Program
and Abstracts

Society for American Archaeology
FORTY-SECOND ANNUAL MEETING

New Orleans, Louisiana 28-30 April 1977
Forty-Second Annual Meeting
SOCIETY FOR AMERICAN ARCHAEOLOGY

Program Chairperson: Mary Elizabeth King

Program Committee: Eileen Johnson, Laura Graves Allen, Carol Slotkin

OFFICERS
OF THE SOCIETY FOR AMERICAN ARCHAEOLOGY

President: Raymond H. Thompson

President-elect: Cynthia Irwin-Williams

Secretary: Alfred E. Johnson

Treasurer: Fred Wendorf

Treasurer-elect: Jeffrey S. Dean

Editor: Frank Hole

Executive Committee Members: W. James Judge and Hester A. Davis (to 1977), Margaret L. Weide and William W. Fitzhugh (to 1978)
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 lower mezzanine lounge, or may be ordered prepaid from the Society, 1703 New Hampshire Avenue, NW, Washington, DC 20009.

Business Meeting  The Society's annual business meeting will begin at 6 pm on Friday in the Royal Salon.

Convention Office  Any problems or special requests during the meeting should be reported to Convention Office No. 1 located on the upper mezzanine.

Exhibits  Publishers' book exhibits will be displayed in Meeting Room No. 10 on the second floor from 4 pm to 9 pm Wednesday, 9 am to 5 pm Thursday and Friday, and 9 am to noon on Saturday.

Membership Services and Publications  A desk will be maintained in the lower mezzanine lounge from 4 pm to 9 pm Wednesday, 8 am to 4 pm Thursday and Friday, and 8 am 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 lower mezzanine lounge. This center should NOT be used for messages pertaining to the placement service.

New Member Reception  Officers of the Society will host a reception for new members and for those attending their first meeting on Friday at 8 pm in Terrace Room No. 2.

Open House  Everyone is invited to the open reception (cash bar) on Thursday at 5 pm in the upper mezzanine lounge.

Placement Service  A placement service will be conducted in Meeting Room No. 5 from 9 am to 5 pm on Thursday, Friday, and Saturday. Positions open or wanted may be listed with the service throughout the meeting. Message forms will be provided and box numbers will be assigned for use in the placement service message center.

Registration  Registration, which includes a copy of the PROGRAM AND ABSTRACTS, is required for attendance at all sessions. Registration desks will be open in the lower mezzanine lounge from 4 pm to 9 pm on Wednesday, 8 am to 4 pm on Thursday and Friday, and 8 am to noon on Saturday. Members who pre-registered by April 10 should claim their programs and badges at the advance registration desk.

Restaurants  Garden Cafe: serves breakfast, lunch and dinner; Rick's Bar: beverage service only, 11:30 am to 1 am.

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

Lower Mezzanine
Lounge
Meeting Room No. 1 (Bal Masque)
Tulane Room

Upper Mezzanine
Lounge
Imperial Salon
Royal Salon
Presidential Salon
Convention Office No. 11

Second Floor
Meeting Room No. 2
Meeting Room No. 3
Meeting Room No. 4
Meeting Room No. 7
Meeting Room No. 9
Meeting Room No. 10

Sixth Floor
Terrace Room No. 1
Terrace Room No. 2

PROGRAM
THURSDAY MORNING, APRIL 28

(1) Symposium: MIMBRES PREHISTORY: RESEARCH OF THE MIMBRES FOUNDATION IN SOUTHWESTERN NEW MEXICO
Meeting Room No. 2
Organizer and Chairperson: Steven A. LeBlanc
Participants:
8:10
Steven A. LeBlanc, Overview and Research Design of the Mimbres Foundation's Work in Southwestern New Mexico
8:45
Pat Gilman, A Synthesis of the Classic Mimbres Phase with Special Emphasis on the Mattocks Site
9:00
Catherine LeBlanc, Design Analysis of Mimbres Pottery
9:15
John Ravesool, The Post-Mimbres Occupation of the Mimbres Valley: The Classic Period Abandonment and the Casas Grandes Interaction Sphere
9:30
Ben Nelson, Cliff Phase: The Terminal Pueblo Occupation of the Mimbres Valley
9:45
Michael Blake, Archaeological Survey of the Deming Plain: Initial Results
10:00
Date Rugge, Petrographic Studies of the Mimbres Valley Ceramics with an Emphasis on Intraregional Trade Patterns
10:15
Bonnie Nelson, A Spatial Analysis of the Classic Sites of the Rio Mimbres of Southwestern New Mexico
10:30
Paul E. Mannik, Prehistoric Patterns of Wood Utilization and Subsistence Strategies in the Mimbres River Drainage, New Mexico
10:45
Susan Powell and Paul E. Langewalter, Changing Subsistence Patterns as Reflected in Faunal Remains from the Mimbres River Area, New Mexico
11:00
Peggy Rugge, Temporal and Spatial Variation in the Selection and Use of Lithic Materials in the Mimbres Valley
11:15
Christine Hastorf, Resource Utilization in the Mimbres River Valley: A Catchment Analysis
11:30
Discussion

