettry, Soils and Geomorphology of Stratified Archaic Sites in the Upper Tombigbee River Valley
 1:20 Elizabeth S. Sheldon, Prehistoric Plant Use in Northeast Mississippi
 1:40 Ned J. Jenkins, Alexander Ceramic Development in the Tombigbee River Valley
 2:00 Jeffrey V. Kalin, Replication Experiments for the Interpretation of Archaic Lithic Tools from Northeastern Mississippi
 2:20 Rochelle Lurie, Changes in Lithic Technology During the Archaic in the Upper Tombigbee River Valley
 2:40 Judith A. Bense, The Midden Mounds: Their Contribution to the Understanding of the Archaic Stage in the Mid-South
 3:00 Discussants: James A. Brown and Walter E. Klippel

(60) General Session: WESTERN UNITED STATES

Audubon Room C
 Chairperson: Donald A. Graybill

Participants

- 12:00 Robert L. Bettinger, Aboriginal Occupation at Altitude: Alpine Hunters and Villagers in the White Mountains of California
 12:20 Harvey Crew, Ann Peak, Vance Haynes, Delbert True and Donald Tuohy, CA-CAL-S342, An Early Holocene Site on the West Slopes of the Sierra Nevada, California
 12:40 William C. Clewlow, Jr., Paleo-Indian Investigations in the Black Rock Desert
 1:00 Mary F. Ricks and William J. Cannon, The Lake County Oregon Rock Art Inventory: 7000 Years of Northern Great Basin Rock Art
 1:20 Donald A. Graybill, Dendroclimatic Research in the Great Basin
 1:40 George Gummerman, IV, Understanding Dietary Change in the Southern Great Basin: The Coso Junction Ranch Site
 2:00 David B. Madsen, Hunting Hoppers: Eating Things that Go Jump in the Night
 2:20 Pegi Jodry, Stewart's Cattle Guard Site: A Folsom Camp and Butchering Locality in South Central Colorado

(61) General Session: MAYAN ARCHAEOLOGY

Salon B
 Chairperson: Thomas H. Guderjan

Participants

- 1:00 John Andresen, Lowland Maya Beekeeping
 1:20 Anne Pyburn, The Functional Interpretation of Prehistoric Lowland Maya Non-Mound Features
 1:40 Norman Hammond, Excavation and Survey at Nohmul, Belize, 1986
 2:00 Joseph W. Ball and Jennifer T. Taschek, Guerra: A Late Classic Suburban Paraje of Buenavista del Cayo, Belize
 2:20 Leoncio A. Garza-Valdes, Maya Green Stones and Lapidary Techniques
 2:40 George R. Holley and Robert L. Rands, Morphological Variation in Maya Dishes: Selectivity and Change
 3:00 Winifred Creamer, The Development of Social Hierarchy in the Sula Valley, Honduras
 3:20 Robert S. Carlsen, The Early Classic Period Maya Textile Remains from Rio Azul, Guatemala

- 3:40 Thomas H. Guderjan, Maya Settlement and Trade on Ambergris Cay, Belize
 4:00 Michael A. Nash, Maya Subsistence Economics as Reflected in Lithic Functional Analysis in Northern Belize
 4:10 J. Jefferson MacKinnon and Emily M. May, Ancient Maya Salt Production at Coastal Sites in Belize
 4:20 Stephen L. Black, El Pedernal: A Late Classic Agricultural Community, Peten, Guatemala
 4:30 Olivier de Montmollin, Classic Maya Settlement and Politics in the Rosario Valley, Chiapas, Mexico
 4:40 Robert L. Rands and Monica M. Bargielski, Opal Phytoliths, Paste Color, and Chemical Composition: Covariation in Ceramics of the Palenque Region, Mexico

(62) General Session: ARCHAEOLOGY AND DATING TECHNIQUES

Audubon Room E
 Chairperson: J. L. Eighmy

Participants

- 1:00 Jeffrey L. Eighmy, Fredrick Huntington, William H. Doelle and J. Holly Hathaway, Age Estimates Using Sets of Contemporary Archaeomagnetic Dates
 1:20 Jerry Stipp, Murry Tamers, Ann Wintle and Willy Wolfli, Radiocarbon and Thermoluminescence Dating 1985: Dream and Reality
 1:40 James J. Hester, Tandem Accelerator Mass Spectrometer Method
 2:00 Richard Gillespie, Dating Bone Organic Matter: The Effect of Environment
 2:20 Jean S. Aigner, O¹⁸ Correlations and Zhoukoudian Locality 1

(63) Symposium: RECENT DEVELOPMENTS IN ENVIRONMENTAL ANALYSES IN EUROPE AND AMERICA

Audubon Room B
 Organizers and Chairpersons: Esmee Webb and Cheryl Classen

Participants

- 1:30 Ingo Campen, 35,000 Years of Cave Sediments in Southern Germany
 1:50 Bruce Benz, The Archaeological Site as a Depositional Community
 2:10 Cheryl Claassen, Shell Seasonality Controls
 2:30 Margaret Deith, The Uses of Isotopic Studies on Shells in the Interpretation of Prehistoric Sites
 2:50 Hubert Berke, Butchering Marks on Horse Bones from the Magdalenian Site of Petersfels, Southwestern Germany
 3:10 David R. Huelsbeck, Faunal Remains and the Identification of Social Groups in the Archaeological Record
 3:30 Anne Ross, Geomorphic Evidence for a Culturally Caused Change in Site Use and Settlement Patterns in Southeast Australia
 3:50 Esmee Webb, What Mean These Bones? Interpreting the Faunal Debris Found in Sites Occupied by Neanderthals
 4:10 Discussants: David Harris and Sandra Bowdler

(64) Symposium: PHYTOLITHS IN ARCHAEOLOGY

Salon A
 Organizers and Chairpersons: Delores Piperno and Lawrence Kaplan

Participants

- 1:40 Deborah M. Pearsall and Dolores R. Piperno, Antiquity of Maize Cultivation in Ecuador: Summary and Reevaluation of the Evidence
 2:00 Susan C. Mulholland, A Test of Phytolith Analysis at Big Hidatsa, North Dakota
 2:20 Amy L. Ollendorf, Phytoliths from Philistine Occupation Surfaces at Tel Miqne (Ekron), Israel
 2:40 Irwin Rovner and David Hurst Thomas, Archaeobotany of Alta Toquima Village: Quick-Scan Phytolith Evidence
 3:00 Steve Klukkert, Opal Phytoliths from an Adobe Rancho
 3:20 Lawrence Kaplan and Lesley Sneddon, Phytolith Analysis in the Andean Highlands: Problems and Prospects

- 3:40 Glen G. Fredlund and Wakefield Dort, Jr., Phytolith and Pollen Evidence for Early Holocene Vegetation Change, Owl Cave, Wasden Site, Eastern Snake River Plain, Idaho

(65) Symposium: THE CURRENT STATE OF MICROARTIFACT RESEARCH

Audubon Room D
 Organizer and Chairperson: Elizabeth D. Vance

Participants

- 1:40 Robert C. Dunnell, Theoretical Issues in the Interpretation of Microartifacts
 2:00 Arlene M. Rosen, Microarchaeology at Village and City Sites in the Near East
 2:20 Margaret C. Trachte, The Chemical Microartifact: An Extension of Analytical Technique
 2:40 Elizabeth D. Vance, Microartifact Analysis Procedures, Past, Present, and Future
 3:00 Jo Reese, Microarchaeological Analysis of the Chinese Worker's Area at the Warrendale Cannery Site, Oregon
 3:20 Julie K. Stein and Patricia A. Teltser, Microartifact Analysis: A Tool for Understanding Site Formation Processes

(66) Symposium: ARCHAEOLOGISTS IN POLITICS: A WORKING SYMPOSIUM

Salon C
 Organizers and Chairpersons: Philip Speser and Ruthann Knudson

Participants

- 3:00 Philip Speser, Kathleen Reinburg and Audrey Porsche, The Politics of Archaeology: Experiences at the Federal Level
 3:20 Mark A. Boster, Regulatory Process: Balancing the Public Interest with the Requirements of the Law
 3:40 Gregory E. Conrad, An Industry Viewpoint
 4:00 Brian S. Robinson, The Reburial Bill in New Hampshire
 4:20 Hester A. Davis, Persuasion on the State and Local Level
 4:40 Leslie Wildesen, Archaeopolitics: A State Perspective
 5:00 Jennifer R. Hodnette and Judith A. Bense, Development of Local Archaeological Resource Management in Pensacola, Florida

(67) General Session: PLAINS REGION, UNITED STATES

Audubon Room C
 Chairperson: Charles A. Reher

Participants

- 3:00 Julie E. Francis, Powder River—Let 'er Buck: Ten Thousand Years of Hunter-Gatherer Prehistory in the Middle Fork Reservoir, Wyoming
 3:20 Charles A. Reher, The Edge of Expansion: Settlement Along Prehistoric Frontiers
 3:40 Stanley A. Ahler, Origins of Knife River Ware Pottery
 4:00 Duane C. Anderson, The Wittrock Excavations: Implications for the Study of Culture Process Within the Initial Variant of the Middle Missouri Tradition
 4:20 Douglas W. Owsley and Timothy G. Baugh, Cut Human Bones from the Edwards I Site (34BK2)

(68) Symposium: PROBLEMS AND PROSPECTS OF MORTUARY ARCHAEOLOGY

Audubon Room E
 Organizers and Chairpersons: James A. Brown, Lynne Goldstein and Robert Chapman

Participants

- 3:00 Robert Chapman, Towards a Theory of Mortuary Variability: Production, Circulation and Deposition of Goods
 3:20 Kathryn Maurer Trinkaus, Mortuary Behavior, Labor Organization and Social Rank
 3:40 Michael Parker-Pearson, Funerary Rites and Long-term Social Change in Late European Prehistory
 4:00 Richard A. Kerber, Mortuary Models of Social Organization: Fitting the Facts

- 4:20 Lynne Goldstein and Norman C. Sullivan, People as Food, Bone as Ritual: Rethinking Old Data
 4:40 S. R. Frankenberg, A Dynamic Model of Disease-Status Interactions
 5:00 Jean-Paul Demoule, The Archaeology of Death: Formal Analysis and Anthropological Models
 5:20 James A. Brown, Rethinking Some Problems in Mortuary Archaeology
 5:40 Discussants: John O'Shea and Arthur A. Saxe

(69) General Session: SOUTHEASTERN UNITED STATES

Audubon Room A
 Chairperson: Janet Rafferty

Participants

- 3:40 Gary Shapiro, Rivers as Boundaries, Rivers as Centers: Florida Variations on a Mississippian Theme
 4:00 William C. Johnson, Prentice M. Thomas and Glen G. Fredlund, The Impact of Sea-Level Changes on the Cultural Prehistory of the Choctawatchee Bay Area, Florida
 4:20 Janet Rafferty, Sedentary Hamlets in the Tombigbee River Valley: Evidence from the Gulf Formational and Woodland Stages
 4:40 Kenneth P. Cannon, Human Ecology in the Watts Bar Reservoir, East Tennessee
 5:00 Gerald F. Schroedl and C. Clifford Boyd, Jr., Explaining Mississippian Origins in East Tennessee

(70) Symposium: SPATIAL DISTRIBUTION OF CERAMICS: ETHNOARCHAEOLOGICAL PERSPECTIVES

Audubon Room D
 Organizers and Chairpersons: Carol Kramer and Fekri Hassan

Participants

- 4:00 Warren R. DeBoer, Placing Pots the Shipibo-Conibo Way with Comparative Material from Lowland South America
 4:15 Margaret C. Nelson and Ben A. Nelson, Spatial Distribution of Provisionally Discarded Artifacts in Highland Maya Households
 4:30 Richard Ciolek-Torrello, Ceramic Vessel Distribution and Household Size in a Contemporary Village in Northern India
 4:45 Carla M. Sinopoli, Social Organization and Ceramic Distribution at a South Indian Imperial Capital
 5:00 William A. Longacre, Kalinga Pottery in Time and Space
 5:15 Fekri A. Hassan, Spatial Range of Modern Egyptian Pottery
 5:30 Discussants: Frederick R. Matson and Carol Kramer

SUNDAY MORNING APRIL 27, 1986**(71) General Session: ARCHAEOLOGICAL SUBSISTENCE DATA, NORTH AMERICA**

Salon A
 Chairperson: David B. Kelley

Participants

- 8:00 Kathryn C. Egan, Archaic Floral Exploitation of the Northern Margin of the Carolinian Biotic Province
 8:20 Thomas R. Whyte, A Middle Woodland Fishery of the Lower Chesapeake Bay
 8:40 Lynette Norr and Richard G. Cooke, The Importance of Marine and Terrestrial Protein Resources in Two Agricultural Populations from Central Panama
 9:00 Stephanie D. Livingston, The Vertebrate Fauna from Lovelock Cave and the Humboldt Lakebed Site
 9:20 David B. Kelley, Zooarchaeological Research in the Lower Garden District of New Orleans

- 9:40 Gayle J. Fritz, Starchy Grain Crops in the Eastern U.S.: Evidence from the Desiccated Ozark Plant Remains
 9:50 Lee Nabergall, Faunal Studies from an Archaic Site in Florida
 10:00 Michael J. Hall, Young Mule Deer, Old Mountain Sheep
 10:10 Tammy Stone, David Dickel, and Glen Doran, The Excavation and Conservation of Waterlogged Bone from the Windover Archaeological Site, Titusville, FL
 10:20 Kenneth E. Juell and Dave N. Schmitt, Woodrat Bone-Collecting Behavior and its Implications for Archaeological Faunal Assemblages
 10:40 Austin Long, R. I. Ford, D. J. Donahue, A. J. T. Jull, T. W. Linick, L. F. Warneke and L. J. Toolin, Ages of First Cultigens in Southwestern U.S. Inferred from Accelerator Mass Spectrometric Analysis of C-14 on Corn, Beans and Squash
 10:50 Patricia A. Cridlebaugh, Human Impact on Holocene Vegetation in the Lower Little Tennessee River Valley, East Tennessee
 11:10 Dolores R. Piperno, Toward a Systematic Classification of Grass Phytoliths: Numerical Analysis of Silica Bodies from Maize and Wild Grasses
 11:30 Kenneth W. Decker, Isotopic and Chemical Reconstruction of Diet and its Biological and Social Dimensions at Grasshopper Pueblo, Arizona

(72) Symposium: POLITICAL SYSTEMS AND POLITICAL IDEOLOGIES IN MESOAMERICA: CONCEPTIONS OF RULERSHIP

Salon B

Organizers and Chairpersons: Susan D. Gillespie and Rosemary A. Joyce

Participants:

- 8:00 David C. Grove, Olmec Chiefs: Ancestral Blood and Supernatural Power
 8:20 David A. Freidel, Preclassic Kingship in the Maya Lowlands
 8:40 Linda Schele, World Images and Statecraft at Teotihuacan and in the Maya Lowlands
 9:00 Rosemary A. Joyce, Late Classic to Postclassic: Transformation of Lowland Political Ideology
 9:20 Susan D. Gillespie, The "Stranger-King": A Problem for Aztec Kingship

(73) Symposium: MARITIME FOUNDATIONS: PRECERAMIC SUBSISTENCE AND SOCIETY ON THE ANDEAN COAST

Salon C

Organizer and Chairperson: Daniel H. Sandweiss

Participants:

- 8:00 Michael E. Moseley, Maritime Foundations of Andean Civilization: An Historical Overview
 8:20 Karen E. Stothert, Early Economies of Coastal Ecuador and the Multiple Foundations of Andean Civilization
 8:40 Robert A. Feldman, Architectural Evidence for the "Maritime Foundations"
 9:00 Jeffery Quilter, To Fish in the Afternoon: Beyond Subsistence Economies in the Study of Early Andean Civilization
 9:20 Robert A. Benfer, Middle and Late Archaic Adaptation in Central Coastal Peru
 9:40 Glendon H. Weir, Middle to Late Archaic Diets and Subsistence on the Central Coast of Peru
 10:00 Elizabeth J. Reitz, Maritime Resource Use at Paloma, Peru
 10:20 James B. Richardson III, Maritime Before Maritime: Evidence for a Pre-5,000 B.P. Maritime Economy on the Peruvian South Coast
 10:40 Karen Wise, Archaic Subsistence and Settlement in Coastal Moquegua, Peru
 11:00 Tom D. Dillehay, Maritime and Terrestrial Economies. Defining a Broader Foundation for the Development of Early Andean Society
 11:20 Daniel H. Sandweiss, Fishing and Farming: Archaeological Evidence for an Andean Tradition of Specialization
 11:40 Discussant: Richard L. Burger

(74) Symposium: NATURAL DISTURBANCE PROCESSES AND THE ARCHAEOLOGICAL RECORD

Audubon Room A

Organizers and Chairpersons: David T. Nash and Michael D. Petraglia

Participants:

- 8:00 James M. Savelle, Natural Formation Processes and Snow-Based Sites: Examples from Arctic Canada
- 8:20 Peter M. Bowers, Cold Climate Disturbance Processes and the Archaeological Record: Experimental Implications from Alaska
- 8:40 Lu Ann Wandsnider, The Remote Sensing Evaluation of the Differential Integrity of Surface Archaeological Assemblages
- 9:00 Phillip H. Shelley and Fred L. Nials, A Controlled Experimental Study of Artifact Damage and Redeposition in an Aeolian Environment
- 9:20 Kathy D. Schick, Differentiating between the Effects of Behavioral and Sedimentary Processes on Palaeolithic Assemblages
- 9:40 Michael D. Petraglia and David T. Nash, The Impact of Fluvial Processes on Experimental Studies
- 10:00 Paola Villa, J. Courtin and D. Helmer, Butchering, Discard and Dispersal on Bone at a French Cave
- 10:20 Jon Erlandson, Radiocarbon Reversals and Stratigraphic Discontinuities: Disturbance Processes within California Shell Middens
- 10:40 Virginia L. Butler, Distinguishing Natural from Cultural Salmonid Remains in the Pacific Northwest
- 11:00 David T. Nash and Michael D. Petraglia, Natural Disturbance Processes: A Consideration of Archaeological Method and Theory
- 11:20 Discussants: Diane Gifford-Gonzalez and Michael B. Schiffer

(75) Symposium: CAVE ARCHAEOLOGY IN EASTERN NORTH AMERICA

Audubon Room B

Organizer and Chairperson: Patrick J. Munson

Participants:

- 8:00 George M. Crothers, The Prehistoric Exploration and Utilization of Big Bone Cave, Tennessee
- 8:20 Valerie A. Haskins, The Archaeology of Prewitts Knob, Kentucky
- 8:40 Kenneth R. Turner, Mortuary Caves in Alabama
- 9:00 Della Collins Cook, Prehistoric Mortuary Use of a Pit Cave in Southeastern Indiana
- 9:20 Cheryl Ann Munson, Patrick J. Munson, and Kenneth B. Tankersley, Middle Woodland Quarrying and Use of Aragonite from Wyandotte Cave, Indiana
- 9:40 Kenneth B. Tankersley, Patrick J. Munson, and Cheryl Ann Munson, Prehistoric Selenite Mining in the Mammoth Cave System, Kentucky
- 10:00 Charles H. Faulkner, Petroglyph Caves in the Southeastern United States
- 10:20 Discussants: Mark F. Seeman and Patty Jo Watson

(76) Symposium: EXAMINING HUNTER-GATHERERS AND HORTICULTURALIST ORGANIZATION THROUGH THE ANALYSIS OF BISON REMAINS AND RESOURCES

Audubon Room C

Organizer and Chairperson: William B. Fawcett, Jr.

Participants:

- 8:00 Douglas B. Bamforth, Predictability, Productivity, and Patchiness: Paleo-Indian Responses to Changing Resource Structure on the Southern High Plains
- 8:20 Lawrence C. Todd and Robert L. Kelley, Paleo-Indian Bison Procurement and Long Term Mobility
- 8:40 Thomas P. Myers, The Strategies of Paleo-Indian Hunters
- 9:00 Jeffery R. Hanson, Prehistoric Settlement and Subsistence Structure of Hunter/Gatherers in the Northern Plains
- 9:20 Neil A. McKinnon, Reconstruction of Bison Diets and Climate Using Stable Carbon Isotopes
- 9:40 Galen R. Baker, The Implementation of Neotaphonomic and Ethnoarchaeological Controls in the Analysis of Bison Kill Bone Assemblages
- 10:00 Eileen Johnson, Bison Procurement and Bone Technology on the Southern High Plains
- 10:20 Alice M. Emerson, Progress Toward the Construction of Utility Indices for *Bison bison*

- 10:40 William B. Fawcett, Jr., Variation in the Organization and Frequency of Communal Bison Hunts Across the Prehistoric Great Plains
- 11:00 Discussion

(77) General Session: LITHIC ANALYSIS

Audubon Room D

Chairperson: Marvin Kay

Participants:

- 8:00 George C. Frison, Limitations of Clovis Tools and Weaponry from Experiments on African Elephants
- 8:20 A. T. Boldurian and J. M. Adovasio, Who Are Those Guys?
- 8:40 Larry R. Kimball, Mark S. Aldenderfer, and April Hohol, Microwear Analysis of Obsidian Blades from Rural Contexts in the Central Peten Lakes Region, Guatemala
- 9:00 Mark E. Miller, Technological and Functional Characteristics of Projectile Points from the Scoggin Bison Kill-Butchery Site in Southcentral Wyoming
- 9:20 Linda T. Grimm, Role of Lithic Refitting in the Analysis of Intrasite Spatial Organization
- 9:40 John Madsen, Paul Fish and Suzanne Fish, Sources, Procurement, and Exchange of Lithic Raw Materials in the Northern Tucson Basin
- 10:00 Brad Logan, Lithic Resources and Settlement Pattern Variability in the Kansas-Missouri Rivers Locality
- 10:20 James D. Keyser and John L. Fagan, East Short Pines Quarry: Procurement and Processing of Tongue River Silicified Sediment
- 10:40 Marvin Kay, Projectile Point Use Inferred from Microwear of Kimmswick Clovis Points

(78) Symposium: THE SOCIO-ECONOMIC IMPLICATIONS FOR THE EMERGENCE OF MISSISSIPPIAN CULTURE, AS EVINCED FROM THE RANGE SITE AND THE AMERICAN BOTTOM OF SOUTHWESTERN ILLINOIS

Audubon Room E

Organizers and Chairpersons: John E. Kelly and Andrew Fortier

Participants:

- 8:00 Andrew Fortier, Archaic Hunters and Gatherers in the Prairie Lake Locality: The Foundations of the Range Site Base Locale, American Bottom, Illinois
- 8:20 John E. Kelly, Changes in Late Woodland and Emergent Mississippian Community Plans at the Range Site: The Social and Economic Implications for the Development of Mississippian Culture
- 8:40 Steven J. Ozuk, Ceramic Trends at the Range Site as an Indicator of Cultural Change
- 9:00 Joyce A. Williams, Lithic Technology at the Range Site, Southwestern, Illinois
- 9:20 Kathryn Parker, Family Gardens and Communal Fields: 600 Years of Farming at the Range Site
- 9:40 Lucretia S. Kelly, Hunting, Fishing, Fowling and Sniping at the Range Site: Patterns of Faunal Exploitation During the Late Woodland Through Mississippian Occupations
- 10:00 Dale McElrath, Late Woodland Socio-Economic Developments in the American Bottom, Southwestern Illinois
- 10:20 Douglas K. Jackson, American Bottom Emergent Mississippian Communities: Temporal and Spatial Variations
- 10:40 Mark William Mehrer, The Mississippian Households of Cahokia's Hinterland
- 11:00 Discussants: Bruce Smith, Dan Morse and James B. Griffin

(79) General Session: MESOAMERICAN ARCHAEOLOGY

Salon B

Chairperson: Susan Milbrath

Participants:

- 10:00 John E. Bradley, Excavations at the Tronadora Vieja Site
- 10:20 Geoffrey G. McCafferty, The Material Culture of Early Postclassic Cholula and the "Mixteca-Puebla" Problem
- 10:40 B. Fahmel-Beyer, The Toltec Arrival in the Valley of Oaxaca

- 11:00 Paul Schmidt, *The Epiclassic in Central Guerrero*
 11:20 Patricia A. Urban, *The World-Systems Perspective and the Study of Prehistoric Mesoamerica*
 11:40 Ellen T. Baird, *Dressed to Kill: The Cacaxtla Warriors*
 12:00 Susan Milbrath, *Astronomical Images in Mesoamerican Architecture*

ABSTRACTS OF SYMPOSIA

(1) NEW RESEARCH IN SOUTHEASTERN MESOAMERICA.

As research continues in Southeast Mesoamerica, there is a need to reevaluate our ideas concerning the area's development and role in pan-Mesoamerican prehistory. The view that Southeast Mesoamerica developed as a result of responsive adaptation of external cultural influences disregards evidence of the internal dynamics of a rich and diverse indigenous culture. The papers presented in this symposium address some of the fundamental unanswered questions concerning the early culture history of Southeast Mesoamerica and emphasize the internal dynamics of the area.

(2) CRAFT PRODUCTION, IDEA SYSTEMS, AND TEOTIHUACAN SOCIETY.

Many papers deal with the technology and organization of craft production and distribution in the ancient metropolis of Teotihuacan, including obsidian, ceramics, ground stone, and lapidary materials. Others deal with art and symbolism. A common emphasis is the bearing of both craft production and symbolic representations on the social, political, economic, and religious organization of the society. Approximately half the papers are based directly on continuing analyses of Teotihuacan Mapping Project data.

(3) PROGRAMA CONTISUYU: REGIONAL ARCHAEOLOGICAL RESEARCH IN SOUTHERN PERU.

This symposium reports recent researches carried out by Programa Contisuyu in the Osmore drainage (Moquegua and Ilo valleys) of southern Peru. Programa Contisuyu is a cooperative Peruvian-U.S. agreement involving the Peruvian Museum of Health Sciences, the Peruvian National Cultural Institute, and archaeologists from a number of American universities and museums. This multinational program was organized in Peru to investigate, conserve, and develop the cultural heritage of the Osmore region. Participating scholars will discuss their projects in terms of theoretical interests, culture history, and the long-term goals of the Programa Contisuyu.

(5) PROCESSUAL STUDIES IN ISLAND ARCHAEOLOGY.

The finite borders of island ecosystems and variability between islands have promoted the view that islands can serve as "natural experiments" or "laboratories" for the study of cultural processes. This perspective provides the common theme from which sociocultural responses to the spatial arrangement and geographical circumscription of island populations are addressed. Recent studies on islands distributed throughout the world's oceans are brought together in this symposium. Individually, the papers contribute to our understanding of the processes that underlie human mobility and cultural adaptation; together, they provide a comparative basis for evaluating similarities and differences in patterns of cultural development.

(7) POSTGLACIAL HUNTER-GATHERERS IN EUROPE.

Changes in human society were witnessed in Europe following the close of the Pleistocene. There is dramatic evidence for technological innovation, the exploitation of new habitats and species, increasing exchange, sedentism, status differentiation, conflict and territoriality in the context of growing population and locational constraint. This session will emphasize investigations from the European Mesolithic to document the conditions, causes, and consequences of the changes. Examples are taken from Ireland, England, Scotland, Denmark, Sweden, Norway, Germany, and the Low Countries.

(8) THE PAST IS THE PRESENT.

There exists a growing concern in American archaeology about how our interpretations of the past derive from and serve the interests of the present. It is becoming increasingly clear that we must be explicit about the uses of the past and about the prevalence of presentism in archaeological interpretation and inquiry. Using the framework of critical theory, this symposium emphasizes case studies of a range of archaeological issues and interpretations. Such case studies are necessary to clarify the theoretical and programmatic issues resulting from an examination of how the past is used to serve the sociopolitical agendas of the present.

(9) CULT ARCHAEOLOGY AND CREATIONISM: ASSESSING AND RESPONDING TO PSEUDOSCIENTIFIC BELIEFS ABOUT THE PAST.

Participants from the fields of archaeology, physical anthropology, sociology, psychology, and history will assess the levels of, and reasons for, the popularity of cult archaeology (e.g., "ancient astronauts") and creationism, as well as their impact on archaeologists as educators. Results will be presented of a study of the acceptance and correlates of these pseudoscientific beliefs among over 1,000 college students at six campuses across the country. Appropriate professional responses to cult archaeology and creationism, in both the classroom and the public forum, will be discussed.

(10) CURRENT RESEARCH IN NORTHWEST MESOAMERICA.

Northwest Mesoamerica has traditionally been viewed as an area peripheral to the events in the Mesoamerican heartland, as an area of simple or simplified cultures. It has long been viewed as an area intermediate between the high civilizations of Mesoamerica and the agricultural towns of the American Southwest. It has become clear that Northwest Mesoamerica was an integral part of the cultural systems associated with Mesoamerica and the American Southwest. Papers in this symposium present data which expand current knowledge of the cultural variation which existed within Northwest Mesoamerica and the area's interactions with adjacent regions.

(11) THE CULTURAL ECOLOGY OF PREHISTORIC ANDEAN AGRICULTURAL SYSTEMS.

The purpose of this symposium is to provide an overview of the kinds of agricultural systems and technologies that developed in the Andean region in response to varying environmental and social factors. The papers will trace the development of agricultural systems in different regions, focusing on and contrasting the desert coastal region and the inter-Andean valleys of Peru and Chile. Both synchronic and diachronic aspects of these systems will be discussed in order to provide a coherent view of the dynamic nature of the relationship between humans, culture and the environment.

(13) SOCIAL DIFFERENTIATION IN MICRONESIA AND ITS ARCHAEOLOGICAL EXPRESSIONS.

Micronesia exhibits a diverse group of societies of varying complexity which, while sharing many basic commonalities, represent particular and sometimes contrastive organizational solutions to specific island environments. In recent years, archaeologists working in Micronesia have begun to concern themselves with the nature and degree of social differentiation that emerges in these islands and the contrasts they represent to other Oceania societies. The contributors in this symposium seek to examine various aspects of social rank and complexity in Micronesia and their concomitant archaeological expressions.

(14) SUBSISTENCE IN THE AMERICAN SOUTHWEST.

From the earliest explorers, scholars have recorded plants exploited by native groups. Pioneer ethnobotanists described edible species, while cultural anthropologists approached subsistence from environmental, economic, or ecological perspectives. Today the fascination with subsistence continues as archaeologists study food gathering concerning diet, site and regional settlement pattern, feature and room function, food processing and storage, and population dynamics. This symposium addresses several subsistence related problems from the Basketmaker Anasazi through to historic Tempe populations and geographically from southern Arizona's Hohokam north to the Colorado Plateau's Anasazi.

(15) INTERNAL VARIATION AT TEOTIHUACAN: THE ARCHITECTURAL, ARTIFACTUAL AND SKELETAL EVIDENCE.

Beginning in the 80's, extensive excavations at Teotihuacan have uncovered vast areas. Symposium participants present new findings from INAH, UNAM and Penn State Projects. INAH archaeologists have focused on the Ciudadela revealing its distinctive ceremonial character; UNAM archaeologists have worked in two areas: (1) a Gulf Coast-Maya Barrio discovering a neighborhood of round structures and foreign artifacts and (2) in the "Old City" uncovering occupation of the Patlachique and Tzacualli phases; the Penn State group excavated an entire apartment compound, recovering information on burial practices, craft activities and room function. These data provide a base for studying the internal variability of Teotihuacan society in the Classic Period.

(21) THE ARCHAEOLOGY OF WOODLAND ENCLOSURES IN THE MIDCONTINENT.

The papers of this symposium provide a comparative summary of recent work performed at some Adena, Hopewell and Late Woodland enclosures, with hilltop and valley floor sites among the examples. Emphasis is placed on questions of architectural form, construction techniques, earthwork configuration, chronology and site functions, with some papers addressing regularities in earthwork form and engineering principles behind site layout.

(26) WATER MANAGEMENT IN THE DESERT WEST.

Availability of water presents the single most critical limiting resource for human occupation of the Desert West. Prehistoric and historic cultures of this area engaged in a wide range of technologies for acquisition and management of this resource, including water harvesting, stream/river damming, diversion, and channeling, runoff irrigation, aquifer penetration and large small scale storage. The nature of these techniques, and their development in the context of hunter-gatherer and small scale, as well as large scale agricultural societies, is reviewed.

(27) RECENT ARCHAEOLOGICAL RESEARCH IN THE NORTHERN MAYA LOWLANDS.

Archaeological projects in the past five years have been carried out by the National Institute of Anthropology and History, by U.S. universities, and by joint teams. Research efforts range from mapping and settlement pattern studies to full-scale excavations. Coastal and interior zones are well represented, and the eastern portion of the peninsula is an increasingly important focus of work. Results of these projects are rapidly altering the traditional perception of ancient Maya culture and adaptation in the northern Lowlands.

(28) BEYOND TROPHY HEADS, LOOTED TOMBS AND ANCIENT ASTRONAUTS: NEW ARCHAEOLOGICAL AND ASTRONOMICAL PERSPECTIVES ON THE NASCA CULTURE OF PERU.

Recently a variety of independent projects, working in the different valleys of this area and from distinct perspectives have begun to address the social, religious, economic and political organization of Nasca. This symposium brings together investigators in the hope of achieving an initial approximation of Nasca society. Research results from the major Nasca ceremonial center, habitation and administrative sites are presented. New stylistic evidence is considered. Evidence for hierarchical areal integration and long-distance contacts is discussed.

(29) THE CARROT, NOT THE STICK: STRATEGIES FOR PROTECTING ARCHAEOLOGICAL RESOURCES ON PRIVATE PROPERTY.

Although federal and many states' statutes afford some protection for sites on public lands or within public projects, the vast majority of site destruction occurs by private action on private property. Beating private landowners with a stick is obviously an inappropriate and highly unsuccessful technique to compel owners to protect their sites. Instead, offering a carrot as an incentive is a more effective approach. This symposium describes and evaluates various public and private programs and strategies currently being used to protect sites on private property in different regions of the United States.

(30) ISLAND ARCHAEOLOGY AND MARITIME ADAPTATION IN SOUTHERN CALIFORNIA.

Excavation on San Clemente Island has developed an 8000-year cultural sequence. Absence of land resources necessitates dependence on maritime resources, and the long cultural sequence allows delineation of the increasing adaptation to the marine environment. Maritime emphasis is seen in faunal remains and midden analysis, technology, trade, and religious/ritual elements. Physical anthropological studies reveal some aspects of diet and genetic relationships to mainland populations. Explanatory statements require the consideration of these multiple lines of evidence as well as comparative data from other coastal and island sequences.

(31) THE CLOVIS-ARCHAIC INTERFACE IN WESTERN NORTH AMERICA.

This symposium addresses the question of relationships between Clovis and immediately following cultural complexes in western North America. It will consider technological comparisons between Clovis artifacts, and artifacts of other complexes deemed close in time to Clovis; comparisons between Clovis and these other complexes of subsistence, ranging patterns, and paleogeographic settings, so far as they can be inferred from available evidence; and chronological placement.

(32) RURAL COMMUNITIES AND EARLY STATE SOCIETIES.

Early state formation has been discussed in terms of a variety of regional explanatory models. These models are frequently based on the excavation of urban sites, archaeological reconnaissance of varying quality, and texts written from the narrow perspective of an administrative elite. They are often inappropriate for evaluating the role of rural communities in early state societies. This symposium seeks to evaluate these models. New explanations are offered for the role of rural communities in early state societies in the Old and New Worlds.

(33) STRATEGIES AND SURVIVAL: NATIVE AMERICAN RESPONSES TO EUROPEAN CONTACT AND COLONIZATION.

This session examines the range and diversity of Native American response to the presence of Europeans in eastern North America during the 16th, 17th and early 18th centuries. The goal is twofold. The first is to present a series of case studies which discuss and analyze the pattern of response for particular native groups. The seven groups to be discussed have been selected to cover both a broad range and the cultural/linguistic diversity which characterized native people in eastern North America. The second goal is to move beyond these regional sequences and to look at the dynamics of cross-cultural interactions in a more theoretical manner.

(34) THE COGNITIVE PAST: ONGOING RESEARCH IN HISTORICAL ARCHAEOLOGY.

Contributors to this symposium are exploring the connections between material culture and cognition in Colonial and Early America. Ideology has always been a subject of interest and a source of frustration to archaeologists. We have often felt unable to make definitive statements about the ideological past because of a lack of supporting data. Through the combination of historical and anthropological data and theory, historical archaeology has the capability of making a more complete analysis of the recent past than either history or archaeology could do alone.

(35) PRESERVATION OF ARCHAEOLOGICAL RECORDS.

This symposium focuses on the responsibility of archaeologists to preserve archaeological records, including field notes, correspondence, unpublished CRM reports, photographs, and other documents. Papers define the problem and identify possible solutions by discussing the importance and uses of archaeological records, the first steps toward a records survey, major depositories of archaeological records, and the grey literature. The objective of this symposium is to begin to form a network of archaeologists, historians, and archivists to survey and preserve archaeological records.

(36) NEW WORLD DUGOUT CANOES AND CANOEISTS.

During prehistoric and early historic times the use of the dugout canoe was widespread in the New World. This symposium is to explore the role of the dugout canoe in a variety of societies and cultures through time and space using ethnological, historical, ethnohistorical and archeological data. Cultural comparisons of a wide variety of New World dugout canoes and canoeists is expected to provide interested researchers with new insights on this aspect of Native American and later Euro-American life.

(37) MIMBRES MOGOLLON ARCHAEOLOGY AND ETHNOBOTANY.

After a lapse of some 40 years, extensive archaeological research had not been conducted in the Mimbres area of southwestern New Mexico until the 1970's. Since 1978, Texas A&M University has been conducting intensive interdisciplinary studies in the middle Mimbres River Valley. Investigations have been carried out at several Late Pitohouse Period and Classic Mimbres sites and a rainfall irrigation system. This symposium presents some of the interdisciplinary data generated from the NAN Ranch Project, including the investigations of Mimbres settlement patterns, extramural space use around a major pueblo, palaeobotanical, mortuary, and faunal studies.

(38) THE CLASSIC MAYA COLLAPSE: THE COPAN CASE.

A major issue in Maya archaeology is the extent, degree and nature of the collapse of Classic Maya civilization in the southern lowlands between 800-1000 A.D. Copan in western Honduras participated in this phenomenon. In the symposium the nature of the collapse there is specified and a variety of data presented from recent projects. This includes studies of past and present patterns of land use, and the environment, paleodemography studies, and models of social devolution based on large scale excavations, regional surveys and the inscriptions.

(39) CHANGES IN OSAGE AND MISSOURI CULTURE, A.D. 1675-1825, USING AN INTERDISCIPLINARY APPROACH.

A three-year National Endowment for the Humanities project to study cultural changes in the Osage and Missouri tribes during the 150-year period, A.D. 1675-1825 using historical, ethnobiological, and archaeological data is discussed. Archaeological materials from six historically identified Osage (4) and Missouri (2) sites occupied at different periods are the major data base. The cultural changes include utilization of both wild and domesticated plants and animals, effects upon and from the regional environment, and adaptation and adoption of customs and manufactures of other native tribes and those of Euro-Americans.

(41) CURRENT RESEARCH IN UNDERWATER ARCHAEOLOGY.

This symposium is to present current research pertaining to submerged heritage resources. Included are papers with varied topics such as protective legislation and resource management programs, the location of prehistoric sites now under water and the relation of this research to land sites, and the role of historical shipbuilding and its associated cultural baggage the example of the Great Lakes region. The SAA Meetings will provide a valuable forum for discussion of problem solution in areas too often thought disparate.

(43) PAST PATTERNS OF HUMAN ADAPTATION IN THE EASTERN OZARKS, SOUTHEAST MISSOURI.

The National Park Service has sponsored a multi-year study of the archaeological resources in the Current River valley of southeast Missouri. The research program has focused on the interdisciplinary study of past patterns of human adaptation in the narrow valleys of the eastern Ozark region,

and has produced a wide variety of archaeological, biochemical, geological and palynological data. The integration of these data is producing interpretations of past human adaptive patterns along with models of landscape evolution and environmental change.

(47) EVOLUTION OF AGRICULTURAL SYSTEMS ON BLACK MESA, NORTHEASTERN ARIZONA.

American archaeology is experiencing a reawakening of interest in the appearance of cultigens and in the adoption of agriculturally based lifeways north of Mexico. Southwestern archaeology is very much a part of this development. Recent work on Black Mesa can contribute substantially to the elucidation of the development and consequences of food production in the Southwest. Excavation of 87 Basketmaker II and 118 ceramic components provides an unequalled data base on the initial agricultural occupation of a particular locality on the Colorado Plateau. These data are used to characterize the local agricultural adaptation and to evaluate explanatory models of sociocultural change and evolution.

(48) RECONSTRUCTING MAYA DIET AND SUBSISTENCE: CURRENT RESEARCH APPROACHES.

This symposium will draw together research relevant to the reconstruction of early Maya diet and subsistence. Papers represent a variety of research orientations and methods, encompassing archaeobotanical and zooarchaeological investigations, trace element and stable isotope studies of skeletal remains, the archaeological study of agricultural technology, and the uses of information derived from hieroglyphic writing, iconographic analysis, and ethnohistoric documents. Discussion will be directed towards a synthesis of present knowledge.

(49) NEW PERSPECTIVES ON CAHOKIA: VIEWS FROM THE PERIPHERIES.

The period A.D. 800-1050 in the American Bottom witnessed the foundation for the largest and most complex socio-economic system ever to have existed in native North America. During the subsequent Stirling phase (A.D. 1050-1150), evidence of Cahokia-inspired cultural interaction intensified from Mississippi to Upper Michigan, from Wisconsin to Missouri. To shed new light on Cahokia's socio-economic system during these periods, the major archaeological sites bearing evidence of Cahokian interaction shall be analyzed as individual culture contact situations and the results compared in search of processual patterns that can elucidate the structure underlying the most extensive episode of cultural interaction in the Eastern U.S. since the Hopewellian demise.

(50) CULTURAL DYNAMICS IN THE LATE PREHISTORIC AND HISTORIC PERIODS ON THE CAROLINA PIEDMONT.

Investigations have been completed on an interdisciplinary project to study diversity and change among late prehistoric and historic Indian cultures. Integrated studies of separate data categories have produced some preliminary interpretations. Prior to European contact, distinct and stable cultural patterns characterized the area. After contact, settlements became less numerous, less permanent, and more ethnically diverse, strong relationships developed between local and more northerly groups, aboriginal technologies and subsistence changed in degree rather than kind, and the deerskin trade became the dominant mechanism for securing power and for reorganizing social relationships.

(51) PROTECTING OUR ARCHAEOLOGICAL HERITAGE: HOW EFFECTIVE IS THE ARCHAEOLOGICAL RESOURCE PROTECTION ACT?

During the past 15 years, federal prosecutors have become aware of the significance of archaeological resources and the number of individuals prosecuted for looting such remains has increased. This symposium analyzes the effectiveness of ARPA's criminal/civil enforcement provisions. The first section provides an overview of ARPA and the inherent difficulties in commencing an ARPA prosecution. The second section presents some solutions that federal prosecutors have utilized to overcome those problems. The final section examines the pivotal role that archaeologists perform as expert witnesses and the forensic difficulties they encounter in preparing for trial.

(52) FORM AND DESIGN IN ARCHAEOLOGY: A GRAMMATICAL APPROACH.

Emphasis on typology and immutable styles in archaeology is of limited utility in the study of behavioral and cultural dynamics. In this symposium, the form, design and shape of artifacts is approached from a consideration of design elements and grammatical (compositional or organizational) rules. This approach provides a means for unveiling the unity and continuity underlying seemingly different designs and is useful in exploring cultural continuities or discontinuities, population movements and the dynamics of innovation. The linkage between design and meaning also provides a forum exploring the role of constraints, sequential decisions, cultural referents, aesthetics and hermeneutics.

(55) ESTABLISHING A RADIOCARBON DATA BASE.

Radiocarbon daters and users are currently developing individual systems to suit their needs. The purpose of this symposium is to bring together several approaches to establishing, maintaining, and using a global radiocarbon data base. Such a project will provide instant and accurate access of information on an international level, upgrade standards of reporting radiocarbon dates according to the most recent advances in the field, and disseminate data in the form of cumulative indexes.

(57) ALTERNATIVE APPLICATIONS OF LITHIC ANALYSIS.

Several innovative techniques and approaches have been developed during the past few years, but in most instances there has never been an overall assessment of their usefulness in prehistoric research. Other questions have arisen: e.g., in which situations are the techniques most informative, and how can they best be applied to large data sets? In this seminar the papers will investigate the unique contributions of lithic analysis and will show how lithic data can be applied in large projects to resolve questions concerning classification, culture history and human behavior.

(58) INFORMATION AS A CULTURAL RESOURCE.

The objectives of this session are as follows: (1) to demonstrate that careful planning is necessary in the management of information in the Historic Environment, if we are to exploit its potential for public service; (2) to bring together practical experience of these problems from the USA, the UK and Canada; (3) to show the importance of information technology to this system. The session is titled to show the common ground between Information Management and Cultural Resource Management. All papers have special reference to practical examples.

(59) THE MIDDEN MOUNDS: A LARGE SCALE INVESTIGATION OF THE ARCHAIC STAGE IN THE MID-SOUTH.

The Midden Mound Project, an interdisciplinary research endeavor sponsored by the U.S. Army Corps of Engineers as part of the Tennessee-Tombigbee Waterway Project, documents the occupation of the Upper Tombigbee River Valley, Mississippi from Early Archaic to Mississippian times. This symposium deals primarily with the well-preserved, deeply stratified Archaic component of six sites in the valley floodplain. Our aim has been to explain as well as describe changes in life ways during this period.

(63) RECENT DEVELOPMENTS IN ENVIRONMENTAL ANALYSES IN EUROPE AND AMERICA.

This symposium brings together a number of younger workers in different aspects of environmental analysis, from Europe and America. The intention is to facilitate trans-Atlantic exchange of ideas and analytical approaches in a mutual learning process. Papers have been paired for comparison of methodologies and discussion of solutions to common problems of environmental analysis. The discussions have been chosen for their breadth and detachment of viewpoint, as southern hemisphere specialists.

(64) PHYTOLITHS IN ARCHAEOLOGY.

Phytolith taxonomy and nomenclature has developed to a point at which specialists may readily communicate with one another. In spite of advances in the techniques and communicability of phytolith analysis, the utility of phytoliths in archaeology remain unfamiliar to most archaeologists. Papers presented at this symposium are selected to present a variety of problems amenable to the technique. This is indeed to be a state of the art presentation of the phytolith method.

(65) THE CURRENT STATE OF MICROARTIFACT RESEARCH.

Microartifacts, recognizable artifacts less than 2 mm in size, appeared on the archaeological scene in 1982. Since then there has been consistently increasing interest in using microartifact techniques. Recent work has expanded the notion of microartifact beyond Fladmark's (1982) original lithic debris. This symposium presents several case studies from a variety of site environments, using a wide range of materials to answer very different archaeological questions. It also contains papers addressing theoretical and technical aspects of microartifact analysis: studies based on the new generation of microartifact work.

(66) ARCHAEOLOGISTS IN POLITICS: A WORKING SYMPOSIUM.

The symposium explores how archaeologists represent their interests on the federal, state, and local levels. This exploration will have two components. The first part of the symposium will consist of papers by archaeologists and the staff of the SAA Office of the Washington Representative. Papers will also be presented by a representative of the American Mining Congress and the Office of Surface Mining to provide an outsider's perspective. In the second part, a panel comprised of the presenters

and members of the SAA Executive Committee and Governmental Affairs Committee will address questions and topics presented by the audience.

(68) PROBLEMS AND PROSPECTS OF MORTUARY ARCHAEOLOGY.

The study of burials for social and cultural information has benefited greatly by the theoretical formulation of the early 1970's, particularly from Binford and Saxe. As a consequence of the foundations laid by those early formulations, much insight into specific burial records has been made possible. In the course of this research, problems have arisen that require elaboration of previously undeveloped points, or inspire rethinking of some aspects of the original formulations. This symposium focuses on a problem-oriented re-examination of burial analysis as it is currently practiced, rather than pattern analysis of specific data sets.

(70) SPATIAL DISTRIBUTION OF CERAMICS: ETHNOARCHAEOLOGICAL PERSPECTIVES.

Numerous ethnoarchaeological studies describe ceramic technology, economic and social organization of ceramic production, and pottery use and discard; few deal systematically with ceramic distribution(s). This symposium focuses on spatial distribution of ceramics, using data drawn at several scales. Distribution patterns relate to ethnic, religious, economic, and other distinctions made within and between populations of various types and sizes. Some behavior relating to ceramic distribution is more complex than previously envisaged. We argue that ethnoarchaeological observations can be used to enhance our understanding of the past.

(72) POLITICAL SYSTEMS AND POLITICAL IDEOLOGIES IN MESOAMERICA: CONCEPTIONS OF RULERSHIP.

Archaeologists have traditionally addressed the material bases for cultural evolution and adaptation. An important complementary perspective on these same issues concerns the abstract conceptions shared by members of prehistoric communities. Sufficient data have emerged in iconographic and ethnohistoric analysis to deal with these conceptions; here, specifically focusing on the nature of rulership as integral to the political systems as they functioned and evolved. Change through time in these conceptions is examined from the Formative through the Postclassic periods.

(73) MARITIME FOUNDATIONS: PRECERAMIC SUBSISTENCE AND SOCIETY ON THE ANDEAN COAST.

In his 1975 book, *The Maritime Foundations of Andean Civilization*, Michael Moseley proposed that the earliest complex society on the Andean coast was supported by a predominantly maritime subsistence economy during the Late Preceramic Period (ca. 2500 to 1800 B.C.). Over the past decade, several researchers have offered theoretical rebuttals to Moseley's Maritime Foundations Hypothesis. In this symposium, contributors assess the Maritime Foundations Hypothesis in the light of new data and new theoretical formulations derived from recent advances in coastal Andean archaeology, zooarchaeology, archaeobotany, and geoarchaeology.

(74) NATURAL DISTURBANCE PROCESSES AND THE ARCHAEOLOGICAL RECORD.

This symposium will present a group of papers which will document specific natural disturbance processes and how these may act upon archaeological assemblages occurring in differing contents and in differing contexts. In addition to this documentation, the recognition of a disturbed site requires both methodological and theoretical evaluations as to what may be learned from the archaeological record given our present interpretive frameworks.

(75) CAVE ARCHAEOLOGY IN EASTERN NORTH AMERICA.

Earlier research in the dark interiors of caves in the mid-South of the United States had demonstrated prehistoric mining for gypsum and cathartic minerals. Research during the last decade has added significantly to our knowledge of prehistoric caves. The papers of this symposium demonstrate that caves were used during various periods for the extraction of an expanded suite of minerals, for particular forms of mortuary activities, and for ritual sanctuaries. Research on surface sites and ethnographic analogies offer insights for the prehistoric use of caves and cave minerals.

(76) EXAMINING HUNTER-GATHERER AND HORTICULTURIST ORGANIZATION THROUGH THE ANALYSIS OF BISON REMAINS AND RESOURCES.

The participants present the results from several methodological and theoretical approaches to the analysis of bison remains. The methodologies include: taphonomy, utility indices, stable carbon isotopes, and bison tooth attrition. The theoretical framework is frequently ecological, and definitely materialist. Participants will discuss important advances made in bison studies. By studying bison remains from archaeological sites, we gain significant insights into the organization of hunter-gatherers and horticulturists in an environment quite different from deserts and tropical rainforests inhabited by better ethnographically documented foragers.

(78) THE SOCIO-ECONOMIC IMPLICATIONS FOR THE EMERGENCE OF MISSISSIPPIAN CULTURE, AS EVINCED FROM THE RANGE SITE AND THE AMERICAN BOTTOM OF SOUTHWESTERN ILLINOIS.

The Range site is one of a number of sites in the American Bottom investigated as part of the University of Illinois FAI-270 Archaeological Mitigation Project sponsored by the Illinois Department of Transportation. The sequence of late Woodland through Mississippian communities defined at this site provides the necessary context for understanding the development of the Mississippian Culture in this region. Two parts are involved. The first focuses on the various data sets from Range. The second examines each of the major cultural units at Range in light of the overall shift from Late Woodland to Mississippian culture in the American Bottom.

ABSTRACTS OF PAPERS

Aasen, Kate (Palynological Analysts)

BASKETMAKER SUBSISTENCE—THE COPROLITE RECORD.

Kiddler and Guernsey (1919) working in Arizona's Kayenta District speculated that Basketmaker Anasazi subsisted primarily on corn supplementing their diet by collecting wild plants and hunting. Hough (1930) concurred and suggested that Basketmakers hunted, collected wild foods, and cultivated maize and squash. Recent pollen and macrofossil analyses of nearly 100 coprolites from southern Utah and northern Arizona rockshelters augment our understanding of Basketmaker's diverse diet and illuminate the importance of cultigens in diet, and the question of whether Basketmaker subsistence was really different from that of Puebloan successors. (15)

Aberg, E. Alan (Royal Commission on the Historical Monuments of England, London)

THE NATIONAL MONUMENTS RECORD FOR ENGLAND: ITS FUNCTIONS AND PURPOSE

From the inventories of the RCHME, the NMR has many photographs of archaeological sites. When the RCHME accepted the National Archaeological Survey and record holding functions of the Ordnance Survey (the national mapping service), their photographs were also accessioned. The NMR also accepted record cards referring to sites in England, with annotated 1:10,000 scale maps showing their location. These are held on microfilm for public access. The NMR keeps copies of unpublished archaeological material on microfilm, now consisting of c. 1000 entries. (58)

Abrams, Elliot Marc (Ohio University)

THE CAUSES OF DEFORESTATION AND ITS ROLE IN THE COLLAPSE OF COPAN, HONDURAS.

The human needs for trees and resources associated with the forested zones of Copan are quantified and evaluated in terms of their relative effect on the process of deforestation. It is suggested that the clearing of trees for the purpose of extending agricultural land and the felling of trees to meet domestic fuel requirements were the two main causes of deforestation, a process which had deleterious effects on agricultural productivity and lead to a condition which contributed significantly to the abandonment of Copan. (38)

Ackerly, Neal W. (Arizona State), Jerry Howard (Soil Systems) and Randall H. McGuire (SUNY Binghamton)

STRUCTURE AND DYNAMICS OF HOHOKAM IRRIGATION SYSTEMS.

Past interpretations of Hohokam irrigation practices tend to be monolithic in nature. Data from La Ciudad, in the Phoenix basin, are inconsistent with these interpretations. There is evidence for periodic abandonment of major canals while villages adjacent to these channels persisted. There are substantial changes in the hydraulic characteristics of temporally discrete canals. Periodic canal abandonment is related to flood periodicities and lateral migration of the river channel from which water was diverted into irrigation systems. The ramifications of fluctuating irrigation systems are explored. (56)

Ackerman, R. E. (Washington State), K. C. Reid (Center for NW Anthropology (CNA)), J. D.

Gallison (CNA), M. E. Roe (CNA), C. Rabich-Campbell (USDA Forest Service, Ketchikan Area) EARLY TO MID HOLOCENE COASTAL ADAPTATIONS, PRINCE OF WALES ISLAND REGION, SOUTHEASTERN ALASKA

An archeological survey conducted on Heceta Island in 1985 resulted in the discovery of three prehistoric site complexes. The oldest site complex was found in beach gravels of a raised beach that rested upon a till sheet dating 9410 ± 130 BP. A second site on a raised beach 12 m above sea level with a shell midden that dated 8220 ± 125 and 8180 ± 130 BP. Analysis of the midden fauna revealed that the economy was almost exclusively based upon a marine adaptation with minor use of terrestrial resources. Midden remains from a 4000 year old rockshelter indicated that the earlier cultural pattern of resource use continued to form the classic Northwest Coast Culture complex. (18)

Adovasio, J. M. (see Bolourian, A. T.) (77)

Ahler, Stanley A. (North Dakota)

ORIGINS OF KNIFE RIVER WARE POTTERY.

Knife River Ware is a braced-rim pottery which dominates late post-contact period Mandan and Hidatsa artifact assemblages in North Dakota. It has been hypothesized that Knife River Ware appeared as the result of loss of expert potters in 18th century epidemics and subsequent degeneration of existing S-rim pottery forms. This paper supports an alternate hypothesis that appearance of Knife

River Ware represents the result of diffusion and migration, an idea which is grounded in certain Hidatsa origin traditions. This explanation has bearing on interpretation of interactions among Mandan and Hidatsa groups in the 17th through 19th centuries. (67)

Ahler, Steven R. (Wisconsin, Milwaukee)
CHRONOLOGY, SITE FORMATION AND CHANGING SITE USE AT MODOC ROCK SHELTER, SOUTHWEST ILLINOIS.

Over 40 radiocarbon dates provide a chronological framework for the site. Though changes in sedimentation rates show strong correlations with climatic and vegetation changes associated with the Hypsithermal Interval, there are no major changes in intensity of occupation for several hundred years. Changes in feature morphology, feature volume and lithic assemblage diversity show major shifts in site function by about 7800 RCYBP, after the onset of the Hypsithermal, but long before the local sedimentation rates were stabilized. (46)

Ahlstrom, Richard V. N. (Amerind Foundation, Dragon)
IF TREE-RING DATES ARE SO ACCURATE, WHY AREN'T OUR CHRONOLOGIES MORE EXACT?

Dendrochronology allows the dating of past events and the reconstruction of past climate. This degree of resolution is problematic, because it exceeds that available for dating most events. Southwestern Archaeologists have responded to this difficulty by using tree-ring dates: (1) to reconstruct site histories, (2) to produce date ranges and mean dates for ceramic variables, (3) to measure levels of human activity, and (4) to study architectural history. These strategies are discussed, and the importance of integrating spatial and temporal dimensions of variation is emphasized. (56)

Aigner, Jean S. (Alaska, Fairbanks)
0¹⁸ CORRELATIONS AND ZHOUKOUDIAN LOCALITY 1.

Using modern methods, Chinese scholars propose new interpretations of Pleistocene climatic phases and the placement within these of fossil hominid sites. The age and duration ascribed to Zhoukoudian Locality 1 have significant implications for our understanding of human biocultural evolution. Floral and faunal analyses do not demonstrate the claimed glacial-interglacial magnitude of climatic shifts. There are problems with the reliability of dating methods. Thus, studies correlating Locality 1 to 0¹⁸ stages 16-6 are not convincing. (62)

Aikens, C. Melvin (Oregon)
TESTIFYING UNDER ARPA AS AN EXPERT WITNESS.

An account is given of service requested by the U.S. Attorney's Office in two ARPA proceedings in Oregon. Central elements of the role of expert witness include evaluating the significance of archaeological properties involved in a given case, and assessing in monetary terms the amount of damage that may have been done to them. Knowledge of archaeological method and regional archaeology is required, as is a basic understanding of applicable laws. Clear, well-reasoned judgements are required, for the archaeologist will be called on to defend them under cross-examination. (51)

Aikens, C. M. (31)

Aikens, C. W. (see DeAtley, S. P.) (4)

Aldenderfer, Mark S. (Northwestern)
ARCHAIC PERIOD SETTLEMENT DYNAMICS AND PROGRAMA CONTISUYU.

During the past two years, archaeologists working with Programa Contisuyu have gained considerable insight into Archaic Period (10,000 - 4,000 B.C.) settlement dynamics in southern Peru. Surface survey and testing of cave and open air sites, in all major elevation and environmental zones of the Osmore drainage, has confirmed the early occupation of the region (ca. 10,000 B.C.), and is providing data on human mobility and land use throughout the Archaic, the evolution of sedentism, and the appearance of domesticates. This paper reports on the theoretical orientations of the project and the substantive results obtained to date. (3)

Aldenderfer, M. S. (see Kimble, L. R.) (77)

Ambrose, Stanley H. (Illinois, Urbana-Champaign)
WHY AFRICAN HUNTERS GATHER.

The rarity of wild plant foods in the diet of the Dorobo of highland East Africa is considered to result from access to agricultural products. However, archaeological evidence suggests that plant foods were not used by highland hunters prior to the advent of agriculture. Conversely, Southern African hunter-gatherers may rely heavily on plant foods because of interactions with food producers. Foley's climatic explanation for differences in the relative abundance of animal and plant food

resources between eastern and southern Africa is compared to one that posits a primary determining role for soil nutrient availability. (53)

Anderson, Duane C. (Iowa, Iowa City)
THE WITTRUCK EXCAVATIONS: IMPLICATIONS FOR THE STUDY OF CULTURE PROCESS WITHIN THE INITIAL VARIANT OF THE MIDDLE MISSOURI TRADITION.

The Wittrock National Landmark site is a fortified Mill Creek village in northwest Iowa. This paper uses Wittrock data to inform models of Mill Creek midden formation and culture process recently proposed by the author. The study concludes that changes in the models are warranted because evidence for the postulated elaboration of sociopolitical and ideological forms is lacking during the Pacific climatic episode. Implications for future research on the Initial Variant are discussed. (67)

Anderson, P. K. (see Lincoln, C. E.) (27)

Andresen, John (National Park Service, Coolidge)
LOWLAND MAYA BEEKEEPING.

