Program and Abstracts

Society for American Archaeology

Forty-First Annual Meeting

St. Louis, Missouri 6, 7, 8 May 1976
Forty-First Annual Meeting
SOCIETY FOR AMERICAN ARCHAEOLOGY

Program Chairman: Frank Rackerby

Program Committee: Ronald L. Bishop, Kathy M. Bly, W. James Judge, David L. Schulting

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Library of Anthropology

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GENERAL INFORMATION

Abstracts Abstracts of papers presented at this meeting are included in the Program. Additional copies are available for $1.50 per copy at the Membership Services Desk in the East Assembly, or may be ordered prepaid from the Society, 1703 New Hampshire Avenue, NW, Washington, DC 20009.

Advance Registration Members who pre-registered by April 15 should claim their badges and programs at the ADVANCE REGISTRATION DESK in the East Assembly.

Business Meeting The Society's annual business meeting will be held at 5:30 p.m. on Friday in the Mississippi Room.

Convention Office Members of the Program Committee will be available in the Hickok Room. Any problems or special requests during the meeting should be reported to the committee office.

Dinner in Honor of Professor James B. Griffin Tickets for the dinner on Thursday at 7 p.m. in the Mississippi Room may be purchased until noon on Thursday at the Advance Registration Desk.

Exhibits Publishers' exhibits will be on display in the Frontier Room from 4 p.m. to 7 p.m. Wednesday, 9 a.m. to 5 p.m. Thursday and Friday, and 9 a.m. to noon on Saturday.

General Membership Session A general membership session entitled "Report to the Membership from the Interim Committee on Registration, and Announcement of the Formation of the Society for Professional Archaeologists" is scheduled for 12:15 p.m. on Thursday in the Mississippi Room.

Membership Services and Publications A desk will be maintained in the East Assembly from 4 p.m. to 9 p.m. on Wednesday, 8 a.m. to 4 p.m. Thursday and Friday, and 8 a.m. to noon on Saturday for those who wish to purchase publications or enroll in the Society.

Message Center A self-service message center will be located in the East Assembly. This center should NOT be used for messages pertaining to the placement service.

New Member Reception A reception for new members and for those attending their first meeting, hosted by officers of the Society, will take place on Friday at 7:30 p.m. in the Spirit of St. Louis Room.

Open House An open reception (cash bar) to which everyone is invited will be held on Thursday at 5 p.m. in the East Assembly.

Placement Service For those who wish to register positions open or wanted, a placement service will be conducted in the Marquette Room from 4 p.m. to 9 p.m. on Wednesday, and from 9 a.m. to 5 p.m. Thursday. Message forms will be provided and box numbers will be assigned for use in the placement service message center.

Post-Meeting Gathering at the Mounds A gathering sponsored by the Illinois Archaeological Survey will be held at Cahokia Mounds State Park from 5:30 p.m. to 9 p.m. on Saturday. Food will be provided by the Iowa State University. Additional information or to sign up, please stop by the information desk in the East Assembly.

Registration A registration desk will be located in the East Assembly from 4 p.m. to 9 p.m. on Wednesday, 9 a.m. to 4 p.m. on Thursday and Friday, and from 8 a.m. to noon on Saturday. Registration, which includes a copy of the PROGRAM AND ABSTRACTS, is required for attendance at all sessions.

Restaurants and Lounges Coffee Grove: breakfast, lunch, dinner, 6 a.m. to 11 p.m. Groggtop: lunch, 11:30 a.m. to 2 p.m. Top of the Riverfront: lunch, 11:30 a.m. to 2 p.m. dinner, 5:30 p.m. to 11 p.m. All are located in Stouffer's Riverfront Towers.

Symposia and Session Chairpersons Please maintain the established schedule scrupulously. Note the use of the blackboard for listing speakers; do not collapse sessions if a scheduled speaker fails to appear.
PROGRAM

THURSDAY MORNING, MAY 6

8:00 - AMERICAN SOCIETY FOR CONSERVATION ARCHAEOLOGY
10:00 - Chouteau Room
Steering Committee Breakfast Meeting

(1) Symposium: THE ARCHAEOLOGICAL CONSERVATION ACT: RETROSPECT AND PROSPECT
Mississippi Room
Organizer and Chairperson: S. Alan Skinner
Participants:
9:00 - S. Alan Skinner, Introduction
9:45 - Herbert Davis, Reauthorization of PL313-291
10:15 - Thomas F. King, Moss-Bennett, The National Register, and Archaeological Administration Musings and Misgivings
11:15 - Donald E. Weaver, The Impact of the Archaeological Conservation Act on Universities in the Western United States

(2) Symposium: ARCHAEOLOGY AND PALEOECOLOGY AT MEADOWCROFT ROCKSHELTER: AN INTERIM STATEMENT
Spirit of St. Louis Room
Organizer and Chairperson: James M. Adovasio
Participants:
9:00 - D. T. Clark, The Meadowcroft Archaeological Project: An Introduction
9:25 - J. Donahue, Geological Framework of Meadowcroft Rockshelter
9:50 - D. H. Krinsley, Application of Sediment Surface-Textural Analysis to Archaeology
10:15 - J. D. Gunn and R. Stuckenrath, Archaeology and Chronology at Meadowcroft Rockshelter
10:40 - D. Faught and K. Lord, Faunal Remains from Meadowcroft Rockshelter
11:05 - E. Skibo and J. Applepan, Faunal Remains from Meadowcroft Rockshelter
11:30 - James M. Adovasio and J. D. Gunn, Meadowcroft Rockshelter: Retrospect 1975

(3) Symposium: THE ARCHAEOLOGY OF RESIDENCE: SOME EXAMPLES FROM PRE-COLUMBIAN MESOAMERICA
Lewis Room
Organizer and Chairperson: Dan M. Healy
Participants:
8:30 - Robert Santley, Form and Function of Preclassic Residential Groups: Loma Torremolinos as a Test Case
8:50 - Prentice M. Thomas, The Production of Utilitarian Implements at Becan, Campeche
9:10 - Gail Tourtelot, Patterns of Domestic Architecture in a Maya Garden City: Selbaj
9:30 - Edward Sisson, The Archaeology of Residence: Coaxcatlan, Puebla
9:50 - Marcus C. Winter and Margarita Gaxiola, Classic Period Households in the Valley of Oaxaca and the Mixteca Alta
10:10 - Jaime Litvak King, Intramural Variations in Classic Morelos Residence Patterns
10:30 - Dan M. Healy, Patterns of Residence in a Postclassic City: Tuja, Hildago
10:50 - Edward B. Sisson, The Archaeology of Residence: Coaxcatlan, Puebla
11:15 - Discussants: R. Fuerst, W. Sanders, J. King

(4) General Session: SOUTHWESTERN ARCHAEOLOGY I
Clara Room
Chairperson: Jonathan E. Meyers
Participants:
9:00 - Jonathan E. Meyers, Two Possible Solstice Alignments at Pueblo Bonito, Chaco Canyon
9:20 - Gordon Borzcribesky, Prehistoric Banking in the Southwest
9:35 - E. Charles Adams, Halpin: The Archaeology of an Historic and Living Community
9:50 - Victoria Drost and Richard A. Pales, Economic Networks: Mesopotamia and the American Southwest
10:05 - David E. Doyel, Changing Patterns of Organization Among the Classic Period Mopanom of the Escalante Ruin Group, Gila Basin, Southern Arizona
10:20 - Pamela C. Mapes, Navajo Settlement in Canyon del Muerto
10:45 - Charlotte L. Benson, Assessing the Adequacy of a Regional Sampling Design: Cedar Mesa, Utah
2:30 Robert L. Bettinger, Alternative Settlement-Subsistence Strategies in the Great Basin
3:00 Ellis McDowell-Louden, Degrees of Sedentism: The Eastern Woodlands Example
3:30 Lawrence E. Gilbert, Adaptive Diversity Among Hunters Gatherers of the Northwest Gulf Coast

(8) Symposium: TEACHING AND TRAINING OF ARCHAEOLOGISTS
Spirit of St. Louis Room
Organizer and Chairperson: Howard P. Goldfried
Participants: 2:00 William D. Lipe, Training Archaeologists in Relation to Cultural Resource Management Programs
2:30 Stuart A. Seeger, Clinical Training in Archaeology as the Discipline Grows More Complex
3:00 Raymond H. Thompson and Stephanie M. Whitlesey, The Complacent Archaeologist: A Comprehensive Approach to Archaeological Training
3:45 Dean R. Snow, The Lake George Project
4:15 Ray T. Matheny, The Problems of Training in a University that Only Offers a Master's Degree
Discussants: R. F. W. Adams, Frank Hole, Fred Plog

(9) Symposium: MIDDLE-LATE WOODLAND CONTINUITY IN NORTHEASTERN NORTH AMERICA
Lewis Room
Organizer and Chairperson: Michael Gregg
Participants: 2:00 Guy Gibbon and Christy Gaines, Middle-Late Woodland Transition in Eastern Minnesota
2:30 Michael L. Gregg, Continuity and Change in Terminal Middle-Early Late Woodland Material Culture and Subsistence as seen from the Albany Site in Northwestern Illinois
3:00 Carl Kuttner, Late Woodland Settlement and Subsistence Systems in the Lower Kaskaskia River Valley, Illinois
3:30 Robert L. Hall, Soul Release as an Hypothesis for Explaining Perforated Long Bones and Cranial in Great Lakes Area Prehistory
4:00 Patrick J. Munson, Changes in and Relationships of Subsistence, Settlement, and Population in the Central Illinois River Valley
4:45 Discussants: Robert Alex, Duane Anderson, David Benn, David Braun, Gene Gray, William Green, William Hurley, Bonnie Whatley

(10) Symposium: SPANISH COLONIAL ARCHAEOLOGY IN TEXAS AND NORTHEASTERN MEXICO
Clark Room
Organizer and Chairperson: Tom R. Hester
Participants: 2:00 Kathleen K. Gilmore, Archaeological Investigations at Mission Rosario, Southern Texas
2:30 Dee Ann Story, The Preservation of Sabed Antiquities
3:00 Robert E. Adams, The Guerroo Projects: Archaeological and Ethnobiological Studies of Eighteenth Century Spanish Missions in Northern Coahuila
3:30 Jack D. Eaton, Architectural Remains at Missions San Bernardino and San Juan Bautista, Northern Coahuila
4:00 Thomas R. Hester, The Lithic Technology of Mission Indians in Texas and Northeastern Mexico
4:30 Anne A. Fox, The Ceramics of Mission San Bernardo, Northern Coahuila

(11) Symposium: CURRENT INVESTIGATIONS INTO PREHISTORIC CERAMIC TECHNOLOGY
Eugene Field Room
Organizers: F. J. Findlow, J. E. Ericson, and S. P. De Atley
Chairpersons: J. E. Ericson and F. J. Findlow
Participants: 1:30 Dean Arnold, Neutron Activation Analysis of Contemporary Ceramic Materials: A Test of Assumptions
1:50 Frank J. Findlow, Suzanne P. De Atley and C. Rainer Berger, Recent Developments in the Direct Application of C-14 Dating to Prehistoric Ceramic Materials
2:30 Jonathan E. Ericson, Ceramic Firing Temperature Determination
2:50 Suzanne P. De Atley and Frank Findlow, Ceramic Assemblages from Hidalgo County, New Mexico
3:10 James W. Porter, Thin Section Analysis of Cahokia Area Ceramics
3:30 Victoria L. Bennett and Frank J. Findlow, Microprobe Analysis and the Identification of Trade Ceramics
3:50 Evelyn Rattray, Garmon Harbotte, and E. V. Sayre, Cultural Interaction Between Tewa-Huachucas and the Valley of Oaxaca Indicated by Ceramic Paste Analysis

THURSDAY AFTERNOON, MAY 6
1:15-2:00 General Membership Section: INTERIM COMMITTEE ON REGISTRATION
Mississippi Room
Moderator: Edward Jokals
Report to the membership and announcement of the formation of the Society of Professional Archaeologists

(17) Symposium: VARIETIES OF NON-AGRICULTURAL SETTLEMENT AND SOCIAL ORGANIZATION: A VIEW FROM PREHISTORIC NORTH AMERICA
Mississippi Room
Organizer and Chairperson: Thomas F. King
Participants: 2:00 Thomas F. King, Social and Settlement Organization in the West Coast of North America
2:30 Richard Ciolek-Torrello and Stephanie M. Whitlesey, A Model of Refuge Types
2:50 William E. Reynolds, Defining Residence Patterns in Prehistoric Pueblo Sites
3:10 Stephanie M. Whitlesey, Prehistoric Pueblo Plazas: Interpretations of Community Organization
(12) General Session: MAYAN AREA ARCHAEOLOGY AND ETHNOHISTORY
Daniel Boone Room
Chairperson: Ronald L. Bishop
Participants:
1:30
Teresa Majewski, Ethnographic Demographic Data and its Archaeological Application: A Guatemalan Example
John C. Fox, Late Postclassic Highlana Maya Urbanism
John F. Rea, Ceramic Continuity in the Valley of Guatemala: An Example of Resource Utilization
Kenneth L. Brown, A New Appraisal of the Ethnic Relations in the Middle Classic in the Valley of Guatemala
Duncan Pring and Norman Hammond, Excavations in the Northern Belize, 1975-76
John M. Andersen, The Maya Chief Industry of Northern Belize
Norman Hammond, The Early Preclassic in the Maya Lowlands
Elizabeth A. Graham, Archaeological Research in the Stann Creek District of Belize
Jay K. Johnson, Site Hierarchy in the Western Maya Periphery: A Correlation of Lithic, Epigraphic, Architectural, and Ceramic Data
Robert E. Fry, Frontiers and Refuge Zones in the Maya Lowlands
Douglas Holmes and Philip C. Weiland, Mayan and Aztec Interdependence in the Late Post-Classical
Fred M. Wiseman, The Maximal Habitat Model of Mayan Agriculture
Don S. Rice, Middle Preclassic Maya Occupation of the Yaxha and Sacnab Lake Basins, El Peten, Guatemala
Leislavieche-Andes, Duality in Ancient Maya Economics
Film: "RIO GRANDE'S PUEBLO PAST"
3:00
Outpost Room
D. W. Swartz

THURSDAY EVENING, MAY 6

5:00-6:00
ASSOCIATION OF FIELD ARCHAEOLOGY
Outpost Room
Business Meeting
Ross Holloway, President

5:00-6:30
OPEN HOUSE
East Assembly

6:30-7:30
AMERICAN SOCIETY FOR CONSERVATION ARCHAEOLOGY
Clark Room
Business Meeting

7:00-10:00
DINNER IN HONOR OF PROFESSOR JAMES B. GRIFFIN
Mississippi Room

FRIDAY MORNING, MAY 7

(13) Symposium: COMPETITIVE CONTRACT ARCHAEOLOGY: NEW DEVELOPMENTS IN THE INTERAGENCY ARCHAEOLOGICAL SERVICES DIVISION PROGRAM, DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE
Mississippi Room
Organizers and Chairpersons: Rex L. Wilson and Frank W. Eddy
Participants:
8:30
Rex L. Wilson, Contract Proposal Competition: Adverse Reaction Versus Positive Benefits
8:50
Roy W. Reaves III, Competition in the Role of Contract Award
9:10
John P. Little, Federal Procurement Regulations: Adverse Bid Versus Negotiated Procurement
9:30
Frank W. Eddy, The Role of Scope-of-Work in the Negotiation Process
9:50
Victor C. Cambridge and John L. Davis, Trustworthiness, Territoriality, and Unionism: A Case for an Open Research Market
10:10
Lawrence E. Aten, Interdependence and Reciprocity for Cultural Resources Management
10:30
Discussants: Fred Wendorf, James J. Hester, David B. Madsen, Lawrence Williams

(14) Symposium: MIDDLE AMERICAN COASTAL ECOSYSTEMS
Spirit of St. Louis Room
Organizers and Chairpersons: Barbara Vroonis and Barbara B. Stark
Participants:
8:30
Elizabeth S. Wing, Intensive Use of Dogs for Food as an Adaptation to the Coastal Environment
8:50
Anthony J. Ranere, A Reappraisal of the Monagrillo Shellmidden, An Early Ceramic Site in the Pacific Coast of Panama
9:10
R. W. Magnus, The Pre- and Post-Conquest Cultural Ecology of the Atlantic Coast of Nicaragua: A Contrast
9:30
Frederick W. Lange, Prehistoric Adaptations: Coastal Guanacaste, Costa Rica
9:50
Barbara L. Stark, Economic and Settlement Pattern Models for Southern Veracruz: The Ethnohistory and Core-Buffer Alternatives
10:10
Dave D. Davis, Middle Formative Coastal Adaptations and Inter-Regional Contacts in Southern Mexico
10:30
R. J. Zettler, Precolumbian Procurement and Use of Obsidian on the Southern Isthmus of Tehuantepec, Mexico
10:50
J. Zettler, Community Distribution and Local Economy on the Southern Isthmus of Tehuantepec, Mexico
11:10
L. H. Feldman and S. Gehlert, Coastal Decline and Highland Survival: Change and Stability in Two Colonial Guatemalan Populations
11:30
Barbara Vroonis, Human Adaptation to Coastal Resources: The View from Middle America
11:50
Discussion

(15) Roundtable: THE IDENTIFICATION AND INTERPRETATION OF EVIDENCE FOR NATIVE AND INTRODUCED HORTICULTURE IN THE EASTERN UNITED STATES
Lewis Room
Organizer and Chairperson: R. I. Ford
Participants:
8:00

(16) Symposium: CORDS, FABRICS, AND BASKETS FROM SITES AND CERAMICS IN NORTH AMERICA
Clark Room
Organizer and Chairperson: W. M. Hurley
Participants:
8:00
David Benn, Notes on Late Woodland Fabric Impressed Pottery: A View from Northeast Iowa
8:20
Mary Elizabeth King, The Archaeological Textiles of North America: An Overview
8:40
9:00
William M. Hurley, A Stylistic Analysis of Corded and Fabric Applique Late Woodland Ceramics in Wisconsin
9:20
Discussant: James Stoltman

(17) Symposium: THE HINDS CAVE PROJECT: AN ARCHAEOLOGICAL AND BOTANICAL STUDY OF A LARGE DRY ROCKSHELTER IN SOUTHWEST TEXAS
Clark Room
Organizers: Harry J. Shafer and Vaughn M. Bryant
Chairperson: Harry J. Shafer
Participants:
10:30
Harry J. Shafer, The Archaeology of Hinds Cave: A Preliminary Report
11:00
Vaughn M. Bryant, An Overview of the Paleoecological and Botanical Research at Hinds Cave
11:30
Phil Dering, Plant Macrofossils Recovered from Hinds Cave
12:00
Glenna Williams-Dean, Preliminary Analysis of an Early Archaic Latrine, Hinds Cave, Texas

(18) Symposium: DEVELOPMENT OF ECONOMIC AND POLITICAL SYSTEMS IN PREHISPANIC ANDES
Eugene Field Room
Organizer and Chairperson: David L. Browman
Participants:
8:30
Bernardo Dougherty, An Early Pottery Complex in the Western Forest Region, Northwest Argentina
8:50
9:10
W. H. Silver and Katharina J. Schroeder, The Wari Empire: State and City?
9:30
Stella Porszki, Late Prehistoric Llama Remains from the Moche Valley, Peru
9:50
Tom D. Dillehay, Storage Function at Huancayo Alto
10:10
James Vreeland, Patterns of Textile Development and Function at Huancayo Alto
10:30
Alexandra M. Ulania Krymskin, The Inhabitants of the Intermediate Units at Chan Chan, Peru
11:10
Patricia J. Netherly, Chimu Conqueror: The Inca Occupation of the Chimu Kingdom
(19, 20) Symposium: PHOTOGRAMMETRIC MAPPING AND COMPUTER GRAPHICS—PART I

Daniel Boone Room
Organizer and Chairperson: Richard W. Effland, Jr.
Participants:
9:00 Frank T. Aldrich, Computerized Surface Display and Classification Experiments for Lithic Artifacts, North Coastal Spain
9:40 George Guneman and Carol S. Weed, Archaeology and Ultra-High Altitude Imagery
10:00 Charles McVitt, Computer Graphics in the Analysis of an Eastern Paleo-Indian Site
10:25 J. Barto Arnold III, Archaeological Applications of Computer Drawn Contour and Three-Dimensional Perspective Perspectives
10:40 Jerry R. Jernigan and Robert C. Dunnell, Computer-Aided Mapping in Archaeology: The Case for SYMAP
11:00 Lambert T. Dolphin and Roger S. Vickers, Application of Ground-Penetrating Radar to Archeological Site Surveying
11:20 Dee F. Green and Michael J. Lunt, Locating Archaeological Sites Using Infrared Line Scanning
11:40 Discussants: Thomas R. Lyons, Robert Nunley

Symposium: PHOTOGRAMMETRIC MAPPING AND COMPUTER GRAPHICS—PART II

Daniel Boone Room
Organizer and Chairperson: Richard W. Effland, Jr.
Participants:
2:00 Richard W. Effland, Statistical Distribution Cartography and Computer Graphics
2:40 Thomas Lyons, Photogrammetric Mapping and Digitizing of Prehistoric Puebloan Sites in Chaco Canyon National Monument, New Mexico
3:00 Dwight L. Draygo, Anasazi Population Estimates with Aid of Photographic Data
3:20 Randall F. Schalk and Thomas R. Lyons, The Use of Orbital Imagery in Archaeological Research
3:40 Martin H. Wobst, An Integrated Set of Computer Programs for Stratigraphic and Contextual Analysis
4:00 Barbara A. Donefer, Experiments in 3-Dimensional Perspectives and Artificial Graphic Plotting
4:20 Discussants: Thomas R. Lyons, Robert Nunley

(21) Symposium: EXPERIMENTAL REPLICATION

Outpost Room
Organizer and Chairperson: Nelson A. Reed
Participants:
9:00 Steven Sayad, Quantitative Experiments in Archaeology: New Approaches to the Study of Prehistoric Human Adaptations
9:30 Errett Callahan, Living Archaeology: Resurrecting the Past
10:00 Hans Ole Hanson, A Review of the Lajedo Experiment
10:30 Dennis E. Pilseton, Experimenting with the Ecology of a Complex Prehistoric Agricultural System
11:00 Nelson Reed, Verification and Strategies in Experimental Replication
11:30 Peter Reynolds, The Butser Ancient Farm Research Project

FRIDAY AFTERNOON, MAY 7

(22) Symposium: REGIONAL CENTERS IN ARCHAEOLOGY: PROSPECTS AND PROBLEMS

Mississippi Room
Organizers: William H. Marquardt and Stuart Stuever
Chairperson: William H. Marquardt
Participants:
1:30 William H. Marquardt, Introduction
1:35 Hester A. Davis, Regional Planning and State Archaeological Programs
1:45 James J. Hester, Specialized and Generalized Models of Regional Centers
2:05 William H. Marquardt, Prospects for Regional Computer-Aided Archaeological Information Retrieval

(23) General Session: MESOAMERICAN ARCHAEOLOGY

Spirit of St. Louis Room
Chairperson: Kenneth Hirth
Participants:
1:00 Kenneth Hirth, The Evolution of a Gateway Community: Central Mexican Symbiosis Along the “Oimec” Trade Route
1:25 Louis M. Otro, Olmecian Characteristics as a Clue to Understanding Oimec Iconography
1:45 David C. Grove, Chalcatzingo: The Rise of a Major Formative Center
2:10 David E. Buge, Climate or Land Modification? Pathology at Chalcatzingo
2:35 Ann CypHERS, Formative Ceramic Horizon Styles: Definition and Significance
3:00 Melvin L. Fowler, The Puebla Preclassic Project: Site Survey Methodology and Some Preliminary Results
3:20 Michael E. Whalen, Social Dimensions of an Early Formative Cemetery from Oaxaca, Mexico
3:40 Gordon Whittaker, On the Decipherment of Early Monte Albán Inscriptions
4:00 Charles W. Markman, Survey of Settlement Patterns in the Miahualtan Valley, Oaxaca, Mexico
4:20 Donald E. McVicker, Approaches to the Mural Art of Teotihuacan: A Critical Essay
4:40 Raymond Sidrys, Standardization of Mesoamerican Field Data

(24) General Session: EASTERN U.S. PREHISTORY I

Lewis Room
Chairperson: David S. Brose
Participants:
1:00 John E. Kelly, Formative Developments at Cahokia: A Merrell Tract Perspective
1:25 James Schoenwetter, Archaeological Poten Analysis of Cahokia and Environments
1:50 Ken Williams, The FAI-255 Project: A Methodological Assessment of Some Traditional and Experimental Site Survey Techniques
2:15 Landon D. Smith and Dee F. Green, Predicting Ceramic Form from Sherd Weight in Mississippians Ceramics: A Statistical Model
2:40 James B. Stillman, A New Temporal Model for Eastern North America Prehistory
3:05 Charles E. Cline, The Development of a Prehistoric Fishery in the Upper Great Lakes Region
3:30 C. Dean Hogebohm, Early Woodland Sites in the Lower Wabash River Valley
3:45 Mark Seeman, Stylistic Variation in Middle Woodland Pipe Styles: The Chronological Implications
4:00 Gary W. Hennen, "A Paleo-Ecological Locational Analysis of the Lower Scioto Region of Ohio"—Part 1: Demographic Analysis
4:25 David S. Brose, Squaw Rock Shelter: An Early Archaic Campsite in Northeast Ohio
4:40 Nan Rothchild, "Stranger in a Strange Land": A Consideration of Sampling and Testing

(25) Symposium: ZOOARCHAEOLOGICAL THEORY AND RECONSTRUCTIONS

Clark Room
Organizers and Chairpersons: Eileen Johnson and Fred Hill
Participants:
2:00 Stanley J. Olsen, Domesticated Animals in Prehistoric Southwestern United States with Emphasis on the Origins of the Domestic Dog
2:30 Frederick C. Hill, Archaeological Aquatic Faunal Remains as an Aid to the Reconstruction of the Paleoenvironment
3:00 Paul W. Parmalee, The Avifauna from Prehistoric Arrikita Sites in South Dakota
3:30 Thomas J. King, Jr., Late Pleistocene-Early Holocene History of Confusus Woodlands in the Lucerne Valley Region of the Mojave Desert
4:00 Eileen Johnson, Reconstructing Human Social Behavior Through Faunal Analysis

(26, 27) Symposium: CONFERENCE ON MESOAMERICAN ETHNOHISTORY—PART I

Eugene Field Room
Organizer and Chairperson: Nancy P. Troike
Participants:
1:30 Linda Goff, The Jowel Personal Name in the Mixtec Manuscripts
1:55 James R. Ramsey, Illustrations of Portable Art in the Mixtec Manuscripts
FRIDAY EVENING, MAY 7

5:30 - SOCIETY FOR AMERICAN ARCHAEOLOGY ANNUAL BUSINESS MEETING
Mississippi Room
Stuart Streuer, President

5:30 - RECEPTION FOR NEW MEMBERS
Spirit of St. Louis Room
Present and past officers of the Society greet new members and attendees attending their first annual meeting.