(2) Symposium: CHRONOLOGICAL FRAMEWORKS OF MESOAMERICA: NEW DATA ON CERAMIC SEQUENCES
Imperial Salon
Organizer: Evelyn C. Rattray
Chairpersons: Jaime Littvak King and Evelyn C. Rattray
Participants:
8:00
Anatole Pohorenienko, On the Cultural and Historical Validity of Chronological Frameworks that are Solely Based on Ceramic Evidence: A Systematic View
8:20
Jaime Littvak King, Homotaxiality and Chronology in Mesoamerican Archaeology
8:40
Paul Schmidt S., The Ceramic Sequence of Xochipala, Guerrero
9:00
Ann Cyphers Guillen, A Seriation of Chalcatzingo Ceramics
9:20
Rosa Reyna, Relative Dating of Two Preclassic Sites in the Basin of Mexico
9:40
Mari Carmen Serra and Yoko Sugihara, A Preliminary Study of the Ceramics of Terrenate, Mexico, D.F.
10:00
Rosa Bambila and Margarita Velezco, Cronologia del Oeste del Estado de Queretaro, Mexico—A Través del Sitio Arqueologico de la Negreta
10:20
Evelyn C. Rattray, The Teotihuacan Ceramic Chronology: Late Tlamimilolpa to Metepec Phases
10:40
Robert Cobean, Alba Guadalupe Mascache, Ana Maria Crespo, and Clara L. Diaz, The Chronology of the Tula Region
11:00
Diana Molina, A Preliminary Report on the Chronology of Caacxtla
11:20
Constanza Vega, Ceramic Stratigraphy in the Sacred Precinct of Tenochtitlan
11:40
Discussion

(3) Symposium: THE POTENTIAL OF DEBITAGE IN CULTURAL INTERPRETATION
Terrace Room No. 1
Organizer and Chairperson: Paul R. Fish
Participants:
8:30
Paul R. Fish, From Debitage to Behavior: Exploring the Potential
8:50
Andrea Gerstl, Tool Manufacture at Sabana Grande, Nicaragua
9:10
Arthur J. Jelinek, Some Uses of Debitage in Archaeological Analysis
9:30
9:50
Luis Hurtado de Mendoza, Obsidian Exploitation and Social Structure in Precolumbian Guatemala
10:00
Don Keller, The Tolloc Complex in the Light of Debitage Analysis
10:30
Conran C. Hay, Variability in Wear Patterns on Obsidian Flakes
10:50
Richard W. Jefferies, Inter-site Activity Variability as Revealed through Technological Analysis of Lithic Debitage
(4) Symposium: VOLCANISM AND HUMAN HABITATION IN THE NEW WORLD
Meeting Room No. 1 (Bal Masque)
Organizer and Chairpersons: Donald K. Grayson and Payson D. Sheets
Participants:
8:30 Virginia Stearn-McIntyre, Tephrachronology (Volcanic Ash Chronology) and Its Application to Archaeology
8:50 William B. Workman, The Significance of Volcanism in the Prehistory of Subarctic Northwest North America
9:10 Donald K. Grayson, Mt. Mazama, Middle Holocene Climatic Change, and Nannofossil Ibius Isolani Biogeography in the Northern Great Basin
9:30 Paul J. Pilie, Jr., Sunet Crater and the Sinagua: A New Interpretation
9:50 Richard H. Hewy, Biotic Effects of Volcanism and Paleoclimatic Change in the Vicinity of Flagstaff, Arizona A.D. 1050-1300
10:10 Mary Lee Nolan, Human Consequences of the Paricutin Eruption, Michoacan, Mexico
10:30 P. W. Lambert and S. Valastro, Jr., Late Quaternary (Post-15,000 B.P.) Volcanic Activity in Popocatepetl, Volcano, Mexico
10:50 Payson D. Sheets, Environmental and Cultural Impact of the Volcan Ilopango Eruption, El Salvador
11:10 Erasmus W. Smith and A. Colin Renfrew, Minoan Crete as Lost Atlantis? The Thera Eruption of ca. 1500 B.C.
11:30 Discussants: Harold Malde, Peter J. Mahringer, Jr.

(5) General Session: STUDIES IN PALEOECOLOGY
Presidential Salon
Chairperson: Charles Mikesiek
Participants:
9:00 James Grady, Animal Behavior Patterns as an Economic Determinant of Archaeological Site Location
9:15 Frank K. Bayham, Pleistocene Megafauna: Trophic Organization and Population Regulation
9:30 Burton L. Purrington and Mary Lee Southall, Changing Patterns of Habitat Utilization in a Southern Appalachian Locality
10:10 Diane McLaughlin and Charles Mikesiek, The Potential of Artifactual Pollen Washes for Recovering Environmental and Statistical Data
10:25 Kevin W. Buiten, Changing Holocene Environments at the Koster Site: The Geomorphological Perspective
10:50 David R. Yesner, Methods for Analyzing Prehistoric Biotic Potential and Resource Exploitation

(6) General Session: ARCHAEOLOGY OF EASTERN NORTH AMERICA
Royal Salon
Chairperson: Thomas J. Riley
Participants:
9:00 Thomas J. Riley and Glenn Freimuth, Field Systems and Frost Drainage in Native North America
9:15 Stephen A. Chiokina and Gary W. Crawford, New Evidence for Cutlines in Late Archaic Archaeological Sites
9:30 Wesley R. Stinson and Harvey Luce, Soil Science and Archaeology
10:10 James A. Adovasio, Joel D. Gunn, J. Donuhe, and R. Steenkruch, Meadowcroft Rockshelter: Retrospect 1976
10:40 John W. Fuller, The Development of Late Prehistoric Town Communities in Northern West Virginia—The Test of a Model
11:05 David J. Ives and David R. Evans, The Meramec Archaeological Project 1976-77

(7) Symposium: STONE AGE ARCHEOLOGY IN MEDITERRANEAN EUROPE. PART I: PALEOLITHIC AND MESOLITHIC
Terrace Room No. 2
Organizers: Joseph L. Chastoff and Eugene Sterud
Chairperson: Joseph L. Chastoff
Participants:
8:30 Katherine Flattiger, New Aspects of the Mousterian from Southern and Eastern Spain
8:50 Lawrence E. Bradley, Artifact Variability in the Early Upper Paleolithic of Southern Central Europe
9:10 Joseph L. Chastoff, Time and Settlement at Petroilo during the Warm
9:30 Francis B. Harrold, Jr., A Reappraisal of the Chatelperronian
9:50 Anta Montel-White, Selection Processes in Tool Manufacture