Early Spanish and recent accounts provide information on beekeeping among Lowland Maya and describe ceremonies related to honey and the hive. Several recent studies have obtained and reviewed information allowing identification of Maya beekeeping material culture. Beekeeping was a household activity at least as early as the Late Preclassic (300 BC - AD 300) and continued unchanged in most aspects into this century. Several kinds of data have implications for Maya households analysis and for the study of regional honey production and trade. (61)

Andrews, Anthony P. (New College of USE, Sarasota) and Tomas Gallareta Negron (I.N.A.H., Merida)

AN ITZA TRADING PORT ON THE NORTH COAST OF YUCATAN: THE ISLA CERRITOS ARCHAEOLOGICAL PROJECT.

Surveys and excavations in 1984 and 1985 at Isla Cerritos have revealed continuous occupation from Late Preclassic to Colonial times, with a major period of occupation contemporary with Terminal Classic/Early Postclassic Chichen Itza. Archaeological data strongly suggest that Isla Cerritos was the main port of the Itza capital. A sea wall, docks and piers underscore the importance of the site as a port. Ceramics and artifacts attest to long-distance trade with the Maya highlands, Central America, the Gulf Coast and the Central Mexican highlands. (27)

Andrews, E. Wyllys (Tulane)

OLMEC JADES FROM NORTHERN YUCATAN AND EARLY MAYA POTTERY AT LA VENTA.

A cache of seventeen Olmec jades excavated in 1984 near Chacsinkin, in central Yucatan, is a rare indication of trade between the Middle Formative Olmec and the early villagers of the Maya Lowlands. Found in the ceremonial constructions of Complex A at La Venta includes a red ware identical to Ixtepuat Red of the Early Nabanche complex at Komchen, northwestern Yucatan. This pottery has no known antecedents at Gulf coast or isthmian sites and was probably imported from Yucatan. These findings are the first certain evidence of Middle Formative contact between the Olmec Gulf coast and the northern Maya. (27)

Armelagos, G. J. (see Martin, D. L.) (47)

Armstrong, Douglas V. (Johns Hopkins, Baltimore)

EVOLUTION OF A MARITIME TOOL KIT ON SAN CLEMENTE ISLAND.

A striking characteristic of the archaeological record on San Clemente Island (CA) is the emergence, over a period of 8000 years, of an intensive maritime-oriented hunting and gathering economy. This evolution can be traced in both artifact and dietary records. This paper focuses on an increasing reliance on artifacts, often of locally available stone, shell, and bone useful to intensive maritime economy. Further, a parallel maritime shift is general to the islands off Southern California, and in the late period at least, transcends ethnic affiliations. (30)

Arnold, J. Barto, III (Texas Antiquities Committee/Texas Historical Commission)

HISTORIC SHIPWRECK LEGISLATION: DEVELOPMENT AND STATUS.

The developmental background and current status of the historic shipwreck legislation pending before Congress will be discussed. The proposed legislation does one critical thing. It removes historic shipwreck sites from the admiralty jurisdiction of the federal courts which have persisted in allowing commercial exploitation of the sites. As a pragmatic compromise, the sites are assigned to the states for management under the state antiquities codes. (41)

Aveni, Anthony F. (*Colgate*)

RAY CENTERS ON THE PAMPA DE SAN JOSE, NAZCA.

A ground survey consisting of the *mapping* and determination of the orientations of *only* the linear features on the Pampa de San Jose reveals a dominant pattern consisting of points in the natural landscape from which lines of various width and length emanate. Interconnecting patterns suggest concepts of order that might relate to (a) the flow of water across the pampa, (b) agricultural calendars as revealed through orientations to the sun in its annual cycle and (c) modes of conveyance across the space between the river valleys that border the pampa. We apply our data to test each of these hypotheses. (28)

Ayres, William S. (*Oregon*)

POLITICAL AND ADMINISTRATIVE CENTRALIZATION ON PHONPEI, MICRONESIA.

Analysis of archaeological evidence recently collected from Nan Madol and other areas of Pohnpei (formerly Ponape), Eastern Caroline Islands aids in establishing the relative position of archaeologically-known centers within the prehistoric Pohnpeian administrative hierarchy. The antiquity of the Nan Madol center, a complex of stone architecture, is reviewed and evidence for a central role in Pohnpeian life for over 500 years is presented. Early ceramic and other artifactual evidence from Pohnpei and changes in architectural forms offer details for a developmental model of Nan Madol construction and elaboration as a center. (13)

Baird, Ellen T. (*Nebraska, Lincoln*)

DRESSED TO KILL: THE CACAXTLA WARRIORS.

The predominantly Maya style used in the depiction of the warriors at the Central Mexican site of Cacaxtla also extends to their clothing. Both groups of warriors wear items of clothing generally similar to those worn by Maya warriors in the Usumacinta and Pasion River areas. This analytical study of the Cacaxtla warriors' costumes focuses on the Maya origins of costume elements and the significance of general and specific costume elements (e.g. Mexican year sign, Tlaloc mouth mask/glyph of 3 Deer Antler) in the context of the battle taking place. (79)

Baker, Brenda J. (*Massachusetts, Amherst*)

MISSISSIPPIAN CORE-PERIPHERY RELATIONS AND THE DEVELOPMENT OF GATEWAY COMMUNITIES: A FORT ANCIENT EXAMPLE.

The Fort Ancient tradition of southern Ohio was influenced by the expansion of the Mississippian Culture. This influence has been treated as a complex of "Mississippian" traits used to distinguish the Fort Ancient sites from the earlier Late Woodland sites. A dendritic model of settlement and exchange is used to examine the nature of prehistoric economic interaction between the Mississippian core and the Fort Ancient periphery. Gateway communities, the nodal points in dendritic networks, should be evident archaeologically. Archaeological implications generated from the dendritic model are tested with Fort Ancient data. (19)

Ball, Joseph W. (*SDSU*) and Jennifer T. Taschek (*Oregon, Eugene*)

GUERRA: A LATE CLASSIC SUBURBAN PARAJE OF BUENAVISTA DEL CAYO, BELIZE.

The Guerra site is located some 13 km above the confluence of the Mopan and Macal Rivers on the east bank of the former in central western Belize. Clearing excavations carried out at Guerra during 1984 documented the lifeways and social structure characterizing this community segment during the late seventh through ninth centuries A.D. Data involving status-differentiated housing, burial, and artifact-distribution patterns within this Classic period paraje are presented. (61)

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

PREDICTABILITY, PRODUCTIVITY, AND PATCHINESS: PALEOINDIAN RESPONSES TO CHANGING RESOURCE STRUCTURE ON THE SOUTHERN HIGH PLAINS.

During the early Holocene, regional bison populations became smaller while individual herds of bison became larger, more widely spaced, more mobile, and more variable in their herding and migration patterns. Paleoindian hunters thus relied on a resource base which was initially abundant and evenly distributed and whose movements were constant from year to year, but which became scarcer, more patchily distributed, and less predictable over time. This paper predicts the effects of these changes on the organization of human society and tests these predictions with the available archaeological data. (76)

Barbour, Warren T. D. (*SUNY Buffalo*)

AN ANALYSIS OF TEOTIHUACAN-TYPE HOST FIGURINES.

A typology and new interpretation of some of the most enigmatic figurines consistently associated with Teotihuacan, is presented. These hollow "host figurines" have 1 to 12 solid figurines in the

interior or directly associated with the host. They have surfaced over the past 50 years from outside of Teotihuacan. Only since 1981 have any been found in Teotihuacan. Important corrections to the reconstructions of several host figurines are presented. A structural analysis of the three major types suggests that these figurines reflect the political, military, social, and religious hierarchies. (2)

Bard, Kathryn (*Northwestern*)

ANALYSIS OF THE NAGADA CEMETERIES AND THE EMERGENCE OF THE STATE IN PREDYNASTIC EGYPT.

Although the Egyptian Predynastic cemeteries at Nagada were excavated ninety years ago, the data from these cemeteries are of sufficient significance that they cannot be ignored. By programming Petrie's data and testing it with quantitative methods, certain patterns emerge which demonstrate increasing hierarchical differentiation in a number of variables, including quantity and form of grave goods, and location, as predicted by Binford in a study of mortuary evidence from forty different ethnographic societies. (32)

Bergiel, M. M. (*see Rands, R. L.*) (61)

Barrera Rubio, Alfredo (*Centro Regional de Yucatan-INAH*)

THE PREHISPANIC SETTLEMENT IN THE AREA OF UXMAL, YUCATAN.

Despite the importance of Uxmal, until a few years ago no studies had been made of the structure, or the social organization of the community, the ancient distribution of the population, or the social relationships that prevailed historically. Attempts to elucidate the majority of these questions have been made with the study of settlement patterns. This study has taken into account the chronological dimension provided by ceramics, as well as the remains of dwellings. (27)

Bartel, Brad (*San Diego State*)

NATURAL LANGUAGE QUERY FOR COMPUTERIZED ARCHAEOLOGICAL DATABASES.

Computer assisted databases for archaeological projects have been in use for over a decade. Success of use is related to amount of information processed, variables selected, and how information is sorted. A new database program for microcomputers allowing natural language query is tested for archaeological utility. Tests with students and professional archaeologists indicate greater ease of use and ability to generate important sorting of information relative to more structured techniques. A Roman archaeological project, testing for acculturation and ethnicity, is used as the basis for this experiment. (4)

Bartoo, C. Michael (*Arizona, Tucson*)

PATTERNS OF VARIABILITY IN MIDDLE PALEOLITHIC TOOLS.

An analysis of retouched lithics from four sites in eastern Spain and Gibraltar permits a reexamination of variability in Middle Paleolithic assemblages. The study focuses on the morphology of retouched and unretouched edges of tools, patterning in edge variability within and among assemblages, associations between edges on individual pieces, and changes in these relationships through time. Relationships between such variability and edge modification that is associated with intensity of tool use are examined. The utility of edge-focused analysis for the reconstruction of Middle Paleolithic behaviors is assessed. (16)

Baugh, T. G. (*see Owsley, D. W.*) (67)

Baugh, T. G. (*see Eddy, F. W.*) (4)

Baumler, Mark E. (*Arizona*), Harold L. Dibble (*Pennsylvania*) and John D. Speth (*Michigan*)

A REEVALUATION OF THE ZAGROS MOUSTERIAN: NEW DATA FROM OLD COLLECTIONS.

Based on recent research by the authors involving both published and unpublished collections from several key sites (Bisitun, Kunji, and Warwasi), the generally recognized criteria defining the Zagros Mousterian are reevaluated and new data are presented. Interpretations for the particular typological and technological characteristics of these sites are offered and the potential connections between the Zagros and other areas in Middle Paleolithic times are explored. (23)

Bawden, Garth (*New Mexico*)

THE TUMILACA SITE: SETTLEMENT STRATIGRAPHY IN THE MOQUEGUA VALLEY.

The Tumilaca site is the only multi-phase settlement yet investigated in the Moquegua Valley. It is comprised of a Tiwanaku village overlaid by a local Late Intermediate "Estuquina phase" occupation. The site provides a definitive stratigraphic sequence for cultural components found widely in the valley and offers insights into the residential patterns peculiar to each cultural entity. These, in turn, shed light on local dynamics for each period, permitting speculation on cultural processes and

the changing shape of economic and political interaction between altiplano and the western Andean slopes. (3)

Beaudry, M. P. (see Whitley, D. S.) (1)

Beck, Lane A. (Northwestern)
REGIONAL HETEROGENEITY IN COPENA MORTUARY PRACTICES: A BIOARCHAEOLOGICAL ANALYSIS.

Analyses of Mississippian complexes have identified patterning underlying regional heterogeneity. Middle Woodland patterns are less thoroughly documented. Biological and archaeological analysis of Copena collections from northern Alabama is in progress. In this study, the nature and degree of status differentiation incorporated in the mortuary remains is used as a measure of the complexity of Copena social organization. Although the general patterning of differential burial treatment follows demographic lines, as expected for an egalitarian system, the degree of differentiation exhibited in the mortuary program is highly variable from site to site. (19)

Beckerman, Ira C. (Penn State, University Park)
SETTLEMENT AND SUBSISTENCE IN PREHISTORIC PIEDMONT NORTH CAROLINA: INCORPORATING ENVIRONMENTAL VARIABILITY.

An optimal foraging model is presented which emphasizes the highly variable environment to which prehistoric gatherer/hunters had to adapt. Potential foods vary both temporally, by season and year to year, and spatially, by habitat and distance to site. The plant-specific model quantifies this variability, generating expectations for best spots and diets for seven locations in upland and floodplain habitats in Piedmont, North Carolina. (6)

Belovich, Stephanie J. and David S. Brose (Cleveland Museum Natural History)
LATE WOODLAND FORTIFICATIONS IN NORTHERN OHIO.

The Greenwood Village site, is one of several located on steep bluffs overlooking the major rivers of Northern Ohio. The belief that these sites are in fact defensive has been maintained, and apparently given support by past excavations. Recent excavation of one of the still visible earthworks at Greenwood Village, demonstrated that is not its defensive but contained construction elements found at Southern Ohio ceremonial earthworks dating to the Early and Middle Woodland periods. Carbon 14 and thermoluminescence dates place the site within the period A.D. 460 to A.D. 1040. Not all hilltop enclosures are defensive works, nor can it be assumed that they are all from late prehistoric periods. (21)

Benallie, Larry (Navajo Nation Cultural Resource Management Program)
ARCHAEOLOGICAL RESEARCH ON INDIAN LANDS.

Indian Tribes are beginning to take a more active interest in archaeological research being conducted on their land. If research is to continue on Indian lands, tribal views and concerns must be considered. Unless this is done, tribal leaders may not allow research by non-tribal personnel to continue. The Navajo Nation is trying to avoid such a situation and offers some suggestions based upon an experimental program now being employed. (45)

Benfer, Robert A. (Missouri-Columbia)
MIDDLE AND LATE ARCHAIC ADAPTATION IN CENTRAL COASTAL PERU.

The Middle Archaic was actually a time of improving health and increasing population. By about 3500 B.C., the sporadic exploitation of the *lomas* had changed to a pattern of more persistent occupation. There is evidence of increasing emphasis on maritime resources until about 3000 B.C. The *lomas* of Paloma was abandoned around 2500 B.C., a time when nearby riverine settlements were intensively occupied. Annual seasonal stresses common to foragers are clearly registered in the physical remains of individuals from Paloma. Potentially more devastating multiple year cycles of stress, begin to be detected in later Cotton Pre-ceramic Period human remains. Successful response to the challenge of these stresses probably occurred during the Late Archaic Period without extensive cultivation of domesticated plants. (73)

Bennett, Sharon L. (SUNY, Plattsburgh)
TRACE ELEMENT EVIDENCE OF THE COLONIAL MAYAN DIET AT TIPU, BELIZE.

Trace element analysis of human ribs from this Colonial Mayan population indicates that the diet was supplemented by the inclusion of some meat. Levels of Sr, Ca, Mg, Zn and Cu, as well as that of the Sr:Ca ratio were determined by atomic absorption and compared with faunal levels. Indicated proportions of meat and grain in diet were examined for sex and status differences. Levels of trace elements were also examined for any correlation between diet and skeletal indicators of health. Soil analysis showed no correlation between levels of trace elements in soil and levels in bone. (48)

Bense, J. A. (see Hodnette J. R.) (66)

Bense, J. A. (see Blanchard, D.A.) (59)

Bense, Judith A. (West Florida)
THE MIDDEN MOUNDS: THEIR CONTRIBUTION TO THE UNDERSTANDING OF THE ARCHAIC STAGE IN THE MID-SOUTH.

This seven-year long interdisciplinary project has contributed to our knowledge of the Archaic period in the Mid-South. It documented and defined the properties of an early Holocene paleosol in the Tombigbee floodplain which can be used as a time-stratigraphic marker. It has documented changes in technology and site use during the Archaic. It has tried to explain these changes in terms of increasing sedentism, decreasing lithic raw material supplies and possibly increased interaction with people outside the valley. It has contributed to our understanding of how complex contract archaeological programs should be organized. (59)

Benz, Bruce (Wisconsin-Madison)
THE ARCHAEOLOGICAL SITE AS A DEPOSITIONAL COMMUNITY.

Realizing that certain botanical materials (e.g. seeds) are the means through which plants perpetuate themselves, the presence of noncarbonized seeds and/or fruits in archaeological deposits can be interpreted as "dispersal-in-time" and not simply as recent or prehistoric intrusions that have no place in understanding the archaeological site. The recent preeminence of site formation processes in archaeological theory has not considered successional theory from community ecology and thus has justified the prevailing dogma in ethnobotanical research. (63)

Berke, Hubert (Tubingen)
BUTCHERING MARKS ON HORSE BONES FROM THE MAGDALENIAN SITE OF PETERSFELS, SOUTHWESTERN GERMANY.

Analysis addressed the following questions: what kinds of artifacts were used to make the cuts, what was the intended use of the bone, what kinds of cut marks occur on which skeletal parts, what kinds of artifacts were made of which bones? The results shows that, unlike the reindeer bones from Petersfels, horse bones were mostly cut using retouched artifacts; cuts from different directions had different uses; impact scars were located at points of muscle attachment; pebbles were used to break bones. (63)

Bettinger, Robert L. (UCD)
ABORIGINAL OCCUPATION AT ALTITUDE: ALPINE HUNTERS AND VILLAGERS IN THE WHITE MOUNTAINS OF CALIFORNIA.

Surveys and excavations in the Alpine Tundra community of the White Mountains, eastern California, indicate a major change in land-use occurred approximately 1000 years ago with the appearance of numerous seasonal villages used as bases of intensive plant and animal procurement. Aboriginal alpine activity prior to that was shorter in term and centered on the procurement of large vertebrates. This shift lends support to certain models of adaptive change in eastern California and the spread of Numic speakers within the Great Basin. (60)

Betz, I. III (see Ringle, W. M.) (27)

Bishop, R. L. (see DeAtley, S. P.) (4)

Biskowski, Martin (UCLA)
GRINDING TOOLS AT TEOTIHUACAN.

There has been comparatively little study of grinding implements. Manos and metates are essentially utilitarian tools, with less design variability than is found in other artifact classes, and they are less useful for resolving some problems of site interpretation. Their very mundane, utilitarian nature suggest that they may be good indicators of demographic and economic patterns. Problems of chronology and relations between formal variability and patterns of social organization must be resolved. Teotihuacan provides an opportunity for considering how to address these questions. (2)

Black, Stephen L. (Harvard)
EL PEDERNAL: A LATE CLASSIC AGRICULTURAL COMMUNITY, PETEN, GUATEMALA.

A satellite community associated with the site of Rio Azul evidences lithic workshops, intensive agricultural fields, concentrated domestic housemounds and clustered storage facilities (chultuns). The community is centered around a serie of interconnected bajos that have been extensively modified for agriculture. Five major lithic workshops produced celt and adze forms analagous to those found in Colha, Belize. Components of the agricultural system include implement production, intensive agriculture, surplus storage and a substantial labor force. (61)

Blake, Leonard W. (Washington, St. Louis)

CULTIVATED PLANTS FROM HISTORIC OSAGE AND MISSOURI INDIAN SITES.

Cultivated plant remains include *Zea mays* of the Eastern Eight-Row race from all six of the sites, and *Phaseolus vulgaris* from all but one. Seeds of *Cucurbita pepo*, most preserved by copper salts, or small bits of rind *Cucurbita* sp. are present in samples from all. Old World plants are represented by *Citrullus lanatus*, *Prunus persica* and domestic cherry, probably *Prunus avium*. The first is among the remains from the Missouri Utz site, abandoned in 1712, and all are among those from the Little Osage Hayes site of 1790-1820. (39)

Blanchard, Dallas A. (West Florida), Judith A. Bense (West Florida) and Rochelle Lurie (West Florida)

RESEARCH DESIGN FOR INVESTIGATING STRATIFIED ARCHAIC MIDDEN MOUNDS IN THE UPPER TOMBIGBEE VALLEY, MISSISSIPPI.

The presence of several similar deeply stratified, well-preserved, rich floodplain sites presented an unusual opportunity to investigate the Archaic stage in the Mid-South. Our Research Design was based on principles of cultural ecology which stress the relationship between environment and human adaptation. The important issues addressed in this project are: (1) landscape evolution; (2) changes in site use coincident with the althermal; (3) changes in resource utilization; and (4) levels of interaction with populations outside the valley. (59)

Blankholm, Hans P. (Aarhus, Denmark)

THE LATE MESOLITHIC HUNTER-GATHERERS AND THE TRANSITION TO FARMING IN SOUTHERN SCANDINAVIA.

The evidence from the late mesolithic hunter-gatherer Ertebolle Culture (4500-3100 bc) in Southern Scandinavia may be interpreted to suggest a period of increasing demographic growth, territoriality, sedentism, economic diversity and social differentiation, eventually leading to the complex structure of the early neolithic farming communities of the Funnelbeaker Culture (3100-2650 bc). It is argued that models primarily stressing the importance of ecological shifts are inadequate in explaining causes and consequences in this example of continuous and dynamic cultural change. (7)

Bleed, Peter (Nebraska, Lincoln)

MOTOR HABITS, EFFICIENCY AND LONG TERM CHANGE IN TOOL DESIGN.

The efficiency of pull stroke Japanese hand saws and push stroke Western saws was experimentally compared using the oxygen consumption method. This comparison showed that pushing power strokes are more efficient than pull strokes. These results show that different tool designs and different patterns of body use can be markedly unequal in the efficiency with which they transmit human effort. This paper suggests that performance inequality may be a factor contributing to long term evolutionary changes in tool design. (4)

Boast, Robin B. (Cambridge University, England)

CERAMIC DESIGN SYSTEMS: A NON-TYPOLOGICAL APPROACH.

In our attempts to understand the patterns of similarity within ceramic design systems, traditional methods have been extremely unhelpful. It is argued that the major reasons for this impotence are: (1) the ignorance of the importance of organizational systematics in design systems; and (2) the tendency to assume immutable categories or types. An attempt is made to overcome these problems by describing similarities within a ceramic design system, that of the British beakers, by a method that considers the organizational systematics. (52)

Boldurian, A. T. (Eastern New Mexico) and J. M. Adovasio (Pittsburgh)

WHO ARE THOSE GUYS?

Analysis of flaked stone from Middle and Lower Stratum IIa at Meadowcroft Rockshelter and comparisons with collections from two other sites of similar age in the Cross Creek drainage permit characterization of the lithic repertoire of the earliest well-dated human population in eastern North America. Qualitative and quantitative comparisons of the Meadowcroft lithics with assemblages from Fort Rock cave, Wilson Butte cave, and eastern fluted point localities such as the Shoop site also permit possible continent-wide characterization of a pre-fluted point lithic industry and discussion of potential cultural relationships with various later Paleo-Indian cultures. (77)

Bonnichsen, R. (31)

Bonsall, Clive (Edinburgh), Richard Tipping (Edinburgh) and Donald Sutherland (Edinburgh)
LATE PRE-AGRICULTURAL SOCIETIES IN THE NORTH-WEST OF ENGLAND: THE EVIDENCE FROM ESKMEALS.

Recent excavations at Eskmeals, Cumbria, have shown that Mesolithic coastal dwelling communities of the 4th millennium B.C. had attained a level of technological sophistication equivalent to

that of the early farming communities who succeeded them. This is documented most clearly by evidence for the building of substantial timber structures, using techniques not previously known in Britain before the Neolithic period; and by palaeobotanical evidence for the selective clearance of primary woodland in the site locality. (7)

Boone, James L. (Texas, Austin)

ELITE LINEAGE BEHAVIOR AND THE ORGANIZATION OF EARLY STATES: FROM ETHNOHISTORIC MODELS TO ARCHAEOLOGICAL EVIDENCE.

High reproductive rates among elite lineages in early states inevitably leads to a surfeit of individuals claiming elite status by descent in relation to the number of available offices or titles. This leads to political instability, territorial expansion, and ultimately dynastic collapse. Using historic demographic data on elite lineages in late medieval Europe, this paper examines the process of lineage proliferation and its effects on state development and ultimate collapse. Suggestions are made as to how this ethnohistoric model could be applied to the study of state political dynamics in the archaeological record. (44)

Boster, Mark A. (Office of Surface Mining Reclamation and Enforcement)

REGULATORY PROCESS: BALANCING THE PUBLIC INTEREST WITH THE REQUIREMENTS OF THE LAW.

Archaeologists bring important expertise to the regulatory process. However, the profession's concern for the public interest often is not reflected in the regulatory and agency actions due to a lack of understanding of the ground rules of this process. This paper will present a general introduction to the regulatory process. The discussion will build upon this introduction to describe how timing, interaction with officials, negotiation strategy, and other factors influence the ability of archaeologists to obtain support within regulatory agencies. (66)

Boucher, Sylviane, Ramon Carrasco, and Agustín Peña (Centro Regional de Yucatan)

RECENT INVESTIGATIONS AT RIO BEC, CAMPECHE.

This paper presents new information obtained during the field research of the "Proyecto Arqueológico Frontera Sur" by the National Institute of Anthropology and History, including the first map of the location of the 13 Rio Bec architectural groups, some of which are first reported here. These data permit the formulation of a model to explain the behavior and distribution of the distinct groups at Rio Bec. Preliminary studies indicate the existence of a ceramic sphere in the central Yucatan region that coincides precisely with the Rio Bec and Chenes architectural provinces. A separate cultural region in central Yucatan may therefore be defined on the basis of both architectural and ceramic styles. (27)

Bourton, Thomas W. (Baylor College of Medicine, Houston), Mark J. Lynott (United States Dept. Interior, Lincoln), James E. Price (Southwest Missouri State, Naylor), and Peter D. Klein (Baylor College of Medicine, Houston).

STABLE CARBON ISOTOPE RATIOS AS INDICATORS OF MAIZE AGRICULTURE IN SOUTHEAST MISSOURI AND NORTHEAST ARKANSAS.

Stable carbon isotope analyses of bone collagen from human skeletal remains suggest that intensive maize agriculture began in this region around A.D. 1000, that the incorporation of maize as a significant component of the diet was rapid, and that approximately 35 to 72% of the human diet from A.D. 1000 to A.D. 1600 consisted of maize. Although maize agriculture is generally considered to have been common by the start of the Mississippian Culture (approximately A.D. 700), these results indicate that it did not reach full development until some time after A.D. 1000. (43)

Bove, Frederick J. (California, Santa Barbara)

THE FORMATIVE-CLASSIC TRANSITION ON THE SOUTH COAST OF GUATEMALA.

Transition between the Terminal Formative and Early Classic periods in Mesoamerica is marked by widespread social, political, demographic and economic dislocation and restructuring. Preliminary study investigating social and economic change on the Guatemala coastal plain during this juncture is presented. The research examines the linkage between the deterioration of the Formative, marked by widespread cultural discontinuity and disruption, and its replacement by the Early Classic system that could represent a microcosm of the transitional period. (1)

Bowdler, S. (63)

Bowers, Peter M. (P. O. Box 80532, College, Alaska)

COLD CLIMATE DISTURBANCE PROCESSES AND THE ARCHAEOLOGICAL RECORD: EXPERIMENTAL IMPLICATIONS FROM ALASKA.

Time lapse studies of frost action effects on three arctic and subarctic sites were conducted between 1973 and 1983. Observations of a total of 10 experimental test-plots revealed artifact mean movements

of 3-4 cm/yr. Field data and computer simulations of movements over time are presented to suggest that cold climate processes can often smear the archaeological record and force careful considerations of certain methodological and theoretical evaluations. (74)

Boyd, C. C., Jr. (see Schroedl, G. E.) (69)

Bradley, James W. (Mass. Hist. Com.)

ACCOMMODATING CHANGE: THE ONONDAGA IROQUOIS 1500-1650.

Among native American people in northeastern North America, the Five Nations Iroquois not only survived European contact, they were successful in accommodating themselves to this change. Using the Onondaga as a case study, four reasons for this are examined: (1) an interior location; (2) the internally resilient structure of Iroquoian culture/society; (3) an Iroquoian tradition of growth through adoption/assimilation; and (4) a fusion of indigenous "political" concepts with the effects of cross cultural contact. (33)

Bradley, John E. (Colorado)

EXCAVATIONS AT THE TRONADORA VIEJA SITE.

Partial excavation of the Tronadora Vieja Site (G-163) conducted during the 1985 Proyecto Prehistorico Arenal field season revealed a multicomponent Archaic, Middle Formative and Zoned Bichrome Period village site. Distinct tephra horizons facilitated the definition of household architectural features as well as separation of the artifactual components. Aspects of house construction, associated interior and exterior features and activity areas, diagnostic artifacts and carbonized remains of both wild and domesticated plant utilization were encountered. Radiocarbon dates suggest sedentism in the Laguna Arenal region may have begun about 2000 B.C. (79)

Bradley, Ronna J. (Arizona State University)

MARINE SHELL SPECIES, SOURCE AREAS AND DISTRIBUTION: IMPLICATIONS FOR EXCHANGE SYSTEMS IN NORTHWEST MEXICO AND THE SOUTHWEST.

Marine shell species common to different portions of the Gulf of California are found in Northwest Mexico and the Southwest. Certain species are limited in range and their general source areas can be located along the coast. The distribution of these different species has important implications for defining trade systems or exchange spheres in the region during prehistory. An examination of shell species in archeological sites is made and their source areas traced in an effort to control for their origination as well as destination points. (10)

Brain, J. P. (50)

Brain, Jeffrey P. (Harvard)

CAHOKIA FROM THE SOUTHERN PERIPHERY.

Contact between the American Bottom and the Yazoo Basin region of west-central Mississippi occurred during a relatively brief period in the 12th century. Evidence for the contact has been found at a number of sites. Stratigraphic excavations at the large Winterville and Lake George mound centers, as well as other sites, have placed the Cahokia presence in cultural and historical context. The motivations for the Cahokia contact are unknown, but the pattern was distinctive and the results were dramatic. (49)

Brock, Sharon L. (Basin Research Associates)

DIFFERENCES IN BONE REMODELING IN "RESILIENT: COMPARED TO "STABLE-BASED" POPULATIONS: AN EXAMPLE OF MIDDLE-RANGE RESEARCH.

Contrasting adaptive strategies have been inferred from differences in archaeological site size in the SW. Small ("resilient") and large ("stable-based") sites are inferred to represent hunting/gathering mobile and agricultural, sedentary people, respectively. Research in skeletal biomechanics documents specific changes in bone geometry to occur in response to changes in functional circumstances. If people from smaller sites were more mobile compared to people from larger sites, then bone will adapt appropriately and the former will have greater bone rigidity relative to the latter. Cross-sectional geometric and material properties of femora were examined. "Resilient" femora have relatively greater rigidity than "stable-based." (12)

Brooks, Richard H. (Nevada, Las Vegas)

LA CUEVA DE DOS CUCHILLOS, CHIHUAHUA MEXICO: ANALYSIS OF PREHISTORIC AND HISTORIC COMPONENTS.

This cave site is near San Francisco de Borja, on the eastern slopes of the Sierra Madre in the drainage of the Rio San Pedro. Historic components consist of metal knives and trade beads dating to A.D. 1780. Late prehistoric materials include pottery, stone bowl fragments and items comparable to

ethnohistorical Tarahumara artifacts. Approximately 15 burials were recovered, ranging in age from five to 30 years at death. A female cranium with a postmortem cut of the occipital from the mastoid through the condylar facet was recovered. Various alternative explanations for this feature are discussed. (10)

Brose, David S. (Cleveland Museum Natural History)

LOGS AND LOGISTICS.

From the Late Archaic through the Early Late Woodland Period the major societies of the eastern Woodlands focused their socio-ceremonial behavior on the ritual treatment of material and artifacts of distant origin. Recovery and analysis of a Late Archaic Dugout from Northern Ohio (Brose & Greber 1982) has suggested the hydrodynamic limits of crew and cargos for various aquatic systems. These data are now used to develop models of maximal and minimal effort trans-shipment loci which can be compared part with known locations and with predictions based on differing paleo-econometric theories of exchange and ritual organization. (36)

Brose, D. S. (see Belovich, S. J.) (21)

Browman, David (Washington, St. Louis)

MANAGEMENT OF AGRICULTURAL RISK IN THE TITICACA BASIN.

In addition to dryland farming, Titicaca cultures integrated environmental risk strategies such as *andenes* (terraces), *camellones* (raised fields), and *qochas* (highland counterparts to *mahames*) into their agricultural technology. Diversification of productive activities favored commodity specialization, allowing elaboration of both prestige and staple crop sectors. Initial development occurred by 500 B.C.; they formed an important component of the rise of the Tiwanaku Confederation; but were subsequently partially replaced by "vertical ecology" or "archipelago" strategies after A.D. 800. (11)

Brown, Frank (Open University, Milton Keynes, England)

A RULE-BASED APPROACH TO THE GENERATION OF BUILDING PATTERNS IN MEDIEVAL LONDON.

The physical fabric of medieval London, like that of many pre-industrial settlements, was essentially unplanned. The different parts of the old City grew up in a piecemeal fashion over the centuries. Building layout was, however, governed by traditional practices and procedures. This paper describes a grammar which attempts to embody these historical practices in a set of rules. Translated into a computer model, the grammar was used to generate possible building developments within a number of hypothetical City blocks. Some examples of generated developments are presented, and their implications are discussed. (52)

Brown, J. A. (59)

Brown, James A. (Northwestern)

RETHINKING SOME PROBLEMS IN MORTUARY ARCHAEOLOGY.

Criticism of the social model of burial analysis formulated by Saxe and Binford have raised serious questions as to the general applicability of their model in the face of examples to the contrary. The position that the disposal of the dead is treated in accordance with the more significant of their statuses stands in direct opposition to instances of relatively simple burial of the elite or of relatively lavish burials of both elite and non-elite alike. A model, based on an "economy of behavior," is offered to incorporate the discordant examples with the Saxe-Binford model. (68)

Brown, K. L. (see Rubenstein, R.) (54)

Bruhns, Karen O. (San Fran State) and Norman Hammond (Rutgers)

EXCAVATIONS AT PIRINCAJ, ECUADOR

Excavations at Pirincaj, a deeply stratified site in southern highland Ecuador have yielded valuable information on Early-Middle Formative cultural dynamics. Undisturbed deposits have made it possible to arrive at a new chronology, acting as a corrective to previous ones from shallow and/or disturbed contexts. Evidence concerning ideational and artifact exchange between the coast, highlands, and tropical forest shows the closeness of contact between these regions and demonstrates the importance of mid-range, intermontane valleys as the viaducts through which such exchange flowed. (20)

Bruno, Henry L. (Texas A&M)

STRUCTURAL TIMBER AND HUMAN-ENVIRONMENT INTERACTION AT THE NAN RANCH RUIN.

Evidence of the interaction of human behavior with the environment is contained in the wood resources used for shelter. Fragments of posts and roof beams from 40 rooms of a Mimbres pueblo are

identified and reveal the genera selected for roof construction during successive building phases. It is shown that this cultural selection reflects a procurement strategy based on the physical characteristics of wood and the costs of obtaining different genera. (37)

Bryan, Alan L. (Alberta, Edmonton)

THE RELATIONSHIP OF THE STEMMED POINT AND FLUTED POINT TRADITIONS IN WESTERN NORTH AMERICA.

Excavations in Smith Creek Cave, eastern Nevada, produced evidence for an early Mt. Moriah occupation. Willow leaf-shaped points, broken and reused as burins and scrapers, were considered to belong to the Great Basin Stemmed Point Tradition, which later spread onto the Great Plains where styles like Hell Gap replaced fluted points. Charcoal from Mt. Moriah hearths yielded 8 dates between 10,000-11,000 B.P. Scattered charcoal and wood in the same horizon are dated 11,680 B.P. and 12,150 B.P. This evidence suggests that the Fluted Point Tradition was not the only projectile point tradition in western North America by 11,000 B.P. (31)

Bryant, V. M., Jr. (see Holloway, R. G.) (14)

Bryson, Robert U. (Oregon, Eugene)

ANALYSIS OF CERAMICS FROM NAN MADOL, POHNPEI STATE.

Recent work on Micronesian pottery has helped to elucidate intra- and inter-island connections in this complicated area. While petrographic analyses suggest a probable local derivation for Pohnpeian pottery, these materials are still of considerable value in documenting the sequence of construction of the Nan Madol ritual and residential site complex. An outline of this sequence based on associations between the distribution and variability of ceramics and status-related architecture is presented. (13)

Buck, Paul E. (Washington, Seattle), Steven C. Willis (Washington, Seattle) and Milton O. Smith (Washington, Seattle)

APPLICATION OF MULTISPECTRAL IMAGERY TO ARCHAEOLOGICAL PROBLEMS IN ARID REGIONS: AN EXAMPLE FROM EGYPT.

A procedure has been developed to model a Landsat multispectral image as mixtures of endmember spectra and to compare image spectra directly with laboratory spectra. Over 130 samples of sediment, rock, ceramic and lithic artifacts were collected from sites in Fayyum, Egypt and laboratory reflectance spectra taken. A Landsat-1 scene of the study area is calibrated to these spectra using principal components analysis. Construction of a computer generated map shows areas having spectral signatures equivalent to sample spectra. (40)

Buikstra, J. E. (see Williams, S. R.) (3)

Burger, Richard L. (Yale)

EVALUATING THE WILLIAMS' HYPOTHESIS OF INITIAL PERIOD AGRO-RELIGIOUS CENTERS IN PERU.

Williams hypothesized that the Initial Period U-shaped centers on the Central Coast of Peru were agro-religious complexes which consisted of irrigated fields, reservoirs, and religious architecture. The 1985 excavations at Cardal, a U-shaped center in the Lurin Valley, employed a strategy designed to test the Williams' hypothesis. Findings indicate that the features central to the Williams' hypothesis are not present. Evidence of domestic occupation exists adjacent to the monumental architecture. The interpretation of the U-shaped complexes as empty ceremonial centers must be reconsidered. (42)

Burger, R. L. (73)

Burgett, Galen R. (New Mexico)

THE IMPLEMENTATION OF NEOTAPHONOMIC AND ETHNOARCHAEOLOGICAL CONTROLS IN THE ANALYSIS OF BISON KILL BONE ASSEMBLAGES.

Actualistic study of bison mortality sites in Wind Cave National Park, South Dakota and ethnoarchaeological information on hunter-gatherer butchering and processing of meat, bones, and marrow are integrated to develop methods of pattern recognition and analysis which are applied to the faunal assemblage from the Vore site, a Late Prehistoric bison kill in Wyoming. Both cultural and non-cultural site formation processes are discussed in terms of their contributions to the nature of the Vore assemblage in the dimensions of site structure, bison butchery and dismemberment tactics, and other areas of assemblage composition. (76)

Butler, Brian M. (Southern Illinois)

ARCHAEOLOGICAL CORRELATES OF VILLAGE RANK IN PALAU.

At European contact, Palauan society consisted of a number of competing chiefdoms, each headed by a paramount village. Traditional Palauan villages exhibit an organizational pattern and stone

building tradition that predates European contact by at least 400 to 600 years. Oral history and survey data from Aimiliik state are used to explore the archaeological correlates of village rank within one of these chiefdoms. Attention is focused on the men's house (*bai*) complex which is central to each village. (13)

Butler, Virginia L. (Washington, Seattle)

DISTINGUISHING NATURAL FROM CULTURAL SALMONID REMAINS IN THE PACIFIC NORTHWEST.

The potential for natural salmonid remains to become mixed with archaeological deposits in the Pacific Northwest has received little attention. Yet salmonid life history characteristics, which includes annual mass death of millions of the anadromous forms, suggests resulting faunal remains may become deposited in riverine archaeological settings. This paper outlines conditions permitting disturbance of archaeological deposits by intrusive salmonid remains and methods used to distinguish the two deposits. (74)

Cabieses, Fernando (Museo Peruano de Ciencias de la Salud, Lima)

PROGRAMA CONTISUYU: AN INTRODUCTION.

The Programa Contisuyu is a consortium of Peruvian and American scholars formed for the purpose of assessing, and developing a research program for, archaeological resources in the Osmore drainage of southern Peru. Specific projects functioning within the Programa Contisuyu are investigating substantive and theoretical issues within the full range of the Osmore drainage, from the coast to the *Altiplano*, and for the total time frame of human history in the region. The rationale and history of the Programa are discussed, as is the impact of such regional programs on the future of Peru's cultural patrimony. (3)

Cabrera, Ruben C. (INAH, Mexico)

THE ARCHITECTURAL SEQUENCE AND FUNCTION OF THE CIUDADELA.

The enormous architectural complex, the Ciudadela, occupies a unique position in the ancient city of Teotihuacan. Recent excavations by the Proyecto Arqueologico Teotihuacan provide new data for studying its function within the Teotihuacan societal and political structure. An analysis of the architectural sequence and the different architectural elements that make up the Ciudadela will be discussed. (15)

Calabrese, F. A. (National Park Service)

ARCHAEOLOGICAL RECORDS: PRESERVATION OF A NEGLECTED RESOURCE.

Archaeological records include everything from the initial recorded field observations to the final reports prepared for publication and provide the only permanent long term site documentation. These records, along with the archaeological objects are often stored in below standard conditions in basements, attics, crawl spaces and garages, and/or may disappear into the files of the individual researchers. The recovered data must be prepared, accessioned and stored properly. Records preservation can be expensive, but there are a number of efficient cost-cutting preservation methods. (35)

Callagan, R. (see Steinbring, J.) (46)

Campan, Ingo (Tubingen)

35,000 YEARS OF CAVE SEDIMENTS IN SOUTHERN GERMANY.

The sediments from four cave sites in southern Germany were analyzed for a climatological interpretation. The time span of the sediments range from the late Middle Palaeolithic up to the Early Neolithic. It can be shown that the sediments in each cave reacted differently, but it is possible to exclude these local influences and come to a synthetic stratigraphy which parallels the well-known stratigraphies of France. Thus we can demonstrate that sediments react faster to climatic factors than pollen or micro-fauna and that a sedimentological stratigraphy will yield greater climatic detail. (63)

Cane, Scott (ANU, Canberra) and Webb, Esmee (London)

DIETARY AND ENVIRONMENTAL IMPLICATIONS OF THE EXCAVATION OF ABORIGINAL SHELL MIDDENS ON THE SOUTHEASTERN COAST OF NEW SOUTH WALES, AUSTRALIA.

Two Holocene age shell middens were excavated at Merimbula, NSW. Both middens document a noticeable shift in the species predominantly predated from oysters early on to cockles later. A shift in preferred food resources collected is widely documented in NSW, although the species involved differ from site to site. Controversy rages over whether this shift was environmentally or culturally determined. This will be discussed in the light of the evidence from Merimbula. (18)

Cannon, Kenneth P. (Tennessee, Knoxville)

HUMAN ECOLOGY IN THE WATTS BAR RESERVOIR, EAST TENNESSEE.

Documented sites represent occupations of all temporal periods as defined for the southeastern United States. Prehistoric sites are located within the ridge and valley biogeographic province and in close proximity to the Blue Ridge and Appalachian Plateau biogeographic provinces. Location of these human settlements within the Upper Tennessee River Valley provided these prehistoric people with the potential to exploit three diverse ecological settings. Delineation of resource availability in conjunction with the patterning of site types across the landscape, provides a diachronic model of human ecology for the region. (69)

Cannon, W. J. (see Ricks, M. E.) (60)

Canouts, V. (see De Atley, S. P.) (4)

Cantley, Charles E. and Daniel R. Hayes (Gilbert/Commonwealth Inc.)

ARCHAEOLOGICAL RESEARCH IN WEST CENTRAL LOUISIANA: A STUDY OF PREHISTORIC MOBILITY PATTERNS AND LAND USE HISTORY.

Excavations and analysis of cultural materials recovered from 39 prehistoric sites on the Fort Polk Military Installation and Kisatchie National Forest are summarized. Fieldwork included a program of shovel test units and test excavations on sites containing unusual and/or large concentrations of artifacts. Artifacts recovered indicate extensive use of the region from transitional Paleo-Indian/Early Archaic times through the historic era. Hypotheses concerning prehistoric mobility and land use strategies are provided. (6)

Carlson, Robert S. (Colorado, Boulder)

THE EARLY CLASSIC PERIOD MAYA TEXTILE REMAINS FROM RIO AZUL, GUATEMALA.

The site yields the only Classic Period Maya textiles discovered to date. The preservation of these materials is likely due to certain unique characteristics of the tomb design, as well as of the burial items themselves. The present condition of these remains might be accurately described as "pseudomorphic." Analysis of the remains reveal the presence of four textiles. Three of the four seem to be surprisingly humble for a burial of this status. The fourth seemingly a "shroud," demonstrates a mastery of the weaving art. (61)

Carmichael, David L. (New Mexico State)

OBSIDIAN HYDRATION AND OLD WOOD RADIOCARBON DATES: A CASE EXAMPLE FROM THE JORNADA MOGOLLON.

Recent excavations at a campsite in El Paso, Texas, yielded sufficient chronometric samples to permit a comparison of radiocarbon and induced hydration chronologies. The results suggest that the former suffers from the problems of dating "old wood" charcoal samples in desert environments. The inferred period of occupation is much later than was predicted by the traditional culture history. Implications of the site for the identification of adaptive diversity and for the use of phase frameworks are discussed. (56)

Carnes, Linda F. (UNC, Chapel Hill)

EUROAMERICAN TRADE ARTIFACTS FROM OCCANEECHI TOWN, NORTH CAROLINA.

An analysis of Euroamerican trade artifacts from Occaneechi Town (Fredricks site) of 1680-1710 indicates that more items of utilitarian function were present at this site than at other earlier and/or more remote historic Piedmont sites. This finding, together with written accounts of the period, suggests that the composition of the Occaneechi's trade assemblage may reflect their: geographical location, temporal position, role in the trade network, or a combination of these factors. Although both utilitarian and ornamental/personal items were used as burial accompaniments at the Fredricks site, there was still a tendency for selection of the latter over the former. (50)

Carr, Christopher (Arizona State) and Beryl Rosenthal (Indiana, Indianapolis)

DETERMINACY AND INDETERMINACY IN ARTIFACT STYLE ANALYSIS: HIERARCHY, MEANING, AND CONTEXT.

A middle-range theory for assigning technological, social, or idiosyncratic meaning to attributes of artifacts is outlined. The theory defines a complex correspondence between hierarchies concerned with (1) material constraints versus (2) the behavioral meaning of attributes. Attributes of discrete levels defined by the first set of criteria can map to multiple but limited levels of meaning. The potential of attributes for messaging, are factors causing determinacy and indeterminacy in the correspondence of hierarchies. (52)

Carr, Helen Sorayya (Tulane)

APPROACHES TO ASCERTAINING THE RELATIVE IMPORTANCE OF VARIOUS ANIMALS AMONG THE MAYA.

Determining the relative importance of various fauna is a goal of most zooarchaeological studies, but approaches and emphases differ. "Relative importance" actually incorporates several aspects—e.g., dietary contribution, economic focus, and cultural value. It is useful to investigate all of these aspects, which are each best examined by different analytical procedures. Multiple approaches are also essential where faunal assemblages are diverse in terms of size and taxa. The analysis of data from Cerros, Belize, a Preclassic Mayan site, is presented as an illustration. (48)

Carrasco, R. (see Boucher, S.) (27)

Carucci, James (Southern Illinois University, Carbondale)

PREHISTORIC COMPLEX SOCIETIES IN MICRONESIA: WHERE HAVE ALL THE CHIEFDOMS GONE?

Evolutionary studies of the prehistoric societies of Polynesia have identified a number of critical variables which presumably led to the development of complex chiefdoms in that area. In the neighboring area of Micronesia, ethnographic and archaeological work has indicated the presence of an identical suite of variables. This paper examines the prehistoric societies of Micronesia, which despite similar ecological and evolutionary situations, are seen as radically different in complexity than those in Polynesia. (5)

Ceci, Lynn (CUNY-Queens College)

SHELL BEAD EXCHANGE PATTERNS IN NEW YORK.

Evidence from over 25 Archaic to Historic period sites provide the origins of wampum and tribal economics among the Seneca Iroquois. Identification of bead types and shellfish sources indicate that elements of long distance trade were in place since the Archaic, and that hunter/gatherers were probable suppliers of shell and middlemen in an exchange network between the Atlantic Coast and Midwest. These activities anticipate the emergence of the Seneca after European contact and the exchange of coastal-made wampum for inland furs. (17)

Cerecedo, Magali C. (IA, UNAM)

CHARACTERISTICS OF THE OSTEOLOGICAL MATERIAL FROM THE MERCHANT'S BARRIO, TEOTIHUACAN.

Physical characterization of the inhabitants of the Merchant's Barrio, through the analysis of their osteological remains can be of help in answering some of the questions posed by archaeological research. Using metric and non-metric (epigenetic) characters, and taking into account morphological traits, a morphological profile, ethnic affiliation and general health status of the group is given, together with a comparison of the funerary and cultural practices of these people with other studied groups from Teotihuacan. (15)

Chang, Claudia (Sweet Briar)

THE ETHNOARCHAEOLOGY OF SPECIALIZED HERDING SITES: A MODEL FOR RURAL LAND-USE IN EARLY STATE SOCIETIES.

Rural land-use and settlement patterns in a modern Greek village have been reconstructed from the architectural and locational study of herding sites. Extrapolating from this ethnoarchaeological example, a model and set of methods for examining pastoralism in early state societies is suggested. The following lines of inquiry are presented: (1) spatial analysis of pastoral sites; (2) the ecology and economy of mixed herding and farming systems; and (3) pastoral movement and settlement as a mechanism for integrating rural and urban communities during state-level development. (32)

Chapman, Carl H. (Missouri, Columbia)

MISSOURI AND OSAGE INDIAN TECHNOLOGICAL ADAPTATIONS AND CHANGES DURING THE HIDE AND FUR TRADE A.D. 1675-1825.

Ethnohistorical information about the Missouri and Osage is very limited during the first hundred years after their mention in A.D. 1673, but archaeological data indicate both indirect and direct trade with Euro-Americans. By the time better information is available, adaptations of Euro-American manufactured goods have almost completely overshadowed native made. At the end of the 150 year period the Missouri have combined with the Oto, and the Osage have essentially become dependent upon Euro-American manufactures and the United States Government. (39)

Chapman, Robert (Reading)

TOWARDS A THEORY OF MORTUARY VARIABILITY: PRODUCTION, CIRCULATION AND DEPOSITION OF GOODS.

If we are to interpret variability in the frequency and distribution of grave goods through time and space, we need to analyze the production and circulation of these goods in relation to their deposition.

Choices of valuables to be consumed in mortuary rituals have to consider problems of supply and demand and the importance of those valuables to the functioning of the living systems. This paper seeks to build a model relating production, circulation, and deposition of valuables, and considers the implications for archaeological and anthropological mortuary studies. (68)

Chavez, Karen Mohr (Central Michigan)
DISCUSSANT'S COMMENTS.

Beginning in the Initial Period there is evidence of contact and exchange of ideas between the south highlands and south coast of Peru. This pattern continues and in the Early Horizon and the early Early Intermediate Period we see the sharing of specific traits such as mouth-masks, trophy-head taking, trumpets, and polychrome incised pre-fire painted pottery. Comments will be directed as assessing Nasca in the light of the south highlands of Peru. (28)

Cheek, Annetta L. (N.P.S., Washington, D.C.)
ARPA-THE WASHINGTON PERSPECTIVE.

The Departmental Consulting Archaeologist, National Park Service, has the principal responsibility for coordinating implementation of the Archaeological Resource Protection Act by Federal agencies. This paper discusses both some of the activities undertaken by that office to encourage more effective implementation of the Act, and problems encountered at the national level. Topics include a newly established clearinghouse for information on ARPA and the development of procedures for determining materials not to be or no longer to be archaeological resources. (51)

Chiarelli, J. A. (see Lokaj, J.) (2)

Chippindale, Christopher R. (Cambridge)
COMPOSITION AND ORDER IN MONT BEGO ROCK-ART.

The detecting of composition when motifs are adjacent or overlapping is a fundamental problem in rock-art studies. Using later prehistoric petroglyphs from Mont Bego, in Alpine France, a rule-based method is developed. Isolated motifs are examined in such terms as scale, disposition and orientation so as to understand their "free" behavior. Scale, disposition, and orientation of the same motifs are examined when they interact. Comparison of the rules of order in the two cases shows what effect the presence of other motifs has on figures. (52)

Christenson, Andrew L. (Southern Illinois, Carbondale)
CHANGES IN MAIZE PROCESSING ON BLACK MESA, A.D. 100-1150: THE EVIDENCE FROM GRINDING TOOLS.

Manos and metates from a sample of well-dated sites show patterns of change that may indicate changes in the way foods were processed. The evidence available is that the principal food that was processed with these tools was maize. Ethnographic information on Puebloan maize processing is reviewed and is shown to be part of a more general system of energy flow. Changes in prehistoric maize processing are related to such factors as the maize varieties used, cooking techniques, fuel consumption, and nutrition. (47)

Ciolek-Torrello, Richard (Museum of Northern Arizona, Flagstaff)
CERAMIC VESSEL DISTRIBUTION AND HOUSEHOLD SIZE IN A CONTEMPORARY VILLAGE IN NORTHERN INDIA.

Previous studies have proposed that the individual and combined capacity of ceramic vessels, particularly cooking vessels, is related in part to the size of households. This relationship has important implications for many archaeologists attempting to estimate prehistoric household size. However, much of the variation in vessel capacity is due to occupation, social status, and wealth. Each of these factors is considered together with the spatial context of vessels in examining the combined capacity of different vessel types from a sample of households representing several castes and village locales. (70)

Claassen, Cheryl (Appalachian State)
SHELL SEASONALITY CONTROLS.

The author has previously reported on a fast growth/slow growth control from North Carolina *Mercenaria mercenaria* that spanned one calendar year. Since that time collecting has continued, resulting in a three year look at the same ratios and modification in the original control graph. In addition to fast/slow ratios, several popular measuring methods have also been applied to the three year collection providing a comparison of techniques. The potential for monthly specific interpretations of archaeological shell is looking less likely. (63)

Claggett, Stephen R. and Mark A. Mathis (NC Archives and History)
ALTERNATIVES TO "BRUTE FORCE" ARCHAEOLOGICAL RESOURCE MANAGEMENT.

To rely upon the legal base of CRM alone fails to recognize and employ a variety of positive preservation alternatives, and risks adverse public reaction. This paper presents specific examples of how archaeological resources in North Carolina have been wholly or partially preserved through the use of protective covenants, land and artifact donations, and formal and informal agreements. Use of these approaches borrows heavily from other environmental protection groups and often requires intense personal interaction with site owners and developers. (29)

Clark, G. (Arizona State, Tempe)
STATUS DIFFERENTIATION IN W. EUROPEAN MESOLITHIC & NEOLITHIC BURIAL DATA.

Recent compendia of W. European Mesolithic/Neolithic burial data allow an assessment of burial contexts/characteristics over the Mesolithic/Neolithic boundary. Since it is usually possible to identify primarily interments and to detect disturbance, it should be possible to focus directly on mortuary practices with a minimum of distortion due to post-depositional processes. The major problem in these relatively early time periods is that the temporal/spatial grid is sparse and irregular. Expectations about the existence of rank will be developed and matched against W. European mortuary data, concentrating on skeletal samples from the Iberian Peninsula. (7)

Clarkson, Persis B. (Calgary)
CULTURAL, ENVIRONMENTAL, AND CHRONOLOGICAL PARAMETERS OF THE NAZCA GEOGLYPHS OF PERU.

Studies on the Nazca pampas indicate that the Nazca ground drawings should be distinguished into linear and figural representations. Based upon associated cultural remains, the linear geoglyphs may pertain to the Late Intermediate Period, while the figural geoglyphs may belong to the Early Intermediate Period. The artistic and iconographic traditions of each of these time periods are examined. (28)

Clary, Karen H. (UNM, Albuquerque)
A REGIONAL ANASAZI AGRICULTURAL SUBSISTENCE PATTERN REFLECTED IN THE POLLEN RECORD.

The record of Pre-Conquest development of agriculture in the San Juan Basin is short (c. 2500 yrs.) in comparison to the rest of the American continent. Between A.D. 900-A.D. 1200 (Anasazi Period), site densities increase, even in localities considered to have been marginal for agriculture. An entrenched but flexible agricultural subsistence base augmented by the seasonal collection of wild foods is indicated. The pollen record for early to late period sites and from areas of both good and poor water availability is redundant and predictable. Pollen analysis from the majority of the features reflects food preparation and processing activities clearly related to agricultural activity. The analysis of coprolites reflects a heavy reliance on cultivars. (14)

Clay, R. Berle (UK)
PETER VILLAGE AND ADENA RITUAL SPACES.

The results of testing of Peter Village, a large Adena earthwork enclosure in Kentucky, are presented as an introduction to the general problem of the interpretation of the use and function of Adena enclosures. A case is made that use must be carefully separated from function, following Linton. One is easy to approach with archaeological data, the other difficult. Peter-type enclosures are contrasted with Mt. Horeb-type. Constant uses and functions are posited for the first, shifting uses and functions for the latter. It is argued that Peter was used as a manufacturing center of barite/galena artifacts. Possible functions of barite/galena artifact manufacture are explored. (21)

Cleere, Henry (CBA, London, UK)
THE RATIONALE OF INFORMATION SYSTEMS AT THE NATIONAL LEVEL.

Most advanced countries have developed information systems of varying degrees of comprehensiveness and at different administrative levels over the past decade. Few, if any, have been conceived as integrated systems. This paper seeks to establish a rationale for an integrated national system, applicable in both advanced and developing countries with centralized or federal structures, and to define operating parameters and criteria for subsystems at different hierarchical levels within the overall framework. (58)

Cleghorn, Paul L. (Bernice P. Bishop Museum)
SETTLEMENT AND ABANDONMENT OF TWO HAWAIIAN OUTPOSTS: NIHOA AND NECKER ISLANDS.

The relatively barren and isolated Hawaiian Islands of Nihoa and Necker once supported sizeable human populations. Nihoa has numerous habitation structures as well as extensive agricultural field

systems; Necker has numerous religious sites to the virtual exclusion of any other type of site. Data collected in 1984 is combined with the rich corpus of information published in 1924 to address questions of the nature of human settlement, how the inhabitants subsisted on these barren rocks of islands and why these settlements were abandoned. (5)

Clement, Christopher Ohm (Florida) and Michael E. Moseley (Florida)
AGRARIAN CONTRACTION OF COASTAL SPRING-FED IRRIGATION SYSTEMS AT ILO, PERU.

Utilizing EDM located ground controls and photogrametric analysis, prehispanic, colonial and contemporary field areas of spring-fed irrigation systems are mapped. Two contraction patterns are evident: (1) retraction of canal systems to their water source; and (2) replacement of up-stream canals by down-stream systems. Patterning is argued to place constraints on the potential causes—technological, climatological, and geological—of ongoing agrarian contraction. (11)

Clewlow, C. William Jr. (Ancient Enterprises)
PALEO-INDIAN INVESTIGATIONS IN THE BLACK ROCK DESERT.

The Black Rock Desert, northern Nevada, contains numerous sites with a diverse inventory of late Pleistocene mammal bones. One locality has yielded a nearly complete Columbian mammoth skeleton, the taphonomy of which suggests Paleo-Indian activity, and another holds the partially exposed skeletons of five individual mammoths. Camel, horse, bison, cat, and wolf, with an enormous variety of Paleo-Indian artifacts in apparent association, are present at the larger sites. Recent investigations, emphasizing remote sensing techniques, and faunal and artifactual evaluations are summarized. (60)

Close, Angela E. (Southern Methodist)
STUDYING ROCKS IN THE REAL WORLD.

This paper outlines an approach to lithic analysis developed in the face of very large collections, limited access to them and extremely limited facilities. Under such circumstances, very detailed study is impractical, but the carefully designed collection of a limited variety of crucial data can permit surprisingly useful conclusions. The method and some of the conclusions it has generated will be described. (57)

Coggins, Clemency C. (Peabody, Harvard)
REFLECTIONS ON TEOTIHUACAN.

In the art of Teotihuacan, unlike at other Classic Period sites, the sky is not portrayed directly. However, there is some evidence that streams and pools of water were created and managed within the site for this purpose. This paper will explore the symbolic implications of this practice in terms of Teotihuacan conceptions of deity, lineage, time, and ritual and will note how the sky convention was modified by the "Toltec," and why. (2)

Collins, M. E. (Florida), Gary Shapiro (FL Bureau of Archaeological Research), and N. E. Washer (Florida)
PEDO-ARCHAEOLOGICAL INVESTIGATIONS AT A NORTHWEST FLORIDA MISSION SITE.

Archaeological and soil investigations are being conducted at the San Luis Archaeological and Historic Site in Tallahassee, Florida. While archaeologists are investigating anthropological and historical aspects of the site, soil investigations are being conducted to understand soil development as affected by human activity at the seventeenth century settlement. Depths, distributions of soil chemical properties and particle size and soil morphology indicate human intervention in soil formation. Investigations at San Luis offer a rare opportunity in Florida to study soil genesis where absolute ages of soils are known. (22)

Conkey, M. (see McGuire, R. H.) (8)

Conkey, Margaret (SUNY, Binghamton) and Randall H. McGuire (SUNY, Binghamton)
IN SEARCH OF ORIGINS RESEARCH IN ARCHAEOLOGY.

The search for origins is explicitly or implicitly inherent to most modern archaeology. This paper examines the fixation of archaeologists on origins in terms of the popular appeal of such research, the payoffs it accords researchers and the political programs it serves. We show that the emphasis on origins derives from the fundamental underlying assumptions that structure western thought. The paper discusses examples of origins research to show how the focus on origins research diverts us from asking questions which challenge the basic taken for granted assumptions we make about the world and social reality. (8)

Conrad, Geoffrey (Indiana) and Don Rice (Chicago)
PROYECTO OSMORE: THE 1985 SEASON.