8:00 - COMMITTEE ON PUBLIC ARCHAEOLOGY
Outpost Room
Open Meeting

(28) General Session: EASTERN U.S. PREHISTORIC II
Lewis Room
Chairperson: William M. McHugh
Participants:
8:00 - Michael Collins and C. Wesley Cowan, Investigations at 15MS28, an Early Late Woodland Village Site in North Central Kentucky
8:10 - Kenneth A. Cantans, Recent Investigations in the Central Kentucky Karst: A Preliminary Temporal Ordering of Several Surface Sites in the Mammoth Cave Area, Kentucky
8:30 - David Sanger, Ronald B. Davis, Harold W. Borns, Jr. and Robert C. MacKay, Man and Paleo-Environments in Central Maine
8:50 - J. C. Vogel and Nikola J. van der Merwe, Isotopic Evidence for Early Maize Cultivation in New York State
9:10 - Chester DePrater, An Archaeological Survey of a Portion of Chatham County, Georgia: Archaeological and Geological Implications
9:20 - David H. Dye, Riverine Adaptations in the Late Archaic of the Savannah River Region
9:40 - Jerold T. Milianch, The Radiocarbon-Dated Aboriginal Culture Sequence from St. Simons Island, Georgia - 2240 B.C. to A.D. 1550
9:50 - Richard L. Zurek, Temporal Changes in Occupation Intensity and Settlement Systems on the Georgia Coast: Evidence for the Acquisition of Agriculture and Subsistence
10:10 - Rochelle Morris, Archaeological Investigations on Cannon's Point: The Late Archaic Aspect
10:20 - Marilyn C. Stewart and Paul Zepf, A Model for Subsistence Change in a Central Florida Shell Mound
10:30 - Karl T. Stiebel, Ecological Relationships and Settlement Patternning on the Gulf Coast of Florida: The Pasco Area

(29) General Session: SOUTHWESTERN ARCHAEOLOGY II
Clark Room
Chairperson: Ted Frisbie
Participants:
8:00 - Elizabeth Skinner, Lithic Analysis and Social Organization in the Chibola Area of New Mexico

SATURDAY MORNING, MAY 8

(31) Symposium: ASCA: CURRENT ISSUES IN CONSERVATION ARCHAEOLOGY
Clark Room
Organizers: James Hester and Alexander Lindsay
Chairperson: Alexander Lindsay
Participants:
8:30 - Carla Van West and Cherie Schieck, Professionalism: Registry or Graduate Schools
8:40 - Cherie Schieck and Carla Van West, A Case of the Boston Tea Party: 1976
8:50 - David Ives, Stirring and Draining: In the Field Safety
9:00 - Donald K. Grayson, A Review of Recent Attempts to Prosecute Antiquities Act Violations in Oregon
9:25 - Mark A. Grant and William D. Lipe, Conservation Archaeology, Research, and Environmental Law
9:50 - Lloyd M. Herson, What's Wrong with Cultural Resource Management in Washington?
10:10 - F. A. Calabrese, Federal Archaeological Legislation and Administration: Intent and Reality
10:40 - James T. Rock, Conservation Archaeology: A Practical Example
11:00 - Michael J. Boynton, Cultural Resource Management and Archaeological Conservation Practices on the Modoc National Forest, U.S. Forest Service, California Region
11:30 - Michael C. Gardner, The Role of Business and the Corporate Archaeologist in Conservation Archaeology
11:50 - Charles J. Spiker, Appropriate Treatment of Archaeological Resources
12:15 - John Cook, Organization of the Alaska Pipeline Survey

(32) Symposium: THE USES AND ABUSES OF VARIOUS SCIENTIFIC AIDS TO ARCHAEOLOGICAL RESEARCH
Mississippi Room
Organizer and Chairman: James B. Griffin
Participants:
8:30 - Richard I. Ford, The Significance of Ethnobotany to Archaeology
9:00 - Bruce D. Smith, Faunal Analysis: Problems and Potential
9:10 - Jennifer W. Gish and James Schoenwetter, The Application of Palynology to Archaeology: Limitations and Some Practical Suggestions
10:00 - William P. Farrand, Sedimentology of Archaeological Sites
10:50 - Frederick R. Matson, What is the Question? - Quaternary in Ceramic Technology
11:10 - Richard Elucky, Radiocarbon: Some Diagnostic Notes from Maryhill Diary
11:30 - Garman Harbottle and Edward V. Syree, Neutron Activation Analyses in Studies of Archaeological Pottery: Power and Pitfall
12:00 - Heather Lehman, The Archaeology of Metallurgy

(33) General Session: STATISTICAL AND QUANTITATIVE METHODS
Spirit of St. Louis Room
Chairperson: D. Bruce Dickson
Participants:
8:30 - Patricia E. Ruberto, Interaction in a Complex Society: Inferences from Ceramic Attribute Analysis
9:45 - James W. Hatch, "Change" versus "Noise" in Ceramic Frequency Sieration
SATURDAY AFTERNOON, MAY 8

(40) Symposium: EXPLANATION OF PALEOLITHIC ASSEMBLAGE VARIABILITY
Mississippi Room
Organizer and Chairperson: Lawrence G. Strauss
Participants:
1:30 Mercedes Cano and Alfonso Moure, The Magdalenian Occupation of Tito Bustillo Cave (N.W. Spain)
1:45 Kathleen A. Cushman, Spatial Analysis of an Aurignacian Occupation Floor at Cueva Morin, Spain
2:00 Leslie G. Freeman, 400,001 B.C. (?): A Paleolithic Space Odyssey
2:15 Margaret C. Fritz, Bone Artifact Typology, Decorative Treatment, and Sources of Variability Among Certain Paleolithic Assemblages
2:30 R. J. Gonzalez Echevarry, The Concept of "Facies" Applied to Upper Paleolithic
2:45 Robert Jewett and Geoffrey Clark, Local Group Size Estimation Procedures in Archaeological Contexts: An Example from the African Basal Paleolito
3:00 Arthur J. Jenkin, Quantifiable Variants in Flake Shape in the Late Paleolithic of the Levant
3:30 Michael Jochim, Hunter-Gatherer Economic Patterns: A Predictive Model for Archaeology
3:45 Ada Montet-White, Viability of Late Paleolithic of South Central Europe
4:00 Alan Osborn, Aconite and Old States: A Suggested Explanation for Changes in Lithic Resource Utilization
4:15 James P. Eckett, Upper Paleolithic Assemblage Variability in the Perigord in Southwestern France
4:30 Lawrence G. Strauss, New Light on the Upper Paleolithic of Southwestern Europe
4:45 Thomas P. Volman, Spatial Analysis at Torralba

(41) General Session: STUDIES OF ARCHEOLOGICAL SOILS AND SURFACE DATA
Spirit of St. Louis Room
Chairperson: Eugene L. Sterud
Participants:
1:30 Nancy A. Steinbock, Deflocculation and Flotation of Clay Soils in Archaeological Deposits
1:50 Charles M. Baker, An Experimental Application of Soil Phosphate Analysis
2:10 W. Raymond Wood and Donald L. Johnson, Pedoturbation (Soil Mixing), Context, and Archaeological Systems
2:30 Stephanie M. Whittlesey, Eric Arnold, and William E. Reynolds, "Stronger than Life" by Donald L. Johnson, The Concept of an Archaeological Soil and Its Application
3:00 Anne F. Rogers, Surface Collecting and Sampling: An Empirical Analysis
3:20 William B. Butler, The Demonstration and Explanation of Intersite Relationships as Revealed by Lithic Debitage Analyses
4:00 Kelly C. Duncan, Burnt Rock Middens A Theoretical Consideration
4:20 Charles D. Chest, Activity Analysis of Collections of Lithic Surface Debris
4:40 Kevin Lehan, The Uses of a Proton Magnetometer and Auger Sampling in an Archaeological Setting
5:00 Eugene L. Sterud and Francis P. McMannan, The Identification of Activity Locii in Plough Zones: An Example from New York State

(39) General Session: THEORETICAL CONSIDERATIONS
Daniel Boone Room
Chairperson: Joseph L. Chartoff
Participants:
10:30 Joseph L. Chartoff, Natural Science, Positivism, and Archaeological Explanation
10:55 Jefferson Reid, Archaeology as a Second Language
11:10 Peter Schmidt, Structuralism and Archaeology: Can You Dig Levi-Strauss?
11:35 B. K. Swartz, A Logical Pattern of Archaeological Operations: A Post-Binfordian Reformation
12:00 William E. Edwards, The Origin of Cities
42) Symposium: KINCAID SITES AND SOUNDINGS: ARCHAEOLOGICAL RESEARCH 1967-76
Lewis Room
Organizers and Chairperson: Jon Muller
Participants:
1:10 Jon Muller, Kincaid Sites and Soundings: Archaeological Research, 1967-76
2:00 Robert V. Riorian, Ceramics and Settlement: A Mississippian Example from the Thirteenth Century A.D.
2:30 Brian M. Butler, Mississippian Settlement in the Black Bottom: Environment, Community, and Site Distribution
3:00 Crawford Blakeman, Paleoethnobotany of the Black Bottom
3:30 Robert H. Lafferty III, The Black Bottom in Relation to Mississippian Settlement
4:00 Lawrence G. Santeford, Cherting the Issues: Lithic Studies in Southern Illinois
4:30 Frank Rackerby, The Selling of Kincaid: Putting the Site in the Public Domain

43) Symposium: COMPUTERIZED DATA MANAGEMENT IN ARCHAEOLOGY
Clarke Room
Organizers: Jeffrey M. Neff and Cynthia Irwin-Williams
Chairpersons: Jeffrey M. Neff, F. B. Fryman, and Sylvia Gaines
Participants:
1:10 James A. Brown and Stanley C. Clayton, The Organization of an Interactive Data Management System for an Archaeological Site
1:45 Patricia Hancock and Cindy Kennedy, Setting Up a Data Processing Lab
2:20 Mike Jacobs and Susan Colek-Torrello, Constructing a Thesaurus for Terms for Southwestern Archaeological and Ethnological Specimens
2:45 Paddy C. Johnson, Data Structures and the Recording of Archaeological Data
3:10 M. Katherine Jones, Structure of and Relationships Among the Several Components of FDAHRM’s Archaeological Data Bank
3:35 Larry Manire and Don P. Morris, A Computerized Survey Recording System
4:00 Pamela Morden, The Development of an Archaeological Data Recording System
4:25 Sandra Scholl, A Computerized Archaeological Photograph and Slide File
4:45 Jeffrey M. Neff, Perspectives on the Management of Archaeological Data

44) Symposium: RECENT RESEARCH ON TEOTIHUACAN
Eugene Field Room
Organizer and Chairperson: George L. Cowgill
Participants:
1:30 Michael E. Smith, A Multivariate Analysis of Temples and Residences of Classic Teotihuacan, Mexico
1:50 Michael Ester, The Spatial Allocation of Activities at Teotihuacan
2:10 Rebecca S. Gottschlich, Toward More Precise Status Categories at Teotihuacan
2:30 Matthew S. Freedman, Spatial Organization of the Urban Center of Teotihuacan, Mexico
2:50 Emily S. McClung de Tapia, Paleoethnobotanical Investigation at Teotihuacan, Mexico
3:10 David R. Starbuck, Faunal Evidence for Urban Adaptations and the Teotihuacan Support Area
3:30 David R. Drucker, Teotihuacan’s Major Monuments: An Analysis of Their Systematic Interrelationship
3:50 Paula Homburger Kroster, The Potters of Teotihuacan
4:10 Michael W. Spence, Obsidian DATING in Teotihuacan, Mexico
4:30 George L. Cowgill, Teotihuacan and the Southern Maya Lowlands: Implications of Contrasting Developmental Rhythms

45) General Session: PLAINS ARCHAEOLOGY
Daniel Boone Room
Chairperson: Patricia J. O’Brien
Participants:
1:00 Susan C. Vehik, The Quat Site (32LM214) and Its Implications for the Prehistory of the James River Valley, North Dakota
1:10 Rain Vehik, Archaeological Excavations in the James River Valley, North Dakota
1:20 Ruthann Knudson, The Anton Rygh Site, South Dakota, and its Salvaged Information
1:30 Patricia O’Brien, Kansas City Area Settlement Patterns
1:50 Robert E. Cooley, The Patterson Spring Site: A Multi-Component Site in the Middle James River Basin
2:00 Michael J. Fuller, An Archaeological Study of Settlement and Land Use in the James River Basin
2:10 Charles D. Collins, An Early Hunter Tradition Site in the Western Drainage Region of Missouri
2:20 Donna C. Roger, Settlement Patterns on the Pomme De Terre River, Missouri
2:40 James E. Price, Current Research on the Powers Phase Settlement System
3:00 Francis B. King, Modeling Prehistoric Plant Food Resources of the Western Missouri Ozarks
3:10 Ann M. Johnson, Middle Missouri Cultural Dynamics—AD. 1100-1500
3:20 David R. Evans and David J. Ives, The Ceramic Basin Archaeological Research Project
3:40 Elizabeth Ann Morris, Archaeological Survey of Argentine Pass Across the Continental Divide in Central Colorado
4:00 Sarah M. Nelson, A Reexamination of Colorado Woodland Pottery
4:10 William S. Marmaduke, Cultural Patterns in the Prehistory of Trans-Pecos Texas
4:20 William B. Lee, A Functional Analysis of Eighteenth and Nineteenth Century Osage Gun Barrel Sections
4:40 Steve Hackenberger, An Area Reconnaissance of McGee and Patapo Creeks

SATURDAY EVENING, MAY 8
5:30 POST-CONFERENCE GATHERING AT CAHOKIA MOUNDS
9:00 Sponsored by the Illinois Archaeological Survey. See General Information for details.
ABSTRACTS OF ORGANIZED SYMPOSIUM

(1) THE ARCHAEAL CONSERVATION ACT: RETROSPECT AND PROSPECT. Passage of Public Law 93-291 (the Moss-Bennett Act) in May 1974 stimulated an avalanche of American archaeological discoveries. What the Act would have on the field. Two years later it is possible to the real impact the Act has had on archaeology in the United States. In addition, it is important to discuss the various activities needed within the next two years in order to continue it when it comes up for review in 1978. It is important to show that archaeologists in America can respond to this important legislative opportunity that has been provided by the American public.

(2) ARCHAEOLOGY AND PALEOECOLOGY AT MEADOWCROFT ROCKSHEDER, AN INDIAN SITE. Meadowcroft Rockshelter is a stratified, multi-component site in Washington County, Pennsylvania. The 11 well defined stratigraphic units isolated at the site span at least 15,000 and perhaps 19,000 years of intermittent occupation by five major cultural stages of pre-Columbian northeastern North America. The salient features of the geology, ecology, archaeology, and paleoecology of this site are summarized on the data accrued and processed through the termination of the 1973 field season. Since there are two more field seasons scheduled at the site, the data presented most needs to be considered subject to future modification.

(3) THE ARCHAEOLOGY OF RESIDENCE: SOME EXAMPLES FROM PRE-COLUMBIAN MesoAMERICA. The symposium reflects a growing interest in the excavation of non-ceremonial sectors of Pre-Columbian communities in an attempt to gain further knowledge of non-hierarchic aspects of Mesoamerican culture. The participants will present data based upon excavations of residential remains from a wide variety of settlement types and ranging in time from the Preclassic to the Postclassic periods.

(4) THE RECONSTRUCTION OF DIET FROM ARCHAEOLOGICAL EVIDENCE. The paper will present examples of the application of techniques used in paleonutrition with only a brief discussion of methodology. These contributions will be theoretical in nature explaining the methods of the technique and range of its application. These will include analysis of faunal, floral, skeletal, and cultural evidence.

(5) THE STUDY OF PREHISTORY: A BIO-ARCHAEOLOGICAL PERSPECTIVE. The development and implementation of bio-cultural change models and investigation of data derived from a diversity of research fields. One means of facilitating the refinement of such models is to direct, within a geographic region, expertise reflecting the biological, social, and environmental sciences towards a common set of research goals. The 25,000 square kilometer area of the lower Illinois River region is an ideal laboratory for the development of interdisciplinary research strategies directed toward questions of prehistoric social organization, biological change, settlement patterns, and environmental systems. These biological sites in the area document the exploitation of a rich natural environment, and reflect marked cultural diversity through time. Thus, it is possible to trace the interaction of biological, cultural, and environmental variables through extensive series of temporally sequential populations. This symposium details the complex bio-cultural changes which define the Woodland and Mississippian periods for the lower Illinois region.

(7) VARIETIES OF NON-AGRICULTURAL SETTLEMENT AND SOCIAL ORGANIZATION: A VIEW FROM PREHISTORIC NORTH AMERICA. In spite of considerable interest in non-agricultural social organization and settlement systems, there is little evidence for non-agricultural societies as invariably being egalitarian bands continues to be observable among anthropologists and especially archaeologists. This symposium examines archaeological and ethnographic evidence bearing on the amount of variability actually present among North American non-agriculturalists in terms of social and settlement organization. Recent data from various parts of the continent are summarized, and an attempt is made to project the kinds of organization present under varying conditions at varying times in the past.

(8) TEACHING AND TRAINING OF ARCHAEOLOGISTS. A consideration of the aims, methods, employed, and problems faced in the graduate education of professional archaeologists. The required basic knowledge, experience, and the philosophy of education vary in the various institutions. The adjustment of graduate programs to reflect the current employment situation will be examined. Specific cases of program evaluation and reorganization will be presented.

(9) MIDDLE-LATE WOODLAND CONTINUITY IN NORTHEASTERN NORTH AMERICA. The rapidly changing cultures of the A.D. 400-700 time period in northeastern North America have long been a focal point of archaeological speculation. Anthropological research into this time period has recently evolved into a major field of study within the area. Symposium reports cover various features of the cultural order including subsistence practices, settlement organization, technological innovations, lithic technology, mortuary practices, art, and the relations of these to the study of the social and cultural evolution in society. Predictive models are offered which attempt to explain the transitions of the time.

(10) SPANISH COLONIAL ARCHAEOLOGY IN TEXAS AND NORTHEASTERN MEXICO. Symposium papers will present papers reviewing recent investigations of Spanish Colonial sites and materials in Texas and northeastern Mexico. One paper will discuss the macroscopic observations by Misión Rosario at Mission Rosario, Texas. Papers will be devoted to a review of the archaeology, architecture, and ethnohistory of an eighteenth century Spanish mission complex (San Juan Bautista del Río Grande) in northeastern Coahuila. Finally, the preservation and study of early artifacts from mid-sixteenth century shipwrecks along the coast Texas will be treated in detail.

(11) CURRENT INVESTIGATIONS INTO PREHISTORIC CERAMIC TECHNOLOGY. Over the past several years the total volume of archaeological research techniques available to the ceramic analyst has increased dramatically. While there are many aspects of archaeological research, the range of developments has been particularly great in the proliferation of archaeological techniques suitable for the analysis of prehistoric ceramic materials. This symposium will include an overview of recent developments in prehistoric ceramic technology, with emphasis on changes in prehistoric ceramic technology have been provided with a wide array of new variables with which to measure such changes. Although the scope of new techniques available for analyzing prehistoric ceramic technologies, this symposium, bringing together archaeologists and researchers in the physical sciences, will serve to draw the attention of the general archaeological community to the more important aspects of current research into prehistoric ceramic technology.

(12) COMPETITIVE CONTRACT ARCHAEOLOGY: NEW DEVELOPMENTS IN THE INTRA-ArCHEOLOGICAL SERVICES DIVISION PROGRAM, DEPARTMENT OF THE INTERIOR, NATIONAL PARK SERVICE. The interagency Archaeological Services Division's (National Park Service) contracting program will be presented to the archaeological contracting profession as a revolution in procurement procedures for site mitigation. Specifically, the revolution is one of significant change in the nature of contract award, shifting from sole-source to competitive procurement. The philosophy behind this change is based on three premises: (1) contract procurement of the future must be conducted in a free and open research market as mandated by the Code of Federal Regulations (procurement regulations) now on the books; (2) the successful contractor will be selected on the basis of a competitive evaluation of the contractor's proposal, with the lowest budget proposal, and finally, (3) competitive proposals for mitigation contracts will be open to all qualified institutions and organizations without restriction.

(13) MIDDLE AMERICAN COASTAL Ecosystems. The focus of the symposium is on the transition and patterns affecting them in coastal environments of Middle America. Substantive, methodological, and theoretical contributions on the topics of subsistence, economics, demography, and settlement pattern will be included. Both environmental and social relationships are regarded as relevant to the analysis of middle American coastal ecosystems.

(14) PALEOECONBOTANICAL ROUNDTABLE: THE IDENTIFICATION AND INTERPRETATION OF NATIVE AND DOMESTICATED PLANTS IN THE EASTERN UNITED STATES. The evidence for identifying and interpreting domesticated plants in the Eastern United States will be discussed by the participants of this roundtable. The presence of cultivated crops has been an important factor in many aspects of human social organization. It is probable that some of the later prehistoric cultures were more limited in their domestication than previously thought.

(15) CORDS, FABRICS, AND BASKETS FROM SALTS AND CERAMICS IN NORTH AMERICA. Prehistoric cords, fabrics, and baskets are regarded by most researchers as an afterthought or appendix to material culture descriptions from sites throughout the Western World. Similarly successful articles dealing with these preserved phenomena have graced the literature for only a few years. With only three or four years of research, their confirmation for their conclusions via comparisons across mediums to seek stylistic keys which may unlock social, economic, or settlement patterns which may not conform to traditional archaeological categories. Recent analyses of cordage areas and recent interpretations of prehistoric technology have become increasingly accurate and systematic in seeking internal relationships. There is a paramount need for communication among scholars working on these "soft" items and their direct transfer to other hard items such as ceramics, building details, to direct structures or as painted motifs or as mummificatory key to the social or cultural organization of prehistoric groups.

(16) THE HINTS CAVES PROJECT: A CARIBBEAN AND BOTANICAL STUDY OF A LARGEST DRY ROCKSHED IN SOUTHWEST TEXAS. The objective of this symposium is to present preliminary results of an archaeological investigation of the Hints Caves Project. The reports will describe the project objectives, the archaeological, the paleoenvironment, the
coprolite (dietary) studies, and plant macrofossil analyses. Mounds Cave is a large archaeological site located near the center of the American Southwest. Its rich deposit of perishable refuse is one of the few such sites that remain in the area of southern New Mexico, and it contains vast quantities of undisturbed perishable deposits. Sensitive to the extent of being collected and studied, the main excavation season has been conducted to systematically study the site and its deposits. One excavation season has already been completed, and preliminary analyses of the data indicate that the site contains an extremely high percentage of the longest sequence of plant macrofossil and human coprolite data ever recorded from a site in the American Southwest. The site history includes an extensive intertribal ceremonial program incorporating botanical and human fertilizers.

13) DEVELOPMENT OF ECONOMIC AND POLITICAL SYSTEMS IN PREHISPANIC ANDES. Models for the development of economic and political systems in Prehispanic Peru are becoming more complex and sophisticated. Utilization of better field recovery techniques combined with thorough laboratory analysis of archaeological data allows us to better reconstruct the economic support systems of the developing civilizations. This data in conjunction with other archaeological discoveries allows for the explanation of how changes in the economy and political systems can be observed. Ethnographic data is used to provide additional validating hypotheses.

19) PHOTOGRAMMETRIC MAPPING AND COMPUTER GRAPHICS. Photogrammetry and computer graphics are rapidly changing traditional fields which have a great impact on current archaeological research. This symposium provides a medium for discussing methods and techniques and disseminating these to the archaeological profession. The increasing use of computer-aided graphics in conjunction with other spatially related analytical methods is an aid to understanding behavioral patterns and historical record. A broad range of topical applications in both photogrammetric and computer graphic mapping provides a basis for future archaeological research.

31) ASCA-CURRENT ISSUES IN CONSERVATION ARCHAEOLOGY. Since its inception, ASCA has worked to promote and coordinate efforts for the conservation of prehistoric archaeological sites. This role of the organization is an important aspect of the field of archaeology and is one that ASCA seeks to expand and enhance. The present symposium of papers covers the range of issues that may be faced in the conservation of archaeological sites. These papers range from problems associated with the preservation of artifacts to the management of natural resources in order to maintain the cultural landscape. The symposium serves to provide guidance and direction for future studies and projects.

32) THE USES AND ABUSES OF VARIOUS SCIENTIFIC AIDS TO ARCHAEOLOGICAL RESEARCH. Archaeology has, and should avail itself of the information which can be derived from a large number of fields within the natural and physical sciences. The effective use of these scientific aids to archaeology requires considerable skill, time, and effort on the part of the archaeologist. The purpose of this symposium is to review the uses and abuses of various scientific aids to archaeological research, and to discuss the methods for their appropriate use.

16) ARCHAEOLOGY OF THE DELAWARE INDIANS. This symposium summarizes the present knowledge of the Delaware Indian tribe in the eastern United States, including their settlement patterns, economic activities, and cultural practices from the prehistoric period to the present day. The symposium provides an overview of the Delaware Indian tribe and their cultural history, including their farming practices, seasonal migrations, and trade relationships with neighboring tribes.

27) CULTURAL INTERACTION IN CENTRAL MEXICO. This symposium examines the cultural interactions that took place in central Mexico during the prehistoric period. The symposium focuses on the exchange of goods and ideas between different cultures, as well as the development of trade networks and the movement of people.

28) KINCAID SITES AND SOUNDINGS: ARCHAEOLOGICAL RESEARCH 1967-76. The Kincaid sites, located in the southeastern United States, have been actively engaged in archaeological research since the 1960s. This symposium presents the results of this research, including the discovery of new sites and the analysis of artifacts and other cultural materials.

43) COMPUTERIZED DATA MANAGEMENT IN ARCHAEOLOGY. Archaeological data is generated in vast quantities and requires efficient management and storage. This symposium focuses on the use of computer technology in managing archaeological data, including the development of databases and the use of computer software for data analysis and visualization.
of all, decisions must be made on just what information is to be recorded. These problems, their general significance, and applications of data management to different problems in archaeology will be explored by the papers in this session.

(44) RECENT RESEARCH ON TEOTIHUACAN. The Teotihuacan Mapping Project (directed by Rene Millon) collected an immense amount of data in the course of an intensive systematic surface survey of the entire city, supplemented by problem-oriented small excavations. This symposium reports results from a variety of analytical approaches being applied to this data.

ABSTRACTS OF PAPERS*

Adams, E. Charles (Museum of Northern Arizona) WALPI: THE ARCHAEOLOGY OF AN HISTORIC AND LIVING COMMUNITY. Beginning in November 1975, an 18-month restoration program for the Hopi Pueblo, Walpi, was begun. Funding for the restoration and attendant archaeology is provided by the Economic Development Administration. The development, implementation, and acceptance of an archaeological project within a living Hopi Pueblo provides a unique backdrop to the project. The continuity of archaeology with the living community allows the consideration of a large variety of hypotheses. The data being collected should shed light on processes of material culture disintegration (how material culture arrives at its archaeological context), culture continuity and change, material correlates of social structure, inter- and intravillage structure, the study of modern Hopi pottery, the evolution of architectural style, as well as many others. In general an ethnoarchaeological model is being applied. (4)

Adams, Richard E. W. (Texas-San Antonio) THE GUERRERO PROJECT: ARCHAEOLOGICAL AND ETHNOHISTORICAL STUDIES OF EIGHTEENTH CENTURY SPANISH MISSIONS IN NORTHERN COAHUILA. The Guerrero Project of The University of Texas at San Antonio is investigating, through the avenues of archaeology and ethnohistory, the eighteenth century Spanish mission complex in an area of northern Coahuila formerly known as San Juan Bautista del Rio Grande. Three missions—San Juan Bautista, San Bernardito, and San Francisco Solano—were established in this region beginning in 1699. The research, funded by the National Endowment for the Humanities and two Texas foundations, is providing new data on the mission system in the area, and is examining the historic Indian occupations associated with the missions. (10)

Adovasio, James M. (Pittsburgh) MEADOWCROFT ROCKSHELTER: RETROSPECT 1975. All of the data currently available indicate that Meadowcroft Rockshelter was more or less continuously utilized as a focus for hunting, collecting, and food processing from at least the early fifteenth millennium B.C. to the historic period. As such it represents not only the oldest well-dated site in eastern North America but also one of the longest stratified occupational sequences in the hemisphere. The culture sequence at Meadowcroft Rockshelter is summarized, and the character and pattern of spatial and temporal intensity of site utilization are detailed. Summary comments are offered on the external affinities of the sequent Meadowcroft assemblages compared elsewhere in the eastern United States specifically, and North America generally. (2)

Adovasio, J. M. (see Carlisle, R.) (15)

Alkens, C. Melvin (Oregon) ASSEMBLAGE VARIATION AND ACTIVITY LOCUS AT COFFEE POT FLAT, SOUTHEAST-CENTRAL OREGON. Coffee Pot Flat is a mountain meadow several miles west of the vast Chewaucan Marsh of south-central Oregon at the western edge of the Great Basin. Intensive survey coverage of the 31/2 square-mile area yielded 51 activity loci of varying extent. Projectile point time markers indicate that the meadow was occupied over the past 5,000 to 7,000 years. Detailed analysis of controlled surface collections suggests activity variants. It is speculated that the Coffee Pot Flat occupation represents the summertime activity patterns of transhumant populations which wintered around the Chewaucan Marsh. (14)

Aldrich, Frank T. (Arizona State) COMPUTERIZED SURFICIAL DISPLAY AND CLASSIFICATION EXPERIMENTS FOR LIENCRES ARTIFACTS, NORTH COASTAL SPAIN. This paper presents the results of a series of computerized spatial and classificatory experiments designed to test the methodological validity of employing 3-dimensional perspective plotting and Braun-Blanquet "tabular analysis" to process surface artifact scatter. The data is from Lienares, an early Holocene open site near Santander, Spain. Experiments include the production of single and multiple plots of continuous and discontinuous artifact surfaces generated from spatially modified data. The Braun-Blanquet methodology which was initially developed for ecological analysis was also applied to the data. All experimental results were compared with spatial findings of Clark (1975), (19, 26)

Andersen, John M. (Illinois) THE MAYA CHERT INDUSTRY OF NORTHERN BELIZE. A technological and functional analysis has been completed on a collection of chert artifacts from 11 sites in northern Belize. The analysis includes a model of the regional pre-Columbian chert industry. The role of toolmaking is emphasized, and lithic relationships with other parts of the Maya area are discussed. (12)

Andrews, R. (see Carlisle, R.) (16)

Angulo, George (NAM) TEOTIHUACAN CONNECTIONS IN MORELOS. Recent archaeological investigation indicates considerable variation in the nature and quantity of

*Abstracts listed alphabetically by senior author; please see program for full citation.
Teotihuacan influence across the modern state of Morelos, Mexico. This influence is strongest and most long lasting in the eastern half of the state. Teotihuacan influence in western Morelos is restricted to the early Classic, and save for the architectural and cultural assemblages of Xochitalco, Morelos. The material is discussed on terms of its utility for funding research in the Central Mexican Classic. (37)

Anzalone, Ronald D. (SUNY Binghamton) QUANTITATIVE AND QUALITATIVE STRATEGIES FOR ARCHITECTURAL ANALYSIS: A MEDIEVAL MOROCCAN EXAMPLE. A medieval town site on the north coast of Morocco provides the focus for describing and explaining settlement structure and change. Settlements are viewed as both networks of structures and as networks of social interactions. Architectural remains, like other forms of patterned behavioral and personal expression, are an expression of cultural identity. The architectural units, the physical 'structure' of the site, and the technological variability within the constructional components of buildings are being systematically studied. By combining quantitative and qualitative analysis of such architectural units, it is possible to make tentative statements concerning changing patterns of land use and constructional resource utilization. (33)

Applegate, J. (see Skrillo, E.)(2)

Arnold, Dean (Wheaton College) NEUTRON ACTIVATION ANALYSIS OF CONTEMPORARY CERAMIC MATERIALS: A TEST OF ASSUMPTIONS. By analyzing contemporary ceramic materials from highland Guatemala, this paper tests the assumptions which technologists utilize in interpreting the neutron activation analysis of ancient ceramic materials. (11)

Arnold, J. Barto, III (Texas) ARCHAEOLOGICAL APPLICATIONS OF COMPUTER-DRAWN CONTOUR AND THREE-DIMENSIONAL PERSPECTIVE PLOTS. Topographic contour maps have long been a basic archaeological tool. Magnetic and other remote sensing data can supplement the facies analysis. The computer offers a fast, efficient and inexpensive means for the production of traditional contour maps as well as shaded line printer or electro-static plots, vertex plots, and three-dimensional perspective plots. There are several contour plotting packages available. A game was used to evaluate these packages. The University of California at Davis, the University of Texas, and NASA's LARSYS programs for remote sensing data reduction. (19, 39)

Arnould, Eric (see Whitley, Stephanie) (41)

Arundale, Wendy H. (Washington) A DISCUSSION OF SOME MODELS OF CLIMATIC CHANGE FOR THE EASTERN ARCTIC. Models which use climatic change as their independent variable are increasingly important to arctic research. The climatic survey, paper, two such models are described and data which contradicts some of their predictions for environmental change is presented. One implication of this contradictory data is that alternative models of the processes of climatic change are needed. A new model is presented. A second implication is that we need to be using a broader model of explanatory models, including models of subsistence settlement system change if we are to maximize the productivity of arctic research. (35)

Aten, Lawrence E. (NPS) ADAPTIVE DIVERSITY AMONG HUNTERS-GATHERERS OF THE NORTHWESTERN MEXICO. This paper describes a basic survey of the archaeological remains of the northwest of the Mexico. (7)

Aten, Lawrence E. (NPS) INTERDEPENDENCE AND RECIPROCITY FOR SOUND CULTURE. This paper attempts a philosophical and practical analysis for integrating the various programs in the federal government to the greatest degree practical. Among the programs to be discussed are the National Register of Historic Places, the National Register of Historic Buildings Survey, the Bandelier National Monument Service Record, the Advisory Council on Historic Preservation, Smithsonian Institution programs, the National Park Service in-house programs, and how they relate to the Interagency Archaeological Services Division and now the Interagency Archaeological Services Division relates to them. (13)