10:10 Elizabeth Prinz, Mesolithic-Neolithic Transition in the Iron Gates Gorge
10:30 Ivan C. Radojevic, Edge-Terminology and Tool Types at Petroilo II
10:50 John Van Alstil, Fourier Shape Analysis of Mousterian and Upper Paleolithic Tools from Petroilo II, Italy
11:10 Randolph E. Donahue, Optical Scanning for Artifact Attribute Recording at Petroilo II
11:30 Discussants: Geoffrey Clark, Leslie G. Freeman

Part II: See Thursday afternoon, Session 16

(8) EARLY SEDENTARY SETTLEMENTS IN THE MOST TROPICS OF NORTHERN SOUTH AMERICA. PART II: THE NATURE OF VALDIVIA AND THE FORMATIVE OF SOUTH AMERICA
Tulane Room
Organizers and chairpersons: Donald Lathrap and Jorge G. Marcos
Participants:
8:00 Doris Z. Stone, Introductory Remarks
8:30 Presley Norton, Loma Alta
9:00 Gerardo Reichen-Dolmatoff, The Magdalena
9:40 Erika Wagner, The Maracaibo Basin
10:00 Anna Roosevelt, La Guata, An Early Ceramic Phase of the Middle Orinoco Basin
10:40 Peter Paul Hilbert, The Early Formative in the Trombetas Region of the Amazon
11:20 P. Pedro Perros, Fase Pustaca
11:30 Discussants: Norman Hammond, D. Collier, J. Cruyden

Part II: See Thursday afternoon, Session 9

THURSDAY AFTERNOON, APRIL 28
12:00-1:30 DISCUSSION OF REGIONAL OVERVIEW CONCEPT

(9) Symposium: EARLY SEDENTARY SETTLEMENTS IN THE MOST TROPICS OF NORTHERN SOUTH AMERICA. PART II: THE NATURE OF VALDIVIA AND THE FORMATIVE OF SOUTH AMERICA
Tulane Room
Organizers and Chairpersons: Donald Lathrap and Jorge G. Marcos
Participants:
2:00 C. Zavala, Nuevas Excavaciones en Cerro Sentinela
2:30 I. Jarrin, Enigmamula Sitio Valdivia Tardio
3:00 Emily Lundberg, Reappraisal of Valdivia Figurines Based on Controlled Feature Contexts
3:30 James Zeldler, Early Formative Settlement in the Chanduy Valley, Southwest Ecuador
4:00 Jorge G. Marcos, Real Alto—Is Valdivia Really the Early Formative of Ecuador?
4:30 Mario Sandoval O., La Tradicion Barrancoe and Formativo Suramericano
4:50 Discussants: Michael E. Moseley, William T. Sanders

Part III: See Thursday evening, Session 21

(10) Symposium: THE SOUTHWESTERN ANTHROPOLOGICAL RESEARCH GROUP: RESULTS TO DATE
Royal Salon
Organizers: Sylvia Gaines and Fred Plog
Chairperson: Robert C. Euler
Participants:
2:00 Dee F. Green, The Evolution of the SARG Research Design
2:30 Sylvia Gaines, The Evolution of the SARG Computer Format and Data Bank
2:40 Richard Effland, The Use of the SARG Data Bank in Hypothesis Testing
3:00 W. James Judge, A Project-Specific Evaluation of the SARG Results
3:20 Jeffrey S. Dean, An Evaluation of the SARG Effort
3:40 Fred Plog, A Revised SARG Research Design
4:00 Discussion

(11) Symposium: MAYA INTELLIGENT ACTIVITIES IN THE CLASSIC AND POST-CLASSIC
Imperial Salon
Organizer and Chairperson: Marshall Durbin
Participants:
2:00 Munro S. Edmonson, Maya Historiography
2:30 James A. Fox and John Justesos, Aspects of Maya Astronomical Inscriptions
3:00 Florence Liman, Identification of Emblem Glyphs and the Provenience of an Unusual Stela
3:30 John S. Justesos and James A. Fox, Classic Maya Dynastic Relations
4:00 Andrew Hopping, Architectural Features and their Domains in the Late Classic
(12) Symposium: THE ARCHAEOLOGY OF THE VIRGIN ISLANDS NATIONAL PARK
Meeting Room No. 2
Organizer and Chairperson: James W. Stoutamire
2:00 James W. Stoutamire, Introduction to the History of Research in the Virgin Islands National Park
2:15 James W. Thomson, Recent National Park Service Archaeological Research in the Virgin Islands National Park
2:30 Jay B. Haviser, Ceramic and Lithic Typology for the Virgin Islands National Park
2:45 Forrest D. Cring, Analysis of Faunal Materials from Cinnamon Bay
3:15 Katherine Dinnel, Historic Ceramics and Human Remains from the Virgin Islands National Park
3:45 James W. Stoutamire, Summary of Virgin Island Archaeology and Recommendations for Future Research
4:05 Discussion

(13) Symposium: BONE TECHNOLOGY: EXPERIMENTATION, ASSEMBLAGES, AND NON-HUMAN MODIFICATION
Terrace Room No. 1
Organizer: Eileen Johnson
Chairperson: Robson Bonnichsen
Participants:
2:00 Robson Bonnichsen, Bone Pretreatment
2:20 George Frison, Bone Butchering Tools in Prehistoric Bison Kill Sites
2:40 Susanne J. Miller, Taphonomy of Extinct Megafauna Accompanying a Fluted Point Tradition at Owl Cave, the Wasden Site, Idaho
3:00 Break
3:20 Eileen Johnson, Paleo-Indian Bone Expediency Tools—Lubbock Lake and Bonfire Shelter
3:40 T. Weber Greiser, The Jones-Miller Hell Gap Site Bone Tool Assemblage
4:00 Joe Ben Wheat, Bone Technology at Jargens, Olsen-Chubuck, and Little Box Elder Cave
4:20 Carolyn Ekland and Phillip Grant, Discriminant Analysis of Fragments from Long Bone Diaphyses