Proyecto Osmore is a multi-year research project designed to investigate economic complementarity and regional interaction in far southern Peru. During the first season (1985), excavations were undertaken at two Late Intermediate period sites, Estuquina and La Yaral. Data from these sites suggest that the "vertical archipelago" models developed from ethnohistorical data may not be applicable to the late prehistoric era without significant modifications. This paper summarizes the results of the 1985 excavations and identifies research priorities for the second season. (3)

Conrad, Gregory E. (American Mining Congress)
AN INDUSTRY VIEWPOINT.

The industry's experience has shown that there is a need for cooperation along archaeologists, federal and state agencies, industries and citizen groups in the field of cultural resource management. The issues the coal industry has focused on in an attempt to achieve a degree of reasonableness in the cultural resource management program are: need for and definition of regional data bases, elimination of federal and state agency overlap, defining parameters for compliance (in terms of survey and mitigation requirements), building flexibility into the program, defining "eligibility" and "significance" criteria, and striking a balance between cultural resource management and potential for energy development. (66)

Cook, Della Collins (Indiana)
PREHISTORIC MORTUARY USE OF A PIT CAVE IN SOUTHEASTERN INDIANA.

Human remains recovered from a pit cave in Harrison Co. comprise a demographically complete sample, because both sexes and all ages are present in expected frequencies. There is no evidence for intentional disarticulation or other processing of remains. Egalitarian access to this mortuary site is indicated. Rapid dental wear and rarity of dental caries date these remains prior to the advent of food production. Findings are compared with those from similar pit cave mortuary sites elsewhere in the Ohio Valley. (75)

Cook, Thomas Genn (CAA/KAC)
THE AUDREY NORTH SITE, GREENE CO., ILLINOIS: THE STIRLING COMPONENT.

Ongoing excavations at the Audrey North site have exposed a planned village with rows of wall-trench houses, a large (10m by 14m) "public" building, and a stockade. The presence of typical Powell Plain, Ramey Incised, and Cahokia Red wares, the absence of local, contemporary Late Woodland pottery, and the presence of marine shell beads, galena cubes, copper awls, fine ware pottery, and stone effigy pipes suggest a "pure" Middle Mississippian intrusion into the Lower Illinois Valley ca. 1050-1100 A.D. (49)

Cooke, R. G. (see Norr, L.) (71)

Costin, Cathy Lynne (UCLA)
ECONOMIC AND SOCIAL CHANGE ASSOCIATED WITH INKA CONQUEST OF THE UPPER MANTARO VALLEY, PERU: CERAMIC EVIDENCE.

The Wanka underwent a political shift from simple chiefdom to empire state with conquest by the Inka. The distribution of functional and stylistic ceramic types indicates associated change in elite and commoner household activities and access to valuables. With Inka conquest, demand for valuables shifted from regionally exchanged types—reflecting horizontal ties among elites—to Inka wares—reflecting vertical ties between the state and local elites. (42)

Courtin, J. (see Villa, P.) (74)

Cowgill, G. (52)

Cowgill, G. (see Lokaj, J.) (2)

Crane, Cathy J. (Southern Methodist)
LATE PRECLASSIC MAYA ARCHAEOBOTANICAL REMAINS: PROBLEMS IN QUANTIFICATION AND INTERPRETATION.

The plant assemblages recovered from Maya sites pose problems in identification, quantification, and interpretation. The macrobotanical assemblage from Cerros, a Late Preclassic Maya site, is used to illustrate ways of dealing with heavily biased preservation, and quantitative problems caused by the fragmentation of most specimens. By necessity, the SEM was used to identify some of the fragmentary remains, and parametric and non-parametric statistical techniques were used to examine intrasite differences and possible changes over time. (48)

*Creamer, Winifred (School of American Research)***THE DEVELOPMENT OF SOCIAL HIERARCHY IN THE SULA VALLEY, HONDURAS.**

An analysis from archaeological survey has been carried out to assess the impact of the Maya on the Sula Valley, especially whether actual migration of Maya took place or whether the region was affected by diffusion alone. At breaks in the chronological sequence settlement size and composition, as well as settlement pattern and artifact data, are examined to see if interruptions in the sequence could be attributed to foreign intrusion. Alternatively, abrupt changes in settlement and artifact configurations may have resulted from intrusions by other groups, economic decline or from environmental change including natural disasters. (61)

*Creel, Darrell (Texas, Austin)***AN AGRICULTURAL SITE IN THE MIMBRES RIVER VALLEY.**

In 1984 and 1985, investigations were conducted at an agricultural site on a tributary of the Mimbres River. These investigations focused on mapping, testing of water control features, and dating the site. The site consists of a floodplain complex of irrigation ditches and at least one reservoir. These appear to have tapped runoff from adjacent slopes. The main ditch is located at the base of a steep rocky slope. The runoff from larger but more distant slopes was caught in a reservoir on a minor drainage and diverted to the irrigation ditch by means of a cut excavated through a natural ridge. (37)

*Crew, Harvey (Peak & Assoc., Inc.), Ann Peak (Peak & Assoc., Inc.), Vance Haynes (Arizona, Tucson), Delbert True (California, Davis) and Tuohy, Donald (Nevada State Museum, Carson City).***CA-CAL-S342, AN EARLY HOLOCENE SITE ON THE WEST SLOPES OF THE SIERRA NEVADA, CALIFORNIA.**

Investigations on Clarks Flat on the North Fork of the Stanislaus River have revealed the earliest site on the west slopes of the Sierra Nevada. Occupation of the site commences in the earliest Holocene (circa 9000 B.P.) and extends to the mid-Holocene (circa 6000 B.P.). The earliest component is the Weestern Pluvial Lake Tradition, followed by a variant of the Pinto Gypsum Phase. The location of such an early Holocene site will necessitate a revision of the concepts related to Sierran and Great Basin archaeology. (60)

*Cridlebaugh, Patricia A. (S.C. Dept. of Archives and History)***HUMAN IMPACT ON HOLOCENE VEGETATION IN THE LOWER LITTLE TENNESSEE RIVER VALLEY, EAST TENNESSEE.**

Species analysis of 21 kg of charred plant remains recovered from Early Archaic through Historic Overhill Cherokee contexts demonstrate progressive exploitation of disturbance-favored taxa, herbaceous species, and cultigens through time. Pollen analysis of cores from ponds located within 3 km of major Early Archaic through Historic period sites are independent records of local vegetational changes. Increases in early successional taxa (pine) accompanied by major ragweed rises mark intensified landscape deforestation caused by Late Archaic through Historic period subsistence and settlement modifications. (71)

*Crothers, George M. (Tennessee)***THE PREHISTORIC EXPLORATION AND UTILIZATION OF BIG BONE CAVE, TENNESSEE.**

Big Bone Cave in central Tennessee contains a variety of perishable archaeological remains in its remote passages. Preliminary research has accomplished three goals: (1) identifying the extent of exploration; (2) documenting the variety of remains; and (3) dating the period of aboriginal activity. Results of this research are presented in comparison to other known archaeological cave sites in eastern North America and a gypsum mining hypothesis is discussed as a potential explanation for the extensive utilization of this cave. (75)

*Crowell, Aron L. (Smithsonian Institution)***SPATIAL ANALYSIS OF MARITIME ARCHAIC LONGHOUSE SITES FROM LABRADOR.**

K-means cluster analysis is used to test for non-random patterning and to define tool cluster locations and membership. Cluster size and spacing, tool refitting data, debitage density plots, and feature patterning are used to construct a model of spatial organization both within and outside of longhouse structures. Comparison of assemblages associated with specific interior longhouse segments provides little evidence for household economic specialization or differential access to resources. (17)

Crumley, Carole L. (North Carolina, Chapel Hill) and William H. Marquardt (Florida)
REGIONAL DYNAMICS: ENVIRONMENT AND POLITICS IN BURGUNDY (FRANCE), 100 B.C. TO A.D. 1350.

The history of Burgundy has been strongly conditioned by heterogenous topography, natural resources, and climatic shifts. Burgundy lies strategically at a divide between several western European river

systems, but it has always been vulnerable to invasion, especially from the east and north. Repeated scalar differentiation has characterized Burgundy, as administrative consensus at a regional scale is for a time swept into broad patterns of control, only later to break down into subregional and local relations of dominance and influence. Periods of stability and instability are explained in relation both to physical and sociohistorical structures. (16)

*Custer, J. E. (see Watson, S. C.) (52)**Damon, P. E. (see Linick, T. W.) (55)**Dansie, A. (see Irwin-Williams, C.) (26)**Danzinger, E. (see Steinbring, J.) (46)**Davis, Hester A. (Arkansas Archaeological Survey)***PERSUASION ON THE STATE AND LOCAL LEVEL.**

General political activity on the state level has much the same ground rules as on the Federal level. The results, however, can be both more scary and more gratifying, perhaps because they are closer to home. Sometimes broad grassroots education and help is necessary for the passage of protective state legislation, sometimes not, that is, one friendly legislator may do the job. For long term results, however, an interested and understanding citizenry is going to be a necessity. (66)

*Davis, J. O. (see Irwin-Williams, C.) (26)**Davis, Jonathan O. (Desert Research Institute, Reno)***TWO EARLY HOLOCENE STRATIFIED SITES IN NORTHWESTERN NEVADA.**

Two stratified sites provide Great Basin Stemmed points in datable context: 26Pe670 in Humboldt River terrace deposits, and Last Supper Cave. At 26Pe670, bird, fish, rabbit and bison remains, stemmed and leaf-shaped points, and one basally thinned point fragment occur below Mazama Ash, suggesting simultaneous use of both styles, presumably before 9,000 B.P. At Last Supper Cave, only stemmed points occur, with mussel shells, dated between 8,000-9,000 B.P. and overlain by Mazama Ash, suggesting stemmed points supersede basally thinned points by this time. (31)

*Davis, R. P. Stephen, Jr. (UNC, Chapel Hill)***NATIVE POTTERY OF THE HISTORIC OCCANEECHI INDIANS.**

Excavations at the Fredricks site in piedmont North Carolina have provided insights into the Occaneechi ceramic tradition of the early eighteenth century. Aboriginal ceramics from this site are described and compared with samples from other late prehistoric and historic sites in North Carolina and southern Virginia to establish chronological and spatial relationships. These comparisons indicate a significant spatial discontinuity in ceramic styles at the end of the Late Prehistoric period. This discontinuity appears to mark the development of local traditions that persisted well into historic times. The data further suggest ethnic and linguistic differences among historically-documented Piedmont Indian groups. (50)

*Davis, William A. (Abajo Archaeology), Winston B. Hurst (Edge of the Cedars State Park) and**Debra Westfall (Abajo Archaeology)***PREHISTORIC WATER AND SOIL CONSERVATION TECHNOLOGY IN THE MESA VERDE ANASAZI HINTERLAND.**

Prehistoric water and soil conservation features in the Mesa Verde Anasazi hinterland were recognized by early Euroamerican settlers. As a result of intensive seismic exploration in southeastern Utah and southwestern Colorado, there has been a rapid accumulation of documentation on these features. This paper presents a synthetic discussion of these findings focusing on such variables as size, construction, catchment area, geologic location, and cultural association. A series of remarkably well-preserved checkdams and associated terraces is described and preliminary results of soil hydrometer comparisons of the terraces and surrounding mesa tops are presented. (26)

*de Montmollin, Olivier (Cambridge)***CLASSIC MAYA SETTLEMENT AND POLITICS IN THE ROSARIO VALLEY, CHIAPAS, MEXICO.**

This report concerns a total coverage systematic settlement survey in the Rosario Valley. The project's aim is to illuminate Late/Terminal Classic (A.D. 700-950) Maya sociopolitical structure. The valley, corresponding to the 55 square kilometer core zone of a small polity in the Upper Grijala tributaries, has an estimated population of 10 to 20 thousand people. There is a five level site hierarchy, capped by a 10 plaza capital site, Tenam Rosario. Analysis involves political centralization indices elaborated by charting population distribution across the site hierarchy's levels. (61)

De Atley, Suzanne P. (MIT), Ronald L. Bishop (Smithsonian Institution), Veletta Canouts (Smithsonian Institution), Alfred Qoyawayma (Salt River Project), and C. W. Aikins (Colorado, Boulder)

HOPI SOCIAL BOUNDARY MAINTENANCE AND EXCHANGE RELATIONSHIPS.

An interdisciplinary study of the yellow-fired wares from the southwestern Hopi mesas provides data for modeling the organization of ceramic production and social exchange between A.D. 1300-1600. Trace-elemental characterizations of clays and vessels form discrete clusters showing a high degree of site specificity. Experiments with painting and firing techniques help distinguish geological and technological sources of variation. (4)

Dean, Jeffrey S. (Southern Illinois, Carbondale)

ENVIRONMENTAL CONTEXT OF FOOD PRODUCTION ON BLACK MESA, NORTHEASTERN ARIZONA.

Recent research provides an empirical foundation for assessing the effects of environmental variability on the development and perpetuation of food production. Farming potential here is greatest when floodplain aggradation and high water tables occur with average precipitation, above average temperatures, and high climatic persistence. Such conditions prevailed during the initial (Basketmaker II) farming occupation of the mesa, optimal floodplain conditions obtained during the period of rapid population growth and expansion between A.D. 900 and 1100. These relationships elucidate the ecological interactions that sustain food production in marginal environments. (47)

Dean, Patricia A. (Oregon, Eugene)

DIRECT DATING POTSDHERDS: DISTINGUISHING FREMONT AND SHOSHONEAN GRAYWARES.

Advent of linear accelerators permit dating of small amounts of carbonaceous material directly from potsherds. Shoshonean and Fremont graywares share attributes which makes distinction difficult. Their co-occurrence in several Eastern Great Basin sites is explained as either natural mixing of temporally distinct occupations or contemporaneous occupation by separate groups. Direct dating, previously unavailable, permits examination of manufacturing techniques in a temporal framework. Radiocarbon dates run thus far suggest diagnostic attributes of Shoshonean pottery is traceable through early Fremont pottery production. (4)

Debenath, A. (see Jelinek, A. J.) (16)

DeBoer, Warren R. (Queens, CUNY)

PLACING POTS THE SHIPIBO-CONIBO WAY WITH COMPARATIVE MATERIAL FROM LOWLAND SOUTH AMERICA.

This paper develops a model designed to account for the placement of ceramic vessels in Shipibo-Conibo households. Key variables are: (1) the perceived remnant utility or value of a vessel; (2) anticipated frequency of use; (3) an interference variable which includes a positional-dependent likelihood of breakage; and (4) a Shipibo-Conibo-specific notion about order and cleanliness. These variables are activated differentially in the contexts of culinary use, short-term storage, and long-term storage. Comparative data from the Jivaro and from archaeological examples in Amazonia are presented. (70)

Debusschere, Karolien (LSU, Baton Rouge), Bobby J. Miller (LSU, Baton Rouge), Ann E.

RAMENOFSKY (LSU, BATON ROUGE) GEOMORPHIC HISTORY OF COWPEN SLOUGH.

The interface between physical geography and archaeology has a long history in the Lower Mississippi Valley. Traditional sedimentological techniques can offer new dimensions to the interpretation of regional geomorphic history in association with human land use. Here, grain size analysis, x-rayed clay fraction and total element analysis are used to independently access a series of archaeological problems from Cowpen Slough, a buried deposit within the alluvial valley of east central Louisiana. Techniques are used to question the type of occupation, e.g., continuous versus discontinuous, and temporal sequence of cultural activity. (6)

Decker, Kenneth W. (Minnesota)

ISOTOPIC AND CHEMICAL RECONSTRUCTION OF DIET AND ITS BIOLOGICAL AND SOCIAL DIMENSIONS AT GRASSHOPPER PUEBLO, ARIZONA.

Techniques of dietary reconstruction make it possible to study the variability in diet within a burial population and to examine the relationship between diet and biological and social factors. Ribs of 100 adult burials were analyzed for stable carbon isotope ratios and strontium content, and percentages of maize, meat and wild plants in the diet of each individual were calculated. Data indicate an almost

total dependence on maize for most of the population. Implications of this analysis for current reconstructions of late prehistoric sociopolitical organization will be discussed. (71)

Deith, Margaret (Cambridge)

THE USES OF ISOTOPIC STUDIES ON SHELLS IN THE INTERPRETATION OF PREHISTORIC SITES.

Oxygen and carbon isotope data from marine and estuarine shells provide information on seasonality of shellfish collection and on other aspects of gathering behavior. How such data are to be integrated depends very much on the role of shellfish at the individual site. It is important to relate the information to the specific circumstances of the site, such as the configuration of the coastline at the time of occupation, and to all the other evidence that is available. That is, there is no general framework for interpreting this type of data; its value lies in particularities. (63)

Delcourt, H. R. (see Delcourt, P. A.) (43)

Delcourt, H. R. (see Smith, E. N.) (43)

Delcourt, P. A. (see Smith, E. N.) (43)

Delcourt, Paul A., Hazel R. Delcourt, and E. Newman Smith, Jr. (Tennessee, Knoxville)

THE OZARKS: KEY TO INTERPRETING LATE-QUATERNARY ENVIRONMENTAL CHANGES IN SOUTHEASTERN NORTH AMERICA.

During the full-glacial interval, north of 33° N latitude, boreal forest prevailed within a cool, equable climate. Passage of the Polar Frontal Zone northward during the late-glacial interval resulted in northward migrations and population expansions of deciduous trees. Zonal atmospheric flow in the mid-Holocene promoted extension of the Prairie Peninsula. In the late Holocene, oak savanna was replaced by shortleaf pine-oak-hickory forest as summer precipitation increased. Higher ground-water levels resulted in expansion of Ozark ponds and corresponded with late Archaic settlement of upland environments. (43)

Demarest, Arthur A. (Vanderbilt)

THE EVOLVING LATTICE OF MIDDLE FORMATIVE CULTURES IN SOUTHEASTERN MESOAMERICA.

A review of recent finds and their chronological contexts provides a basis for the reassessment of the role of intrusions, foreign influences, and interregional interaction in the formation of complex society in southeastern Mesoamerica. New evidence from El Salvador, Honduras, and Guatemala requires a revision of chronological alignments of "Olmec" finds and indicates greater sophistication of local developments. In turn, these revisions require the use of more complex lattice-structured models for the role of interregional interaction in the cultural evolution of southern Mesoamerica. (1)

Demoule, Jean-Paul (University of Paris)

THE ARCHAEOLOGY OF DEATH: FORMAL ANALYSIS AND ANTHROPOLOGICAL MODELS.

Research into the archaeology of death has proceeded in two different directions. European archaeologists, concentrating on formal cemetery analysis, have tended to remain purely chrono-typological. Elsewhere, particularly in the USA, archaeologists have used ethno-archaeological data to identify regularities and establish behavioral laws. Almost no attention has been given to the relationship between these anthropological models and the field of formal analysis. Examples from the European Iron Age are outlined, and research perspectives are considered. (68)

DeNiro, M. J. (see Marino, B.) (48)

Dewar, Robert E. (Connecticut)

EARLY MIGRATIONS AND ECOLOGICAL DIFFERENTIATION IN CENTRAL MADAGASCAR: EFFECTS AND CAUSES.

Environmentally diverse, Madagascar has a matching diversity of human economic patterns. Often treated as an example of "adaptive radiation," it may actually reflect the role of migration of groups with differing ecological requirements and differing effects on the natural landscape. Changes in the natural environment in central Madagascar are explained as the result of successive periods of use by migrants. It seems likely that later migrations may have been facilitated by changes wrought by initial settlers. A model of local ecological adaptation of people to local natural environments is conceptually and factually wrong. (5)

Diamanti, Melissa (Penn State)

TERMINAL CLASSIC OCCUPATION IN AN ELITE RESIDENCE AT COPAN, HONDURAS.

The end of the Late Classic phase is not characterized by an immediate collapse of Maya culture. On the contrary, there is evidence of both continuity and growth, as seen in Group 9N-8, an elite

compound in the urban residential core of the site. This compound reached its greatest height at the same time that centralized authority was breaking down. Evidence from construction sequences and ceramics is supported by both obsidian hydration and archaeomagnetic dating techniques. (38)

Diamond, J. M. (5)

Dibble, H. L. (see *Baumler, M. E.*) (23)

Dickel, D. (see *Stone, T.*) (71)

Dickens, R. S. (50)

Dillehay, Tom D. (*Kentucky, Lexington*)

MARITIME AND TERRESTRIAL ECONOMIES: DEFINING A BROADER FOUNDATION FOR THE DEVELOPMENT OF EARLY ANDEAN SOCIETY.

Although divergent resource production strategies were established in different environments, convergent principles of social and economic organization developed in the Central Andes. The complexity of differences between a primary procurement economy and an exchange production economy and of similarities between the organizational principles in different areas is compared for the Peruvian and Chilean regions. This comparison is used to analyze the social and economic factors that conditioned the presence or absence of corporate labor and monumental public architecture in the Central Andes. Data from northern (Zana Valley) and central (coast-interior) Peru and northern (coast-interior) and southern (Monte Verde) Chile are used to develop the principle issues. (73)

Dobbs, C. A. (see *Gibbon, G. E.*) (49)

Doelle, W. (see *Eighmy, J. L.*) (62)

Donahue, D. J. (see *Linick, T. W.*) (55)

Donahue, D. J. (see *Long, A.*) (71)

Donaldson, Marcia L. (*Arizona State*)

SUBSISTENCE VARIATION AND AGRICULTURE IN THE EARLY LEVANTINE NEOLITHIC.

Recent research in the early Levantine Neolithic has revealed considerable intersite variation in architectural and artifactual remains, but tends to present early agriculture as a homogeneous system. A comparison of quantified botanical data from the early Neolithic levels of 'Ain Ghazal and contemporary Levantine sites indicates that exploitation of wild, cultivated, and domesticated taxa varied considerably among sites in the early stages of agriculture. The nature of these variations, and possible explanations, will be discussed in relation to biological, environmental, and cultural historical factors. (23)

Doran, G. (see *Stone, T.*) (71)

Dort, W. (see *Fredlund, G. G.*) (64)

Douglass, Amy A. and David M. Schaller (*Arizona State*)

A PETROGRAPHIC ANALYSIS AND SOURCING STUDY OF LITTLE COLORADO WHITE WARE.

Several theories exist concerning the production source of Little Colorado White Ware, a decorated ceramic from northern Arizona dating between ca. A.D. 1050 and 1200. The sourcing issue can be resolved through mineralogical/chemical analyses of both the ceramics and potential raw material sources. A petrographic analysis of 110 Little Colorado White Ware sherds from sites in the two most likely production areas is discussed. Comparisons of the sherds' mineralogy to the mineralogical composition of raw material samples from the potential production areas are presented. (4)

Drollinger, Harold (*Texas A&M*)

EXTRAMURAL AREAS AT A CLASSIC MIMBRES PUEBLO.

The aim of this paper is to describe and discuss the extramural areas, associated features, and use of space around the NAN Ranch ruin, a Classic Mimbres pueblo site in the Mimbres Valley, New Mexico. Much of the archaeology conducted in the Mimbres area has concentrated on excavating rooms; consequently, the use of outdoor space by the inhabitants of a pueblo structure has been largely neglected. These new data provide documentation of a dynamic system that builds upon itself through time as evidenced through stratigraphic excavations of the extramural areas at the site. (37)

Drucker, R. David (*Krueger Enterprises*)

THE TEOTIHUACAN PECKED CROSSES: MODELS AND MEANINGS.

The Teotihuacan pecked crosses are models for dividing the solar year into specific numerical and astronomical intervals. Crosses are analyzed ("solved") by a single systematic framework based

upon solar phenomena and consistent with nocturnal periodicities upon which Mesoamerican calendars of 18 mesomonths plus 5 days may be superimposed. A construction date may be assigned to TEO 2, the most spectacular of the crosses, and a case may be made for the importance of these models to Mesoamericans up to and beyond the Spanish Conquest. (2)

Dumond, Don E. (*Oregon*)

ETHNOARCHAEOLOGY FROM DOCUMENTS: THE CASTE WAR OF YUCATAN.

From 1847 to 1901, Maya-speaking dissidents of Yucatan maintained political independence, defending their own territory in eastern Yucatan and paying allegiance only to their own leaders and to elements of a millennial religious cult that featured one or more oracular, miraculous crosses. Documentary research permits the description of levels of rebel settlements, ranked by scale, permanence of architecture, and presence of administrative and religious buildings. Inferences expectable from these settlement data are compared with those drawn from historically documented events and relationships, to show that conclusions from archaeological data alone would overestimate the degree of rebel political centralization. (12)

Dunford, Frederick J. (*U. Mass., Amherst*)

A CRITICAL EXAMINATION OF SHELL MIDDEN STRUCTURE.

Shell middens offer both unique preservation conditions and complex microstratigraphy that can provide insight into site seasonality, resource selection, procurement and utilization, organization of subsistence strategies, and the effect of human predation on coastal ecosystems. Traditional shell midden excavation methodologies, fail to accurately describe shell midden structure, consequently affecting the integrity of resulting interpretations. Proposed here is a methodology for shell midden excavation which relies on broad horizontal excavation units, and the isolation of discrete depositional episodes. (18)

Dunnell, Robert C. (*Washington, Seattle*)

THEORETICAL ISSUES IN THE INTERPRETATION OF MICROARTIFACTS.

Study of microartifacts (artifacts less than 2mm in maximum dimension) is relatively new. Although division between micro- and macroartifacts is arbitrary, there are important differences not only in techniques of recovery and study, but also in interpretive potential. The latter differences arise because microartifacts have different transport and physical properties and typically have different origins as particles. Although the tendency of initial studies is to treat microartifacts as tiny versions of the artifacts studied traditionally, they are best conceived as independent data that compliment traditional sources. (65)

Earle, T. K. (5)

Earnest, H. H., Jr. (see *Rogers, A. E.*) (12)

Eddy, Frank W. (*Colorado, Boulder*) and *Timothy G. Baugh* (*Colorado, Boulder*)

A RECONSIDERATION OF APACHEAN CERAMIC CLASSIFICATION.

Ceramic collections, purported to be authored by Apachean potters and distributed from Nebraska to Arizona, have been compared by scholars from the Plains and Southwest for taxonomic purposes. This comparative review has led to a revision of Brugge's 1982 Gray Ware classification. The revised scheme reflects regional variability. Four wares have been provisionally defined. Each ware has been categorized following the Colton and Hargrave (1937) system of taxonomy: ware, series, type, and variety. The conferees anticipate and encourage the testing of this provisional scheme. (4)

Egan, Kathryn, C. (*Michigan State, East Lansing*)

ARCHAIC FLORAL EXPLOITATION OF THE NORTHERN MARGIN OF THE CAROLINIAN BIOTIC PROVINCE.

Floral analyses of recently excavated sites in the Saginaw Valley of Michigan have provided information regarding the subsistence practices of Archaic populations. These sites are located on the northern margin of the Carolinian Biotic Province and therefore afford an opportunity to consider changing adaptations to a diverse and patchy environment. This floral exploitation strategy will be compared to the adaptations of other Archaic populations within the Midwest and New York. (71)

Eighmy, Jeffrey L. (*Colorado State, Ft. Collins*), *Huntington, Fredrick* (*Institute for American Research, Tucson*), *William H. Doelle* (*Institute for American Research, Tucson*), and *J. Holly Hathaway* (*Colorado State, Ft. Collins*)

AGE ESTIMATES USING SETS OF CONTEMPORARY ARCHAEOMAGNETIC DATES.

At least three different methods have been proposed and two different methods employed in the U.S. for chronometric interpretation from archaeomagnetically derived ancient field directions. These

methods are compared and the potential accuracy and precision of the resulting date ranges are discussed with reference to two sets of contemporary samples from controlled contexts. The first set consists of 23 experimentally fired modern hearths and the second set consists of six historic samples from Ft. Atkinson, Nebraska (A.D. 1820 to 1827). The merits of collecting multiple contemporary samples are discussed. (62)

Elliott, Dan (Garrow & Associates, Inc., Atlanta, Georgia)
SPATIAL AND SEASONAL PATTERN IN HUMAN DEATH: EVIDENCE FROM EARLY GEORGIA AND SOUTH CAROLINA.

This paper examines data from a spatial and temporal perspective in an attempt to define patterning in death behavior. Tombstone epitaph information recorded by field survey, published cemetery data, and newspaper obituaries serve as the primary data base for this study. Geographically distinct areas within Georgia and South Carolina for the period 1775 to 1850 were selected for study. Distinctive patterning was observed. Through the aid of contemporary accounts of the causes of death, early medical texts, and modern archaeological/historical data, the causes of these phenomena are hypothesized. (22)

Ellis, G. Lain (Texas A&M)
MULTIPLE HYPOTHESES CONCERNING THE ANTIQUITY OF A MIMBRES VALLEY IRRIGATION SYSTEM.

The NAN-20 site is an irrigation system excavated in June, 1985. Owing to the paucity of artifactual evidence associated with the system, NAN-20's cultural origin is unknown. Tentative interpretations by archaeologists and others place it in early Mimbres, Classic Mimbres, Animas, and historic contexts. This paper attempts to identify possible cultural origins for NAN-20 by drawing on historical and archaeological data to eliminate those hypotheses whose historical and archaeological requirements are inconsistent with the documented cultural sequence of the region. (37)

Ellis, L. (Harvard)
ARCHAEOLOGICAL GEOLOGY AND SETTLEMENT PATTERN STUDIES IN EASTERN EUROPE.

An hierarchical, satellite system of well-established villages directing the activities of temporary settlements at salt, clay, and other mineral sources has been identified through tell excavations and geological surveying in the Carpathian foothills. This early settlement hierarchy provided the prototype for subsequent sites (up to 400 ha) with large populations in the neighboring southwestern USSR for this culture area. This settlement model is applied to other areas in Eastern Europe where geological criteria have been overlooked. (16)

Elson, Mark D. (Institute for American Research)
THE TANQUE VERDE WASH SITE: RINCON PHASE SETTLEMENT IN THE TUCSON BASIN.

Excavations at the site uncovered a Hohokam village containing 19 pithouses. Relative and absolute dating indicate the site was occupied for a relatively short time, between A.D. 1000 and 1075. Nearly 70 percent of the structures burned, leaving a wealth of cultural material. Over 200,000 species of corn, three kinds of beans, and two kinds of squash, were recovered. The site was completely excavated, allowing for a rare look at the structure of a complete Hohokam settlement. These data are used to present a model for Rincon Phase settlement. (56)

Elson, M. D. (see Kolaz, T. M.) (29)

Elston, Robert G. (Intermountain Research, Silver City)
PRE-ARCHAIC ASSEMBLAGE VARIABILITY IN GRASS VALLEY, CENTRAL NEVADA.

Surveys conducted during the Gund Ranch Archaeological Project revealed several pre-Archaic surface scatters on gravel bars and spits deposited by high stands of Pleistocene Lake Gilbert. The largest of these is situated on a large gravel spit which extended out into marshes fed by the braided drainage of Callahan Creek. This "site" is a series of isolate and discrete scatters of basalt artifacts, including stemmed and fluted points and crescents. Assemblage variability appears to be due to activity sets emphasizing subsistence/maintenance versus manufacturing/retooling. (31)

Emerson, Alice M. (Washington State)
PROGRESS TOWARD THE CONSTRUCTION OF UTILITY INDICES FOR *Bison bison*.

Four adult bison (two males, two females) were collected to provide a small sample for seasonal comparison of male and female bison condition and for derivation of utility indices for bison. Weights of individual muscles have been recorded in order to provide a set of baseline data from which indices may be constructed for use with varied butchering procedures. Although analyses on meat fat content

are not yet complete, an initial measure of the amount of subcutaneous, intermuscular, and marrow fat is available and will be presented. Complete data for construction of utility indices are not yet available. (76)

Engelbert, Peter (Ontario Ministry of Citizenship and Culture, Ottawa)
ONTARIO'S MARITIME BEGINNINGS.

Although the Province of Ontario was first explored and settled on its waterways, shipwreck archaeology within Ontario's Great Lakes is a very new field. Relatively little fieldwork has been done to date, however, a pattern is beginning to emerge of an indigenous Great Lakes shipbuilding tradition which has evolved *in situ*. Methods of building, cargoes carried, shipboard artifact assemblages and ultimately the manner in which these wrecks have occurred are closely tied to the economic and social matrix of which they were a part and the environmental conditions within which they operated. (41)

Engler, Suzanne K. (Southern California)
ETS, RAFTS AND RUNESTONES: CONFRONTING PSEUDOARCHAEOLOGY IN THE CLASSROOM.

Undergraduate classes provide only brief opportunities for discussion and refutation of the pseudoscientific. But pseudoscientific fads can also be used as the *basis* for courses dealing with the presentation of "standard" archaeological method and theory. A series of classes has provided USC instructors and students the opportunity to explore the fancies and fallacies of popular literature from the more factual perspective of archaeology. Such courses have proven equally popular when offered to public audiences. An evaluation of the effectiveness of such courses is offered. (9)

Erlanson, Jon (UCSB)
RADIOCARBON REVERSALS AND STRATIGRAPHIC DISCONTINUITIES: DISTURBANCE PROCESSES WITHIN CALIFORNIA SHELL MIDDENS.

This paper examines some stratigraphically reversed sequences from coastal California in light of post-depositional disturbance processes common to the region. The analysis leads to the conclusion that, given the nature of processes like bioturbation, argilliturbation, downslope movement, etc., archaeologists must carefully assess the context of C14 samples before rejecting dates as anomalous. (74)

Essenpreis, Patricia S. (Florida, Gainesville)
ARCHITECTURAL EXAMINATION OF FORT ANCIENT, A HOPEWELLIAN HILLTOP ENCLOSURE.

Fort Ancient, one of the largest Ohio Hopewell earthworks, consists of massive linear embankments. Once interpreted as a fortress, its massive size, attendant features, and architectural characteristics support a ceremonial function. Systematic examination of Fort Ancient further suggests that its construction was incremental. Incremental construction and episodic remodeling implies that the earthwork could have been constructed by a smaller labor force than otherwise required. (21)

Evans, David M. (Institute of Archaeology, London, UK)
INFORMATION TECHNOLOGY: A DISCUSSION OF ITS IMPLICATIONS FOR THE HISTORIC ENVIRONMENT.

This paper will discuss the implications of recent developments in Information Technology and allied methods of systems analysis and design. We will start by briefly outlining the nature and objectives of current systems of information management. Using this as a frame, we will discuss data input, storage, processing, communications and output technology (especially database management, FAX and telecommunications, and optical disc storage and advanced graphics). The desirability and feasibility of use of these technologies will be of first importance in the discussion. (58)

Evans, Susan T. (Catholic)
LAND AND LIBERTY: THE ROLE OF THE AUTONOMOUS AGRARIAN VILLAGE IN THE AZTEC WORLD.

Development of the Aztec period in the Basin of Mexico as the core area of an extensive tribute empire entailed changes in the sociopolitical structure and its geographic expression. However, the Teotihuacan Valley enjoyed relative stability while experiencing demographic growth. Archaeological and ethnohistoric documentation of the lifeways of villages in this region demonstrates a rural lifestyle which is not a dim reflection of the glory of Tenochtitlan and Texcoco, but a dynamic and productive element of the whole cultural complex. (32)

Eve, R. A. (see Harrold, F. B.) (9)

Fagan, J. L. (see Keyser, J. D.) (77)

Fagan, John L. (Corps of Engineers, Portland, Oregon)

CLOVIS AND WESTERN PLUVIAL LAKES TRADITION LITHIC TECHNOLOGY AT THE DIETZ SITE IN SOUTHCENTRAL OREGON.

Clovis artifacts and debitage from areas at the Dietz Site are compared through technological analysis with stemmed points, associated artifacts and debitage from separate activity areas assignable to the Western Pluvial Lakes Tradition. Differences in tool manufacture and use between the two assemblages are discussed. Relationships between the two assemblages are suggested and interpretations of the Paleo-Indian/Archaic traditions in the Northern Great Basin are offered. (31)

Fahmel-Beyer, B. (Instituto de Investigaciones Antropologicas, Mexico City)

THE TOLTEC ARRIVAL IN THE VALLEY OF OAXACA.

Toltec materials are scarce in the Valley of Oaxaca. Nonetheless, it is thought that Tula must have influenced the developments in the Valley in some way. Frequently the Mixtecs have been regarded as the agents of culture change in Oaxaca. A look at ethnohistoric documents, settlement patterns and material culture, however, suggests a rather complicated system of interactions during Monte Alban IV, and the need to look for other sources of change. One of these will be explored in this paper. (79)

Farris, J. (8)

Fash, William L. (Northern Illinois) and Linda Schele (Texas, Austin)

THE INSCRIPTIONS OF COPAN AND THE DISSOLUTION OF CENTRALIZED RULE.

Eighth century Copan monuments reveal aspects of political organizations and evolutions. Following the capture of the King of Copan by a Quirigua ruler in 737 A.D., major shifts are seen in the monuments and their underlying political strategy. As economic conditions worsened, the royal line was obliged to grant sculptured monuments to heads of competing lineages to ensure continued tribute. King Yax Pac last monuments emphasized his role as warrior and some have proposed that he fled to Quirigua around A.D. 800. Inscriptions which date the collapse of the Copan state are scrutinized to document this political process. (38)

Faulkner, Charles H. (Tennessee)

PETROGLYPH CAVES IN THE SOUTHEASTERN UNITED STATES.

Four petroglyph caves in Tennessee and West Virginia and a cave with mud glyphs in Virginia are described. Petroglyphs in one Tennessee cave may date as early as an associated terminal Archaic chert quarry, while two caves contain Southern Cult motifs. Torch charcoal associated with the Virginia mud glyphs dates in the 11th century A.D. While ritual marking of cave walls may occur in earlier periods, this activity appears to be largely a late prehistoric phenomenon in eastern North America. (75)

Fawcett, William B. Jr. (Massachusetts-Amherst)

VARIATION IN THE ORGANIZATION AND FREQUENCY OF COMMUNAL BISON HUNTS ACROSS THE PREHISTORIC GREAT PLAINS.

The numbers of communal bison-kill varies drastically between different areas and at different times in prehistory. Possible factors contributing to produce this variation include: (1) differential site preservation; (2) changes in the function or role of bison hunts; and (3) fluctuations in the environment and bison populations. Each possibility is examined. (76)

Feder, Kenneth L. (Central Connecticut State)

PSEUDOARCHAEOLOGY AND CREATIONISM: A CO-ORDINATED RESEARCH PROJECT.

Previous research (Feder 1984) has shown widespread acceptance among undergraduate students in Connecticut of speculative, and pseudoscientific claims made about the human past and appearing in popular media. A subsequent study (Harrold, Eve, and Plunkett 1985) indicated similar levels of belief among college students in Texas concerning most pseudoarchaeological topics, and a much more significant degree of acceptance of creationist claims. Current research is being coordinated to generate comparable data from a number of regions on levels of student belief concerning such claims. A discussion of the research is presented. (9)

Fedick, Scott L. (Archaeological Research Services)

TRANSFORMATIONS AND THE CREATION OF ARCHAEOLOGICAL PLANT ASSEMBLAGES: AN ANALYSIS OF PLANT REMAINS FROM HISTORIC TEMPE, ARIZONA.

Archaeological investigations included the flotation recovery of plant remains. Ethnoarchaeology and behavioral chain analysis were combined to derive expectations about the range and contexts of

plant remains which might be recovered from historic Euroamerican sites. These expectations concur quite closely with the recovered assemblage. The potential contribution of flotation recovery procedures for archaeology will be realized only within an interpretive framework which accounts for "biases" in the archaeological record, rather than simply acknowledging their problematic nature. (14)

Feldman, R. A. (see Goldstein, P. S.) (3)

Feldman, Robert A. (Field Museum)

ARCHITECTURAL EVIDENCE FOR THE "MARITIME FOUNDATIONS."

Architectural patterns show three early village-ceremonial complexes (Peruvian coastal complex [PCC], Peruvian highland [PHC], Ecuadorian-Colombian [ECC]) in northwestern South America. While interchange took place between them, they had differing economic bases: the ECC and PHC emphasized agriculture and the PCC fishing/coastal collecting. The PCC had the greatest amount of social stratification, followed by the PHC and ECC. Subsequent developments on the Peruvian coast show increased interaction growing out of the earlier maritime base. (73)

Ferguson, Leland (South Carolina, Columbia)

NATIVE AMERICANS AND ARCHAEOLOGY IN THE CAROLINAS.

Archaeologists often consider minority groups' use of history and archaeology to be irrelevant to a "legitimate" understanding of the past. There are almost 70,000 Indians in the Carolinas including the Lumbees, Edistos, Pee Dees, Catawbas and Cherokees. These Native Americans have an ideology which is different from that of most archaeologists. Museums and publications created by these ethnic groups reveal that they use historical and archaeological information in different ways from the majority of archaeologists. In light of these differences, the application of critical methodology should improve the conduct of archaeology and the dissemination of results. (8)

Fernstrom, Katherine W. (Southern Illinois, Carbondale)

SYMBOLIC VS. UTILITARIAN VALUE: SOME FACTORS AFFECTING THE SPATIAL DISTRIBUTION OF EXCHANGE GOODS.

A model distinguishing between symbolic and utilitarian values of exchange goods is developed using ethnohistoric data from New Guinea. Materials with symbolic value possess minimal physical variation, generate consistent exchange returns, and are used and discarded in narrowly defined contexts. Utilitarian value varies as items move across space. This is associated with varied physical appearances, exchange returns, and contexts of use and disposal. When materials cross boundaries their worth may be redefined; patterns of use and discard also change. (5)

Fernstrom, K. W. (see Nichols, D. L.) (47)

Ferring, C. Reid (North Texas State, Denton)

SITE FORMATION IN FLUVIAL ENVIRONMENTS: IMPLICATION FOR SETTLEMENT-SUBSISTENCE STUDIES.

In a given environment, deposition/burial rates are natural controls on paleosurface occupation potential, artifact densities and modification (weathering-disturbance) rates within and between archaeological sites. Geoarchaeological approaches to both intra- and intersite variability are therefore essential in settlement-subsistence studies. Late Holocene examples from the Southern Plains are used to illustrate geoarchaeological methods focusing on (a) site preservation-detectability relative to large-scale fluvial changes (floodplain abandonment and meanderbelt avulsion) and (b) shorter-term intra- and intersite variability resulting from differences in sedimentation rate. (12)

Finney, Fred A. and James B. Stoltman (Wisconsin, Madison)

THE FRED EDWARDS SITE, A CASE OF STIRLING PHASE CULTURE CONTACT IN SOUTHWESTERN WISCONSIN.

The Fred Edwards site is a single component village on the Grant River. Excavations have exposed 6 structures and 120 pit features associated with a unique archaeological assemblage reliably dated to A.D. 1050-1150. The cultural assemblage provides evidence of close cultural interaction between Late Woodland and Middle Mississippi peoples. A wide range of exotic goods and materials suggests that the site occupants were active participants in a Cahokia-centered trade network, with deer hides and galena probably their main contributions. (49)

Fish, P. (see Madsen, J.) (77)

Fish, Paul R. (University of Arizona), Suzanne K. Fish (University of Arizona) and John H. Madsen (University of Arizona)

RUNOFF FARMING AND INTENSIFICATION IN THE NORTHERN TUCSON BASIN.

A proliferation of field complexes tapping surface runoff occurs in the early Classic period (A.D. 1150-1300). Extensive cultivation on valley slopes represents agricultural expansion into previously

marginal land. This new technological emphasis overlays a Hohokam production system aligned with floodwater farming and riverine canal irrigation. Elaboration of runoff fields coincides with a dramatic increase in population size and density documented by full coverage survey of 450 sq. k. The configuration of regional agriculture in the early Classic is examined from the perspective of opportunities for intensification in the arid basins. (26)

Fish, S. K. (see Fish, P. R.) (26)

Fish, Suzanne K. (Arizona State Museum), Fred L. Nials (Eastern New Mexico University), David A. Gregoy (Arizona State Museum) and Donald A. Graybill (Laboratory of Tree-Ring Research)
RECENT INVESTIGATIONS OF PREHISTORIC HOHOKAM CANAL SYSTEMS.

Research carried out in conjunction with the excavation of Las Colinas, a large Sedentary and Classic period (A.D. 900-1450) Hohokam village, has provided new insights into Hohokam canal irrigation technology. The basic structure of the canal systems, labor requirements for canal construction and maintenance are discussed, revised estimates for prehistorically irrigated acreage are presented and the influence of the canals on the distribution of settlement and population is documented. A tree-ring based reconstruction of Salt River streamflow for the period A.D. 740-1380 provides important data concerning variation in the amount and character of available water; the influence of this variation on the functioning and ultimate demise of the Hohokam canal system is discussed. (26)

Fish, S. (see Madsen, J.) (77)

Fisher, Jr., John W. (California, Berkeley) and Helen C. Strickland (California, Berkeley)
SPATIAL ORGANIZATION OF MODERN EFE PYGMY CAMPSITES, ZIARE.

Studying the relationships between behavior and the location of huts, other features, artifacts, and debris at Efe campsites can aid the interpretation of prehistoric hunter-gatherer sites. Campsites show consistencies in the placement of huts, fireplaces, and trash heaps. Certain camp activities, such as food and tool preparation and socializing, are regularly carried out at specific locations within the camp. The position of huts, fireplaces, and other features can change during an occupation and as a result of reoccupation of a campsite. (53)

Fitzgerald, William R. (McGill)
THE EFFECTS OF THE EUROPEAN PRESENCE ON THE PRE-1650 ONTARIO IROQUOIS.

While inter-tribal relations were largely responsible for different responses to European culture, native technological heterogeneity and epidemics must also be considered. Since these groups were dispersed between 1647 and 1651, the duration of their exposure was particularly short; however, with the advent of the fur trade and associated ventures after 1580, interaction was intensive. In conjunction with the diversity of their inter-regional connections, the Ontario Iroquoians are particularly valuable for revealing the nature of native responses to European commodities and culture from initial contact. (33)

Fitzhugh, William W. (Smithsonian Institution)
BOULDER PITS TO LONGHOUSES: SOCIO-CULTURAL CHANGE IN THE LABRADOR MARITIME ARCHAIC.

Settlement pattern and other studies document extensive changes as early Indian groups adapted to changing post-glacial environments between 7500-3500 B.P. Intensification and elaboration is seen in shifts from pithouse villages to 40-100 m. long longhouses and in changes in mortuary, exchange, and resource procurement systems. While its early development was stimulated by environmental and geographic factors, its florescent terminal stage coincides with a Paleoekimo intrusion. This developmental cycle offers an ideal case study of socio-cultural change in an elaborating northern maritime cultural tradition under relatively controlled conditions. (17)

Ford, P. J. (see Nelson, M. A.) (18)

Ford, R. I. (see Long, A.) (71)

Ford, R. I. (47)

Fortier, Andrew (Illinois, Urbana-Champaign)
ARCHAIC HUNTERS AND GATHERERS IN THE PRAIRIE LAKE LOCALITY: THE FOUNDATIONS OF THE RANGE SITE BASE LOCALE, AMERICAN BOTTOM, ILLINOIS.

This paper provides an overall introduction to the Range site and focuses on the development of the Prairie Lake locality as a base locale. The Prairie Lake locality represents an island of physico-ecological stability which stands out against the constantly evolving landscape of the Mississippi

River floodplain. In such localities the foundations of millennia-long sedentism and the factors leading to the formation of complex Mississippian society are discernible. (78)

Foster, Michael S. (JARA)
ARCHAEOLOGICAL SEQUENCES FROM NORTHWEST MESOAMERICAN.

In recent years chronometric data from Northwest Mesoamerica have proliferated. This has led to a great deal of confusion in attempting comparisons of intra- and inter-regional sequences. Chronometric dates and phase sequences (and their major diagnostic traits) from northern Nayarit, Sinaloa, Zacatecas, Durango and Chihuahua are summarized. Published dates are recalibrated using new calibration tables and some revised dates for phase sequences are offered. These sequences, old and new, are compared to adjacent regional sequences. (10)

Fowler, Catherine S. (University of Nevada, Reno)
WATER MANAGEMENT IN THE GREAT BASIN: ETHNOGRAPHIC PERSPECTIVES.

Great Basin peoples, prior to contact, practiced various means of water conservation and water management. Well known is the case for ditch-based irrigation of wild products in Owens Valley; and nearly as well known, ditch-based irrigation of introduced cultigens among the Southern Pahute. Less well attested for cases of broadcast sowing of native seeds around springs and seeps, practices involving small stream diversion to take fish or flood rodent burrows, ponding of snow melt, augmentation of springs, etc. Data on these techniques and their material manifestations will be summarized and the requisite environmental knowledge they imply discussed. (26)

Fowler, Melvin L. (University of Wisconsin-Milwaukee)
MOND 72: SOCIAL DIFFERENTIATION AND THE CONTROL OF RESOURCES AT CAHOKIA.

A unique burial mound at Cahokia, Mound 72, contains a large number of burials with indications of markedly different social positions. Included with these burials are a variety of artifacts (lithics, ceramics, copper, shell, and mica) from wide spread areas of the Eastern United States. Ceramic typology and radiocarbon assays suggest that this mound was being constructed between the early half of the tenth century A.D. and the early eleventh century. Questions of the nature of the social organization, of trade for elite consumption, and their development at Cahokia are discussed. (49)

Fox, Richard A., Jr. (Calgary)
ESTABLISHING THE BATTLEFIELD PATTERN: A CASE STUDY FROM THE CUSTER BATTLEFIELD.

The battlefield pattern foundation is laid by recognizing individual behavior as it is represented in the artifact record. The integration of individual behavioral patterning results in identification of unit patterns. At the Custer battlefield unit patterns are recognizable as troop and Indian positions and movements. The battlefield pattern comprises unit patterns that provide behavioral clues relevant to the progress of a battle. Firearm identification analyses form the methodological core of the battlefield pattern. Battlefield pattern analysis traces the chronology of the Custer fight as troop defenses, deployed by companies in a "V" pattern, collapsed sequentially allowing annihilation of the final bastion, Last Stand Hill. (54)

Francis, Julie E. (Office of the Wyoming State Archeologist)
POWDER RIVER-LET 'ER BUCK: TEN THOUSAND YEARS OF HUNTER-GATHERER PREHISTORY IN THE MIDDLE FORK RESERVOIR, WYOMING.

Archaeological survey and excavation have yielded an extremely complex record of hunter-gatherer occupation for the last 10,000 years. The 1600 acre project on the east flank of the Bighorn Mountains, contains nearly every known site type in the Northwestern Plains. The purpose of this paper is to discuss the Holocene terrace sequence, which is far more complex than previously recognized. Cultural materials have been found in all terraces which date from the Late Pleistocene to Historic times, and the area offers excellent potential for the study of changing land-use patterns and paleo-environmental conditions in an ecotonal area. (67)

Frankenberg, S. R. (Northwestern)
A DYNAMIC MODEL OF DISEASE-STATUS INTERACTIONS.

Utility of paleopathology to mortuary archaeology has been in providing evidence for the socio-economic structuring of health conditions. These studies have assumed that status influences disease, not vice versa, and that differential access to resources is the mechanism for this influence. There are, however, no a priori reasons for assuming this mechanism and unidirectional causality. This paper offers a model of how disease can influence status. Its plausibility is evaluated in terms of

European historic status-disease interactions. Applicability of the model for delineating archaeological social dimensions is also considered. (68)

Fredlund, G. G. (see Johnson, W. C.) (69)

Fredlund, Glen G. and Wakefield Dort, Jr. (Kansas)
PHYTOLITH AND POLLEN EVIDENCE FOR EARLY HOLOCENE VEGETATION CHANGE, OWL CAVE, WADSEN SITE, EASTERN SNAKE RIVER PLAIN, IDAHO.

In a sequence of samples from the interior section of Owl Cave, spanning the Paleoindian through early Archaic occupations of the site (ca. 13000 to 800 B.P.), changes in phytolith percentages are correlated with changes in pollen and sedimentology. Phytoliths from this section document a shift from cool-weather grasses toward grasses better adapted for warmer and drier climates. Concurrent changes in the shrub and forb pollen indicate a shift from sagebrush to chenopod-steppe. (64)

Fredrickson, David A. (Sonoma State, Rohnert Park)
THE BORAX LAKE BASIN AND EARLY COMPLEXES IN CALIFORNIA'S NORTH COAST RANGES.

Although obsidian hydration and geologic studies by Meighan and Haynes supported Harrington's claim for early use of the Borax Lake site, confirmatory data from elsewhere in California's North Coast Ranges has accumulated very slowly. Recent analyses of the Mostinsite support Lower Archaic affiliation. Despite absence of definable archaeological contexts, obsidian hydration/sourcing data suggest that numerous sites in the Clear Lake Basin may contain Paleo-Indian and Lower Archaic components. Obsidian data from sites in the Borax Lake area and other evidence of Paleo-Indian and Lower Archaic periods are reviewed. (31)

Freidel, David A. (Southern Methodist)
PRECLASSIC KINGSHIP IN THE MAYA LOWLANDS.

Recent research on kingship in the Maya lowlands shows that the essential principles and icons of power were in place by 200 A.D. Comparison of objects and images from the Terminal Late Preclassic period (100 B.C. - 50 A.D.) suggests that the institution of monarchy is already present in the earliest stages of lowland civilization. Objects and images from the Late Preclassic site of Cerros and from other Late Preclassic contexts are discussed. (72)

Freter, Ann Corinne (PSU)
EVIDENCE OF POLITICAL DECENTRALIZATION DURING THE TERMINAL CLASSIC PERIOD IN THE COPAN VALLEY: A REGIONAL PERSPECTIVE.

The regional settlement history of the Copan Valley, from the Late Classic period through the Post Classic period, is discussed in an attempt to trace the changes in population size, density, distribution, and land use that occurred around the time of the Copan "Collapse." It is suggested that the Copan Collapse did not take the form of a total abandonment of the valley, but rather that the settlement history of the area indicates that a process of political decentralization occurred. (38)

Frison, George C. (Wyoming, Laramie)
LIMITATIONS OF CLOVIS TOOLS AND WEAPONRY FROM EXPERIMENTS ON AFRICAN ELEPHANTS.

Culling of large numbers of elephants in Hwange National Park, Zimbabwe, provided unlimited numbers of elephants in their natural habitat for studies on elephant behavior and for testing Clovis weaponry and tools. The results indicate that Clovis projectile points, used with either thrusting spear or throwing stick, will penetrate all but the thickest elephant hide and result in lethal wounding. Elephants can be skinned and dismembered with simple stone tools identical to those recovered in Clovis sites and some stone and materials are superior to others in maintaining functional working edges. (77)

Frison, G. C. (31)

Fritz, Gayle J. (North Carolina, Chapel Hill)
STARCHY GRAIN CROPS IN THE EASTERN U.S.: EVIDENCE FROM THE DESICCATED OZARK PLANT REMAINS.

Morphological changes reflecting cultigen status have been described for chenopod, knotweed, and amaranth. Genetic alterations have been more difficult to recognize for carbonized maygrass and little barley. Uncarbonized specimens of all these plants, except little barley, are represented in the Ozark rockshelter collections. Intersite distributions, the conditions and contexts in which they were deposited, seed colors, shapes, and sizes, and inflorescence characters combine to clarify as well as complicate the picture of late prehistoric starchy grain husbandry. (71)

Gallagher, James P. and Robert E. Sasso (Mississippi Valley Archaeology Center)
FURTHER INVESTIGATIONS INTO ONEOTA RIDGED FIELD AGRICULTURE IN SOUTHWESTERN WISCONSIN.

Oneota agricultural practices are analyzed in light of data recovered during excavations conducted at the Sand Lake Site (47Lc44) in La Crosse County. This site contains a series of ridged agricultural fields buried by an alluvial fan, affording an unprecedented view of Oneota agricultural practices circa A.D. 1400-1450. The authors address aspects of form, extent, and function of the agricultural fields, and discuss associated remains. A preliminary evaluation of the ramifications of information on agricultural systems for other aspects of Oneota culture is presented. (4)

Gallagher, Joan (The Public Archaeology Laboratory, Inc.)
ARCHAEOLOGY IN CITY SQUARE, CHARLESTOWN, MA.

From 1629 to 1775, Charlestown's City Square contained several public and private buildings. The oldest was the Three Cranes Tavern built in 1629. It was used as a meetinghouse until its sale to innkeeper Robert Long in 1635. The Long property was subdivided, and new houses built in 1712 and 1733. All were burned during the Battle of Bunker Hill on June 17, 1775. Archaeological excavation located structural footings and features associated with the Long family's Tavern, the former Great House. Their spatial distribution provides information concerning early urban land use. (22)

Gallareta Negron, Tomas (CRY-INAH, Merida)
VARIATION AND DISTRIBUTION OF HOUSEHOLD UNITS AT COBA, QUINTANA ROO, MEXICO.

A detailed survey of surface features (walls, platforms, foundations) at Coba has led to the secure identification of a large sample of household units, most of which date to the Late Classic period. Beyond the basic identification and delimitation of the units, our analysis of the sample has allowed us to prepare a typology which reflects the substantial diversity in the composition of the individual units, and to derive an overall view of their distribution at the community level. (27)

Gallareta Negron, T. (see Andrews, A. P.) (27)

Gallison, J. D. (see Ackerman, R. E.) (18)

Gambel, C. S. (7)

Garber, James F. (Southwest Texas State)
A TRANSITIONAL ARCHAIC POST-HOLE PATTERN AND ACTIVITY AREAS AT 41HY163, SAN MARCOS, TEXAS.

During the summers of 1983-85 Southwest Texas State University conducted its Archaeology Field School at 41HY163. Adjacent to a burned rock midden, the remains of an oval structure were revealed. An Archaic structure of this kind has not been reported for central and south Texas. Several distinct activity areas at the site were recognized including, primary reduction of cores, tool finishing, burned rock middens, butchering, and domestic areas. Information on the formation of burned rock middens was obtained. (46)

Garza-Valdes, Leoncio A. (Texas, San Antonio)
MAYA GREEN STONES AND LAPIDARY TECHNIQUES.

Different techniques and green minerals from a Maya lapidary workshop at the site of Guaytan-Castillo (Middle Motagua Valley, Guatemala) were analyzed. No monomineralic pieces were found, they were albites, chalcodinites and jadedinites. Ureyite, a chrome pyroxene, is the component that gives the emerald green color to some jadedinites. Chrome-muscovite (fuchsite) gives the color to the rare emerald green chalcodinites. Scanning Electron Microscopy studies of the patina and of drillings in these rocks were performed. Three different drilling techniques were found: (1) flint drillers, (2) wood drillers, and (3) hollow drillers like bamboo or reed. (61)

Gasser, Robert E. (Museum of Northern Arizona/Arizona State Museum)
SUBSISTENCE BEYOND DIET: MACROBOTANICAL INDICATORS OF PREHISTORIC ECONOMIES.

Large and systematic collections of flotation samples from archaeological sites in Arizona have provided quantifiable data bases to study prehistoric settlement, land use and specialization. Four case examples are presented. Two show how to macrobotanically separate farmsteads from villages and indicate duration of use. Another example studies temporal variability at one Hohokam village and the implications of stability. The last example looks at inter-site variability within a community of sites and to a centrally placed Hohokam platform mound site. (14)

Gebauer, Anne Birgitte (Moesgard, Denmark)
STYLISTIC VARIATION IN THE POTTERY OF NEOLITHIC TRB-CULTURE IN DENMARK.

Time variation is studied in the structure of the over-all scheme of pottery decoration and decoration of individual pot shapes. Time variation is related to spatial stylistic variation at a local and regional level. A close relationship is found between stylistic variation and the importance of pottery in ritual contexts. Stylistic studies of pottery can illuminate ritual practices, among others ceremonies at megalithic tombs. Variation of ritual practices and pottery styles is related to social change in Danish TRB-culture (3100-2200 B.C.). (16)

Gendel, Peter A. (Wisconsin, Madison)
STYLE AND SOCIAL EVOLUTION IN POSTGLACIAL NORTHERN EUROPE.

The analysis of stylistic distributions on a regional scale reveals a decrease in the size of style zones and an increased resolution of boundaries during the Mesolithic period. Clear differences in the scale and character of stylistic and material distributions occur between the earlier and later Mesolithic. These developments suggest an increasing concern with expressions of social solidarity and intergroup differentiation and may be correlated with changes in demographic and social arrangements. (7)

Gero, Joan M. (University of South Carolina)
NATIONAL IDEOLOGY AND NATIONAL GEOGRAPHIC.

This paper analyzes trends in the practice of archaeology over a period of ninety years, as presented in the pages of *National Geographic Magazine*. As part of a larger effort to examine the ways in which archaeology serves a sociopolitical agenda, this review highlights changes in how and where archaeology has been conducted in order to illustrate the effects and constraints of specific contextual circumstances on our discipline. The use of *National Geographic* as a data base also offers a closer scrutiny of the ideology of archaeology intended for public consumption. (8)

Gianno, Rosemary (Yale)
THE IDENTIFICATION OF SOUTHEAST ASIAN RESIN USING INFRARED SPECTROPHOTOMETRY.