Babiy, Raymond S. (Ohio State) SCHONBRUNN: A DELAWARE INDIAN MISSION IN OHIO. In the 1770's, David Zeisberger, a Moravian missionary, established on the Tuscarawas River the mission town of Schonbrunn, about two miles south of the present-day New Philadelphia. In the 1780's and early 1790's, a number of missionary activity took place here. In 1781, the village was abandoned and partially restored. During the late 1850's and early 1850's, Dr. Godfrey Meade conducted the mission to the Tuscarawas mission, Lake of the Prairie, and other areas of the U.S. In 1781, the village was located and partially restored. During the late 1850's and early 1850's, Dr. August Meade conducted extensive library research, including the translation of Zeisberger's diaries. Excavations that followed later revealed the exact location and ground plan of the village, the associated fence pattern, and a cabin site of one of the Delaware Indian converts. (16)

Baker, Charles M. (Georgia) AN EXPERIMENTAL APPLICATION OF SOIL PHOSPHATE ANALYSIS. Data are provided which allow a further assessment of the overall efficiency and feasibility of such phosphate analysis of cultural deposits. Field experiments suggest

Eldred's (1973) rapid chemical field test for site surveying is applied at two sites in order to provide data to assess the behavioral significance of discrete spatial artifact distributions. Results of the experimental are presented and, in addition, new techniques for extracting and processing soil samples are discussed. (41)

Banks, Larry (Army Corps of Engineers) THE ARCHAEOLOGICAL CONSERVATION ACT—COORDINATED. The Tulsa District of the Corps of Engineers has been involved in archaeological contracting for the past five years, and by May 1974 had an operating station with a built-in mechanism for incorporation of contracting for archaeological materials into the design process. The Corps has performed such investigations in almost immediate response to Public Law 91-291. In addition to a number of on-going preliminary archaeological investigations, the district is administering fourteen mitigation programs developed from early activity along the Arkansas River. The Corps has also sponsored five programs. It is only by these follow-up activities that the sufficiency of the previous reports can be fully evaluated. Most cases, considerable deficiencies have been observed. In addition, the district has been employing three field crews to review and re-examine the archaeological program. The programs now operate: (1) better administration, coordination, and responsiveness between contractors and federal agencies and between federal and state agencies; (2) more critical reviews of reports by consultants and the sponsoring agencies; and (3) more critical field reviews of proposals; (4) a more conscious effort to explore means of mitigation other than excavation; (5) a concerted effort to make the public aware of archaeological goals through better communications, publicity-oriented publications resulting from technical studies, and interpretative displays. (1)

Benn, David (Luther College) NOTES ON LATE WOODLAND FABRIC IMPRESSED POTTERY: A VIEW FROM NORTHEAST IOWA. The fabric impressions on Late Woodland Madison Ware ceramics are investigated for their structural variations and compositional homogeneity. The results of a batch of Madison Ware fabric from the Hunziker site in the Linn County, Iowa. This indicates the presence of a single fabric sheet. Other regional variations of Late Woodland fabrics are also considered for their comparisons with Madison Ware. (15)

Bennett, Victoria C. (UCLA) MICROPROBE ANALYSIS AND THE IDENTIFICATION OF TRADE CERAMICS. A series of investigations designed to determine the utility of microprobe analysis as a means of discriminating among the various ceramic wares. Initial results suggest that under certain conditions the microprobe may be a tool suitable for the isolation of trade ceramics. (11)

Benson, Charlotte L. (Museum of Northern Arizona) ASSESSING THE ADEQUACY OF A REGIONAL SAMPLING DESIGN: CEDAR MESA, SOUTH GRAND CANYON. In an analysis of the geomorphic and stratigraphic characteristics of Owl Creek drainage, a number of Cedar Mesa, Utah, are used to test the adequacy and predict the productivity of the survey. Surveys conducted by W. D. litho- and R. G. Matson and undertaken in 1972-75. Several of the Cedar Mesa Project predictions concerning the nature of the site complexes are replicated in the block survey data, other results indicate substantial departures from those observed. The initial and present assumption of the Cedar Mesa regional sampling design to be examined, and the use of the results for predicting the degree of stability within the site population. Although the reliability and precision of the data are good, their relationship to the sampled universe is questioned. (4)

Berger, C. Rainer (see Findlow, Frank A.) (11)

Bettinger, Robert L. (New York) ALTERNATIVE SETTLEMENT-SUBSISTENCE STRATEGIES IN THE GREAT BASIN. It has been generally held that the indigenous prehistoric cultures of the Great Basin were characterized by small family units, hunting, and foraging and a rudimentary form of social and political organization. A growing body of archaeological evidence from a variety of localities, however, presents a far more complex picture of subsistence, settlement, and social complexity. It is now clear that in some areas highly specialized subsistence patterns were linked with large, permanent settlements, and surprisingly complex social and political forms. As previously suspected, the diversity in subsistence-ethnographic data to determine the degree to which changes in the subsistence patterns may be inferred from the late prehistoric to the historic periods in the Black Bottom. (41)

Blakeman, Crawford (Mississippi State) PALEOETHNOBOTANY OF THE BLACK BOTTOM. The paleoethnobotanical materials recovered from four late-prehistoric sites in the Black Bottom of southern Illinois will be examined along the same lines as previous projects. The characteristics of the surviving evidence of eight species of potential subsistence uses of these plants; and indications of the prehistoric subsistence patterns which can be derived from the paleoethnobotanical materials. This data will then be compared ethnographic evidence, etc. The data will then be compared

Bonningham, Robson (Maine) BONE FLAKING TECHNIQUES APPLIED TO MID-WISCONSIN FAUNA FROM THE OLD CROW BASIN, YUKON. During 1973-75 an intensive analysis was conducted on 14,000 Mid-Wisconsin faunal remains from Old Crow
Flats, Yukon territory, in search of specimens altered by man. New analytic techniques backed by bone breaking experiments were employed to generate diagnostic criteria that can be used to distinguish bones altered by man from biologic and natural processes. Hundreds of specimens were discovered which exhibit spiral fractures and impact marks. These specimens may have been broken for marrow extraction purposes. More than 100 bone artifacts shaped by flaking were located that are made on mammoth, horse, bison, and caribou bones. (35)

Borns, Harold W. (see Sanger, David) (28)

Borritsky, Gordon PREHISTORIC BANKING IN THE SOUTHWEST. No Abstract received. (14)

Bowers, Jeane (Brown) ZOOARCHAEOLOGY AND MILITARY FOODWAYS: AN EXAMINATION OF THE ARCHAEOLOGICAL RECORD AT THE TITICACA BASIN. Two seasons of work on the temple of Chiripa allow us to present a new picture of the early development of settled village life at the ecotonal boundary of lacustrine-allpina resources. SEM and diffraction studies of lacustrine indicate a long-distance trading network in status-validating goods much greater than previously hypothesized is seen to exist in the Titicaca Basin during the Early Horizon. (18)

Brown, Antoinette B. (Florida) BONE STROMIUM AND THE RESEARCH OF HUMAN DENT. Bone stromium can be used to determine the relative proportions of animal and vegetable matter in the diet by comparing human bone stromium levels with those of known faunal remains from the same site. Changes in the diet through time will be reflected in changes in bone stromium in successive skeletal populations. At the Farukhabad site in Iran the human bone stromium level in relation to that of a domesticated herbivore from the same period can be used to determine the role of human dietary components. Changes in access to resources due to social structure will also be reflected in bone stromium content. From the Uxitzo site in the Valley of Oaxaca, the decrease in the importance of maize can be traced by the increase in bone stromium variation within the population and the disparities between the upper, middle, and lower segments of the population. (5)

Brown, Betty Ann (Illinois State) EARLY COLONIAL REPRESENTATIONS OF THE MEXICO MONTHLY CALENDAR. Several Early Colonial manuscripts from the Valley of Mexico region contain illustrated descriptions of Mexico calendars. Often, two calendrical systems are described: the tonalpohualli and the monthly calendar. The monthly calendar is composed of 18 20-day "months" and five "nameless" days, thus totaling 365 days. The months are often described in Early Colonial manuscripts with a patron deity or deities. There are no pre-Conquest representations of the months months per se nor are there pre-Conquest glyphic notations of the months from the Valley of Mexico. The post-Conquest descriptions and illustrations of the months vary greatly, as do the post-Conquest lyrical symbols for the months. Analysis of the Early Colonial descriptions and illustrations of one month, Tlaxcoaqueallti, demonstrates the marked inconsistencies in the post-Conquest representations of the monthly calendar. Moreover, it is found that both the pictorial and textual content of the Early Colonial descriptions contain parallels with the European calendrical tradition. It is suggested that the Early Colonial descriptions of the Early Colonial periods would have interpreted the data they received from the Mexican people in order to produce a calendrical system that met their own cultural expectations and was therefore comprehensible to them. (20, 27)

Brown, James A. (Northwestern) ARCHAEOLOGY OF DISPOSAL OF THE DEAD AT THE LOWER ILLINOIS VALLEY. Archaeological research in the Lower Illinois Valley has focused on the period when the Mississippian culture began to be exercised over variation in mortuary treatment during the 1,000 year period from Middle Woodland to Mississippian times. Through the use of measures of diversity in mortuary treatments, the data are analyzed on a site-by-site basis, emphasizing the importance of differences in the historical period that the mortuary practice. (6)

Brown, James A. (Northwestern) THE ORGANIZATION OF AN INTERACTIVE DATA MANAGEMENT SYSTEM FOR AN ARCHAEOLOGICAL SITE. A computerized data management system is successful only if it provides the output necessary to carry out a specified objective. The system described here was designed to meet the needs of archaeologists who require information from a single large-scale excavation in a deeply stratified culture. The system would be used in the preparation and analysis of large data sets, methods of generating output via interactive data, and a survey of the different types of data management systems. The cost effectiveness of commercial versus university installations is evaluated. (41)

Brown, Kenneth L. (East Carolina) A NEW APPRAISAL OF POLITICS AND ECONOMICS DURING THE MIDDLE CLASSIC IN THE VALLEY OF GUATEMALA. Mesoamerican Archaeology, the Middle Classic in the Valley of Guatemala has been interpreted as a period of Teotihuacan control over the political and economic subsystems of the region. The present study demonstrates that the state of Teotihuacan was not the primary control over the Valley. The foreigner did not control the Valley, but merely used it for special purposes. The foreign cultural traits employed by the native elite were molded to fit native patterns. The purpose of this study is a reconstruction of the political and economic conditions of culture within a system under native control. (12)

Bryant, Vaughn M., Jr. (Texas A&M) FOOD PREPARATION TECHNIQUES. No Abstract received. (5)

Bryant, Vaughn M., Jr. (Texas A&M) AN OVERVIEW OF THE PALEONVERSENTIAL AND BOTANICAL RESEARCH AT HINDS CAVES. The palaeoenvironmental and botanical aspects of the Hinds Cave project are varied. Current projects under investigation include the
following: (1) fossil pollen studies of soils to determine the paleo-environmental conditions of the lower Rocos during the past 10,000 years; (2) to explain the flora and its distribution in the local and regional environment; (3) plant macrofossil analyses of the more than 100,000 individual plant remains thus far recovered from cultural levels in the site; (4) prehistoric human cognitive studies of some of the more than 1,000 specimens already excavated from all levels covering a time span of more than 8,000 years; and (5) nutritional analyses of prehistoric food resources in order to better understand suspected levels of caloric intake, seasonality of plant usage, and nutritional sequencing.

Bu, David E. (Illinois-Urbana) CLIMATE OR LAND MODIFICATION? PALYNOLOGY AT CHALCATZINGO. During the three years of the Chalcatzingo Project, nearly 700 pollen samples were collected and analyzed. Customarily such analyses view vegetational changes as responses to climatic changes. In the Chalcatzingo case, this was not possible because the site was covered by a large lake during the prehistoric period. The lake was formed by the Chalcatzingo Formation, a large volcanic vent on the surface of the lake. The Chalcatzingo pollen indicates that human modification of the environment and landscape occurred before the lake formed. This work provides new information on the prehistoric record, as well as notings changes not readily apparent in the standard archaeological record. This paper discusses methods and results of this research. (23)

Buikstra, Jane E. (Northwestern) EPIDEMIC VARIABILITY, BIOCULTURAL MODELS, AND THE NEANDERTHALS: THREE DISTINCT TEMPORAL-PERIODS FOR THE most recent 20,000 years of prehistory in the lower Illinois River region. These units are described in terms of artifact and biface styles, subsistence strategy, and social organization. It is subsequently assumed that interface periods of social-cultural transformation reflect times of population movement and gene flow. In this paper it is argued that migration is an unsatisfactory explanation for intra-regional variability in temporally sequential populations. Skeletal studies indicate that variable morphological structure described as a response to changing patterns of local adaptation has little explanatory power as a causal factor. (6)

Burkett, Greg C. (New Mexico) POPULATION PATTERNING: AN ARCHEOLOGICAL CONSIDERATION OF NUTRITIONAL FACTORS. Preliminary evidence from Tijeras Canyon in New Mexico, suggests that changes in settlement pattern are determined by changes in regional subsistence resource availability. In this sequence, a population aggregation, site abandonment, and rehabilitation is discussed. The sequence is related to the human ability to redistribute and mobilize high-quality food resources and dietary consequences of minimal environmental changes. The data necessary to examine this relationship require a regional perspective utilizing both site survey and intensive excavation. This brief summary reviews the relative size of population aggregation and site abandonment techniques used to recover these data are discussed as appropriate. This study addresses the problem of dietary factors relevant to the archaeological investigation of population pattern. (3)

Bullard, Brian M. (Tennessee Dept. of Conservation) MISSISSIPPIAN SETTLEMENT IN THE BLACK BOTTOM: ENVIRONMENT, COMMUNITY, AND SITE DISTRIBUTION. With the archaeological survey of the Black Bottom virtually complete, various studies have been initiated of different aspects of Mississippian settlement. Previous work by the author has produced a reconstruction of the various archaeological sites in and around the Bottom. The potential of key zones is briefly discussed and the site distribution examined. Although a complex of factors is involved, the distribution of the sites is characterized by a clear selection for areas of superior agricultural potential. Within the major habitation zone, however, the patterning of sites appears to be largely influenced by factors such as social-political groupings and community structure, for which the evidence will be briefly discussed. (42)

Butler, William B. (Missouri) THE DEMONSTRATION AND EXPLANATION OF INTERSITE RELATIONSHIPS AS REVEALED BY LITHIC DEBITAGE ANALYSIS. Rarely have comparative studies of lithic debitage been employed by the archaeologist to investigate a broad range of temporal phenomena. This paper will attempt to investigate what can be learned from debitage in and of itself, and as applied to other aspects of the archaeological record. Multivariate statistical tools are used to analyze debitage from collections of lithic tool manufacture and production sequences as a method to analyze the patterns of debitage from each of 158 sites, with site function and location for over some 4,000 years of prehistory at the Pomme De Terre River Valley, Missouri. (41)

Caine, Christy (see Gibbon, Guy) (9)

Cairns, Thomas (see Droyer, Christopher E.) (11)

Calabrese, F. A. (NPS) FEDERAL ARCHEOLOGICAL LEGISLATION AND ADMINISTRATION: INTENT AND REALITY. The author considers some of the basic concepts included in the federal legislation which is designed to preserve and protect cultural resources. In contrast, the reality of how the legislation is interpreted and implemented by agencies and archeological resource administrators is discussed. Consideration is given to the resulting problems in the inventory-evaluation-mitigation cycle, archaeological program planning and control cycle, and the ultimate effect upon the archaeological resource and the archaeologist. (11)

Callahan, Erret (Virginia Commonwealth) LIVING ARCHAEOLOGY: RESURRECTING THE PAST. Projects in experimental archaeology have been conducted wherein substantial portions of particular prehistoric cultures are recreated. The recreated items are subjected to intensive and extensive field testing under hunter-gathering conditions relevant to the culture under study. This has been done to document the possible manufacture and use of items, to provide material and artifact samples for study, and to subject items to stress testing in regard to their use and function in the prehistoric lifestyle, and thus to interpret more accurately the archaeological record. (21)

Canio, Mercedes (Madrid) THE MAGDALENIAN OCCUPATION OF TITO BUSTILLO CAVE. A study on the archaeozoological excavation of Tito Bustillo cave (Ribadesella, Asturias) has revealed a genuine, intact Upper Magdalenian living floor. It is rich in food remains, hearths, manufacturing debris, stone and antler tools, and mobile and fixed hearths. The character of the site and the animal remains point to a foraging way of life with some sedentary elements involving one with an industry including classic antler harpoons (ca. 14,000-15,000 B.P.). Since preliminary soundings led earlier investigators to conclude, on the bases of the faunal industry and one C-14 date, that there was a Lower Magdalenian occupation, the nature of the supposed distinctions among Magdalenian phases is clearly called into question. (40)

Carbone, Victor (NPS) TRUSTBUSTING, TERRITORIALITY, AND UNIONISM: A CASE FOR AN OPEN RESEARCH MARKET. This paper will address the questionable legality of the current state of the research market in the United States. It will discuss the implications of the union campaign as indicated in Leslie Miller Inc. v. Arkansas. (13)

Carlisle, R. (Pittsburgh) THE EVOLUTION OF ANASAZI BASKETRY: A VIEW FROM ANTELOPE HOUSE. Recent detailed attribute analyses of the very extensive and well dated prehistoric basketry assemblage from Antelope House, Canyon de Chelly, suggest that the evolution of basketry production in the Anasazi sub-area of the American Southwest is rather different than heretofore postulated. The developmental sequence of basketry manufacture and use is described. The implications of this data to the evolution of Anasazi basketry presented and assessed. (16)

Carstens, Kenneth C. (Washington-St. Louis) RECENT INVESTIGATIONS IN THE CENTRAL ARAPAHO: A PRELIMINARY TEMPORAL ORDERING OF SEVERAL SURFACE SITES IN THE MAMMOTH CAVE AREA, KENTUCKY. Prior to this research, archaeological investigations of west-central Kentucky have been concentrated on the large Archaic shellmounds west of Mammoth Cave National Park and only recently have the surface sites within the Flint Mammoth Cave System been studied. Both areas demonstrate evidence of prehistoric (Late Archaic-early Woodland) horticultural utilization. The primary objective of the surface archaeological reconnaissance of the Mammoth Cave area is to establish a cultural historical framework for the surface archaeology and to provide a context for the prehistoric remains found within the Flint Mammoth Cave System. This paper presents the development of a number of several archeological sites, one being the duration of shellmound and caving activity of the Central Kentucky Karst. (21)

Cattie, Dorothy J. (see Burditch, Greg C.) (5)

Chapman, Carl H. (Missouri-Columbia) REGIONAL CENTERS: PHYSICAL FACILITIES AND FUNCTIONING. Several considerations are suggested for obtaining the physical facilities for regional or state Archaeological Resource Centers for funding their management. Direct funding for new buildings or for remodeling already existing buildings is considered to be improbable. Management by one institution already involved in conservation work in coordination with others conducting cultural resource management studies in each state is proposed as the best solution. Long-term funding by federal agencies for management support is a necessity. (27)

Charles, Douglas K. (Northwestern) THE IMPORTANCE OF SIMPLE MORTUARY SITES IN THE STUDY OF INDIAN DEMOGRAPHIC ANALYSIS. Regional mortuary site survey is recognized as essential to bio-archaeological research. In the lower Illinois River valley, complete survey transects of the main and tributary valley have allowed precise quantification of temporal changes in population density and redistribution. As density increased markedly and steadily during the Late Woodland period, with emphasis upon mortuary activity on the east side of the Illinois River. Examination of distribution patterns indicated that the distribution in the main valley was dictated by the spacing of habitation sites. Woodland sites in a major tributary valley follow a distinctive spacing paradigm, best described in terms of a triangular pattern. (5)

Chartoff, Joseph L. (Michigan State) NATURAL SCIENCE, POSITIVISM AND ARCHAEOLOGICAL EXPLANATION. Recent debates over the merits of alternate models of scientific explanation such as the covering-law model (Popper), Morgan, 1973, 1974.
Chatters, James C. (Washington) THE LONGITUDINAL LAND USE STUDY: A METHOD FOR THE INVESTIGATION OF CULTURE-ENVIRONMENT RELATIONSHIPS. The relationship between cultural and environmental change is seldom treated by archaeologists in a sophisticated manner. The hypothesis that an environmental event is responsible for a cultural change is often assumed when the events are merely correlated with the cultural evidence. Whether such correlations are attributed to social, political, economic, or other factors is seldom demonstrated, nor are alternative hypotheses considered.

Cook, Della G. (Indiana) HUMAN GROWTH: A PERSPECTIVE ON SUSTAINABILITY CHANGE. The biological impact of changes in subsistence base strategies of exploitation, and density on human populations is most directly measured in the immediate skeletal documentation of the human skeleton. However, it is also a particularly sensitive index, in that these deaths generally reflect nutritionally mediated disease in modern primitive groups. A model for these effects is tested using Missouri and central Illinois. Evidence for growth arrest, growth retardation, enamel defects, and interactions with nutritionally mediated diseases suggest higher biological costs in the terminal Late Woodland populations of the region. (6)

Cook, John (Alaska) ORGANIZATION OF THE ALASKA PIPELINE SURVEY. Many research needs are identified for contract archaeology—its goals, methods, and achievements. One of the largest of these projects has been the work along the Transalaska pipeline. The development of this project will be traced and its organization and methodology will be discussed. Particular emphasis will be placed upon the deficiencies and possible remedies for a guideline for future similar projects. (31)

Cook, Thomas G. (Northwestern) MULTIDIMENSIONAL MODELS OF BIO-SOCIAL CHANGE. Synthesis of prehistory involves the testing of models derived from diverse data sets including settlement size, bone lesions, skull measurements, rim sherds, flotation samples, and much more. The analysis of the data is nontrivial and involves considerable, dimensionalization of variables permits the creation of controlled comparisons. The dimensions utilized in this study include population, natural environment, human disease, status systems, trade, environmental manipulation, warfare, and migration. The shifts and their interactions are modeled by directed graphs, which are amenable to complex mathematical analysis such as the stability of linear systems. The models and results form a sequence of increased model complexity from Archis to Mississippian times. (31)

Cottingham, Charles D. (Tulsa) ACTIVITY ANALYSIS OF COLLECTIONS OF LITHIC SURFACE DEBRIS. The major variety of artifacts from lithic surface collections is seldom used in an assessment of site activities, particularly if there are few tools on the sites. However, stages in tool manufacturing activities may be reflected in such surface collections. This paper uses simple scaling and clustering techniques to group the data from a series of Texas sites and attempts to correlate such clusters with other variables such as stream rank and physiographic location. The problems of using non-chronologically controlled surface collections are discussed also. (41)

Cotter, Richard R. (Arizona) A MODEL OF REFUSE TYPES. A major research focus in the community of the Grasshopper Pueblo is the delineation of domestic and community activities. Evidence for activities exists in both rooms and outdoor areas as the three refuse types defined by Schiffer (1972, 1973). At Grasshopper, however, these types are defined by context only; no objective, non-contextual measures exist. To provide such measures, test excavations were abstracted from Schiffer’s definitions and applied to context-defined refuse from rooms and plazas. This methodological exercise aims at generating a model for objectively evaluating the status of any given refuse type. At Grasshopper, the model is intended to interpret the source of activities; more broadly, the model should be applicable to most southwestern pueblo sites. (4)

Cotter, Richard R. and John W. (Indiana) COTTONWOOD ARCHaeological PROJECT: AN INTRODUCTION. The present setting, physiography, modern climate, flora, and fauna of Meadowcroft Rockshelter and the surrounding area of Washington County, Pennsylvania, is detailed and a brief history of the Meadowcroft Archaeological Project is presented. Also included is an excavation and field analysis/recovery procedures as employed specifically at the rockshelter. (28)

Cotter, Geoffrey (see Jewett, Roberta) (49)

Cotter, Michael B. (Kentucky) INVESTIGATIONS AT 15-MS-28, AN EARLY LATE WOODLAND VILLAGE SITE IN NORTH CENTRAL KENTUCKY. Investigations now in progress at an early Late Woodland village (15 MS-28) on the North Fork of the Licking River in Mason, County, Kentucky, are designed to achieve the following: (1) generate data for the description of this hitherto unreported, pre-Fort Ancient manifestation; (2) determine the nature of the village and its resource base; and (3) test hypotheses concerning the participation of 15 MS-28 residents in a pattern ofseasonal shamance between the valley of the North Fork of the Licking River and the mountains of eastern Kentucky. (28)

Cotter, Robert E. (University of North Carolina at Chapel Hill) THE PATTERNSON SPRING SITE: A MULTI-COMPONENT SITE IN THE MIDDLE JAMES RIVER BASIN. Archaeological investigations at the Patterson Spring site (23CN564) have yielded new information concerning Middle Archaic Woodland occupation along the James River valley in the upper Middle James River region. Evidence in the site is organized by directed graphs, which are amenable to complex mathematical analysis such as the stability of linear systems. The models and results form a sequence of increased model complexity from Archis to Mississippian times. (31)

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Cross, Dale R. (Washington State) OZETTE BASKETRY, MATTING, AND CORDAGE. Ozette basketry and cordage artifacts have been synthesized on three analytic levels. First, Ozette basketry and cordage attributes, including construction materials, construction techniques, forms, and sizes, have been utilized and defined. Second, the results of the attribute (modality) analyses have been synthesized into paradigmatic classifications creating traditional/technic classes of Ozette basketry, mats, hats, and cordage. And third, these technical/technic classes have been utilized in discussing functional categories of Ozette basketry and cordage as recovered and examined in the Ozette House I context. Computer mapping has been completed to trace basketry, mats, hats, and cordage distributions through the functional categories throughout the House I area. Utilizing the Ozette analysis as a focus, prehistoric basketry and cordage from ten Northwest Coast water-saturated archaeological sites were systematically examined. The combined information provides new insights into the prehistoric Northwest Coast basketry and cordage on the three analytic levels provided information concerning the development of basketry and cordage technologies on the Northwest Coast. These comparative analyses provide new information about the development of, and relationships between, different Northwest Coast cultural manifestations through time and space. Examining this kind of material also provides an important foundation for answering questions regarding the activities of people at different Northwest Coast wet sites. From the above accumulated information it is clear that basketry, in particular, and cordage to some degree will be important analytic artifact categories for establishing and documenting the prehistory of the Northwest Coast and for deriving essential information for testing historical cultural interrelationships on the Northwest Coast through time and space. (5)

Cumbaa, Stephen L. (National Museum, Ottawa) THE HISTORIC (RE)PAST: EIGHTEENTH CENTURY DIETARY RECONSTRUCTION. Tight chronological controls and the realities of the documentation concerning specific households in eighteenth century European communities in North America have enabled an expansion of traditional limits to faunal analysis. The realities of food supply and preparation, hunting, fisher foragers and consumption patterns are critical to understand community stories. Indeed, the task of determining the role of game animals and their significance to prehistoric societies in North America is more credible by supportive documentation. Further, faunal analysis provides hard evidence of food preparation and consumption and fits in many details of daily life not touched on in the historical records, details necessary for accurate historical reconstruction. (5)

Cusopher, Kathleen A. (Texas A&M) SPATIAL ANALYSIS OF AN AURIGNACIAN OCCUPATION FLOOR AT CUEVA MORIN, SPAIN. The Early Aurignacian complex at Cueva Morín, including burials and the remains of a structure, offers a unique opportunity to examine the role of Early Upper Palaeolithic prehistoric human groups. From the analysis of spatial utilization on the occupation floor at Cueva Morín direct evidence can be obtained for the association of particular tool types with specific areas on the floor. The association of particular tool types with particular areas and activities such as kid butchering, hearth use and tool resharpening, for example, can be made specifically rather than in general terms. Thus, a more detailed picture of the activities may be constructed. (14)

Cygler, Ann FORMATIVE CERAMIC HORIZON STYLES: DEFINITION AND SIGNIFICANCE. Styles in prehispanic ceramics which cover broad geographical areas, called horizon styles, define culture areas. Horizon styles in ceramics indicate a cognitive unity on the part of the makers of the ceramics which can be inferred very generally, have an identity, unity of the part of those ceramics. Recent research at Chalcatzingo, Morelos, indicates the possibility that there are four ceramic horizon styles definable for the Early and Middle Formative periods. The importance of these early horizon styles in the development of complex regional interaction and communication networks. (23)

D’Altroy, Terrence (UCLA) SPATIAL DISTRIBUTION OF MOCHE FLARING BOWLS. Determination of production and distribution systems of material goods is important to understanding prehistoric economic organization. The Moche, the inhabitants of the north coast of Peru, are used to determine the nature of ceramic exchange in the Early Intermediate Period Moche State. Iconographic and morphological analyses indicate that distribution systems were restricted to single valleys. (11)

Daughtrey, Richard D. (Washington State) AN INTRODUCTION TO OZETTE PREHISTORY. In the twelfth month of the year 1960, the five main villages of the Makah Indians, linguistically related to the Nootka of Vancouver Island, the Makah were noted for their sea mammal hunting, particularly the hunting of seals and walrus, for the most part, these activities continued along the entire Northwest Coast. Archaeological excavations have indicated that the site has been occupied for over 2,000 years, and probably twice that long. For the past six years, excavations have been conducted on a year-round basis at a location near the center of the village where a series of slides and mud flows in the late prehistoric period smothered into and covered a number of house floor, planked houses, buildings. Buried under many feet of wet clay and sand, artifacts and various house and house-features and other artifacts were found in the debris of the natural preservation, including all of the normally perishable items such as baskets, mats, bows, arrows, loom and loom parts, clothing, harpoons, art work, and many other categories of artifacts. Over 40,000 items have been recovered to date. At Ozette we have an opportunity to study in great detail a functioning Northwest Coast community that was stopped at a moment in time. (10)

Davis, Dave D. (Brandeis) MIDDLE FORMATIVE COASTAL ADAPTATIONS AND INTER-REGIONAL CONTACTS IN SOUTHERN MESOAMERICA. Middle Formative occupations along the Pacific coast of southern Mesico are marked by changes in subsistence emphases as well as in cultural traditions that are not entirely understood. Early Middle Formative age are as yet known from the coastal region, the available evidence is sufficient to indicate that this period, in comparison to the Late Formative, was marked by the development of new and previously unknown coastal adaptation strategies. The nature of interaction between the coast and the interior is discussed. While the early Middle Formative did not mark major changes in the patterns of Pacific coastal life, increased contact with the upper and lower plateaus was associated with the emergence of a number of small political units. A greater reliance on maize cultivation is also indicated for Middle Formative times. (14)