(14) General Session: STUDIES IN LITHIC TECHNOLOGY
Meeting Room No. 1 (Bal Masque)
Chairperson: Patrick C. McCoy
Participants:
2:00 Susan M. Chandler and John A. Ware, The Discrimination of Technological Behavior: An Experiment in Lithic Replication
2:20 Patrick C. McCoy, Archaeological Investigations at the Mauna Kea Adz Quarry Complex, Hawaii: Preliminary Results of the 1975-76 Fieldwork
2:50 Harvard G. Ayers, Chemical Characterization of North American Chert Sources
3:15 Charles A. Reher and George Frison, Territorial Inference from Source Analysis of Lithic Assemblages
3:40 Ronald Spielbauer, A Suggested Elemental Solution to the Identification Problem of Concentrically Banded, Blue-gray Cherts from Southern Indiana and Illinois
3:55 James B. Stoltman, Observations and Experiments on Thermal Pretreatment of Chert from an Early Archaic Quarry-Workshop in Southwestern Wisconsin
4:10 Kelley C. Duncan, Analysis of a Burnt Rock Midden Site in Southeastern Oklahoma

(15) Symposium: COMPUTER SIMULATION AS ARCHAEOLOGICAL MODEL BUILDING
President's Salon
Organizers and Chairpersons: Mark S. Aldenderfer and James W. Hatch
Participants:
2:00 Bennett Dyke, On the Appropriate Use of Computer Simulation
2:20 Ezra B. Zubrow, Simulation and the Application of a Kriging Sampling Design to a Regional Survey
2:40 Albert Ammerman and Diane Gilford, A Simulation Study of Excavation Strategies at a Maastrichment Settlement
3:00 James W. Hatch, Measuring the Effects of Sampling Error in Ceramic Frequency Seriation
3:20 Mark S. Aldenderfer, The Computer Simulation of Assemblage Formation Models, in Hunter-gatherer Archaeology
3:40 Alan N. Snively and Cindy J. Parsons, Simulation and IIack Box Processes: Forest Growth and Intrasite Artifact Distribution
4:00 Discussions: David H. Thomas

(16) Symposium: STONE AGE ARCHAEOLOGY IN MEDITERRANEAN EUROPE,
PART II: NEOLITHIC AND CHALCOLITHIC
Terrace Room No. 2
Organizers: Joseph L. Chartoff and Eugene L. Sterud
Chairperson: Eugene L. Sterud
Participants:
2:00 Ruth Tringham, Resource Utilization in Neolithic Yugoslavia
2:20 Cheryl Claassen, Estimating Occupation Span from Artifacts: A Trial Run at Staro Seło, Yugoslavia
2:40 Judith Rasson, Coast-Interior Relationships in the Adriatic Neolithic
3:00 Brad Bartel, Bow-wave Diffusion and Neolithic Figurine Distribution in the Mediterranean
3:20 Alan Mr-Pheron, Changes in Settlement and Subsistence between Early and Later "Neolithic" in Yugoslavia
3:40 Eugene L. Sterud, The Dynamics of Early Food Production in the Dinaric Region of Mediter ane Europe
4:00 Daniel Everist, A Test of Generalizations Concerning Post-Pleistocene Man-Land Relationships: The Italian Case
4:20 Thomas W. Jacobsen, Observations about the Origins of Plant and Animal Husbandry in Southern Greece
4:40 Discussions: Robert K. Evans, Harold Koster, A. C. Renfew

THURSDAY EVENING, APRIL 28

5:00-5:30 OPEN HOUSE Upper Mezzanine Lounge
5:00-7:00 AMERICAN SOCIETY FOR CONSERVATION ARCHAEOLOGY Meeting Room No. 2 Business Meeting
7:00-8:00 ASSOCIATION FOR FIELD ARCHAEOLOGY Royal Salon Business Meeting

(17) General Session: MIDWESTERN ARCHAEOLOGY
Terrace Room No. 1
Chairperson: Joseph Tainter
Participants:
8:00 Naldyne Brown Bridwell, The Manifold Benefits of High School Field Archaeology
8:15 Nan A. Rothschild, Skeletons in the Closet: The Analysis of Prehistoric Social Organization through Mortuary Sites
8:55 A. M. Cantwell, Functional Analysis of Two Early Havana Tradition Sites
9:10 N. G. Greber, The Use of Nonparametric Statistical Ranking Techniques in the Analysis of Hopewell Burial Patterns Found in Seip Mound 1, Ross County, Ohio
9:35 Diana diZerega Rockman, The Hopewellian Way of Death
9:50 Elizabeth Benchley, Presalve Investigations at Cahokia
10:05 Joan Gardner and Mary Elizabeth King, Textiles from Spiro, Oklahoma

(18) Symposium: CULTURAL RESOURCE MANAGEMENT—THE FEDERAL PROGRAMS AND ARCHAEOLOGISTS’ EXPERIENCE
Imperial Salon
Organizer and Chairperson: David Sanger
Participants:
8:00 Mark R. Barnes, The Role of the Office of Archaeology and Historic Preservation
8:15 Charles J. Spilker, The Role of the Advisory Council on Historic Preservation
8:30 Richard Anuskiewicz, The Role of the Professional Archaeologist with the U.S. Army Corps of Engineers
8:45 David Sanger, Universities and the State Historic Preservation Officer
9:00 Charles Bolt, The Role of the University Archaeologist
9:15 Alton Briggs, The Role of the Archaeologist on the State Historic Preservation Officer’s Staff
9:30 Roger W. Mudler, The Role of the Private Archaeological Research Organization