Infrared spectrophotometric analyses of eight archaeological samples (dated approx. 200 B.C. - 1000 A.D) from Peninsular Malaysia are compared to 41 analyses of recent resin specimens from identified trees. Tentative identifications are presented for each archaeological sample. The spectra of resins from the Burseraceae and Dipterocarpaceae, both copious producers, are the most difficult to distinguish. Resins of the genus *Dipterocarpus*, important in torch technology, are found to be quite distinct. (4)

Gibbon, Guy E. (Minnesota, Minneapolis) and Clark A. Dobbs (Institute for Minnesota Archaeology, Minneapolis)
THE MISSISSIPPIAN PRESENCE IN THE RED WING AREA, MINNESOTA.

The nature and distribution of Middle Mississippi traits in the Red Wing area are discussed. Although Middle Mississippian ceramic forms and style motifs, truncated pyramidal mounds, and house forms have their greatest concentration in Minnesota in or near the Red Wing area, the relationship of these traits with an Oneota presence in the same area has remained a puzzle. Several possible resolutions of this puzzle are reviewed. (49)

Gibson, E. C. (see Shaw, L. C.) (48)

Gibson, Jon L. (Southwestern Louisiana)
POVERTY POINT RECONSIDERED.

For over 30 years, the Poverty Point site in northeast Louisiana has fueled controversy—great town or vacant ceremonial center, cultural climax or historical accident, Archaic or Formative. While these and similar positions remain largely unresolved, archaeologists have been busy during the past decade building a new empirical foundation. Labeling has been put aside while multidisciplinary forces rethink the meaning of a 3500 year old settlement that covered 7.0 km², that built massive earthworks, that received tons of exotic materials, and that supported itself apparently without agriculture. (6)

Gifford Gonzales, D. (74)

Gillespie, R. (see Linick, T. W.) (55)

Gillespie, Richard (Arizona, Tucson)
DATING BONE ORGANIC MATTER: THE EFFECT OF ENVIRONMENT.

The preservation of organic matter in bone from different environmental regimes can be crucial to the success of radiocarbon dating. Comparisons between the yields from various extraction techniques, and the consequent rigour of chemical fractionation necessary for obtaining a reliable age,

lead to guidelines for the selection and treatment of bone from archaeological contexts. Radio-carbon dating by accelerator mass spectrometry demonstrates that accurate dates are possible from small samples of most bones, and that bone should in fact be a material of choice. (62)

Gillespie, Susan D. (Illinois State)

THE "STRANGER-KING": A PROBLEM FOR AZTEC KINGSHIP.

The Aztecs, in the Late Postclassic Period, faced a dilemma inherent in a political system headed by an impersonal office of "king"; namely, the problem of explaining how a particular lineage acquired and maintained the right to rule. An examination of Aztec ethnohistorical documents reveals that this problem was resolved in the construction of their history, in part, in the notion of the king as a "foreigner." Their solutions to these conceptual problems are not unique to Mesoamerica but are found in the political ideologies of other societies at the same level of complexity, e.g., in Hawaii and central Africa. (72)

Gilman, Patricia A. (Oklahoma)

THE IMPACT OF INCREASING AGRICULTURE ON BLACK MESA ARCHITECTURE.

Although architecture is quite common in the archaeological record, architectural data are rarely used to answer anthropological questions. Data from over 100 Black Mesa Archaeological Project excavated sites are used to address the impact of agriculture on architectural, site structural, and feature forms. Changes in site layout between the Basketmaker II period with less agriculture and the later pueblan periods having more agriculture, are examined. Additionally, variations in structure sizes and size distributions, structure depths and depth distributions, and feature density with increasing agriculture, are investigated. (47)

Gish, Jannifer W. (Quaternary Palynology Research)

PALYNOLOGY OF LA CIUDAD, CENTRAL ARIZONA.

La Ciudad is a large Pioneer through Classic period Hohokam site in Phoenix, Arizona. The pollen study, which involved over four hundred samples, includes a comparison of economics by pithouse type and an evaluation of the function of large outdoor ovens. Economics include maize, squash, cotton, cholla, prickly pear, yucca, and cattail. Evidence is presented for prehistoric use of wild hog potato (*Hoffmanseggia* sp.). Subsistence diversity across time and space is summarized. Land use patterns for both agricultural and gathering activities are discussed. (14)

Glassow, Michael A. (California, Santa Barbara)

BIOGEOGRAPHY AND ECOLOGICAL ADAPTATIONS ON THE FOUR NORTHERN CHANNEL ISLANDS OF CALIFORNIA.

The four northern Channel Islands off the coast of southern California vary significantly in their geographic characteristics. Archaeological resources also vary between the islands, as can be seen in site densities, maximum site size, and types and densities of faunal remains, among other characteristics. Proposed explanations of archaeological resource variations concern how distributions and abundances of food resources and variations in such geographic characteristics and coastline morphology affected ecological adaptations of human populations. (5)

Gleichman, Peter J. (Native Cultural Resource Services)

KAYENTA ANASAZI SUBSISTENCE—THE FLORAL COMPONENTS.

Botanical materials from excavations on central and southern Black Mesa and the Shonto Plateau are described, compared and contrasted to archaeobotanical and ethnobotanical data from the Kayenta area. This diachronic view of the floral elements of Kayenta Anasazi subsistence systems indicates that a variety of human-plant ecological relationships were utilized. Domesticates, ruderals, and wild plants were utilized throughout the Anasazi occupation. Data are assessed in terms of current concepts of diversification and intensification of wild plant use through time. (14)

Glenn, James R. (Smithsonian)

THE NATIONAL ANTHROPOLOGICAL ARCHIVES: IN SERVICE TO ARCHAEOLOGY.

The archives, originally part of the Bureau of American Ethnology, is a repository for documents relating to both Smithsonian and non-Smithsonian archaeology. With collections ranging from the BAE Mounds Survey, WPA archaeology, and River Basin Surveys to files concerning antiquities permits and contract archaeology, the archives holds a variety of materials relating to the United States and limited materials concerning other areas of the world. The main purpose of the archives is service to anthropologists in storing and retrieving data. (35)

Gnievecki, Perry L. (Hartwick)

A RURAL AKKADIAN COMMUNITY.

The Akkadian Period (circa 2334-2154 B.C.) in ancient Mesopotamia constitutes one of the earliest known empires in history. Excavations at the site of Tepe al-Atiqeh, located in the first upland valley

(Hamrin Basin) of the Zagros Mountains of southern Iraqi Kurdistan, has provided the first view of a rural Akkadian community. The role of the rural household/community in the Akkadian Empire will be studied. (32)

Godfrey, Laurie R. (UMass, Amherst)

THE PAPER RESPONSE TO SCIENTIFIC CREATIONISM—WHAT, WHERE, AND WHEN?

I examine the "paper" response to scientific creationism—that is, the changing themes of journal, magazine, and full-length book commentaries. In the mid 70s, the issue was all but ignored. Not surprisingly, the academic community became increasingly interested as the legal threat formalized. This paper documents those responses via a content-analysis of the journal and magazine articles and books that appeared before, during, and following the legal challenges in Arkansas and Louisiana. It asks: (1) Has the academic community been sensitive to real changes in the perceptions of school teachers, book publishers, and politicians? (How have non-academics responded to the pressures of the "equal-time" advocates, and how have academic responses tracked these effects?) (2) What issues are being addressed by members of different academic disciplines. (9)

Goldberg, Carol E. (UCLA)

MARITIME ADAPTATION ON SAN CLEMENTE ISLAND: DIETARY RECONSTRUCTION THROUGH BONE CHEMISTRY.

The isotopic composition of carbon (^{13}C) and nitrogen (^{15}N) in marine organisms differs significantly from that of terrestrial organisms. These differences are known to be preserved in bone collagen and can thus be used to reconstruct the relative proportions of marine and terrestrial foods in human diet. This relationship is used to explore maritime adaptation on San Clemente Island. Both spatial and temporal variation are discussed within the greater framework of Channel Island and Southern California coastal archaeology. (30)

Goldstein, Lynn (Wisconsin-Milwaukee) and Norman C. Sullivan (Marquette)

PEOPLE AS FOOD, BONE AS RITUAL: RETHINKING OLD DATA.

Archaeologists and biological anthropologists often re-analyze previously collected data sets and use the results in the formulation of theory. Unfortunately, these re-analyses rarely examine the biases or assumptions of the original work. Using the Aztalan site in southeastern Wisconsin as an example, we identify some problems of re-analysis. Aztalan, a Middle Mississippian site, has been interpreted to represent a society which practiced cannibalism, cremation, as well as secondary, burial. This study looks at original analyses and assumptions; it also uses the Aztalan case as an example of some of the problems in the analysis of secondary burial. (68)

Goldstein, Paul S. (Chicago) and Robert A. Feldman (Field Museum)

TIWANAKU AND ITS ANTECEDENTS IN MOQUEGUA.

Fiber-tempered ceramics provide evidence of strong contacts between Moquegua and the Titicaca basin as early as 3000 B.P. Continuing contacts are indicated by the presence of variants of Pukura pottery and textiles. The Tiwanaku occupation of Moquegua can be divided into three ceramic phases, the first corresponding to Ponce's Phase IV, or Bennett's Classic, the second to Phase V/Decadent, and the third showing similarities mainly to Decadent, but also foreshadowing Chiribaya and Mollo/Churajon. At all times, the intensive Titicaca-related occupations exploited Moquegua's agricultural potential. (3)

Gonlin, Nancy (Penn State)

HOUSEHOLD ARCHAEOLOGY IN THE COPAN VALLEY.

As a final stage of the extensive research in Copan, Honduras, a series of small rural household compounds which represent the lowest level of social status have been completely excavated. These excavations largely confirm expectations based on the previous test-pitting data gathered in the Copan Valley. Evidence points to an occupation of Late Classic, or, in some cases, Terminal Classic, indicating the continuity of Mayan culture throughout the collapse. (38)

Gonzales Vazquez, J. (see McClung de Tapia, E.) (15)

Gonzalez, Maria Rocio, (INAH) and Elia del Carmen Trejo (INAH)

NEW ASPECTS OF THE ARCHAEOLOGY OF NORTHERN QUINTANA ROO.

Recent archaeological explorations have modified developmental schemes that have been used for this area. Excavations in residential zones located on the central coast prove that the human occupation dates to the beginnings of our era, continuing until the arrival of Europeans. These studies contributed interesting data on a complicated system of walls that unite and/or delimit civic-religious structures, as well as on ceremonies associated with water and other natural elements that were practiced in caves. (27)

Gorospe, K. (see Ross, R. E.) (45)

Gray, T. (Concordia, Montreal)

PSYCHOLOGICAL STUDIES OF BELIEF IN UNSUBSTANTIATED PHENOMENA.

There are surprisingly high levels of belief in phenomena for which there is no evidence that meets generally acceptable scientific criteria of trustworthiness (Gray, 1985). There is widespread belief in Astrology, ESP, Reincarnation, etc., and there are unsubstantiated beliefs in "paranormal" historical phenomena (Feder, 1984). There are also proponents of the belief that archaeological sites can be discovered by "psychic" means. Our research investigates the variables that influence levels of belief and deals with attempts to reduce the degree of belief. Results from our large-scale studies are disconcerting. (9)

Graybill, D. A. (Arizona)

DENDROCLIMATIC RESEARCH IN THE GREAT BASIN.

Recent and ongoing research is resulting in the development of numerous tree-ring chronologies in the 1000 year range and several that are considerably older. They provide the basis of a network that can be used for regional paleoclimatic reconstruction. Series from lower forest border sites evidence high potential for the reconstruction of precipitation and the Palmer Drought Severity Index. The extraction of temperature signals from long upper treeline chronologies appears more difficult and that research is in progress. (60)

Graybill, D. A. (see Fish, S. K.) (26)

Greber, N. (21)

Gregory, D. A. (see Fish, S. K.) (26)

Gremillion, Kristen Johnson (UNC, Chapel Hill) and Mary Ann Holm (UNC, Chapel Hill)

ANALYSES OF PRECONTACT AND POSTCONTACT SUBSISTENCE REMAINS FROM THREE NORTH CAROLINA PIEDMONT SITES.

Analyses of plant and animal remains from three North Carolina Piedmont sites produced working hypotheses about the effects of European-Indian interaction on aboriginal subsistence. There is evidence for differences in nut use, and the addition of peach, however, faunal data indicate no major differences in uses of animal resources. Although there is no direct evidence in the faunal remains for participation in teh deerskin trade, historical accounts and presence of European artifacts indicate that trade affected subsistence. Decreased use of already low-ranked plant resources could have resulted from increased time and energy devoted to trade-related activities. (50)

Griffin, J. B. (78)

Griffin, J. B. (49)

Griffin, J. B. (21)

Grimm, Linda T. (Oberlin College, Ohio)

ROLE OF LITHIC REFITTING IN THE ANALYSIS OF INTRASITE SPATIAL ORGANIZATION.

Particular attention is devoted to the manner in which refitting aids in the identification of activity loci and in the evaluation of formation processes, especially as concerns the recognition of occupational as opposed to depositional episodes in archaeological sites. The substantive data upon which the analysis rests derive from the Upper Paleolithic open-air site of Solvieux (Dordogne, France). (77)

Grove, David C. (Illinois)

OLMEC CHIEFS: ANCESTRAL BLOOD AND SUPERNATURAL POWER.

Olmec monumental and portable art provide the earliest evidence in Mesoamerica for conceptions of rulership. These indicate that during the Early and Middle Formative periods rulership was a personalized concept, with the chiefs of the major centers communicating through public art their descent from royal ancestors and their personal links to cosmological power. New data are presented which suggest that the actual and supernatural ancestry of rulers was maintained by ritual bloodletting, carried out in a manner and exemplified in an iconography clearly antecedent to that of Maya royal bloodletting. (72)

Guderjan, Thomas H. (UT Institute of Texan Cultures)

MAYA SETTLEMENT AND TRADE ON AMBERGRIS CAY, BELIZE.

As a major trans-shipment point along the Maya maritime trade network, Ambergris Cay offers the opportunity to study the impact of trade on settlement patterns. Several sites on the island are located strategically with regard to trade routes. Two are trans-shipment points for trade, spanning at least,

the Late Classic to the Middle Postclassic. Another may be a central polity with the Chetumal sphere. All other sites represent fishing communities and are only peripherally involved with the trade system. (61)

Gumaer, D. Richard (UMass, Amherst)
DEALING WITH NOISE IN GEOPHYSICAL SURVEYING.

Magnetometer survey has a number of sources of variation. Adjustment of the data for these sources of variation is performed in a number of ways. Control readings at fixed intervals give a rough estimate of the behavior of the magnetic field over time while others are less tractable. Various data transformation programs are investigated. Questions are considered about the effect of sources of variation on the recognition of cultural features through comparative analysis of a number of data sets. (40)

Gumerman IV, George (UCLA)
UNDERSTANDING DIETARY CHANGE IN THE SOUTHERN GREAT BASIN: THE COSO JUNCTION RANCH SITE.

A generalized optimal foraging model, in conjunction with demographic reconstructions, is used to predict and explain subsistence behavior at the Coso Junction Ranch Site. Detailed floral and faunal analyses from the site in the Rose Valley of eastern California provide data necessary for understanding dietary change during the Rosegate occupation. The model predicts that the diet breadth changed from a specialized to a more generalized mode of subsistence. The results of the analyses and their fit to the model are discussed. (60)

Haas, Herbert (SMU, Dallas) and Willy Wolfli (ETH, Zurich)
EXTENSION OF THE DATA BASE FOR EGYPTIAN CHRONOLOGY.

Thirty-four radiocarbon dates measured with liquid scintillation counting and thirty-eight dates measured with an accelerator mass spectrometer (TAMS) have been added to the existing data base on Egyptian monuments. Sample materials are charcoal, wood, grass, and straw which were embedded in gypsum mortar. The mortar samples were removed from gaps between stone blocks of the masonry of temples and pyramids. Dates from movable objects like tomb ornaments are not included in this study. All dates have been calibrated with the most recent tree ring chronology. Eight pyramids from the sites Saqqara, Giza and Abu Roash date 350 to 450 years older than the historic calendar indicates. (55)

Haas, William (Bureau of Land Management)
LOCATIONAL PATTERNS OF WATER STORAGE FACILITIES AND PUEBLO SETTLEMENTS IN THE NORTHERN SAN JUAN ANASAZI.

This paper examines water storage facilities for cooking construction and domestic activities for the northern San Juan Branch of the Anasazi in Southwestern Colorado. Locational patterns and temporal placement of water conservation and storage efforts are reviewed for the larger Pueblo spectrum. In southwestern Colorado most sizeable reservoirs are seen to be located near or within village-sized and town-sized communities. Hamlet-sized residences (containing less than ten associated kivas) rarely have the water storage facilities. (26)

Hagstrum, Melissa B. (UCLA)
THE ORGANIZATION OF CERAMIC PRODUCTION IN THE MANTARO VALLEY PERU: AN ETHNOGRAPHIC/ARCHAEOLOGICAL STUDY OF TIME SCHEDULING AND SPACE USE.

Ethnographic investigation of domestically organized ceramic production in the Mantaro Valley suggests that two factors are key to understanding the organization of pottery production. First, the scheduling of ceramic manufacture is articulated with other seasonal activities, principally agriculture. Second, ceramic manufacturing activities are organized to optimize household time and space limitations. These ethnographic results are used to generate hypotheses about time scheduling and space use at Late Intermediate and Late Horizon Mantaro sites. (12)

Hall, Michael J. (BYU)
YOUNG MULE DEER, OLD MOUNTAIN SHEEP.

Preliminary results from the analysis of faunal remains from Five Finger Ridge, a Fremont habitation site located in Clear Creek Canyon, central Utah, suggest that the Fremont were selectively harvesting artiodactyls. Artiodactyl remains from the site seem to indicate that young (1 1/2 years or younger) mule deer (*Odocoileus hemionus*) and old (3 years or older) mountain sheep (*Ovis canadensis*) were preferred by the inhabitants of Five Finger Ridge for reasons yet to be determined. (71)

Hall, Robert L. (Illinois-Chicago)
THE MECHANISMS OF THE CAHOKIA AND ONEOTA INTERACTIONS.

Evidence abounds for contacts during the Early Mississippi Period between carriers of the Cahokia Mississippian Tradition and other peoples over a seven state area in the Midwest. During the Late

Mississippi Period the same area becomes the arena of interaction of bearers of the Oneota Tradition. The ritual mechanisms of the Cahokia and Oneota interactions are seen to be related to the prehistoric Mississippian Long Nose God complex and the historic Calumet Ceremony with deeper common roots in mortuary ceremonialism of the Woodland or Burial Mound Period of the Eastern U.S. (49)

Hammet, Julia E. (UNC, Chapel Hill)
SHELL ORNAMENTS AS SOCIAL IDENTITY MARKERS IN NATIVE NORTH AMERICA.

Archaeological evidence indicates that Native American shell ornaments were used as a means of signifying social status and group allegiances. The apparent intertribal distribution of some of these ornaments is significant, not only at a regional level but for understanding social, political, and economic relations in aboriginal North America as a whole. Also, the time-sensitive nature of these artifacts allows for the examination of changes in cultural relations. A recent study of shell ornaments recovered from archaeological sites in the Carolina Piedmont demonstrates the research potential of this class of artifacts. (50)

Hammond, Norman (Rutgers)
EXCAVATIONS AND SURVEY AT NOHMUL, BELIZE, 1986.

The fourth and final field season of the Nohmul Project investigated both major structures within the site center and small residential buildings in the periphery. The sequence of Late Formative and Late/Terminal Classic florescences with intervening abandonment through much of the Classic was further tested by study of more of the large buildings in the East Group of the ceremonial precinct, and by testing of the West Group. Further excavations in the peripheral raised-field complexes have tested the Late Classic dating for two areas in 1985. The paper summarizes the results of the 1986 season and of the Project as a whole. (61)

Hammond, N. (see Bruhns, K. O.) (20)

Hammond, N. (48)

Handsman, Russell G. (American Indian Archaeological Institute)
ARCHAEOLOGY AND CLASS HISTORIES OF TASTE ALONG "THE GREAT RIVER."

By using critical theory to look at an important museum exhibit, this paper explores two questions: (1) how does modern society reproduce itself through history and (2) how can archaeologists discover a past that is more than what we make it? The recent exhibit "Art and Society of the Connecticut Valley" suggests that taste, as expressed in aesthetically-pleasing objects, is an inevitable consequence of the rise of a gentry class. However a case study illustrates how "tasteful" artifacts and spaces were used to rationalize the gentry's separation from and control over others. (8)

Hanson, Douglas B. (Cornell)
MORTUARY PRACTICES IN MICRONESIA: PROBLEMS AND PROSPECTS OF AN EMERGING ARCHAEOLOGICAL DATABASE.

Recent work on Yap and Rota Islands illustrates some of the limitations and potential of mortuary analysis in this region of the Pacific. The complete lack of bone preservation on Yap limits investigations to burial facilities and spatial organization of formal disposal areas. Bone preservation is also a problem on Rota, but cooperative efforts between archaeologists and physical anthropologists can lead to documentation of several critical dimensions of mortuary treatment. The use of these data for testing models of social complexity is discussed. (13)

Hanson, Jeffery R. (Wisconsin, La Crosse)
PREHISTORIC SETTLEMENT AND SUBSISTENCE STRUCTURE OF HUNTER/GATHERERS IN THE NORTHERN PLAINS.

Using the method of ethnographic analogy, settlement and subsistence patterns of Northern Plains hunter/gatherers are generalized to provide a working model of nomadic settlement and subsistence structure. This model emphasizes the following: residential group hierarchies, mapped-on and logistical resources in the environment, and task group itineraries. A series of hypothetical examples of nomadic behavior in response to environmental flux are presented. (76)

Hardesty, Donald L. (Nevada, Reno)
TOWARD AN ARCHAEOLOGY OF EXPLORATION AND EMIGRATION: SUGGESTIONS FROM THE AMERICAN WEST.

Despite their importance to understanding the processes of colonization, archaeological studies of early exploration and emigration have been limited. In this paper, existing studies are reviewed and the problems of interpreting the archaeological record of overland emigration sites in America's West discussed. A conceptual framework for approaching the archaeological study of early colonization is

developed, using illustrative material from the Donner Party winter campsites in the California Sierra Nevada. (12)

Hardy, Ellen (UCLA)
RELIGIOUS ASPECTS OF THE MORTUARY REMAINS FROM SAN CLEMENTE ISLAND, CALIFORNIA.

Interpretation of mortuary remains is approached within the context of the religious belief system shared by the prehistoric inhabitants of San Clemente Island. Obtaining information from identifiable objects which have no direct utilitarian meaning is seen in an aesthetic-religious-magical sphere. An attempt is made to show that all island cultures through time shared similar beliefs and practices as evidenced by the particular style of mortuary remains adapted to the marine environment, suggesting an origin for some of the religious beliefs held by southern California Indians at contact. (30)

Harn, Alan D. (Illinois State Museum, Dickson Mounds)
THE EVELAND SITE: INROAD TO SPOON RIVER MISSISSIPPIAN SOCIETY.

Excavations at Eveland and its cemetery, Dickson Mounds, provide insights into the emergence of Mississippian in the Spoon River area, Illinois. Artifact complexes, site structuring, and social organization are employed to isolate those regions figuring prominently in the processes of local Mississippian development. Although a small, initial migration may have been involved, the Spoon River Tradition emerged via Mississippian acculturation onto a receptive Late Woodland host population. The resulting version of Mississippian stressed sociopolitical and economic practices reflective of Cahokia while maintaining close secular contacts with their regional neighbors. (49)

Harris, D. (63)

Harrold, Francis B. (Texas, Arlington), Raymond A. Eve (Texas, Arlington), and Mark Plunkett (Tulane)
PATTERNS OF CREATIONIST BELIEF AMONG COLLEGE STUDENTS.

We examined creationist belief and its social and educational correlates among college students at several institutions in the Northeast, South, and West. Belief levels were notable in all regions, though highest in the South. Creationism was found to be consistently related to religious and sociopolitical conservatism, but usually not related to prior coursework in relevant subjects (e.g., biology). Implications for archaeologists as teachers are discussed. (9)

Haskins, Valerie A. (Washington, St. Louis)
THE ARCHAEOLOGY OF PREWITTS KNOB, KENTUCKY.

Prewitts Knob, near Mammoth Cave National Park, contains a commercial cave and 15 small pits. Three have yielded human skeletal remains. One radiocarbon date indicates the bones are more than 2500 years old. Therefore, some activity on Prewitts Knob was contemporaneous with exploration and mining in the Mammoth Cave System. Remains from all pits are similar; some bodies may have been disarticulated prior to deposition. Results of the osteological and archaeological research and preliminary interpretations on Prewitts Knob are presented. (75)

Hassan, Fekri A. (Washington State)
SPATIAL RANGE OF MODERN EGYPTIAN POTTERY.

A study of the provenance of pottery in Cairo and in Menchia, a village near Luxor, reveals that pottery is obtained by consumers in a range of no more than 2 km from vendors who procure pottery from distances ranging from a few kilometers to about 150 km. The wide range of pottery is based on mass production by craft-specialists, long-distance transport facilities and a sector of local vendors (in towns) or itinerant peddlers. This may shed light on the dynamics of pottery distribution during early urbanization. (70)

Hassan, F. A. (32)

Hastings, Charles M. (Michigan)
HERDERS IN THE JUNGLE: ETHNIC CONTINUITY ACROSS ECOLOGICAL BOUNDARIES IN CENTRAL PERU.

Archaeological and ethnohistoric data from the Central Andes can shed light on the geographical configurations of late prehispanic ethnic groups. The findings of systematic archaeological survey and documentary studies indicate that the Chinchacochoa, a group often associated with camelid herding in the high plateaus of the Junin puna, may also have occupied a broad range of zones extending far down several eastern valleys into subtropical foothills. (42)

Hatch, Marion P. (San Carlos, Guatemala)
SOME INFERENCES OF CULTURE CHANGE AT KAMINALJUJU.

Preliminary analysis of ceramics from excavations at Kaminaljuju provides information regarding changes associated with the transition from Preclassic to Early Classic, as well as Early Classic to Late Classic occupation. After the Late Preclassic disintegration of the Miraflores Sphere when ties with Kaminaljuju were predominately with the South Coast of Guatemala and western El Salvador, there occurred at the beginning of the Early Classic an abrupt reorientation toward the areas to the north. It was apparently from this direction that Teotihuacan influence arrived. The nature of relationships with Kaminaljuju is examined and some inferences are summarized. (1)

Hathaway, J. H. (see Eighmy, J. L.) (62)

Hawkins, Nancy W. (Louisiana Division of Archaeology)
LOUISIANA'S PUBLIC PRESERVATION STRATEGIES.

Preservation of sites on private land occurs only if landowners are aware that: (1) they have sites; (2) sites provide important information; (3) professional archaeological techniques obtain maximum information from sites; and (4) lack of preservation results in permanent information loss. To publicize these facts, Louisiana developed an outreach program that includes booklets, newsletters, press releases, exhibits, curriculum materials, and workshops. Additionally, the state: (1) encourages archaeologists to include public participation in grant projects; (2) works with local planning organizations; and (3) advises landowners about easements and tax donations. The development and effectiveness of these strategies are explained and evaluated. (29)

Hayes, R. H. (see Cantley, C. E.) (6)

Haynes, C. V. (see Crew, H.) (60)

Haynes, C. Vance (Arizona, Tucson)
CLOVIS ORIGIN UPDATE.

Several recent archaeological and geological developments are relevant to the origin of the Clovis Culture. New data from Alaska, Canada, Montana, South America, and the Old World are reviewed in relation to current hypotheses of Clovis origin. In Alaska Paleo-indian-like artifact assemblages, without microblades but including unfluted bifacial projectile points, occur in geologic context with radiocarbon dates earlier than Clovis. It is now possible that the Goshen Complex is penecontemporaneous with and developmentally related to Clovis. If Goshen is earlier than Clovis then a strong case is made for the development of fluting in America south of the glacial margin. (31)

Healy, Paul F. (Trent)
ANCIENT MAYA AGRICULTURAL TERRACES: NEW EVIDENCE FROM BELIZE.

Recent research in western Belize has shown that ancient Maya agricultural terracing is more prevalent than previously recognized. Remnants of this form of agriculture cover a larger geographic area and the field systems are more extensive than once thought. Distribution of terracing in Belize is reviewed, construction forms are noted, and their function is discussed. A comparison of evidence for the antiquity of agricultural terracing in Mesoamerica is made. Some newly mapped terrace zones from Pachitun are illustrated, and suggestions for future fieldwork are outlined. (48)

Helmer, D. (see Villa, P.) (74)

Henry, Donald O. (Tulsa)
CORRELATIONS BETWEEN PATTERNS IN REDUCTION AND SETTLEMENT.

This paper describes the relationships observed between reduction sequences and settlement mobility. Both qualitative and quantitative measures of the ranges in reduction sequences are discussed. Initial processing, blank production, tool manufacture, tool maintenance and rejuvenation are addressed. These stages, in turn, are related to differences in the permanency of occupations within different settlement systems. Datasets from Paleolithic sites in southern Jordan and from Late Prehistoric occupations in Oklahoma form the basis of the study. (57)

Henson, S. (see Hesse, B.) (32)

Herrgott, Sherry P. (U.S. Attorney's Office, Arizona)
PREPARING FOR TRIAL: THE DIFFICULTIES IN UNDERTAKING AN ARPA PROSECUTION.

ARPA and its regulations provided law enforcement with an improved means of protecting archaeological sites on public and Indian lands than was available under the Antiquities Act. This paper will address the elements of a crime that must be provided under the new law, as well as the problems in obtaining necessary evidence. It will also discuss practical problems of prosecuting a case success-

fully before a jury, what is expected of the archaeologist by law enforcement and prosecutors, defenses that may be anticipated and the range of sentences and deterrence available under the criminal statutes and civil regulations. (51)

Hesse, Brian (Alabama, Birmingham), Susan Henson (Alabama, Birmingham) and Mary Metzger (Alabama, Birmingham)

RURAL - URBAN EXCHANGE IN ANIMAL PRODUCTS IN EASTERN MEDITERRANEAN COMPLEX SOCIETIES.

Most of the evidence for the production and exchange of animal products in the ancient Near Eastern derives from large tell sites. This paper considers new data from two episodes in the urban record of the eastern Mediterranean—the reurbanization of Canaan in Middle Bronze II and the expansion and absorption of Philistia in the Iron Age—to explore the visibility of rural-urban interaction in archaeological deposits and the relationship of smaller communities to large scale political developments. (32)

Hester, James J. (Water Experiment Station, U.S. Corps of Engineers)
TANDEM ACCELERATOR MASS SPECTROMETER METHOD.

Application of the Tandem Accelerator Mass Spectrometer in the radio-carbon dating has several primary advantages: (1) samples containing very small amounts of carbon may be dated; (2) archaeological artifacts may be dated without destruction; (3) tests of the method reveal that to a level of 0.6%, no contributions of instrument fluctuations to random errors have been observed. Further, systematic errors are less than 0.7% (Donahue and Damon 1984). Finally, the capability of the TAMS method to date very small samples will result in modifications in our field collection techniques. Materials previously discarded as being insignificant will now become a focus of the archaeological search and microstratigraphic studies will be needed to ensure that the small samples collected have the provenience assigned to them. (62)

Hildebrandt, W. R. (see Jobson, R. W.) (36)

Hill, James N. (UCLA)
POST-PLEISTOCENE ADAPTATIONS AND THE EVOLUTION OF AGRICULTURE.

A theoretical model involving population growth, subsistence intensification and marginal cost economics is used as the basis for predicting and explaining a series of twelve systemically interrelated adaptive trends that occurred in the Archaic/Mesolithic stage of the New and Old Worlds. These include the shift from megafauna to smaller game, followed by increases in the following: (1) diversity in plant and animal foods; (2) variety of tools and facilities; (3) complexity and costliness of tools and facilities; (4) competition and warfare; (5) range restricting; (6) sedentism; (7) storage; (8) adaptation to local environments; (9) exchange; (10) status differentiation; (11) the evolution of agriculture. (4)

Hodder, Ian (England, Cambridge)
THE PAST, MASKING AND REVEALING THE PRESENT.

It is possible to demonstrate the way in which the past is used to legitimate dominant sectional interests, either overtly or in the arena of the undiscussed. Yet to what extent are people, particularly in subordinate groups, duped by ideologies of the past? A recent survey of public opinion about the past in Britain shows that many people use the past to express their critical evaluation of the present. Despite the efforts of archaeologists, the past does not have an agreed public meaning. Attitudes to the past reveal as much about the present as they mask. (8)

Hodnette, Jennifer R. (Dept. of Planning & Community Design, Pensacola) and Judith A. Bense (West Florida)
DEVELOPMENT OF LOCAL ARCHAEOLOGICAL RESOURCE MANAGEMENT IN PENSACOLA, FLORIDA.

Following a construction project which was particularly destructive to the colonial deposits in the City, resident professional archaeologists, historians and concerned citizens organized a grass roots action group to develop a plan to do something about this loss of archaeological deposits. The approach taken was a non-confrontational yet persistent pressure approach. Modifications for local government organization are necessary, but hopefully, this plan can then be used as a model for other cities and counties on public lands and public assisted or licensed projects. (66)

Hoffecker, John E. (Argonne National Lab)
UPPER PLEISTOCENE LOESS STRATIGRAPHY AND PALEOLITHIC SITE CHRONOLOGY ON THE RUSSIAN PLAIN.

The Central European loess/paleosol sequence, provides the best standard for correlation and dating of Upper Pleistocene loess deposits on the Russian Plain. Paleolithic sites are typically contained in

colluvial loam, but can often be related to primary loess stratigraphy. Of particular concern is the Early Glacial-Middle Pleniglacial interval (ca. 115,000-30,000 B.P.); clarification of the latter would permit improved understanding of the timing and environmental context of the Middle/Upper Paleolithic transition in this part of Europe. (16)

Hoffman, Michael Allen (South Carolina, Columbia)

URBANISM AND THE ORIGINS OF THE EGYPTIAN CIVILIZATION: A REGIONAL APPROACH.

New interdisciplinary research at the prepharaonic center of Hierakonpolis is forcing us to reevaluate the question of urban origins in the Nile Valley. In their most basic form, urban centers are geographical and cultural central places exercising regional political control, with large and dense populations, complex divisions of labor, and internal social stratification. Based on our new data, we are now able to propose a model of regional urban development which bridges the Predynastic and Dynastic periods from 4000-2300 B.C. Our model is divided into six phases: (1) colonization, (2) growth, (3) centralization, (4) political hegemony, (5) provincialization, and (6) decline. (32)

Hoffman, Teresa (Arizona State Parks) and Shereen Lerner (Arizona State Parks)

THE USE AND ABUSE OF ARCHAEOLOGICAL SITES: EDUCATING THE PUBLIC.

Pothunting on privately owned sites is an escalating problem, and one goal of the Arizona State Historic Preservation Office is to implement easement legislation as a means of site protection. A public relations program is underway to educate the private site owner in the value of archaeological resources, prevent pothunting, and inform on preservation options. Outreach programs include an annual Archaeology Week, involvement in amateur archaeology societies, and promoting development of community archaeology parks. The Archaeology Advisory Commission is instrumental in further implementation of these goals. (29)

Holley, George R. (SIU-E) and Robert L. Rands (SIU-C)

MORPHOLOGICAL VARIATION IN MAYA DISHES: SELECTIVITY AND CHANGE.

A potential for Maya ceramic research, beyond type-variety, is explored. Employing principal components analysis of vessel shape measurements, morphological variation is assessed for three sites in the Western Maya Lowlands. Temporal and spatial variation in the everted rim dish is related to selection processes that are pan-Maya Lowland, regional and site specific. Implications involve: (1) the relationship between the popularity and morphology of a generalized mode and (2) the possibility that ceramic change can, in part, be characterized as the reworking of a limited number of formats as opposed to the succession of new formats. (61)

Holloway, Richard G. and Vaughn M. Bryant, Jr. (Texas A&M)

SUBSISTENCE, PALEOENVIRONMENTAL CHANGE AND HUMAN OCCUPATION IN SOUTHWEST TEXAS: THE APPLICATION OF POLLEN ANALYSIS TO ARCHAEOLOGY.

During initial excavations at Bonfire Shelter, pollen samples were analyzed revealing the longest paleoenvironmental record for any archaeological deposit in southwest Texas. These studies offer clues in explaining how paleoenvironmental change effected the floral and faunal components of the subsistence economy. Recent excavations exposed new profiles and enabled sampling of new deposits for fossil pollen. These studies utilize pollen concentration values and test the importance of indeterminate pollen taxa. Multivariate statistics compare pollen data and show that although conducted twenty years apart, both studies tend to support the initial interpretations. (14)

Holm, M. A. (see Gremillion, K. J.) (50)

Holml, A. (see Kimble, L. R.) (77)

Hosmon, Robert J. (U.S. Navy)

FACTORS IN THE EVOLUTION OF INDIGENOUS HAWAIIAN POLITIES.

The complex indigenous Hawaiian polities evolved in the context of processes of fission, such as the formation of semi-autonomous chiefdoms by colonies established in previously uninhabited territories and processes of fusion, such as expansion by conquest. Recent archaeological and ethnographic studies have addressed issues such as the demographic, economic and social factors of the founding and subsequent history of the chiefdoms of Hawaii Island, the operation of the peripatetic government typical of the ancient Hawaiian polity and the nature of political centralization evident at Kealakekua, Hawaii, around the time of Western contact (1778-79). (5)

Hopkins, Joseph W. (III) (Historic Annapolis)

IDEOLOGY WRIT LARGE: THREE CENTURIES OF THE NICHOLSON PLAN IN ANNAPOLIS.

The baroque town plan of Annapolis, laid out by Governor Frances Nicholson in 1695, has shaped the evolution of the city for three centuries. Nicholson's plan consisted of circles and diagonal streets

superimposed on an earlier grid. The size and shape of the circles have been modified, and streets have been eliminated and added. In each period buildings were oriented to the current perceptions of the nature of the city. Annapolis today is a palimpsest of the successive concepts of the city. This paper begins to decipher the palimpsest. (34)

Hopkins, Mary R. (Brandeis)
WHAT IS A "WASTER?" COMMENTS ON CERAMIC WORKSHOP IDENTIFICATION AT TEOTIHUACAN, MEXICO.

Identification of ceramic production sites on the basis of surface-collected materials relies heavily on recognition of "wasters," defective products assumed to have been discarded at the workshop. In complex ceramic sequences such as Teotihuacan's, a priori definition of "wasters" is inappropriate. Wares had different technical and aesthetic requirements. In a non-egalitarian society, poorer people acquired "second." Variations in overall economy and potters' skill led to further unevenness in quality. Many imperfect products were not rejected. Studies of whole and used ceramics define ranges of acceptable imperfection, and allow formulation of specific criteria for "wasters." (2)

Horwitz, Victoria D. (SUNY, Albany)
STATEN ISLAND, TIERRA DEL FUEGO, CURRENT RESEARCH.

Staten Island (Argentina) provides us with a relative small universe where we are currently collecting information which will be used in the development of tests, these will be confronted with our hypotheses in an attempt to understand "radiating" movements to and from the island. Excavation of the Bahia Crossley Site I is considered to be very important as a source of information regarding the organization of technologies and the economic strategies of the Fuegian past. Artifact assemblages from Staten Island shall be compared with the ones from other areas of Tierra del Fuego. (20)

Howard, J. (see Ackerly, N. W.) (56)

Hudson, C. (33)

Hudson, Luanne B. (Occidental) and Bernard Means (Occidental)
EAST IS EAST AND WEST IS WEST? A REGIONAL COMPARISON OF CULT ARCHAEOLOGY BELIEF PATTERNS.

Three decades of high levels of belief in unsubstantiated pseudoscientific allegations, especially those concerned with Cult Archaeology, appear to be a national phenomenon. Recent individual studies show that it is not limited to any particular region. In this study the same questionnaire was administered to college level students in three regions which are geographically, demographically and "culturally" different. Regional patterns will be compared and contrasted. (9)

Huelsbeck, David R. (Santa Clara)
FAUNAL REMAINS AND THE IDENTIFICATION OF SOCIAL GROUPS IN THE ARCHAEOLOGICAL RECORD.

When two contemporaneously occupied sites or areas within the same site have physical access to the same resources, but yield markedly different faunal assemblages, socially defined barriers to resource exploitation/utilization may be the cause. The utility of this approach to the archaeological identification of social groups is demonstrated through the analysis of economic and social relationships of three adjacent protohistoric households at the Ozette site on the West coast of Washington State. Ethnographically, exploitation areas were owned by "local groups" suggesting that each household constituted a separate local group. (63)

Hunt, Terry L. (Washington)
FACTORS OF EVOLUTIONARY DIVERGENCE IN FIJIAN PREHISTORY.

Most Oceanic scholars agree that simple migrationist scenarios do not adequately account for the origins of human diversity known for the Fiji Islands. In this paper, paths of divergence are postulated from analyses of linguistic variation in geographic space. A general model is proposed for the dynamic interplay of history with the processual role of ecological variation, geographic distance, demography, economics and social relations. Aspects of the model have entailments in the archaeological record, thus allowing empirical assessment of factors of evolutionary divergence in Fijian prehistory. (5)

Hunter, Andrea A. and Deborah M. Pearsall (Missouri)
PALEOETHNOBOTANY OF THE OSAGE AND MISSOURI INDIANS: ANALYSIS OF PLANT REMAINS FROM HISTORIC VILLAGE SITES.

An analysis of ethnobotanical remains from six Osage and Missouri Indian sites, dating 1675-1835, will be presented. Changing patterns of plant utilization will be discussed in the context of the dynamic cultural changes which took place during the Euro-American Fur Trade. This paper: (1)

discusses patterns of seed, nut, and wood utilization; (2) addresses the issue of wild versus cultivated plant use; and (3) presents an overview of intersite variation and similarity. (39)

Hunter, A. A. (see Voigt, E. E.) (39)

Hunter-Anderson, R. L. (Guam)
AN ECOLOGICAL APPROACH TO UNDERSTANDING INTER-ISLAND EXCHANGE AND SOCIAL RANKING IN THE WESTERN CAROLINES.

An ecological model is proposed for the prehistoric rise and historic decline of inter-island exchange and social ranking among the Yap island complex and the coral islands of the Western Carolines. Key elements in the model are differential environmental stability and diversity, residential mobility, and population size. Archaeological implications of the model are reviewed in light of these implications. Suggestions are made for future archaeological research into the origins of social complexity in Micronesia. (13)

Huntington, E. (see Eighmy, J. L.) (62)

Hurst, W. B. (see Davis, W. A.) (26)

Hutira, Johna (Northland Research/Desert Systems)
PATTERNS OF PLANT UTILIZATION AMONG THE PAPAGUERIAN HOHOKAM.

Plant macrofossil remains recovered from two large Pioneer/Colonial period Hohokam sites in Arizona are examined. These data are employed to assess the importance of wild foods versus cultivated species. In addition, the extent of task specialization as suggested by preliminary analysis of shell debitage is tested using the spatial distribution of botanical materials. Macrofossil assemblages identified in these units of analysis provide the framework from which comparisons between individual and group activities are made. Suggestions as to the level of cooperation in subsistence endeavors are presented. (14)

Irwin-Williams, C. (Desert Research Institute), Amy Dansie (Nevada State Museum) and Jonathan O. Davis (Desert Research Institute)

PREHISTORIC WATER-HARVESTING TECHNIQUES IN THE NORTHERN GREAT BASIN.

Prehistoric hunters and gatherers in northern Nevada developed an effective method of acquiring potable water by clearing the desert pavement from slopes to increase runoff. The resultant by-products, called "pebble mounds" have long attracted archaeological attention and speculation. Recent experiments re-creating the clear pavement-pebble mound areas have served to clarify the function of the devices and have demonstrated this to have been an extremely efficient water harvesting technique. This low cost technology may have present-day application in livestock watering and/or for arid land nations in the Third World. (26)

Isaacson, John S. (Univ. of Illinois, Urbana)
ARCHAEOLOGICAL EVIDENCE FOR CHANGES IN SUBSISTENCE AND TRADE IN THE WESTERN MONTANA OF ECUADOR.

Excavations at Nueva Era, Tulipe have produced evidence for volcanic activity in the northern Andes which caused the abandonment of Formative Period sites in the montana and the sierra. Defined in the excavations were a number of partial structure floors with associated refuse and hearths. Comparison of archaeobotanical and lithic material from these structures with material recovered from the Integration Period occupation suggests a shift from a mixed economy of root crops and corn to a highly productive maize economy. Coupled with this change is a change in the areas' involvement in the obsidian trade. (20)

Isbell, William H. (SUNY-Binghamton)
TRADITIONAL FORMS OF PRODUCTION AND STATE REVENUE, THE RISE OF HUARI IN THE CENTRAL HIGHLANDS OF PERU.

During the sixth and seventh centuries, an urban state capital was developing at Huari. Ethnographic and historic evidence suggest that as this city arose the basic unit of production was a corporate group of siblings who exchanged labor among themselves. Exchange of labor between corporate groups involved more elaborate arrangements. Archaeological evidence implies that early state revenue was based on this traditional pattern of labor exchange between sibling groups, but elaborated into a new asymmetric form that involved conspicuous generosity rather than symmetrical repayment by the state. (32)

Jackson, Douglas K. (Illinois, Urbana-Champaign)
AMERICAN BOTTOM EMERGENT MISSISSIPPIAN COMMUNITIES: TEMPORAL AND SPATIAL VARIATIONS.

Excavations conducted along the FAI-255 corridor, in addition to excavations at Cahokia and other sites in the American Bottom, have delineated several different types of Emergent Mississippian

community plans. Settlements range from single households to nucleated communities. Individual site community plans are examined and compared. Temporal developments are discussed, focusing on the succession of communities present at the Range site. Implications are drawn for the development of the large nucleated communities with their presumed associated sociological changes and the later development of Mississippian mound centers. (78)

Jacobi, K. P. (see Lebo, C. J.) (56)

Jamieson, Walter (Calgary)

HERITAGE EDUCATION: FROM PRIMARY SCHOOL TO PROFESSIONAL MID CAREER DEVELOPMENT.

The paper discusses formal and informal heritage education approaches for students in the primary and secondary levels. Techniques for extending this education through public awareness programs are identified. The major focus of the paper is on discussing the need for the training of architects and planners in a wide range of heritage conservation concerns. The training approaches that can be used in both professional school and practice situations are explored using a Canadian example. (58)

Janetski, Joel C. (Brigham Young University, Provo)

THE NANCY PATTERSON PROJECT: AN EXAMPLE OF PRIVATE INVOLVEMENT IN ARCHAEOLOGICAL RESEARCH.

The Nancy Patterson Project has, for three years, pursued archaeological and ethnohistorical research in Montezuma Canyon of southeastern Utah. Fieldwork has focused on Nancy Patterson Village, a large Anasazi pueblo which is privately owned. Primary funding has been from private sources through the site owner. Advantages of the project structure, a limited partnership, have included involvement of private money in research and flexibility of research goals and deadlines. Disadvantages include private ownership of artifacts and differential expectations of partners. The potential for Nancy Patterson Village to become a NPS property may mitigate these problems for this project, but cannot be a solution for other similar projects on private property. (29)

Jarquín, A. (see Martínez, E.) (15)

Jelinek, Arthur J. (Arizona) and Andre Debenath (Bordeaux, France)
NEW EXCAVATIONS AT THE PALEOLITHIC SITE OF LA QUINA (CHARENTE), FRANCE.

During June, 1985, a major American-French cooperative research project was initiated at the important site of La Quina (the "type site" for the Quina variant of the Mousterian). The goals of the project are an understanding of the nature of the occupations that led to the impressive accumulations of artifacts and animal bones at La Quina and a perspective on the place of this site in its regional setting and in the detailed paleoclimatic chronology that continues to be refined for southwestern France. (16)

Jenkins, Ned J. (Alabama Historical Commission)
ALEXANDER CERAMIC DEVELOPMENT IN THE TOMBIGBEE RIVER VALLEY.

The Alexander ceramic series is an early (ca. 600 B.C.-100 B.C.) yet elaborate ceramic assemblage centered in the Upper Tombigbee and Western Middle Tennessee River valleys. The Midden Mound Project included a complex ceramic attribute analysis of a single component Alexander settlement. New data on paste color, sand temper size, design elements, sherd thickness and vessel shape provides a better understanding of the development of the Alexander series and its relationship to the earlier ceramics from which it was derived. (59)

Jobson, Robert W. (Davis, CA) and William R. Hildebrandt (San Jose, CA)
NON-EGALITARIAN HUNTER-GATHERERS AND MARITIME DUGOUT CANOES: A CALIFORNIA EXAMPLE.

Prehistoric and ethnohistoric evidence is presented documenting the adaptation of a maritime lifeway associated with ocean going dugout canoes found on the northwestern coast of California. Dugout canoes used along this part of California's coast are examined on three levels: (1) social management, (2) comparison of structural features of dugouts that minimize risks, and (3) comparison of structural features that maximize payoff. These three levels are compared with examples from the southern and northern coasts of California. (36)

Jodry, Pegi (UT-Austin)
STEWART'S CATTLE GUARD SITE, A FOLSOM CAMP AND BUTCHERING LOCALITY IN SOUTH CENTRAL COLORADO.

This paper describes the results of a Smithsonian Institution-sponsored excavation in the San Luis Valley. A Folsom campsite occupied in conjunction with the killing of seven bison was uncovered

which contains activity areas. The distribution of lithic artifacts and bison bone is discussed in relationship to the single component nature of the assemblage and the structure of the site. The presentation includes a reconstruction of the site setting and an identification of the known sources of the lithic materials recovered. (60)

Johnson, Eileen (The Museum, Lubbock, Texas)

BISON PROCUREMENT AND BONE TECHNOLOGY ON THE SOUTHERN HIGH PLAINS.

Bison as a resource formed a major economic focus of various lifeway patterns on the Southern High Plains for over 10,000 years. Recent work to define more rigorously certain criteria in bone technology concentrates on fracture surface features and wear polishes. Bone technology, involving modifications from cut marks, fracturing, and use-wear, is used as the mechanism to review those lifeways and provide a backdrop to the changes. The role of fracturing is explored in its relationship to tool manufacturing, marrow processing, and grease extraction. Changes are related on a general level to climatic shifts. (76)

Johnson, Elden (Minnesota, Minneapolis)

CAMBRIA AND CAHOKIAS' NORTHWESTERN PERIPHERY.

The Cambria site lies on a 70' south bank terrace of the Minnesota River as a habitation site with an economy based upon maize horticulture and bison procurement. Relationships with the Sterling Phase at Cahokia are seen in ceramics and lithics. Direct relationships with Mill Creek and Silvernale and indirect relationships with Cahokia are explored. A Cambria position in a Cahokia trade network as a supplier of bison hides and dried meat is suggested. (49)

Johnson, William C. (Kansas), Prentice M. Thomas (New World Research), and Glen G. Fredlund (Kansas)

THE IMPACT OF SEA-LEVEL CHANGES ON THE CULTURAL PREHISTORY OF THE CHOCTAWHATCHEE BAY AREA, FLORIDA.

Geomorphic evidence indicates late- and post-glacial sea level rose steadily until ca. 7500 B.P. Subsequently, an abrupt reduction in rate of sea-level rise occurred. In the past 6000 years sea level has fluctuated up to 2 m above and below that of present. Therefore, the record of sea-level change is reflected in the temporal and spatial distribution of prehistoric sites. Further, fossil pollen indicates effects of sea-level change were accompanied by major change in the Holocene vegetation of the area. (59)

Joyce, Rosemary A. (Harvard Peabody Museum)

LATE CLASSIC TO POSTCLASSIC: TRANSFORMATION OF LOWLAND POLITICAL IDEOLOGY.

The key shift in beliefs between Late and Post-Classic is the substitution of "foreign" origin for local genealogical continuity for legitimation. Three factors, the structural identity of spatial and temporal distance, the Late Classic incorporation, based on this identity, of "mexican" elements in the genealogical paradigm, and the loss of local genealogical continuity with the political disruption of Late and Terminal Classic, result in a Postclassic emphasis on the role, rather than the person, of the ruler. (72)

Juell, Kenneth E. (Intermountain Research) and Dave N. Schmitt (Oregon State)
WOODRAT BONE-COLLECTING BEHAVIOR AND ITS IMPLICATIONS FOR ARCHAEOLOGICAL FAUNAL ASSEMBLAGES.

Woodrats (*Neotoma* spp.) have long been recognized as potential contributors of faunal remains to archaeological sites, but little research aimed at recognizing and quantifying woodrat contributions has been conducted. Information from seven modern woodrat houses within the Great Basin suggests woodrats are significant bone accumulators. Analysis of size ranges, weights, and damage patterns of bone specimens recovered from modern woodrat houses is presented with the goal of recognizing woodrat-accumulated bones in archaeological contexts. (71)

Julien, Daniel G. (Texas, Austin)

ARCHAEOLOGICAL INVESTIGATIONS IN CAJAMARCA, PERU.

Many archaeologists believe that Cajamarca played an important role in the evolution of Andean civilization. Archaeological reconnaissance, with some excavation, was carried out in the region in 1983. 115 sites were visited. The analysis will result in an outline of the evolution of sociocultural organization in the region from the end of the Formative Period until the Spanish conquest. Results have revealed a sequence starting with small, feuding chiefdoms at around 200 B.C. Regional integration increased through time, the first urban sites in the region appeared sometime after 1000 A.D.

Jull, A. J. T. (see Long, A.) (71)

Jull, A. J. T. (see Linick, T. W.) (55)

Kaiser, Timothy (Toronto)

IDEOLOGY, ETHNICITY AND NATIONALISM: THE ROLE OF ARCHAEOLOGY IN SOCIALIST SOUTHEAST EUROPE.

Archaeological interpretations of the past in SE Europe have long been influenced by the region's history of ethnic displacement and nationalist conflict. Equally, archaeological evidence has often been marshalled to buttress a variety of territorial claims and generally to assist in the invention of tradition. This paper will examine the interplay between archaeology's role in the quest for political legitimacy and the influence of that quest on the practice of archaeology in socialist Southeast Europe. (8)

Kalin, Jeffrey V. (Primitive Technologies, Inc.)

REPLICATION EXPERIMENTS FOR THE INTERPRETATION OF ARCHAIC LITHIC TOOLS FROM NORTHEASTERN MISSISSIPPI.

Three types of experiments were conducted to replicate the manufacture and use of Archaic lithic implements recovered during the Midden Mound Archaeological project: (1) materials similar to those use prehistorically were heat treated and examined for changes in color, luster and workability; (2) limited use wear experiments were conducted with hafted and unhafted tools similar to those in the archaeological collections; and (3) bifacial tools traditionally used as chronological markers were manufactured and debitage collected at different stages of production. (59)

Kamp, Kathryn A. (Grinnell)

THE VIEW FROM THE VILLAGE: ETHNOARCHAEOLOGICAL PERSPECTIVES ON URBAN AND RURAL.

Care must be taken to match site types with corresponding modern data. Ethnoarchaeological generations about spatial and artifactual correlations with behavior patterns appear to vary greatly with economic and social conditions as well as degree of urbanization and isolation of the community. In complex societies most excavated sites are large urban centers, but most ethnoarchaeological work has been done in villages which are both more manageable and more traditional, but may not be comparable. Suggestions for overcoming these problems are offered. (32)

Kandare, Richard P. (University of Arkansas)

EARLY PROTOHISTORIC MISSISSIPPIAN DUGOUT CANOEISTS IN THE LOWER MISSISSIPPI VALLEY.

The four surviving accounts of the De Soto expedition contain important ethnohistoric information on the large scale use of dugout canoes by societies during the period A.D. 1541-1543. Statistical and descriptive data in these accounts indicate that the dugout canoe was not an isolated insignificant artifact. Based upon this ethnohistoric information, archaeological interpretation of sites occupied in the Lower Mississippi Valley before and during the time of initial European contact should incorporate a canoeist perspective along with a more limited pedestrian perception. (36)

Kaplan, Lawrence and Lesley Sneddon (Massachusetts, Boston)

PHYTOLITH ANALYSIS IN THE ANDEAN HIGHLANDS: PROBLEMS AND PROSPECTS.

At higher inhabited elevations in the Andes, grasses of the festucoid subfamily predominate. In these zones extensive human cultural remains with grassland is unique. Here, grasses are the principal noncultivated economic plant group and the principal component of the vegetation. The abundant phytoliths deposited by grasses offers the promise of large samples for archaeological analysis. The problem of separating culturally derived phytoliths from the background deposition is the subject of this study. (64)

Kay, Marvin (Arkansas, Fayetteville)

PROJECTILE POINT USE INFERRED FROM MICROWEAR OF KIMMSWICK CLOVIS POINTS.

Examination at low (less than 80X) and intermediate (100-400X) magnification under normal and polarized light reveals diagnostic projectile point microwear on both Clovis points and an experimental replicate used on dead Zimbabwe elephants. Microwear includes straight and abrasive polishes and is associated with projectile impact and haft preparation and/or binding. These analyses complement the contextual relationships of the Clovis points found beneath and adjacent to American mastodon (*Mammot americanum*) bones. It appears the Clovis points were lost after becoming imbedded in the mastodon carcasses. (77)

Keegan, William E. (Southern Illinois, Carbondale)

REPRODUCTION AND PRODUCTION DURING ARAWAK EXPANSION IN THE BAHAMAS.

Patterns of human dispersal on islands often conform to the r-selection life-history strategy identified in population biology. The economic analysis of this reproductive strategy can be accompanied by recognizing that it reflects the allocation of scarce means (time, energy) to the competing biological processes of growth, maintenance, and reproduction. From this perspective offspring are viewed as the ultimate product of a production system, and the prehistoric expansion of Arawak population in the Bahamas is examined as the optimization of productive returns. (5)

Keel, Bennie C. (National Park Service)

CULTURAL RESOURCE AUTOMATED DATA BASES IN THE FEDERAL GOVERNMENT.

The number and types of major ADBs in use or currently being developed by various Federal agencies are described. The purposes and structures of these data bases are examined and their compatibility as well as availability across the Federal government is discussed. The problem with uniform data elements which provide basic locational, environmental or geomorphological, chronological, cultural and management data is considered and recommendations for standardization of these elements are offered. (58)

Keeley, Helen C. M. (A. M. Lab., London) and Frank M. Meddens (Institute of Archaeology, London)

PRE-HISPANIC AGRICULTURAL TERRACING IN THE CHICHA-SORAS VALLEY, PERU.

The development of terracing from Middle Horizon 1 through the Late Horizon is described and specific examples of terrace construction illustrated. It is argued that terracing expanded gradually from Middle Horizon 1 through the Late Horizon, the northern half of the valley being included in the system during the early Late Intermediate period. (11)

Keene, Arthur S. (Massachusetts-Amherst)

CRITICAL THEORY AND THE STUDY OF PREHISTORIC FORAGES.

This paper offers an epistemological critique of currently dominant models in hunger-gatherer studies, illustrating the source of these current ideas, their tendency to create the present in the past and to support the ideology of the status quo. The paper then turns to re-examine some key debates in foraging studies from the perspective of Marxist or Critical Theory to illustrate how the same data can appear quite different when viewed through a different set of lenses. The discussion goes beyond the several excellent critiques of the tyranny of the ethnographic record in that it exposes the embedded assumptions that are typically unstated and unchallenged. (8)

Kelley, David B. (Coastal Environments, Inc.)

ZOOARCHAEOLOGICAL RESEARCH IN THE LOWER GARDEN DISTRICT OF NEW ORLEANS.

This paper examines a series of problems using a large collection of faunal material from excavations in the Lower Garden District. The zooarchaeological data come from sites associated with Irish and German immigrants who occupied the area in the middle to late nineteenth century. Problem topics include: (1) the effect of economic status on patterns of meat consumption, (2) the extent to which ethnicity is reflected in zooarchaeological data, (3) a model of southern food supply developed by historical geographer Sam Hilliard, and (4) an hypothesis concerning differences between urban and rural diets. (71)

Kelley, J. Charles (Sul Ross, Alpine)

TRADE GOODS, TRADERS AND STATUS IN NORTHWESTERN GREATER MESOAMERICA.

Copper bells, pyrite mirrors, conch shell trumpets, and similar artifacts traditionally have been regarded as Mesoamerican trade goods when found in archaeological contexts in Northwest Mexico and the "Southwest." There is some evidence that such items actually represent status markers and ritual paraphernalia worn or used by Mesoamerican traders. Evidence for both views is evaluated and the question of what may actually have constituted Mesoamerican trade goods in the area is considered. (10)

Kelly, J. E. (49)

Kelly, J. E. (43)

Kelly, John E. (Illinois, Urbana-Champaign)

CHANGES IN LATE WOODLAND AND EMERGENT MISSISSIPPIAN COMMUNITY PLANS AT THE RANGE SITE: THE SOCIAL AND ECONOMIC IMPLICATIONS FOR THE DEVELOPMENT OF MISSISSIPPIAN CULTURE.

Extensive investigations at the Range site have resulted in the delineation of over 600 Late Woodland, Emergent Mississippian, and Mississippian structures. A number of community types are evident

for each component, ranging in size from individual households to a large village. This presentation examines the nature of the community plans for each component, changes in certain aspects of the plans, and the social and possible economic implications that these changes have for the development of Mississippian Culture in the American Bottom. (78)

Kelly, Lucretia S. (Illinois, Urbana-Champaign)

HUNTING, FISHING, FOWLING AND SNIPING AT THE RANGE SITE: PATTERNS OF FAUNAL EXPLOITATION DURING THE LATE WOODLAND THROUGH MISSISSIPPIAN OCCUPATIONS.