Davis, Emma Lou (Natural History Museum of Los Angeles County) LATE POPULATION SHIFTS FROM THE GREAT BASIN-GREAT PLAINS: A HYPOTHESIS. For the past decade, a hypothesis of a Clovis Conquest of the New World has stood uncontested. This paper presents an alternative set of cultural events with a proposed time depth of 40,000 years or more in the Great Basin "Lakes Country." Based on broad spectra of Upper Paleoindian sites with associated animal and lithic remains at China Lake, we propose the Lakes Country as the cradle of an Early and Middle Paleoindian great Plains. These migrations from there into the emerging Great Plains. In our hypothesis small bands of Paleoiberians with maritime cultures and water craft had been drifting into North America for 20,000 years before the Lakes Country was thinly populated by cultural groups who also had an occasional camel, bison, horse, or mammoth. They used implements stemming from Core Tool tradition technologies of Northeast Asian origins. During much of the Late Wisconsin stadial, PCA was largely occupied, while only a pocket of the Rockies was less productive. It was boreal forest, parkland, sand and tundra. Therefore the Lakes Country and California coasts were preferred habitats and migration routes for humans and the Pleistocene megafauna alike. In the basin of Pleistocene Lake China, two lithic traditions contributed to late evolution of Proto-Clovis and then Classic Clovis butchery tools. After 17,000 years B.P., recurrent desiccation cycles of the lakes began while at the same time, a northward retreat of forests opened the emergent Great Plains to advancing grasslands. The combination produced an eastward flow of Clovis Hunter-foragers and the last of the megafaunal grazers. This hypothesis accounts for the late appearance and brief duration of Clovis hunting patterns east of the Rockies. (3)

Davis, Hester A. (Arkansas Archeological Survey) REAUTHORIZATION OF PL 93-291. It was noted that the Congress that five years from passage, PL 93-291 was to be reviewed and reauthorized. There had been questions concerning its workability in several areas and the Interior and Insular Affairs felt the need for a review of how and what was being done with the money. The Task Force had the opportunity to examine the legislation, and as a result it was recommended that the legislation be made more efficient and effective. The legislation is a tool to be used to achieve the goals of the legislation, and as such, it is important that the legislation be made more efficient and effective. (1)

Davis, Hester A. (Arkansas Archeological Survey) REGIONAL PLANNING AND STATE ARCHAEOLOGICAL PROGRAMS. Only in rare cases have archaeologists been able to look beyond a single research problem or a specific geographic area. Recently, there has been a healthy trend toward state-archaeological councils in order that some semblance of order might be maintained. Increased field activity, and also generally an increase in field activities, have begun planning on a regional basis. It is hoped that the recovery and protection of cultural resources will also be expanded and expanded under the new guidelines. Cooperative planning for research on a regional basis will provide direction to state or inter-state research projects. Regional centers should be able to provide state archaeological programs with the kind of information needed for the efficient and effective use of resources. States generally cannot themselves provide the necessary basic condition of records and data. A combination of public, state, and federal support will mean a greater ability to conserve our cultural heritage. (12)

Davis, Ronald B. (see Sanger, David) (2)

De Atley, Suzanne P. (UCLA) CERAMIC ASSEMBLAGES FROM HIDALGO COUNTY, NEW MEXICO. The technique for reconstructing ceramic assemblages supported by the use of the Computer Program and De Atley is used on sherd sites from sites in Hidalgo County, New Mexico. The resulting assemblage are described on the basis of vessel form and size, and minimum number of vessels per site. The information is then used in examining differences between sites. (11)

De Atley, Suzanne P., see Findley, Frank J. (11)
DeGarmo, Glen D. (California) SYSTEMATICS OF PREHISTORIC POTTERY ANALYSIS. Some of the different systems used for the classification of prehistoric pottery are described. These systems are often characterized by their emphasis on the vessel form, but the purpose of this paper is to be arbitrarily selected for inclusion as part of the definitional criteria for the resulting pottery types. Thus, these types probably do not represent prehistoric sociocultural phenomena. An alternative approach to pottery systematics is suggested. Data excavated from a P-Ill pueblo are used to illustrate the discussion. (11)

DePratter, Chester B. (Georgia) AN ARCHAEOLOGICAL SURVEY OF A PORTION OF CHATHAM COUNTY, GEORGIA: ARCHAEOLOGICAL AND GEOLOGICAL IMPLICATIONS. A recent archaeological survey of a portion of coastal Chatham County, Georgia, produced data on the location of sites on remnant barrier islands and on barrier island peninsulas. The surveys were conducted in order to delineate areas of potential archaeological potential. The results of the survey indicate that the area is of potential archaeological interest and will be useful in the development of the area. (12)

Dering, Phil (Texas A&M) PLANT MACROFOSSILS RECOVERED FROM HINS CAVE. One of the most significant discoveries was the presence of a small and rare plant species. The plant material was collected from the cave and stored in a series of screen boxes, one having one-quarter inch openings and the other having one-sixteenth inch openings. The plant material was then submitted to a series of analytical procedures for identification and classification. The results of these analyses are presented in this paper. (17)

Dickson, D. Bruce (Texas A&M) INDUCTION ON THE DUCK RIVER: AN APPLICATION OF MULTIVARIATE CONTINGENCY TABLES TO ARCHAEOLOGICAL SURVEY DATA FROM MIDDLE TENNESSEE. Goodman's new method of analyzing and developing contextual data is a powerful tool for archaeological research. The results of the analysis are presented in this paper. (18)

Dillehay, Tom D. (Universidad Católica de Chile) STORAGE FUNCTION AT HUACAYCO ALTO. An alternative view of the function of large scale storage complexes in a Central Andean context is developed and evaluated in light of recent studies at Huacayco Alto, a large site in central Chile. The complex contains approximately one-third of the total site community pattern and reveals evidence of a temporary subsistence by external populations—first the Maranqa and later by local people. It is the most important and complex of its kind in the Central Andes, and (2) it was constructed and maintained by a stateless society. This data is reviewed in some of its political and economic implications. (19)

Ditt, Victoria (Arizona) ECONOMIC NETWORKS: Mesoamerica and the American Southwest. Initial results of a current project in the eastern Sonoran foothills support the proposition of a Sonoran "foothill" culture having strong ties with the Casas Grandes province, and linking the American Southwest and Mesoamerican Sinaloa. It is postulated that the southwest was a component of the Mesoamerican world economy, and that the foothill zone served as a corridor of trade between north and south. Such trade would be as important as the local environment to the settlement-subistence system. A research design to test these assumptions is described. The significance of the Sonoran-Southwest trade through the foothill corridor is summarized. (4)

Dolphins, Lambert T. (Stanford Research Inst.) APPLICATION OF GROUND-PENETRATING RADARS FOR ARCHAEOLOGICAL SITE SURVEYING. Standard remote sensing and geophysical techniques have been used with some success in preliminary investigations. In this paper, the application of a new generation of radar systems which look down into the ground is described. The results of preliminary experiments at Chaco Canyon, New Mexico, are reported in which radar echoes were obtained at large structures revealed by surface methods, and no expression was displayed on the surface. The potential capabilities and limitations of an archaeological radar survey are discussed and illustrated by examples from a variety of sites in the United States. (20)

Domeier, Barbara A. (Arizona State) EXPERIMENTS IN THREE-DIMENSIONAL PERCEPTUAL AND ARTIFICIAL GRAPHIC PLOTTING. A program borrowed from architecture (DRAW) is described with respect to archaeological usage. Through the manipulation of a line sketch, primivies, and icons, one can see end-data maps and figures can be graphically produced. DRAW further provides options for drawing, top, side, isometric or diametric views in addition to the option of drawing the eye.
Drover, Christopher E. (California-Riverside) A FOURTH MILLENNIUM B.C. CERAMIC COMPLEX IN SOUTHERN CALIFORNIA: THE CHRONOMETRIC EVIDENCE. Various chronometric techniques are utilized to document an early ceramic complex in an Archaic area. One of the contexts from southern, coastal California. The reliability of marine shell radiometric analysis is discussed in light of secular variation and the standardization of upwelling effects. The results of thermalnonscence, obsidian hydration and firing temperature determination are also presented. In conclusion, the archaeological context permits a discussion of the geographical and cultural implications. (11)

Drucker, R. David TEOTIHUACÁN'S MAJOR MONUMENTS: AN ANALYSIS OF THEIR SYSTEMATIC INTERRELATIONSHIP. Although the orientation of Teotihuacan (15°25' east of True North) is no longer mysterious, a satisfactory accounting for the particular locations of the Sun Pyramid, Moon Pyramid, Street of the Dead and the Complex of the Dead never has been given. This paper advances the hypothesis that the Teotihuacanos used selected, unusual natural features of the landscape in which they found themselves (notches or saddles) as landmarks to locate particular dates in the solar calendar to locate the monuments. Only a combination of astronomy and natural topographic alignments yields a solution. Neither alone is sufficient. (44)

Dumond, Don E. (Oregon) ARCHAEOLOGY OF THE ALASKA PENINSULA. In 1975, the University of Oregon concluded a three year program of research in this region. In the upper Kuskokwim valley, a Akmak-related village was discovered, and a number of Akmaks were found. Also, a Kuskokwim village site, followed by a side-notched point complex, an Arctic Small Tool-related complex, and Norton and Thule assemblages. Preliminary tests in the Chignik River drainage, on the other hand, yielded an apparently long-lived tradition of Port Molier affliliation that gave way in the second millennium A.D. to the Thule tradition, suggesting that people of the Ugashik and Chignik regions were ethnically distinct until A.D. 1000 or later. (35)

Duncan, Kelley C. (Tulsa) BURNT ROCK MIDDENS—A THEORETICAL APPROACH. Much debate has centered around the class of sites termed, in general, “burnt rock midden.” As yet, efforts to interpret such sites have met with little success. This paper will present an approach sensitive to the range of variability of such sites, and will consider a number of models that might profitably be tested against data from such sites. Special consideration will be given to a site in eastern Oklahoma, MS 28. (41)

Dunnell, Robert C. (see Jermy, Jerry V.) (19, 20)

Dye, David H. (Washington-St. Louis) RIVERINE ADAPTATION IN THE LATE ARCHAIC OF THE SAHANA RIVER REGION. The general subsistence-settlement system of the local Biblo population in the Savannah River region, which is discussed, and information concerning band level society. A static model is proposed to accommodate data excavated by Waring in 1939 and Haag in 1985 at the Biblo site and excavations at other sites in the floodplain zone of the Savannah River region. (28)

Eaton, Jack D. (Texas-San Antonio) ARCHITECTURAL REMAINS AT MISSION SAN BERNARDO AND SAN JUAN BAUTISTA, NORTHERN COAHUILA. Archaeological excavations were conducted in 1972 and 1975 at Mission San Juan Bautista, San Luis Potosi, Mexico. These excavations yielded significant information about the architecture of these eighteenth century missions. Information on mission layout, function of rooms and buildings, and architectural techniques was collected. Particular attention is devoted to the architectural evidence for the missions at San Juan Bautista and San Bernardo. (10)

Ebert, James L. (see Hitchcock, Robert K.) (40)

Eddy, Frank W. (NPS) THE ROLE OF SCOPE-OF-WORK IN THE NEGOTIATION PROCESS. A Scope-of-Work is a statement of research specifications written by the government in order to set the parameters for research design response by potential contractors. If the problem-definition is not complete or the investigation thereby providing long-term continuity to the research study of any land-alteration project. The Scope, then, is a call for a contract proposal to which all potential contractors respond on an equal basis. The research on a stratigraphic or palynological record from the canal contexts to reconstruct a paleo-environmental sequence in Grand Canyon. While 65 figures were recovered, all from the upper five centimeters, no other artifacts were found in association. The author's earlier postulate that the twog figures were associated in the Pinto basin culture remains hypothetical. The biological remains recovered yielded important data which, when placed in relationship to the radiocarbon dates obtained, extend back more than 13,500 years. In lower levels, Pleistocene birds and animals were found, including, with dominant Armentis and Juniperus, indicating a cooler, more moist climate than exists at present. Upper levels, younger than 10,000 B.P., revealed modern fauna and a more xeric climate. (29)

Evans, David R. (Missouri-Columbia) THE MERAMEC BASIN ARCHAEOLOGICAL RESEARCH PROJECT. A multi-year interdisciplinary project initiated in the proposed Meramec Park Lake in east-central Missouri. The goals for the initial phase reflect both the needs of the Corps of Engineers and the archaeological community and will require the application of non-traditional survey techniques. In order to ensure the utility and applicability of data to a regional research universe, an interdisciplinary research and resource group has been loosely organized. It is anticipated that the Meramec Basin Archaeological Research Project will be completed within requirements, (2) intra-basin requirements in Missouri, (3) inter-basin requirements within the region, and (5) non-archaeological requirements. (45)

Farraguer, D. (Pittsburgh) FAUNAL REMAINS FROM MEADOWCROFT ROCK-SHELTER. Faunal remains constitute the most numerous class of material recovered at Meadowcroft. These include not only some 16,000 bones, amphibian, fish, and bird bones but also thousands of terrestrial and aquatic gastropods. All represent are discussed in diverse taxa like animals: mammals, ungulates, fish, shellfish and tree fungi. The faunal assemblage from Meadowcroft is unique and requires identifying the persuasive coercive mechanisms, single or in combination, for extracting nonexistent “surplus” from hungry farmers. (1) (Especially in recently settled areas with remaining potential surplus, farmers may be persuaded or, more likely coerced, (Japan, 1603-1688) to exchange work and food for superior farming equipment or useful, attractive, prestigious luxury (soon “necessity”) manufactures of part-time village craftsmen transformed to full-time town specialists. (2) Hungry farmers may be persuaded to contribute surplus food to priests specialized in interceding with the supernatural, thereby establishing ceremonial centers which extend to true towns and cities as political, military, and economic functions are added (Sumer, Southeast Asia, La Venta to Mayapán). (3) In another tradition, landlords or other specialists may extend the urban system to construct fortifications or irrigation systems or from cultural selection advantages of voluntary (tara) or conquest states, with tribute and taxes to the capital town. Governmental coercion has constituted the primary factor in the origin of cities. Taxes, not “surplus” or farmers’ needs, enabled a few pre-industrial cities (Rome, Tokyo) to achieve populations of 1,000,000. (39)

Effland, W. Richard (Arizona State) STATISTICAL DISTRIBUTION CARTOGRAPHY AND COMPUTER GRAPHICS. Geographers have long used the map as a research tool, and recent advances in cartographic research have used computer-related methods in the map analysis stage. The importance of what may be termed “statistical distribution cartography.” Cartographic techniques for the display of spatial phenomena have been blended with a variety of statistical methods for effective evaluation of the output. Objective descriptions and particularly bivariate studies in the field of statistical distribution cartography is discussed and related to archaeological problems. (19, 20)

Erickson, Jonathon E. (California) CERAMIC FIRING-TEMPERATURE DETERMINATION. The determination of the firing-temperature of ceramics is important in certain aspects of archaeological technology and theory. A minute analysis of the literature on this topic is presented. The results of applying three innovative techniques are evaluated. (11)

Erickson, Jonathon E. (see Drover, Christopher E.) (11)

Ester, Michael (Brandeis) THE SPATIAL ALLOCATION OF ACTIVITIES AT TEOTIHUACAN. The past decade has produced an increasing appreciation of the richness of Classic Teotihuacan occupation: its thousands of residence compounds and hundreds of temples and craft workshops. To complement work on particular activities, an approach is presented here. Drawing on available information from the most recent version of the Teotihuacan Computer File, an attempt has been made to describe and interpret how the Teotihuacan landscape. Examples of the methods employed and conclusions reached are discussed. (44)

Ester, Robert C. (NPS) ARCHAEOLOGICAL AND PALEOBIOLOGICAL STUDIES AT STANTON'S CAVE, GRAND CANYON NATIONAL PARK, ARIZONA—A PROGRESS REPORT. Archaeological and biological excavations were conducted in Stanton's Cave, Grand Canyon National Park, Arizona, during the summer of 1975 under the auspices of the National Park Service, for two primary reasons. (1) To locate diagnostic artifacts in direct association with Desert Culture settlement. Based on the cultural affiliation, the investigators hope to obtain a stratigraphic sequence of cultural development in the canyon. By 1975, all artifacts were recovered, all from the upper five centimeters, no other artifacts were found in association. The author's earlier postulate that the two figures were associated in the Pinto basil culture remains hypothetical. The biological remains recovered yielded important data which, when placed in relationship to the radiocarbon dates obtained, extend back more than 13,500 years. In lower levels, Pleistocene birds and animals were found, including, with dominant Armentis and Juniperus, indicating a cooler, more moist climate than exists at present. Upper levels, younger than 10,000 B.P., revealed modern fauna and a more xeric climate. (29)

Ester, Robert C. (NPS) ARCHAEOLOGICAL AND PALEOBIOLOGICAL STUDIES AT STANTON'S CAVE, GRAND CANYON NATIONAL PARK, ARIZONA—A PROGRESS REPORT. Archaeological and biological excavations were conducted in Stanton's Cave, Grand Canyon National Park, Arizona, during the summer of 1975 under the auspices of the National Park Service, for two primary reasons. (1) To locate diagnostic artifacts in direct association with Desert Culture settlement. Based on the cultural affiliation, the investigators hope to obtain a stratigraphic sequence of cultural development in the canyon. By 1975, all artifacts were recovered, all from the upper five centimeters, no other artifacts were found in association. The author's earlier postulate that the two figures were associated in the Pinto basil culture remains hypothetical. The biological remains recovered yielded important data which, when placed in relationship to the radiocarbon dates obtained, extend back more than 13,500 years. In lower levels, Pleistocene birds and animals were found, including, with dominant Armentis and Juniperus, indicating a cooler, more moist climate than exists at present. Upper levels, younger than 10,000 B.P., revealed modern fauna and a more xeric climate. (29)
extensive faunal assemblage is detailed and limited paleoclimatic reconstruction is attempted, notably on the basis of the molluscan remains. (22)

Farnsworth, Kenneth B. (Northwestern) IDEAS ON ARCHAEOLOGICAL CURATION AND ITS ROLE IN REGIONAL CENTERS. Although proper curation of archaeological data is an integral part of archaeological research, researchers have given little attention to this problem. The archaeologist's responsibilities for curation have increased dramatically in the past decade as a direct consequence of the growth of contract archaeology. This has aggravated the already acute problem of curating all forms of archaeological field and laboratory data. This paper suggests ways in which this problem might be integrated into the total concept of a "regional center." (22)

Farrand, William R. (Michigan) SEDIMENTOLOGY OF ARCHAEOLOGICAL SITES. All stratified sites consist of sediments, which are a combination of natural deposits and products of human activities. They form the physical framework in which artifacts and bones are preserved. Sometimes the artifacts or fossils may be absent in a given layer, the sediments always present and provide the greatest possible continuity of record on the site. Sediment study has two aspects: (a) accumulation of original sediments (processes, sources); (b) postaccumulation processes (weathering, mineralization, etc.). These studies lead to inferences concerning the physical environment during and between habitations and, under favorable conditions, the paleoclimates that prevailed. (32)

Feder, Kenneth L. (Connecticut) THE GEOGRAPHIC PATTERNING OF TOOL TYPES AS REFLECTED BY TREND-SURFACE ANALYSIS. The use of trend-surface analysis, a least squares method of graphic representation, is suggested for the geographic presentation and analysis of the geographic patterning of tool types at the Anangula blade site on Anangula Island in the Aleutians. Trend-surface analysis provides the archaeologist with an avenue of approach whose results can be evaluated and compared with complementary research in other centers of interest. Further analysis of the data from these individual sites thus furnished information pertinent to the reconstruction of tool kits and activity areas. (33)

Feldman, Lawrence H. (Missouri-Columbia) COASTAL DECLINE AND HIGHLAND SURVIVAL: CHANGE AND STABILITY IN TWO COLONIAL GUATEMALAN POPULATIONS. A comparison of census data from two colonial Yucatec towns with the aim of determining historical trends in the coastal lowlands and determining the factors that led to the decline of these centers after a four-year study period while Jumaltepequc in the highlands continued as a viable community. (14)

Feldman, Lawrence H. (Missouri-Columbia) COUNTING PEOPLE: THE LATE COLONIAL PADRONES OF CENTRAL AMERICA. A brief survey of the nature and geographical extent of the official government census records in the Captaincy-General of Guatemala. Emphasis is placed on the critical period of 1823. Reference is made to data concerning other Central American countries, with a little known but abundant, documents can be of value for both the anthropologist and the linguist. (26, 27)

Fields, Brian A. (Indiana) TEMPORAL AND REGIONAL DIFFERENTIATION OF THE DENTITION. Multivariate discriminant analysis is applied to odontometric variation among six Pleistocene hominids, for which date to the Late Woodland-Mississippian interface, an important transition period in the prehistory of southern Illinois. Assuming that (1) the forces affecting biological variation in paleopopulations can be identified by analysis of large samples of dental variation, and (2) biological and cultural evolution are produced by the same forces, this study will examine alternative models of cultural interaction and in situ change for comparison with odontometric patterning. (6)

Findlow, Frank J. (UCLA) RECENT DEVELOPMENTS IN THE DIRECT APPLICATION OF C-14 DATING TO PREHISTORIC CERAMIC MATERIALS. While the direct application of C-14 dating techniques to ceramic materials has always been considered feasible, it has never been thought to be truly practical. This paper examines some recent efforts aimed at improving the general applicability of C-14 dating of prehistoric ceramic materials. While not all C-14 dating data agree, the author suggests that the technique may have a greater utility than has hitherto been supposed. (11)

Findlow, Frank J. (see Bennett, Victoria C.) A VIEW FROM THE SMITHSONIAN. Severe problems exist for the conservation of archaeological materials collected under federal contracts. Existing museums, including the Smithsonian, are not equipped to serve as central repositories for these collections. The curatorial and collection management program of the Smithsonian Institution constitutes a possible model for regional centers. Although the Smithsonian Institution is designated as the U.S. National Museum, its role in public archaeology at the national level has been largely advisory, and is limited to management of the River Basin Survey and review of the Antiquity Act permits. Our experience suggests that a decentralized, multi-level approach to the maintenance of public collections should be implemented with guaranteed federal funding. (22)

Ford, Richard I. (Michigan) THE SIGNIFICANCE OF ETHNOBOTANY TO ARCHAEOLOGY. Plant remains excavated from archaeological sites as well as plants actually growing on sites are useful for interpreting other archaeological evidence and for reconstructing past life ways. These data, however, are only as good as the excavator is careful in planning, sampling, recovering, and recording contextual information about them. Viewed from the perspective of the botanist asked to identify and "explain" these plants, archaeological plant remains are a part of prehistoric cultures. General information vital to our understanding will be presented. (32)

Fowler, Melvin L. (Wisconsin-Milwaukee) THE PUEBLA PRECLASSIC PROJECT: SITE SURVEY METHODOLOGY AND SOME PRELIMINARY RESULTS. The Pueblo Preclassic Project is a joint effort to examine the change in settlement patterns in the Puebla region during the Preclassic period. This paper attempts to determine the nature of sociopolitical organization before full urban centers developed. An intensive site survey was conducted of an area of approximately 150 square kilometers, and the results were published in a series of monographs. Approximately one hundred sites. Detailed toponomographic maps were made of eight large sites in the region. Some small excavations were conducted in four of the larger sites. All ceramic materials recovered and the data stored on tape. Various statistical and mapping programs can be run from these data. Tentative results from examining some of these data indicate that the trend in settlement size and location during late Preclassic into Early Classic was one of reduction of settlement numbers and nucleation of population into fewer and larger sites. (23)

Fox, Anne A. (Texas-San Antonio) THE CERAMICS OF MISSION SAN BERNARDO, NORTHERN COAHUILA. Excavations of the Guerrero Project in 1975 and 1976 produced an interesting cross-section of mission-related ceramics. These include majolica and utility wares, and varied pottery centers in the region, as well as a number of ceramic wares, some of which may be of local manufacture. The methods of pottery analysis utilized in this project are also discussed. (10)

Fox, John W. (SUNY Albany) LATE POSTCLASSIC HIGHLAND MAYA URBANISM. Four Late Postclassic highland Guatemalan sites (Uttalan, Iximche, Zaculeu, and Chimaltenango) are discussed. The latest settlements of the Late Postclassic period in Mexico are much rather than often cited environmental criteria (e.g., aridity, irrigation, navigable watercourses, land classification). (17)

Freedman, Matthew S. (Brandeis) SPATIAL ORGANIZATION OF THE URBAN CENTER OF TEOTIHUACAN, MEXICO. This paper presents an approach to the problem of characterizing and identifying socially significant spatial subdivisions within the city of Teotihuacan. The results are then used to define the spatial extent of the urban center and to identify communities, rather than concentrating on the boundaries between these areas. The existence of different levels of organization (i.e., apartment compounds, barrios, districts, etc.) will also be considered. The results will be discussed in the light of our understanding of the social and cultural organization of Teotihuacan. (44)

Freeman, Leslie G. (Chicago) 40,691 B.C.? A PALEOLITHIC SPACE ODYSSEY. Analysis of a Mousterian structural remnant and associated occupation residues at Cueva Morín is contrasted with interpretations of the structure and burial complex of the Aurignacian level at the same site. These contrasts provide increased depth of understanding of the activities performed in these Paleolithic communities and their environments and strongly suggest that the "world view" as seen in the spatial arrangement of the Prehistoric communities may be directly inferred from the spatial organization and nature of reconstructed activities. (40)

Friedman, Edward R. (Washington State) MAKAH CAMPS AND VILLAGES. The Ozette site was a Makah village of major occupation. In order to see Ozette clearly in a meaningful framework, it is necessary to study the total picture of resource utilization and environmental adaptation. This has been done through analysis of the Ozette sites and camps which were occupied by the Makah in their yearly cycle. This study has been an attempt, based upon the use of excavations to establish a model for camp versus village occupation, to determine the scale of resource exploitation and use of resources. This research, so far as known, is the first attempt to use the ethnographic literature in the ethnographic literature. (37)

Friedman, Janet P. (Washington State) OZETTE WOODWORKING: TYPES OF WOOD USED. The total preservation of wood at the Ozette site makes it possible to answer many questions about this important resource in the culture of the prehistoric Ozette. Studies have been conducted in the identification of wood through microscopic examination of small samples of preserved wood. Available wood species were used in the manufacture of a wide range of artifacts. It is interesting to note that the presence of objects representing more than three different categories of artifacts and objects have been sampled thus far. This work has revealed that woods were used
selectively, and the special properties of particular woods were employed to meet the requirements of a given class of artifacts. Availability of resources also played an important part. In other words, for a given task. Contrary to some ethnographic reports, the Ahtanu depended almost exclusively upon locally available species for their wood. (40)

Frisbie, Theodore R. (see Mitchell, Robert) (29)

Fritz, Margaret C. (San Jose State) BONE ARTIFACT TYPOLOGY, DECORATIVE TECHNIQUES, AND OCCUPATIONAL ASSEMBLAGES. This paper discusses the analysis of several thousand antler and bone artifacts from 27 sites (differentially represented) in the Magdalenian deposits that occur today on the west coast of the United States, prehistoric man engaged in systematic and limited assemblages. The paper is an attempt at understanding the design structure of the engraving on some of these artifacts, questions were asked concerning the correlation of certain design structural principles, and design motifs were identified. It was predicted that if certain "designs" were different for different "types" or shapes, where assemblages differ in typological composition, the design variability among such assemblages might be similar to the earlier hypothesis. Unfortunately, the extremely fragile and fragmentary nature of bone and antler artifacts impedes the identification of pieces according to the idealized bone typologies currently employed. The discussion of human behavior is recommended for serious study. (40)

Fry, Gary F. (Youngstown State) ECOLOGICAL DETERMINANTS OF PREHISTORIC DIETS. Revealed via Paleodiet Analysis. Analysis of prehistoric coprolites (dissolved faces) from several archaeological sites in the United States and Mexico indicates that data from sites such as the Cienaga and the Cieneguilla in the late Middle Woodland period of San Diego. Data from the late Middle Woodland period of the northeastern United States indicates that: the Caribou was inhabited primarily by native complexes, and that the Caribou-Chippewa complex was a cultural group of fishers and game participants in the late Woodland period. In contrast, St. Croix archaeological material transmits environmental zones, even extending to the prairie zone in the southwestern corner of the state. Several alternative predictive models are generated that attempt to explain this transition in settlement patterns and are integration. (9)

Gibson, Guy (Michigan) MIDDLE-LATE WOODLAND TRANSITION IN EASTERN MINNESOTA. The paper summarizes the available data from archaeological sites dated to the late middle Middle Woodland and early Late Woodland time span in eastern Minnesota. Data from Howard Lake, Malmo, and Sarg Middle Woodland phases are presented and compared. Data from sites such as Such as the Ahtanu and the Cieneguilla in the late Middle Woodland of San Diego. The paper also includes a comparison of the late Middle Woodland period of the northeastern United States shows that: (1) the Caribou was inhabited primarily by native complexes, and that the Caribou-Chippewa complex was a cultural group of fishers and game participants in the late Woodland period. In contrast, St. Croix archaeological material transmits environmental zones, even extending to the prairie zone in the southwestern corner of the state. Several alternative predictive models are generated that attempt to explain this transition in settlement patterns and are integration. (9)

Gal, Robert (U. of Alaska) INTERIOR ALASKAN PREHISTORY ALONG THE PIPELINE. Several sites along the Trans-Alaska Pipeline have forced some new hypotheses regarding occupation in Interior Alaska. Discussion on Denali, Tuktu, and Point, and other complexes will be offered with a tentative synthesis of them all. (35)

Garner, W. L. (Brown) "INFLUENCES," TRADITION, INTERACTION: THE STUDY AND USE OF FORMAL-STYLISTIC SIMILARITIES. Formal-stylistic similarities have been seen through the development of Mesopotamian archaeology. Likenesses in form are also seen in the development of art, but this is not always clear. Art is a subject that has been studied for a long time, and it is often difficult to assess its influence on other cultures. The study of formal-stylistic similarities can be a valuable tool in understanding the development of art and how it relates to other cultures. (37)

Gaxiola, Margarita (see Winter, Marcus C.) (3)

Gibert, S. (see Fedman, L. H.) (14)

Gilmore, Kathleen K. (North Texas State) ARCHAEOLOGICAL INVESTIGATIONS AT MISSION ROSARIO, SOUTHERN TEXAS. The site of Mission Rosario, established in 1734.
to christianize the Karankawa Indians of the Texas Gulf Coast, was excavated recently during 1973 and 1974. It has also been excavated from 1940 to May 1941, and since few notes could be found in the field, the project consisted of delineating 1941-42 excavations and resultant problems. Two field seasons during 1974 were spent in carrying out the research based on documentary materials and the first pilot season. Activity and use areas and a regular chronology for building periods and the use of the mission church were delineated.