(19) General Session: PLAINS ARCHAEOLOGY
Meeting Room No. 1 (Bal Masque)
Chairperson: T. R. Hays
Participants:
8:00 Mark L. Young, Toward a Regional Research Design for North-Central Texas
8:25 E. Mott Davis, Patience E. Patterson, S. Valastro, Jr., and Alejandra V. Varela, A Review of Radiocarbon Dating in the Caddoan Archaeological Area
8:50 T. R. Hays, Larry W. Morgan, and James W. Thomson, A Reexamination of the Archaeo-American Transition in North-Central Texas
9:20 Frank W. Eddy and Ric Windmiller, An Application of the Wyoming Projectile Point Chronology to Dating of an Eastern Colorado Foothills Site Survey
(20) General Session: OLD WORLD ARCHAEOLOGY
Terrace Room No. 2
Chairperson: Norman Yoffee
Participants:
8:00 Norman Yoffee, The Decline of Mesopotamian Civilization: an Ethnoarchaeological Perspective on the Evolution of Social Complexity
8:50 Anne Attebury, New Excavations at Kharaa Oasis: The Aterian Workshop (Site E76-4)
9:15 James I. Eberl, Mobility, Climate, and Specialization in the Middle and Late Stone Ages of Southern Africa
9:30 Milla Y. Odel, The Clovisian/Acheulean Interface in Britain: Research Summary and Conclusions

(21) Symposium: EARLY SEDENTARY SETTLEMENTS IN THE MOIST TROPICS OF NORTHERN SOUTH AMERICA, PART III: EVIDENCE OF POPULATION MOVEMENTS OUT OF THE MOIST TROPICS OF SOUTH AMERICA
Tulane Room
Organizers and Chairpersons: Donald W. Lathrap and Jorge G. Marcos
Participants:
8:00 Louis Stark, Linguistic Evidence for Early Migrations in South America
8:30 Louis Allaire, From Prehistory to History in the Lesser Antilles: The Problem of Carib Migrations
9:00 Donald W. Lathrap, Iconographic Unity between Mesoamerica and South America
9:30 Dorothy Lowery, Norman Hammond, and Duncan Pring, Earliest Formative of Mesoamerica and Possible Antecedents
10:00 Discussant: Irving Rouse

Part IV: see Friday morning, Session 22

FRIDAY MORNING, APRIL 29

9:00-10:30 SOUTH AMERICAN ARCHAELOGICAL CONFERENCE ("The late Pleistocene in the Southeastern United States," a continuation of a dialogue begun at the Southeastern Archaeological Conference)
Meeting Room No. 3
Open Meeting
Chairpersons: Dan F. Morse and Cailup Curren, Jr.

(22) Symposium: EARLY SEDENTARY SETTLEMENTS IN THE MOIST TROPICS OF NORTHERN SOUTH AMERICA, PART IV: INTENSIFICATION OF AGRICULTURAL SYSTEMS IN THE NEW WORLD, WAS IT A UNITARY PHENOMENON?
Tulane Room
Organizers and Chairpersons: Donald W. Lathrap and Jorge G. Marcos
Participants:
8:30 Walton G. Galinat, Valdivia Malae and Its Significance
9:00 Deborah Pearsall, The Botanical Analysis of Real Alto: An Initial Model of Valdivia Subsistence
9:30 Alberto Zucchi, Ecological Variability and Prehispanic Agriculture in the Venezuelan Llanos
10:00 James J. Parsons, Riddle Fields in Colombia and Ecuador
10:30 Dennis Puleston, Raised Fields in Mesoamerica and South America: Colonization or Independent Invention
11:00 Robert Bird, The Evolution and Influences of the Malae of the Intermediate Area
11:30 Discussants: E. Earle Smith, G. S. Stephens, Bennett Bronson

(23) Symposium: REMOTE SENSING IN MESOAMERICA, PART I
Terrace Room No. 1
Organizers: James H. Hester and James Grady
Chairpersons: James J. Hester
Participants:
8:30 Ray T. Matheny, Detection and Mapping of Ancient Water Controls in the Maya Lowlands by Aerial Photography
8:50 Barbara Stark and Dennis Young, Linear Nearest Neighbor Analysis of Cabeza de la Vaca Sites, Veracruz, Mexico
9:10 Ellen L. Clarke, Comparison of Modern and Prehistoric Settlement Patterns in the Lowland Saban Basin, Veracruz, Mexico
9:30 Bruce Dahlin, Richard E. W. Adams, T. Patrick Cubert, and Barbara Stark, The Proposed Comprehensive Maya Lowland Mapping Project
9:50 Robert Hardwick, Technical and Fiscal Considerations of Imagery Acquisition in Central America

10:10 James J. Hester, James Grady, and Claudia Nisstle, Aerial Photo Interpretation of the Copan Ceremonial Center
10:30 Don S. Rice, A Comparison of Approaches for Investigating the Heterogeneity and Potential Productivity of the Lowland Maya Environment
11:00 Discussants: Elmer Harp, Tom Lyons, Richard Blanton, Evan Vogt