The Range site yielded large faunal assemblages from each of the Late Woodland, Emergent Mississippian and Mississippian components. The sequence of Range communities provides a unique opportunity in which changes and continuity in the faunal assemblages can be examined. Differences can be attributed to shifts in procurement practices, as well as patterns of disposal and environmental changes. This paper examines the data for each component in light of coeval faunal assemblages from other American Bottom sites. (78)

Kelly, R. L. (see Todd, L. C.) (76)

Kerber, Richard A. (Northwestern)

MORTUARY MODELS OF SOCIAL ORGANIZATION: FITTING THE FACTS.

Mortuary studies commonly make use of the Saxe-Binford approach to mortuary site interpretation. An evaluation of the demographic plausibility of models of social structure derived from mortuary variation is presented, based on a study of 1000 years of burial history in the lower Illinois River Valley. Within this single evolutionary line the Saxe-Binford approach varies in the degree of its plausibility. Other factors determine the degree to which mortuary practices are representative of social organization. (68)

Keyser, James D. (USDA Forest Service) and John L. Fagan (U.S. Army Corps of Engineers)

EAST SHORT PINES QUARRY: PROCUREMENT AND PROCESSING OF TONGUE RIVER SILICIFIED SEDIMENT.

Archaeological work at the East Short Pines Quarry in Harding County, South Dakota, is the first intensive effort to study quarrying operations for Tongue River Silicified Sediment. Investigations at the quarry and associated workshop area at the ESP site, coupled with subsequent replication experiments, demonstrate how this material was initially obtained and then processed (including heat treatment) into desirable blanks. Evidence suggests that the Late Prehistoric Period users of the quarry focused their effort on manufacturing large bifacial blanks at the site which were then taken elsewhere for processing into finished tools. (77)

Kimball, Larry R., Mark S. Aldenderfer, and April Hohol (Northwestern)

MICROWEAR ANALYSIS OF OBSIDIAN BLADES FROM RURAL CONTEXTS IN THE CENTRAL PETEN LAKES REGION, GUATEMALA.

The analysis of approximately 700 obsidian blades and blade segments from predominantly rural contexts has led to new insights into the dynamics of obsidian trade, tool use, and the social role of obsidian artifacts in the Lowland Maya region. The artifacts, which span the occupation of the region from the Preclassic to the Postclassic, have permitted the examination of diachronic variability in the role of obsidian in the region. This paper reviews the findings of this project. (77)

King, Marsha K. (Brown)

ARCHIVAL ARCHAEOLOGY: USING DOCUMENTARY AND CARTOGRAPHIC DATA TO EXPLORE HISTORIC TRADE AND SETTLEMENT.

Research investigating the interrelationship between trade and settlement along the Santa Fe Trail was conducted using a combination of archaeological, historical, demographic, and geographic methods. Archival research and cartographic data collection can make significant contributions to reconstructing and analyzing historic settlement patterns. In this report data from one of the thirteen sample counties studied along the trail is discussed. The data suggest that settlement in the region passed through a number of developmental stages before becoming an established settlement system. (22)

King, T. F. (see Parker, P. L.) (13)

Kirch, Patrick V. (Washington, Seattle)

LONG-DISTANCE EXCHANGE AND ISLAND COLONIZATION: THE LAPITA CASE.

Long-distance exchange between island communities, of which the *kula* is perhaps the classic ethnographic example, has long been regarded as an important adaptive mechanism for dealing with

the uneven or temporally-variable resources characteristic of islands. Little attention, however, has been paid to long-distance exchange as a strategy for initial island *colonization*. Using recent archaeological materials from Lapita sites in the southwestern Pacific, this paper explores the critical role of long-distance exchange in the first phase of Oceanic island settlement. (5)

Kirch, P. (13)

Klein, P. D. (see Boutton, T. W.) (43)

Klesert, Anthony L. (Navajo Nation)

SACRED SITES AND CRM: PROBLEMS AND SOLUTIONS FROM THE NAVAJO REGION.

Recent tribal and federal policies have emphasized the importance of protecting and preserving sites and places of historic or religious importance to American Indians, both on and off current Indian lands. Lacking specific guidance from federal statutes, responsible tribal and federal agencies have had to employ creative means to deal with this and ancillary issues. The Navajo Nation is dealing with these sensitive topics on a regular basis and is developing policies and approaches which may be of use to others in similar situations. (45)

Klippel, W. E. (59)

Klukkert, Steve (California, Berkeley)

OPAL PHYTOLITHS FROM AN ADOBE RANCHO

Early studies of mission adobes of known age describe European plant introductions based upon macroscopic evidence. Phytolith analyses of rancho adobe indicate opal content generally is low. Identified phytoliths include forms produced by native graminoids common in nearby soils. Characteristic organo-mineral substances and soil textures suggest multiple sources of materials. Soil phytolith assemblages apparently retain integrity in adobe bricks. Simple, replicable, and inextensive techniques for biogenic silica research are available. (64)

Klymyshyn, A. M. Ulana (Central Michigan, Mt. Pleasant)

POLITICAL AND ECONOMIC CENTRALIZATION IN CHAN CHAN, PERU.

Early state societies are characterized by both political and economic centralization, which is reflected in the architecture and settlement patterns of these societies. In this paper, I examine the architectural evidence for centralization in the Chimu capital, Chan Chan. The primary focus is on architectural features associated with administrative activities, e.g., the control of stored goods. The evidence from Chan Chan is then compared with similar evidence from other Andean early state societies in an attempt to measure differences in the degree of centralization on the basis of architectural patterns. (44)

Knight, Terry W. (UCLA)

TRANSFORMATIONS OF THE MEANDER MOTIF ON GREEK GEOMETRIC POTTERY.

A formal analysis of the development of the meander motif on Greek Geometric pottery is presented. The different forms of the meander used in the various stages, schools, and workshops of the Geometric are described in terms of *shape grammars*. Relationships between different meander forms are described in terms of *transformations*. These descriptions are used to classify Geometric pottery chronologically and regionally. They explicate the underlying design of the meander from its earliest known form to the diversity of more complex forms which evolved from it and, perhaps most interestingly, they describe new, theoretical, and possibly undiscovered forms of meander. (52)

Knudson, Ruthann (Woodward-Clyde Consultants, San Francisco)

GREY LITERATURE AND RECORDS MANAGEMENT IN ARCHAEOLOGICAL RESOURCE MANAGEMENT.

Traditionally, American archaeological resource management (ARM) was reported in selected academic and museum monographs and journals. Today, ARM practitioners in academia, public agencies, and private industry are creating a significant set of often unavailable and poorly curated records. Across the Americas, and in other international offices, this includes: (1) project records, imagery, and report drafts, and (2) reports (e.g., letter reports, monographs, EISs). (35)

Knudson, R. (66)

Kohl, Philip L. (Wellesley College)

THE REGIONAL TRADITION OF SOVIET ARCHAEOLOGY: STRENGTHS AND WEAKNESSES.

The current practice of archaeology in the Soviet Union can best be understood through an analysis of its theoretical and methodological developments from the late twenties to the present day. Currently, the structural support of the Soviet Academy of Sciences provides Soviet archaeologists with

distinctive opportunities and limitations for research. These features will be illustrated through specific examples of archaeological research in Soviet Central Asia and the Caucasus. Finally, Soviet archaeology will be preliminarily assessed relative to regional traditions in Western archaeology, particularly that dominant in the United States. (8)

Kohler-Rollefson, I. (see Simmons, A. H.) (23)

Kolaz, Thomas M. and Mark D. Elson (Institute for American Research)

PITHOUSES AND TOWNHOUSES: COOPERATION BETWEEN ARCHAEOLOGIST AND DEVELOPER.

The Institute for American Research excavated the Tanque Verde Wash Site, a small Hohokam village in southern Arizona at the request of Fairfield Communities, a private developer complying with Federal legislation. Unlike some contract related projects, creative planning by the developer and archaeologist allowed for a mutually rewarding experience. The archaeologists implemented an interdisciplinary research program, while the developer received significant publicity through public and school tours, media exposure, and the construction of an exhibit. This project has led to increased public awareness of the wealth and significance of the archaeological resources within the Tucson area. (29)

Kra, Renee (Yale, New Haven)

A PROPOSAL FOR A RADIOCARBON DATA BASE.

A Radiocarbon Database Workshop was held at the Twelfth International Radiocarbon Conference in June 1985 to define goals, appoint a Database Commission, and seek funding for a Radiocarbon Data Base. The primary goals of a Radiocarbon Data Base are: (1) to establish and maintain a current record of radiocarbon dates; (2) to provide easy access to users in an open international exchange; (3) to form a network of cooperating contributors; (4) to retrieve data through publication or computer printouts. Workshop participants agreed to develop a format for entries to the data base, appoint a commission, and develop a strategy for fund raising by June 30, 1986. (55)

Kramer, C. (70)

Kurjack, Edward B. (Western Illinois)

SETTLEMENT, ENVIRONMENT AND SOCIETY IN PRE-COLUMBIAN YUCATAN.

This paper reviews archaeological settlement pattern research in the northern Maya lowlands by examining contradictory conclusions. Were natural water sources crucial in determining settlement location and subsequent growth? Do Maya sites form concentric zones? Was distance between communities of equal size approximately the same? Do the distribution patterns indicate the progressive trends toward regional economic integration suggested by central place theory? Debates on such themes seldom establish veracity of any one view. (27)

Kus, Susan (Rhodes)

THE POWER OF ORIGINS.

The recorded oral traditions of the nineteenth century Merina state are subject to what A. Delivre has called "ascending" and "descending" anachronisms. These oral traditions are the socio-political philosophy of a polity concerned with its legitimacy. Precedent and innovation are two alternative strategies of legitimation. An exploration of these alternative strategies will be used to inform a discussion of the history of recent theoretical schools in anthropological archaeology and the formulation of research topics and interpretive frameworks in the discipline. (8)

Kuznar, Lawrence A. (Northwestern, Evanston, Ill.)

AN EXAMINATION OF SEDENTISM IN THE NORTHEASTERN LATE ARCHAIC.

The process of sedentism is a gradual trend to the constraint of mobility. This trend is modeled as the interaction of economic decision making in foraging strategies, population dynamics, environmental structure, and social factors. Indicators of sedentism are proposed, and two contrasting regions of the northeastern U.S. are compared. Different expectations of mobility adaptations are posited for each region. Comparison of these regions archaeologically is found consistent with these expectations. (4)

Lafferty, Robert H., III (Mid-Continental Research Associates)

RIVERINE CANOE FACILITIES OF THE EASTERN UNITED STATES: ETHNOHISTORIC IMPLICATIONS FOR ARCHAEOLOGY.

Ethnohistoric accounts indicate that two important canoe storage facilities were used in the Eastern Woodlands, winter storage pits for bark canoes and harbors. The former are associated with seasonal rounds and should be concentrated at the head of navigation. The relatively large size of these features

has serious implications for substantial transformation of sites and have not been identified archaeologically. Some form of still water harbors are implied by the DeSoto accounts for the large Mississippian centers. Archaeological data from several large Mississippian sites suggest that some were artificially constructed. (36)

Langley, Susan B. M. (Dept. of Archaeology, Calgary)

SUBMERGED HERITAGE MANAGEMENT: UNDERWATER PARKS.

Discussion of the role of parks in the management of submerged cultural resources includes many elements. Some of these are: jurisdictional and legislative considerations, management requirements for the creation and maintenance of parks, the preservation/conservation of remains in non-park areas as well as the moral and ethical decisions involved. Although examples are derived from Canadian case studies, the perspectives offered for management and for problem resolution have international implications. (41)

Lebo, Cathy J. (Indians) and Keith P. Jacboi (Indiana)

CHRONOLOGICAL RESOLUTION AND POPULATION DYNAMICS IN NORTHERN ARIZONA.

Life expectancy, generation length, and occupation span of sites argue for the use of temporal scales that are consistent with the biological scale at which populations change. Mortuary remains are used to estimate population on Black Mesa from A.D. 800-1150. A method using tree-ring dates, ceramic frequencies, grave goods, and settlement characteristics reveals fine population changes. The fluctuations distinguished by this approach are obscured by many previous estimates using settlement data, yet these are the exigencies of prehistoric life on Black Mesa. (56)

Lee, Chung Ho (West Florida)

ARCHAEOLOGY OF THE MIDDEN MOUND.

Several factors determined the archaeological strategies used to excavate and process the materials from the Midden Mounds in the Upper Tombigbee River valley. These include the location, physical composition and archaeological components of the sites themselves, and the construction schedule of the Tennessee-Tombigbee Waterway. The block excavation technique was used at most sites. During the two years of fieldwork at these multi-component sites, preliminary laboratory processing and classification were performed to identify the archaeological units with the greatest integrity. Materials from these units were then subject to intensive analysis. (59)

Leonard, Robert D. (Zuni Archaeology Program)

AGRICULTURAL PRODUCTION AND ANIMAL UTILIZATION IN THE AMERICAN SOUTHWEST.

Recent models describing the transition from a hunting/gathering adaptation to an agricultural one have focused primarily on describing the ecological consequences of that shift, and the expected human response. In this paper, it is suggested that certain operating assumptions of these approaches need restructuring in order to provide a more testable framework. I also suggest, using the Black Mesa, Arizona archaeofaunal materials for illustration, that aspects of the strategies and tactics of procurement should have discrete manifestations. (47)

Leone, Mark P. (Maryland)

METHODS FOR USING CRITICAL THEORY IN ARCHAEOLOGY.

There are three techniques used currently to produce a critical analysis of archaeological texts. Such texts include museum exhibits, historic villages and houses, and archaeological sites open to the public. In order to discover the impositions of the present on data from the past, empathy with the storyteller or interpreter can be used to identify contrasts between past and present. Second, physical asymmetries in reconstructions and restorations will provide indices to contrasts between present and past realities. Third, the conflicts in the surrounding ethnographic environment may be resolved in a museum exhibit by rooting them in another time. (8)

Leone, M. P. (34)

Lerner, S. (see Hoffman, T.) (29)

Leshikar, Margaret E. (Texas, Austin)

INDIAN CANOES OF THE BASIN OF MEXICO AT SPANISH CONTACT.

Mesoamericanists have known that canoes and piraguas were used extensively by the Mexica of Tenochtitlan and other Indians of the Basin of Mexico lake system prior to and at the time of the Spanish conquest. Canoes were used in coping with, manipulating, and exploiting the natural environment; developing trade; carrying out religious rites; and in warfare. This paper is an investigation

of the physical form of Indian canoes used in the Contact Period Basin of Mexico as revealed through sixteenth-century written and pictorial ethnohistorical sources and the study of one archaeologically recovered canoe. (36)

LeVine, Terry Y. (UCLA)

A COMPARISON OF INKA STATE STORAGE IN THREE CENTRAL ANDEAN HIGHLAND REGIONS.

State storage complexes in three Inka period administrative regions are compared for the following variables: (1) relation of storage volume to regional population size; (2) relation of storage volume to regional economic orientation; and (3) relation of storehouse design to regional resource focus. Field research in three environmentally and socio-politically diverse Inka administrative regions in the central Andean highlands provide the data for comparisons. (42)

Lewthwaite, James G. (Lancaster, U.K.)

MESOLITHIC SUBSISTENCE, SETTLEMENT AND SOCIETY: A MEDITERRANEAN PERSPECTIVE.

Much social evolutionary theorizing postulates a primeval egalitarianism from which ranked and stratified societies arise. This under-estimates the precarious basis of the equilibrium imposed upon inherent competition and latent fission. Seen from the latter perspective, it is rather through an inability to cope with abundance than through crises of scarcity that egalitarian social norms are likely to falter. The Mediterranean is peculiarly suitable to the testing of such theory on account of the extreme regional diversity of its Holocene environmental dynamics. Attention will be focused in particular on preadaptations variously expediting and retarding the transition to food production. (7)

Limon de Dyer, A. (see McClung de Tapia, E.) (15)

Lincoln, Charles, E. (Harvard) and Patricia K. Anderson (Chicago)

SETTLEMENT PATTERN AT CHICHEN ITZA, YUCATAN, MEXICO.

Terrace-platforms, structures, dry-laid-stone field walls, causeways, and inter-architectural spaces are the major components of the settlement pattern at Chichen Itza. Four hierarchically ranked categories of platforms and seven functionally distinct structure types are recognized. Test excavations indicate that all the platforms studied are contemporaneous within the time of the "Sotuta" ceramic complex. Thus, the variability present points to significant social and political complexity. Addressing a different issue, the analysis of structure typology and platform hierarchy clearly indicates the unity of so-called "Old" and "New" Chichen Itza as one cohesive and internally organized proto-urban community. (27)

Lindly, John (Arizona State)

A PRELIMINARY LITHIC ANALYSIS OF THE MOUSTERIAN SITE 634 FROM WEST-CENTRAL JORDAN.

Excavations conducted at the Middle Paleolithic rockshelter 634, in the Wadi el'Hasa drainage of west-central Jordan, has produced a lithic assemblage dominated by elongated Levallois points. Analysis suggests a technology geared toward the production of these forms and comparisons are made with apparently similar assemblages from the Negev and the northern Levant. Use-wear analysis results are also presented and discussed in the context of Levantine Mousterian settlement-subsistence organization. (23)

Lindsay, Alexander J. (Arizona State Museum)

LATE 13TH-CENTURY PIT HOUSE AND PUEBLO OCCUPATIONS AT THE POINT OF PINES RUIN, ARIZONA.

About A.D. 1275, a group of Anasazi migrated from northeastern Arizona to the Western Pueblo (Mogollon) area of east central Arizona and settled at Point of Pines. Here, the migrant group built and settled into pit houses for an occupation during which they participated in the building of a nearby masonry pueblo for use as their permanent residence. This settlement scenario is examined with data from the Point of Pines and Kayenta-Tusayan Anasazi areas. (56)

Linick, T. W. (see Long, A.) (71)

Linick, T. W., A. Long, P. E. Damon, D. J. Donahue, A. J. T. Jull, R. Gillespie (Arizona, Tucson)

DATABASE MANAGEMENT OF BETA-COUNTING AND ACCELERATOR MASS SPECTROMETRY (AMS) RADIO-CARBON ANALYSIS AT ARIZONA.

The University of Arizona Radiocarbon Laboratories would be willing to participate in the future computerized database project organized by *Radiocarbon*. The sample information requested for the radiocarbon form is routinely obtained but that information and results of radiocarbon analysis are

stored only in local hardcopy form; future data could be stored in computer database form, but it would be extremely "time-consuming" to enter previous data. (55)

Little, Barbara J. (SUNY, Buffalo)

CONSUMING IDEOLOGY: PRINTING AND PRINTERS IN THE EIGHTEENTH-CENTURY CHESAPEAKE.

As information brokers in a largely non-industrial society, colonial printers both influenced and reflected community values. With the American Revolution came a number of changes that caused printers to reorganize their patterns of investment in their craft and to modify the form and content of the material they produced. Through the analysis of excavated printers' type from a shop in Annapolis, Maryland, and through the examination of probate inventories and other historical records, this paper concentrates on one family's changing investment into printing in response to economic and political influences during the revolutionary era. (34)

Litvak King, J. (15)

Livingston, Stephanie D. (Washington, Seattle)

THE VERTEBRATE FAUNA FROM LOVELOCK CAVE AND THE HUMBOLDT LAKEBED SITE.

First excavated in 1912, Lovelock Cave became the focus of a major research effort in 1969. Some aspects of the recent excavations have been published. Lovelock Cave also provided a sizeable vertebrate fauna which has only recently been analyzed. This fauna contains numerous waterbirds, and in particular, juvenile herons. It contrasts with the faunal component of the Humboldt Lakebed Site, also reported here for the first time. These faunas shed light on the prehistoric adaptive system in the Humboldt Valley. (71)

Logan, Brad (Kansas)

LITHIC RESOURCES AND SETTLEMENT PATTERN VARIABILITY IN THE KANSAS-MISSOURI RIVERS LOCALITY.

Previous investigations of lithic resource procurement practices focused on Upper Pennsylvanian cherts of the Kansas City and Lansing groups. This study focuses on cherts of the Shawnee group in northeastern Kansas. Similarities in some preferred cherts of these groups by mobile, trans-Missouri populations preclude determination of the extent of inter-regional procurement practices. A study of site distribution in a major tributary system of the lower Kansas River vis-a-vis differences in the distribution and characteristics of two distinguishable cherts demonstrates the effect of raw material preference on prehistoric settlement patterns within that watershed. (77)

Lokaj, Joseph, James A. Chiarelli, and George L. Cowgill (Brandeis)

THE RELIABILITY OF SURFACE COLLECTING AT TEOTIHUACAN.

Teotihuacan Mapping Project workers made ceramic collections by walking a few meters apart and collecting all observed rim and feature sherds. Recent collections from some of the same tracts involved cleared ground, closer coverage, and saving *all* sherds over 2.9 cm. diameter. Differences among original collections are affected by surface conditions and different propensities of workers to collect more smaller or plainer sherds of certain types. These effects can be assessed because the original collections are available for measurement and comparison with intensive collections. Results have implications for reliability of common surface collecting procedures. (2)

Long, A. (see Linick, T. W.) (55)

Long, Austin (Arizona, Tucson); Ford, R. I. (Michigan, Ann Arbor); Donahue, D. J., Jull, A. J. T.;

Linick, T. W.; Warneke, L. E.; and Toolin, L. J. (Arizona, Tucson)

AGES OF FIRST CULTIGENS IN SOUTHWESTERN U.S. INFERRED FROM ACCELERATOR MASS SPECTROMETRIC ANALYSIS OF C-14 ON CORN, BEANS AND SQUASH.

In recent months the Arizona-NSF Facility has improved its precision to the $\pm 1\%$ level (± 80 years) on young samples. AMS C-14 analyses were performed on samples of *Zea mays*, *Curcubita pepo* and *Phaseolus vulgaris* from southwestern sites representing early agricultural activity. Calibrated dates on these range back to no older than 1500 B.C. These dates do not confirm the oldest dates from Bat Cave. No single site is statistically distinguishable as the earliest locality for cultigens, and these three species appeared in the southwestern record at about the same time. (71)

Longacre, William A. (Arizona)

KALINGA POTTERY IN TIME AND SPACE.

Archaeologists have used ceramic data to infer everything from numbers of people per household to the nature of regional exchange systems. Detailed inventories of all pottery in use in two Kalinga villages in northern Luzon, in the Philippines, at two points in time, are used to explore such questions

in an ethnoarchaeological context. Numbers of pots do not reflect numbers of people at the household level and a high frequency of bartering and gifting is detailed in both villages. Such exchange has a great effect upon the distribution of pots in systemic context. (70)

Lothrop, Jonathan C. (Delaware)

ACTIVITY STRUCTURE ON NORTHEASTERN PALEO-INDIAN HABITATION SITES.

This paper examines the internal structure and assemblage content of occupation areas at Paleo-Indian sites to infer spatial organization of within-site activities. In this study, extractive and maintenance distinctions for hunter-gatherers are related to northeastern Paleo-Indian lithic technologies to derive expectations for activity structure on habitation sites. Spatial distributions of lithics from individual occupation areas at the Potts site (NY) and certain other Paleo-Indian localities are examined. (17)

Love, Michael W. (1)

Love, Michael W. (California, Berkeley)

MIDDLE PRECLASSIC SETTLEMENTS OF THE LOWER RIO NARANJO, GUATEMALA.

Data are presented from survey and excavation on the Pacific coast of Guatemala. Middle Preclassic settlements show a significant increase in size and number over earlier settlements in the area. An apparently unranked settlement system is replaced by a hierarchical one dominated by a large ceremonial center, La Blanca. The results of excavation in residential zones of La Blanca show a large Middle Preclassic village overlying an Ocos settlement. Ceramic chronology and intersite variability are discussed. (1)

Luedtke, B. (57)

Lurie, Rochelle (West Florida)

CHANGES IN LITHIC TECHNOLOGY DURING THE ARCHAIC IN THE UPPER TOMBIGBEE RIVER VALLEY.

Traditional tool typologies show that stone tool technology changed during the Archaic period. Hypotheses positing differences in raw material availability and increasing need for efficient tool kits are developed to explain these changes. Variables designed to measure expectations generated by these hypotheses have been recorded for a sample of over six thousand artifacts. The results of this detailed analysis indicates that increasing need for both economic and efficient use of raw materials and finished tools coincident with increasing sedentism contributes to the explanation. (59)

Lurie, R. (see Blanchard, D. A.) (59)

Lynot, M. J. (see Boutton, T. W.) (43)

Lynott, Mark J. (National Park Service)

TWO EMERGENT MISSISSIPPIAN SITES IN THE EASTERN OZARKS, SOUTHEAST MISSOURI.

The Gooseneck and Owls Bend sites have produced evidence that two Emergent Mississippian groups occupied the upper Current River valley between A.D. 700 and A.D. 900. These sites document that populations in the eastern Ozark highlands participated in the complex aboriginal societies of the last three hundred years of prehistory in the Central Mississippi Valley. The Emergent Mississippian stage in the eastern Ozark region is characterized by settlement and subsistence patterns which were little changed from those of the preceding two thousand years. (43)

Lyon, Edwin A. (Army Corps of Engineers)

TOWARD A SURVEY OF ARCHAEOLOGICAL RECORDS.

Archaeological records are an important source of information for archaeologists and, in addition, have great value in writing the history of archaeology. But these records are not fully utilized because of lack of knowledge of their importance, location, and content. This paper describes the first steps toward a planned survey of archaeological records in the United States by focusing on records generated by New Deal agencies (WPA, NPS, TVA). The long-range goal of the survey is a published guide or computer database allowing easy access to archaeological records. (35)

MacKinnon, J. Jefferson and Emily M. May (Wisconsin, Madison)

ANCIENT MAYA SALT PRODUCTION AT COASTAL SITES IN BELIZE.

Research reveals that the extraction of salt from lagoon soils was an important activity at ten sites on the shores of Placencia and Indian Hill lagoons. A diagnostic artifact associated with this activity, ceramic cylinders averaging 3 cm. in diameter, have been reported from other Belizean coastal sites, but not heretofore recognized as connected with salt production on this coast. Occurrences of these "salt cylinders" at other sites in Belize, Guatemala, Costa Rica, and Mexico are reviewed. (61)

MacNeish, Richard (Boston)

LITHIC MATERIALS FROM THE ORGAN MOUNTAIN PROJECT.

A major problem of use-wear studies has been determining the exact kinds of materials stone tools were used upon. The Organ Mt. project of AFAR has a unique chance to test this problem. Using stone tools with blood and plant residue on them from layers of dry caves, two complimentary studies were undertaken. John Shea did use-wear studies with replications by the Odell method which indicated the seven categories of material used from very soft to very hard. Elinor Downes did chemical studies of the residues on these same tools and indicates ways the general categories of the use-wear studies can be augmented to give more exact determinations of the materials the tools were used upon. (57)

Macri, Martha J. (California, Berkeley)

PLANTS AND ANIMALS IN THE MAYA HIEROGLYPHIC SCRIPT.

Signs used in the Maya script depict species of flora and fauna. In some cases the signs are logographs which indicate the name of the plant or animal depicted. In the political inscriptions of the Classic Period, these glyphs are used as phonetic signs or as proper names and titles. In glyphic texts and accompanying scenes on pottery, murals, and in Postclassic codices, a wider range of subject matter offers valuable information about which plants and animals were most important to the ancient Maya, and how they were utilized. Conventions of Maya writing and iconography will be discussed in relation to the problems of species identification. (48)

Madsen, J. H. (see Fish, P. R.) (26)

Madsen, David B. (Historical Soc., Utah)

HUNTING HOPPERS: EATING THINGS THAT GO JUMP IN THE NIGHT.

Deposits at Lakeside Cave spanning the last 5000 years contain evidence of grasshopper (*Melanoplus sanguinipes*) use. During the summer, salted and sun-dried hoppers are washed up on beaches and form windrows up to 15 cm x 1 m x 10-15 km. Hoppers produce over 3000 calories/kg, and return rates averaged 1,560,000 cal/hr. Digestible proportions cannot be determined, but assuming only 10% is usable, an average return rate of 156,000 cal/hr is still evident. Optimality models suggest hopper collection should be favored over all other resources, but rankings may need to be modified by volume and transportation problems. (60)

Madsen, John, Paul Fish and Suzanne Fish (Arizona)

SOURCES, PROCUREMENT, AND EXCHANGE OF LITHIC RAW MATERIALS IN THE NORTHERN TUCSON BASIN.

Collections encompassing a full range of site types are available from total survey coverage of 135 sq. mi. in the northern Tucson Basin. Analysis of lithics in these collections reveals a massive scale of intraregional circulation in raw materials. Identification of geographically restricted quarrying loci permits recognition of sources for specific raw material classes. Distributional studies of artifacts and debris provide insight into procurement, exchange, and manufacturing behavior. (77)

Magennis, A. L. (see Martin, D. L.) (47)

Maher, Thomas O. (Illinois, Urbana)

HOLDING: A HOPEWELL COMMUNITY IN THE AMERICAN BOTTOM.

The FAI-270 project has recently completed excavations on the first single component Hopewellian village found in the American Bottom of Illinois. Complete excavation of the Holding site has provided a unique insight into the community plan of a small Middle Woodland village. The ceramic assemblage indicates connections with both the Illinois River valley, and the lower Mississippi valley. Artifacts of copper and obsidian, as well as pieces of mica, galena and fluorite were recovered. These, in addition to a simple ceramic figurine, indicate that the site was involved in the Hopewell interaction networks. (46)

Mainfort, Robert C. (Tennessee Division of Archaeology) and Robert L. Thunen (Northwestern)
THE "EASTERN CITADEL": A CIRCULAR ENCLOSURE AT PINSON MOUNDS.

Geometric enclosures dating to the Middle Woodland period are relatively rare in the mid-south. This paper examines the circular embankment at the Pinson Mounds site in western Tennessee. The site itself is one of the largest Middle Woodland ceremonial centers and includes at least a dozen mounds within an area of 160 ha. Relationships between the embankment and the large platform mounds at the site are discussed. The distribution of geometric embankments in the mid-south is reviewed. (21)

Maldonado C., Ruben (Centro Regional de Yucatan, INAH)
AKE, A KEY SITE IN NORTHERN YUCATAN.

The ruins of Ake cover approximately 4 km² and form part of a major system of sites, whose main axis was 32 km long and 11.50 m wide and that ran from Ake to Izamal, permitting the definition of an archaeological region. Recent investigations in Ake provide a developmental sequence from Pre-classic to Classic and Postclassic times. (27)

Mallory, John K. (Penn State) and James J. Sheehy (Penn State)
TERMINAL CLASSIC OCCUPATION IN GROUP 9M-22: EVIDENCE FOR SOCIAL CONTINUITY AFTER THE COLLAPSE OF CENTRALIZED RULE IN COPAN.

Architectural succession, the differential abandonment of structures, the presence of San Juan Plumbate ceramics, and evidence of the movement of sculpted stone in two patios—A and B—of Group 9M-22 are examined. It is suggested that the occupation of Group 9M-22 continued after the collapse of centralized political rule, and demonstrates the viability of smaller kin-based units in the face of supra-political disintegration. The implications of these data are discussed. (38)

Malpass, Michael (Washington & Lee) and Charles Stanish (School of American Research)
PROCESSES OF AGRICULTURAL EXPANSION AND CONTRACTION IN THE COLCA AND OTORA DRAINAGES, PERU.

Preliminary research in both areas has identified patterns of terrace construction and abandonment. Evidence from the Colca valley suggests that terrace construction began as early as 500-600 A.D., with a significant expansion during Inca times. Abandonment came only during the Early Colonial Period. Terrace construction in Otorá began around 1000 A.D., and subsequent occupations are located farther upvalley, indicating continual agricultural abandonment toward the water sources for irrigation. Social and environmental factors responsible for the differences between these two areas will be discussed. (11)

Mangan, Patricia H. (Massachusetts, Amherst)
AN EXAMINATION OF THE TRANSITION FROM FEUDALISM TO CAPITALISM THROUGH A LOCATIONAL ANALYSIS OF SETTLEMENTS IN CATALUNYA, SPAIN.

Changes in land use patterns are examined during the transition from feudalism to capitalism, a period of major economic reorganization. Abundant historical records documenting this transition are preserved in Catalunya. Rank, size and nearest neighbor techniques are used to examine the changes in settlement which structured both the concentration and distribution of surplus. My analysis demonstrates that settlement processes are not exclusively of local origin, but rather are regional in form. (16)

Mann, C. B. (see Voss, J. A.) (6)

Manzanilla, Linda (UNAM, Mexico)
NEW DATA ON THE "OLD CITY" OF TEOTIHUACAN.

Preliminary data on recent excavations in the Oztoyohualco sector of Teotihuacan will be presented. The "Old City" of Teotihuacan Project is aimed to the comprehension of economic and social factors involved in the establishment of urban society in the Teotihuacan Valley. Through the extensive excavation of residential compounds (Patlachique and Tzacualli phases), we intend to analyze functional diversity within each compound. One of the goals is to detect a redistributive network in the hands of the theocracy and its repercussions on the organization of craft specialization. (15)

Marek, Marianne (Texas A&M)
MIMBRES SKELETAL MATERIAL WITH PRESENCE OF COPROLITES AT THE NAN RUIN, NEW MEXICO.

Results of the analysis of a relatively large, mature male with well preserved coprolites recovered from the NAN Ranch Ruin (LA15049), New Mexico, are presented. Although analysis of the colon contents indicate the use of medicinal plants, no evidence of a severe pathology is apparent. A preliminary analysis indicates healed traumas in the form of a collapsed first sacral element, spondylosis of the fifth lumbar, and deformation of the left ulna. Minor pathological conditions include ossified ligaments and osteoarthritis. (37)

Marino, Bruno (Harvard) and Michael J. DeNiro (California, Los Angeles)
MAYA DIET: THE ISOTOPIC EVIDENCE.

Stable isotope ratios of ¹³D/¹²C and ¹⁵N/¹⁴N of human bone collagen from the Maya sites of Altun-Ha, Lamanai, Sartejena, Nigroman, Tikal, and Altar de Sacrificios are presented. Samples span Pre-classic to historic periods. While no major food revolutions occurred during the periods under study,

stable isotopic data provide subsistence information with which to test hypotheses regarding Maya foodways. The isotopic complexity of Maya habitats warrants investigation of dietary items, since such data will influence reconstruction of human diet. Data from modern flora and fauna are utilized to interpret the human data. Models of Maya subsistence are discussed. (48)

Markman, Charles W. (Northern Illinois)
ABOVE THE AMERICAN BOTTOM: THE LATE WOODLAND-EARLY MISSISSIPPIAN TRANSITION IN NORTHEASTERN ILLINOIS.

Dated deposits from the Cooke Site have yielded new information regarding the sequence in which Mississippian elements were incorporated by groups in the Prairie Peninsula. The site presents a picture of a Woodland group embracing Mississippian maize technology but only limited elements of the ceramic tradition from the south. Evidence from this and other sites in the Chicago Region suggests a continuity in settlement patterns despite the change in subsistence. The incorporation of maize agricultural technology in the area seems to represent no more than an intensification of a pattern of exploitation of a starchy seed complex. Faunal assemblages show that broad spectrum exploitation persisted. (19)

Marks, Anthony E. (Southern Methodist, Dallas)
THE USE OF CONJOINS IN TYPOLOGICAL STUDIES.

One of the side benefits of extensive reconstruction of artifacts from the Middle to Upper Paleolithic transitional site of Boker Tachtit, Negev, Israel, is the view provided of the history of specific tool use. This is particularly clear for a series of burins which pass through a number of different phases of use through various types of resharpening. Each resharpening results in a traditionally different burin "type." Thus, the significance of these types as either functionally or stylistically significant is called into question. (57)

Marmaduke, William S. (Northland Research, Inc.)
SPECIALIZED SHELL ORNAMENT PRODUCTION IN THE HOHOKAM COLONIAL PERIOD.

Production of shell ornaments has long been presumed, but until lately never proved in the study of the prehistoric, landlocked Hohokam culture. Recent excavations at two sites on the periphery of the Hohokam region have uncovered a local shellworking industry, where marine shell, mostly from the Gulf of California, entered the system as unaltered raw material, and exited as a finished good. Evidence for on-site food production and consumption is, alternatively, quite rare, suggesting participation in a regional system of trading relations that may have seen barter of shell ornaments for food supplies. (24)

Marquardt, W. H. (see Crumley, C. L.) (16)

Marshall, James A. (no institutional affiliation)
OCTAGON AND OCTOPUS: INFLUENCE OF THE OCTAGON ON PREHISTORIC CIRCULAR AND OTHER EARTHWORKS IN EASTERN UNITED STATES.

The author, a civil engineer, has surveyed and mapped hundreds of these circles between Ohio and Florida and has found most of them to be based on a simple design octagon drawn from Fibonacci mathematics. This octagon clearly was their basis for determining areas of circles and, quite possibly, also influenced their construction of a giant octopus effigy near Fort Myers, Florida. (21)

Martin, Debra L. (Hampshire), Ann L. Magennis and George J. Armelagos (UMass/Amherst)
DIET, DISEASE, AND DEATH: ANALYSIS OF THE BLACK MESA SKELETAL REMAINS.

The Black Mesa skeletal series (n = 178) sheds light on adaptation to a marginal environment during periods of adoption and development of food production. Trace element analysis is used to suggest the types of foodstuffs consumed. Adaptation is evaluated by a multi-methodological approach using indicators of physiological stress to measure fluctuations in subsistence patterns and to document the impact on patterns of morbidity and mortality. Indicators used include porotic hyperostosis, periostitis, enamel hypoplasia and cortical bone remodeling. Results support the hypothesis that periods of extreme physiological stress correspond to dietary and climatic transitions. (47)

Martin, P. S. (31)

Martinez, Enrique y Ana Jarquin (INAH)
THE CIUDADELA: A FUNCTIONAL ANALYSIS.

During the recent excavations of the Proyecto Arqueológico Teotihuacan 80-82 enormous quantities of material were collected from the North Palace of the Ciudadela, north of the Temple of Quetzalcoatl. A detailed analysis of these materials has been undertaken for the purpose of determin-

ing the function of this enormous architectonic complex and its relationship to the ancient urban center of Teotihuacan. (15)

Masse, W. Bruce (Soil Systems, Inc.) and David Snyder (Southern Illinois, Carbondale)
SMALL ISLANDS WITH LARGE POPULATIONS: THE ROLE OF THE ROCK ISLANDS IN PALAUAN PREHISTORY.

The Palau Archipelago of western Micronesia is dominated by volcanic Babeldaob Island, and by four smaller volcanic islands and two coralline limestone platform islands. Also present are more than 200 small coralline limestone reef islands and islets referred to as "rock islands." The rock islands likely were utilized prehistorically as specialized resource procurement areas: however, between A.D. 1200-1450 at least 11 sizable villages were established and abandoned in rock island settings. This phenomenon is examined in order to shed light on Palauan cultural evolution and on the emergence of social differentiation. (13)

Masse, W. B. (see Nabhan, G.) (26)

Massey, Sarah (UCLA)

EARLY NASCA OCCUPATION OF THE UPPER ICA VALLEY, PERU.

Intensive surface survey provides new and needed settlement pattern data with which to interpret the nature of the early Nasca occupation of the upper Ica Valley. Survey indicates that care must be taken when using established ceramic sequences since regional variation may play a hitherto unemphasized role. Evidence for site hierarchy in the upper valley is presented. On the basis of these data, a model of Nasca culture is put forth. (28)

Mathis, M. A. (see Claggett, S. R.) (29)

Matson, F. R. (70)

Mattfield, Frederic R. (APTech)

A NEW GENERATION OF PHOTOGRAMMETRIC INSTRUMENTS FOR ARCHAEOLOGY.

Photogrammetry has long been used in archaeology, but only in the last several years have instruments become available that were either intended for this field or sufficiently versatile to be readily adapted to it. Most of these instruments, have had features, precision, and price beyond the needs and resources of archaeologists. This paper reviews the design concepts of mechanical and analytical compilers, and then describes a new instrument that, by abandoning one of the traditional design principles, achieves acceptable precision and convenience at greatly reduced cost. (40)

May, E. M. (see MacKinnon, J. J.) (61)

May, J. Alan (Schiele Museum)

SOME SPANISH MISSION INFLUENCE ON ABORIGINAL MATERIAL CULTURE: AN EXAMPLE FROM THE GEORGIA COAST.

Excavations by the American Museum of Natural History were recently completed on an aboriginal site, 9L18, adjacent to a late 16th and 17th century Spanish Mission on St. Catherines Island. Early Spanish accounts were examined prior to excavation for descriptions of aboriginal behavior in the vicinity of Mission Santa Catalina de Guale and hypotheses were generated. Project objectives included testing of these hypothesized Spanish influences in domains of architecture, "borrowed" material culture, and aboriginal subsistence. Illustrative materials suggest greater diversity of recovered remains in response to the Spanish presence. Fewer than expected examples of "borrowed" tools, ceramics and metalwork and plant remains emphasize a continued dependence on corn. (22)

Mc C. Adams, R. (8)

McAllister, Martin E. (Bartow, WV)

THE FORENSIC ARCHAEOLOGIST: THE ROLE OF THE ARCHAEOLOGIST AS A PROFESSIONAL EXPERT WITNESS.

This paper details the author's experience as an expert witness for the government in 17 cases involving archaeological violations and compares it with that of other archaeologists. Emphasis is placed on problems encountered and their resolution, with special attention to the importance of effective communication with attorneys. On this basis, the role of the archaeologist as a professional expert witness is examined and conclusions are drawn concerning responsible, unbiased performance in this role whether for the prosecution or the defense. (51)

McBrearty, Sally (Illinois, Urbana)

THE SANGOAN INDUSTRY IN EAST AFRICA.

The Sangoan industry is known chiefly from collections of heavy duty tools from Central and Equatorial Africa, but reported excavated samples are dominated by small scrapers and retouched

flakes. Excavations at Muguruk in western Kenya provide a Sangoan-Lupemban tool assemblage composed primarily of large and heavy duty forms. A forest habitat has frequently been invoked on the basis of the distribution of Sangoan sites, but data from Muguruk, the nearby site of Simbi, and other localities indicate arid or semiarid conditions during the time of occupation. (53)

McCafferty, Geoffrey G. (SUNY Binghamton)

THE MATERIAL CULTURE OF EARLY POSTCLASSIC CHOLULA AND THE "MIXTECA-PUEBLA" PROBLEM.

Cholula played a crucial role in the development of ideological and material traits characteristic of the Mixteca-Puebla horizon. Analysis of archaeological materials from an Early Postclassic domestic compound in San Andres Cholula has produced information pertinent to social and ethnic composition of the household, religious, and economic relations, and stylistic elements within the material culture. These data are then synthesized into a diachronic framework relating Cholula with the development and distribution of the Mixteca-Puebla tradition. (79)

McCartney, Allen P. (Arkansas, Fayetteville)

THULE ESKIMO DIETARY HABITS: A REVIEW.

North Alaskan, Canadian Arctic, and Greenlandic Thule Eskimos (second millennium A.D.) subsisted on a combination of available arctic faunas (small to large sea mammals, terrestrial mammals, fish, and birds) and summer plants. Publications of the past decade report quantified faunal samples, in contrast to impressionistic estimates that characterize the previous half century. This paper reviews: (1) arctic biogeography, (2) faunal analyses of 10 major and several minor site excavations to show the circumpolar variation of the diets, (3) their technological correlates, and (4) the importance the large bowhead whales had in some locales. (17)

McClung de Tapia, Emily (UNAM), Javier Gonzales Vazquez (UNAM), Amie Limon de Dyer (UNAM) and Judith Zurita Noguera (UNAM)

ARCHAEOBOTANICAL STUDIES AT TEOTIHUACAN, 1972-1986.

Archaeobotanical studies have included the analysis of flotation samples as well as analysis of pollen and phytoliths. Samples have been studied from stratigraphic tests as well as extensive excavations in the urban zone under the auspices of several different projects (Univ. of Rochester, Penn State, Inst. de Invest. Antropologicas UNAM, and Inst. Nac. de Antropologia e Historia, Mexico). This paper attempts to summarize results obtained. (15)

McConaughy, Mark A. (Illinois State Museum)

THE RENCH SITE EMERGENT MISSISSIPPIAN FARMING HAMLET FROM THE CENTRAL ILLINOIS RIVER VALLEY: FOOD FOR THOUGHT.

The Rench site consists of two burned dwellings and associated features. Nearly 80% of the pottery are locally produced Canton Ware varieties while 20% are Mississippian forms nearly identical to Edelhardt Phase ceramics from the American Bottom. If large pits from Rench were used solely to store maize, they could hold enough to feed between 33 to 44 persons for a year, an enormous surplus. It is possible that Mississippian vessels were traded by American Bottom groups for maize grown at Rench. (49)

McElrath, Dale (Illinois, Urbana-Champaign)

LATE WOODLAND SOCIO-ECONOMIC DEVELOPMENTS IN THE AMERICAN BOTTOM, SOUTHWESTERN ILLINOIS.

Archaeology has yielded a tight sequence for the Late Woodland period (A.C. 300-800) which can be viewed not only in terms of ceramics but also lithic technology, architecture, subsistence, community pattern, and settlement pattern/system. Changes evident in these aspects of society will be considered in terms of their implications for understanding social structure, demography and the cultural foundation which eventually led to the development of the chiefdom/state associated with the Cahokian temple mound and plaza complex. (78)

McGowan, Kevin (Illinois, Urbana) and Thomas J. Riley (Illinois, Urbana)

COLLINS PHASE, LATE WOODLAND-MISSISSIPPIAN RELATIONSHIPS IN EAST CENTRAL ILLINOIS AT A.D. 1050.

Collins, a site on the Middlefork of the Vermilion River, is a phase of the Woodfordian Late Woodland tradition. Although the phase is defined by grit tempered wares a small percentage of Mississippian ceramics similar to Fairmont phase at Cahokia is often found. Mississippian ceremonial elements at Collins include a rectangular platform, mound alignments dependent on solar events, gaming stones,

and projectile points. Results of Neutron Activation Analysis are used to test whether trade or the exchange of people or ideas are responsible for the Mississippian items recovered. (49)

McGuire, R. H. (see Ackerly, N. W.) (56)

McGuire, Randall H. (SUNY, Binghamton) and Margret Conkey (SUNY, Binghamton)
CRITICAL THEORY FOR BEGINNERS: INTRODUCING THE PAST IN THE PRESENT.

Critical theory originates in a critique of ideology; the givens and assumptions which distort reality and thereby conceal, legitimate and reproduce asymmetrical power relations. In the 1960s this program was recast by a second generation of theorists, most notably Habermas. This paper will briefly review both the shared underlying program of critical theory and the variety of approaches within this program in order to place the papers of this symposium in their broader theoretical and intellectual context. (8)

McGuire, R. H. (see Conkey, M.) (8)

McKinnon, Neil A. (Calgary)
RECONSTRUCTION OF BISON DIETS AND CLIMATE USING STABLE CARBON ISOTOPES.

Bison bones from the Head-Smashed-In site in southern Alberta are analyzed for their stable carbon isotope ratios. The ratios are then used to estimate the fractions of the diet derived from cool (C3) and warm (C9) season grasses. Inferences are made concerning the environment and climate during the time the jump was in use. Culture change in southern Alberta is examined in light of the climatic evidence extracted from the carbon fractions in the bones. (76)

McKusick, M. B. (36)

McMillan, B. (39)

McNeely, Roger (Geological Survey of Canada, Ottawa)
THE GEOLOGICAL SURVEY OF CANADA DATE LOCATOR FILE: A PROGRESS REPORT.

A database of selected information on samples dated by the Geological Survey of Canada Radiocarbon Dating Laboratory has been developed as a service to Quaternary researchers. Database searches are facilitated by using indexed fields (KEYS). Retrieved information can be printed in a wide variety of formats including index cards for personal use and tables of data for publication. Data tables can be transmitted to word processors and incorporated directly into manuscripts. Future enhancements to the system will include the transfer of extracted data files to other locations and the generation of sample location overlays and maps. (55)

Means, B. (see Hudson, L. B.) (9)

Meddens, F. M. (see Keeley, H. C. M.) (11)

Mehrer, Mark William (Illinois, Urbana-Champaign)
THE MISSISSIPPIAN HOUSEHOLDS OF CAHOKIA'S HINTERLAND.

Mississippian hinterland households in the American Bottom constitute a dramatic shift from previous Late Woodland and Emergent Mississippian settlement patterns. The excavation of dispersed communities in the area has revealed the range of micro-settlement variation and demonstrated area-wide trends as well as the effects of local geography. Range and a dozen other sites are used to give substance to the rise and fall of social complexity as it was known in Cahokia's backwoods communities. (78)

Meighan, Clement W. (UCLA, Los Angeles)
TEMPORAL FLUCTUATIONS OF MOLLUSCAN SPECIES IN CALIFORNIA SHELL MIDDENS.

Earlier workers have documented linear changes through time of shellfish species in California sites. These changes have been explained as due to environmental factors (such as silting in of lagoons or changing ocean temperatures), or cultural factors (overexploitation of favored species). Review of species changes over long time periods (using an 8000-year sequence from the channel islands) shows a cyclical pattern and reveals more complex interplay of natural and cultural forces than was previously known. (30)

Mellars, Paul A. (Cambridge, England)
SOCIAL, ECONOMIC AND ECOLOGICAL RELATIONSHIPS IN EARLY POSTGLACIAL BRITAIN.

This paper reviews recent work on the British Mesolithic, paying particular attention to social and economic patterns in the early postglacial, and to the subsequent transition from "earlier" to "later" Mesolithic adaptations. New evidence for subsistence and settlement strategies are reviewed, together

with the accumulating evidence for more dynamic patterns of cultural/ecological relationships which emerge in the postglacial forested environment. (7)

Mester, Ann M. (Illinois, Urbana)
PEARL DIVERS OF LOS FRAILES: MANUFACTURE AND TRADE IN MANTENO CHIEFDOMS.

Recent excavations at Los Frailes in coastal Ecuador document a specialized mother-of-pearl workshop. Chipped stone drills, stone polishers, and raw, in-process, and finished shell artifacts provide extensive data on Manteno manufacturing technology, while diving weights indicate that the oysters were harvested locally. A summary of ethnohistorical documents pertaining to pearl diving is presented, and socio-economic model for mother-of-pearl trade in pre-Conquest times is proposed. (20)

Metzger, M. (see Hesse, B.) (32)

Michaels, George H. (Texas A&M)
NAN-15: AN EXAMINATION OF THE ECONOMIC ROLE OF OUTLIER VILLAGES AMONG THE CLASSIC MIMBRES.

Recent excavations of a Classic Mimbres outlier pueblo (NAN-15) associated with either the Swarts Ruin or the Nan Ranch Ruin are discussed. The site is examined from the standpoint of possible economic connections to larger main valley pueblos. Various models of regional and subregional settlement patterns established for the Mimbres area are discussed and evaluated for congruence with the data from NAN-15. Arguments are put forth for the economic importance of outlier villages. (37)

Mignon, Molly R. (Simon Fraser)
ETHNOHISTORIC DOCUMENTS IN THE STUDY OF MAYA DIET AND SUBSISTENCE.

Descriptions of early Maya hunting, fishing and cultivation practices yield useful data for reconstructing prehistoric diet and subsistence, especially when used in conjunction with results of field research. Importance of faunal resources in native diet and economy may have been greater than traditionally supposed. Faunal analyses, paleonutritional and paleopathological studies of human skeletal remains, and archaeological evidence for animal management support this view. The potential of ethnohistoric resources for reassessing prehistoric faunal utilization is considered. (48)

Milbrath, Susan (Florida State Museum)
ASTRONOMICAL IMAGES IN MESOAMERICAN ARCHITECTURE.

Decoration of temple facades often relates to the astronomical orientation of Classic and Post-Classic Mesoamerican buildings. The most dramatic examples involve a play of sunlight and shadow that highlights seasonal images on the facade. Analysis of a building's orientation towards the rising or setting position of a specific astronomical body is useful in defining the symbolism of complex decorated facades. In ancient Mesoamerica, artists, architects, and priest-astronomers worked together to achieve a harmonious link between earthly structures and the structure of the cosmos. (79)

Miller, B. J. (see Debusschere, K.) (6)

Miller, Mark E. (Wyoming, Laramie)
TECHNOLOGICAL AND FUNCTIONAL CHARACTERISTICS OF PROJECTILE POINTS FROM THE SCOGGIN BISON KILL-BUTCHERY SITE IN SOUTHCENTRAL WYOMING.

Archaeologists generally recognize a wide range of morphological variability in projectile point assemblages from Middle Plains Archaic sites on the Northwestern Plains. Two of the most distinctive types are lanceolate and side-notched forms. Both occur at the Scoggin site. This paper describes artifacts recovered from investigations at the site and compares their technological and functional attributes with previously recovered projectiles, as well as with artifacts from a possible campsite nearby. The analysis adds to our understanding of the weaponry characterized by some as part of the McKean Complex. (77)

Miller, Naomi F. Washington U., St. Louis)
ETHNOBOTANICAL PERSPECTIVES ON THE RURAL-URBAN CONNECTION.

The rural agricultural economy sustained the urban civilizations of the ancient Near East. Plant remains recovered from urban settlements represent the final deposition of agricultural products and other resources that originated in the countryside, so some understanding of regional agricultural economies and environments may be reached through the study of plant remains from such sites. A more complete understanding can be reached through examination of both rural and urban components of complex settlement systems. A discussion of truncated research in the Kur River basin of southern Iran illustrates these points. (32)

Milner, George R. (Kentucky)

MISSISSIPPIAN PERIOD CULTURAL AND DEMOGRAPHIC TRANSFORMATIONS IN THE AMERICAN BOTTOM, ILLINOIS.

Development of American Bottom Mississippian culture and its decline had far reaching consequences among the prehistoric peoples of North America. This hierarchically organized society had its origins in the preceding Emergent Mississippian period, reached its climax in the Stirling phase (A.D. 1050-1150), and experienced a decline in organizational complexity during the next 250 years. Recent research is reviewed that pertains to the nature and timing of alterations in late prehistoric American Bottom intrasite organization, settlement patterns, social organization, and population density. (49)

Mitchum, Beverly A. (GAI Consultants)

LITHIC PRODUCTION SYSTEMS IN THE CHARTIERS CREEK VALLEY, WASHINGTON COUNTY, PENNSYLVANIA.

Recent investigations of five sites in western Pennsylvania have identified occupations dating to the Late Archaic, Middle Woodland, and Late Woodland periods. These sites are situated in various topographic settings, including floodplains, hillside benches and ridgetops, and include distinct types including lithic quarries, chipping stations, and village sites. The analysis of the quarry debris along with the analysis of the debitage from the other sites in the valley, and the use of statistical indices and spatial analyses are used to reconstruct the lithic production systems in the valley. (46)

Mithen, Steven (Cambridge)

MODELLING FORAGING ACTIVITY ON ORONSAY.

The archaeological record from the Island of Oronsay is sufficiently detailed to test hypotheses concerning foraging decisions by the Mesolithic groups. A model for hunter-gatherer decision making is presented and simulation used to predict which resources would be chosen from those available. The results are compared to the reconstructed diet from the excavation of shell middens on the island. Areas of agreement and deviation between the predicted and actual diets and the implications for hunter-gatherer choice behavior are discussed. (7)

Moore, Andrew M. T. (Yale)

LATE PLEISTOCENE AND EARLY HOLOCENE ADAPTIVE CHANGE IN NORTH SYRIA: THE CONTRIBUTION OF A RECENT SURVEY.

Two related problems in Southwest Asian prehistory require further research: first, the processes of late Pleistocene adaptive change that resulted in domestication and sedentism; second, the development of early Holocene agricultural societies into more complex social and economic systems. A recent survey in north Syria located appropriate sites and raised further questions about the alterations in patterns of settlement that accompanied these major adaptive changes. Sites in two regions will be investigated that should provide deeper understanding of these problems. (23)

Moore, A. (55)

Morse, Dan F. (Arkansas)

CROSS CULTURAL SIMILARITIES BETWEEN THE CAHOKIA REGION AND THE CENTRAL MISSISSIPPI VALLEY A.D. 800-1150.

Just before A.D. 800 to A.D. 1150, there were a number of traits held in common in the American Bottom and in the Central Mississippi Valley. Some of these traits, such as conch shell and Mill Creek chert hoes, consisted of artifacts and/or raw material derived from Cahokia or nearby. Other traits, such as maize, the bow and arrow and shell tempered pottery, represent similar response to external stimuli, and a similar cultural evolutionary history. There is surprisingly little artifactual evidence of direct contact between the two regions. There is no evidence of a population movement from Cahokia south. (49)

Morse, D. (78)

Moseley, M. (see Mujica, E.) (3)

Moseley, Michael E. (Florida, Gainesville)

MARITIME FOUNDATIONS OF ANDEAN CIVILIZATION: AN HISTORICAL OVERVIEW.

In the 1960s, archaeological investigations on the Central Coast of Peru by Edward Lanning and later by Michael Moseley brought the problem into sharper focus and ultimately resulted in the formulation of the Maritime Foundations hypothesis for Andean Civilization (MFAC). Subsequently, a number of scholars who had not excavated late Preceramic Period coastal sites raised several objections to the MFAC. However, recent excavations aimed specifically at understanding coastal

preceramic subsistence systems have supported the MFAC. The nature and importance of coast-highland interactions during the late Preceramic Period remain to be investigated. (73)

Moseley, M. E. (see Clement, C. O.) (11)

Moseley, M. E. (11)

Mujica, Elias (San Marcos, Lima) and Michael Moseley (Florida)

COASTAL RESEARCH IN THE VICINITY OF ILO, PERU.

Radiocarbon assays on a shell midden verify a Pacific coastal occupation in southern Peru beginning some 10,000 years ago. Local populations were initially dependent upon marine resources that were subsequently complemented by the introduction of irrigation agriculture to the Moquegua Valley north of Ilo, and to areas of adjacent coastal springs. There is a limited Tiwanaku presence in these agricultural zones. However, coastal farming reached its maximum areal extent during the subsequent Chiribaya occupation, after which the amount of land under cultivation has steadily declined. (3)

Mulholland, Mitchell T. (Rensselaer Polytechnic Institute)

REMOTE SENSING AND COMPUTER ANALYSIS: ALTERNATIVES IN THE EVALUATION OF UNMARKED CEMETERIES.

In response to the traditional double standard concerning the excavation of Native American versus European American burials, legislation has been introduced that protects unmarked grave sites. Computer analysis of electrical resistivity and proton magnetometer surveys is an alternative to extensive field excavation. Examples include the evaluation of a seventeenth century "burying ground" associated with John Eliot's "Praying Indian" town of Hassanamesit in central Massachusetts. (40)

Mulholland, Susan C. (Minnesota, Duluth)

A TEST OF PHYTOLITH ANALYSIS AT BIG HIDATSA, NORTH DAKOTA.

Big Hidatsa is a late prehistoric-early historic Plains Village on the Knife River. Ethnohistorical studies and accounts indicate an extensive use of corn (*Zea mays* L.). Preliminary phytolith analysis failed to find significant amounts of corn leave phytoliths (cross-shaped) in the sediments. Further study reveals that corn cobs produce abundant phytoliths of a different shape. Ethnohistoric reports indicate leaves husks were left in the field while cobs were threshed in the village. Phytolith analysis should consider differential use of plant parts and specific sediment provenience. (64)

Muller, Jon (Southern Illinois, Carbondale)

STRUCTURE AND FORM OF THE MUD GLYPH CAVE ART.

An isolated wet cave in Tennessee has over 200 linear metres of mud-engravings done with the hand or with pieces of cane or torch. An analysis of the formal structure of the style and the themes present shows many formal similarities with other Mississippian-period art, but some striking differences as well. Shape-grammar methods are employed to clarify the relationships of the various motifs in formal and structural ways. Computer-assisted analysis of the designs is described. (52)

Munson, C. A. (see Tankersley, K. B.) (75)

Munson, Cheryl Ann (Indiana), Patrick J. Munson (Indiana), and Kenneth B. Tankersley (Indiana).
MIDDLE WOODLAND QUARRYING AND USE OF ARAGONITE FROM WYANDOTTE CAVE, INDIANA.

Wyandotte Cave was utilized during the Terminal Archaic through Middle Woodland periods for the extraction of a variety of minerals. Aragonite, a relatively rare form of speleothem material, was extensively quarried during the Middle Woodland Period. Quarrying activities are described, microscopic and chemical "fingerprints" of Wyandotte aragonite are presented, and artifacts of this material are identified from surface Middle Woodland sites in the Midwest. (75)

Munson, P. J. (see Tankersley, K. B.) (75)

Munson, P. J. (see Munson, C. A.) (75)

Musil, Robert R. (Oregon, Eugene)

FUNCTIONAL EFFICIENCY AND TECHNOLOGICAL CHANGE: A HAFTING TRADITION MODEL FOR PALEO-INDIAN NORTH AMERICA.

Three early projectile point traditions widespread in North America, fluted, stemmed, and notched, are defined largely on the morphological attributes of their haft elements. A model of function in which technological traditions are adopted sequentially through time, because of their efficiency, suggests a possible reason for the adoption of these hafting traditions by diverse cultural groups across most of North America. (31)

Myers, Thomas P. (U. Nebraska State Museum, Lincoln)
STRATEGIES OF PALEOINDIAN HUNTERS.