Glish, Jennifer W. (Arizona State) THE APPLICATION OF PALYNOLOGY TO ARCHAEOLOGY: LIMITATIONS AND SOME PRACTICAL SUGGESTIONS. This paper is intended to define and explain limitations in the application of pollen analysis to archaeology. Particular attention is given to information an archaeologist can and cannot expect to obtain from initial palynological investigations. The difficulties involved in continuing the process through successful, verifiable interpretations are emphasized. Finally, suggestions on pollen sample design and sample collection techniques are provided.

Gleason, Paul F. (Washington State) OZETTE WOODWORKING TECHNOLOGY. The Ozette site with its preservation of wood materials provides a startling insight into the relative importance of wooden artifacts in the Northwest Coast. For the first time, it is possible to study Northwest Coast woodworking technology on the basis of woodworking tools, implements, and complete artifacts, all from the same time and place. The Ozette collection reflects a well-developed tradition of wooden artifacts. The mauls and a large number of various styles of wedges indicate that the Ozette were quite skilled in woodworking. The wooden tools, the adze and the D adze, are typical of the southern outer coast area. The large amount of fine detritus and small preforms indicate that the collection of larger artifacts and the manufacture of smaller artifacts was done extensively within the house and appears to reflect various manufacture tools. The large amount of woodworking information gathered from Ozette has necessitated the development of a nomenclature for Northwest Coast woodworking technology.

Goff, Linda (Washington-St. Louis) THE JEWEL PERSONAL NAME IN THE MIXTEC MANUSCRIPTS. The purpose of this study is a stylistic analysis of the jewel personal name as it appears in the pre-Conquest Mixtec codices. The jewel motif is one of the most commonly represented motifs in the manuscripts by appearing in association with 173 different personal names, and is predominantly a female name. An analysis of the manuscripts indicates one main stylistic category of the jewel motif with two subtypes: the full disc and its variation in the half disc and tassle motifs. This stylistic representation provides a basis for a systematic and functional analysis within manuscript histories. The subject of jewel personal names has potential for more detailed analysis. A study of the significance of the jewel motif not only within the Mixtec manuscripts but also the social and kinship systems.

Goldstein, Lynne (Wisconsin-Milwaukee) CEMETERIES AND CORPORATE GROUPS. Social and Spatial Organization of Mississippian Mortuary Sites. A model for non-urban Mississippian society is examined. Outlining Mississippian mortuary sites are seen to reflect a generally egalitarian form of social organization in which individuals do not give particular emphasis from the spatial organization of the site. It is argued, the presence of corporate groups which control crucial but restricted resources. Given the nature of these specific groupings, it is further suggested that Mississippian mortuary sites represent the operation of a similar set of organizational principles based on the corporate group premise, and are merely further elaborations on this social structure.

Gonzalez Echegaray, R. P. J. (Santander Museum) THE CONCEPT OF "FACES" APPLIED TO THE UPPER PALEOLITHIC. Thanks principally to F. Bondas, a series of "Faces" have been defined relative to the material culture of the Middle Paleolithic Mousterian does not so much present a vertical succession of chrono-cultural nature, as a horizontal succession of cultural nature. Interpretations vary, and the so-called "American school" is functional and the "European school" is conditioned to geographical factors. Nevertheless, the Upper Paleolithic so far presents a vertical structure of chronological nature. It seems clear that the Magdalenian is not a face of the Aurignacian, for example. However, within the Aurignacian sphere, some of the different techniques of the early Magdalenian, Perigordian, classic Aurignacian, and Correzean, which have recently been found in several caves, might also be interpreted neither as periods nor cultures, but rather as faces with environmental and functional connotations.

Goodyear, Albert C. (South Carolina) CURRENT AND FUTURE DEVELOPMENTS IN ARCHAEOLOGICAL STRATIGRAPHY. The concept of theory is defined and explored. The primacy of theory in archaeological research is stressed regardless of a contract or non-contract setting. The role theory should play in the conduct of research is discussed with particular reference to contract conditions. Examples of theory construction are cited and a brief analysis is made of why they were successful. Suggestions for more common and conscious use of theory are provided.

Gottscho, Rebecca S. (Brandeis) TOWARD MORE PRECISE STATUS CATEGORIES AT TEOITHUACAN. On the basis of field judgments made during the Teotihuacan Mapping Project's surface survey, it has proved feasible to code residences in terms of three very broad status categories: low, middle, and high. However, there is a great deal of evidence that Teotihuacan society was far more complex than this, and excavations in residences suggest that research using the screen area may be constrained. This paper reports work on developing more precise criteria of status from surface data. Techniques include computer-generated maps and multivariate statistical methods.

Grabert, G. F. (Western Washington State) CENTRAL NORTHEASTERN COAST PREHISTORY REVISITED: AN APPRAISAL. Archaeological studies of western Washington coastal tribes are divided into Fraser Delta region and the Fraser Delta region and the Fraser Delta region and the Fraser Delta region. The Fraser River sound culture sequence for the last 1,000-4,000 years in the latter two areas. While there are numerous sites and components that seem to precede this sequence, all but a few are poorly dated. A comprehensive, problem-oriented approach is taken. The latter are significant to the problems concerning the adaptive strategies and cultural developments of the predecessors of the cultural complex, and there have been few attempts to explore the Fraser River sound culture sequence for the region, and these few have been limited in geographic scope. Problems that might profitably be explored include the nature, duration, and subsistence features of the Fraser River complexes. The Fraser River complex is a cultural unit, and is not a continuous sequence for the region, and the role of sea level changes and forest successions in the maritime adaptation that characterizes the Northwest Coast cultures. There are other sorts of cultural developments that are different in nature, and of a different nature, and include the use of shellfish, and the use of different species of shellfish. The use of shellfish and the use of different species of shellfish are a significant factor in the Fraser River complex, and there are other sorts of cultural developments that are different in nature, and of a different nature, and include the use of shellfish, and the use of different species of shellfish.

Grady, Mark A. (Arizona State Museum) CONSERVATION ARCHAEOLOGY, RESEARCH, AND ENVIRONMENTAL LAW. An increasing concern for the conservation of cultural remains is leading to the establishment of guidelines, directing implementation of policies, and through the use of environmental law. A potential conflict exists in terms of reconciling the needs of this research with some interpretations of relevant legislation. In particular, the procedures now being employed for determining National Register site eligibility and allocating certain contracted archaeological funds do not follow the intent of the National Historic Preservation Act of the Archaeological and Historic Conservation Act. These procedures not only fail to meet the legislative support for archaeology, but also constrain archaeological research flexibility. A comprehensive review of the National Register evaluation process with National Environmental Policy Act decision-making, is proposed. Central to this alternative is the acceptance of a usable concept of significance, and some standards for making significant to better fit research needs within the parameters defined by due process.


Graybill, Donald A. (Georgia) NET ANALYTICAL STRATEGIES FOR SPATIAL ANALYSIS. A sequence of analytical strategies for the spatial analysis of time distributions is considered. A new statistical technique for testing hypotheses about non-random inter-class item distributions is presented as well as several methods for describing significant item patterns. The analyses are applicable to a broad range of archaeological problems.

Grayson, Donald K. (Washington) A REVIEW OF RECENT ATTEMPTS TO PROSECUTE ANTIQUITIES ACT VIOLATIONS IN OREGON. Two recent attempts to prosecute Antiquities Act violations in Oregon have failed. A review of these cases shows that two major problems have occurred: (1) insufficient evidence, and (2) the impact of the Eighth Circuit decision upon the Antiquities Act within the Ninth Circuit Court of Appeals. It is clear that clarifying regulations for the Antiquities Act must be drafted and enacted immediately if this act to be of any value within the jurisdiction of the Ninth Circuit Court.

Green, Dee F. (U.S. Forest Service) LOCATING ARCHAEOLOGICAL SITES USING AN INFRARED LINE SCANNER; A SINGULAR CHANNEL, THREE DETECTOR INFRARED LINE SCANNER (SIRL). A two-channel, three-detector infrared line scanner was developed for locating archaeological sites in Arizona and New Mexico. The device is a 4 milliradian system capable of resolving a 2' x 2' target at 500' over terrain. The imagery produced was checked for the location of both known and unknown archaeological sites. The device proved to be effective in determining the presence of suspected site areas. Results show that infrared scanning holds promise for locating archaeological remains.

Green, Dee F. (see Smith, Landon D.)

Gregg, Michael L. (Center for Great Lakes Archaeological Research) CONTINUITY AND CHANGE IN TERMINAL MIDDLE-EARLY LATE WOODLAND MATERIAL CULTURE...
AND SUBSIDENCE AS SEEN FROM THE ALBANY SITE IN NORTHWESTERN ILLINOIS. In the northern portion of the region occupied by Middle Woodland societies with Havana Tradition ceramics, there evolved early Late Woodland societies characterized by Weaver Ware ceramics. Excavation reports from Weaver sites have produced quantities of data on Weaver material culture and subsistence practices. These data are compared and contrasted with recently recovered data from test excavations at the Albany site in northeastern Illinois. Comparisons indicate a variety of cultural continuities and discontinuities in the process of the evolution of Weaver out of Havana. (9)

Grennes, Ronald A. (see Haley, Harold B.) (18)

Gruv, David C. (Illinois) CHALCATZINGO: THE RISE OF A MAJOR FORMATIVE- CENTER IN MEXICO. The site of Chalcatzingo has shown that the site, long known for its Olmec style bar-relief carvings, was a major highland Middle Formative center, whose growth has been attributed to its access to important raw materials. Excavations, regional reconstructions, and statistical studies suggest that the site is not unique and is recurrent in the Early Formative, but quickly rose in importance in the Middle Formative. This paper discusses the site's growth as well as residential and ceremonial patterns on the site. (23)

Gummers, George J. (Southern Illinois) ARCHAEOLOGY AND ULTRA-HIGH ALTITUDE IMAGING. Imaging now available on a global basis has provided a new database for archaeologists. The data from the National Aeronautics and Space Administration's ERTS and Skylab programs is evaluated for its usefulness in environmental mapping and site location and site predictability. This picture is based on an analysis of the data. (3)

Gunn, J. D. (Texas-San Antonio) ARCHAEOLOGY AND CHRONOLOGY AT MEADOWCROFT ROCKSHIELD. Ten of the eleven major strata (1a-XI) isolated at Meadowcroft Rockshiel have yielded extensive evidence of human occupation in the form of artificial remains and a variety of cultural features. The artificial remains and surface data are summarized and the radiocarbon chronology for the site is presented. Present data indicates that the site was occupied from at least the early fifteenth millennium B.C. through the Historic Period. There are apparently no major hiatuses in the occupation and the radiocarbon column is entirely consistent with the observed stratigraphy. (2)

Gunn, J. D. (see Adovasio, James M.) (2)

Haas, Jonathan (Columbia) HUACA EXCAVATIONS AT PAMPA GRANDE, LAMBAYEQUE, PERU. Excavations were conducted on a number of huacas, the large central platform mound at the site of Pampa Grande in the Lambayeque Valley on the Peruvian North Coast. The structure of the mound consisted of ceremonial rooms and a complex distribution of other structures. In addition, the mound included the remains of a large platform mound, which was mapped in detail. As a result of the excavations, some tentative statements can be made about the nature of state political organization during the Moche V period. (18)

Hackett, Steve (Tulsa) AN AREAL RECONNAISSANCE OF MCGEE AND PATAPO Washes, Oklahoma. This paper presents the results of an effort to understand the possible relationships among the proposed McGee Creek Reservoir and Natural Scenic Area in south-central Oklahoma. Special consideration is paid to an examination of the research design used to maximize results from available data. The discussion of the study area is presented as a whole as a result of field notes and areal data. (1)

Halef, Robert L. (Illinois-Chicago Circle) SOUL RELEASE AS AN HYPOTHESIS FOR EXPLAINING PERFORATED LONG BONES AND CRANIA IN GREAT LAKES AREA PREHISTORY. The practice of skeletal perforation as found in Woodland times from South Dakota, Minnesota, Wisconsin, and Ontario is examined. The practice is related to beliefs in the spirit body as a residence for the soul, the communal loss of head hair as a symbol of the personal spirit or life, and the symbolic perforation found to correlate closely with the original distribution of the site and the local occurrence of artifacts. The human body ornaments used in the spirit bundle mortuary practices, major elements involving the preservation of a lack of hair from the deceased and its use in a spirit acquisition ritual at the time of death. (2)

Hammont, Norman (Cambridge) THE EARLY PRECLASSIC IN THE MAYA LOWLANDS. Recent excavations in Belize have yielded evidence of settled occupation with radiocarbon dates extending to 2500 B.C., this material is placed in its Mesoamerican context. (12)

Hancock, Patricia (Eastern New Mexico) SETTING UP A DATA PROCESSING LAB. Archaeology's new toy, the computer has enabled large complex sites like Salmon Ruins in Paonia to be studied, but until recently the computer to be a miracle machine, those of us working in the data processing lab know nothing. Two important factors should be kept in mind when setting up a data processing lab. First, the time involved in the actual completion of a run, and the storage and availability of the furnished printout. This paper will deal with the problems and some solutions in the setting up of a data processing laboratory. (4)

Hansen, Hans Ole (Historical-Arch. Res. Center-Lefere) A REVIEW OF THE LEJEUNE EXPERIENCE. The largest and oldest continuing experimental replicative center is reviewed in terms of its function from its initial resource, experiments that have been carried out, and new directions for the future. (21)

Harbottle, Garman (Brownhaven) NEUTRON ACTIVATION ANALYSIS IN STUDIES OF ARCHAEOLOGICAL CERAMICS: POWER AND PITTFAIL. The techniques of neutron activation analysis in its application to data from the materials of archaeological research, potsherd, obsidian age dates, and site materials, is, now nearly 20 years of age, and it is time to examine critically the nature of the information generated, the impact of modern statistical-taxonomic data handling systems, and the value of this kind of "hard" data to the archaeologist. It will be shown that the value of the data may be assessed in the systematic organization of archaeological ceramics into groups on the basis of chemical composition; that other kinds of physical examination (petrographic thin section, x-ray diffraction) yield data which merge with, reinforce or supplement, but do not replace, neutron activation analysis (and vice versa); and that in certain instances the techniques, when taken in conjunction with purely archaeological data, may lead to good indications, though hardly proof, of petrogenic origin. The particularity of the use of this technique will also be explored within the framework of the probabilistic arguments arising from the multivariate analysis of the analytical data. Additional, and severe, difficulties owing to non-comparability of data because of differences in standardization, will also be added. The effect of admixture of temper on the analytical results will be described. (32)

Harbottle, Garman (see Rattray, Evelyn) (11)

Hatch, James W. (Pennsylvania State) "CHANGE" VERSUS "NOISE" IN CERAMIC FREQUENCY SERIALIZATION. Frequency serialization as an ordering technique with possible chronological implications has had a long history of use in archaeology. Recent theoretical articles have used with ceramics support the notion that the ordered sequence is affected by a large number of factors and may be organized in a variety of sequences. The present paper is an attempt to examine the results of the Pots program which dynamically simulates the effects of the manufacture, breakage, and accumulation of sherds to determine what types of trends are found in the data. (13)

Healan, Dan M. (Baylor) PATTERNS OF RESIDENCE IN A POSTCLASSICAL CITY: TULA, HIDALGO, A series of residences have been excavated at Tula, a Postclassic Toltec city in central Mexico. Analysis of form, structure, and artifact content, of these residences sheds light upon the nature of domestic units and activities in ancient Tula. (3)

Heath, Medfield (see Dumond, Don E.) (15)

Hennen, Gary W. (Rutgers) A PALEO-ECOLOGICAL LOCATIONAL ANALYSIS OF THE LOWER SCIOTO REGION OF OHIO. PART 1: DEMOGRAPHIC ANALYSIS. This paper introduces computer simulation as a means of demographing how human population changes over time. A computer model of the population's growth is derived from demographic data and an input of the cultural behavior of the population. The model is calibrated against the growth of the population, and the results of the model are presented. (16)

Hester, James (Colorado) SPECIALIZED AND GENERALIZED MODELS OF REGIONAL CENTERS. Two possible designs for regional centers are outlined. The Specialized...
Yucatan and Central Mexico poses a number of complex problems. The collapse of Mayapan and the emergence of independent polities in Yucatan can be viewed in terms of the expansion of the Aztec empire. The Yucatecan slave trade is suggested as a central mechanism in this process. The function of slave labor, acquired in Yucatan, had important implications for the economic development of the Aztecs. (12)

Houart, Gail (Northwestern) MICRO-STYLE ANALYSIS OF CERAMICS AND THE IDENTIFICATION OF SOCIAL GROUPS FOR MIDDLE WOODLAND COMMUNITIES IN THE ILLINOIS VALLEY. During Middle Woodland times, communities within the Illinois Valley participated in the Hopewell Interaction Sphere. The involvement is movement of exotic trade goods and raw materials throughout much of the Midwest-Riverine area. It has been hypothesized that this interaction was mediated through Cahokia, in the Illinois Valley, relatively stable groups of communities comprise the basic social unit which would have participated in the interaction sphere. Micro-style analysis of utilitarian ceramics from Middle Woodland sites in this area lend themselves the geographic boundaries and constituent communities for these hypothesized social groups. (6)

Hunt, Eva (Boston) THE PROVENIENCE AND CONTENTS OF THE PORFIRIO DIAZ CODEX: NEW DATA AND ANALYSIS. The Porfirio Diaz Codex, and its mate the Fernando Leal, have neither been satisfactorily analyzed or analyzed in a way relevant to their history are presented, establishing the definite Cuicatoc origin and topic of the two codices. They were utilized in a court case (ca. 1562) of Cuicatoc trials. The historical sections of the Codex contain dates of foundation and conquest of Cuicatoc towns. The toponymics written in hieroglyphics and in the Latin alphabet mark landscape features of the Cuicatoc district still called by the same names. The document covers approximately a period of 260 years, and correlates with data contained in the codices of the same Cuicatoc Lords, and other parallels with the Codices. Where, how and why the Codex was created (and mutilated) is discussed, presenting some evidence which contradicts all the (15) former assumptions.

Hurley, William M. (Toronto) A STYLISTIC ANALYSIS OF CORDS AND FABRICS APPLIED TO LATE WOODLAND CERAMICS IN WISCONSIN. Late Woodland ceramics in Eastern North America are distinguished by their cord, cord-wrapped stick, or fabric decorations. A decade and a half of research on macro- and micro-airbrush analyses of these ceramics has produced 271 varieties of cords and cord-wrapped sticks and fabrics. A presentation of these varieties is little significant unless types, wares, and sites can be realistically linked through time and space. Accordingly, over 3,000 vessels from 43 sites are investigated and stylistically analyzed to ascertain prehistoric associations and cultural patterning. (16)

Ibbet, William H. (SUNY Binghamton) THE WARI EMPIRE: STATE AND CITY. In light of general definitions of states and cities, a series of hypotheses are presented which must be evaluated before the Wari Empire may be, without restriction, classified as an ancient state. The Cord Woodland civilization reviewed in light of some relatively significant new data and the results of some recent analyses are presented which may be seen to lend support to at least a minimal extent, to the discussed hypotheses. In addition, what are some relatively useful lines of future research needed to support the hypotheses are suggested. (14)

Ives, David J. (Missouri) STURM UND DRANG: IN THE FIELD SAFETY. The concept of in-the-field safety has received little attention even though it is mandated, on most projects, by federal regulations. While certain of these regulations require either the purchase or lease of special equipment or a departure from traditional research implementation, they do not enjoin the purchase of several indicates that there is indeed a method in such madness. Adherence to the appropriate OSHA and OPM rules and regulations will safeguard employees' health, safety, and, in turn, federal agency responsibility and will ensure efficient and timely project implementation. (17)

Ives, David J. (see Evans, David R.) (44)

Jakes, Mike (IPS) CONSTRUCTING A THESAURUS OF TERMS FOR SOUTHWESTERN ARCHAEOLOGICAL AND ETHNOHISTORICAL SPECIMENS. Development of a computerized inventory of the collections at the National Park Service's Western Archaeological Center has highlighted the importance of the field label. Such a cataloging necessity is in order to achieve high precision in retrieving information from registration and accession files. Construction of a dictionary-thesaurus of objects, places, and even objects and places, and related terms is needed. The development of such a system is needed. Initial attempts at creating and maintaining such a thesaurus are discussed. (43)

Jansen, Maarten E. R. G. N., (Leiden) THE HEAVEN OF APOLLO: For better understanding of the contents of Vindobonenses and Nuntius, the representations of heaven in these codices are important. As a result of a classification and systematic rendering of the Mixteca, reported by Gregorio Garcia. It is possible to interpret this heaven as a mountain near Apollio. Vindoinense (p. 35) is a parallel to Nuntius (p. 36), where the hieroglyph Hand Holding Head (identified by Alco Aip, Apollio) occurs in
combination with some other place-name signs. The snake rock can be identified as Yanui while the tomb in front of the ancient city of Yuzuka Shiro Su. Very clear is the representation of the waterfall of Aponil. The mythical tree above it is no longer there, but the spot is still known as Timuu, which could indicate that it was a Colin. These details and the possibility of interpreting the scenes of Nuptal (pp. 15, 17, 18, 19) as taking place in Aponil give an indication as to the place of origin of this codex. (This paper will be given in Spanish.) (26, 27)

Jelinek, Arthur J. (Arizona) QUANTITATIVE TRENDS IN FLAKE SHAPE IN THE LATE PLEISTOCENE OF THE LEVANT. A preliminary examination of the relationships between the production of complete non-cortical flakes and the various stratigraphic sequence of samples from the Tabun Cave on Mount Carmel indicates unidirectional trends in flake manufacturing patterns through the entire time span of occupation. Major changes in flake manufacturing, as well as the use of materials and the precision and control in flake manufacture, can be observed. This is the first example of objectively quantifiable trends reflecting human behavior through a substantial period of the Late Pleistocene, i.e., the period of greatest importance in the interpretation of the later stages of human evolution. (40)

Jermak, Jerry V. (Washington) COMPUTER-AIDED MAPPING IN ARCHAEOLOGY: THE CASE FOR SYMAP. The past several years have witnessed a considerable growth in the professional reliance on computer-aided analytic methods. This paper examines the uses and limitations of this method as it is applied to archaeological mapping. Special attention is focused on the SYMAP computer program as perhaps the most widely and best-known technique within this general analytic method. Both method-based and program-based construction were tested in actual archaeological situations. Guidelines are offered for the application of isoplot mapping in general and the SYMAP program in particular to archaeological problems. (19, 20)

Jewett, Roberta (Arizona State) LOCAL GROUP SIZE ESTIMATION PROCEDURES IN ARCHAEOLOGICAL CONTEXTS: AN EXAMPLE FROM THE ARIZONA BASALT PLEISTOCENE. Local group sizes are estimated for Basalt Pleistocene populations responsible for the accumulation of 16 debris scatters in Bed I and II at Olduvai Gorge, Tanzania. Estimates are obtained using a modification of Nordbeck's (1971), allometric growth formula, a log-log regression of area on population (area = population^2), and a theoretical derived exponent based on the dimensions of the surface measured. Nordbeck transformed the law of allometric growth formulae when he determined that the exponent was 2.0 and could be approximated. Wissler (1974) subsequently studied Nordbeck's formula with Weissen's (1975) Bushmen data, but his study confirmed that an allometric relationship also existed between the group size for Bushmen. The same group size area had first to be estimated for each site, as excavation was seldom complete and no random sampling techniques were used. Conservative and liberal estimates were made, local groups were given size as a range. Although two assumptions built into the procedure limit its usefulness, they are: (1) the use of Wissler's constants which, although empirically derived, have not been widely tested, and (2) the subjective involvement determined in the determination of floor areas for partially excavated sites. (43)

Jochim, Michael (California-Santa Barbara) HUNTER-GATHERER ECONOMIC PATTERNS: A PREDICTIVE MODEL FOR ARCHAEOLOGY. Analysis of lithic assemblages is an important method in determining their activity correlates. Many factors in addition to activity differences, however, are important in determining artifact assemblages. An independent method of predicting the distribution of settlements and their component activities in a region would provide a framework for such lithic analyses. Such a method has been developed for hunter-gatherers: a predictive model of decision-making systems related to (1) resource use schedule, (2) settlement location, and (3) demographic arrangement. The model is based on an operational definition of the economic system of southwest Germany, and its predictions compared to the archaeological record. (36)

Johnson, Ann M. (Missouri-Columbia) MIDDLE MISSOURI CULTURAL DYNAMICS A.D. 1100-1500. Tona in the Middle Missouri area are characterized largely on the basis of culture content; and time; thus, the creation of a new taxon (the Modified Initial Middle Missouri tradition) implies change within the Initial Middle Missouri variant-chronology. For this reason, the test of the hypothesis that the Revised Initial Middle Missouri tradition implies change within the Initial Middle Missouri variant-chronology. A test of the hypothesis is not clearly stated but does not require the use of a new system of testing the validity of the new taxon. The analysis relies primarily on ceramic style, but data are supplemented by a new series of radiocarbon dates. These data are used to suggest new cultural relationships within the Middle Missouri tradition. (45)

Johnson, Donald R. (Missouri-Columbia) MIDDLE MISSOURI CULTURAL DYNAMICS A.D. 1100-1500. Tona in the Middle Missouri area are characterized largely on the basis of culture content; and time; thus, the creation of a new taxon (the Modified Initial Middle Missouri tradition) implies change within the Initial Middle Missouri variant-chronology. For this reason, the test of the hypothesis that the Revised Initial Middle Missouri tradition implies change within the Initial Middle Missouri variant-chronology. A test of the hypothesis is not clearly stated but does not require the use of a new system of testing the validity of the new taxon. The analysis relies primarily on ceramic style, but data are supplemented by a new series of radiocarbon dates. These data are used to suggest new cultural relationships within the Middle Missouri tradition. (45)

Johnson, Eileen (Texas Tech) RECONSTRUCTING HUMAN SOCIAL BEHAVIOR THROUGH FAUNAL ANALYSIS. The major aspects of zoological research have been emerging over the last few years. Most prominent of these is the economic and environmental studies. However, archaeologists are becoming aware of the third area in zoological research, that of behavioral studies. Basic to archaeological interpretation is the theory that human behavior is patterned and can be studied as such. From this viewpoint, a culture can be reconstructed. Within zoological, the reconstruction of human behavioral or social patterns is based on the integration and interpretation of data generated from the economic and environmental studies. The reconstructions (speculations) are attempts to understand why an activity area or utilization pattern is structured as it is. One of the most fruitful areas of analysis for reconstruction is the behavioral activities involved with bison kill and butchering sites, particularly during the Paleo-Indian period on the Plains. For Plano, the presence of high Plains, size of kill, bone disposal, and butchering patterns change during this period which reflects a changing behavioral activity responding to a changing environment. (25)

Johnson, Jay M. (Southern Illinois) SITE HIERARCHY IN THE WESTERN MAYA PERIOD: A CORRELATION OF LITHIC, EPIGRAPhic, ARCHITECTURAL, AND CERAMIC DATA. Several lines of evidence are combined to develop a three-level classification of the settlement system involving the Classic, Postclassic and Colonial periods. The Classic Period was outlined and tested by means of a detailed examination of the chipped stone industries from 27 sites in the region. (12)

Johnson, Jerald Kay (California State) SOUTHERN CASCADE MOUNTAIN PROJECT (1966-75). Since the fall of 1966, a major archaeological research project has been underway in the southern Cascade Mountains of California, which include the 238 villages, 128 temporary campsites, 170 rockshelters with habitation debris, and 42 petroglyphs. Ten sites have been partially excavated. The initial surveys and reconnaissance have been completed, and, even though certain sites were not consistent with the planned program was followed. Prior to 1966 the southern Cascade Mountains were virtually unknown archaeologically. Then 64 sites had been test excavated. An overview of the project will be presented. (34)

Johnson, Paddy C. (Eastern New Mexico) DATA STRUCTURES AND THE RECORDING OF ARCHAEOLOGICAL DATA. This paper discusses data structures for recording archaeological data. Areas considered include site survey data, excavation data, and various types of laboratory and field analysis. An attempt is made to explain various data structures and data base. Special emphasis is placed on syntax and semantics and how different recording structures influence what data is recorded and how it is later utilized. Relevant examples are given from the San Juan Valley Archaeological Project. (43)

Jones, M. Katherine (Tallahassee) STRUCTURE OF AND RELATIONSHIPS AMONG THE CHISHOLM, CHERAH, AND WAREHAMS: A COMPARATIVE ANALYSIS. The intent of this paper is to delineate problems that arise in implementing a comprehensive computerization program for archaeological sites when all related data are considered, and to propose solutions to those problems. Some of these solutions involve data base design and the design of related computer programs, and relate to a particular research problem but are contained in separate files—for example, all photographs, artifacts, and sites that bear on the problem of, say, mound construction in a region in Florida. This retrieval, and data management in general, could be facilitated by indexing the separate data bases and linking them together using computer data common to all. This paper will concentrate on methods of data base indexing and linkage for efficient retrieval on one kind of problem that could be answered using the computerized data system. (43)

Jury, Wilfred (Western Ontario) FAIRFIELD: A CANADIAN DELAWARE MISSION. Excavations were conducted (1942-45) on the site of the Mission of Fairfield, in Kent County, Province of Ontario, some 65 miles east of Windsor-Detroit. The village was first written on an American map in 1813 and was abandoned by American forces in 1813. The foundations of 40 buildings were uncovered, 22 facing a street that paralleled the Thames River. Methods of construction and materials were consistent in several aspects and a school, European house cellars yielded considerable material objects and food remains. Finds in the Indian houses indicate interesting traits of a late contact community. (36)

Karttunen, Frances (Texas-Austin) THE CONTINUATION OF NAHUATL WRITING TRADITIONS: PROCEEDINGS PERSUANT TO A LAND CLAIM, AMECAMECA, 1746. This is a beautifully written document preserved in the Archivo General de la Nacion Tihuatl and treated by American forces in 1813. It consists of seven folios including verbatim testimony of seven witnesses, each of whom signs his testimony for himself. The signatures of both of the witnesses are included, so it is clear that it is the signatures of persons accustomed to daily writing. Although the text is conducted entirely within the Indian community, there is mention of interethnic marriage and Spanish and Mexican names are still used in the language is fluent Nahautl. The language is an ancient, consistent form of Spanish, direct loans, reanalysis of Spanish morphemes, certain orthographic peculiarities, and early examples of Nahautl's developing strategy for borrowing Spanish words. For ethnologists, this is a valuable example of a cohesive, sophisticated indigenous community carrying on its affairs without recourse to the Spanish community. (26, 27)