Part II: See Friday afternoon, Session 31

(24) Symposium: THE DEVELOPMENT OF ETHNOARCHAEOLOGY, PART I
Presidential Saloon
Organizer and Chairperson: Michael B. Stanislawski
Participants:
9:00 William A. Longacre, Kalinga Pottery Making
9:15 P. Bion Grifinfr and Wilhelm G. Solheim II, Ethnoarcheological Research in Asia
9:30 Mary Elizabeth Shutter, Richard Shutter, Jr., Jan Frost, and Everett Frost, Potshers and People
10:00 J. K. Specht, A Review of Ethnoarchaeology Studies in New Guinea
10:15 Brian Hayden and James O'Connell, Ethnoarchaeology in Australia: A Review
10:30 Patty Jo Watson and S. E. Van Der Leen, Ethnoarchaeology in the Near East
10:45 Frederick R. Matson, Ethnoarchaeology of Nomadic and Village Pottery Making in Groups in the Near East
11:00 Diane Gifford and Dinah Crader, African Hunters and Gatherers: Ethno-archaeology
11:15 J. Desmond Clark and Glynn Isaac, Aspects and Prospects of Ethnarchaeological Research in Africa
11:30 Discussants: Glynn Isaac, J. Desmond Clark

Part II: See Friday afternoon, Session 32

(25) Symposium: MISSISSIPPIAN SETTLEMENT PATTERNS
Terrace Room No. 2
Organizer and Chairperson: Bruce D. Smith
Participants:
8:00 Alan D. Harn, Mississippian Settlement Patterns in the Central Illinois River Valley
8:20 Thomas J. Green and Cheryl L. Munson, Mississippian Settlement Patterns in Southwestern Indiana
8:40 Patricia S. Eyken, Fort Ancient Settlement: A Case Study of Response at a Mississippian-Late Woodland Interface
9:00 Melvin Fowler, Cahokia and the American Bottoms: Settlement Archaeology
9:20 Jon Muller, The Kincaid System: Mississippian Settlement in the Environments of a Large Site
9:40 James E. Price, The Powers Phase Settlement System
10:00 James A. Brown, Robert E. Bell, and Don G. Wyckoff, Caddoan Settlement Patterns in the Arkansas River Drainage
10:20 Roy S. Dickens, Jr., Mississippian Settlement Patterns in the Appalachian Summit Area
10:40 Charles E. Pearson, Analysis of Late Mississippian Settlement on Ossabaw Island, Georgia
11:00 Christopher S. Peebles, Determinants of Settlement Size and Location of the Moundville Phase, Alabama
11:10 Vinco P. Steponaitis, Central Place Models In Pre-Market Contexts: A Mississippian Example
11:20 David S. Brose and George R. Percy, Fort Walton Settlement Patterns
11:40 Bruce D. Smith, Variation in the Complexity of Mississippian Settlement Patterns
11:50 Discussants: James B. Griffin, Stephen Williams

(26) Symposium: AMERICAN SOCIETY FOR CONSERVATION ARCHAEOLOGY SYMPOSIUM ON CULTURAL RESOURCE MANAGEMENT AND ARCHAEOLOGICAL RESEARCH IN PRACTICE
Royal Salon
Organizer and Chairperson: Don D. Fowler
Participants:
8:00 Martin E. McAllister, PCRMCPA: Public Cultural Resource Management (Conservation, Preservation, and Salvage) Archaeology
8:20 James T. Rock, Bureaucracy and Cultural Resource Management
8:40 Joel I. Klein, The SHPO, Federal Agencies, and the Contract Archaeologist: A Cautionous Menage
9:00 Alexander J. Lindsey, Jr. and Mark E. Randall, Cultural Resource Management as a Business, and Its Place in the Business World
9:20 Daniel E. Fox, and Jerry Alexander, Business-Like Archaeology: The Potential for Application of Management Controls
9:40 E. Charles Adams, The Changing Nature of Archaeological Data, or How to Get Along on a Scarce Resource
10:00 Alston Thomos and W. J. Mayer-Oakes, Research Design—Theoretical Uniformity, Clarification or Stagnation?
10:20 Mark A. Grady, Research Designs and Cultural Resource Management: Some Practical Considerations
FRIDAY AFTERNOON, APRIL 29

12:00 SOCIETY FOR AMERICAN ARCHEOLOGY COMMITTEE ON THE STATUS OF WOMEN IN ARCHEOLOGY
Meeting Room No. 1
Open Meeting

12:00-2:00 AD HOC GROUP ON ARCHEOLOGICAL SURVEY AND PRESERVATION
Meeting Room No. 7
Organizational Meeting

5:45 SOCIETY FOR AMERICAN ARCHEOLOGY ANNUAL BUSINESS MEETING
Royal Salon
Raymond Thompson, President

(27) Symposium: HOLOCENE ENVIRONMENTS AND HUMAN POPULATIONS ON THE PECOS RIVER, NEW MEXICO
Meeting Room No. 1 (Bal Masque)
Organizers and Chairpersons: Joseph G. Gallagher and Charles M. Mobley
Participants:
8:00 Larry V. Nordby, Upper Pecos River Valley Archaeology: A Review and a Beginning
8:20 Charles M. Mobley, Aboriginal Adaptations Along the Pecos River Near Santa Rosa, New Mexico
8:40 Chester Shaw, Lithic Exploitation and Technology in the Upper Pecos River Valley
9:00 James H. Gannerson, Historic Indian Occupations in the Upper Pecos Area
9:20 Frances Levine, Nomadic Pastoralism on the Pecos River during the Mexican and Territorial Periods
9:40 Tony L. Burgess, A Reconstruction of the Vegetation of the Brantley Reservoir Prior to Anglo-American Settlement
10:00 Thomas R. Van Devender and Diane E. McLaughlin, Late Holocene Vegetational Transition in Rocky Arroyo and Last Chance Canyon, Eddy County, New Mexico
10:20 Susan Applegarth, Paleoecology and Prehistoric Exploitation of the Eastern Slopes of the Guadalupe Mountains, Southeastern New Mexico
10:40 Joseph G. Gallagher, An Analysis of Prehistoric Settlement Functions Within the Brantley Reservoir, New Mexico
11:00 Discussants: Jane Kelley, Reggie Wiseman