The Paleoindians were not free wanderers, their activities were patterned around locations where they were confident of finding food or other necessities of life. It is suggested that the selection of these base camps, characteristic of patterned nomadism was contingent on three factors: the presence of wild plant foods and small game which might be relied upon to support the band at a minimum subsistence level; proximity to trails or refuges frequented by big game; and occasional proximity to essential sources of raw materials, notably stone. (76)

Nabergall, Lee (FSU)

FAUNAL STUDIES FROM AN ARCHAIC SITE IN FLORIDA.

A first year report on the faunal analysis from a 7-8000 year old Archaic burial site in Titusville, Florida, will discuss diachronic and spatial fluctuations of species recovered within a pond-marsh environment. The Windover (8BR246) faunal sample is of interest for several reasons: (1) the high quality of preservation, (2) the opportunity it affords taphonomic studies, (3) and the potential for ecological studies of transitional Pleistocene-Holocene environments in east Florida. (71)

Nabhan, Gary (Arizona, Arid Land) and W. Bruce Masse (Soil Systems, Inc.)
FLOODWATER AGRICULTURE IN THE SONORAN DESERT: ETHNOGRAPHIC AND ARCHAEOLOGICAL PERSPECTIVES.

Scant attention has been given to native floodwater farming relative to other agricultural systems in the Southwest. Floodwater farming was likely important across much of this region, and remnant systems still persist in the Sonoran Desert. In deciding where to place fields and water control structures, modern O'odham and Sonoran farmers use as indicators watercourse size, floodplain width and gradient, soil type, and plant cover. Correlations and discrepancies between ethnographic data and archaeological data are discussed. (26)

Nagel, Brian L. (Rochester Museum and Science Center)

FORGOTTEN PEOPLE OF THE PAST: NINETEENTH CENTURY INSTITUTIONAL BARRIERS IN ROCHESTER, NEW YORK.

Individuals forced to rely upon the resources of poorhouses and insane asylums are examples of those often lost in traditional historic accounts of our past. Investigation of a pauper cemetery has revealed information concerning changing public perception of the poor. Originally designed as self-sufficient in the 1820s, the poorhouse preserved the integrity of the inhabitants and made them socially acceptable. Over the next forty years the perception of the poor house became equated with the burden of the socially unwelcome. (34)

Nash, D. T. (see Petraglia, M. D.) (74)

Nash, David T. (New Mexico, Albuquerque) and Michael D. Petraglia (New Mexico, Albuquerque)
NATURAL DISTURBANCE PROCESSES: A CONSIDERATION OF ARCHAEOLOGICAL METHOD AND THEORY.

Natural disturbance processes operate to restructure the archaeological record. This metamorphosis may be minor, or it may seriously distort the cultural patterning represented at the period of initial deposition. For this reason, it is important to evaluate the potential contribution of natural disturbance processes in reorganizing the archaeological record. In order to accurately interpret material arrangements, investigators must first develop both methods and theories which address the role of natural formation processes. (74)

Nash, Michael A. (Texas A&M)

MAYA SUBSISTENCE ECONOMICS AS REFLECTED IN LITHIC FUNCTIONAL ANALYSIS IN NORTHERN BELIZE.

Subsistence economics has been the focus of a great deal of recent research in the Maya Lowlands, but the lithic evidence for subsistence activities has been relatively neglected. During the Preclassic and Classic periods, lithic tools produced at the site of Colha were adapted to unique local agricultural conditions present at several sites in Northern Belize. Specialized agricultural technology and cultivation procedures, as well as other subsistence activities, are reflected in use-wear analyses done on tools from these various sites. (61)

Nelson, B. A. (see Nelson, M. C.) (70)

Nelson, Margaret A. (Washington, Seattle), Pamela J. Ford (Washington, Seattle), and Julie K. Stein (Washington, Seattle)

TURNING A MIDDEN INTO MUSH: EVIDENCE OF ACIDIC CONDITIONS IN A SHELL MIDDEN.

Two strata that are commonly observed in Northwest shell middens are dark organic-rich layer overlain by a lighter-colored shell-rich layer. The presence, in the lower dark midden, of severely

corroded shell, bone, and plant remains, as well as high percentages of organic matter, suggests that the lower midden originally contained a highly acidic substance that has been neutralized by dissolution of the shell and bone. Evidence suggests that deposition of the acidic substance never occurred in the upper lighter-colored shell-rich layer. (18)

Nelson, Margaret C. (SUNY Buffalo) and Ben A. Nelson (SUNY Buffalo)
SPATIAL DISTRIBUTION OF PROVISIONALLY DISCARDED ARTIFACTS IN HIGHLAND MAYA HOUSEHOLDS.

Although archaeologists are placing increasing emphasis on the household as a unit of analysis, ethnographic explorations of household-level artifact patterning remain rare. Ethnoarchaeological observations of 51 households provide a basis for deriving principles of artifact distribution. The focus is on provisionally discarded artifacts. The distribution of provisionally discarded ceramic vessels is compared to that of other less common artifacts and the archaeological implications of the patterning are discussed. (70)

Netherly, Patricia J. (Massachusetts, Amherst)

CULTURAL FLORESCENCE IN NO MAN'S LAND: THE JAMBELI COMPLEX IN EL ORO, ECUADOR.

Continuing archaeological investigation in El Oro Province indicates that there was a Late Formative florescence in this region which is designated the Jambeli Complex. From 100 to 300 A.D. ceramics related to the Jambeli Complex dominated the northern shore of the Gulf of Guayaquil and the lower Guayas Basin; however, styles originating in these areas or inland Manabi do not occur in El Oro. Only two temporally discontinuous ceramic phases of the Jambeli Complex, have been securely dated and put into cultural context by excavation. The sites, O-O-Ar-Ar-25 and O-O-Ar-Ar-160, will be briefly described and the ceramic assemblages characterized. (20)

Neumann, Thomas W. (Syracuse)

VARIATION IN EMBODIED ENERGY DUE TO CLIMATIC CHANGE: ONONDAGA IROQUOIS A.D. 1290-1550.

According to information theory, cultural elaboration will vary directly as ecosystem energy flow, dictated by prevailing climate, varies. This is tested by examining eleven prehistoric Onondaga sites, dated from A.D. 1290 to A.D. 1550, from central New York. These sites represent the Pacific I and NeoBoreal climatic minima and the Pacific II climatic maximum. Consequently, cultural elaboration, as represented in the assemblage and site features, should be relatively low during the climatic minima, and should be increasing during the maxima. Results indicate that this does occur. (12)

Newsom, Lee A. and Barbara A. Purdy (Florida)

DUGOUT CANOES FROM FLORIDA.

The Florida Dugout Canoe Retrieval Project was initiated in 1978. Since that time information on 163 canoes has been compiled. Discoveries have occurred in every portion of the state, with the greatest concentration coming from the north-central highlands. The canoes range in date from ca. 1090 B.C. through the historic period. Four different "styles" of canoe manufacture and design have been identified, along with evidence of a change in preference for wood species through time. This paper gives an overview of the canoes, their significance, and plans for preservation. (36)

Nials, E. L. (see Fish, S. K.) (26)

Nials, E. L. (see Shelley, P. H.) (74)

Nichols, Deborah L. (Dartmouth) and Katharine W. Fernstrom (Southern Illinois)
THE IMPACT OF FOOD PRODUCTION ON POPULATION AND SETTLEMENT PATTERNS DURING BASKETMAKER TIMES ON NORTHERN BLACK MESA.

The adoption of corn farming permitted more permanent and denser occupations of marginal uplands like northern Black Mesa. Archaeological surveys of a 289 km² area on the mesa have recorded 126 Basketmaker II sites in contrast to only eight hunter-gatherer Archaic campsites. Changing hydrologic conditions and increased agricultural production at the end of the Basketmaker II period are thought to account for the abandonment of habitations in drier uplands and the concentration of settlements in well-watered locales in the Kayenta area. (47)

Norr, Lynette (Illinois, Urbana-Champaign) and Richard G. Cooke (STRI, Panama)
THE IMPORTANCE OF MARINE AND TERRESTRIAL PROTEIN RESOURCES IN TWO AGRICULTURAL POPULATIONS FROM CENTRAL PANAMA.

Stable carbon and stable nitrogen isotopic ratios in bone collagen from two prehistoric agricultural populations near the Pacific coast of central Panama indicate a shift in protein resource utilization

from terrestrial to marine organisms between 240 B.C. and A.D. 1130. Analysis of the faunal remains supports this dietary interpretation. Population growth, overexploitation of terrestrial fauna, and socio-economic factors are considered for the observed shift in protein resource exploitation. (71)

Nurkin, Gary H. (Carle Place, NY)

PRACTICAL PROBLEMS IN COMMENCING AN ARCHAEOLOGICAL PROSECUTION.

Since the passage of ARPA, federal prosecutors have been utilizing that statute to protect archaeological remains situated on public and Indian lands. However, the criminal penalties imposed by that law depend upon the "value" and the type of resource that was altered or removed, the degree of damage done to the site, or the location of the site. Although ARPA provides some form of protection for these remains, not all archaeological resources are accorded absolute protection. This paper analyzes the effectiveness of ARPA and discusses the problems that must be overcome in order to obtain a criminal conviction. (51)

Nygaard, Signe E. (Bergen, Norway)

SUBSISTENCE STRATEGIES AND SETTLEMENT PATTERNS IN THE MESOLITHIC PERIOD, ALONG THE WEST COAST OF NORWAY.

Throughout the mesolithic the majority of sites were located on the coast, clearly indicating the importance of marine food resources. In the southern parts of the study area, the inner fjords and higher mountains do not seem to have been exploited before the end of the period, when a new food procurement strategy developed with a strong emphasis on hunting and the possible keeping of domesticated animals. Over time the sites increase in number and size, and the increasing amount of tools and debitage deposited on them suggest changes to more permanent types of settlements. (7)

O'Brien, M. J. (43)

O'Brien, Patricia J. (Kansas State)

CAHOKIA AND STEED-KISKER: THE EDGE OF THE CENTRAL PLAINS.

Wedel proposed the Steed-Kiser site represented a migration from Cahokia based upon burial, ceramic and lithic similarities and a lack of antecedents in the Kansas City locality. Today other shared traits would be wall trench construction, posthole basin houses and solstice shrines. Settlement patterns suggest a highly dispersed population. We find the sunburst and cross symbols of the S.C.C. but not temple mounds or military symbols; burial show only slight evidence of differential wealth; corn/squash/sunflower farming occurs but with the domestic bean added; and in contrast to Cahokia there is no evidence of stratification. (49)

O'Malley, Nancy (Kentucky)

ADENA MOUND CERAMICS IN RETROSPECT.

As part of a larger project on reevaluation of Adena Culture in Kentucky, a ceramic study of the Robbins Mounds (15Be3), the Wright Mounds (15Mm6) and the C&O Mounds (15Jo9) is presented. Analysis concentrates on morphological and technological characteristics, utilizing macroscopic and microscopic techniques. Thin-sections are examined for internal technological characteristics while macroscopic examination focuses on vessel form and aspects of the pastes to derive functional estimates. The data are integrated with contextual information in order to examine prehistoric behavior associated with mound ritual and/or construction. (19)

O'Shea, J. (68)

Odell, George H. (Tulsa)

MAKING ROCKS SPEAK: DETAILED LITHIC COMPARISONS IN THE ILLINOIS VALLEY.

Lithic analyses have been accomplished for nine components from four undisturbed sites in the Lower Illinois Valley. The Napoleon Hollow, Campbell Hollow, Smiling Dan and Hill Creek sites span 8000 years, from the late Early Archaic through the Mississippian period. Intra-assemblage analyses and comparisons have provided information on the following issues: (1) chronological and phase discrimination; (2) technological trajectories and lithic reduction sequences; (3) functional discrimination and comparisons with non-lithic data sets; and (4) differential use of raw material. (57)

Ollendorf, Amy L. (Minnesota, Duluth)

PHYTOLITHS FROM PHILISTINE OCCUPATION SURFACES AT TEL MIQNE (EKRON), ISRAEL.

Tel Miqne is the largest Iron Age site in Israel and is identified as biblical Ekron. Since little is known about Philistine daily life, phytolith-rich sediments from Philistine occupations at Tel Miqne are examined for possible remains of plant mats used as floor coverings. Phytoliths from the sediments are compared to those extracted from a reference collection of modern Israeli grasses, sedges, and

rushes. This paper explores the possibility that the Philistines used a reedgrass (*Arundo* sp. or *Phragmites* sp.), currently growing in the adjacent wadi. (64)

Orser, Charles E., Jr. (Louisiana State)

THE DEATH OF THE SOUTHERN PLANTATION: A LEGEND FOR MODERN ARCHAEOLOGY.

One great legend of the American South is that the plantation system was destroyed by the Civil War. This story holds that after 1865 the four million slaves freed in the South were given 40 acres and a mule, while plantation owners saw their lands divided and their plantation system dismantled. Although something much different occurred, this difference eluded even federal census takers for 40 years. This modern legend has a great effect on how archaeologists perceive and analyze the plantation world. This legend is examined and the variable interpretations that can result are discussed. (8)

Owsley, Douglas W. (LSU) and Timothy G. Baugh (Colorado, Boulder)

CUT HUMAN BONES FROM THE EDWARDS I SITE (34BK2).

Edwards I, in southwest Oklahoma, is a fortified village affiliated with the Wheeler phase (A.D. 1450-1750) of the Southern Plains. Cut marks on adult cranial and postcranial bones recovered provide evidence of dismemberment and defleshing. The dorsal surface of one femur has evenly spaced grooves and is polished. This bone apparently served as a rasp. Sample characteristics are compared to similar assemblages from the Northern and Southern Plains. The Wheeler phase represents a Plains Caddoan occupation. Ethnographically, these people participated in ritual cannibalism. This study indicates that this was a relatively old pattern among these Southern Plains people. (67)

Ozok, Steven J.

CERAMIC TRENDS AT THE RANGE SITE AS AN INDICATOR OF CULTURAL CHANGE.

Increasing specialization and complexity commonly attributed to the growth of Mississippian Culture is supported by the analysis of over 4000 vessels associated with the Late Woodland through Emergent Mississippian periods at the Range site. Observed trends in vessel morphology and associated attributes represent more than changing aesthetic tradition. The impetus for ceramic change is best understood relative to the social and economic realms. An interpretation of the dynamics of the evolutionary process is possible given the continuum of occupation at the site. Diversity in the ceramic tradition of the two periods is tempered by gradual changes at the phases level. (78)

Pagoulatos, Peter (UCONN)

TERMINAL ARCHAIC "LIVING AREAS" IN THE LOWER CONNECTICUT RIVER VALLEY.

The purpose of this paper is to present current data on Terminal Archaic "living areas." Statistical procedures such as nearest neighbor analysis and the index of aggregation have been used to discern spatial clustering of tool categories from three presumed "living areas." Dwelling size has been calculated, living space estimated, and activity areas implied. Interestingly, living areas are also associated with hearths, trash pits, and tool caches. Perhaps these associated features represent "household clusters" within larger Terminal Archaic communities. (17)

Parker, Kathryn (Illinois, Urbana-Champaign)

FAMILY GARDENS AND COMMUNAL FIELDS: 600 YEARS OF FARMING AT THE RANGE SITE.

The development of plant husbandry in Range site communities of the Late Woodland Patrick phase (A.D. 600) through the Mississippian Stirling phase (A.D. 1200) is examined. At the foundation of this horticultural system, the family garden persisted as the primary unit of production, in which a highly diverse assemblage of indigenous crops and exotic cultigens assured seasonal security. Change and continuity at Range, and the apparently abrupt assimilation of maize agriculture are reviewed in light of recent excavations at other sites in the American Bottom. (78)

Parker, Patricia L. (Maryland, College Park) and Thomas F. King (Advisory Council on Historic Preservation)

TRUKESOE SOCIAL ORGANIZATION AND ITS ARCHAEOLOGICAL EXPRESSIONS.

Social organization in the islands of Truk is characterized by matrilineages linked by marriages within clusters of lineages whose landholdings constitute organized estates. Archaeological evidence, though not conclusive, is consistent with the notion that this pattern has at least five to six hundred years of time depth, characterizing the late-prehistoric Tonaachaw Pattern. A much earlier archaeological expression, the Winas Pattern, may reflect a different form of social and economic organization. (13)

Parker-Pearson, Michael (HBMC-Monuments, London)

FUNERARY RITES AND LONG-TERM SOCIAL CHANGE IN LATE EUROPEAN PREHISTORY.

Societies have used their ancestral dead as a focus for the conversion of commodities and labor into media of value from which power and prestige might be accumulated. This investment of value

continuously switched contexts with input of labor in burial mounds, ceremonial monuments and settlement defenses, and the destruction of wealth in grave goods and votive offerings. Long term trends are shown from the later Bronze Age to the Roman Iron Age. Underlying such trends are inflationary mechanisms in systems of values which are periodically undermined and replaced. [68]

Parsons, J. (15)

Pasztor, Esther (Columbia University, New York)

PARTICIPATION AND HIERARCHY: THE STRUCTURE OF THE TEOTIHUACAN COMPOSITE CENSER.

This paper examines art works in archaeological contexts from the point of view of their structuring principles. The Teotihuacan composite censer will be compared to what we know of the socio-political organization of the city in Tlaminmilolpa, Xolalpan, and Metepec times (ca. 250-750 A.D.). It will be suggested that the role of hierarchy and of the centralized state have been overemphasized and that a system or an ideology of participation on a wider scale was one of the factors in the longevity and success of the Teotihuacan polity in the Classic period. A comparison with the earlier type of incense burner will provide a historical dimension. (2)

Paulsen, Allison C. (Hartwick)

MOCHE FEATURES IN LATE NASCA CERAMICS.

Some Nasca 7 incorporates specific features of the contemporaneous Moche IV ceramic styles. These features continue into Nasca 8; some become components of Middle Horizon iconography, and at least one persists, through Middle Horizon 3. These traits appeared at a time when there was a diminishing supply of water, raising the possibility that environmental modulations may have played a role in the unprecedented sociocultural changes during the crucial period when Wari was just emerging as a primary Andean center. (28)

Paynter, Robert (Massachusetts, Amherst)

THE POLITICS OF AFRO-AMERICAN ARCHAEOLOGY.

"The problem of the twentieth century is the problem of the color-line. . . ." (W. E. B. Dubois in *The Souls of Black Folk*). This paper considers how archaeological sites have been used in interpretations and disputes surrounding the black-white color line in the U.S. After reviewing the interpretations of major research projects in North America, I consider how a particular National Landmark-National Register site, the W. E. B. DuBois Boyhood Homesite, has figured in political confrontations and archaeological investigations. Alternative analytical and research themes emerge from considering the DuBois material culture, based on recognizing the political position of archaeological investigations. (8)

Paynter, R. (33)

Peak, A. (see Crew, H.) (60)

Pearsall, Deborah M. (Missouri) and Dolores R. Piperno (Smithsonian Tropical Research Institute)
ANTIQUITY OF MAIZE CULTIVATION IN ECUADOR: SUMMARY AND REEVALUATION OF THE EVIDENCE.

Identification of maize phytoliths from the Vegas and Real Alto sites has raised the issue of the antiquity and importance of maize in Ecuador. This paper (1) reviews how maize is identified using phytoliths and addresses criticisms of this technique, (2) presents results of reexamination of Vegas and Real Alto samples using Piperno's three-dimensional phytolith identification method, (3) summarizes paleoethnobotanical evidence for maize in Ecuador, and (4) discusses the role played by maize in Archaic and Formative subsistence. (64)

Pearsall, D. M. (see Hunter, A. A.) (39)

Peebles, Christopher S. (Indiana University)

THE MANY ARCHAEOLOGICAL RECORDS: PROBLEMS OF MEANING, ACCESS, AND PRESERVATION.

Museum collections as a whole, and the documents which establish their role have suffered from benign neglect. Most reports, the next level of record and discourse, if they are written at all, have been actively discriminated against, being cast into the limbo of limited distribution. Future preservation of these most important parts of the archaeological record depend on their wider worth, and this worth will only be established through their use. Yet use depends on knowledge of them and access to them. Increased access will come only through computer-aided databases and management information systems that are available, easy to use, and cost effective. Designs for such information systems form the core of this preservation. (35)

Pena, A. (see Boucher, S.) (27)

Peters, Ann H. (Cornell)

VILLAGE AND NECROPOLIS IN THE PISCO VALLEY.

Fieldwork in the Pisco Valley has attempted to define the relationship between burial sites, habitation sites and local resources at the beginning of the Early Intermediate Period. Key issues include: (1) definition of the nature of the relationships between the local variants of the Paracas, Topara and Nasca traditions and (2) reconstruction of the microenvironments dominant in the lower Pisco Valley, how they were conceived and manipulated in this period. (28)

Peters, Kristen S. (Maryland Historical Trust)

RELIGION, ECONOMICS AND DECISION MAKING: AN EXAMPLE FROM A FREE BLACK 18TH CENTURY SITE IN MARYLAND.

Using historical documents and archaeological evidence, indications of economic decision making and religious beliefs can be traced for one free black site in Oella, Maryland. The site examined is the Benjamin Bancker Site, occupied from 1737 to 1806. As a free black, Bancker made his own economic and religious decisions. Through his personal journal, store ledgers and the material record, decision making can be traced with results unlike the type of decision making evidenced in Afro-american slave sites. (34)

Petherick, G. L. (see Simpkins, D. L.) (50)

Petraglia, Michael D. (New Mexico, Albuquerque) and David T. Nash (New Mexico, Albuquerque)
THE IMPACT OF FLUVIAL PROCESSES ON EXPERIMENTAL SITES.

Experimental sites have been created in order to observe how fluvial processes transform material arrangements. The artificial sites, consisting of cobbles and lithic flakes, have been established in various microenvironmental settings in Jemez Canyon, New Mexico. Over a two year period detailed quantitative measurements have been made, allowing a greater understanding of the relationship between stream energy and artifact distributions. Study of water-assisted disturbance contributes to the distinction between humanly produced versus naturally altered patterns. (74)

Petraglia, M. D. (see Nash, D. T.) (74)

Petry, David E. (Mississippi State)

SOILS AND GEOMORPHOLOGY OF STRATIFIED ARCHAIC SITES IN THE UPPER TOMBIGBEE RIVER VALLEY.

Soil and geomorphological investigations at six sites (the Midden Mounds) in and adjacent to the floodplain of the Upper Tombigbee River provide information on the pedological processes and properties of archaeological site strata. Detailed chemical, physical, morphological and mineralogical analyses have identified and defined the presence of an anthrosol and an early Holocene paleosol at several of these sites. The processes of site and soil development can be correlated with both natural and cultural factors. (59)

Phagan, C. (see Warren, C. N.) (31)

Phelps, D. S. (50)

Piperno, D. R. (see Pearsall, D. M.) (64)

Piperno, Dolores R. (Smithsonian Tropical Research Institute)

TOWARD A SYSTEMATIC CLASSIFICATION OF GRASS PHYTOLITHS: NUMERICAL ANALYSIS OF SILICA BODIES FROM MAIZE AND WILD GRASSES.

Numerical analysis of phytoliths from maize and wild grasses is carried out using discriminant function, a multivariate technique. To provide a measure of interpopulation variability of phytoliths, replicated wild and domesticated grass samples are used. Results show that modern maize and wild grasses can be separated into two groups with a multivariate analysis that includes measurements of cross-shaped phytolith size, three-dimensional structure, and frequency. Cross-shaped phytoliths from archaeological sites in Panama can also be classified as wild or maize using the discriminant function analysis. (71)

Pippin, Lonnie C. (Desert Research Institute)

EPHEMERAL WATER SOURCES OF THE NORTHERN MOJAVE DESERT.

Bedrock catchment basins or *tinajas* have long been known to have been an important source of drinking water in arid environments. Little research, however, has been directed at discerning the nature of these features and their affects on the aboriginal populations. This paper will describe numerous examples of these ephemeral water sources in the northern Mojave Desert of southern

Nevada and, combined with ethnographic analogs for their use, will model the influence of such ephemeral water sources on past adaptive patterns of this region. (26)

Pitluga, Phyllis (Adler Planetarium, Chicago)

ASTRONOMICAL ANALYSIS OF THE NASCA GROUND FIGURES.

In 1941, archaeologist Paul Kosok noticed the June solstice sun setting at the end of a line. Maria Reiche found other solstice lines and a few bright-star alignments. Gerald Hawkins found alignments were no greater than chance. Pitluga's ground survey shows that each of the figures next to a huge quadrangle aimed to a first-magnitude star during the Nasca period. (28)

Plunkett, M. (see Harrold, E. B.) (9)

Porsche, A. (see Speser, P.) (66)

Porter, James W. (Illinois, Urbana)

CRAFT SPECIALIZATION IN THE AMERICAN BOTTOM?

Evidence for craft specialization in the American Bottom is reviewed. Intra-valley trade during the Mississippian period is evaluated. The role of Cahokia in interregional trade during this time period is discussed. The importation of various raw lithic, materials from the immediate hinterland and their redistribution as finished artifacts is part of an active trade network. The detailed analyses of ceramics are used to explore the degree of interaction between the American Bottom and other Midwest areas. (49)

Potter, Parker B. (Brown/Historic Annapolis, Inc.)

IDEOLOGY IN HISTORY AND THE SEARCH FOR THE PAST IN ANNAPOLIS, MARYLAND.

Historical archaeologists are beginning to develop an ability to identify ideology in the archaeological record. Ideology is also one important element in the histories of the places we explore and is a part of the context to which our archaeological data and interpretations should be directed. This paper examines the separations and contradictions in Annapolis history discovered through ethnographic research and their relationship to ongoing archaeological research and interpretation in the city. (34)

Potter, Stephen R. (Nat'l Park Service and Smithsonian Institution)

"... SCATTER'D UPON THE ENGLISH SEATS:" CULTURE CHANGE AMONG NORTHERN VIRGINIA ALGONKIANS.

When the English first settled Tidewater Virginia in A.D. 1607, they found themselves immersed in a sea of Algonkian-speaking Indian groups owing varying degrees of allegiance to the centralized polity of the Powhatan Chiefdom. Algonkian responses to the English invaders depended, in part, on their political relations with the Powhatan and their distance from the earliest permanent English settlements. Consequently, the process of culture change among the Algonkians of northern Tidewater Virginia, further from both Powhatan and the English, was different from that of their brethren to the south. Archaeological and historical data are used to trace the acculturation of the Northern Virginia Algonkians. (33)

Prater, Ariadne H. (1)

Prater, Ariadne H. (Berkeley)

KAMINALJUJU AND THE DEVELOPMENT OF THE SCULPTURAL ARTS.

The site of Kaminaljuyu has provided archaeologists with a large and diverse corpus of sculptural art documenting a long history of sculptural development. It is evident that Kaminaljuyu sculptural art did not develop in isolation but, the relationship of the Kaminaljuyu corpus to other sculptural traditions has yet to be clearly defined. This paper will address some of the fundamental questions concerning the nature of the relationship between Kaminaljuyu sculpture and other analogous sculptural collections. Emphasis will be placed on the role of Kaminaljuyu in the development of sculptural arts during the Late Preclassic and Early Classic periods. (1)

Preucel, Robert W. (UCLA)

PREHISTORIC AGRICULTURAL LAND-USE ON THE PAJARITO PLATEAU: A CONSIDERATION OF THE FIELD HOUSE STRATEGY.

Perhaps the most ubiquitous of all Puebloan structural sites are the so called "field houses" which dot the landscape throughout the American Southwest. This study employs a spatial microeconomic model to address the field house strategy and provides a partial test with archaeological data from the Pajarito Plateau, New Mexico. It is concluded that the field house strategy combines elements of both shifting and sedentary agriculture as an adaptive response to the joint pressures of increasing population density and environmental uncertainty. (56)

Price, Cynthia R. (Southwest Missouri State University)

HISTORIC PERIOD FRONTIER SETTLEMENT IN THE EASTERN OZARKS OF SOUTHEAST MISSOURI.

Settlement throughout the region, ca. 1800-1860, generally fit the organizational pattern characteristic of the immigrant Upland South culture as defined by geographers, historians, and anthropologists. Within the broader pattern, however, local variations in cultural adaptation are evident. The Ozark National Scenic Riverways Project, through historical research and archaeological inspection at a variety of early nineteenth century sites, has provided the opportunity to investigate frontier adaptation on a local level. In the Current River drainage, two organizational systems were operant influenced by economic and environmental variables. (43)

Price, J. E. (see Boutton, T. W.) (43)

Price, James E. (Southwest Missouri State University)

EMERGENT MISSISSIPPIAN OCCUPATION IN THE SOUTHEASTERN OZARKS OF MISSOURI.

Archaeological investigations in the southeastern Ozarks of Missouri have yielded data on Late Woodland and Emergent Mississippian occupations. Shell tempered ceramics, small arrowpoints, and other diagnostic artifacts which occur later in fully developed Mississippian phases can be traced to as early as A.D. 650 in this region. While these early manifestations cannot be termed as traditionally defined, they appear to be direct antecedents of Mississippian phases which flourished in southeastern Missouri and northeastern Arkansas in the 13th and 14th centuries A.D. (43)

Price, T. Douglas (Wisconsin, Madison)

THE MESOLITHIC OF WESTERN EUROPE: DYNAMICS IN TIME AND SPACE.

Prior to the spread of agriculture across the continent there is dramatic evidence for technological innovation, the exploitation of new habitats and species, increasing exchange, sedentism, status differentiation, and conflict in the context of growing population and location constraint. Examination of recent evidence from Western Europe provides some indication of these trends and dramatizes the rapidity of change during this period. Particular emphasis is given to flow and constraint in lithic assemblages and to changes in subsistence strategies. (7)

Prince, David R. (Museums Association, UK)

INFORMATION MANAGEMENT AND STRATEGIC PLANNING.

Any organization which is involved with the management or use of the Historic Environment has needs and objectives. This paper will discuss how these may be expressed as a corporate plan, based around a strategy for information management. The key elements of this strategy will be FORWARD PLANNING and efficient and effective management of resources. Our paper will indicate the areas in which such resources should be allocated. The importance of a sensitivity to the needs of users of information will be particularly explored. (58)

Proulx, Donald A. (Massachusetts, Amherst)

A THEMATIC APPROACH TO NASCA MYTHICAL ICONOGRAPHY.

The advantages of using a thematic approach to Nasca mythical iconography of ceramics will be outlined. This technique views art as a symbolic system similar to a language. By studying consistent correlations of design details of the art style which reflect the set rules of expression under which the ancient artisans worked, meaningful interpretations can be made. Examples of how the author has effectively used this methodology will be presented. (28)

Purdue, James R. (Illinois State Museum, Springfield)

BODY SIZE AND AGE STRUCTURE OF WHITE-TAILED DEER UTILIZED BY THE OSAGE IN MISSOURI.

White-tailed deer from the midwest are shown to vary in size through space and through time. Quality of food in fall and severity of winter weather are thought to be responsible factors. In Missouri, at the time of Osage occupation, deer in the central portion of the state were larger than conspecifics in the southwest. An analysis of the age structure of deer from the Osage sites reaffirms Elder's (1965) findings of a decrease in older animals in assemblages from younger archaeological units. (39)

Purdy, B. A. (see Newsom, L. A.) (36)

Purser, Margaret (California, Berkeley)

WELCOME TO MILLER TIME: AMERICAN BEER BOTTLES AND THE ARCHAEOLOGICAL STUDY OF CONSUMPTION.

Historical archaeologists study consumption patterns to clarify problems created by the expanded scale that mass-production and global distribution systems introduce into their data. Beer bottles,

ubiquitous artifacts in sites post-dating 1873, can provide an excellent case study in the changing consumption patterns of 19th century America. An interpretation of changes in beer drinking at the national level is suggested. Archaeological data from several sites are used to inform and check this interpretation. (54)

Pyburn, Anne (Arizona, Tucson)

THE FUNCTIONAL INTERPRETATION OF PREHISTORIC LOWLAND MAYA NON-MOUND FEATURES.

Identification of prehistoric non-mound features in the Maya Lowlands raises questions about population estimates, interpretations of environmental relationships, and social structural reconstructions based on the configuration of above-ground features. The challenge non-mound data poses to traditional models hinges on the functional interpretation of a wide variety of non-mound activity areas. Evidence from the excavation of a ground-surface floor at Nohmul, in northern Belize, will be presented in terms of its functional implications. (61)

Qoyawayma, A. (see DeAtley, S. P.) (4)

Quilter, Jeffrey (Ripon)

TO FISH IN THE AFTERNOON: BEYOND SUBSISTENCE ECONOMIES IN THE STUDY OF EARLY ANDEAN CIVILIZATION.

Spatial, temporal, and formal dimensions of the archaeological record must be adequately assessed in any discussion: the coast cannot be separated from the highlands, chronometric controls for the Pre-ceramic Period-Initial Period transition must be refined, and variations in characteristics of architectural complexes and settlement patterns must receive attention. The nature of the social formations associated with large architecture must be studied. This paper will focus on recent work at El Paraiso and its relation to these problems. The subsistence economy, regional and inter-regional role, chronology, and society at the site, as evidenced by room organization and other data, will be discussed. (73)

Raber, Paul A. (Pennsylvania Historical and Museum Commission)

EARLY COPPER PRODUCTION IN THE POLIS REGION, WESTERN CYPRUS.

Patterns of local copper industry organization revealed by research in a small region of Cyprus are discussed. These patterns and the changes in them occurring in the period 1000 B.C. - A.D. 1500 are evaluated with respect to three alternative models of metallurgical production. The models relate metallurgical production to local village organization, markets and distribution, and the degree of centralized control. The relation of the observed pattern of development to resource availability and to wider economic and political patterns is examined. (16)

Rabich-Campbell, C. (see Ackerman, R. E.) (18)

Rafferty, Janet (Mississippi State)

SEDENTARY HAMLETS IN THE TOMBIGBEE RIVER VALLEY: EVIDENCE FROM THE GULF FORMATIONAL AND WOODLAND STAGES.

Surface collections and excavations at several sites in eastern Mississippi have provided data on occupation span and community size and permanence. The amount of pottery, number of features, artifact diversity and density, thick black midden, and other indicators tend to support their identification as sedentary habitation sites. Their small size and the distribution of artifacts on the surface indicate that they were hamlets supporting two to five houses. These represent the earliest identified sedentary sites in this region. (69)

Ramenofsky, A. F. (Debusschere, K.) (6)

Rands, Robert L. (Southern Illinois, Carbondale) and Monica M. Bargielski (Southern Illinois, Carbondale)

OPAL PHYTOLITHS, PASTE COLOR, AND CHEMICAL COMPOSITION: COVARIATION IN CERAMICS OF THE PALENQUE REGION, MEXICO.

Research on ceramic paste composition and paste color under refiring explores variability in Maya pottery. Relationship of phytoliths to the color effects of iron is assessed in terms of multivariate chemical composition. Contrasts in these mineralogical variables are pronounced between the "Macro-Palenque" and "Plains" chemical compositional groups. Among the implications addressed are the use of a restricted number of variables in studies of paste composition and the investigation of production sources and localized exchange. (61)

Rands, R. L. (see Holley, G. R.) (61)

Rathje, W. L. (27)

Rattray, Evelyn C. (Instituto de Inves, Antro, UNAM)

A GULF COAST AND MAYA ENCLAVE AT TEOTIHUACAN.

Foreign affiliations of the Merchants' Barrio at Teotihuacan can be demonstrated through the presence of Gulf Coast and Mayan ceramics and goods such as shell, jade, and chert. Excavations have revealed the highly distinctive nature of the architecture in this barrio. Eighteen circular structures with ramps have been excavated. They bear close resemblances to many reported in Panuco and Central Veracruz. The function of the round structures is habitational, providing strong evidence for the presence of a foreign Gulf Coast ethnic group residing at the Merchants' Barrio. (15)

Rechtman, Robert B. (UCLA)

A UNIQUE ARCHAEOLOGICAL EXAMPLE OF ABORIGINAL ISLAND USE DURING THE HISTORIC PERIOD.

To deal with the cultural pressures exerted on them by the Spanish missionization in Southern California, the indigenous populations made use of various responses. An extreme response was apostasy. This can be documented in the archaeological record from an aboriginal site on San Clemente Island (the Ledge Site). Occupied for a short period by a group of mission runaways around A.D. 1800, the site yields data on maritime subsistence as well as a unique record of religious activities known ethnographically. (30)

Redding, Richard W. (Wellesley)

TACTICS OF ANIMAL USE FROM THE EARLY VILLAGE THROUGH THE PARTHIAN PERIOD IN LOWLAND IRAN, MESOPOTAMIA, AND ENVIRONS, WITH A NOTE ON THE DEVELOPMENT OF COMPLEX SOCIETIES.

Using data on the ecology, behavior, physiology, reproduction, and production of sheep, goats, and cattle, expectations for variation in ratios of cattle to sheep and goats, and sheep to goats were established. The expectations were compared to ratios derived from faunal data for 26 sites in the area. The results indicate increasing specialization in subsistence behavior in rural settlements. It is argued that specialization resulted from selection for decreasing the risk of resource failure, and this type of selective pressure contributed to the development of complex societies. (32)

Reese, Jo (Washington State)

MICROARCHAEOLOGICAL ANALYSIS OF THE CHINESE WORKERS' AREA AT THE WARRENDALE CANNERY SITE, OREGON.

Almost 90 volume samples have been analyzed to determine their microarchaeological content in order to identify activity areas in the vicinity of the Chinese living quarters. Microartifacts recovered include metals, glass, ceramics, faunal remains (including large and small mammal bone, fish bone, scales and teeth, and eggshell), brick and mortar, charcoal, and newspaper, as well as other items. Major refuse disposal areas and part of the site boundary can be determined. (65)

Reher, Charles A. (Wyoming, Laramie)

THE EDGE OF EXPANSION: SETTLEMENT ALONG PREHISTORIC FRONTIERS.

Innovative cultural change may be most common on the edges of such expansion zones. The leading edges of numerous prehistoric and early historic population movements were consistently established in certain areas along the Rocky Mountain front. Recent research at several sites on the shortgrass Plains of eastern Wyoming is discussed, including evidence for defensive base camps, attenuation of contacts with the groups in the original home area, changes in subsistence, and increasing simplicity and other changes in the technological assemblages. (67)

Reiche, Maria (Nazca, Peru)

A SUMMARY OF 40 YEARS WORK ON THE NAZCA LINES AND FIGURES.

Four decades of mapping, measuring, and analyzing the concentration of figures and lines next to Ingenio Valley have resulted in a wealth of unpublished data. A summary of these records and of conclusions-to-date will be presented as a legacy to future generations of researchers. (28)

Reid, K. C. (see Ackerman, R. E.) (18)

Reinburg, K. (see Speser, P.) (66)

Reinhard, Karl J. (Texas A&M)

ANALYSIS OF COLON CONTENTS FOUND IN BURIAL CONTEXT.

The analyses of well-preserved colon contents from an inhumation in a midden at Nan Ranch, New Mexico are presented. Final meals consisted of a gruel made from corn, squash, and undomesticated

seeds. Palynological study further indicates that a medicinal tea was made with willow (*Salix* sp.) and mustard (Brassicaceae) flowers. Ritual use of pollen or flowers may be indicated by the high content of corn (*Zea mays*) pollen present in control soil samples. The find of colon contents associated with a completely skeletalized burial is singular in the Mimbres area and may be the first recorded from North America, from an open site. (37)

Reinhardt, Gregory A. (UCLA)

INTERPRETATIONS OF KODIAK INCISED STONES FROM ETHNOGRAPHY.

Incised stones from Kodiak Island, Alaska, represent abstract human faces surrounded by diverse, often elaborate, motifs. Ethnographic materials about Koniag Eskimos have left details that the stones help clarify. They particularly afford an unusual opportunity to study prehistoric clothing, ornamentation, ritual gear, and even intersite variability, aided by this attribute-rich artifact type. (12)

Reitz, Elizabeth J. (Georgia, Athens)

MARITIME RESOURCE USE AT PALOMA, PERU.

Analysis of zooarchaeological evidence from coastal sites shows that marine vertebrates and invertebrates contributed over 60% of the individuals and between 30% and 80% of the biomass from animals. From this perspective, it is predicted that marine resources would have been used extensively on the Andean coast during the Late Preceramic Period. Study of marine resources excavated from Paloma, indicate that use of marine resources was, indeed, extensive. This result is interpreted as evidence that marine resources supported early populations on the Andean coast. (73)

Reyman, Jonathan E. (10)

Rice, D. (see Conrad, G.) (3)

Rice, Prudence (Florida) and Donna Ruhl (Florida)

OENO-ARCHAEOLOGY: A PRELIMINARY REPORT ON BODEGAS (WINERIES) OF THE MOQUEGUA VALLEY.

The Moquegua valley of southern Peru was an important wine-producing area during the seventeenth through nineteenth centuries. The ruins of over 80 bodegas line the margins of the valley, and provide data on structures and facilities for producing and storing wine. Among the most notable features of the wineries are the large ceramic jars—some as much as nine feet deep—set in rows in the bodegas. The dates inscribed on these jars, together with historical information on the wineries themselves, are providing a basis for understanding the later periods of occupation of the valley. (3)

Richardson, James B. III (Carnegie Mus)

MARITIME BEFORE MARITIME: EVIDENCE FOR A PRE-5,000 B.P. MARITIME ECONOMY ON THE PERUVIAN SOUTH COAST.

The evidence for a Maritime economic system is abundant after 5,000 B.P. There is scant evidence for the development of a maritime subsistence base prior to 5,000 B.P., due to the fact that sea-level rise submerged earlier sites on the continental coast. On a raised marine floor south of Ilo, Peru, a shell midden (The Ring Site) has been investigated that has extensive evidence for the use of shellfish, fish, bird, and sea mammals dating to between 10,575 and 5,725 B.P. The data from this site demonstrate that a maritime economy was in place much earlier than previously suspected. (73)

Ricks, Mary E. (Portland State) and William J. Cannon (USDI Bureau of Land Management, Lakeview, OR)

THE LAKE COUNTY OREGON ROCK ART INVENTORY: 7000 YEARS OF NORTHERN GREAT BASIN ROCK ART.

The Lake County Rock Art Inventory has four aspects: (1) site discovery; (2) site survey and recording; (3) literature search and bibliography; and (4) computer data base. The inventory currently includes more than 200 sites, representing a long period of aboriginal occupation. One particularly interesting site contains petroglyphs buried by ash from Mount Mazama's eruption 6700 B.P. Rock art in Lake County, in contrast to that reported elsewhere in the Great Basin, does not appear to be primarily hunting-related. (60)

Riddell, Francis A. and Roger Robinson (California Institute for Peruvian Studies)

TAMBO VIEJO, ACARI: THE VIEW THIRTY YEARS LATER.

Archaeological work at Tambo Viejo, Acari, in 1954 was concentrated on the Inca period of occupation. Of much greater magnitude are the early Nasca remains which are now being investigated. CIPS has an expressed research area which includes the Acari and Yauca river valleys, and the neighboring Atiquipa and Chala regions. A preliminary site survey and evaluation was conducted in 1954 and the program of field research has been renewed by CIPS with expeditions in 1984, 1985, and

1986. Significant Nasca sites have been investigated recently at Quebrada de la Vaca near Chala and in other parts of the study area. (28)

Riddell, F. A. (see Wallace, W. J.) (31)

Riley, T. J. (see McGowan, K.) (49)

Riley, Thomas P. (Illinois, Urbana)

THE ECOLOGICAL CONSTRAINTS OF THE MARSHALLESE CHIEFDOM: DOES IT CONTRADICT OR COMPLEMENT THE POLYNESIAN MODELS?

Archaeological evidence suggests stable settlement in the Marshalls for at least 2000 years. It is argued here that models for the development of chiefdoms that depend on ecological diversity, control of large numbers of people and the need to simplify complex decision making processes are deficient in explaining the rise of chiefdoms. It is argued that the development of chiefdoms is less population dependent than density dependent, and that the management of scarce resources rather than the maximization of resource distribution over an environmentally diverse area are important causal considerations in the rise of chiefdoms in the Pacific as well on continental landmasses. (13)

Ringle, William M. (Tulane) and George J. Bey III (Tulane)

PRELIMINARY RECONNAISSANCE OF EK BALAM, YUCATAN, MEXICO.

The role of Ek Balam in the prehistory of Yucatan is discussed. Brief surveys conducted during 1984 and 1985 indicate Ek Balam was a major regional center, probably during the Terminal Classic. It also lies in a distinctive subregion of the cenote zone and its inhabitants developed a diversified water procurement system. Celchec ceramics and Puuc-style carved stone were found together with architectural and sculptural traits more typical of the Late Classic, perhaps deriving from the south or southeast. The site was also fortified and Ek Balam raises questions about the nature of Puuc expansion into northeast Yucatan. (27)

Riordan, Robert V. (Wright State)

THE POLLOCK WORKS: CHRONOLOGY AND CONSTRUCTION OF A HILLTOP ENCLOSURE.

Intensive excavations of the wall segments of the Pollock Works, a small hilltop enclosure of southwest Ohio, have been particularly revealing of the site's chronology and its manner of construction. A series of radiocarbon dates has been obtained from burned timber features found on and beneath walls. These indicate that site construction began in the first century A.D. and that remodeling/renewal continued for more than a century thereafter. The implications of the burned features for interpretations of the site's use are discussed. (21)

Rivera, M. (3)

Robinson, Brian S. (Brown)

THE REBURIAL BILL IN NEW HAMPSHIRE.

New Hampshire is in the process of developing state policy with regard to the protection of unmarked graves and the disposition of excavated skeletal remains. New Hampshire has a relatively small Native American population, a small number of archaeologists and only about twenty professionally excavated Native American burials. Although all of the numbers are small, the issues mirror those that are being discussed throughout the country. New Hampshire has no state or federally recognized tribes, however, complicating the questions of relationship and representation. New Hampshire will provide another example of the complex concerns that state legislators are asked to consider. (66)

Robinson, Paul A. (RI Historical Preservation Commission)

THE ROLE OF MATERIAL CULTURE IN INDIAN RITUAL DURING THE EUROPEAN COLONIZATION OF NARRAGANSETT COUNTRY.

While particular circumstances are important to understanding different contact histories, a general perspective combining cultural ecology and ideology may provide a framework for unifying particular studies. This perspective is applied to archaeological and archival data to identify and examine strategies used by the Narragansetts in their relations with Europeans in the 17th and 18th centuries. The dynamics of opposing English/European and Narragansett/Algonquian ideologies are expressed in Narragansett ritual and material culture. (33)

Robinson, R. (see Riddell, F. A.) (28)

Robles C., Fernando (INAH-Harvard)

ARCHAEOLOGICAL INVESTIGATIONS IN NORTHERN QUINTANA ROO, MEXICO.

Recent archaeological research at Coba, El Meco, Xelha and San Gervasio has shown that the prehistoric Maya communities of the East Coast region had different developmental trajectories. (1)

Early Classic is characterized by a uniformly close relationship with northern Belize; (2) Late Classic, Coba extended its control to the central coast; (3) Terminal Classic Itza presence was limited to the north coast and Cozumel, and Coba retained control of the central coast (Xelha and Tanchah); (4) Postclassic communities were better developed in the north. (27)

Roe, M. E. (see Ackerman, R. E.) (18)

Rogers, Anne Frazer (Western Carolina) and Howard H. Earnest, Jr. (Harvard)
ARCHAEOLOGY IN THE SOUTHERN APPALACHIAN UPLANDS: SITE SIGNIFICANCE RECONSIDERED.

Recent archaeological research in the uplands has led to the realization that traditional criteria used to evaluate sites are inappropriate. Criteria applied for determination of significance in cultural resource management situations are inadequate, and sites which might provide important information are being destroyed. This results from reliance on the *a priori* notion of Southern Appalachian uplands being used primarily for ephemeral activities. Discovery of several complex sites in upland situations indicates the need for development of new interpretive models. (12)

Rogers, Kristine O. (Portland, OR)
PRACTICAL PROBLEMS IN ARPA PROSECUTIONS.

Since the passage of ARPA, there has not been any felony jury convictions. Pitfalls in ARPA enforcement efforts may be attributed: to archaeologists unfamiliar with litigation requirements, to politicians trying to toss legislative bones to lobbyists, to federal managers indifferent or even hostile to cultural resource management and to inadequate public education. The author, a former federal prosecutor, will discuss pretrial and trial motions and tactics which have been used in ARPA cases by attorneys representing accused violators. Some amendments to ARPA will be suggested, along with a proposal for federal agency initiatives. (51)

Rollefson, G. O. (see Simmons, A. H.) (23)

Rose, Judy A. (USDA Forest Service)
RAILROAD TIE HACKING IN WYOMING: A NATIONAL FOREST PERSPECTIVE.

Development of a thematic National Register of Historic Places nomination has revealed rich and varied extant tie hack resources—including historic camps and cabins, log/tie decks, wagon roads, and dams and flumes—on National Forest lands in Wyoming. Although the Rocky Mountain Cabin style predominates for camp buildings, major stylistic variations indicate differing geographic and cultural influences. Intensive tie hack activities in some areas have resulted in long term environmental effects—particularly fisheries habitat and erosion control problems—that can be clues to historic use. (22)

Rosen, Arlene M. (Israel Geological Survey)
MICROARCHAEOLOGY AT VILLAGE AND CITY SITES IN THE NEAR EAST.

Microarchaeology, the microscopic study of archaeological sediments, can contribute much information to village site archaeology. This includes material culture data for activity area analysis on domestic and industrial scales. It contributes to our knowledge of site formation processes by distinguishing disturbed fills and brick collapse from primary deposits of sediments accumulated during the course of settlement. Examples can be demonstrated at the Israelite and Philistine city site of Ekron (Tel Mique, Israel). (65)

Rosen, Steven A. (Dept. Antiquities, Israel)
ARCHAEOLOGICAL EVIDENCE FOR PASTORAL NOMADISM DURING BYZANTINE TIMES IN THE NEGEV DESERT, ISRAEL.

Archaeological reconnaissance has revealed contrasts in settlement patterns and architecture in the Byzantine period between the highland steppe zone and the true desert. The nature of the archaeological remains, the geographic contexts, and some textual references suggest that these contrasts reflect the differences between the settled urban-agricultural society in the steppe and its pastoral-nomadic relations in the desert. The ability to detect the remains of pastoral nomads, and to construct models of their relations with their settled counterparts is of theoretical interest beyond the Byzantine period in the Negev. (23)

Rosenthal, B. (see Carr, C.) (52)

Ross, Anne (NPWS, Sydney)
GEOMORPHIC EVIDENCE FOR A CULTURALLY CAUSED CHANGE IN SITE USE AND SETTLEMENT PATTERNS IN SOUTHEAST AUSTRALIA.

Throughout southeast Australia a significant increase in the number of sites in the landscape and expansion into previously unoccupied areas has been recorded in the Holocene. The change began

about 4000 B.P. and increased markedly after 2500 B.P. It is argued here that while environment influences site location it was not a major determinant of settlement change and that the increase in site numbers noted is a real reflection of cultural change among the Australian Aboriginals. (63)

Ross, Richard E. (Oregon State) and Kathy Gorospe (Commission on Indian Services)
INDIANS, ARCHAEOLOGISTS, AND BURIALS: THE OREGON EXPERIENCE.

In 1977, the state of Oregon enacted its first Indian burial law. Since that initial cooperative effort between a few Indians and archaeologists, there have been a number of legislative changes in the original law and a whole series of adaptations in the Indian and archaeological communities. Most, but not all, adaptations have been conducive to cooperation between the two sets of people. This is a look at archaeological ethics, a contemporary conflict of interest followed by some thoughts on present and future interactions and adjustments between Indians and archaeologists. (45)

Rovner, Irwin (NCSU) and David Hurst Thomas (American Museum of Natural History)
ARCHAEOBOTANY OF ALTA TOQUIMA VILLAGE: QUICK-SCAN PHYTOLITH EVIDENCE.

Alta Toquima Village is a high altitude seasonal camp dating to ca. 1000 A.D. Quick-scan phytolith analysis was conducted along with other archaeobotanical analyses to investigate the paleoethnobotany of the site. Phytolith evidence provided indications of: (1) a pine forest-meadow ecotone on both macro- and micro-ecological levels; and, (2) cultural uses of grasses. These results demonstrate the applicability of phytolith analysis to archaeobotanical research generally and the need for sampling strategies specifically designed to maximize phytolith data. (64)

Rubenstein, Rikki and Kenneth L. Brown (Houston, University Park)
ALWAYS A HAVEN FOR THE WEALTHY?: ARCHAEOLOGY AND THE FOUNDING OF HOUSTON, TEXAS.

Archaeological investigations in downtown Houston have provided information concerning the origin, growth, and development of this urban center. One important facet concerns the discovery and excavation of a small 1820-24 homestead. Representing the earliest, currently known "Anglo" settlement in the area. Material recovered suggests something of the wealth and social status of the "pioneers" who moved into this portion of Texas a part of Austin's Colony. Artifacts suggest rather more wealth than is normally assumed for families moving into a frontier situation. (54)

Rubertone, Patricia E. (Brown)
THE ARCHAEOLOGY OF COLONIALISM.

Archaeological studies of European expansion into continental North America from the 15th century onward have focused on the creation of colonial enclaves and on the processes through which European material culture was replicated under these new circumstances. These interpretations ignore that the process of colonial expansion was carried out in areas inhabited by native peoples. Such interpretations reflect an orientation in which techno-environmental factors dominate the understanding of complex social relations in culture contact situations. Examples are drawn from archaeological studies of North American colonialism with emphasis on recent approaches to detect material evidence for native resistance to colonial expansion. (8)

Rue, David J. (Penn State) and John Wingard (Penn State)
LATE CLASSIC AND EARLY POSTCLASSIC ENVIRONMENTAL IMPACT AT COPAN.

Data from pollen and chemical analyses of soils and sediment are used to study the impact of the ninth century and later Maya. The pollen profile of a core from a marsh located 5 km east of the Maya center of Copan demonstrates that the region was cleared of forest by the end of the Classic, and that this clearance continued for three centuries after the collapse. Reduced rural populations presumably hung on, cultivating depleted, often eroded soils with reduced yields. (38)

Ruffino, Franco (Ohio Historic Preservation Office)
PUBLIC PROGRAMS FOR PRIVATE PROPERTY PRESERVATION.

The State Registry of Archaeological Landmarks and the Archaeological Preserve program are part of Ohio's efforts to provide increased recognition and protection for archaeological resources. Of particular interest is their focus on incentives for protecting archaeological resources, especially on private property. A plan is required for the preserve which restricts the use of the land and promotes the preservation of archaeological resources. Ancillary provisions of the state legislation are discussed. (29)

Ruhl, D. (see Rice, P.) (3)

Ruppe', Patricia A. (Zuni Archaeology Program)
SOSI SHELTER; A HISTORY OF ANASAZI PLANT USAGE AT BLACK MESA, ARIZONA.

Paleo-ethnobotanical data from Sosi Shelter, are examined. Excavations at Sosi Shelter revealed deposits representing Basketmaker II to Pueblo III time periods. Two proposed models explain the

subsistence practices of the Black Mesa Anasazi. Models are employed to develop expectations concerning the economic habits of Soti Shelter inhabitants as revealed in the botanical record. Of primary importance is the role of seasonally gathered economic plants in relation to the use of domesticated taxa. (14)

Russell, Kenneth W. (Utah)

THE EVOLUTION OF CEREAL HUSBANDRY AND PASTORAL SUBSISTENCE STRATEGIES: PRODUCTIVE MARGINALITY OR RELATIVE ENERGETICS?

Using Holocene epoch data from the Arabian Peninsula and North Africa, the empirical utility of two competing perspectives on the evolution of food production is evaluated. Predictive models invoking ecological marginality and productivity per unit area are contrasted with models from behavioral ecology which invoke decision making based upon the relative energetic efficiency (caloric yield/time invested) of alternative subsistence options. The results suggest that the perspective of behavioral ecology yields more robust predictions concerning the nature of the archaeological record. (53)

Sabloff, Jeremy A. (New Mexico) and Gair Tourtellot (New Mexico)

ANALYSIS OF COMMUNITY PATTERNS AT SAYIL, YUCATAN, MEXICO.

Recent developments in Maya archaeology have made it clear that the inadequately known Puuc hills regions played a critical role in the shift of power from the Southern to the Northern Maya lowlands during Terminal Classic times. Three seasons of field research at Sayil have produced the first comprehensive map of any Puuc "great city," delimiting a community over three square kilometers and displaying 2000 ancient and historic features representing 28 formal types in some 1000 clusters. Significant patterns and determinants of features, feature clusters, spatial organization, and site limits are discussed. (27)

Sackett, James (UCLA)

NEW APPROACHES TO UPPER PALEOLITHIC ASSEMBLAGE VARIABILITY.

Five thousand stone tools from the Paleolithic site of Solvieux have been subjected to quantitative attributive analysis as part of the current attempt to explore alternative approaches to Bordesian systematics. Analytic procedures involved assume a more flexible and artisanal form than those often extolled in the literature, and one presumably more suited to the needs of the journeyman systematist. Results throw new light upon the nature of lithic typological patterning and help redefine the terms in which the issues of Upper Paleolithic industrial variation may be approached. (57)

Salls, Roy A. (UCLA)

ENVIRONMENTAL STRESS DUE TO OVERFISHING IN SOUTHERN CALIFORNIA PREHISTORY.

Previous hypotheses on marine adaptation and technological change argue for changing patterns of fish exploitation correlated with changes in fishhook technology. Evidence from San Clemente Island indicates that those fish species exploited were the same throughout the prehistoric past, with changes in quantities of any given species exploited more related to humanly-induced changes in the environment than to fishhook technology. Environmental deterioration in the prehistoric Southern California marine ecosystem indicates that hunter-gatherers did not always live in harmony with nature. (30)

Sampson, C. Garth (Southern Methodist)

SPATIAL ORGANIZATION OF THE SEACOW VALLEY SAN, SOUTH AFRICA A.D. 13-1800.

Archaeological residues of San groups inhabiting the semi-arid Karoo plateau are referred to the Smithfield Industry. Several thousand Smithfield sites in a 5,000 km² area provide an opportunity to test two propositions of interest to the current debate over future directions in hunter-forager archaeology: (1) that band/territorial boundaries can be rendered visible in the archaeological record, given sufficiently large and complete site distribution maps, and (2) that a band's seasonal mobility pattern can be reconstructed without recourse to excavated plant or animal remains. (53)

Sampson, Michael P. (California Parks and Recreation, Sacramento)

A FUNCTIONAL AND TECHNOLOGICAL ANALYSIS OF LITHIC ARTIFACTS FROM THE TULARE LAKE BASIN, CALIFORNIA.

A collection of flaked stone artifacts is the subject of an intensive analysis program, which includes considerations of manufacturing techniques, choices of raw material, tool function and the efficiency of tool design. This work will focus upon the fluted and large stemmed projectile points, the crescents, and the unique unifacially flaked, bipointed artifacts of the Tulare Lake collections. The research considerations cited above will be the basis for comparisons both within the Tulare Lake locality and with other Great Basin sites. (31)

Sanders, W. T. (38)

Sandweiss, Daniel H. (Cornell)

FISHING AND FARMING: ARCHAEOLOGICAL EVIDENCE FOR AN ANDEAN TRADITION OF SPECIALIZATION.

Recent archaeological work in the Chincha Valley on the Peruvian South Coast supports documentary evidence for specialized fishermen in that zone during the Late Horizon, and a review of the archaeological record for the entire coast reveals evidence for specialized fishers and farmers at least as far back as the Early Horizon. If the tradition of coastal specialization began with sedentary lifeways in the Late Pre-ceramic Period, as some evidence suggests, it would help explain the sudden increase in social complexity observed in the archaeological record at that time. (73)

Sasso, R. E. (see Gallager, J. P.) (4)

Saucier, Roger T. (U.S. Army Engineer Waterways Experiment Station)

GEOMORPHIC PROCESSES AND LANDSCAPE EVOLUTION AS RELATED TO HUMAN SETTLEMENT IN THE CURRENT RIVER VALLEY, MISSOURI.

Intensive occupation of the narrow rock-bluff bordered valley since Paleo-Indian times has been concentrated on two fluvial terraces. While accurate absolute dating of the terraces has been elusive, nevertheless they record changing hydrologic regimes attributable to Quaternary climatic changes. Rather than being caused by cyclic degradation and aggradation, the terraces are a product of variations in the rates and patterns of lateral stream-channel migration. Fluvial responses to historic-period land use practices have been dramatic. (43)

Savelle, James M. (Cambridge)

NATURAL FORMATION PROCESSES AND SNOW-BASED SITES: EXAMPLES FROM ARCTIC CANADA.

The use of snow as a primary architectural material, together with a typically deep snow ground-cover at the time of occupation, has traditionally hampered or precluded the identification and analysis of many historic and prehistoric Inuit sites in the central and eastern Arctic. Recent ethnoarchaeological research designed to develop a model of post-abandonment formation processes associated with such sites is discussed. The results are then applied to the investigation of several 19th and early-mid 20th century snow-based Netsilik Inuit sites on Boothia Peninsula in the central Canadian Arctic. (74)

Saxe, A. A. (68)

Scalise, Janet L. (UCLA)

MOLLUSC EXCHANGE AMONG THE CALIFORNIA CHANNEL ISLANDS AND ADJACENT COASTAL MAINLAND.