Kelly, John E. (Beiloit) FORMATIVE DEVELOPMENTS AT CAHOKIA: A MERRILL TRACT PERSPECTIVE. Three seasons of fieldwork on the Merrill Tract at Cahokia
hemlins. Estimates of the mean weight of seeds excrated for these species and of Chenopodium hybridum (Salt's Cave, Ky.) ranged from 21 to 75 gm. per day based on a minimum mean total output of 720 gm. The actual daily intake was estimated to be between 6 and 10 times its estimated output. Extinctions of these species of Chenopodium known to be used as food by Great Basin Indian groups revealed the presence of terpene fractions in all: an ascaridoid fraction was present only in the oil of Chenopodium standard and in seed extracts of C. ambrosioides var. anthelminticum which was used medicinally, but not as food by aboriginal Americans. The possible antimicrobial activity of the terpene fractions was not determined. Estimated mean decrease for the 330 population of each species of Chenopodium was 30%, 45%, and 50% of original dry sample weight respectively. Based on a mean daily fecal output of 450 gm., and a 10% fiber content, it was estimated that the daily intake of dietary fiber, as represented by the Lovelock Cave coprolites, was 110 (110 to 156) gm. (5)

Kiyomizh, Alexandra M. Ulan (Harvard) THE INHABITANTS OF THE INTERMEDIATE UNITS IN CHAN CHAN, PERU. The intermediate units in Chan Chan are those units which are neither monumental units nor SIAR (small irregular agglutinated rooms). Intermediate units are generally small enclosures containing features characteristic of the other two units. The Valley of the Moon Valley, which is the area of interest, presents a classification of the intermediate units and an analysis of their relationship to other units on the site. Based on these data, the second part of the paper discusses the possible inhabitants of these structures, utilizing ethnohistoric data, and examines functional interpretations other than residential. (18)

Knudsen, Ruthann (Idaho) THE ANTON RYGH SITE, SOUTH DAKOTA, AND ITS SALVAGED INFORMATION. The Anton Rygh site (39CP), South Dakota, was a large Extended Coalescent village on the east bank of the Missouri River just above the mouth of the Grand River. The village was tested by William Duncan Strong in 1932, then more fully excavated by the writer in 1935 as a River Basin Survey project. The later excavations produced over 40,000 artifacts, most of which are ceramic but including extensive worked bone and lithic assemblages. A basic descriptive report of the excavations and their analysis, their distribution, and the criteria used in the reporting of the data, will be included. The report includes discussions of the lithic raw material procurement and production patterns, and bone tool production systems, matters infrequently included in ceramicly oriented Plains village studies. (45)

Kościński, D. (see Fehlrich, Bruno) (35)

Kraft, Herbert C. (Seton Hall) DELAWARE INDIANS ORIGINS IN THE DELAWARE VALLEY. Previous interpretations which characterize New Jersey sites in terms of New York State typologies as "Owasco" or "Iroquois-like" have deprived the Lenape Indians of any substantial heritage, and tended to show them as recipients of, rather than contributors to, the prehistoric cultural diversity of the Northeast. A decade of intensive archaeological excavations of deeply stratified sites, coupled with numerous radiocarbon dating studies, has demonstrated that prehistoric peoples have a long developmental history in the Upper Delaware Valley and contiguous areas. Moreover, this history is demonstrably different from that of the Owasco and/or Iroquois, although there are similarities in ceramics, making complexes, and other phenomena in the two areas. (16)

Krisly, D. M. (Queens, CUNY) APPLICATION OF SAND GRAIN SURFACE-TEXTURAL ANALYSIS TO ARCHEOLOGY. Certain sediment analysis techniques which permit the recognition of ancient environments are or could be used in archaeology. A relatively new technique, the analysis of the surface textures on quartz grains with the scanning electron microscope (SEM) and the X-ray energy dispersive spectrometer (EDS) is discussed. The surface relief observed on quartz sand grains is either physical or chemical in origin. Physical relief is the result of weathering or wind, rain, or wave action. Occasionally, more than one environment can be observed on a single grain of sand, permitting a great deal of detail to be obtained. Quartz grains from a number of localities at the Meadowcroft archaeological site at Avella, Pennsylvania were studied and compared with chert from various outcrops within a wide geographic area. It should be possible to determine the original location of many chert tools by observing surface variation at high magnification. (2)

Kress, Paula Homberger (Universidad Veracruzana) THE POTTERS OF TEOTIHUACAN. The existence of a thriving ceramic industry in urban Teotihuacan is indicated by the identification of some two hundred sites of probable workshops, concentrated near the two principal sources of clay, and in areas where other craft workshops appear to have existed. Evaluation of the workshops is based on the examination of the surface and subterranean kilns, and the surface survey teams reported unusual concentrations of a single ware or vessel type, the presence of possible potter's tools, or the remains of defective vessels. (44)
Kubler, George (Yale) THE PERPETUAL CALENDAR IN CODEX BORBONICUS ON PP. 21-22. Since 1880 numerous unsuccessful efforts have been made to explain the joining of one apparent Calendar Round marked by 52 year-bearer days in regular sequence, with an enigmatic sequence among the Nine Night Lords. This has been described as the failure of the precolumbian scribal, however, is a simple one. It is best explained by supplying proof that the puzzling sequence of the Nine Night Lords becomes a repeating series after the completion of two periodic expansions of the apparent Calendar Round. All conditions of mesoamerican calendrical computation are satisfied by this solution with the use of one assumption by J. E. S. Thompson in his description of the Night Lords. The solution proposed here for these two pages in Codex Borbonicus gives rise to no further problems intrinsic to the connection of the expanded Calendar Round with the Nine Night Lords, nor is the solution contradicted by any other primary source now known to students. (26, 27)

Kurjack, Edward B. (Western Illinois) PRECOLUMBIAN POLITICS AND COMMUNITIES IN NORTHWEST YUCATAN. Urbanism and state formation in the Precolumbian Maya lowlands can now be related in light of new information on complex urbanism and state formation in Yucatan, Mexico. Analysis of two critical variables - the nature of the Maya community form and the strength of its political organization - has elucidated the nature of Maya community form and distribution, two traditional concerns of concern and community pattern research. Changes in political-structural and population-level time can be seen in the community structural and demographic transformation during early construction; this procedure is a departure from the usual strategy of strategy. Small pyramids with a finite number of significant changes in the period of formal time dot the landscape, but large pyramids are found in fewer locations. This evidence from Yucatan suggests that the crucial aspect of state formation involves increased centralization of authority, including development of mechanisms by which the resources of household units are marshaled for use at increasingly distant locations. (28)

Kuttruff, Carl (University of Illinois) LATER WOODLAND SETTLEMENT AND SUBSISTENCE SYSTEMS IN THE LOWER KASKASKA RIVER VALLEY, ILLINOIS. The focus of this paper is the study of the Late Woodland culture in the Kaskaika River Valley, Illinois. A reconstruction of the prehistoric pattern of subsistence and settlement and the development of the complex of environmental factors that contributed to the structural and subsistence development for the Late Woodland of the Kaskaika Valley are presented in order to account for the observed patterns, their relationships as well as their environmental structural systems of the valley. The model is proposed to relate the subsistence and settlement that are constructed, a proposed model of Late Woodland social organization is derived and presented. It is intended to account for the settling of ancient land by the natural environment and the regulation and scheduling of and settlement and subsistence systems. (31)

Lafferty, Robert H., III (Southern Illinois) THE BLACK BOTTOM IN RELATION TO MISSISSIPPIAN SETTLEMENT. This analysis of large Mississippian sites indicates that these sites are a function of their space with reference to central place theory. A site is a structure that includes the land area and the adjacent river systems. This paper examines structural and spatial variables with reference to the principal theory and the implications of this in terms of specific structural systems of Mississippian artifactual units. The analysis suggests that for the Cahokia area was on the edge of the control of the Cahokia site. (42)

Lange, Frederick W. (Museo Nacional de Costa Rica) PREHISTORIC ADAPTATIONS: COASTAL GUANACASTE, COSTA RICA. Research since 1968 has focused on a comparison of coastal and adjacent inland settlement patterns in northeastern Costa Rica. Data from the upper Río Rivas and adjacent river systems suggest that this region is characterized by high levels of density and waterfowl. The relationship between social organization and the implications of this for the prehistoric ceramic circulation patterns of the coastal area are presented, augmented by recently completed work in the Sardinal River Valley, which connects a coastal and inland area. (43)

Lange, John (see Carbone, Victor) (13)

Lavin-New, Leslie (Colorado State) DUALITY IN ANCIENT MAYAN ECONOMICS. A dual economic system is a characteristic of present-day American Indian, especially in areas designated as Indian. The dual system can be described as local trade and long-distance trade. The localized trade area consists of a group of villages each specialized in producing either for specific subsistence or for specific export. The non-specialized areas of production are interspersed with non-specialized villages all focusing on a local market center. The long-distance trade exchanges a set of items, necessary items not found in the localized trade district, into the non-local market center. These items include non-local agricultural products, luxury goods, and non-agricultural goods. This model introduces the dual system to help explain the differences between the two systems in terms of quantity and quality of derived data are evaluated, and cost comparisons are presented. (19, 20)

LeBlanc, Steven A. (UCLA) INVESTIGATIONS IN THE MIMBRES AREA, NEW MEXICO. The second season's work of the Mimbres Archaeological Center in southwestern New Mexico is discussed. A major revision in the time frame of the Mimbres Branch sequence is suggested based on new tree-ring material. A summary of the post-Mimbres occupation of the area is considered in light of survey and excavation material. (29)

Leichtman, Heather (Massachusetts Inst. of Technology) THE ARCHAEOLOGY OF METALLURGY. A general discussion of some of the more important features of early metallurgical technologies (processes such as smelting and alloying), the field evidence likely to be encountered at sites where such metallurgical activities took place, and the laboratory methods available for the interpretation of the archaeological remains. Examples will be drawn from the Mimbres culture. (32)

Lemann, Kevin (Tulsa) THE USE FOR A PROTON MAGNETOMETER AND AUGER SUMPING IN AN ARCHAEOLOGICAL SETTING. MS12 is a site in eastern Oklahoma with evidence of extensive copper smelting activities. The site dates to the Late Archaic period, the site dates to the Late Archaic period. This report describes efforts to establish the spatial limits and density of the cultural deposit at the site and the use of a proton magnetometer survey. A comparison of the magnetometer data with complementary data obtained through the use of a power auger is presented also. (41)

Lee, William B. (Tulsa) A FUNCTIONAL ANALYSIS OF EIGHTEENTH AND NINETEENTH CENTURY OSAGE GUN BARNEL SECTIONS. Short sections of gun barrels are an integral part of the assemblage of all pre-1850 historic Osage sites. No definite conclusions can be drawn from these sections as to the role of Osage gun barrels in Osage society. A functional analysis of the distribution of Osage gun barrel sections from Osage sites in Oklahoma and Missouri is presented, with comparison between sites and time periods. Calibers and barrel types of the sections are examined also. (45)

Lipe, William D. (Northern Arizona) TRAINING ARCHAEOLOGISTS IN RELATION TO CULTURAL RESOURCE MANAGEMENT PROGRAMS. Cultural resource management programs are a major field of employment for professional archaeologists. Yet traditional graduate programs in archaeology do not provide the necessary training for this non-academic type of employment. Weaknesses in existing programs are discussed and various changes and revisions in existing programs and procedures in the training of professional archaeologists are suggested. (6)

Lipe, William (see Grady, Mark A.) (31)

Littke, John R. (Depl. of Interior) FEDERAL PROCUREMENT REGULATIONS: ADVERTISED BID VERSUS NEGOTIATED PROCUREMENT. This paper will address the various kinds of Federal procurement contracts emphasizing the advantageous provisions of procurement by negotiation extended to educational institutions and other scientific houses. Such procedures, although ignored in the past, are required by the Code of Federal Regulations and thus are mandatory for all Department of Interior agencies. Significant favorable qualifications of the negotiated form of procurement are as follows: (1) acceptance of the best quality research for the money, (2) must be multiple offers, (3) free and open competition, (4) research requirements specified, (5) an award of contract may be negotiated at the stage of work progresses, (5) acceptance of lowest budget not required, and (6) the announcement must be widely circulated. (13)

Loose, Richard W. (NPS) THE CHETLO KETL FIELD: APPLIED PHOTOGRAMMETRY IN CHACO CANYON NATIONAL MONUMENT. Several exploratory remote sensing techniques have been applied to a prehistoric agricultural field in Chaco Canyon National Monument in northwestern New Mexico. These methods include nuclear densitometer and radar profile maps, thermal infrared line scan maps, and conventional photogrammetric maps generated from controlled aerial stereo pairs. These maps were useful in defining a grid on the map and systematically locating the field. The results found on the ground are essentially in planning excavations which were carried out in the summer of 1974. Final results showed that the prehistoric field was a carefully planned and "hydraulically engineered" feature. (15, 29)

Lott, A. (see Faught, D.) (2)

Lutz, Michael J. (see Green, Dee F.) (19, 20)

Lyon, Thomas (NPS) PHOTOGRAMMETRIC MAPPING AND DIGITIZING OF PREHISTORIC PUEBLOAN ARCHITECTURE IN CHACO CANYON NATIONAL MONUMENT, NEW MEXICO. Eighteen major Chacoan architectural sites have been mapped photogrammetrically. The purpose, procedures, results, and applications of the project are explained. The differences between this method and on-the-ground mapping in terms of speed and accuracy are examined. Cost comparisons are also presented. (19, 22)

Lyon, Thomas R. (see Schalk, Randall F.) (19, 20)

Lyon, Thomas R. (see Loose, Richard W.) (19, 20)

MacKay, Robert C. (see Sanger, David) (22)
Magers, Pamela C. (Arizona) NAVAJO SETTLEMENT IN CANYON DEL MUERTO. Using data from an intensive survey of Canyon del Muerto (Monument), this paper examines the changing relationship between the Navajo and their physical and social environments from the eighteenth to the middle twentieth century as reflected in inter- and intra-settlement patterns. Emphasis is placed on the effects of increased stress on the carrying capacity of the canyon environment as human and domestic animal populations increased dramatically since the initial settlement. (4)

Magnus, R. W. (Banco Central de Nicaragua) THE PRE- AND POST-CONQUEST CULTURAL ECOLOGY OF THE ATLANTIC COAST OF NICARAGUA: A CONTRAST. The pre-Columbian archaeological data for the Atlantic coastlines of Nicaragua suggest an entirely different human subsistence pattern than is seen in ethnographic documentation and among the modern peoples of the zone. Rather than having a very strongly oriented economy, the pre-Columbian inhabitants apparently lived poor resources as a secondary food source. It appears that their economy focused on hunting and gathering, with agricultural activities limited to a small number of specific crops. This pattern is reflected in the archaeological record and contrasts sharply with the agricultural traditions of the modern peoples. (14)

Majewski, Tereza (Missouri-Columbia) ETHNOHISTORIC DEMOGRAPHIC DATA AND ITS ARCHIVAL APPLICATION: A GUATEMALAN EXAMPLE. Sixteenth-nineteenth century census data is examined for several "tierra caliente" communities on the Caribbean drainage system of Guatemala. A model is proposed, based on the ethnohistoric data to relate demographic trends and settlement pattern to archaeological data for the same area. (12)

Malone, Marilyn (Forest Service) AN ANALYSIS OF CERAMIC ATTRIBUTES AND DENDROCHRONOLOGICAL DATING, ELK RIDGE, SOUTHEASTERN UTAH. Excavated sites from three areas in the Elk Ridge region, southern Utah, were analyzed to determine the role of dendrochronological dates in stratigraphic context with dendrochronological dates. These collections are examined for a set of attributes, including temper, type of paint, paste composition, design style, and surface treatment. Analysis includes the use of the Munsell Color Chart and x-radiographs, and the spatial and temporal variation in each attribute is discussed. Using this information, the validity of each attribute in defining ceramic types is analyzed, and modifications proposed for the existing typology of the area to produce types which have demonstrated cultural relevance. (29)

Manire, Larry (Arizona State) COMPUTORIZED SURVEY RECORDING SYSTEM. A totally computerized process that employs a microcomputer to record field data and photographic information, for the survey of Canyon del Muerto, Arizona is discussed in terms of recording procedures, routine reports, and the output of the machine. This system allows for a separation of the field work and the analysis within and without the National Park Service. The development of the system and the changes instituted on the basis of field and user experience are discussed. (42)

Markham, Charles W. (North Carolina) SURVEY OF SETTLEMENT PATTERNS IN THE MICHUATLAN VALLEY, OAXACA, MEXICO. Investigation of prehistoric and historic sites in the Michuatan Valley were aimed at understanding various factors governing the growth and distribution of human population in this region. Factors considered include: (1) the relationship between site number, density, and size, and the relationship between different types of site, (2) the socio-political, economic, and ceremonial relationships between human communities in this region, and (3) the relationship between communities in this region and those in other parts of Mesoamerica. An investigation of site distribution, site formation, and site interaction, to determine the patterns of population in this region. The model proposes a predictive model of population and occupational productivity. This model was tested with an actual survey of archaeological sites. (23)

Marmaduke, William S. (Texas-Austin) CULTURAL PATTERNS IN THE PREHISTORY OF TRANS-Pecos supported by a grant from the National Science Foundation. The results of this recent program of survey and limited testing of sites within an environmentally restricted area along Bear Creek in trans-Pecos Texas has suggested some new interpretations of the early prehistoric history of the region. This is a small part of a larger project on the early prehistory of the area. (245)

Marquardt, William J. (Missouri-Columbia) PROSPECTS FOR REGIONAL COMPUTER-ASSISTED ARCHAEOLOGICAL INFORMATION RETRIEVAL. Computers can be of unquestionable value in the areas of data processing, statistical analysis, simulation modeling, and information and data storage/retrieval (5). Examples of some successful systems in archaeology are mentioned. Curating a scholarly responsibility, includes proper storage, preservation, and accessibility. Although the notion of large-scale archaeological data processing and computerization efforts toward their implementation would be a good investment at the present time. Data s/r and information s/r are distinguished. It is argued that computer-assisted research in s/r is practical and necessary for the kind of research that encourages continuing research. (22)

Marrinan, Thomas R. (Florida State Museum) ARCHAEOLOGICAL INVESTIGATIONS AT CANON DE LOS POINTE: THE LATE ARCHAIC ASPECT. Human dependence on the resources of the tidal creek and salt marsh biotopes characterizes the Late Archaic Period on the Georgia coast. Excavations at Cannon de los Poinle, St. Simon's Island, Glynn County, Georgia, have provided a time range of 2400-15 B.C. for two shell rings sites in the project area and provided information on subsistence base and cultural developments during this period. The materials recovered posed questions regarding seasonality and extraregional affiliations. Analysis has indicated that a spring-fall occupation is a distinct possibility based on floral and faunal materials. Ceramic analysis indicates early developments of Orange Period decorative motifs. (28)

Matheny, Ray T. (Bingham Young) THE PROBLEMS OF TRAINING IN A UNIVERSITY UNDERGRADUATE DEGREE. An M.A. program is often torn between a generalist approach and the need to provide professional level training. It is often stated that an M.A. only program cannot provide the necessary combination of academic training and professional training. The final separation between the two levels of degree is compensated for the brevity of their programs by providing some type of special experience. The Brigham Young University program is discussed in detail. (8)

Matos Mootzuma, Eduardo (INAH) RELATIONSHIPS BETWEEN TEPEAPOLCO AND TEPOTLAHUACAN. The Department of Prehispanic Monuments is carrying out investigations in the area of Tepeapolco, Hidalgo. This site is located on the eastern edge of the commercial routes to the Gulf Coast during the Teotihuacan era. Moreover, Tepeapolco presents interesting characteristics which preliminary salvage reconnaissance has indicated and they are: a ceremonial center similar to Teotihuacan; a habitation area; possible existence of lithic factories; water reservoirs, etc. (17)

Matson, Frederick R. (Pennsylvania State) WHAT IS THE QUESTION? QUAMIGRES IN CERAMIC TECHNOLOGY. Ceramic problems may be culturally defined before extensive technological efforts is expended. The many treatments clays have suffered at the hands of potters throughout the world is now in the possession of chemists. This paper proposes a method of describing the characteristics of various types of ceramic. Those that may supply information useful in better understanding either past cultural activities, or the degree of technological ceramic control achieved at the time they were made, are worth studying. Examples will be cited of successful and unsuccessful studies. (52)

Mauger, Jeffrey E. (Washington State) THE PREHISTORIC HOUSES AT OZETTE. At Ozette, a village winter site of the Makah Indians on the Olympic Peninsula of Washington State, a series of mounds buried a number of traditional shed roof houses. Waterlogging of the mounds caused the recovery of thousands of structural remains including boards, planks, timbers, sleeping benches, and associated architectural features. To date, two houses have been recovered and two others sampled in an earlier component of the site data. The site was occupied at intervals by different groups of people over a period of times. The archaeological remains recovered at Ozette allow a detailed reconstruction of the houses and their architecture. Repair and rebuilding techniques can be defined, and syntheses of social changes may be examined. Architectural stylistic variations and historic components of the site allow an examination of the innovations in this type of architecture through European contact. (10)

McCafferty, Allen R. (Arkansas) INCREASING ARCHAEOLOGICAL AWARENESS IN ARCTIC CANADA. This paper deals with the area of land claims preparations, concern for mineral and petroleum exploration, and the need for the preservation of human and cultural resources in the Northern regions. It is well known that the Arctic regions of Canada must be particularly sensitive to native desires for cultural preservation. Museum functions and archaeological interpretation are becoming increasingly relevant as a productive response to Westernization. Information collected from local, regional, and national Inuit organizations during 1975 has been used in formulating research designs and procedures for the Thule Archaeological Conservation Project. This multidisciplinary research project is designed to facilitate the recovery of archaeological remains which have so far been identified and the implications of these data for archaeological investigation at Tepotihuacan, in the Central Highlands of Mexico, and in Mesoamerica in general are considered. (44)

McClung de Tapia, Emily S. (Brandeis) PALEOEThNOBOTANICAL INVESTIGATION AT TEPOTLAHUACAN, MEXICO. The separation and analysis of identifiable botanical remains present in prehistoric occupation materials at Tepotihuacan, Mexico, has important applications to the study of prehistoric subsistence agriculture and economy. The importance of flotation techniques for the recovery of such remains is highlighted. A discussion of the implications of these data for archaeological investigation at Tepotihuacan, in the Central Highlands of Mexico, and in Mesoamerica in general are considered. (44)

McCormick, Elin (US Navy College, Corliland) DEGREES OF SEDENTISM. THE EASTERN WOODLAND IN CONTEXT OF GROUP RELATIONSHIPS. The Eastern Woodland areas of group relationships are examined from the standpoint of the Eastern Woodland in context of group relationships. Related site clusters, nuclear settlements with outlying hamlets, and other site clusters are analyzed in this context. Genetic and cultural affinities, in examples, are explored. (7)

McDonnell, Elin (US Navy College, Corliland) MESOAMERICAN DEGREES OF SEDENTISM. The Eastern Woodland in context of group relationships are examined from the standpoint of the Eastern Woodland in context of group relationships. Related site clusters, nuclear settlements with outlying hamlets, and other site clusters are analyzed in this context. Genetic and cultural affinities, in examples, are explored. (7)
McNett, Charles (American) COMPUTER GRAPHICS IN THE ANALYSIS OF AN EASTERN PALEO-INDIAN SITE. Much attention has been given in archaeology recently to the problem of determining the significance of spatial groupings in archaeological data. Such locational analysis, while extremely useful, has failed to make use of recent advances in computer graphics to display the research results. Such workers as H. Martin Wobst and Jonathan O. Davis have recently prepared graphic programs, using either the line printer or the Cathode Ray Tube, to graph great promise in graphic display. Recently and numeric data from the Shawnee Misinlinsk Early Man site in Eastern Pennsylvania are given. (19, 20)

McVicker, Donald E. (North Central College) APPROACHES TO THE MURAL ART OF TOTIHAACAN. A CRITICAL ESSAY. This paper will review a number of different approaches which have been used to analyze and interpret the mural paintings of Teotihuacan, Mexico. Four approaches have been somewhat arbitrarily designated for the purpose of discussion. These are: iconographic, formal, anthropological, and symbolic, cognitive. This review will point out some of the strengths and weaknesses of these approaches, and offer some suggestions and cautions for future research. (21)

Merwe, Nikolaas J. van der (see Vogel, J. C.) (23)

Misko, Charles H. (Arizona) ARCHAEOBOTANICAL INVESTIGATIONS FROM THE BLACK MESA PROJECT. Archaeobotanical investigations were a major focus of the Black Mesa project in the eighth field season of its continuing work on Black Mesa, Arizona. flotation samples from three sites (two Dinébííllo phase sites—A.D. 875-1000, and one Webo/Lomoki transitional site—A.D. 1000-1500) will be discussed in terms of seasonality, palynology, and differential cultural adaptations. An extensive survey of the modern vegetation will be utilized to provide input into the seasonal and spatial availability of various botanical resources and to reconstruct the environment of the Kayenta Anasazi. (24)

Milanich, Jerold T. (Florida State Museum) THE RADIOCARBON-DATED ABORIGINAL CULTURE SEQUENCE FROM ST. SIMONS ISLAND, GEORGIA—2240 B.C. TO A.D. 1650. The University of Florida has completed analysis of archaeological materials from its three-year project on the Georgia coast. A detailed ceramic sequence has been established, using radiocarbon dates (calibrated) on materials from eleven sites (Rachlinski Laboratory). The resulting culture history is presented and comparisons are made with other Southeast Atlantic coastal strand sequences and with other regions in the Southeast. (26)

Miner, Rick (see Aikens, C. Melvin) (34)

Mitchell, Robert (Southern Illinois-Edwardsville) NEW PERSPECTIVES ON PUEBLO MINERAL UTILIZATION. Little attention has been focused on mineral utilization among the puebloans, particularly with respect to cultural interaction (i.e., gathering and/or mining and using materials from outside the site). This study attempts to bridge the gap between sites and known mineral deposits. Obviously, geologically known deposits and those that were aboriginally exploited do not necessarily correspond; some deposits may have been missed or unidentified, while others may be presently unknown. Available information supports a number of positive conclusions concerning the data. Finally, the study affords suggestions for data collection techniques which will improve the potential for positive results. (22)

Moeller, Roger W. (American Indian Archeological Institute) “MUNSEE” SEASONALITY IN THE UPPER DELAWARE VALLEY OF PENNSYLVANIA. This paper presents new evidence on the seasonality and settlement pattern of the so-called Munsee of the Upper Delaware Valley during the Late Woodland (100 B.C. to 1500 A.D.) period. Both radiocarbon and oral traditions within features at the Fauckett site in Bushkill provide evidence of a floodplain occupation beginning in mid-summer and ending in late fall. These data suggest intensive processing of seasonally abundant wild plants and, to a lesser degree, animals. Possible causes of data skewing and the formulation of a modified research design for confirmatory evidence are also discussed. (36)

Montel-White, Anita (Kansas) VARIABILITY OF LATE PALEOETHICS OF SOUTH CENTRAL EUROPE. The study includes assemblies from several sites located in and around the Panonian Basin of South-Central Europe. Among these sites are: a large camp of stone flake industry from Badacsony, several stone industry sites from the Archives, and a number of sited occupation stations occupied for no more than a few days; a probable workshop. A system model is used to analyze and display the variability within and between artifact assemblages from these sites. Two principal methods are used: (1) to determine the “statistical properties” or characteristics of the sites; (2) to recognize the elements characteristic to the late paleoethnobotanical tradition in the area. (40)

Morden, Pamela (Eastern New Mexico) THE DEVELOPMENT OF AN ARCHAEOLOGICAL DATA RECORDING SYSTEM. This paper traces the evolution of a data recording system for the new staff and compilation of a dictionary of terms, to use in a production environment, and finally the inception of a total systems approach. The form developed by the San Juan Valley Project Data Processing Lab for the New Mexico State Archaeological Council will be used as an example throughout in an attempt to illustrate the procedures, problems, and possibilities of computerizing archaeological data. (43)

Morris, Don P. (Western Archaeological Center) THE COMPUTER IN MANAMENTS AND RESEARCH. CANYON DEL MUERTO SURVEY. Applications of computer graphics and photographs to an archaeological survey in Canyon de Chelly are described. A technique for deriving and verifying site location utilizing aerial photography, ortho photo maps, and U.S.G.S. maps is presented and evaluated in terms of its particular utility for cultural resource management in a region in which it can be assumed that preservation of the resource will continue. A variety of outputs and graphics displays available from this data are briefly discussed. (19, 20)

Morris, Don P. (see Manire, Larry) (42)

Morris, Elizabeth Ann (Colorado State) ARCHAEOLOGICAL SURVEY OF THE ROCKY MOUNTAIN REGION. A WESTERN ARCHEOLOGICAL SURVEY. An archaeological survey of the right-of-way of a Public Service of Colorado transmission line indicated unusual soil density in high mountain valleys on both approaches to Angelina Pueblans and artifacts of aboriginal materials were found. Late prehistoric materials were found. Specimens were primarily flaked quartzite and chalcedony, with ground stone coming from one site and Plains affixed ceramics from another. Prehistoric artifacts were found. The survey included test trenching and excavation of one site. One site was found. The site was on the west side of the Angelina Pueblans. The type of tool working and game preparation. Others are single component or multi-component occupation sites, reflecting seasonal harvesting of floral and faunal resources. (45)

Moure, Alfonso (see Cano, Mercedes) (40)

Mulinski, Thomas (Indiana) THE USE OF FETAL MATERIAL AS A MEASUREMENT OF STRESS AT GRASSHOPPER PUEBLO. While demographic investigations are becoming more prevalent in studying the dynamics prehistoric society, it is also becoming clear that this conceptually there are two types of approaching population size, structure, and distribution i.e., demographic variables can be viewed as either dependent or independent. This paper argues that demographic variables are indeed the result of environmental (physical, biological, and socio-cultural) factors and are observable as measures of environmental stress. Furthermore, a series of hypotheses concerning the aggregation and abandonment of a large prehistoric southwestern pueblo, Grasshopper Ruin, in east central Arizona will be constructed. These hypotheses will be tested against some of the available data and not to attempt a thorough examination of these hypotheses but to show the possibility of using information of fetal individuals as well as other populations in point out the utility of other biological measures in assessing a population response to stress. With respect to Grasshopper Pueblo, of 530 individuals analyzed so far in preliminary fashion only, 37 (6.9%) of them are the remains of fetuses; another 20 (3.7%) are either late term fetuses or neonates; all of the subadults combined account for 61.4% of the skeletal sample. The percentage of fetal individuals present suggests rather adverse environmental conditions. However, these data alone do not seem to support the idea, as suggested by the fetal and faunal evidence, that there was more stress earlier in the occupation of the site than later. (5)

Muller, Jon (Southern Illinois) KINCAID SITES AND SOUNDINGS. ARCHAEOLOGICAL RESEARCH, 1967-76. The research program of the Black Bottom Project of the Southern Illinois University Field School in Archaeology has resulted in an unusually complete and detailed archaeological survey of the times in the Kincaid Trench phases of the project, which still continues, is aimed at achieving virtually total site location survey for the Kincaid site environs. The survey is virtually complete for the Black Bottom surrounding Kincaid, but survey is being continued with a sampling of areas farther away from the central site. A second phase of research is beginning to test ideas about the nature of the relationships of the inhabitants of the various sites around Kincaid to each other and to the central site. Surface remains of different nature, from small to medium size sites suggest that Mississippian population size in the Kincaid community was similar to the societies described by the first European explorers elsewhere in the Southeast. (42)

Munson, Patrick J. (Indiana) CHANGES IN AND RELATIONSHIPS OF SUBSISTENCE, SETTLEMENT, AND TURF UTILIZATION IN THE CRESCENT DUNES. Changes in resource zone utilization and site densities in the central Illinois River valley from Middle Woodland through Late Woodland are examined within the larger framework of the rise of farming in the midwest. It is suggested that the changes seem to be paralleled throughout the Midwest and perhaps most of eastern North America, are marked by two major points of inflection in settlement, one occurring during Early Woodland and another one occurring in Late Woodland. It is hypothesized that there is a major role of these changes in the utilization and settlement in the area. The paper is designed to correlate primarily or entirely with the appearance and role of food production. (9)

Neff, Jeffrey M. (Arizona State) PERSPECTIVES ON THE MANAGEMENT OF ARCHAEOLOGICAL DATA. The computer has opened new possibilities in the use of archaeological data. Data that has long lain dead and forgotten on a field crew or site survey file may
be made available to the archaeologist for his use through the use of computer techniques; indeed, it is the use of computer programs that sets this work apart from the more traditional methods of data collection and analysis. The project is designed to make the most of the available resources, including the expertise of the archaeological community, to provide a comprehensive and in-depth understanding of the population of the past. The project is currently in progress and will be updated regularly with new findings and insights.