(28) Symposium: PRESENT ARCHEOLOGICAL RESEARCH IN LOWER CENTRAL AMERICA
Imperial Salon
Organizers and Chairpersons: Richard W. Magnus and Frederick W. Lange, Michael J. Snarski
Participants:
8:00 Richard M. Accola, A Preliminary Application of X-ray Diffraction Analysis to the Study of Nicoya Polychrome Ceramics
8:20 Karen Olsen Bruhns, Archaeological Investigations at Chiuatan, El Salvador
8:40 Richard G. Cooke, The Exploitation of Animal Resources Along the Pacific Lithoflor of Central Panama
9:00 W. J. Kennedy, Archaeological Investigation at Tolito, An Early Period Site in the Reventazon River Valley, Costa Rica
9:20 Frederick W. Lange, Excavations at the Vidor Site, Guanacaste, Costa Rica
9:40 Richard W. Magnus, The Sitoa Complex: Its Importance for the Late Formative of Lower Central America
10:00 Jean-Francois Moreau, A Biological Approach to Site Seasonality: Shell Analysis of Two Costa Rican Inland Shell middens
10:20 Roberto Reyes, Petroglyfos y Pictoglifos de Honduras: Estilos y Secuencia
10:40 Doris Stone, The Possible Roots of Rosales Zones Engraved Ware from the Greater Nicoya Region: An Hypothesis
11:00 Michael D. Snarski, Finca Guardilla: First Analysis of a Fluted Point Industry from Costa Rica
11:20 Laura Laurencich Minelli, Sugiestion de Mayor Antiguedad del Bricomo en Zona en Nicoya
11:40 Discussants: Richard W. Magnus, Frederick W. Lange, Michael J. Snarski

Fridays, April 29, 30, May 6, 7

12:00 - 2:00 SYMPOSIUM: REMOTE SENSING IN MESOAMERICA, PART II
Terrace Room No. 1
Organizers: James J. Hester and James Grady
Chairperson: James Grady
Participants:
2:00 B. Lee Baker, A Test of the Utility of Aerial Photography in Studying Prehistoric Maya Rural Settlement Patterns in Yucatan, Mexico
2:40 Antonio Bonvillods and Ferdinando Robles, Air Photo Interpretation at Coba
3:00 Sylvia Garza and Edward B. Kurjick, Remote Sensing in the Yucatan Peninsula
3:20 Julian Whittlessey, Low-Level Aerial Photopan for Recording and Remote Sensing in Archaeology
3:40 La Verne Herrington, Prehistoric Field and Irrigation Systems of the Rio de Arenas and Cameron Creek Drainages, Grant County, New Mexico
4:00 Discussants: George Gumerman, Norman Hammond, Richard E. W. Adams, Christopher Allen

(31) Symposium: THE DEVELOPMENT OF ETHNOARCHAEOLOGY: A WORLD-WIDE PERSPECTIVE, PART II
President Salon
Organizer and Chairperson: Michael B. Stanislawski
Participants:
2:00 Warren R. DeBoer and Dean Arnold, The Womb and the Tomb: Contrasting Models for Understanding Aztec History
2:15 S. E. Van Der Leeuw and Dean Arnold, Ethnoarchaeology of Andean South America: European and American Views
2:30 Dean Arnold, Margaret Hardin, and Phil C. Welgand, A Review of Ethnoarchaeological Studies in Mesoamerica
3:00 Thomas F. Keen and Alice B. Keene, and Robert Hall, The "Direct Ethnological" Approach, Ethnoarchaeology, and Ethnohistory in Eastern Anglo-America
3:15 Ted Frisbie and Florence Hawley Ellis, A Review of Ethnoarchaeology in Western United States and North Mexico
3:30 Robert E. Ackerman, The Arctic and Sub-Arctic
4:00 Joan B. Townsend, Ethnoarchaeology: Perspectives from the North American Sub-Arctic
4:15 Discussants: Frank Hale, Michael B. Stanislawski
5:00 Discussion: Entire Panel
(33) Symposium: RECENT RESEARCH IN LEVANTINE PREHISTORY
Organizers and Chairpersons: Frederick C. Munday and Alan H. Simmons
Participants:
2:00
Frederick C. Munday, Intersite Technological Variability in the Mousterian of the Aqwil/Amud Area, Central Negev, Israel
2:20
Harold J. Hietala and Dominique E. Stevens, Sediment in the Mousterian: A Case Study
2:40
Anthony E. Marks, A Middle to Upper Paleolithic Transition in the Southern Levant
3:00
Gerald Kukan, Technological Change in the Levantine Epipaleolithic
3:20
Thomas R. Scott, The Harifian Occupation of the Negev and Sinai
3:40
Paul Larson, Natufian Adaptive Strategies in the Central Negev, Israel in the Anti-Lebanon Mountains
4:00
H. Bruce Schoedel, Nacharin, A Stratified Post-Natufian Camp
4:20
Alan H. Simmons, Pre-Pottery Natufian B Occupation of the Western Negev, Israel: Economic Potentials
4:40
5:00
Discussion