Networks involving the exchange of shell beads and ornaments were in operation throughout California during much of its prehistory. Previous research has focused on the distribution of a variety of shell species, but little attention has been paid to the distribution of *Haliotis rufescens* bead types. Due to environmental restrictions this molluscan material is not readily available to the southern Channel Islands and adjacent coast. Due to environmental restrictions this molluscan material is not readily available to the southern Channel Islands and adjacent coast. The possible sources for *Haliotis rufescens* beads, the extent of their distribution within a defined area, and the exchange network in operation is examined. (30)

Scarborough, Vern (University of Texas, El Paso)

A PUEBLO PERIOD WATER ADAPTATION.

The Pueblo period (A.D. 1100-1400) in the Hueco Bolson of southeastern New Mexico and western-most Texas has revealed the presence of a clearly defined water reservoir. The feature was carved into the underlying caliche with a stepped interior and a plaster floor. Additional excavations suggest the role played by the indurated caliche in the collection of this desert water resource. A comparison with other water storage devices in the American Southwest will be made. (26)

Shaller, D. M. (see Douglas, A. A.) (4)

Schele, Linda (Texas, Austin)

WORLD IMAGES AND STATECRAFT AT TEOTIHUACAN AND IN THE MAYA LOWLANDS.

Images placed prominently in architectural space at Teotihuacan and at sites in the Maya Lowlands are cosmic images that define the place of the community and political authority in a larger framework, as well as describing the sacred source of social and political power. A comparison of these images suggest that the state and political authority was defined in very different ways. Teotihuacan world

imagery defines the community as the replication of sacred space and to vest authority anonymously; Maya vested authority in a historical known named individual defined as the conduit through which sacred power operated in human space, with each major polity having its own manifestation of this sacred person in its local king. (72)

Schele, L. (see Fash, W. L.) (38)

Schick, Kathy D. (California, Berkeley)

DIFFERENTIATING BETWEEN THE EFFECTS OF BEHAVIORAL AND SEDIMENTARY PROCESSES ON PALEOLITHIC ASSEMBLAGES.

Experimental studies indicate characteristic patterns produced by behavioral and sedimentary processes respectively in the composition and the spatial distribution of archaeological assemblages. Long-term study of the impact of alluvial and lacustrine sedimentary processes on simulated archaeological sites reveals predictable patterns of site transformation by these prevalent processes of disturbance. Criteria and analytical methodologies are proposed to help determine causative agencies responsible for observed archaeological patterns. (74)

Schiffer, M. B. (74)

Schmidt, P. J. (27)

Schmidt, Paul (National University of Mexico)

THE EPICLASSIC IN CENTRAL GUERRERO.

Evidence from Xochipala, Guerrero, suggests that the Epiclassic concept can be extended to the Central Guerrero region. A drastic change in the ceramic complex and a new settlement pattern are associated with the appearance of corbeled vaults and Fine Orange-like ceramics. A summary of the Xochipala phases will be presented, with major emphasis on those pertaining to the Epiclassic, and the relationship of this area, first to Teotihuacan and, last, to the Maya area will be discussed, as will relevance of an Epiclassic presence to the question of whether Central Guerrero is Mesoamerican or West Mexican. (79)

Schmitt, D. N. (see Juell, K. E.) (71)

Schoenwetter, James (Arizona State, Tempe)

PALYNOLOGICAL APPLICATIONS IN HISTORIC ARCHAEOLOGY.

This paper seeks to rebut the conventional wisdom that pollen analysis is neither necessary or profitable in Historical Archaeology through examination of pollen studies in the Haute-Savoie province of France. In this interdisciplinary research, Historical Archaeology is the method of choice for establishing and justifying inferences about economic system changes in Central European villages. Palynological studies linked to this effort are pertinent because land use and vegetation change data are not scaled to this level in the historic record. (54)

Schreiber, Katharina J. (University of California, Santa Barbara)

THE PUKIOS OF NASCA: A SYSTEM OF UNDERGROUND AQUEDUCTS.

In prehistoric times, the people of the Nasca region developed a system of underground filtration galleries to provide irrigation water to portions of the valley lacking surface water. This system is unique in Peru, and perhaps in the New World. The topographic and geologic factors necessitating such a system, and the ecologic and social factors involved in the development of the aqueducts are discussed; a possible date of construction is suggested. (11)

Schrirer, Carmel (Rutgers)

THE ARCHAEOLOGY OF EARLY KHOI-DUTCH CONTACT AT THE CAPE.

Archaeological excavations at a small outpost of the Dutch East India Company (VOC) near Capetown, reveal the material aspects of interactions between the colonists and the indigenous Khoi pastoral foragers in the late 17th and early 18th centuries. Evidence of diet, technology and trade are integrated into the rich historical accounts to provide a picture of the VOC perceptions of the land and its resources, including the indigenous people. An attempt is made to reconcile archaeological and historical sources to amplify the nature of the early accommodations that underlie the social and economic system prevailing in this land today. (8)

Schroedl, Gerald E. (Tennessee, Knoxville) and C. Clifford Boyd, Jr. (Tennessee, Knoxville)

EXPLAINING MISSISSIPPIAN ORIGINS IN EAST TENNESSEE.

Late Woodland (A.D. 600-900) and Early Mississippian, Martin Farm (A.D. 900-1000) and Hiwassee Island (A.D. 1000-1300) cultures, document the Woodland-Mississippian transition. Temporal changes are evident in ceramic types and assemblage composition, but not in lithic artifact or botanical and

faunal remains. Increased site size and changes in site location and facilities suggest greater socio-political complexity and agricultural intensification. Culture replacement and diffusion are unacceptable explanations for these changes. Population size correlated with increased agricultural yield from corn better describes the Woodland-Mississippian transition in east Tennessee. (69)

Scott, Linda J. (Palynological Analysts)

ANASAZI SUBSISTENCE ACTIVITY AREAS REFLECTED IN THE POLLEN RECORD.

A model identifying plant use-related activity areas is developed based on the intensive sampling of the floor of a Pueblo I pithouse that burned while occupied. Comparison of these data with pollen from numerous other pitstructures in southwestern Colorado and an ethnographic model for the identification of food processing activity areas yielded positive results. Consideration of all living and activity surfaces (including both floors and roof fall) is made in interpreting activity areas. Task specialization relative to cultivated vs. wild plant processing and patterning of activity areas are also addressed. (14)

Scott, Sue (Institute of Archaeology, London)

TERRACOTTA FIGURINE COMPLEXES IN RESIDENTIAL UNITS, TEOTIHUACAN, MEXICO.

Previous studies of terracotta figurines have identified a repertory based on stylistic motifs; when recovered in excavations, figurines occur frequently in household, rather than temple, contexts. In this study, figurine sets recovered at the apartment compounds Xolalpan and Tlamimilolpa, an urban situation, are compared with those from Maquixco Bajo, a rural site outside ancient Teotihuacan. Evidence reveals a wide range of figurine types, isolates figurine complexes thought to have been in use during the Classic period and suggests a household ritual use of figurines which reflects residents' group affiliation in residential units. (15)

Seckinger, Ernest W. Jr. (Mobile District, U.S. Army Corps of Engineers)

FEDERAL PERSPECTIVE ON THE MIDDEN MOUNDS PROJECT, UPPER TOMBIGBEE VALLEY, MISSISSIPPI.

The Middle Mound Project was one of many developed to perform the cultural resource investigations necessary to achieve and maintain compliance during construction of the Tennessee-Tombigbee Waterway within the Tombigbee River Multi-Resource District. After compilation of survey data, research and project needs were defined, and sites were selected for testing. The Midden Mound project represents data recovery from a logical grouping of several multi-component sites with well-preserved Archaic materials in the canal section of the waterway. (59)

Seeman, Mark E. (Kent State)

OHIO HOPEWELL "TROPHY" SKULLS: REVERED ANCESTORS OR DEFEATED ENEMIES?

Interpretations of human "trophies" have resulted in a polarity of opinion—that these are the remains of (1) revered ancestors or, (2) defeated enemies. Both previous studies of the problem supported exclusively the "revered ancestor" hypothesis. Results of the present study, making use of human "trophies" from five Ohio Hopewell sites and skeletal aging analyses, support the opposite interpretation. These results are seen as consistent with current interpretations of the Hopewell phenomenon which emphasize inter-regional exchange and cooperation. (19)

Seeman, M. E. (75)

Serrano, Carlos (IAA, UNAM)

A COMPARATIVE STUDY OF TEOTIHUACAN SKELETAL MATERIALS.

This study attempts to define a typical skeletal profile for the ancient Teotihuacan population by synthesizing data from recent and past excavations that have yielded abundant osteological material. Both morphological traits of the skeleton and cultural evidences such as intentional cranial deformation are examined. Certain physical variations known to exist in different time periods in the ancient populations of the Basin of Mexico are taken into consideration and worked into an overall framework. (15)

Seymour, Deni J. (Arizona, Tucson)

THE SOCIAL IMPLICATIONS OF ARTIFACT DISTRIBUTIONS AT SNAKETOWN, ARIZONA.

Previously unanalyzed artifact assemblages from pit houses at the Hohokam site of Snaketown are examined. The combined analysis of artifact distributions and architectural characteristics allows a reconsideration of a number of issues including: house function, craft production, the use of space, and intra-community patterning. Previous suggestions concerning these issues at Snaketown are briefly evaluated in light of the new evidence; comparisons to other Hohokam sites are made. The social implications of these findings are addressed using ethnoarchaeological data and cross cultural comparisons as a guide. (24)

Shackel, Paul A. (S.U.N.Y., Buffalo)

CONSPICUOUS CONSUMPTION AND CLASS MAINTENANCE.

Through the use of historical and anthropological data a more complete analysis of wealth and the use of symbols to convey status is possible. Historical data and the archaeological record indicate how a very prestigious family, the Nicholls of Long Island, New York, lost considerable wealth during the 19th century. An analysis of the ceramic assemblage may indicate how conspicuous consumption can be utilized in an attempt to maintain the status of a downwardly mobile family. (34)

Shackley, M. Steven (Arizona State)

**DIACHRONIC VARIABILITY IN OBSIDIAN PROCUREMENT IN THE AMERICAN
SOUTHWEST: A TRACE ELEMENT EXPLORATION OF SOUTHWEST OBSIDIAN SOURCES.**

Recent x-ray fluorescence (XRF) analyses of source and archaeological obsidians in the Southwest indicate distinct shifts in obsidian procurement and processing from Archaic through Hohokam periods. Provenience analyses suggest Archaic hunter-gatherers integrated obsidian procurement into annual positioning strategies. During the Hohokam period more complex procurement patterns are apparent. Current XRF source data for known Southwestern obsidians are included for discussion. (56)

Shafer, Harry J. (Texas A&M)

NEW DEVELOPMENTS IN MIMBRES MOGOLLON ARCHAEOLOGY.

Seven seasons of archaeological investigations in the middle Mimbres Valley, New Mexico, by Texas A&M University, have yielded much new data on Mimbres Mogollon cultural dynamics. Mimbres archaeology continues to be guided by old assumptions untested since their formulation in the 1920s. This paper synthesizes new data generated by the NAN Ranch Project, highlighting the interdisciplinary efforts to examine the Mimbres adaptation, including data on settlement patterns, faunal analysis, pollen and plant microfossil studies, architectural and burial analysis. (37)

Shanks, Michael and Christopher Tilley (Cambridge)

IDEOLOGY IN AESTHETICS: THE MUSEUM DISPLAY AS RE-PRESENTATION OF THE PAST.

A study is made of the types of signification produced in the aesthetics of museum displays in Britain. A series of interpretative studies of particular museum displays are used to demonstrate the manner in which museums serve to both commodify and objectify artifacts. Presentation of the artifactual past is rhetorical performance, an active mobilization of particular modes of presentation which, in the museums analyzed, argue for the world as it immediately appears to us in capitalist society. At the end of the paper aspects of museums containing the possibility of a non-ideological relationship between past and present are isolated. (8)

Shapiro, G. (see Collins, M. E.) (22)

Shapiro, Gary (Fl Bureau of Archaeological Research, Tallahassee)

**RIVERS AS BOUNDARIES, RIVERS AS CENTERS: FLORIDA VARIATIONS ON A
MISSISSIPPIAN THEME.**

Rivers were at the heart of most Mississippian polities, but this relationship between demography and physiography does not hold true for late prehistoric chiefdoms of interior Florida. Ethnohistoric and archaeological data suggest that Florida rivers were more likely boundaries between polities rather than regions of dense settlement. Like Mississippian groups in piedmont and estuarine settings, Florida chiefdoms illustrate a regional departure from the well known Middle Mississippian environmental-settlement models. (69)

Shaw, Leslie C. (Massachusetts, Amherst) and Eric C. Gibson (Harvard)

CONTEXTUAL ANALYSIS OF MAYA FAUNAL REMAINS FROM KICHPANHA, BELIZE.

The faunal remains from Kichpanha will be interpreted within the environmental and social contexts of the site. The proposition will be developed that the elite class, which was clearly in residence at Kichpanha during the Preclassic, exercised control over the food resources for trade or personal consumption. Changes in faunal exploitation from the Early Middle Preclassic to the Protoclassic will be discussed with particular emphasis on how the increasing control of resources by the elite might shape the faunal samples. The role of Kichpanha as a contributor of food resources to the extensive trade network in northern Belize will be discussed. (48)

Shea, Daniel E. (Beloit)

**THE TOWN OF ACHOMA IN THE DEPOPULATION AND TERRACE ABANDONMENT OF
THE COLCA VALLEY, PERU.**

The trauma of the Toledan resettlement of Peru was followed by long term population decline. Introduced epidemic disease was an important specific cause. The archaeological study of Achoma's

pre-Toledan settlement pattern highlights an important contributing cause. The development and the maintenance of terraces is seen in the light of the well known hypothesis of Boserup. The hypothesis is supported by seeing the Achoma data as the inverse of the process suggested by Boserup, but leading to the inverse result, namely population decline. Some current quantitative treatments of marriage systems, and some well known settlement pattern models serve as illustrative tools. (11)

Sheehy, J. J. (see Mallory, J. K.) (38)

Sheehy, James J. (Penn State)

**PRODUCT STANDARDIZATION AND CERAMIC PRODUCTION IN TLAJINGA 33,
TEOTIHUACAN.**

This paper presents the results of a study of San Martin Orange and Tlajinga ceramics produced during the Xolalpan-Metepec Periods (400-750 A.D.) in Tlajinga 33. Approximately 90% of the rims from this ceramic collection have been analyzed and provide the basis for evaluating the degree of product standardization within a ceramic producing compound. Discussion focuses on the variability in vessel size classes within a series of vessel forms, that include craters, amphorae, jars, basins, and Tlajinga bowls. (2)

Sheldon, Elizabeth S. (Montgomery, AL, SITE Inc.)

PREHISTORIC PLANT USE IN NORTHEAST MISSISSIPPI.

During the early and middle Archaic (10,000-5000 years BP) the cool temperate forest of the Upper Tombigbee River Valley shifted to one dominated by xeric species on the ridges and warm temperate species in the floodplain. From Late Archaic to the present the forest has been dominated by hickory, oak and pine species. Analysis of floral material from the Midden Mound sites indicates fluctuating use of acorns, increasing use of seeds and decreasing amounts of hickory nuts after the Late Archaic. (59)

Shelley, Phillip H. and Fred L. Nials (ENMU)

**A CONTROLLED EXPERIMENTAL STUDY OF ARTIFACT DAMAGE AND REDEPOSITION IN
AN AEOLIAN ENVIRONMENT.**

Short and long term artifact abrasion and movement studies are presented from test plots on the Llano Estacado. Micro-flakes were removed and edges were rounded. Substantial horizontal and vertical movement of artifacts occurred differentially. Size and shape of artifacts affect "sorting" as do surface and substrate differences in sediment composition and history, vegetation cover, moisture content, and micro-topography. Results suggest analyses of fine-order intrasite artifact patterning and use-wear analysis of lithics from such environments be performed with caution. (74)

Shimada, Izumi (Harvard)

**ARCHITECTURAL AND FUNCTIONAL CHARACTERIZATION OF THE SICAN PRECINCT,
BATAN GRANDE, PERU.**

Sican Precinct, T-shaped area delineated by a dozen monumental adobe pyramids, has traditionally been considered the funerary-religious center of the Middle Sican Culture that flourished ca. A.D. 900-1000. Recent excavations have revealed abundant non-pyramidal architecture and at least three major construction phases. The presence of contemporaneous residential sites and one suspected metalworking (casting?) center within 2 km from the Precinct may be seen as one large settlement system with concentric, functionally differentiated sectors. (42)

Siemens, A. (48)

Silva, Jorge Elias (Michigan)

DISCUSSANT'S COMMENTS.

A comparative perspective on Nasca culture is provided on the basis of research conducted on the adjacent central coast. Like Nasca, the Early Intermediate Period societies of the central coast boast of a high level of cultural achievement. Also, the central coast seems to have been in contact with Nasca at the end of the Early Intermediate Period. Discussion of these papers may help to elucidate the cultural processes involved in the formation and growth of Nasca. (28)

Silverman, Helaine (Texas, Austin)

NOT EVERY LOOTER'S HOLE IS A TOMB: RECENT RESEARCH AT CAHUACHI.

Survey and excavation at the Nasca site of Cahuachi confirm it to be the major Nasca cult center. This ceremonial center is demonstrated to lack dense residential habitation. Spatial analysis reveals a pervasive and repetitive pattern of mounds surrounded by plazas. It is suggested that the site is organized around frequent pilgrimage activity. Occupation of the site is shown to extend beyond

previously suggested temporal limits. The discovery of a temple room ritually interred by Nasca people in contact with the Ayacucho area of the adjacent highlands is discussed. (28)

Simmons, Alan H. (Desert Research Institute, Nevada), Gary O. Rollefson (San Diego State), and Ilse Kohler-Rollefson (San Diego State).

NEOLITHIC ADAPTIVE STRATEGIES AND ECONOMY IN THE LEVANT: RE-EVALUATING SOME COMMON ASSUMPTIONS.

Four seasons of excavation at 'Ain Ghazal, near Amman, Jordan, have revealed a complex village that may rival Jericho in significance. Both aceramic and ceramic Neolithic components are present, as is a probable transitional phase. Excellent preservation and detailed excavation have provided data that will allow a more precise understanding of early Neolithic adaptations in the Near East. Information from 'Ain Ghazal suggests that some common assumptions regarding the Neolithic may require revision. (23)

Simmons, Alexy (CH2M Hill)

RED LIGHT LADIES: ENTREPRENEURS AND COMPANIONS.

Red Light Ladies, as a part of the business community in historic western mining towns, are identifiable in the archaeological and historical record. The settlement pattern of prostitutes, as well as the type of prostitution, is directly related to the economic, social and political structure of the Euro-American and Chinese communities. Thus, analysis of data relating to prostitution provides substantial information about many poorly documented mining communities. Models for interpreting the Euro-American and Chinese communities within the context of the western frontier mining town are presented. (54)

Simms, Steven R. (Weber State, Ogden)

THE CLOVIS-ARCHAIC INTERFACE IN THE EASTERN GREAT BASIN: A CASE OF INCREASING SUBSISTENCE VARIABILITY.

The persistence of Paleo-Indian technology into the Holocene is examined based on data from excavated sites in the Sevier and Escalante Deserts, western Utah. This evidence, together with cost/benefit data on Great Basin plant/animal resources, suggests that the Clovis-Archaic interface is a problem involving frequency shifts in the use of alternative technologies and alternative subsistence practices. This seems more realistic than assuming that the interface represents a transition between two cultures with basically different subsistence/settlement practices during the late Pleistocene to early/mid Holocene. (31)

Simon, Brona G. (Massachusetts Historical Commission)

PROMOTING THE PAST INTO THE FUTURE: PRACTICAL APPROACHES TO SITE PROTECTION.

Archaeological site survival can occur through wise land use planning when real estate and environmental protection issues are clearly identified, addressed, and competing interests for site use are pragmatically resolved. The value of archaeological site conservation must be translated into a real world, money-oriented perspective if privately owned sites are to be protected. This paper presents some practical approaches to site protection, including incentive and acquisition programs, and coordination with local government planning agencies and other constituency groups. (29)

Simpkins, Daniel L. (UNC, Chapel Hill) and Gary L. Petherick (UNC, Chapel Hill)

SETTLEMENT PATTERN CHANGES IN THE NORTH CAROLINA PIEDMONT DURING THE CONTACT PERIOD.

From the Protohistoric period (ca. A.D. 1526-1625) through the Contact period (ca. A.D. 1625-1740), aboriginal populations underwent depopulation and sociopolitical consolidation while European trade and inter-regional, inter-ethnic aboriginal conflict intensified. On the intrasite level, these trends are evidenced by a comparative reduction of sedentism and site size and an increase of storage/caching facilities and diversity of architectural features. On the intersite level, Contact period sites tend to be located near abandoned late prehistoric sites, at fords along trading paths, and near regional ethnic boundaries. (50)

Sinopoli, Carla M. (Univ. of Michigan)

SOCIAL ORGANIZATION AND CERAMIC DISTRIBUTIONS AT A SOUTH INDIAN IMPERIAL CAPITAL.

The study of ceramic distributions in urban sites can provide information on the social and functional differentiation of space, the organization of production, distribution, and exchange. These questions are considered using ceramics from Vijayanagara, a medieval Hindu imperial capital in South India. Arguments are presented outlining the relations between the major organizing principle of

Vijayanagara society—the caste system—and ceramic forms, using ethnographic and historic data. These are evaluated using ceramics from excavations in an elite residential quarter of the city and from a surface collection from a lower status residential area of the site. (70)

Smith, B. (78)

Smith, B. D. (49)

Smith, E. N., Jr. (see Delcourt, P. A.) (43)

Smith, E. Newman, Paul A. Delcourt, and Hazel R. Delcourt (Tennessee, Knoxville)

VARIATIONS IN FOREST ASSEMBLAGES IN SOUTHERN MISSOURI: RESPONSES TO CHANGES IN TEMPERATURE/MOISTURE GRADIENTS THROUGH TIME.

Cupola Pond, Ripley Co., is a mesic site with a continuous pollen record spanning the last 17,100 years. This pond contrasts with Big Wolf Pond, an upland xeric site in Carter Co., that dates from 12,250 yr B.P. Although climatic warming at 12,300 yr B.P. resulted in elimination of boreal spruce (*Picea*) and fir (*Abies*) in the uplands, these taxa survived in lowlands until 10,000 yr B.P. With Early-Holocene warming and drying, oak (*Quercus*) savannas spread throughout the uplands. In the late Holocene, shortleaf pine (*Pinus echinata*) migrated into the uplands, and tupelogram (*Nyssa aquatica*) established locally in lowland sites. (43)

Smith, M. O. (see Buck, P. E.) (40)

Smith, Marvin T. (Garrow and Associates, Inc.)

THE COOSA CHIEFDOM: RESPONSES TO EUROPEAN CONTACT.

The sixteenth century Coosa chiefdom of the Ridge and Valley Province of the interior Southeast provides an example of a society which underwent short-term, early European contact with Spanish explorers, but which subsequently exhibited dramatic culture change. Using archaeological and ethnohistorical data, population collapse, political disintegration, and population movement are demonstrated for the sixteenth and seventeenth centuries. It is argued that this dramatic change is not "acculturation," but is a significant form of culture change which takes place in many nonwestern groups. True acculturation only takes place following prolonged contact with English traders in the late seventeenth century. (33)

Sneddon, L. (see Kaplan, L.) (64)

Snyder, D. (see Masse, W. B.) (13)

Soffer, Olga (UI-Urbana)

BISON KILLS—OLD WORLD STYLE.

Amvrosievka is an Upper Paleolithic bone bed archaeological site located in the southern steppe region of the USSR. It has been radiocarbon dated to 15,250 ± B.P. and has yielded remains of over 983 *Bison priscus*. Some 200 m from this bone bed a modest collection of stone and bone tools, decorative objects, ocher, and hearths were excavated. This paper discusses the discoveries at Amvrosievka in light of New World data on bone beds and bison kills and offers a tentative reconstruction of site use. (16)

Spear, Robert L. (Oregon, Eugene)

AN ANALYSIS OF SITES FROM THE TAHAI REGION, EASTER ISLAND.

Twelve sites from the Tahai Region of Easter Island suggest differential site usage based on a coastal/interior dichotomy. Site function appears to be task specific for coastal sites and more generalized for interior sites. Four site types are presented with each site's activities determined from use-wear analysis. Lithic resources are seen to be limited due to culturally limited access rather than because of natural scarcity. (18)

Spence, Michael W. (Western Ontario)

THE SAN MARTIN COMPLEX: AN OBSIDIAN WORKSHOP AREA IN TEOTIHUACAN, MEXICO.

A cluster of intensive obsidian workshop sites on the northeastern periphery of the ancient city focused on the production of bifacial artifacts, cores and blades. Raw materials were brought from quarries 16-50 kms. from the site. Analysis of a large surface collection from the area sheds light on the technology of production, area sub-specialization, and the role of state institutions in craft organization. The area's location on the periphery, removed from both the major public structures and the main thoroughfares of the city, will be discussed. (2)

Speser, Philip, Kathleen Reinburg, and Audrey Porsche (Foresight Science & Technology)
THE POLITICS OF ARCHAEOLOGY: EXPERIENCES AT THE FEDERAL LEVEL.

This paper consists of two sections: Congress and Agencies. In Congress, emphasis is placed on the role of Congressional committees and subcommittees and on the division of labor within a committee. Obtaining an appropriations add-on for the archaeological data base in the National Park Service and efforts to block legislation which would weaken laws against looting provide examples for exploring the importance of information, constituency pressure, and money in lobbying. In Agencies, emphasis is placed on the different roles of political appointees and career civil servants. Efforts to obtain new OSM regulations on historic preservation and to expand funding for archaeological research at NSF provide examples for exploring the importance of information, constituency pressure, and law suits in working with agencies. (66)

Speth, J. D. (see Baumler, M. E.) (23)

Stanish, C. (see Malpass, M.) (11)

Stanish, Charles (American Research)
ZONAL COMPLEMENTARY IN THE MOQUEGUA VALLEY.

This paper reports on archaeological investigations in a small valley of the Moquegua drainage (Otoro) which were designed to test models of "vertical control," or "economic complementarity." Moquegua has been suggested to be an area of pre-hispanic colonization by the Lupaqa kingdom, a pre-Inka state located on the southwest side of Lake Titicaca. A model of Lupaqa colonization is not supported by the Otoro data, although there is strong evidence of pre-Lupaqa, multi-ethnic settlement by coastal and circum-Titicaca polities. (3)

Stein, J. K. (see Nelson, M. A.) (18)

Stein, Julie K. (University of Washington) and Patrice A. Teltser (University of Washington)
MICROARTIFACT ANALYSIS: A TOOL FOR UNDERSTANDING SITE FORMATION PROCESSES.

The technique that can best provide information on human depositional events is grain-size analysis combined with compositional identification of particles within the sand-sized fractions (microartifact analysis) and the gravel-sized fractions (macroartifact analysis). Within each size class the composition (including artifacts) and quantity of particles is calculated. The grain-size distributions of individual types of particles (e.g. ceramics, flaked lithics, unmodified rocks and minerals) are examined and used to infer the depositional history of the archaeological site. (65)

Steinbring, Jack (University of Winnipeg), Richard Callaghan (University of Calgary), and Eve Danziger (University of Pennsylvania)
A PRECERAMIC CONTEXT FOR PETROGLYPHS IN NORTHWESTERN ONTARIO.

Archaeological deposits directly overlie petroglyphs at a multi-component site on Clearwater Bay, Lake-of-the-Woods, Ontario. The site (DkKr-4) exhibits an array of Selkirk, Blackduck, and Laurel ceramics beneath which there is an Archaic zone with Oxbox affiliations. Much of the rock art is attributable to the Archaic. A radiocarbon date of $2,580 \pm 140$ has been obtained for the uppermost Archaic. The lower levels are characterized by unifaces, and unmodified flake tools. Some of the rock art may date to initial occupations which appear to have occurred about 9,000 years ago. (46)

Stiebling, William H. Jr. (New Orleans)
THE NATURE AND DANGERS OF CULT ARCHAEOLOGY.

Major characteristics of cult archaeology can be grouped into three basic areas: (1) the unscientific nature of their evidence and methodology; (2) their tendency to provide simple, compact answers to complex and difficult questions; and (3) their persecuted "underdog," antiestablishment stance. These characteristics are discussed and their role in the popularity of cult archaeology is briefly assessed. The paper ends with a plea for professional scholars to communicate better with laymen, especially on the subject of objective methodology and research. (9)

Stine, Linda F. (UNC, Chapel Hill)
THE FIRST HUNDRED YEARS OF ATLANTIC PIEDMONT FOR TRADE.

Seventeenth-century mercantile policies affected the structure of English-Indian trade relations, settlements, and alliances. Through their adaptations to burgeoning English trade, Indians of the Atlantic Piedmont appear to have been able to maintain their ethnic and political identities for at least fifty years. One of these groups, the Occaneechi, may have initially adapted by modifying a pre-existing role as regional trade mediators. After 1676, the Occaneechi moved south and played a less politically powerful role but did provide guides, supplies, and perhaps furs to Virginia traders. The

Piedmont trade provided goods for both English and Indian expressions of stratification and/or ethnic identity. (50)

Stiny, George (UCLA)
PARALLEL RULE SYSTEMS IN DESIGN.

Composition rules use given spatial relations to arrange lines in designs. Description rules interpret designs in the language defined by the grammar. Composition and description are independent processes that can be interrelated in description schemes. A correspondence can be defined between composition rules in a grammar and description rules so that designs and their descriptions are generated in parallel. Each time a composition rule is applied to elaborate a design, the corresponding description rule applies to update the description of the design. In this way, the common intuition that form and meaning are connected in designs is formalized. (52)

Stipp, Jerry (Miami, Coral Gables), Murry Tamms (Beta, Alpha Analytic, Miami), Ann Wintle (Cambridge, England) and Willy Wolfli (ETH, Zurich)
RADIOCARBON AND THERMOLUMINESCENCE DATING 1985: DREAM AND REALITY.

Radiocarbon is the most flexible and useful technique for dating young geoarchaeological carbonaceous materials. Thermoluminescence is now a family of methods reliable for dating most fired clay materials, and light-bleached nonvolcanic sediments. For all the advances within both C-14 and TL, the ambiguities of sample provenience and stratigraphy remain virtually unchanged. Paradoxically, the achievement of higher accuracies is often accompanied by lower precision; the very ingredient necessary to highest accuracy. The powerful new techniques come fully equipped with new pitfalls. (62)

Stodder, Ann W. (Colorado, Boulder)
COMPLEXITY IN ANASAZI MORTUARY BEHAVIOR: EVIDENCE FROM THE DOLORES ARCHAEOLOGICAL PROGRAM.

Data from the excavations of Basketmaker and Pueblo sites indicate a greater complexity and considerably broader range of mortuary behavior and ritual than has generally been attributed to or documented for the Anasazi. Unusual burial patterns at Dolores include cremations, the scarcity of inhumations in midden deposits, and the use of pitstructures and protokivas as tombs for double and multiple inhumations. Isolated skeletal elements in subfloor features and a mass secondary burial suggest ritual-oriented cannibalism and curation of human remains as part of Anasazi mortuary behavior. (24)

Stoltman, J. B. (see Finney, F. A.) (49)

Stone, Elizabeth C. (SUNY-Stony Brook)
MESOPOTAMIAN URBAN POPULATION STRUCTURES.

An investigation into the structuring of urban populations in ancient Mesopotamia suggests that the dichotomy heretofore assumed cannot be maintained. Instead, an urban landscape made up of numerous cells, or neighborhoods, some of which exhibit the strong kinship orientation normally associated with rural tribal groupings, can be proposed. On the basis of these findings, it may be hypothesized that population exchanges between the urban centers and their hinterlands may have been both a constant process and a significant driving force contributing to the dynamics of Mesopotamian civilization. (32)

Stone, Glenn Davis (Arizona)
THE CULTURAL ECOLOGY OF FRONTIER SETTLEMENT.

Archaeologists commonly invoke the geographer Hudson's model of colonization to explain the unfolding of settlement patterns on frontiers. The present paper reports on a recently settled frontier in central Nigeria, using individual settlement histories and aerial photographs to explore cultural ecological factors not addressed by Hudson. Agricultural labor demands are shown to exert an important influence on settlement; distances to water, well-drained soils, and settlers from other tribes very in importance as determinants of settlement location as population density rises. (12)

Stone, Jane (Montana State)
IMAGE DATABASE SYSTEMS FOR ARCHAEOLOGICAL APPLICATIONS.

Recent advances in computer technology permit economic storage and manipulation of large numbers of images, long with quantitative information. Computer graphics used with image storage systems allows for time-saving automation of many analytical tasks, and enhances our ability to apply analytical techniques such as pattern recognition and three-dimensional modeling. Integrated optical database and graphics systems for storage and analysis of visual as well as quantitative, information for archaeological applications are described. (40)

Stone, Tammy, David Dickel and Glen Doran (FSU)
THE EXCAVATION AND CONSERVATION OF WATERLOGGED BONE FROM THE WINDOVER ARCHAEOLOGICAL SITE, TITUSVILLE, FL.

Excavation of waterlogged bone from a wetland site required special precautions to prevent the material from rapidly drying, cracking, warping, exfoliating, and structurally weakening. To test different methods of conserving and stabilizing the material, experiments utilizing Polyethylene Glycol (PEG) and Rhoplex were undertaken. A comparison of the results provides information on the conservation of saturated osseous material. (71)

Storey, Glenn R. (Penn State)
OBISIDIAN UTILIZATION AT TLAJINGA 33, TEOTIHUACAN.

Through artifact, edge wear and spatial distribution analyses, the character of the 24,375 obsidian artifacts site is becoming clear. The assemblage may represent the obsidian consumption pattern for the non-elite urban residential compound; obsidian is employed in domestic, non-specialized everyday tasks taking place in generalized activity areas throughout the compound, with virtually no obsidian utilization in the known on-site ceramic and lapidary craft activities. (15)

Storey, Rebecca (Houston)
DEMOGRAPHIC PROFILE OF THE SKELETAL POPULATION AT TLAJINGA 33.

The skeletal population of 166 from the Tlajinga 33 apartment compound gives crucial information on the mortality and health profile of lower-status artesans at Teotihuacan. Through life table analysis, the most perilous ages in the lifespan are at birth and around ages 3-4. However, the average adult also had a fairly short lifespan, with most dying in their 30s. The various paleopathological health indicators that might explain these patterns and the implications of the explanations for the overall city will be discussed. (15)

Stoher, Karen E. (Texas, San Antonio)
EARLY ECONOMIES OF COASTAL ECUADOR AND THE MULTIPLE FOUNDATIONS OF ANDEAN CIVILIZATION.

Predominantly maritime subsistence economics did not develop during the preceramic or early ceramic periods on the coast of Ecuador, except perhaps in the restricted mangrove zone of the Guayas River estuary, and complex society apparently did not have a maritime origin in prehistoric Ecuador. The Maritime Foundations Hypothesis, is inappropriate to the Ecuadorian evidence, but these contrasting Andean cases illustrate Moseley's proposition that there were multiple foundations of and routes to civilization. (73)

Strickland, H. C. (see Fisher, J. W., Jr.) (53)

Stright, Melanie J. (USDI, MMS)
METHODS FOR LOCATING INUNDATED PREHISTORIC SITES IN THE MARINE ENVIRONMENT.

Prehistoric archaeological sites dating from the late Wisconsin low sea stand can be expected to occur on the continental shelf. Site locations can be predicted using: (1) published sea level curves and (2) high-resolution seismic profiles. The potential for site preservation also can be evaluated for a given area using such factors as the rate of eustatic sea level change, the slope of the shelf, sediment type, depositional environment, and by making direct inferences from seismic data. (41)

Stuiver, M. (55)

Sugiyama, Saburo (INAH, Mexico)
RECENT EXCAVATIONS IN HIGH STATUS STRUCTURES AT TEOTIHUACAN.

Recent excavations in and near major temples, civic structures, and other buildings associated with persons of high status are reported and discussed. The findings add much to our knowledge of high status and governmental aspects of the city. (2)

Sullivan, N. C. (see Goldstein, L.) (68)

Sutherland, D. (see Bonsall, C.) (7)

Tainter, Joseph A. (USDA Forest Service)
EXPLAINING THE COLLAPSE OF COMPLEX SOCIETIES.

Understanding the collapse of complex societies is one of the most persistent and elusive goals of the social sciences. Existing explanations of collapse, which focus on a variety of economic, political, historical, or mystical factors, are individually inadequate to account for it. A valid theory of collapse must specify causal mechanisms, show why particular societies are vulnerable, subsume the most

valuable parts of previous explanations, and cover the range of societies that have proven susceptible. A theory meeting these criteria is developed and tested by reference to some of the best documented cases of collapse. (44)

Tamers, M. (see Stipp, J.) (62)

Tankersley, Kenneth B. (Indiana), Patrick J. Munson (Indiana), and Cheryl Ann Munson (Indiana)
PREHISTORIC SELENITE MINING IN THE MAMMOTH CAVE SYSTEM, KENTUCKY.

Selenite crystals occur in dry clay fill deposits in numerous locations in Mammoth Cave and Salts Cave. Evidence for prehistoric mining is numerous and extensive at these locations. "Lost John," an Early or Middle Woodland miner who was crushed to death by a falling boulder in Mammoth Cave, was digging for these crystals. This paper documents the evidence for and extent of selenite mining and entertains possible prehistoric uses of these crystals. (75)

Tankersley, K. B. (see Munson, C. A.) (75)

Taschek, J. (see Ball, J. W.) (61)

Taylor, R. E. (UCR)
RADAR:¹⁴C DATES FROM RADIOCARBON IN COMPUTER BASED SYSTEM.

The Society for Archaeological Sciences (SAS) has undertaken the evaluation and possible implementation of a radiocarbon data base (RADAR) originally established by Radiocarbon Dates, Inc. RADAR presently consists of approximately 40,000 entries which codes information published in *Radiocarbon* through 1975. An evaluation of the pattern of dates published in *Radiocarbon* will be discussed. Future plans for the expansion of RADAR and the usefulness of the present coding system will be reviewed. (55)

Teltser, P. A. (see Stein, J. K.) (65)

Thomas, Frank R. (Hawaii, Manoa)
THE DECLINE OF CERAMICS ON ISLANDS: SOME AVENUES OF INQUIRY.

An interesting parallel between prehistoric insular cultures in Oceania and in the West Indies can be observed in the gradual decline in ceramic manufacture both in terms of quality and decoration. This paper reviews some of the evidences that have been suggested to resolve this problem. An attempt is made to present a model that would apply to these insular areas. It is suggested that island trade networks, over relatively large bodies of water, may have been largely responsible for restricting ceramics as status items, no longer requiring the efforts of elaboration. (18)

Thomas, D. H. (see Rovner, I.) (64)

Thomas, P. M. (see Johnson, W. C.) (69)

Thunen, R. L. (see Mainfort, R. C.) (21)

Tiffany, Joseph A. (Iowa)
MISSISSIPPIAN-MILL CREEK INTERACTION.

Even though the nature of Mill Creek-Mississippian contact and interaction is seen as direct, ongoing and to some degree developmental by many scholars, little attention has been paid to defining and evaluating the mechanisms for interaction between these two societies. The paper presents a quantitative assessment of Mill Creek-Mississippian relationships and the function of Mississippian artifacts in Mill Creek society based on WPA excavated materials from the Big Sioux phase of the Mill Creek culture. (49)

Tilley, C. (see Shanks, M.) (8)

Tipping, R. (see Bonsall, C.) (7)

Tippitt, V. Ann (UNC, Chapel Hill)
LATE PREHISTORIC AND HISTORIC LITHIC ASSEMBLAGES ON THE NORTH CAROLINA PIEDMONT.

An analysis of lithic artifacts from three North Carolina Piedmont sites spanning the Late Prehistoric to Historic has provided information on assemblage organization, stages of manufacture, raw materials, and spatial distribution of debitage and tools. Similarities between assemblages include: use of mostly local raw materials; use of small triangular projectile points; a toolkit consisting of scrapers, drills, graters, perforators, and choppers; tools made on flakes rather than bifacial preforms; and very few formalized tools manufactured for long use-life. Although the assemblages are generally

similar, there are differences in raw materials, projectile point breakage patterns, and size of triangular points. (50)

Tisdale, Mary Ann (British Columbia, Vancouver)

POTTERY TECHNOLOGY AND ECONOMIC ORGANIZATION IN THE CENTRAL BOREAL FOREST.

Between the tenth and fourteenth centuries ceramic assemblages distinctive of different Boreal Forest locales in Manitoba and Saskatchewan had developed. Given current assumptions that link pottery manufacture to sedentary life and/or intensive plant use, the production of pottery by people presumed to be nomadic hunters seems anomalous. Current research is developing and testing alternative models that define relations between ceramic technology and late prehistoric subsistence, settlement and exchange in the central North American Subarctic. (4)

Titus, Michele D. (UCLA) and Phillip L. Walker (UC Santa Barbara)
SKELETAL ANALYSIS, SAN CLEMENTE ISLAND, CALIFORNIA.

In the late prehistoric period two genetically distinct groups are represented by human skeletal remains which differ in cranial morphology, discrete traits, and frequencies of traumatic injuries. Comparative analysis of the San Clemente populations with other southern channel islands material and the Chumash skeletal material from the northern channel islands suggests important implications for Uto-Aztecan expansion into southern California. Assessment of the populations suggests different genetic origins for the people of the northern and southern channel islands. (30)

Tixier, Jacques (CNRS, Paris)

READING PREHISTORIC STONE TOOLS.

This paper emphasizes the first step in studying lithic assemblages. One must start with a technological reading of the scars of each piece, reconstructing the chronological order of the knapper's actions. This diachronic view represents a dynamic approach using: (1) experimentation (recently renewed) in order to check the observations and allow questions and answers; (2) refitting pieces (if possible) in order to know sequences followed and to define technologically the characteristic pieces coming from each phase of debitage and retouch. This reading has to be completed by crossed data from estimated strategies of raw material procurement, use wear analysis and living-floors distribution maps. After classifications, the final goal is the approach of the conceptual schemes comprehension towards prehistoric behavior. (57)

Todd, Lawrence C. (Denver) and Robert L. Kelly (Michigan)

PALEOINDIAN BISON PROCUREMENT AND LONG-TERM MOBILITY.

Data from the investigation of North American Paleoindian materials points to a marked disjunction between most settlement/subsistence models based on modern hunter-gatherers and evidence from the archaeological record. Paleoindians may not have been able to rely on the availability of information on regional resource structure from neighboring groups during periods of resource stress. Under such conditions, long-term survival required a "location-free" subsistence base and mobility pattern which included a system of bison procurement/utilization very different from that which is frequently presented. (76)

Toll, Mollie S. (UNM)

LESSONS FROM 80 YEARS OF ARCHEOBOTANICAL COLLECTION AND ANALYSIS AT CHACO CANYON, NEW MEXICO.

Review of the accumulating body of botanical data from Chaco Canyon reveals patterning of plant remains with respect to site types, and room and feature functional types. Temporal shifts in domesticates and wood usage may indicate significant adaptive and/or environmental changes. Results at 12 sites (400 flotation samples and thousands of macrobotanical items) provides confidence in the reality of observed patterning, despite sampling, preservation, and other interpretive problems which abound in the analysis of perishable materials. Chaco results seen in many regional projects are particularly illuminating on the subject of economic health and coping mechanisms throughout the San Juan Basin ca. 900-1200 A.D. (14)

Tomka, Steve A. (Texas, Austin)

SKILL AND STYLE IN LITHIC ARCHAEOLOGY: A NEW PERSPECTIVE.

This research examines the effects of craftsman's skill on debitage produced by six experimental flintknappers possessing different skill levels. Patterns in four nonmetric and five metric variables are analyzed with a number of simple and more complex statistical techniques. The influence of tool kit, raw material quality and reduction stages will be considered in interpreting the results. The study

offers a new perspective on skill and discusses its implications to the study of idiosyncratic style, identifying knappers based on their skill, and the study of lithic debitage in general. (12)

Toolin, L. J. (see Long, A.) (71)

Topic, Theresa (Trent)

DISCUSSANT'S COMMENTS.

Contemporary with Nasca is the Moche Culture of the north coast of Peru. Like Nasca, Moche is famous for its magnificent art style and monumental architecture. Also, the two cultures, though separated in space, can be argued to be in contact during the later part of the Early Intermediate Period. Discussion of the symposium papers from the comparative perspective of the north coast leads to new and exciting insights about both Nasca and Moche. (28)

Toth, Nicholas (Institute of Human Origins, Berkeley)

MODELING EARLY HOMINID BEHAVIOR AND ADAPTATION.

Comparisons and contrasts are drawn between early Stone Age ("Oldowan") hominids (ca. 1.5-2.0 mya) and modern pongids and humans. Theories of early hominid behavior and adaptation are assessed in the light of recent palaeoanthropological studies, including studies of anatomy, brain organization, technology, diet, land-use patterns, environmental changes, and organizational skills. A model is presented to account for the emergence and development of the genus *Homo* during the course of hominid evolution, and criteria outlined to assess the validity of this model. (53)

Tourtellot, G. (see Sabloff, J. A.) (27)

Trachte, Margaret C. (Washington, Seattle)

THE CHEMICAL MICROARTIFACT: AN EXTENSION OF ANALYTICAL TECHNIQUE.

In recent years, the term microartifact has been used to refer to minuscule versions of macroartifacts such as sherds, flakes, bone and shell. In this paper the definition is extended to include the chemical residues of human occupation that are retained in the sediments. SYMAPs (synagraphic maps) depicting the spatial distribution of elemental concentrations, traditional microartifacts and macroartifacts are compared to assess formation processes of two hamlet sites in the West Virginia Panhandle. (65)

Trejo, Elia del Carmen (see Gonzales, M. R.) (27)

Trierweiler, W. Nicholas (UCLA)

THE MARGINAL COST OF SUBSISTENCE PRODUCTION ON THE PAJARITO PLATEAU.

Marginal cost economic theory is used within an optimal foraging framework to predict and explain resource selection for prehistoric subsistence communities on the Pajarito Plateau, New Mexico. The marginal costs of competing food production strategies are calculated, and used to model the optimum strategy mix, and consequently, optimum diet. The models are tested with the theory in modeling prehistoric economic systems is evaluated. (56)

Tringham, Ruth (UC Berkeley)

WHO IS THE REAL SOCIALIST HERE? THE SOCIO-POLITICS OF EUROPEAN ARCHAEOLOGY.

Balken archaeology is chosen as the focus of this paper, since it has become an area of intensive archaeological activity by researchers, who span a large range of socio-political philosophies and backgrounds. The intellectual divisions, as seen in the choice of explanatory models of prehistoric change, do *not* consistently form along the expected socio-political boundaries. From a basis in the detailed examination of one particular collaboration between U.S. and Yugoslav archaeologists, this paper considers the significance of the socio-political context of the researchers in the explanation of past human behavior in Europe. (8)

Trinkaus, Kathryn Maurer (New Mexico)

MORTUARY BEHAVIOR, LABOR ORGANIZATION AND SOCIAL RANK.

Progress has been made by linking rank and mortuary differentiation to labor organization in neolithic Europe (Renfrew 1984; Hodder 1984), although study of labor organization in non-ritual activities indicates that the implied level of differentiation did not exist at this time (Trinkaus in press). Burial in megalithic tombs also may have become less exclusive when both overt and masked rank hypotheses would predict more. Better theoretical integration of ritual and non-ritual data domains is shown to link mortuary differentiation and labor organization to restricted resource access characteristic of social hierarchy. (68)

True, D. (see Crew, H.) (60)

Tuohy, D. (see Crew, H.) (60)

Tuohy, Donald R. (Nevada State Museum, Carson City)
PALEO-INDIAN/ARCHAIC CULTURE COMPLEXES FROM THREE CENTRAL NEVADA LOCALITIES.

This presentation focuses upon data from the study of three Paleo-Indian/Archaic localities in the central tier of Nevada counties. Lithic complexes from the three localities, Mud Lake, Sadmat and Long Valley will be summarized. The three localities witnessed similar Woodfordian and Two Creekan (22,000-11,000 B.P.) paleoenvironments, but environmental divergence is recorded for the three during the Early and late Mid-Holocene (11,000-3,200 B.P.). This environmental divergence was accompanied by cultural divergence which will also be elucidated. (31)

Turner, Kenneth R. (Alabama)
MORTUARY CAVES IN ALABAMA.

Of the several mortuary caves within the Cumberland Plateau, the majority are described in published reports as expressions of the Copena mortuary complex, although some are recognizable only as early or late Middle Woodland. In Alabama, unlike other regions, no mortuary caves derive from the Late Archaic. For several dental health characteristics, the skeletal remains from these caves are intermediate to Archaic and Mississippian series from the same region. Morphologically, the mortuary cave skeletal series are more similar to Mississippian series, implying a relationship unlike that inferred farther north. (75)

Turner, Margaret H. (Rochester)
LAPIDARY PRODUCTION AT TEOTIHUACAN, MEXICO.

Continuing study of the lapidary industry at Teotihuacan, Mexico, has revealed production in a variety of media, including jadeite, serpentine, shell, onyx, and slate. Lapidary workshop areas are identified and examined in relation to the location of Teotihuacan ceramic and obsidian production. Particular attention is paid to the spatial relationships between areas with high densities of lapidary materials and routes of transportation and public and residential buildings. Social aspects of lapidary production and distribution are also discussed and compared with other known lapidary production systems. (2)

Tuross, Noreen C., (NIH, Bethesda)
BIOCHEMICAL CHANGES IN BONE AFTER DEATH.

A temporal series of bones collected and previously described by Dr. Anna K. Behrensmeyer (Smithsonian) were analyzed. While collagen levels fell with the number of years after death, the extractability of this protein increased until approximately nine years postmortem, all protein could be removed under denaturing conditions. Discrete, intact proteins can be seen in gel electrophoresis bands from several of the extracts of these bones. The data suggest that several biochemical parameters show predictable, sequential changes with time, and that these changes may constitute a progression through which a bone proceeds on its way to the archaeological setting. (4)

Urban, Patricia A. (Kenyon)
THE WORLD-SYSTEMS PERSPECTIVE AND THE STUDY OF PREHISTORIC MESOAMERICA.

One macro-regional model applied to Mesoamerica by, e.g., Pailles and Whitecotton (1979) and Blanton and Feinman (1984) is Wallerstein's world-system analysis, developed to understand the origins and growth of capitalism. This paper assesses the strengths and weaknesses of a world-systems approach to Mesoamerica, relating interest in this model to general anthropological concerns such as the use of systemic modeling, the significance of trade in pre-industrial economies, and the substantivist and formalist approaches to economic analysis. (79)

Van Tilburg, Jo Anne (UCLA)
THE EVOLUTION AND INTERACTION OF DOMINANT-SUBORDINATE GROUP IDEOLOGY ON PRE-CONTACT EASTER ISLAND.

An examination of Easter Island sculptural style supports the archaeologically suggested existence of a single, coherent yet-evolving cultural tradition. The monolithic sculptures were the primary symbol of the dominant ideology, but recent evidence illustrates the presence of a subordinate, originally integrated cult tradition which played a pivotal role in the modification and ultimate rejection of the dominant ideology. An analysis of iconography traces the highly directed role of sculptural symbol in the maintenance of social control. (5)

Vance, Elizabeth D. (APTech)
MICROARTIFACT ANALYSIS PROCEDURES, PAST, PRESENT, AND FUTURE.

Fladmark first discussed microartifacts and suggested techniques for their identification in 1982. Most people working in the field since have started from his procedures, modifying them to suit

specific needs for acquisition, identification, or quantification of microartifact data. This paper discusses procedures that have been used in all three aspects of microartifact analysis. It presents some state-of-the-art and state-for-the-future options for physical and chemical identification and quantification. It also discusses the advantages of a consensus of accepted procedures for microartifact analysis. (65)

Vera Cruz, Pablo de la (Instituto de Estudios del Sur)
CHANGING PATTERNS OF LAND USE NEAR CABANA CONDE, PERU.

This paper discusses changes in the patterns of land use in the central Colca valley, southern Peru. A Middle Horizon site appears near the present town of Cabanaconde, taking advantage of the low slope in that area to cultivate maize. Occupations in the Late Intermediate Period are found on the surrounding ridgetops, with substantial terracing of the slopes around the sites. The Inca continued exploiting these areas, but placed their administrative center down near the town again. Social as well as environmental factors are thus seen as operating in the evolution of land use in this region. (11)

Vernon, Richard (Florida Bureau of Archaeological Research, Tallahassee)
17TH CENTURY APALACHEE COLONO-WARE AS A REFLECTION OF DEMOGRAPHY, ECONOMICS, AND ACCULTURATION.

Research at British colonial sites on the south Atlantic coast suggests colono-wares were produced by both African slaves and Indians to supplement European ceramics. Apalachee colono-wares are almost exclusively serving vessels as opposed to the cooking and storage vessels found on British colonial sites. Additionally, Apalachee colono-wares exhibit no decline in quality from pre-contact aboriginal ceramics. These differences reflect demographic and acculturative patterns unique to this part of 17th century Spanish Florida. (22)

Villa, Paola (Colorado, Boulder), J. Courtin and D. Helmer (CNRS, Marseille)
BUTCHERING DISCARD AND DISPERSAL OF BONE AT A FRENCH CAVE.

This paper presents the study of ten clusters of wild and domestic animal bones—some intact, some disturbed—from a Neolithic French cave. A flexible research strategy, based on refitting, spatial coordinates and thick stratigraphic units, is advocated for caves, where the degree of mixing can be quite high and the identification of living floors is a matter of doubt. With the help of coordinates, isolated features can provide information whose value far exceeds their small size. (74)

Vivian, R. Gwinn (Arizona State Museum)
AGRICULTURAL AND DOMESTIC WATER USE IN CHACO CANYON, NEW MEXICO.

Chacoan culture developed between the 10th and 13th centuries A.D. in one of the most arid zones in northwestern New Mexico. The earliest and most complex developments occurred in Chaco Canyon where precipitation patterns and local topography created conditions favoring water use based on capture of runoff. Most water control studies have focused on water collection systems for agricultural production. To more fully understand Chacoan development, other aspects of production and scheduling must be considered including the importance of sediment transport and yield in field areas, and water collection for domestic use, particularly major structural additions to Chacoan Great Houses. (26)

Voigt, Eric E. (UMC) and Andrea A. Hunter (UMC)
EARLY HISTORIC ENVIRONMENTS ALONG THE MARGIN OF THE SOUTHERN PRAIRIE PENINSULA.

Data derived from three sources—General Land Office (GLO) surveys, USDASCS soil surveys and interpretation sheets, and historical narratives—are used to develop a model of the distribution of grassland and timber biomes during the Neo-Boreal climatic episode (400-100 B.P.) in western Missouri. The results provide further evidence for areas of forest expanding onto areas of prairie soils as a result of a relatively cool and wet climate. Further discussion focuses on such things as forest density and the distribution of economically important plant taxa as they relate to Osage and Missouri subsistence strategies. (39)

von Winning, Hasso (Southwest Museum)
ICONOGRAPHY OF A TEOTIHUACANOID SLATE MIRROR BACK.

The low relief carving on an unprovenanced slate mirror back, with predominantly Teotihuacan iconographic features, still preserves its original determinative polychromy. The theme, with its mirror symbolism associated with the person portrayed, may indicate an early manifestation of a deity known in the Postclassic as Tezcatlipoca. It is suggested that the concept of a Red Tezcatlipoca/

Xipe was linked to the ancient mirror tradition in the southern Gulf Coast region since the 7th century. (15)

Voss, Jerome A., and C. Baxter Mann (Southern Mississippi)
STYLISTIC VARIATION IN HISTORIC CHOCTAW CERAMICS.

Recent expansion of archaeological knowledge concerning the historic Choctaw in Mississippi enables archaeologists to systematically describe early Choctaw material culture and to approach problems of eighteenth century Choctaw sociopolitical organization and acculturation. This paper addresses several issues: (1) the range of ceramic design variability; (2) combed design application and its relationship to Choctaw-European interaction; and (3) design variation within communities, between communities, and between geographic divisions of the historic Choctaw confederacy. (6)

Voytek, Barbara A. (Stanford)
DOMESTIC PRODUCTION AND EXCHANGE: A CONTRADICTION?

This paper represents an attempt to examine prehistoric exchange within neolithic society in a structural sense rather than as an empirical type. It accepts as a premise the argument that any system of resource distribution should not be studied separately from production. However, within a domestic mode, production is supposedly geared toward use not exchange value. The paper reviews approaches to the study of exchange in precapitalist societies. It incorporates data on production and exchange of stone from the neolithic site of Opovo in Yugoslavia to examine connections between production, acquisition, distribution, and use within a particular social context. (16)

Wagner, Mark J. (American Resources Group)
THE JAMESTOWN SITE (21C4-14), A LATE WOODLAND COMMUNITY IN INTERIOR SOUTHERN ILLINOIS.

This site is a large circular Late Woodland community in the Galum Creek drainage in Perry County, Illinois. Excavation of the central site area revealed over 600 pit features including storage pits, hearths, structures, and burials grouped in clusters around a central open courtyard, the center of which was marked by two large posts. Radiocarbon dates indicate the site was occupied from A.D. 250-1000 with the circular village pattern developing by A.D. 600-800. Analysis of a sample of the botanical data indicates an emphasis on nut crops available in the immediate site area with cultigens being of less importance. (19)

Waldbauer, Richard C. (Brown/White Mountain National Forest)
THE TRANSFORMATION OF A RURAL IDEAL: FARM STRATEGIES AND FAILED PRACTICE.

The pre-commercial hill farms of nineteenth century northern New England are used as the context to examine traditions in rural life. After the mid nineteenth century, farmers reacted to changes in the national economy that benefited commercialized agriculture and mono-cropping. They adapted their pre-commercial strategies in attempts to evolve improved practices from well-tried methods. In transforming their farms, northern New Englanders re-defined their rural values, giving them concrete expression in the physical world. (34)

Walker, P. L. (see Titus, M. D.) (30)

Wallace, William J. (Redondo Beach) and Francis A. Riddell (Sacramento)
PREHISTORIC BACKGROUND OF TULARE LAKE, CALIFORNIA.

Prior to modern agriculture, California's southern San Joaquin Valley contained three large, shallow lakes, the largest of which was Tulare Lake. The lake was subject to great fluctuations in size and level, but seems never to have completely dried up. Artifacts from lakeshore localities range from Clovis or Clovis-like to historic point styles, suggesting that Tulare Lake's biologically rich lake-marsh environment served as a strong and enduring attraction to native peoples from late Pleistocene times into the historic period. (31)

Wallace, Dwight (SUNY-Albany)
DISCUSSANT'S COMMENTS.

These new interpretations of south coastal prehistory will be discussed in terms of the currently held views. The intellectual and empirical bases of the old dogma will be explained and the new data will be critically assessed. Unpublished data on the ceramic sequences from Ica and Pisco will be presented. (28)

Wandsnider, LuAnn (New Mexico, Albuquerque)
THE REMOTE SENSING EVALUATION OF THE DIFFERENTIAL INTEGRITY OF SURFACE ARCHAEOLOGICAL ASSEMBLAGES.

Natural processes modulate the integrity of the archaeological record. The spatial scale and magnitude of this modulation, however, varies with terrain and landform. This variability is assessed

using remotely sensed indicators or surface stability for several Seedskadee survey units in southwestern Wyoming. The differential integrity of the Seedskadee archaeological record is evaluated in light of this assessment of surface stability. (74)

Wapnish, Paula (Smithsonian)
BONES, CUNEIFORM TEXTS AND FOLK TAXONOMY.

The use of cuneiform texts to enhance analyses of animal bones from early Mesopotamia raises a critical question, "just how 'etic' are these texts?" The introduction of folk taxonomy focuses not only the situation presented by the texts themselves and their translation, but the proclivity of archaeozoologists to work solely within the 'etic grid.' Faunal analysis and folk taxonomy bear productively on the understanding only if we understand the contrasts and similarities well enough to frame questions tailored to specific contexts. (32)

Ward, H. T. (see Dickens, R. S.) (50)

Ward, H. Trawick (UNC, Chapel Hill) and Homes H. Wilson (UNC, Chapel Hill)
MORTUARY BEHAVIOR, HUMAN SKELETAL REMAINS, AND CULTURE CHANGE IN THE NORTH CAROLINA PIEDMONT.

Mortuary patterns at Fredricks site are compared with those of other Siouan sites occupied during the Protohistoric and early Historic periods to elucidate changes in spatial organization, pit morphology, and grave associations. Shifts in mortuary practices indicate internal systemic adjustments to a destabilized cultural environment. Demographic and pathological information and the results of a trace element assay on the Fredricks site burials are also compared with similar data from a Protohistoric skeletal population. (50)

Warneke, L. E. (see Long, A.) (71)

Warren, Claude N. (Nevada, Las Vegas) and Carl Phagan (Flagstaff, Arizona)
FLUTED POINTS IN THE MOJAVE DESERT: THEIR TECHNOLOGY AND CULTURAL CONTEXT.