Nelson, Sarah M. (Denver) REEXAMINATION OF COLORADO WOODLAND POTTERY. Since the original "typology" of High Plains Woodland pottery was created on an intuitive basis, this project seeks to reexamine the typology by incorporating the latest ceramic analysis and archaeological information into the typology. Details of the study have been determined through a comprehensive analysis of the pottery, using X-ray and optical microscopy. The study of these features and variables will create a revised and more accurate typology.

Netterley, Patricia J. (SUNY College at Fredonia) CHIMOR CONQUERED: THE INCA OCCUPATION OF THE CHIMU KINGDOM. This paper examines the impact of the Inca Conquest on the populations of the Central Valley from pre-Columbian times to the present. The study uses Spanish documents and field research to provide a comprehensive overview of the impact of the Conquest on the region. The study will be published in a forthcoming volume of the Journal of Latin American Archaeology.

O'Brien, Patricia J. (Kansas State) KANSAS CITY AREA SETTLEMENT PATTERNS. This paper compares the settlement patterns of the central region of Missouri with the surrounding areas. The study uses a combination of archaeological evidence and historical data to provide a comprehensive overview of the settlement patterns in the region. The findings will be published in a forthcoming volume of the Journal of Historical Archaeology.

O'Connell, Barbara Heminger (Northwestern) ADAPTIVE EFFICIENCY IN THE LOWER ILLINOIS VALLEY: FLUCTUATING ASYMMETRY AS A MEASURE OF DEVELOPMENTAL STABILITY. The fluctuating asymmetry traits are a potential useful means for assessing the adaptive efficiency of hominid populations. The use of fluctuating asymmetry as a measure of developmental stability is correlated with indices of the risk of developmental errors and developmental instability. The study will be published in a forthcoming volume of the Journal of Biological Anthropology.

Osborn, Stanley J. (Arizona) DOMESTICATED ANIMALS IN PREHISTORIC SOUTH-WESTERN NATIVE NATION. The study of dogs and their role in prehistoric communities is a significant area of research. This study focuses on the domestication of dogs and their role in prehistoric communities of the southwestern United States.

Osborn, Alan (New Mexico) ACONITE AND OLD SLAVES: A SUGGESTED EXPLANATION. Lithic resource utilization. As early as 1911 Olaf Rynge pointed out the similarity between ground stone lithic assemblages of northeastern North America and Scandinavia—specifically Norway and Sweden. Since that time some other similar material implementations in the Canadian North Coast, the Aleutian Islands, Eastern Russia, China, and Lake Baikal in interior U.S.S.R. Most of the discussions concerning these state tool assemblages have focused upon the problem of "processing." These presentations are endeavors to separate the technology and its subsistence functions from the technology. Recently the authors of this paper have been working with these assemblages. This paper is an argument for the shift in lithic material and assemblages based upon the exigencies of early sea mammal hunting by hunter-gatherers living between 40° and 70° north latitude and the use of plant alkaloids poisons such as aconite.

Osa, Paul P. (Saratoga) THE ILLUSTRATION OF CHIPPED STONE ARTIFACTS IN ARCHAELOGICAL REPORTS. The paper attempts to illustrate the process of chipped stone artifact analysis and the production of the reports. The analysis is based on the illustrations and photographs provided. The illustrations should be standardized, often uncommunicative, and clearly illustrated. Archaeological reports illustrate that the production of the illustrations is developed and some standard procedures are proposed.

Otero, Lorraine M. (American) OPHIDIAN CHARACTERISTICS AS A CLUE TO UNDERSTANDING OLMEC ICONOGRAPHY. This paper proposes that the general acceptance of an early based Jaguar Cult and its evolution into later serpent/feathered serpent/rain cults obscures the role played by the reptile in Olmec iconography. By assigning a developmental sequence that begins with the jaguar and explaining later deviations from this image, the author provides a new perspective on Olmec iconography. The findings have been determined through the analysis of various Olmec jadeite elements in contexts previously assigned to the jaguar. The author suggests that further analysis is needed to confirm the findings.

Paley, Richard A. (see Dirst, Victoria) (4)

Parmalee, Paul W. (Tennessee) THE AYAVUSA FROM PREHISTORIC ARAKIA SITES IN SOUTH DAKOTA. During an approximately 15-year period from about 1050 to 1965, numerous anthropologists representing at least a dozen institutions were involved in archaeological salvage of Plains sites in the middle Missouri Valley. In most instances, the cultural aspects of subsistence and the utilization of native fauna in general were of no particular interest, and the vast quantities of then-available midden fauna were not adequately sampled. Nevertheless, some animal bones were salvaged, and this discussion involves the study of the avian remains from 12 prehistoric Arakia sites along the Missouri River. Of the 2,258 bird specimens representing 135,530 specimens, 10,402 birds were identified. Although mammals, especially the bison, elk, deer, and pronghorn provided the greatest quantity of meat in the diet of these people, birds were of special significance as supplemental food (e.g., waterfowl, grouse) and because of the part they played in the cultural and ceremonial activities of the Plains Indian. The predominance of remains of such groups as eagles, hawks, falcons, owls, and ravens in these sites is indicative of some significance. In some instances, in fact, data for some avian specimens in the Memorial Museum and the Museum of the Dakotas, can be correlated with ethnographic accounts dealing with the utilization of birds. (25)

Pearse, Deborah M. (Urbana) PRELIMINARY REPORT OF THE BOTANICAL ANALYSIS OF REAL ALTO, ECUADOR. This paper presents the preliminary results of the site QOSCHUICHI and its site QOSCHUICHI. This study of the botanical evidence from these sites in the Chanduy Valley, Ecuador, is presented as a demonstration of the potential for archaeological research. The results show evidence for the utilization of a variety of plant species, including maize, beans, and squash. These results are significant for understanding the dietary patterns of the prehistoric peoples of the region.

Pieroni, Lloyd M. (BLM, retired) WHAT'S WRONG WITH CULTURAL RESOURCE MANAGEMENT IN WASHINGTON? This paper discusses the current state of cultural resource management in Washington and identifies areas for improvement. The author suggests that the current system is often too focused on compliance and not on the cultural values of the affected communities.

Pippin, Lennie C. (Washington State) ARCHAEOLOGICAL INVESTIGATIONS AT GUADALUPE PUEBLO, SANDOVAL COUNTY, NEW MEXICO. The initial occupation of Guadalupe Pueblo, a dual occupation site in the middle Rio Puerco Valley, represents a Chacoan satellite community. This paper presents the results of a detailed archaeological investigation of this site, including the analysis of artifacts and features. The findings suggest that the site was a satellite of Chacoan "town" sites and was probably a preplanned community that maintained networks of communication with the Chaco Puebloan sites.

Popish, Linda (NPS) STYLES OF ROCK ART IN CANYON DEL MUERTO. Computerized data from the 1975 National Park Service survey of Canyon del Muerto, Chacoan Chelly, were used to investigate the distribution of rock art styles. The styles were defined by detailed analysis of the content and the technique of the art. The results strongly support the hypothesis of a complex temporal and spatial location of sites, in order to test hypotheses of social interaction system. (29)

Porter, James W. (Loyola) THIN SECTION ANALYSIS OF CACHOA AREA CERAMICS. The petrographic microscope is used to study the deposition of the features. The
praise identification of mineral and/or organic constituents found in the pottery allows the researcher to suggest various archaeological explanations for the artifacts observed. The presence of grog tempering in the Mississippi River valley provides a wealth of data for speculation regarding the reuse of pottery as temper. A shift to shell tempering is viewed in its functional aspects and points to a technological innovation by prehistoric potters, allowing them to utilize a wide variety of materials for paste with less fear of failure. Experimentation with fired test tiles of local mud sources has been useful in reconstructing the appearance of prehistoric pottery bases. The results of these studies are published in the documentary record. (16)

Pozorski, Sheila (Texas-Austin) LATE PREHISTORIC LLAMA REMAINS FROM THE MOCHE VALLEY, PERU. A study focusing on subsistence through time and space within the Moche Valley resulted in large collections of llama bone from sites dating to the Early Intermediate period, Middle Horizon, and the Late Intermediate period. Using contextual information available on the basis of bone type, bone presence, and bone location between sites studied, cultural alteration of bone fragments is examined. Burnt bone proportions are correlated with cooking practices. A method for butchering birds is interpreted as evidence of metallurgical activities. A method for reconstructing ancient methods and procedures for meat processing. (16)

Pozorski, Tom (Texas-Austin) CHRONOLOGY AND SOCIETY AT CABBALO MUERITO, PERU. Excavations during 1975 and 1976 shed new light on the early complex known as Cabello Muerto, located in the Moche Valley, Peru. Evidence indicates that the society was more complex and organized than previously thought. The site was used as a ceremonial center and based on architectural and ceramic characteristics. A developed, ranked society is seen to have constructed the mounds. The time range for the complex is during the initial period and early Horizon. It is noted that the site is one of the few sites in the Northern Peruvian coast. (18)

Price, James E. (Missouri-Columbia) CURRENT RESEARCH ON THE POWERS PHASE SETTLEMENT SYSTEM. Recent field reconnaissance and excavation have yielded data on the development and decline of the Pueblan II phase. Evidence indicates that the development was relative to the rise of social inequality, localism, and spoils targets, and critical resources. Excavation of small limited activity sites has provided insights to the role of such sites. The Pueblan II phase settlement system. (15)

Prindiville, Mary (see Storer, John H.) (26, 27)

Pring, Duncan (Cambridge) EXCAVATIONS IN NORTHERN BELIZE, 1975-1976. Descriptive presentation of recent excavations at Prec邠as and Classic Maya sites in the north and south of the area. The fourth and fourth excavation seasons of the British Museum/Cambridge University Project. (12)

Puleston, Dennis E. (Minnesota) EXPERIMENTING WITH THE ECOLOGY OF A COMPLEX PREHISTORIC AGRICULTURAL SYSTEM. The archaeology of an irrigated flood plain agricultural system utilized by the ancient Maya provides us with a limited understanding of the significance of ecological experiments. Part of the evidence suggests that the interaction between crops and plants was manipulated by the ancient Maya. This interaction is the focus of the current study. Understanding the ecology of the system seems to be a major factor in the symbolic logic of the prehistoric civilization as it is a part of its mythologies and iconography. (16)

Purdy, Barbara A. (Florida) THE APPLICATION OF INSTRUMENTAL TECHNIQUES TO PREHISTORIC STONE REMAINS OF FLORIDA. An effort to determine whether people in Florida were seasonal hunters or permanent residents during the Paleo-Indian period. The use of these techniques is discussed. Results from a limited sample indicate that the archaeological remains studied were manufactured of non-Florida materials. These investigations need to be expanded in order to ascertain if this situation is the rule or the exception. (18)

Rackersby, Frank (Southern Illinois) THE SELLING OF KINGDOM: PUTTING THE SITE IN THE STRATEGY. The site of the Yucatan peninsula was excavated extensively; it was generally believed that the site was abandoned after the collapse of the early Maya. During the late 1950s attempts were made to buy this important site in the public domain. This has finally been achieved. The history of the attempts to acquire the site and its future development will be discussed. (42)

Ramsey, James R. (Vanderbilt) ILLUSTRATIONS OF PORTABLE ART IN THE MIXTEC MANUSCRIPTS. In previous research the author has attempted to characterize areas within the corpus of Mixtec minor arts, including ceramic vessels and sculpture, gold, jade, and textiles. The study of art works in the Mixtec manuscripts may be compared with actual surviving works from the style areas. Relationships between individual manuscripts and specific areas may be noted. A method and a technique are given for connecting the Mixtec manuscripts with illustrations of portable art forms. The limitations of this approach form a significant part of the study of religious manuscripts which contain illustrations of art forms which do not correspond to surviving works. Proveniences may not be demonstrated in such cases, and one must conclude that the manuscript painters depicted forms not known through excavation, or that they created new designs. (26, 27)

Randall, Anthony J. (Temple) A REAPPRAISAL OF THE MONAGRILLO SHELL-MIDDDEN, AN EARLY CERAMIC SITE ON THE PACIFIC COAST OF PANAMA. Research reported by Willey and McGimsey in 1954 (The Monagrillo Culture of Panama, Peabody Museum Papers, vol. 45, no. 2) established the monagrillo ceramic complex of central Panama as one of the earliest in the New World. Questions about the subsistence base associated with this early pottery prompted the excavation of the Monagrillo site during the summer of 1975. Excavation was placed on the following phases: (1) recovery of faunal and botanical remains, including charcoal, and (3) collection of sediment, pollen, and shell column samples. This paper reports the results of the research. (14)

Rattray, Evelyn (INAH) CULTURAL INTERACTION BETWEEN TEOTIHUACAN AND THE VALLEY OF OAXACA INDICATED BY CERAMIC PASTE ANALYSIS. No abstract received. (11)

Rattray, Evelyn (INAH) TEXTILES FROM TEOTIHUACAN TRADE WARS. A study of the textiles and their recent use in the region of Central Mexico. Excavations at Teotihuacan have yielded significant information on the developmental sequence of Thin Orange Wares as well as their use in the region. (11)

Reaves, Roy W., III (NPS) COMPETITION IN THE ROLE OF CONTRACT AWARD: This paper will address the means of advertising contract work through the Commerce Business Daily and the circularization of the Seals of Contract Awards. Once the proposal responses are received, they will be evaluated in terms of four criteria: (1) organizational capability to conduct the research, (2) feasibility of budget and work scheduling, (3) method of research, and (4) feasibility of budget and work scheduling. The review procedure, once the research design proposals are received by the Interagency Archaeological Office, involves a first evaluation of the proposals, followed by the second evaluation of the proposals, and the secondary evaluation of the proposals. In special cases, federal-consultant reviews are utilized in all cases; the highest decision of award will be the Contracting Officer. (27)

Redman, Charles L. (Binghamton) MULTIVARIATE, NESTED APPROACH TO ARCHAEOLOGICAL DATA. The use of classification, regression, and analysis, and the foundations of analysis art are discussed in relation to the use of unique data sets. Archaeological data exist in a form that can be recorded according to a series of independent behavioral variables. The nature of the data and the characteristics of the information recorded have implications for future research. The archaeological record is organized into a nested system. The various categories of information must be collected in a way that analysis can combine both, architectural, and depositional form, as well as integrating unit by unit data. (13)

Reed, Nelson (Washington-St. Louis) VERIFICATION AND SUSTAINING STRATEGIES IN EXPERIMENTAL REPLICATION. It is argued that functional competency and duration of test period is more important than the elegance of preconceived research designs, in experimental replication. Various degrees of limitation must be accepted, depending on the constraints of the subject and the process used. This is due to the level of verification that can occur in the interaction with other sub-systems of the material culture. These arguments will be supported by examples of work done on digging tools, pottery, and basic resources. (21)

Reid, J. Jefferson (Arizona) ARCHAEOLOGY AS A SECOND LANGUAGE. Strictly speaking, the research on the desert is the research and study of the desert. It may, however, be the depth of our understanding of past human behavior. Old and new cultural work still continue to impede the proper description and explanation. Improperities in the many dialects of today's technology are discussed and illustrated. Directions for a post-modern approach are placed on the plate. (39)

Reynolds, Jonathan E. (Illinois State) TWO POSSIBLE SOLSTICE ALIGNMENTS AT PUEBLO BONITO, CHACO CANYON. Based on the ethnographic data, it is hypothesized that prehistoric Pueblo peoples incorporated astronomical alignments into their structures. The philosophy and implementation of this method are discussed in the paper. The planning of foraging activities and the expansion and consolidation of material power and control are also discussed. (4)

Reynolds, Peter (Butler Farm) THE BUTLER ANCIENT FARM RESEARCH PROJECT. The aim of this project is to reconstruct and systematic use of the first excavations by the Mitgel Research Laboratory in the United Kingdom. The initial three years of fieldwork were devoted to establishing the farmstead and to the examination of the stratigraphic and artifact.
potential contribution of experimental work. The prime assessment underlies the interpreted data and their application in several experimental programs argue the immediate need for a far more complex interpretation of prehistoric economy than has yet been proposed. (21)

Reynolds, William E. (Arizona State) DEFINING RESIDENCE PATTERNS IN PREHISTORIC PUEBLO SITES, The work reported in this paper investigates the question of residence patterns of the Prehistoric Pueblo people. Data gathered from several other test sites at the site of Red Rock Road using the statistical technique of Discriminant Analysis to classify diagnostic architectural features. This function technique strongly supports the model generated and the hypothesis of residential patterns. (4)

Reynolds, William E. (see Wittlieff, Stephanie) (41)

Rice, Don S. (Florida State Museum) MIDDLE PRECLASSIC MAYA OCCUPATION OF THE YAXHA AND SACCAB LAKE BASINS, EL PETEN, GUATEMALA. Recent archaeological settlement surveys around the lakes of Yaxha and Saccab, in the Peten, Guatemala, have revealed an occupation of the Middle Preclassic (100-250 B.C.) by Maya peoples in the Central Peten. Loci of apparent domestic and civic activities have been recovered, and the Eb/Tzul phases of Mamon horizon ceramics, associated with diagnostic architectural styles, have been identified stratigraphically. The settlement configuration and architectural remains identified for the period suggest certain institutional characteristics of the earliest inhabitants of this area and lead to speculation on the initial migratory movements. (12)

Rice, Dean M. (Pennsylvania State) CERAMIC CONTINUITY IN THE VALLEY OF GUATEMALA: AN EXAMPLE OF RESOURCE UTILIZATION, Identification of prehistoric centers of pottery manufacture is a difficult task, but it may be facilitated in regions where contemporary centers were known. One such region is the established world's most elaborate and complex succession of Upper Paleolithic industries. This paper reviews the history of thought regarding the significance of assemblage variability and variability in this region, laying special emphasis upon recent evidence of variability and variability within the new archaeological studies of the regional variability. (12)

Riordan, Robert V. (Mayland Historical Trust) CERAMIC AND SETTLEMENT: A MISSISSIPPIAN EXAMPLE FROM THE THIRTEENTH CENTURY A.D. Three partially excavated Mississippian sites have been radiocarbon-dated to approximately A.D. 1200. No sites in the Black Bottom except Kincaid retain any evidence of largescale construction, which at Kincaid is believed to postdate 1750. If nodal centers existed in the settlement system before monumental construction and monumental construction themselves, it is hypothesized that the presence of significantly larger proportionate amounts of pottery fashioned along lines dictated by other utilitarian needs will identify such nodal sites. Results of inter-site and intra-site comparisons, employing the chi-square statistic, tend to confirm this hypothesis. (42)

Rock, James T. (Klamath National Forest) CONSERVATION ARCHAEOLOGY: A PRACTICAL EXAMPLE, The Klamath National Forest has developed a Cultural Resource Management Program that incorporates professionally-trained archaeologists and in-service archeological technician. The utilization of professional and nonprofessional recorders is to minimize cost to the Forest while maximizing information gain. This paper outlines the duties and responsibilities of both parties, and documents the usefulness of team effort in a mini-max data recovery system. (31)

Rogers, Anne F. (Georgia) SURFACE COLLECTING AND SAMPLING: AN EMPIRICAL APPROACH, Stratified sample design methodology has been applied to artifacts obtained from controlled collecting of single sites in order to determine the efficiency of these techniques in providing representative samples of the available surface material. (41)

Rogers, A. E. (Arizona) SAMPLING SKewed POPULATIONS: A COMMON ARCHAEOLOGICAL SAMPLING PROBLEM, The problem of making valid parameter estimates on the basis of small samples from highly skewed populations is being recognized as characteristic of many archaeological sampling situations. Statistical theory suggests that results of a completely randomized sampling study based on skewed data from the completely surveyed proposed Osage Reservoir locality in central Arizona are presented. The paper discusses selecting appropriate sample designs and determining adequate sites when such data are to be sampled. (13)

Roper, Donna C. (Missouri-Columbia) SETTLEMENT PATTERNS ON THE PMME DE TERRE RIVER, MISSOURI, Research at Rodgers Shelter, Missouri, has produced a cultural-environmental model for the shelter. However, broader subsistence-settlement patterns models must be based on more than a single site. Settlement patterns in the Pomme de Terre region are considered in terms of recent studies by other researchers, and the implications of recent research in the Harry S. Truman Reservoir, supplemented by data gathered previously in the

Pomme de Terre Reservoir. Emphasis placed on the more prominently represented Late Archaic and Woodland periods. (45)

Rothchild, N. A. (New York) STRANGER IN A STRANGE LAND: CONSIDERATION OF SAMPLING AND TESTING, Archaeological work in the northern United States and in the Near East and the Southwest and western United States. These models should not necessarily be adopted to model sites assumed to be applicable to the north. The latter area has its own characteristics of ground cover, terrain, and recent development, as well as unique settlement patterns. This paper reports on a number of sampling and testing techniques employed as a part of recent archaeological activity in New York and New Jersey. Theoretical approaches applicable to this area are discussed. (24)

Rubertone, Patricia E. (SUNY At Binghamton) INTERACTION IN A COMPLEX SOCIETY: INFERENCE FROM CERAMIC ATTRIBUTES ANALYSIS, The nature of interaction and ways of measuring these processes in artifact assemblages are critical to the explanation of cultural change. General concepts for general social interaction are tested in the analysis of information, goods, and services. These processes may take place on a variety of levels: between individuals; between multiple groups; between communities; or on other levels yet to be determined. It is not clear that all levels of interaction do not help delimit the entities involved by focusing on the variability within classes of ceramic attributes: morphological, technological, decorative, and metric, and their interaction. Relationships among these attributes and site function patterns of interaction as they are reflective of the demographical and organizational variability within the population. Ceramic analysis includes detailed morphological attributes of pottery, systems which along with alternate lines of data will be used to infer interaction processes. (33)

Sackett, James R. (UCLA) UPPER PALEOLITHIC ASSEMBLAGE VARIABILITY IN THE PERIGORD IN SOUTHWESTERN FRANCE. Excavation in more than 150 of the Perigord's rich cave and abri sites has yielded an increased understanding of the complex series of Upper Paleolithic industries. This paper reviews the history of thought regarding the significance of assemblage variability and variability in this region, laying special emphasis upon recent evidence of variability and variability within the new archaeological studies of the regional variability. In addition, it summarizes the results of new excavations of open air sites in the region, which away from the shelter evidence are highly relevant because their many novelties indicate by contrast that an appreciation of Upper Paleolithic variability based upon the shelter evidence alone must inherently be skewed and incomplete. (17)

Sanger, David (Maine) MAN AND PALEO-ENVIRONMENTS IN CENTRAL MAINE. Man's activities and movements within Maine were primarily controlled by the distribution of glacial ice, land, and sea in early post-glacial times. By at least 12,000 B.P., the land was clear of ice and now covered with a tundra vegetation. The few fossil points are presumed to be of northern origin, the oldest being a very young one. In the Gulf of Maine about 11,000 B.P., there was an influx of a Laurentian-related culture about 9000 B.P., with increasing amounts of pine, birch, and oak. Sea level rose from -60 m. to -6 m. by 1000 B.P. with high tidal amplitudes in the Gulf of Maine at that time. The population of the area was dependent upon the climate and sea level. By 3000 B.P. the climate was warmer and the climate and sea level were more stable. The coastal population was about 3700 B.P. From that point until the historic the coastal record suggests populations adapting to essentially modern coastal and interior environments. (26)

Santeford, Lawrence G. (Southern Illinois) CHERTING THE ISSUE: LITHIC STUDIES IN SOUTHERN ILLINOIS, In the preliminary report on Kincaid, prepared by Cole and others and published in 1955, description of chipped stone and flaked stone blades were reported. Now, information on lithic studies, particularly functional studies, have been introduced in archeology. In view of recent work in the Black Bottoms of southern Illinois, and new methods of analysis, Illinois is used for the examination of previously excavated and unexcavated archaeological material. Consideration is also given to material collected in recent years from other sites in the Black Bottoms. (42)

Santell, Robert S. (Pennsylvania State) FORM AND FUNCTION OF PRECLASSICAL RESIDENTIAL GROUPS: LOMA TORREMOYA AS A TEST CASE, This paper proposes to show that prehistoric settlement patterns and the social groups can be determined when relatively large, excavated materials are subjected to multivariate statistical analysis. In this particular case, the data came from the large Middle and Late Formative site of Loma Torremoya in the vicinity of the Central American city of Chichen Itza. Examination of previously excavated and unexcavated archaeological material. Consideration is also given to material collected in recent years from other sites in the Black Bottoms. (42)
Algonaucan population represented at the Fletcher site were compared to several Late Woodland skeletal samples from Michigan and Southern Ontario with an emphasis upon nutrition-disease indicators. The Historic period group was found to be more frail, with a higher frequency of gross linear enamel hypoplasia, and possibly a lower life expectancy than each of the Prehistoric groups. One factor which may account for many of these differences is the interaction between the Native American's and the Euroamerican populations and the application of large scale models to analyze the comfort potential of prehistoric houses. This approach is expected to have significant value in a systematically oriented framework for archaeological explanation. (21)

Sayre, Evelyn (see Wettz, Evelyn) (5)

Sayre, Edward V. (see Harbottle, Garman) (32)

Scarr, John F. (Case Western Reserve) SPATIAL ANALYSIS OF THE BOSTON LEDGES ROCK SHELTER B: A COMPARISON OF METHODS. The spatial distributions of five artifact classes from an Early Woodland occupation in northern Ohio were analyzed by several different methods to determine the nature of patterning in the distributions. Six methods were used: dimensional analysis of variance, mean centering analysis, Moran's index of aggregation, Poisson series analysis, and mean and median estimation of neighbor analyses. The methods are compared on the basis of data requirements, ease of application, and information supplied. Finally, an interpretation of the spatial patterning and recommendations as to the use of the various analytical techniques are offered. (32)

Schalke, Randall F. (NPS) THE USE OF ORBITAL IMAGERY IN ARCHAEOLOGICAL RESEARCH: ROCK SHIELDED IMAGE (particularly LILACS IMAGERY). Rock shelters are regional economic systems in the San Juan Basin, New Mexico, is discussed. It is suggested that satellite imagery provides valuable classes of information about the environmental variables that are important in the development and maintenance of cultural systems. The use of such imagery offers archaeologists the scientific challenge of moving beyond the listing of the results of human behavior (i.e., archaeological sites, cultural features, etc.) to attempting to monitor the processes which produced those results. This paper produces some significant results which the authors maintain that satellite imagery will ultimately prove useful in ways quite distinct from many previous applications of remote sensing in archaeology. (19, 20)

Scheick, Cherie (Arizona) A CASE OF THE BOSTON TEA PARTY: 1976. In an effort to ensure "professional standards," an archaeological register has been proposed. The authors suggest that the proposal is premature unless the senior members of the profession accept the responsibility of encouraging, promoting and guiding junior members in attaining those standards. As a representative body of the profession, the Society for American Archaeology has the potential for establishing a precedent along these lines by actively seeking junior member participation in Society affairs. Specific proposals for participation in the various functional levels are suggested. This paper is a call for legitimization of junior professional participation and for cooperation and communication between all facets of the profession for ensuring professional standards. (11)

Scheick, Cherie (see Van West, Carlan) (11)

Schoenewetter, James (Arizona State) ARLHICAL POLLEN ANALYSIS OF CAHOKIA AND ENVIRONS. Palynological research initiated on the Cahokia Bottoms this spring had now been completed. The present work combines results of pollen records from stratified geological contexts and of the five new sub-Mound 51 pit with data from Mississippian house floors, wall trench and midden deposits. Chronologically control is provided through radiocarbon dates corrected for correlation with tree rings and the ceramic phases recently established for Mississippian developments at Cahokia. Five pollen zones dominated by NAP are recognized for the sequence, four of which relate to the Mississippian Period. Paleoecological reconstructions are not provided as inadequate control data reduces any such reconstruction to something less than an educated guess. But correspondence with pollen data from Mill Creek and Powers Phase sites provides external substantiation of the American Bottoms pollen chronology. Arguments during the initiation of the Moorehead phase before A.D. 1.160 and initiation of the Sand Prairie phase at A.D. 1.450 will be presented. (24)

Schoenewetter, James (see Gliss, Jennifer) (32)

Schultz, Sandra (Arkansas Archeological Survey) A COMPUTERIZED ARCHEOLOGICAL PHOTOGRAPH SLIDE FILE. Information handling needs in archaeology can encompass several different applications. We have in the past used a slide collection to provide an easy means of storing and retrieving data in an organized fashion. This file is a computerized list of files which contain slides. The computerized Archaeological Survey has a large and continuously growing black and white photograph and color slide collection. A computerized file design is being prepared that will store the efficiency and ease of file design is characterized by the structuring of data to minimize clerical time for record preparation and space requirements for data storage. The file structure is largely internal to the design so that the casual user can process the file with minimal assistance. (41)

Scoville, Douglas H. (NPS) REGIONAL CENTERS: OPPORTUNITIES FOR FEDERAL-INDUSTRIAL PARTNERSHIP IN CULTURAL RESOURCES MANAGEMENT. A synthesis of the comments and observations about Federal-Industrial agency partnerships, is provided. A statement of the scope, role, function, and relationship of Federal-institutional partnerships is offered; the legal and policy basis for cooperative partnerships is highlighted; potential funding mechanisms are described; and potential barriers to cooperative efforts are noted. (22)

Scourfield, J. (Delaware Tribal Business Commission) REMINISCENCES OF GROWING UP IN DELAWARE, Delaware life and culture in northeastern Oklahoma about the time of World War I are recalled. Special emphasis is placed on the nature of the Delaware Indian community in what was formerly the Cherokee Nation. (35)

Sears, Mark (Indiana) STYLISTIC VARIATION IN MIDDLE WOODLAND PIPE STYLES: THE CHRONOLOGICAL IMPLICATIONS. This study tests Strayer and Seidman's hypothesis that intrusive styles of immigrants were contemporaneous. A typology of plain platform pipes is constructed, tested, and shown to have temporal significance. Factor analysis and discriminant analysis, two multivariate statistical techniques, are employed and the usefulness of each is discussed. Results do not support the initial hypothesis. (24)

Sener, Donald (UNAM, Mexico) THE DEGREE OF AUTONOMY OF XOCHICALCO FROM TEOTIHUACAN DURING THE EARLY CLASSIC. "Since Xochicalco does not have many features that connect it to Teotihuacan, its role could very well have been that of a rival rather than a satellite," hypothesize the authors. This paper is a contribution to the discussion of whether those Xochicalco relations were grouped within the Teotihuacan sphere of influence. This paper attempts to evaluate this hypothesis largely upon ceramic evidence derived from a survey of the literature and ceramic survey of the Upper Temozom, north from Xochicalco to Cuentepec and beyond. (37)

Shafer, Jr., Harry J. (Texas A&M) THE ARCHAEOLOGY OF HINDS CAVE: A PRELIMINARY REPORT. During the summer of 1975, major excavations were begun in Hinds Cave, a large, dry rockshelter site in southwest Texas. The objectives during this first season were to obtain stratigraphically controlled samples of plant macrofossils and human cultural remains that were not affected by recent disturbance. At the same time, a second objective was to recover an equally well-controlled sample of material culture elements from these same deposits. These objectives were met with success, since the stratigraphically controlled human remains samples were collected from a stratified sequence of lenses dating from approximately 1,000 B.P. to older than 8,230 B.P. Excellent plant macrofossil and material culture samples were also secured. The remainder of this paper is now in progress and we hope that through these efforts we will soon gain an excellent image of the culture of prehistoric human populations in the lower Pecos region of Texas. (17)

Sharp, Rosemary (Ripon) PILGRIMS AND PEDDLERS: THRESHOLD MEN IN POST-CLASSIC MEXICAN MANUSCRIPTS. Peddlers, pilgrims, and other pack-carryers figure in Post-Classic Mexican manuscripts and depicted in pottery from the sacred shrine are interpreted as “liminal” phenomena. These figures both reflect rapidly changing historical circumstances and suggest the presence of an important idea. The idea of the individual mortal of that day, and the journey, as a paradigm for social, political, and other behavior during a time of destruction and renewal. (1, 27)
Shelton, Catherine N. (Temple) VARIABILITY IN DIFFERENTIALLY HEAT TREATED LITHIC TOOLS: A MULTIDISCIPLINARY APPROACH TO THEIR STUDY. The study of the effects of heat treatment on lithic materials can assist in understanding the variation in prehistoric tool materials. Heat treatment can significantly affect the physical properties of stone tools, influencing their performance and durability. Identifying the sources and techniques used in heat treatment can provide insights into the technological practices of past societies.