Fluted points occur as isolated finds, as surface finds "associated" with Lake Mojave points, and in a buried component containing Lake Mojave points. The fluted points from the Mojave Desert have been thought to differ technologically from the Lake Mojave points. The authors present results of a technological analysis of eight fluted points and a sample of Lake Mojave points from the central Mojave Desert, together with a review of data relevant to chronological and cultural contexts of the fluted points. (31)

Wasselkov, Gregory A. (Auburn)
CULTURE CHANGE ON THE CREEK INDIAN FRONTIER.

The dynamics of Creek-European interaction in the colonial Southeast can be viewed from two perspectives. The increasing frequency and intensity of social interactions led to Creek demographic and cultural adaptations to intrusive European and African populations, to introduced material goods, and to Old World epidemic diseases. Economic interaction took the course of escalating European exploitation of regional resources leading to the assimilation of the Creek subsistence system into the European trade network and world market. Archaeological and ethnohistorical evidence for these transformations are discussed. (33)

Washburn, Dorothy K. (Rochester)
THE SIGNIFICANCE OF MOTIF SHAPE.

Research among the Bushong, Bakete, Bangende and Bashoba tribes of the Bakuba Kingdom, Zaire revealed that raffia cloth patterns are specifically named, but that within any named pattern wide variations in motif shape are perfectly acceptable. Research on orientation, alignment, and symmetry of the motifs suggests that these features may be as important as overall shape in determining cultural appropriateness. These findings are related to archaeological classification practices which separate these various motif forms. (52)

Washer, N. E. (see Collins, M. E.) (22)

Watanabe, Luis (Museo Peruano de Ciencias de la Salud, Lima)
INCA OCCUPATION IN THE OSMORE DRAINAGE, PERU.

Recent researches of the Programa Contisuyu in the Moquegua (upper drainage) and Ilo (lower drainage) valleys of the Osmore drainage have revealed the presence of a number of sites which date to the period of Inca imperial expansion into southern Peru. This paper reviews the location and configuration of these sites, and the results of surface collection and/or test-excavation at a number.

Variability in the distribution of Inca materials is discussed in the context of available ethnohistoric documentation of Inca occupation in the drainage. (3)

Watson, P. J. (75)

Watson, Scott C. (Delaware) and Jay F. Custer (Delaware)
MIDDLE-LATE WOODLAND CERAMIC DESIGN GRAMMARS OF THE MIDDLE ATLANTIC REGION, EASTERN UNITED STATES.

Two distinct ceramic design grammars are present in the region during Late Woodland times (ca. A.D. 1000-A.D. 1600). One set of grammars, which is relatively simple, is found in coastal areas and is associated with Algonkian-speakers. The second, much more complex, grammar is found on ceramics from the Piedmont, Ridge and Valley, and Allegheny Plateau areas and is associated with Iroquoian-speakers. Design grammars of Middle Woodland Abbott Farm ceramics are not similar to those of local, later Algonkian-speakers and suggest population movements during late prehistoric times. (52)

Watters, David R. (Carnegie Museum)
FUNDAMENTAL PALEOECOLOGY: THE NEGLECTED FACTOR IN LESSER ANTILLES ARCHAEOLOGY.

This paper's central thesis is that archaeologists, for the most part, have ignored (or inadequately considered) fundamental relationships between ecological and cultural processes in the Lesser Antilles. Yet, human adaptation to the small and resource-limited islands of the Lesser Antilles was affected by environmental diversity, variation, and constraint. Integration of ecological and cultural studies is vital for the Lesser Antilles archipelago, even more so than for other island groups located elsewhere in the Caribbean region. (5)

Webb, Clarence H.
THE RED RIVER DUGOUT AND CADDO I TRADE AT A.D. 1000-1100.

Radiocarbon dates of A.D. 1005 and 1065, from a cypress dugout canoe found beneath the Red River bank, coincide with A.D. 1050 and 1090 dates from a tomb at the Caddo I Mounds Plantation site, ca. 15 km downstream. This is the midpoint of the Gahagan-Mounds-Crenshaw axis of early Caddoan ceremonial centers between Natchitoches and the Fulton Bend, whose social stratification incorporated a rigorous burial complex, sacrificing abundant exotic materials and objects. Dugout travel on the major rivers must have enhanced the exchange system for nonlocal materials and finished goods, including contacts with centers like Spiro and Cahokia. (36)

Webb, E. (see Cane, S.) (18)

Webb, Esmee (London)
WHAT MEAN THESE BONES? INTERPRETING THE FAUNAL DEBRIS FOUND IN SITES OCCUPIED BY NEANDERTALS.

Whereas even 10 years ago it was still largely assumed that animal bones found in association with stone artifacts on Middle Palaeolithic sites reflected human dietary behavior, recent research has shown that this assumption is open to question. Any individual "layer" from such sites usually represents a palimpsest of deposition over an unknown period of time to which people, other carnivores and rodents have contributed. Examples of the problems encountered in analyzing faunal material will be given from sites in western Europe. Criteria will be proposed for future research to disentangle the nature of this faunal record. (63)

Webster, David L. (Pennsylvania State)
EXCAVATIONS IN RURAL DOMESTIC COMPLEXES AT COPAN, HONDURAS.

Despite the vogue of settlement research in the past twenty years, Maya archaeologists have generally avoided large scale excavations of rural sites. A program of rural excavations is being carried out in conjunction with extensive surveys at Copan. These excavations serve as a check on earlier survey and test-pitting operations, and also provide a picture of the Late Classic (circa 700-800 A.D.) rural settlement components which supported the growth of a major Maya organizational center. (32)

Webster, D. (38)

Weigand, Phil C. (S.U.N.Y. at Stony Brook)
TURQUOISE MINING COMPLEXES IN NW MESOAMERICA.

Turquoise mining complexes in the NW sectors of ancient Mesoamerica, including adjoining and/or nearby peripheral zones, have been examined as isolates. They have been treated as: (1) isolated from the surrounding and supporting settlement system, and (2) isolated from one another. The purpose of this study to examine turquoise mining complexes in the composite, in order to illustrate:

(1) their great scale; (2) their ecological importance for the overall Mesoamerican trade structure; and (3) their importance in the formation of many of the complicated societies within the mineral zone. (10)

Weinstein, Eri (Texas A&M)
ANCIENT DIET RECONSTRUCTION AS INFERRED FROM HUMAN BURIAL POLLEN, NAN RANCH SITE.

Soil samples collected from the abdominal cavity area of human skeletons are examined for fossil pollen and compared with the pollen assemblage from each respective burial. Statistically significant divergence of the burial context pollen for the pollen rain frequencies from control samples indicates evidence of selected ingestion of floral foods. These data may: (1) aid in determination of plant foods or medicines in the aboriginal diet of the site's inhabitants; (2) predict the season of burial; and (3) distinguish between the normal pollen rain of the area and the pollen of floral foods preserved within the abdominal cavities of the skeletons. (37)

Weir, Glendon H. (Texas A&M)
MIDDLE TO LATE ARCHAIC DIETS AND SUBSISTENCE ON THE CENTRAL COAST OF PERU.

Data from the Paloma site document use of a variety of mostly wild plant and some terrestrial animal resources as major components in essentially marine diets from ca. 5500 to 3500 B.C., while marine resources continue to dominate but are more frequent after 3500 B.C. until abandonment around 2500 B.C. This dietary emphasis is found at Chilca I and other sites on the central coast through Late Cotton Preceramic times (ca. 2500 to 1800 B.C.). Mostly marine animal and wild terrestrial plant resources appear complementary in diets, suggesting recent explanatory models for the subsistence basis of early complex societies need refining. (73)

Westfall, D. (see Davis, W. A.) (26)

Whalen, Michael E. (Tulsa)
A RAPID TECHNIQUE FOR THREE-DIMENSIONAL SITE MAPPING IN THE SOUTHWESTERN UNITED STATES.

This paper proposes and illustrates a rapid, inexpensive, and thorough method for three-dimensional mapping of sub-surface deposits using a large-scale aerial photograph and a hand-operated soil corer. The technique was recently used to guide intensive excavations in the Southwestern U.S., and these data are reviewed to illustrate the power and accuracy of large-scale coring in general stratigraphic reconstruction, location and definition of buried features. (40)

Whitley, David S. (UCLA) and Marilyn P. Beaudry (Smithsonian)
COMMUNITY STRUCTURE AND ECONOMIC CHANGE AT SIN CABEZAS.

Sin Cabezas, Tiquisate, Guatemala, is a portion of a major archaeological zone containing Late Preclassic through Late Classic monumental architecture, sculpture, and residential remains. Work in the region has illustrated Olmecoid sculpture and large quantities of Teotihuacan-style ceramics from diverse areas of the zone. We describe recent excavations in residential areas of Sin Cabezas, and the changing household economics and community structure found at different time periods, as well as the implications of these changes for inter-regional trade in Mesoamerica. (1)

Whittington, Stephen L. (Penn State)
DISEASE STRESS IN THE LOWER CLASSES OF LATE CLASSIC COPAN.

The interplay of nutritional and infectious diseases leaves unique evidence of stress on human skeletons (age at death, childhood disease pattern, lesions) and population structure (average age at death, childhood morbidity rates, prevalence of specific diseases). Results of an epidemiologic analysis of Late Classic skeletons excavated at lower class urban and rural residential compounds lead to conclusions about the quality and quantity of available food in rural and urban settings and the functioning of Maya society during the time period preceding the collapse. (38)

Whyte, Thomas R. (Tennessee, Knoxville)
A MIDDLE WOODLAND FISHERY OF THE LOWER CHESAPEAKE BAY.

Faunal remains from Middle Woodland pit features at the Addington site (44VB9), Virginia Beach, Virginia, represent diverse terrestrial, avian, freshwater, and marine species. The presence of anurans that had fallen into open pits indicates a summer seasonality of refuse deposition. Marine fish species composition indicates a summer fishery which focused on the use of nets or weirs in shallow estuaries adjacent to the site. The Contact period subsistence pattern observed for Virginia coastal Algonquins was in effect by Middle Woodland times. (71)

Widmer, Randolph J. (Houston)
PRODUCTION AND ECONOMIC DISTRIBUTION OF CRAFT ITEMS AT TEOTIHUACAN: INFERENCES FROM TLAJINGA 33 AND MAQUIXCO BAJO.

Two extensive excavations of Classic Period sites seem to possess distinct attributes in the procurement and production of craft items. Evidence suggests that raw material is bulked in through a number of different nodes and is then obtained by craft specialists within a central market. Maquixco Bajó represents a procurement/import node, while Tlajinga 33 represents a production site. A centralized network of exchange, assumably under state control, the market, is necessary for the procurement and distribution of both the raw material and the finished products. [15]

Wieggers, Robert Paul (Missouri, Columbia)
ARCHAEOLOGICAL EVIDENCE FOR OSAGE, CADDO, AND PAWNEE CONTACT.

Between 1673 and 1830 the Osage Indians in Missouri are believed to have experienced several cultural changes. These changes are suspected to come from tribes the Osage were in contact with. Recent NEH research and analysis of artifacts from several Osage sites indicates contact between the Caddo and the Pawnee in protohistoric and contact periods. The evidence for contact is described, the type of contact that might account for the presence of the artifacts on Osage sites is discussed, and the importance of Caddo and Pawnee contact is integrated into the general scenario of Osage cultural change. [39]

Wilcox, David (10)

Wildesen, Leslie E. (Colorado Historical Society)
ARPA AND THE CONCEPT OF MORAL ABSOLUTES.

The Archaeological Resource Protection Act states that unauthorized disturbance or removal of archaeological resources is unlawful and prescribes two mechanisms for assessing penalties to violators. Those who would enforce the moral absolute ("digging without a permit is wrong") too often fail to understand that these prescribed mechanisms operate on a sliding scale of values. Thus, the question is not only "is this person guilty" but also "if so, how guilty?" Both archaeologists and enforcement staff need to distinguish the "whether" from the "how much" questions. [51]

Williams, Joyce A. (Illinois, Urbana-Champaign)
LITHIC TECHNOLOGY AT THE RANGE SITE, SOUTHWESTERN ILLINOIS.

The Range site has yielded a large assemblage of lithic materials. These materials were analyzed in an attempt to document temporal trends in the following three areas: (1) Lithic raw material sources exploitation and the nature of the procurement system; (2) Lithic material manipulation for food processing and preparation, tool manufacture, ceramic production, and incorporation in ceremonial activities; and (3) Intra-site distribution of tool remains as regards activity areas and special site function. [78]

Williams, Sloan R. (Northwestern) and Jane E. Buikstra (Northwestern)
HUMAN REMAINS FROM ESTUGUINA.

In this presentation we describe and analyze osteological variability in the mortuary component of Estuquina, a Late Intermediate site located within the Osmore drainage in the department of Moquegua, Peru. Special emphasis is placed on the examination of spatial organization of human remains within the site, through variation in sex, age-at-death, cranial deformation, and grave offerings. Evidence of nutritional deficiency and epidemic disease are also discussed within the broad context of human adaptation in the Osmore drainage. [3]

Williams, Stephen (Harvard)
FANTASTIC ARCHAEOLOGY: HOW SHOULD IT BE DEALT WITH?

The subject, variously termed Cult or Pseudo-Archaeology, has until recently been almost ignored by the Profession, perhaps with the hope that it would go away. That is not the case, and action such as this symposium and well-done debunking books and articles are a better solution. Students on both graduate and undergraduate levels should also be exposed to coverage of "alternative explanations." The great challenge is to present *real* archaeology to the public in a fascinating manner. [9]

Willig, Judith A. (Oregon, Eugene)
LAKESIDE SETTLEMENT PATTERN IN THE DIETZ SUB-BASIN: GEOARCHAEOLOGICAL CONTEXT OF FLUTED AND STEMMED POINTS.

A model of lake history and settlement pattern in south-central Oregon's Dietz basin posits a late Pleistocene (Clovis) occupation around a small, shallow lake/marsh and an early Holocene (Western Pluvial Lakes) occupation around a much larger, slightly deeper lake/marsh. Extensive survey reveals

51 sites occurring along the hypothesized WPL shoreline, 32 of these contain diagnostic tools. Data bearing upon the precise context of fluted/stemmed points are reviewed. [31]

Willis, S. C. (see Buck, P. E.) (40)

Wilson, H. H. (see Ward, H. T.) (50)

Wilson, Samuel M. (U. of Chicago)

THE PRESTIGE GOOD SYSTEM IN THE PREHISPANIC CARIBBEAN.

The prestige good system of the Taino Indians of the Greater Antilles played a critical role in the integration of elite lineages throughout the islands, and, as a principal channel for the interaction of political units, acted as a catalyst for social and political change. The Taino system, however, differed significantly from the Polynesian and West African models which have been widely used by archaeologists as archetypes for exchange and redistribution among "chiefdom" societies. In the context of an analysis of the Taino, the importance of differing systems of prestige good trade on patterns of social and political change is discussed. [44]

Wingard, J. (see Rue, D. J.) (38)

Winterhalder, Bruce (North Carolina, Chapel Hill)

ETHNOECOLOGICAL STUDIES OF TERRACE AGRICULTURE ON THE SOUTHEASTERN ESCARPMENT OF THE ANDES.

Extensive, rock-faced terracing on steep slopes in the Province of Sandia supports a productive rainfall agriculture based on potato, oca, and maize. This paper will present preliminary results of a multi-disciplinary investigation of the pre-Columbian origins, structure, and current use of the Cuyo-Cuyo terraces. Archaeological survey for purposes of establishing cultural affiliations and late prehistoric settlement pattern will receive emphasis. [11]

Wintle, A. (see Stipp, J.) (62)

Wise, Karen (Northwestern)

ARCHAIC SUBSISTENCE AND SETTLEMENT IN COASTAL MOQUEGUA, PERU.

Data from central Peru and northern Chile indicate a high degree of specialization in coastal resources during the Archaic Period, but large portions of coastal Peru remain largely unknown in terms of the archaeology of this period. Preliminary reconnaissance in the Department of Moquegua, in southern Peru, indicates substantial Archaic occupation of the coast and an apparently heavy reliance on maritime resources for subsistence. This paper presents a model of Archaic subsistence and settlement on the coast of Moquegua, and outlines the work being done to test this model. [73]

Wobst, H. M. (7)

Wolfl, Willy (IMP, ETH Zurich)

RADIOCARBON DATING WITH THE ZURICH AMS FACILITY.

The carbon 14 and carbon 13 concentrations of up to 50 very small (mg) samples can be measured per day with the new accelerator mass spectrometry (AMS) technique. Such a high capacity leads to an enormous amount of data, which can be handled only with a sophisticated computer controlled data acquisition and evaluation system. The principle of our new data base system will be described using the results of the AREC project on radiocarbon dating of Egyptian Pyramids as an example. [55]

Wolfl, W. (see Stipp, J.) (62)

Wolfl, W. (see Haas, H.) (55)

Wood, Malcolm G. (English Heritage, London)

THE MARKETING AND INTERPRETATION OF ENGLAND'S HERITAGE.

The creation in 1984 of a new public body to preserve, present and promote Stonehenge and over 350 ancient monuments and historic buildings throughout England is a unique challenge. Public perception of this organization, its properties, and its wide role in heritage conservation, needs to be sharpened and developed. Visitor attendances of over 4 million in 1985 are being boosted through new marketing and public relations initiatives. Improvements in interpretation of sites, with better publications, graphics, visitor management, and special events, will all contribute to increased demand and appreciation of historic properties. [58]

Woodbury, R. B. (35)

Woodman, Peter C. (UCC, Ireland)

THE IRISH MESOLITHIC—THE DEVELOPMENT OF AN INSULAR MESOLITHIC TRADITION.

The beginnings of continuous settlement in Ireland would seem to have taken place as late as 7000 B.C. Traditionally it has been assumed that early settlement was confined to the North Eastern part

of Ireland, but recent research has shown that man spread very rapidly throughout the whole island. Research is now concentrating on the possibility of regional variation and, in particular, on how Ireland's narrow range of fauna may have influenced the development of the Irish Mesolithic. (7)

Wright, Phillip J. (Ontario Ministry of Citizenship and Culture, Ottawa)
FORAGING BEHAVIOR ON WOODLAND UNDERWATER SITES.

Primary underwater deposits offer a new source of data on the foraging behavior of prehistoric people. To date, it has been the land based archaeological record which has been used to provide the framework for the analysis of hunter-gatherer activities. Due to a favorable depositional environment, underwater deposits provide a new body of data to both evaluate and augment the land based record. Specifically, the data examined deal with subsistence pattern, discard behavior and artifact assemblages, and are based on material from sites in the Gananoque River drainage of eastern Ontario. (41)

Wylie, Alison (UWO, London)
MATTERS OF FACT.

The "foundationalism" of positivist archaeology has been decisively challenged in recent years; it is now widely accepted that "facts" cannot be treated as immutable givens. Many post-positivist researchers seemed compelled, as a result, to embrace a radical relativism whereby the past is whatever we choose to make it or need it to be. I will examine two arguments leading to this conclusion: the epistemological argument from theory-ladenness in observation, and the politically informed argument from the interest-specificity of the discipline considered as a human enterprise. Even though these arguments do establish the underdetermination of archaeological interpretation by all available evidence, they do not secure the conclusion that all potential conceptions of the past must be granted equal credibility "relative to context," many are just wrong and can be decisively eliminated. (8)

Yatsko, Andy (Naval Air Station, North Island, San Diego)
SAN CLEMENTE ISLAND RESEARCH UNDER NAVY AUSPICES.

From the late nineteenth century, San Clemente Island has experienced intermittent periods of archaeological activity, attracted by the rich and pristine character of its archaeological resources. Most recently, under the impetus of Federal historic preservation legislation, the U.S. Navy, the Island's custodian for the last 50 years, has sponsored an ongoing program of archaeological field research by academic institutions. This program offers an innovative, economical and successful example of cooperative research designed to meet both the academic goals of the institutions involved and the management needs of the Navy. (30)

Yelton, Jeffrey K. (Missouri, Columbia)
CHANGES IN OSAGE-MISSOURI-INDIAN PROCUREMENT AND USE OF ANIMALS: 1675-1825.

An analysis of faunal remains from six historical Indian sites vividly demonstrate cultural change. Four trends in animal use are indicated: (1) diversity of procured game decreases as hunters concentrate on species with exchangeable hides; (2) the importance of deer is heightened; (3) beaver and racoon increase in importance late in the period; (4) consumption of dogs becomes a minor practice. (39)

Yerkes, Richard W. (Ohio State)
LITHIC ANALYSIS AND ACTIVITY PATTERNS AT LABRAS LAKE.

Lithic assemblages from four small Late Archaic (1850-800 B.C.) settlements on the Mississippi floodplain were examined and compared with the chipped stone artifacts associated with the site's Late Woodland (A.D. 900) and Mississippian (A.D. 1235) components in an investigation of changes in stone tool manufacturing and utilization at this prehistoric locality. The distribution of tools, debitage, and debris was examined, refitted artifacts were plotted, and microwear analysis was conducted in order to define areas of stone tool manufacturing and repair, determine tool function, and isolated activity areas. (57)

Yesner, David R. (Southern Maine)
PREHISTORIC COASTAL ADAPTATIONS ON THE NORTHERN BEAGLE CHANNEL, TIERRA DEL FUEGO, ARGENTINA: A COMPARATIVE PERSPECTIVE.

The antiquity of maritime adaptations in this region now spans some 6,000 years, and apparently began with a focus on sea-mammal hunting that only later encompassed shellfish collection. Critical factors in the penetration and use of coastal resources in the region include early Holocene forestation and postglacial sea-level changes. Expanding population densities may be related to intensification of marine exploitation, but a lack of fish resources prevented the development of characteristics associated with coastal adaptations in subarctic environments. (20)

Yoffee, N. (32)

Zagarell, Allen (Duke)
URBAN/RURAL RELATIONS IN GREATER MESOPOTAMIA DURING THE IV§/MILLENNIUM.

The IV§/ millennium in Greater Mesopotamia represents the period of the emergence of centralized institutions in the lowlands and distinct material cultures in the surrounding highlands. The predominantly urban lowlands and rural highlands are, however, organically linked by the articulation of their different *dominant* modes of production. Each mode has its own systemic logic and gives birth to diverse social formations. This paper rejects the Service model as blurring those aspects which are key to understanding the forces underlying multilineal evolution. (32)

Zimansky, Paul E. (Boston U.)
THE URARTIAN MONARCHY AND PASTORALIST POPULATIONS IN IRON-AGE ANATOLIA.

The Urartian state dominated a mountainous region in which pastoral production normally accounts for a large segment of the subsistence base vis-a-vis sedentary agriculture. Textual and archaeological evidence suggest that the central government was highly dependent on semi-nomadic groups. The relationship between monarchy and pastoralist is seen as an adaptive mechanism by which Urartu was able to retain political independence at a time when the rest of the Near East was coerced and incorporated by Assyria. (32)

Zubrow, Ezra B. W. (SUNY/Bufalo; Buffalo, New York)
PREHISTORIC STYLE AND THE ARCHAEOLOGICAL FRAME OF REFERENCE.

Understanding of the grammar of prehistoric style is partially based upon understanding the "frame of reference" of the prehistoric artist and the "frame of reference" of the archaeological analyst. This paper reports upon a series of experiments designed to separate these "frames of reference." Newly created and traditional prehistoric taxonomies are studied. In some cases fractals are used to analyze what are apparently distinctive but what are actually similar stylistic categories. Data comes from several prehistoric and historic sites in the Northeast, including the Martin Site. (52)

Zuidema, R. Tom (Illinois, Urbana)
NAZCA LINES, NAZCA ART AND ANDEAN RITUAL.

Looking for analogues in Andean culture at the time of the Spanish conquest to the concept expressed by the Nazca lines, the descriptions of ritual races come first to mind, not so much for the practice itself, as well for the concept of a concentric system of straight directions related to it. Panflutes played an important role at the time of planting in the use of concentric systems; their representations in Huarí and Nazca art help to make suggestions about the ritual use of the Nazca lines. (28)

Zurita, Noguera, J. (see McClung de Tapia, E.) (15)

Zvelebil, Marek (Sheffield, England)
MESOLITHIC OF TEMPERATE EUROPE AND ASIA: QUESTIONS OF TIME, SCALE AND ORGANIZATION.

Mesolithic of temperate Eurasia can be regarded as a set of cultural responses to the development of temperate conditions in areas which were formerly glaciated or periglacial. It is argued that these developments committed Mesolithic society towards increase in food procurement and that the Mesolithic represents a pathway towards socio-economic intensification taken to the limit of the hunter-gatherer mode of subsistence. (7)

ABSTRACTS OF POSTER SESSIONS

Borstel, Christopher L. (Indiana University and National Park Service)
SITE DEPOSITS AND CONTEXTS, OUTER CAPE COD, MASSACHUSETTS

Most archaeological sediments on outer Cape Cod comprise one of seven types: uncultivated A horizon, B horizon, intact shell midden, aeolian sand, plowzone, slopewash, or modern artificial fill. Although this classification mixes units of deposition with units of weathering, it is effective for differentiating sediment source, sediment age, depositional setting, and integrity of archaeological context. B horizon and plowzone are the most common units; intact shell midden and uncultivated A horizon are rare, being limited to areas buried by sediments of post-Contact age. The study is based on extensive shovel test pitting at 17 sites in Cape Cod National Seashore, supplemented by larger test excavations and limited laboratory analyses.

Corruccini, R., J. Handler (Southern Illinois, Carbondale), A. Aufderheide and L. Wittmers (Minnesota, Duluth)
BIOARCHAEOLOGICAL PATTERNING OF BONE LEAD CONTENT IN CARIBBEAN SLAVES

A slave cemetery sample from Newton Plantation, Barbados indicates a high and unusually variable mean lead content of 117.6 ppm by atomic absorption spectroscopic analysis of 52 cortical bone samples. There is direct historical evidence for lead contact and toxicity, particularly in relation to rum consumption. Lead level variance partition is significant for sex, age, Caribbean-endemic pathologies, incisor tooth filing, burial orientation, association with coffin, and redware sherds. The latter factors allow definition of an African-derived mortuary complex; tribal African origin of some specimens is consistent with their low lead accumulation whereas Barbados-born slaves would have been in continuous contact with lead-contaminated products.

Orcutt, Janet D. (US Army, Fort Hood and Colorado, Boulder) and Frederick L. Briuer (US Army, Fort Hood)
A PROGRESS REPORT ON ASSESSING SITE SIGNIFICANCE AT FORT HOOD

The Fort Hood Archaeological Resource Management Program is involved in establishing a representative sample of sites at the Fort Hood Military Installation for long-term protection. This effort is the cumulative product of earlier attempts using portions of the Fort Hood database. The current project has access to data from a stratified random sample of 14 percent of the base and data from total coverage of all surveys of greater than 71 percent of the base. A multivariate approach to defining site significance is being used and focuses on four general categories: 1) chronology; 2) site function; 3) environmental variables; and 4) physical condition of a site. This progress report presents graphic illustrations of the kinds of automated data analysis capabilities available at Fort Hood for this study.

Sundstrom, Linea (Kansas)
ARCHAIC HUNTING PRACTICES DEPICTED IN A NORTHWESTERN PLAINS ROCK ART STYLE

A collection of about 75 panels of pecked rock art from the southern Black Hills, South Dakota and Wyoming, includes detailed depictions of Archaic period communal game hunts. The rock art illustrates use of artificial enclosures, atlatls, and what appear to be goats. Humans in costumes or disguises are also included in the scenes. Fauna depicted includes deer and/or elk, pronghorn, bison, mountain sheep, mountain lion, and possibly dogs. The overwhelming preponderance of deer (ca. 64% of the animals pictured) is inconsistent with current views on Middle and Late Archaic subsistence that assume a bison-based economy.

ABSTRACTS OF MICROCOMPUTER WORKSHOP POSTER SESSIONS

Aldenherfer, Mark S. (Northwestern University)
MICROCOMPUTER IMAGE ENHANCEMENT OF SCRATCHES AND STRIATIONS ON OBSIDIAN TOOLS

An important type of microwear on obsidian tools is the formation of scratches and striations. Relatively little work has been done to systematically examine the conditions and causes of the formation of these attributes. In conjunction with a rigorous experimental program of using obsidian tools in a number of functional contexts, a microcomputer has been used as an image analyzer and enhancer. The computer is linked to a high-power microscope and images of striations can be stored, compared, and enhanced using appropriate software. The system has proved very useful in the comparison of tools before and after the experimental program and in the matching of striations caused by certain types of experimental use with striations on obsidian tools derived from archaeological contexts by providing a rapid, objective retrieval system. Systems requirements, including hardware, software, and support, are described in this applications report.

Bacharach, Joan (National Park Service, Curatorial Services Branch)
AUTOMATED NATIONAL CATALOG SYSTEM (ANCS)

The National Park Service (NPS), Curatorial Services Branch, has developed the ANCS using dBASE III Plus database management system for MS/DOS compatible microcomputers to be used at over 300 park units and archeological centers for NPS museum collections. Archeological collections constitute 65% of the estimated 10 million artifacts in NPS areas. The ANCS will significantly speed up the cataloging of archeological collections and minimize staff time to manage collections information. The program facilitates rapid data entry and retrieval of catalog data, field documentation and site provenience for systematic field collections. The proposed networking capabilities of the software will enable the aggregation of archeological data at regional and Washington offices.

Balsom, Janet and Nancy Coulam (Grand Canyon National Park)
COMPUTERS AND CULTURAL RESOURCES MANAGEMENT AT GRAND CANYON

The advent of micro-computers has allowed data manipulation, storage and graphic capabilities previously unavailable except to main-frame computer users. The archaeologists at Grand Canyon National Park have utilized a number of micro-computer programs on their IBM PC/XT for data base management, statistical manipulation, graphics and mapping. Through the use of dBASE III, Lotus 1-2-3, Statpac and Autocad, large amounts of data can be managed and manipulated addressing both the needs of management and the concerns of researchers. Information is readily available for a number of management concerns and research questions. The significance of the applications lies in the ability to provide for the needs of both parties, without compromising the needs of either.

Blakeslee, Donald J. (Wichita State University)
MICROCOMPUTER SIMULATION OF RADIOCARBON

Monte Carlo simulation of C-14 dating allows interpretation of sets of dates based on knowledge of each step in the dating process. The results are preferable to those obtained by statistical manipulation of dates (assumptions for which are violated by C-14 dates). Reproduction of existing sets of dates by simulation provides not only beginning and ending dates for the archaeological unit but also information about the distribution of dated events in the interval so defined. Simulation also allows estimation of the number of dates needed to define adequately a given time interval.

Bradley, L. E. (University of South Dakota)
ARCHAEONET

The University of South Dakota Press is currently publishing ARCHAEONET as a diskette-based (journal?, newsletter?, network?, communication?) which is directed at the archaeologist who uses a microcomputer. ARCHAEONET is more practical and hands-on theoretical in orientation. Articles are grounded in specific applications with step by step instructions or directions to allow the reader to perform the same steps with their own system. Currently MSDOS and CP/M formats are supported, although special formats such as cassette versions for the Epson Geneva or 3 inch formats for the Kaypro 2000 are available by special request. Other formats will be added as demand warrants.

The journal is 'read' with a special program which pages forward, backward, or returns you to the table of contents. As pages are displayed, they may be printed, or you may select to print the entire document.

Dobbs, Clark A. (Institute for Minnesota Archaeology)
PREHISTORIC EARTHWORKS AT THE RED WING LOCALITY

Mounds, embankments, and effigies represent a major site type at the Red Wing Locality in southeastern Minnesota. Most of the more than 3,000 mounds in the area have been destroyed by cultivation and modern construction. Survey records compiled by the Northwest Archaeological Survey in the 1880's, however, can be used to reconstruct the content, plan, and situation of mound groups. Microcomputers are used in an integrated approach to the study of these mounds. Applications packages are used to develop a database, produce scaled reconstructions of mound groups, and evaluate variability of mound characteristics.

Dohm, Karen (Washington State University)
EFFECT OF POPULATION DENSITY ON HOUSE SIZE: COMPUTER GRAPHICS AS AN ANALYTIC TECHNIQUE

Theoretical considerations suggest that more activities are conducted within enclosed spaces when population is aggregated. This implies use of more roofed space per individual and per family in aggregated villages than in dispersed ones. Computer analyses of 22 historic Pueblo villages provide weak support for the theoretical statement.

Area measurements from published maps were made with the aid of a Numonics 1224 digitizer. Software programs (SAS and SAS/GRAPH on an IBM 3090) produced descriptive statistics and graphics visually assisting analysis of the statistics. Findings apply both to population comparisons of individual settlements and to simulations of population dynamics in regional archaeological studies.

Drucker, Lesley M. (Carolina Archaeological Services)
A BASIC SYSTEM FOR DATABASE MANAGEMENT USING dBASE II FOR MICROCOMPUTERS

CASMENU is a relatively simple, expandable database management program written in dBASE II for microcomputers. Integration of the program and basic lab sorting/ID is mutually intelligible to archaeologists, technicians, and data entry assistants. Mastery of formats can be gained within 1 - 2 hours of instruction. Program application is keyed to a user-defined dictionary of encoded accession numbers and data entry symbols written in logical, non-numeric characters. Major applications to date include 1) indexed artifact catalogs, and 2) statistical artifact listings. No special peripherals are needed. For large assemblages (30,000+ records), the system works best when supplemented by a hard drive unit. It can be converted to DOS systems via mode. Illustrations will include: a) Sample of data entry card; b) Sample of programming sequence; c) Sample of disc record formats; d) Sample of data entry formats; and e) Output samples.

Farley, James A and Dr. Sandra Parker (Arkansas Archeological Survey)
THE ACCESS SYSTEM: AN INTEGRATED DATABASE FOR ARCHEOLOGICAL SITES, CITATIONS, PROJECT AND ARTIFACT DATA

This poster presents the design philosophy and examples of use of the ACCESS system. The system which was developed on a DUAL 83/80 supermicrocomputer integrates extensive information on archaeological sites, citations, and projects in a relational database. The database contains information on 19,000 archaeological sites, 4,000 citations, 1,500 projects, and artifacts from 300 sites. Each subsidiary database has been designed to link with the others. The results of this design are illustrated with examples, which rapidly join and summarize information. Also illustrated are linkages to computer graphics output particularly for geobased data categories.

Foss, Robert (Cultural Resource Group, Louis Berger & Associates), Lloyd Chapman (National Park Service), Robert Hasenstab (University of Massachusetts) and Curt Williams (Headquarters, 10th Mountain Division, Fort Drum)
THE USE OF A GEOGRAPHIC INFORMATION SYSTEM FOR CULTURAL RESOURCE SURVEY, EVALUATION, AND PLANNING AT FORT DRUM, NEW YORK

As part of overall cultural resource planning and impact analysis associated with the construction of facilities to install the 10th Mountain Division at Fort Drum, New York, a computer based Geographic Information System (GIS) was developed. The GIS was based upon a series of environmental and cultural variables including soil drainage characteristics, slope, distance to water, location of historic roadways, location of sites on historical maps and the nature of subsurface disturbance. Both prehistoric and historic archaeological sensitivity models were generated for the study area. These models were combined with the ground disturbance models to generate a set of requirements for field survey. The GIS is currently being used to guide decisions concerning appropriate field strategies and to aid planners in avoiding archaeologically sensitive areas. It is expected that the GIS

will eventually be expanded to encompass the entire fort and will be constantly updated with information related to site locations, ground disturbance, and levels of anticipated impact.

The poster presentation will depict various aspects of the model development and will relate the computer application to specific archaeological considerations. The session will also emphasize the cooperative nature of the planning process which has involved data input from numerous sources.

Gessler, Nicholas (University of California at Los Angeles)
AUTOMATED ARTIFACT DESCRIPTION

A variety of simple and complex sensors are presently available to assist the archeologist in acquiring data both in the field and in the laboratory. Simple sensors may measure length, mass, density, temperature and distance. Complex sensors may recognize voices or images.

Techniques include: A sliding caliper interfaces directly to a computer. A laboratory balance interfaces directly to a computer. Other devices are being planned (by this contributor).

Automated measurement increases accuracy and productivity.

Goldstein, Lynne (University of Wisconsin-Milwaukee)
MICROCOMPUTER MANAGEMENT OF ARCHAEOLOGICAL INFORMATION

Archaeological applications using Helix and the Macintosh are presented. Helix is a data-based information management system which allows great flexibility in data entry, data manipulation, and report generation, Helix offer true relational data base capabilities, and does not require a programming or command language. At the University of Wisconsin-Milwaukee, we are shifting most of our record management and data analysis tasks to Helix. Three examples of Helix applications in archaeology are provided: 1) site location information; 2) Effigy Mound site data, including drawings of the mound groups, and 3) a bibliographic data base system downloaded from a mainframe and made more flexible using Helix.

Goran, William D. (U.S. Army Construction Engineering Research Lab)
PREDICTIVE MODELS FOR HISTORIC/PREHISTORIC SITE LOCATIONS WITH A GEOGRAPHIC INFORMATION SYSTEM

Researchers at the U.S. Army Construction Engineering Research Laboratory have developed a Geographic Information System (GIS) which is used at military installations for land management & environmental planning applications. One capability of a GIS is to identify the relationships between historic/prehistoric site locations and combinations of landscape features, then to generate maps predicting "likelihood Zones" for sites based on these landscape relationships.

Historic & prehistoric sites on federal lands are protected by federal laws & departmental regulations. To protect sites, land managers need to identify areas where sites occur. Generally, however, only a small fraction of lands are surveyed. Predictive modeling provides a tool to identify likely areas to occur (or not occur) on unsurveyed lands.

Gunn, Joel (University of Texas at San Antonio)
EMPIRICAL DETERMINATION OF LOCAL CLIMATE SEQUENCES

Empirical determination of local climate sequences is at high resolution often difficult or impossible and expensive. A more efficient and economical method is to model the sequence and then test it at critical points along the trajectory. Also, global scale data are frequently more available and more highly resolved. This poster shows projection of global climate forcing sequences on the central Texas local climate.

Henderberg, Brian T. (S.U.N.Y. Geneseo)
ARCHAEOLOGICAL INFORMATION SYSTEM

SYS/pc is an archaeological information management and analysis system. It was designed specifically for use by archaeologists with no technical background in database management or computers, yet provides the flexibility and power necessary for assisting in the interpretation of data. The system can manage thousands of records, and extract specified information for inquiries, graphics, or maps. SYS/pc can also assist in collections management, by producing catalogs of recovered items by user defined categories, and by providing complete on-screen information access. Users can select information for a report or graph using natural language parameters or through a user defined code set. The system allows for rapid data entry with intensive verification, requires minimal setup time, and includes a complete tutorial.

Heuett, Mary Lou and Laurie Slawson (Cultural & Environmental Systems, Inc.)
HASP: A MULTI-TASK ARCHAEOLOGICAL APPLICATION

HASP, an automated mapping and data base storage system, enables the direct entry or digitization of map data and secondary data. This multi-task storage and graphic production computer system is

a valuable archaeological tool due to its ability to graphically present a variety of cultural variables at varying scales and its ability to access and incorporate non-graphic data for statistical manipulation in conjunction with map data. The single storage system utilized for data storage, statistical manipulation and cartography is a highly effective device which reduces the potential for error and allows timely and cost-effective management decisions.

Hunter, Robert R. Jr. and Marley R. Brown III (Office of Archaeological Excavation, The Colonial Williamsburg Foundation)

AN INTEGRATED APPROACH TO ARCHAEOLOGICAL DATA MANAGEMENT

The Office of Archaeological Excavation has devised a series of integrated entry masks using micro-computer based software for the management of archaeological field and lab data. An artifact inventory and catalog record developed for use on mainframe computers have been converted for the IBM PC/XT. These records are linked by a unique provenience number so that field, lab, storage, and analytic data may be easily retrieved for any given context. Two highly significant research tools for the historical archaeologist are discussed: a CAD system which will augment the office's heavy drafting needs and provide an efficient method for inter-site comparisons, and a prototype vessel and object catalog video-disk system which will allow storage and retrieval of video images.

Johnson, Ian (Arkansas Archeological Survey)

THE PANDORA PROJECT: A COMPUTER GRAPHIC APPLICATION IN MARITIME ARCHAEOLOGY

Excavation of the wreck of the Pandora off the Queensland coast has been greatly aided by the use of the AutoCAD program to manipulate the data recorded and provide color graphic output. The data is organized as a series of grid cells which may be aggregated into larger area diagrams. Layering of images to represent different artifact types allows the production of selective views. The poster will illustrate output ranging from 3 dimensional views, plans and sections of individual recording grids, up to composite site plans.

Johnson, Ian (Arkansas Archeological Survey)

MINARK ARCHAEOLOGICAL DATABASE SYSTEM

Examples of applications of the Minark DBMS to excavation and survey data, bibliographic and field-note management, museum cataloguing, radiocarbon dating, and geomorphology. Poster will illustrate the difference between Minark and conventional database systems, showing how it addresses the special requirements of archaeologists, notably nominal variables, repeating and missing values, free-format text handling, descriptive statistics and graphics. Examples of report formats and graphics output will be presented.

Jones, Dennis (Louisiana State University)

COMPUTER GRAPHIC TECHNIQUES FOR MAPPING ABORIGINAL MOUND SITES

The procedures to be displayed are currently being used in a mapping project in Louisiana to record, map and investigate 28 reported sites of aboriginal occupation containing earthen mounds that occur in three parishes. The poster will show how several software packages can be used to produce both traditional plan view contour maps of these mounds and three dimensional graphics from any azimuth or vertical elevation. The computer graphics enable archaeologists to view current configuration of the structure despite heavy vegetation on or around the mounds. This allows possible "reconstruction" of the mound's prehistoric appearance.

Katz, Debra Faith, Lloyd Chapman, Bill Butler, and John Ehrenhard (National Park Service)

NPS NATIONAL ARCHEOLOGICAL DATABASE PROJECT

The National Park Service is developing a National Archeological Database to provide concerned parties with access to information on the archeological products of Federal projects. The system will also assist the National Park Service in coordinating the National Archeological Program and in preparing the annual report on this program for the Congress.

The system is designed to utilize a fully relational database management system and currently runs on the microcomputer version of ORACLE, a relational DBMS. Data entry is facilitated through the use of data entry screens or through the transfer of information from an existing computer system in fixed-field ASCII formatted files. Responsibility for collection and maintenance of the database is delegated to Mid-Atlantic, Rocky Mountain, Western and Southeast National Park Service Regional Offices.

The National Archeological Database will be the first centralized source of reference to federally-funded reports, projects and databases in the history of the discipline.

Kintigh, Keith W. (University of California, Santa Barbara)

THE ANALYSIS OF ARCHAEOLOGICAL DIVERSITY

Diversity is a concept that is frequently used in archaeological interpretation. However, use of this concept is complicated because most of the measures in use are highly dependent on sample size. A method has been developed and implemented (on microcomputers) that controls for sample size in the analysis of diversity, using two measures of diversity, richness and an information-theoretic measure of evenness. The poster will point out the problem of sample size and, through applications of this method show how it can be solved. It will also explore the relationships among several diversity measures.

Kolb, Michael J. and T. Douglas Price (University of Wisconsin)

EDUCATIONAL COURSEWARE DEVELOPMENT IN ARCHAEOLOGY

We have developed an instructional courseware module which simulates the nature and distribution of archaeological information. This module displays graphic and tabular data for a series of hypothetical sites across an artificial landscape. By examining these sites and their contents, students learn to identify patterns of differential land use.

This courseware has been implemented on the IBM-PC. By using high-resolution monochrome graphics, a RAM virtual screen, and help sections, students can plot combinations of artifacts, types of sites, and landscape variables.

The inspection and interpretation of visual data greatly enhances the appreciation and understanding of archaeological information. Graphic simulation offers students an inexpensive and unique method to inspect and interpret archaeological data normally unavailable.

Kvamme, Kenneth L. (Arizona Cultural Resource Database Board)

AZSITE: AN ARCHAEOLOGICAL COMPUTER DATABASE FOR THE STATE OF ARIZONA

AZSITE currently contains as many as 100 categories of archaeological, locational, management, and environmental information for more than 17,000 archaeological sites in Arizona. For each site, such data as site numbers, township, range, section, map names, UTM coordinates, recording institution, national register status, topographic features, cultural affiliation, period and phase, dates, feature descriptions, and lists of artifacts are included. AZSITE allows input of both standardized data values and unformatted textual information, and makes extensive use of menus which allows versatile manipulation and retrieval of data without detailed knowledge of system conventions. AZSITE is managed by a general purpose database management system called INFORMATION and is available to users through a telephone connection.

Kvamme, Kenneth L. (Arizona State Museum)

AGRIS: AN ARCHAEOLOGICAL GEOGRAPHIC INFORMATION SYSTEM

ARGIS is a series of programs for the manipulation of map type data in a raster or grid-based GIS framework. ARGIS allows: 1) digitization of map features (e.g., elevation contours, hydrology, vegetation, archaeological site locations), 2) production of digital elevation models and conversion of digitized data to raster type at any grid resolution, 3) derivation of new data forms (e.g., slope, aspect, relief, view quality, water distance) across entire regions, 4) output of data to raw files for statistical or other analyses, and 5) routines to map any spatial variable or combination of variables. ARGIS facilitates data management for archaeological projects and provides a powerful tool for a variety of regional analyses.

Lang, Stephen A. and Glen E. Rice (Arizona State University)

CALCULATING VESSEL VOLUME FROM A GRAPHIC DATABASE

This poster will outline a technique for measuring the central cross section of whole or incomplete vessels, and for tabulating measurements from the cross section for entry into a database for the study of vessel form and volume.

A program developed on the IBM-PC allows cross-sectional views of vessels in the database to be graphically displayed and printed. This program can also accurately calculate vessel volume.

This application is useful for specific analytical studies of vessel form and storage capacity, and provides a portable analytic and visual record of vessels from a site which otherwise may be difficult to assemble.

Lerner, Shereen and Richard Effland (Arizona State Historic Preservation Office/Archaeological Consulting Services)

POWER-BASE: A USEFUL DATABASE MANAGEMENT TOOL

POWER-BASE is a flexible software package designed for use on IBM-PC or compatible to permit timely access to large sets of data with the ability to easily expand and enhance the database. POWER-

BASE may be used in several ways: (1) a reference tool to link locational information with report guides, (2) data storage and retrieval, (3) data analysis, including simple calculations of data categories, and (4) personnel and job management. Each of the above-listed applications will be displayed in the poster with an archaeological referent.

Limp, W. Frederick and James A. Farley (Arkansas Archeological Survey)
UTILIZING COMPUTERIZED MAPPING AND GEOGRAPHIC INFORMATION SYSTEMS FOR EXPLORATORY DATA ANALYSIS OF GEOBASED ARCHEOLOGICAL DATA

This poster demonstrates the use of computerized graphics to perform exploratory data analysis of geobased data. Using a DUAL 83/80 supermicrocomputer, an ALTEX 23-1 digitizer, and an ID Systems 200 graphics terminal, data from U.S.G.S. DLG and locally digitized map data are integrated with archaeological site data, maintained in a relational database and prepared for display. Queries to the database for selected site properties are then projected on maps of various scales. The use of interactive map zooming and database queries are also illustrated. Interactive study of such maps allow discovery of patterning in site location and properties in a map based type of exploratory data analysis. Geobased data in cell formats are examined utilizing the ARGIS geographic information system. Display alternatives for this data and its integration with the above data are presented.

Oliver, Sheryl G. and Erich K. Schroeder (Illinois State Museum)
ARCHAEOLOGICAL APPLICATIONS OF ARC/INFO: A GEOGRAPHIC INFORMATION SYSTEM

The Illinois State Museum's Quaternary Research program has made extensive use of ARC/INFO, a sophisticated geographic information system. The system's power lies in its ability to transform cartographic data into digital analogues, while simultaneously maintaining data management capabilities. Its flexibility facilitates a wide range of applications including: graphic overlays, converting maps into one coordinate system; clipping subsets from state-wide files of geographic information; identifying co-occurring environmental attributes at point-specific locations on the landscape; and predictive modeling techniques. These applications have enhanced projects ranging from CRM work in response to a proposed flood control levee, to detailed prehistoric site location models. The exhibit will illustrate: (1) an introduction to ARC/INFO capabilities; (2) techniques of map manipulation; and (3) computer-generated maps portraying overlay, geographic, and contour designs.

Rapp, George Jr. and Susan Mulholland (University of Minnesota, Duluth)
DIGSITE: COMPUTER SIMULATION OF AN ARCHAEOLOGICAL EXCAVATION

DIGSITE is part of a laboratory exercise for an Introduction to Archaeology course that allows students to simulate excavation of an archaeological site. Archaeological excavation strategy and artifact analysis are stressed in the exercise; the program is a tool to retrieve data according to a selected excavation strategy. Students are responsible for formulating strategy in response to a research problem and analysis of the materials found. DIGSITE is presently available for use on IBM-PC with 256K memory, two disk drives, and a printer.

Stephen, David V. M. and Helen L. O'Brien (Pima Community College)
DIRT TO DATA: MICROCOMPUTER AIDED ARCHAEOLOGY

The emergence of the microcomputer as a professional tool allows archaeologists to incorporate diverse strategies into the research process that will expedite archaeological data collection, preliminary analysis and report generation. Personal computers are suited to a wide range of applications appropriate for various aspects of archaeological research (field data collection, instrumentation, laboratory work, data analyses, CAD and report development). Integrated hardware and software systems that have been developed specifically for archaeological applications over the past seven years will be exhibited with both examples of output and hands-on demonstrations.

Sturgill, Michael W. (Finanacial Solutions, Inc.)
ARCHEOCOMPUTE: SITE FORMS MADE EASY

Archeocompute is a user-friendly, computerized method of completing the IMACS site form currently in use throughout the Intermountain West. Archeocompute is menu-driven, and contains the entire IMACS user guide on help screens making the program very easy to use. Once data are entered, Archeocompute produces agency approved hard copy while, at the same time, automatically encoding prescribed fields. Encoded data can then either be printed as hard copy or sent via diskettes to the IMACS central data base. Archeocompute is a research tool and can extract site data, within the database, fulfilling one to many specifications to produce user defined reports.

Waddell, David B. and James A. Farley (Arkansas Archeological Survey)
DELOS: A COMPUTERIZED ARTIFACT AND PROVENIENCE INVENTORY SYSTEM

The DELOS system is a computer-based artifact and provenience inventory and analysis system. With a hierarchical classification system, DELOS allows classification of any analytical level, from

gross superior artifact classes to fine grained classification units. The DELOS system has been implemented using INFORMIX (relational DBMS) software, with links to SYSTAT software for statistical analysis. The DELOS database currently includes information for more than 300 sites in Arkansas, providing an extremely useful comparative database for analysis of artifact assemblages. In addition, the DELOS system is fully integrated with the AMASDA and ACAP systems of the Arkansas Archeological Survey ACCESS system.

Wells, Susan G. (Western Archeological and Conservation Center, NPS)
COMPUTERIZED ARCHEOLOGICAL DATA MANAGEMENT SYSTEM, WESTERN ARCHEOLOGICAL AND CONSERVATION CENTER, NATIONAL PARK SERVICE

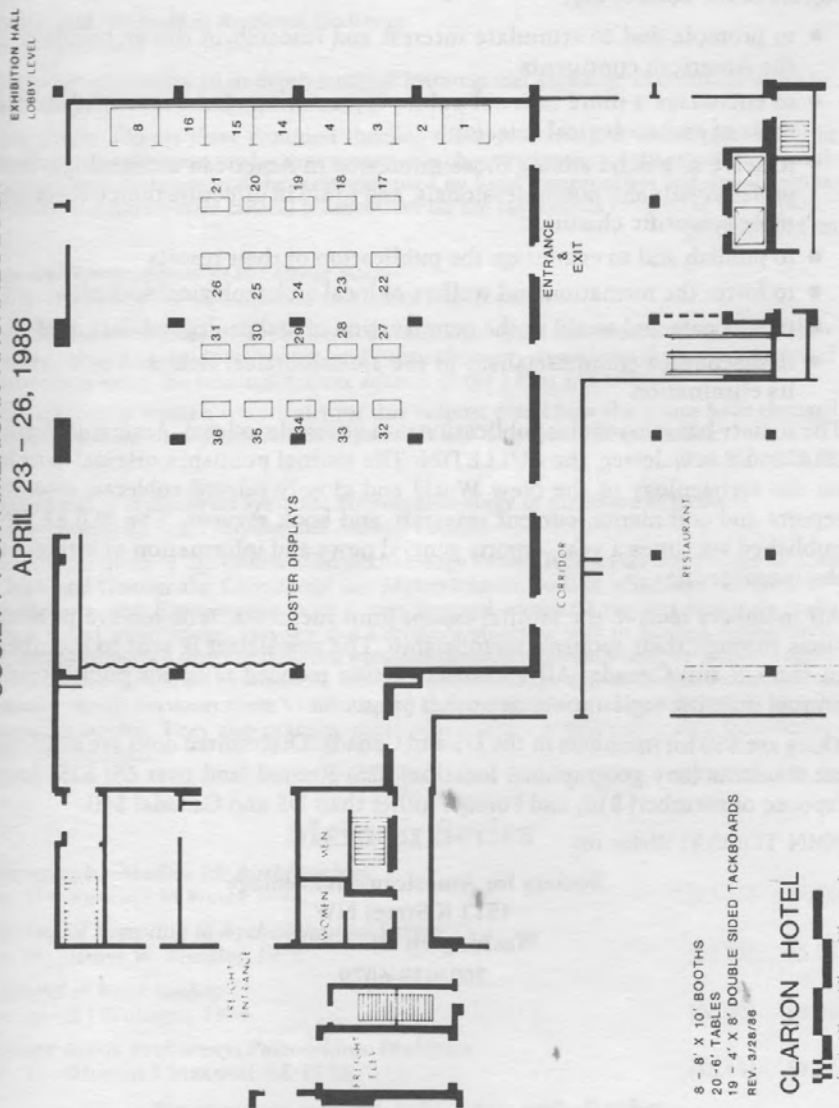
Computerization of the Western Region archeological data was begun in February, 1986. Using dBASE III software on an IBM XT computer, menu-driven programs allow data entry on custom screens that are compatible with field forms. The flexibility of dBASE III along with the report and programming features allow ease of use and accessibility of data. Both newly recorded sites and sites recorded many years ago are being added to the site data bank. The WACC data bank has been designed for compatibility with the National Park Service Cultural Sites Inventory that is being developed. Examples of records and programs will be used to illustrate the system and its usefulness to NPS archeologists and managers.

INDEX TO EXHIBITORS

- Booth #15 Academic Press Inc
Exhibit Department
Orlando FL 32887
Books and journals that are relevant to the field of archaeology.
- Table #21 ArchaeoPress
PO Box 2491
Topeka KS 66601
Display of books published by ArchaeoPress focusing on its Guide to Contractors in Cultural Resource Management.
- Table #28 Association for Belizean Archaeology
PO Box 785
Belize City, Belize, Central America
- Table #18 Association of American University Presses
One Park Avenue
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.
- Booth #1 Cambridge University Press
32 E 57th St
New York NY 10022
Outstanding books and journals in archaeology and related fields.
- Table #33 Center for the Study of Early Man
495 College Avenue
Orono ME 04473
Exhibit will offer books, journals, and *Mammoth Trumpet* (newspaper) sales, as well as Center memberships and merchandise.
- Table #19 CSU Archaeometric Laboratory
Dept of Anth, Colorado University
Fort Collins CO 80523
The archaeometric lab provides two main services: archaeomagnetic dating and proton magnetometer surveying.
- Booth #2 Forestry Suppliers Inc
295 W Rankin St
Jackson MS 39204
Miscellaneous field equipment associated to archaeology.
- Table #31 Harrier Prints
802 N 31st St
Monroe LA 71201
Antique prints and maps.
- Table #24 Illinois State Museum
Spring & Edwards Sts
Springfield IL 62706
Publications.
- Table #32 MINARK Research
PO Box 67, St Lucia
QLD 4067, Australia
MINARK Archaeological Database System and GMS Graphics/Mapping System software exhibit will include a demonstration running on a microcomputer.
- Booth #4 Smithsonian Institution Press
955 L'Enfant Plaza Room 2100
Washington DC 20560
Smithsonian Press books and catalogs; recent and backlist articles in archaeology, anthropology, natural history, and related fields.
- Table #26/27 Society for American Archaeology
1511 K St NW
Washington DC 20005
Membership, publications, and government affairs information.
- Table #23 Southern Illinois University Press
PO Box 3697
Carbondale IL 62901
Publishers of scholarly books.
- Table #30 SPSS Inc
444 N Michigan Avenue
Chicago IL 60611
Producer of statistical software tools for data analysis.
- Table #17 The University of Alabama Press
PO Box 2877
University AL 35486-2877
Display and sales of anthropological/archaeological (and related) titles, and new manuscript acquisition.
- Table #34 UCLA Institute of Archaeology
405 Hilgard Avenue
Los Angeles CA 90024
Publications on archaeological data and methods from around the world, geared for the professional archaeologist and the advanced students. 20% conference discount offered.

- Table #20 University of Arizona Press
1615 East Speedway
Tucson AZ 85719
Books.
- Booth #14 University of Chicago Press
5801 S Ellis Avenue
Chicago IL 60637
Scholarly books on archaeological methods, theory and research.
- Booth #3 University of New Mexico Press
Albuquerque NM 87131
Books.
- Table #35/36 University of Oklahoma Press
1005 Asp Avenue
Norman OK 73019
Books.
- Booth #16 University of Texas Press
2100 Comal St
Austin TX 78722
A number of recently published titles on archaeology and related subjects.
- Table #22 University of Utah Press
101 USB
Salt Lake City UT 84112
Publishers of scholarly and general books in academic disciplines, including anthropology, linguistics, and Mesoamerican studies.

SOCIETY FOR AMERICAN ARCHAEOLOGY
APRIL 23 - 26, 1986



SOCIETY FOR AMERICAN ARCHAEOLOGY

The Society for American Archaeology was founded in December 1934. The objects of the Society are:

- to promote and to stimulate interest and research in the archaeology of the American continents
- to encourage a more rational public appreciation of the aims and limitations of archaeological research
- to serve as a bond among those interested in American archaeology, both professionals and nonprofessionals, and to aid in directing their efforts into more scientific channels
- to publish and to encourage the publication of their results
- to foster the formation and welfare of local archaeological societies
- to advocate and to aid in the conservation of archaeological data, and
- to discourage commercialism in the archaeological field and to work for its elimination

The society has two regular publications—a quarterly journal, *American Antiquity*, and a newsletter, the BULLETIN. The journal publishes original articles on the archaeology of the New World and closely related subjects, research reports and comments, current research, and book reviews. The BULLETIN, published six times a year, reports general news and information of interest to the membership.

All members receive the journal except Joint members, who receive publications through their spouse's membership. The newsletter is sent to members in the US and Canada. All members receive reduced rates for publications, annual meeting registration, and other programs.

Dues are \$50 for members in the US and Canada. Discounted dues are available to: Students (any geographical location) \$25; Retired (and over 65) \$25; Joint (spouse of member) \$10; and Foreign (other than US and Canada) \$40.

JOIN TODAY! Write to:

Society for American Archaeology
1511 K Street NW
Washington DC 20005
202/638-6079

SAA SPECIAL PUBLICATIONS

SAA Papers

Models and Methods in Regional Exchange

No. 1—Edited by Robert E Fry

This volume provides an in-depth study of intraregional exchange of ceramics in Mesoamerica and the American Southwest.

Eight papers address three common themes: the approaches and techniques useful in discriminating different production centers; the characterization of the structure of localized exchange systems; and the strategies used by local communities and social groups. Two commentaries offer critical perspectives on the approaches covered in the papers.

(\$9.00) \$12.00

Man and Environment in the Great Basin

No. 2—Edited by David B Madsen and James F O'Connell

The four major themes in Great Basin archaeology—past environments, cultural chronology, subsistence and settlement, and culture history—have been the topics of spirited controversy since the Jennings/Heizer debates of the 1950s and 1960s.

Thirteen papers written specifically for this volume detail how the issues have changed and summarized the current status of research and directions for the future.

(\$16.50) \$22.50

The Structure of Material Systems: Ethnoarchaeology in the Maya Highlands

No. 3—Edited by Brian Hayden and Aubrey Cannon

This contribution of the Coxoh Ethnoarchaeology Project focuses on three communities in highland Guatemala: Chanal and San Mateo Ixtatan, both of which are "traditional" settlements, and Aguatenango, with strong regional economic ties but relatively traditional social institutions. Hayden and Cannon's objective was to acquire quantitative documentation for a series of material variables that are commonly used by archaeologists to infer social structural parameters, and then determine the degree to which correlations actually obtain between these variables and the social structural parameters in an ethnographic setting. They also examine these relationships at different scales, from household to community.

(\$17.95) \$24.95

Memoir Series

Demographic Models for Anthropology

No. 27—Kenneth M Weiss, 1973.

(\$5.25) \$7.50

The Use of Sampling in Archaeological Survey

No. 28—James W. Mueller, 1974.

(\$3.75) \$5.25

A Model of Band Society

No. 29—B J Williams, 1974.

(\$6.00) \$9.00

Eastern Arctic Prehistory: Paleoeskimo Problems

No. 31—Moreau S Maxwell, ed, 1976.

(\$5.25) \$7.50

Please enclose payment, in US funds, with all orders. Amount in parentheses indicates price to members of the Society for American Archaeology. Prices subject to change without notice.

Send order to: Society for American Archaeology
1511 K Street NW
Washington DC 20005