Sidrys, Raymond (UCLA) STANDARDIZATION OF Mesoamerican FIELD DATA. The fieldwork in the cultural and historical context of Mesoamerica is a vast and complex undertaking. This chapter likely discusses the importance of standardizing data collection methods across different sites and regions to facilitate meaningful comparisons and enhance our understanding of Mesoamerican cultures.

Sippin, Edward B. (Harvard) The Archaeology of Residence: CACQCATAN, PUEBLA. This work delves into the study of residential patterns in the ancient past. The excavation of sites like Cacqcatan, Puebla, provides valuable insights into the way Mesoamerican societies organized their living spaces and communities.

Skinner, Elizabeth (Washington-St. Louis) Lithic Analysis and Social Organization in the Cibola Area of New Mexico. This chapter explores the relationship between lithic technologies and social organization. Understanding how different communities used stone tools can shed light on their socio-economic structures and daily life practices.

Skirbell, E. (Pittsburgh) FLORAL REMAINS FROM MEADOWCROFT ROCKSHELTER, THE TEEHUA, FROM MEADOWCROFT ROCKSHELTER, as derived from archaeo-botanical research, include a wide array of plants that were present in the environment. The floral remains provide insights into the local vegetation and the potential diets of past inhabitants.

Snow, Dean R. (Suny-Albany) The Lake George Project: A Program of Archaeology and Environment in the Lake George Region of upstate New York. This project focuses on the study of the environment and prehistory of the Lake George region, emphasizing the interaction between人类环境和考古学研究。

Spuke, Michael W. (Western Ontario) OBSIDIAN DATING IN Teotihuacan, Mexico. This chapter probably discusses the methods and applications of obsidian dating in the study of Teotihuacan, a key pre-Columbian urban center.

Sutter, Dale (Alaska) North Slope Prehistory. This work offers a comprehensive look at the prehistoric sites and cultures found in the North Slope region of Alaska, providing insights into the environmental and cultural contexts of these ancient people.

Starr, Barbara L. (Arizona State) Economic and Settlement Pattern Models for Southern Veracruz: The Ethnohistoric and Core-Buffer Alternatives. This chapter examines economic and settlement patterns in Southern Veracruz, considering both ethnohistoric and core-buffer models to understand the dynamics of these early societies.

Smith, C. Earle, Jr. (Alabama) Prehistoric Changes in Dietary Plants in the Southeastern U.S. and Mexico: A Comparison. This work contrasts prehistoric dietary practices in the southeastern United States and Mexico, examining how these areas differed in their use of plants as food sources.

Smith, Michael E. (Urbana) A Multivariate Analysis of Temples and the Classic Teotihuacan, Mexico. This chapter likely uses multivariate statistical methods to analyze data from Teotihuacan, providing a deeper understanding of the temple complexes within the city.

Smith, Bruce D. (Georgia) Faunal Analysis: Problems and Potential. This chapter addresses the challenges and opportunities in faunal analysis, a crucial aspect of zooarchaeology. It discusses how to accurately identify and interpret animal remains to better understand past human-environment interactions.

Smith, Bruce D. (Georgia) Faunal Analysis: Problems and Potential. The research design and problem orientation presently being employed by many researchers in the subdiscipline of faunal analysis is described and critically reviewed, and a set of integrated general problems areas that should be utilized to form the framework of any research design in faunal analysis are identified and described. [3]
Lower Papaloapan area, Veracruz, Mexico. From these data models for economic strategies, settlement patterns, and exchange are formulated, and some elements of the models are tested against archaeological data. Ethnographic models warrant further consideration as an alternative to a recent core-buffer zone model for the southern Gulf coast. (14)

Steinberg, Karl T. (Florida) ECOLOGICAL RELATIONSHIPS AND SETTLEMENT PATTERNING ON THE GULF COAST OF FLORIDA: THE PASCO AREA. Archaeological survey in the area of Crystal River, Florida has revealed important aspects concerning the man-landscape relationships and settlement pattern in this little known area. A typology of settlement is developed in cultural and ecological terms. Suggestions for future research in the area are presented. (28)

Stenholm, Nancy A. (William Patterson College) DEFLOCCULATION AND FLOTATION OF CLAY SOILS IN ARCHAEOLOGICAL DEPOSITS. Growing numbers of archaeologists are using clay flotation in botanical recovery. The method is still in its infancy—often air-dried clay flot is mixed directly into water without preliminary chemical treatment. While simple methods are usually sufficient for some soils, they may be ineffective for soils which contain considerable amounts of clay. Clay colloids, in particular, adhere to botanical materials and may complicate the result. It is necessary that one determine the method which disperses clay aggregates without degrading botanical fabric be of considerable utility for paleoecological research. This report considers the use of chemical deflocculants, and presents a flotation scheme which has given good results. (37)

Stercil, Eugene L. (SU NY Binghamton) THE IDENTIFICATION OF ACTIVITY LOCUS IN PLOE, A CEREMONIAL SITE FROM NEW YORK STATE. It is often concluded without demonstration that prehistoric sites which exist entirely or predominantly in disturbed plough zones are of little value to the archaeologist. This notion is challenged and it is argued that there may exist information in the form of horizontal distributions of various categories of artifacts or materials which, if investigated using appropriate techniques, may provide important information. A test demonstration of a limited activity locus, should be methodically investigated. Several suggestions are made as to the method of investigation appropriate to such situations. An example is given of the successful identification of activity locus at an archaic Lomoki site, entirely in the plough zone, from central New York State. A discussion of the character of the individual locus is included. (41)

Stewart, Marilyn C. (Rollins College) A MODEL FOR SUSTAINANCE CHANGE IN A CENTRAL FLORIDA SHELL MOUND. The archaeology of Central Florida shell mounds is not well understood. Chronological difficulties due to a long lithic-poor prehistoric and a subsequent period of trade in raw materials. The lack of understanding of cultural behavior, or by prolonging interest in purely chronological problems. A way out of the dilemma would seem to involve a search for other parameters for measuring culture change. The writers suggest that close analysis of dietary patterns and comparison of strategies that can be used to build chronologies, as well as providing invaluable data for subsistence settlement systems analysis. The method was tested by a combination of subsistence-orientation and simulation experiments using an energy flow model to generate feasible hypotheses. (23)

Stoiltman, James R. (Wisconsin-Madison) A NEW TEMPORAL MODEL FOR EASTERN NORTH AMERICA PREHISTORY. The basic thesis of this paper is that the traditional skeletal system of nomenclature utilized in eastern North America, involving the concepts of Woodland and Mississippian, are the later editions of the archeological, has become so burdened with multiple and often conflicting connotations that it now impedes as much as it facilitates interregional communication. The McKern system of classification is considered the best delineation of the stages of prehistory in eastern North America. Woodland, and Mississippian are restricted in usage only to cultural traditions so as to completely avoid confusion over whether these concepts apply to archaeological assemblage or groupings of both. (28) This work demonstrates that certain key cultural periods (i.e., time units) are defined in order to give explicit recognition to what are considered to be significant "blind spots" in not only the McKern system, but also the alternate system proposed by Willey. (24)

Storer, John H. (Missouri-Columbia) A STRUCTURAL COMPARISON OF SIXTEENTH CENTURY ZAPOTEC AND MISQUAPON TESCUICALK KINSHIP TERMINOLOGIES. The Copanaguaustan manuscript provides unusually complete material for the analysis of sixteenth century Tzeltal kinship terminologies. This analysis will attempt to compare the changes and continuities of the sixteenth century terminological system with the systems of several modern-day Tzeltal communities. (25, 27)

Stout, Dee Ann (Texas-Austin) THE PRESERVATION OF SEASIDE ANTIQUITIES. Most metal artifacts from underwater sites are fragile and require special treatment to insure that they do not continue to deteriorate after excavation. The preservation techniques described here are based on the study of corrosion rates and the use of controlled laboratory conditions to understand the mechanisms of corrosion and to develop methods of treatment. (10)

Stout, Sam D. (Washington-St. Louis) HISTOMORPHOMETRIC DETERMINATION OF BONE FORMATION RATES IN ARCHAEOLOGICAL SERIES. First and others have shown that cortical bone formation rates can be measured without the use of in vivo tissue markers such as tetracycline. The application of these methods to archaeological bone samples provides a means by which a dynamic physiological parameter can be determined for extinct populations. Inter- and intra-population variation in bone formation rates for two archaeological populations from Illinois are discussed. It will be shown that bone formation rates for the two series do not differ significantly from those determined for modern populations, and that metabolic disturbances are easily detected on the basis of abnormal formation rates. (6)

Stoutamire, James W. (Florida State) A REPORT ON FLORIDA STATE UNIVERSITY'S CURRENT INVESTIGATIONS OF THE NATIONAL PARK SERVICE'S SOUTHEAST ARCHAEOLOGICAL CENTERS COLLECTIONS. For the past three years Florida State University has maintained, under a curatorial contract, the National Park Service's Southwest Archaeological Center. These collections span a period beginning with W.P.A. excavations in middle Georgia in the 1930s and extending to the present. This and other contracts have produced final reports on a number of important southeastern sites including:580 Surround D Macen Earl Earthhac, Macon North Plateau, Cowart's Landing, and Stubbs Mound. (22)

Strusarc, Lawrence G. (New Mexico) NEW LIGHT ON THE UPPER PALEOLITHIC OF SOUTHWESTERN EUROPE. There is growing evidence that many traditional subdivisions of the European Upper Paleolithic are functional assemblage variants, and that their stratigraphy and typology is not necessarily primary and unidirectional. The only division that is sometimes subdivided is the Mousterian; and these subdivisions are often radiometrically non-contemporaneous. Universalistic stage classifications based on single stratigraphic sequences are misleading, as demonstrated by new C-14 dates, detailed statistical comparison of radiocarbon data, and new contradictory finds. There is considerable assemblage variability within single stages, but similarity among particular assemblages assigned to different stages. Some of this variation and similarity is related to palynological, faunal exploitation and site location, as suggested by date from Cantabrian Spain. (40)

Stuuwe, Stuart (Northwestern) CLINICAL TRAINING IN ARCHAEOLOGY AS THE DISCIPLINE GROWS MORE COMPLEX. A hallmark of modern archaeology is the proliferation of new field and laboratory techniques. In addition, more and more archaeological research is conducted within an interdisciplinary framework. Added to these is the sharp increase in the number of long-term, large-scale archaeological projects that require careful research design and effective management of human and financial resources. Accordingly, the number of courses that today is required to know more about archaeology than ever before and requires longer training in any specific methodological area before claiming competence. These developments have made the patron-client, tutor-teacher relationship, and the need for clinical training. The statement of several programs of the Northwestern University Archeological Program as a means of meeting the needs for clinical training in archaeology. (8)

Stuuwe, Stuart (see Farnsworth, Kenneth) (22)

Stuckenrath, Robert (Smithsonian) RADIOCARBON: SOME DYSPEPTIC NOTES FROM MERLIN'S DIARY. Users of C-14 dating services must be aware of certain classes of problems ancillary to the technique, over which the laboratorian has no control, but which are part of the hands of which the laboratory and/or interpreter alone. These include such matters as isotopic fractionation inherent in sample materials; admixture with samples; and, of course, the age of the environment in which the material came and its potential for being the whole pieces found in association with burials. (7)

Stuckenrath, Robert (see Dumb, Don E.) (25)

Stuckenrath, R. (see Genn, J. D.) (21)

Sugiyama Yamamoto, Yuko (UNAM) CERAMICS OJO DE AGUA AND THEIR RELATIONSHIP WITH TEOTIHUACAN. The maquiladora Ojo de Agua, located at the north of Teotlipul, in the valley of Tolucua, where the civic-religious Teotihuacan flourished. This study, based on ceramic analysis, concerns the relations, with the main center, during the Middle Phase, between the main urban area of Teotihuacan and the rural populations of Ojo de Agua, clearly reflected in the ceramic materials, as much in the pot-shards as in the whole pieces found in association with burials. (17)

Swartz, B. K. (Dalai State) A LOGICAL PATTERN OF ARCHAEOLOGICAL OPERA. Towards a Logical Pattern of Archeological Orientation and Formulation for Archaeology. The logical patterns of archaeological operations, supplanting my 1951 rectilinear sequence, is then proposed in light of current ideas and the current interdisciplinarity. The logical pattern is considered as a "new" Archaeology, that is, homonomy—etymology and comparative(culture) historical methods, are examined. The former is considered invalid and the latter unclear. (35)

Taen, George H. (Minnesota-St. Paul) THE SEMANTIC AND LINGUISTIC DECODIFICATION OF HIEROGLYPHIC TEXT IN THE MAYA HIEROGLYPHIC
in light of current antitrust legislation, alternative measures to the establishment of the Registry of Professional Archaeologists are suggested. Proposals are derived from two central questions: Who is a professional archaeologist? and How does one become a professional archaeologist? The authors propose that philosophical and circular changes in our graduate schools is necessary. A reevaluation of our position as academics, administrators, and resource managers is called for, as well as a reorganization of our educational and academic objectives and methods within graduate programs of archaeology. Concrete examples and test cases are provided. (1)

Van West, Carla (see Scheick, Cherrie) (11)

Vega Sosa, Constanza (INAH) A COMPARISON OF THE CERAMICS OF THE PUEBLA- TLAUTLAJochtla michoacan Phase and the MIACATOLLI PHASES. This study consists of a comparison between the ceramics discovered among the offerings in a tomb located at the site "Los Tepetzetes de Ocotitla," Tlaxcala (Early Toltec phase) present in the town of Tlaxcala and Early Tlamimilolpa Phases, c. A.D. 100-250 at Teotihuacan. An attempt is made at an explanation of the cultural interaction between the two sites during the phases indicated, taking into account the interaction between the cultural sequences discussed, principally by comparison of vessels similar to those of Teotihuacan, together with Carbon-14 dates obtained for the offerings. (17)

Vehik, Rain (Wisconsin-LaCrosse) ARCHAEOLOGICAL EXCAVATIONS IN THE JAMES RIVER VALLEY, NORTH DAKOTA. The University of North Dakota under a contract from the Bureau of Reclamation continued an archaeological program initiated in 1974 in south-central North Dakota. Major prehistoric sites (open sites, tipi rings, and rock carvings) were tested. Preliminary analyses indicate that many of the open sites are stratified, and range in time from the Woodland period to about A.D. 100. (Mississippian, prehistoric results of the fieldwork, and suggests hypotheses that should be tested in future work. (45)

Vehik, Susan C. (Wisconsin-LaCrosse) THE QUAST SITE (32LM23) AND ITS IMPLICATIONS FOR THE PREHISTORY OF THE JAMES RIVER VALLEY, NORTH DAKOTA. The Quast site, a single component site in the James River valley, La Moure County, North Dakota, was tested by the University of North Dakota as part of a contract with the Bureau of Reclamation. Archaeologically little is known regarding the James River valley in North Dakota. The site, one of 15 sites tested in 1975, yielded in addition to lithics and pottery a variety of faunal and floral material. A series of intra-site differences and intersite relationships based on this material are discussed. Finally, a series of hypotheses regarding the habitation pattern of the James River valley are developed which are to be tested by future field research. (45)

Vickers, Roger S. (see Dolphin, Lambert T.) (19, 20)

Vogel, J. C. (Pretoria, South Africa) ISOTOPIC EVIDENCE FOR EARLY MAIZE CULTIVATION IN NEW YORK STATE. Plants metabolize carbon dioxide photosynthetically either through a 3-carbon (Calvin) or 4-carbon pathway. Most plants are of the C3 type: C4 plants are primarily grasses adapted to hot, and environments. Since C4 plants are dominant in warm environments, and humans and animals with a significant C4 plant food-intake will have higher 13C/12C ratios as well. Maize is a C4 plant, hence maize cultivators living in C3 plant environments should show significant isotopic differences from other maize cultivators in their diet should also be measurable. The practicability of this method is demonstrated for New York State archaeological material, and wider implications are mentioned. (18)

Volman, Thomas P. (Chicago) SPATIAL ANALYSIS AT TORRALBA. Excavations at the Acheulean butchery site of Torralba, directed by Howell, uncovered ten major occupations. Spatial analyses of information provided by Freeman on the location and type of lithic and faunal remains have revealed dynamics of spatial patterning related to differences in activity performance. As a result of the most recent multivariate studies spatial patterns have been detected. A study of the various spatial patterns in the nature and location of activities performed at the site, first generated from the study of a occupation levels, have now been tested on many other surfaces. (49)

Voorhis, Barbara (California-Santa Barbara) HUMAN ADAPTATIONS TO COASTAL RESOURCES: THE VIEW FROM MIDDLE AMERICA. Human adaptations to coastal environments are recognized as characteristic of several cultural traditions. Despite this, the systematic study of these adaptations is relatively recent and limited in extent. In this paper I review previous studies, the research objectives that have been outlined, and the techniques that have been employed. I then discuss some of the implications of previous studies in order to permit the formulation of appropriate research objectives on a regional basis. (14)

Vietsland, James M. (Texas-Austin) PATTERNS OF TEXTILE DEVELOPMENT AND FUNCTION AT HUANCAYO ALTO. A multidisciplinary study of the weaving and weaving sites in the middle Chillon Valley (central Peruvian coast) is presented. (1) A general understanding of the textile tradition at Huancayo Alto is provided through the analysis of morphological and
soil is formulated. An experiment describing the application of this concept through experimental pedological techniques at the University of Arizona's Archaeological Field School is outlined. The results of the experiment are applied to understand problematic stratigraphy from Site I at the Grasshopper Ruin. (41)

Whitley, Stephanie M. (see Ciolek-Torrello, Richard) (4)

Whitley, Stephanie M. (see Thompson, Raymond H.) (6)

Wicke, Charles R. (Oklahoma) INTERPRETATION OF THE PRECOLUMBIAN AZTEC TIZOC STONE FROM CODICES. Identification of place names on the Tizoc Stone has been attempted by several early investigators including Orozco y Berra, San Antonio el Real, and Garcia Padilla. In the recent publication of the Codex Tizoc, Orozco y Berra and others have presented their principal document. A direct correspondence is lacking, however, between the Stone and the Codex glyphs. Additional sources offer a more reasoned interpretation of the Stone and its relationship to the Codex. The analysis of the Tizoc Stone is based on the identification of the surrounding topographical data and the local context of the Codex. (25)

Williams-Dean, Glenn (Texas A&M) PRELIMINARY ANALYSIS OF AN EARLY ARCHAIC LITHIC ASSEMBLAGE FROM LIME CREEK, TEXAS. Preliminary analysis of the Lithic assemblage from Lime Creek shows a high degree of similarity to the late Archaic lithic assemblage from the Waco Basin. (21)

Williams, Ken (Dept. of Transportation) THE FAI-255 PROJECT: A METHODOLOGICAL ASSESSMENT OF SOME TRADITIONAL AND EXPERIMENTAL SITE SURVEY TECHNIQUES. A host of archaeological survey techniques are applied to an 18 mile stretch of proposed highway right-of-way in the American Bottom area, near the Middle Mississippian site of Cahokia. The adequacy of these tests as aids in the discovery of sites, definition of "site limits," and discerning of internal village structure is discussed. The techniques used include pedestrian survey, controlled surface collections, artifactual piece-picking, stratified testing, stratigraphic sectioning, test-trenching, geophysical and topographic testing, and magnetometer survey. The present project is the first to be conducted under a recently negotiated contract between the Illinois Department of Transportation and the Illinois Archaeological Survey. (24)

Wilson, Rex L. (NPS) CONTRACT PROPOSAL COMPETITION: ADVERSE REACTION TO SEGREGATION PRACTICES. While the effects of the Civil Rights Act have developed, often grossly exaggerated through the rumor mill, concerning the adverse effects which are often wrongly thought to be an outgrowth of competitive proposals, some examples, which have been voiced in recently received letters and discussions in the states' professional circles, (1) recognition by outsiders that there are not enough people of outsiders to be patronized, (2) dispersal of regional artifactual collections, and (3) regional expertise not capitalized upon, (4) bad practice to use use of many contract documents, (5) loss of contract continuity, (6) fear of low bids, (7) inadequate budgeting, (8) inadequate preparation for future social movements, (9) inadequate support for the profession, (10) more paper work due to National Science Foundation-like procedures of proposal review, and (11) interference by Federal Government in the contract process. By way of rebuttal, the following objections to the projected procedures will be cited including: (1) compliance with existing procurement regulations, (2) fresh approach to old problems, (3) acceptance of the most creative research design which should upgrade the problem quality of contract work creating a convergence of salvage (applied) and pure (presumably, i.e., grant-supported) research, thereby revitalizing the entire field. (17)

Wing, Elizabeth S. (Florida State Museum) WAYS OF GETTING FROM A SLIVER OF BONE TO A LACINATED FLAKE: A PREHISTORIC INSTRUMENTALITY OF LEAF SHAPES. Essential steps in the bone to stone tool transition are: (1) excavation of a bone tool from the bone (which is true in both the bone tool and the lithic tool), and (2) extraction of organic materials from the bone tool. The final step is a matter of hypothesis and depends on the interpretation of the bone tool. (5)

Wing, Elizabeth S. (Florida State Museum) INTENSIVE USE OF DOGS FOR FOOD AS AN ADAPTATION TO THE COASTAL ENVIRONMENT. Dog remains are exceptionally abundant in faunal samples excavated from a number of Formative and Classic sites located within and adjacent to the Great Kings River area. We have identified a number of bone fragments to the prehistoric diet. The comparison of dogs to the prehistoric diet is calculated it is in many instances a quite important constituent replacing a large extent the reliance on wild fish and game. The adaptive significance of this coastal life will be discussed. (44)

Winter, Joseph C. (San Jose State) THE IDENTIFICATION OF ANCIENT FARM SITES AT THE COWNESS BAY AREA, SANTA ROSE ISLAND, CALIFORNIA. The identification of ancient farm sites at the Cowness Bay Area, Santa Rose Island, California is being identified through a program of instrumental analysis, including paleoecological, microscopic studies, flotation, and sedimentation studies, and water control experiments. The types of possible water control
devices have been discovered, and the presence of corn, bean, and squash pollen has demonstrated that at least five of these were probable farm fields. Seven species of plants growing on these sites have been identified as probable indicators of past farming activities. (29)

Winter, Marcus C. (Centro Regional de Oaxaca) CLASSIC PERIOD HOUSEHOLDS IN THE VALLEY OF OAXACA AND THE MIXTECA ALTA. Excavations in residential areas, primarily in the Valley of Oaxaca and at Mixtecan sites, provide data on Classic period households. We describe and compare households in terms of composition, activities, and status variation, and show how the household can be used as an analytical unit for studying social organization. (4)

Wiseman, Fred M. (Arizona) THE MAXIMAL HABITAT MODEL OF MAYAN AGRICULTURE. The study of agricultural intensity of the Maya lowlands in the Mixteca Alta, and the area immediately to the south, is addressed. The model of agricultural intensity for the northern and southern Maya lowlands is based on environmental gradients according to their zone of maximal applicability, or maximal habitat. Present-day ecological communities are likewise arranged along the same gradients, indicating which agricultural methods are applicable in each community. Allowing maximum population pressure and total land use, the spatial extent of each agricultural system will be described for the central Petén of Guatemala. Implications of the maximal habitat model will be used to augment archaeological data to explain the distribution and size of late Classic sites. (12)

Wobst, H. Martin (Massachusetts) AN INTEGRATED SET OF COMPUTER PROGRAMS FOR STRATIGRAPHIC AND CONTEXTUAL ANALYSIS. Intensively occupied archaeological sites are problematic for the elucidation of past systemic context of artifacts and features because spatially overlapping events cannot be segregated with confidence. Single event sites, on the one hand, often lack sufficient artificial density to recognize or differentiate occupation horizons in the field. The paper presents a set of computer programs to establish occupation horizons, if they are not visually apparent in the field, on the basis of the three-dimensional coordinates of artifacts and illustrating paleolitic open air sites in Yugoslavia. (19, 20)

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Zeitlin, J. F. (Yale) COMMUNITY DISTRIBUTION AND LOCAL ECONOMY ON THE SOUTHERN Isthmus of Tehuantepec, Mexico. The southern isthmus of Tehuantepec is a coastal environment to which the local inhabitants have always had a varied economic adaptation, exploiting abundant marine and wildlife resources, planting milpas during the wet season, and engaging in long-distance trade. Based on excavations and a surface survey program focused on the Rio de los Perros zone of Tehuantepec, and on an examination of the ethnographic record, this paper will attempt to synthesize changing patterns of that economic adaptation from the Preclassic through the Colonial periods. It will relate differences in diet and the distribution of settlements to changes in population density, resource utilization, and the sociopolitical environment. (14)

Zeitlin, R. N. (Yale) PRECOLUMBIAN PROCUREMENT AND USE OF OBSIDIAN ON THE SOUTHERN Isthmus of Tehuantepec, Mexico. Commercial relationships between a Pacific coastal region and distant parts of Mesoamerica are the subject of this paper. Focusing on the obsidian artifacts found in abundance at archaeological sites on the southern isthmus of Tehuantepec, trace element analysis by x-ray fluorescence spectroscopy is employed to identify their original geologic procurement which sometimes extended over 500 miles. Changes in the network from Early to Postclassic times are then examined and an attempt made to relate them to external economic developments and political events throughout Mesoamerica. Finally, some possible functional explanations for an extensive obsidian importation despite local availability of other lithic materials are discussed. (14)

Zepf, Paul (see Stewart, Marilyn) (28)

Zurei, Richard L. (Georgia) TEMPORAL CHANGES IN OCCUPATION INTENSITY AND SETTLEMENT SYSTEMS ON THE GEORGIA COAST: EVIDENCE FOR THE ACQUISITION OF AGRICULTURE AND SUBSISTENCE VARIABILITY. The results of a recent survey on Skidaway Island by DePratter are examined in light of an extensive survey in the pine barrens region of the coastal plain. Prehistoric ceramic sites in the inland region are proposed to be seasonal settlements of coastal peoples. An occupational intensity index (site/duration of phase) is computed for the two survey regions. There is a general trend of an increase in land use intensity and population after A.D. 650. The data are interpreted as representing hunting and gathering systems which exploit the pine barrens region (Staats Island and Deptford) which changes with the advent of maize agriculture during the Wilmingto phase (A.D. 550-1150). The subsequent Savannah phase is a period of social and economic readjustment with the protohistoric Irem phase (A.D. 1475-1550) emerging with large settlements near the salt marsh cultivating maize and exploiting estuarine resources. (28)
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