(34) General Session: MESOAMERICAN ARCHAEOLOGY AND ETHNOHISTORY
Tulane Room
Chairperson: Warren Barbour
Participants:
2:00
Margaret J. Schoening, Diet and Social Status During the Formative Period in Mexico
2:15
Warren Barbour, Prehistoric Fingerprint Impressions: A Method for Determining the Sex of the Manufacturers of Figurines at Teotihuacan, Mexico
2:40
Michael W. Spence, Late Middle Horizon Obsidian Production in Teotihuacan Mexico
3:15
Richard A. Dietli, "After the Olmecs—The Post-Formative Occupation at San Lorenzo Tenochtitlan"
3:20
Dennis E. Lewarch, Spatial-Functional Structure of the Late Postclassic Settlement System in the Coahtlan del Rio Valley, Western Morelos, Mexico
3:45
Edward G. Stroh, Richard J. and Richard A. Dietli, Can the Spatial Distributions of Utilitarian Ground Stone be Used to Identify Kitchen Areas? A Test Case Involving Tula, Hidalgo, Mexico
4:00
Phil C. Weinland, Michael Cincinomico, and Douglas Holmes, Atitlan-Las Cuevas: A Postclassic Port-of-Trade in the Highlands of Western Mexico
4:15
Robert D. Shadow and Phil C. Weinland, Highland-Barranca Contrasts in the Bolaso Valley, West Mexico
4:30
Mark E. Harlan, Early and Middle Formative Figurines from Chalcatzingo, Morelos, Mexico
4:45
Barbara Voorhies, Protoclassic Settlement Pattern in the Uppermost Grijalva Basin
5:00
Elizabeth Hill Boone, The Lost Sixteenth Century Source of Herrera’s Title Page Vignettes
5:25
Grant D. Jones, The Location of Tayasal in the Light of Lake Peten Maya Ethnohistory

(35) Symposium: PALEOECOLOGY AND HUMAN ADAPTATIONS IN THE LOWER PETEN
Organizers and Chairpersons: Harry J. Shafer, Jr.
Meeting Room No. 2 (Bal Masque)
Participants:
2:00
Harry J. Shafer, Archaeology of Hinds Cave: The 1976 Season
2:20
Bohannon, Jr., Paleontological Records from Hinds Cave
2:40
J. Philip Derig, Plant Remains from Hinds Cave
3:00
Glenna Williams-Dan, Investigations into the Ethnobotanical and Cultural Ecology of Prehistoric Man in the Lower Pecos
3:20
Kenneth Lord, Preliminary vertebrate faunal Research at Hinds Cave, Texas, 41VV456
3:40
Gary L. Moore and Harry J. Shafer, Site Distribution and Function in Musk Hod Canyon, Crockett County, Texas
4:00
Thomas R. Hester, Recent Archaeological Studies at Baker Cave, Val Verde County, Texas
4:20
K. M. Brown, Middle Archaic camps at Three Mile Draw
4:40
Discussion

(36) Symposium: THE SOUTHERN PERIPHERY OF Mesoamerica: HONDURAS AND EL SALVADOR
Organizer and Chairperson: Paul F. Healy
Participants:
2:00
Howard Earnest, Preclassic Archaeology of Central El Salvador
2:30
Richard Crane, Ceremonial Centers and Classic Period Archaeology of Central El Salvador
2:30
William R. Fowler, Jr., A Definition of the Postclassic Period of Central El Salvador
2:45
Nededia C. Kennedy, On the Frontier at Playa de los Muertos, Honduras
3:00
James J. Sheehy, Archaeological Investigations at Travelsa, Honduras: A Preliminary Report
3:15
Irene Wallace, Polychrome Ceramics in the Valley de Naco and their External Relationships
3:30
John Henderson, Northwestern Honduras and the Eastern Maya Frontier
3:45
Richard Aguirre, The Figurines of Playa de los Muertos, Honduras
4:00
Vito Veliz, An Ancient Human Footprint in Guacima, Honduras
4:15
Jeremiah Epstein, Some Problems in Bay Island Prehistory
4:30
4:45
Discussion: Dorit Z. Stone, Wolfgang Haberland, Claude F. Baudet, and Stanley Boggs

(37) General Session: ARCHAEOLOGICAL METHOD AND THEORY, PART II
Tulane Room
Chairperson: Merrilee H. Salmon
Participants:
2:00
Westley C. Salmon, New Models of Scientific Explanation
2:25
Merrilee H. Salmon, The Systems Theory Approach to Explanation in Archaeology
2:50
A. Colin Renfrew, The Potential of Catastrophe Theory for Archaeology
3:15
Michael W. Graves, Archaeological Surface Methodology
3:40
Marilyn C. Stewart, Archaeological Pits: A Research Design and a Typology
4:05
Andrew L. Christensen, Efficiency, Maximization, and Population Pressure: Some New Light on Some Old Concepts

FRIDAY EVENING, APRIL 29
8:00
RECEPTION FOR NEW MEMBERS
9:00
Tulane Room No. 2
Present and past officers of the Society greet new members and members attending their first annual meeting
9:00
SOCIETY OF PROFESSIONAL ARCHAEOLOGISTS
Meeting Room No. 2
Business Meeting

SATURDAY MORNING, APRIL 30
(38) Symposium: CONFERENCE ON Mesoamerican Ethnohistory: Codices and Manuscripts, Part I
Royal Salon
Organizer and Chairperson: Nancy P. Trolke
Participants:
9:00
Marta Foncerrada, Cacaxtla Paintings and Their Calendaric Signs
9:15
Linda Schele, The Bundle in Maya Hieroglyphics and Iconography
9:30
Elizabeth P. Benson, Representations of Pottery in Maya Art
9:45
Merle Greene Robertson, A Correlation Between the Codex Tro-Cortesanus and Prologue’s East Subtance
10:00
Virginia Elizabeth Miller, A Reinterpretation of Maya “Gestures of Submission”
10:15
Javier Noguez, The Tira de Tepexcan
10:30
Tim Knab, Metaphors and Meanings of Classic Aztec
Part II: See Saturday afternoon, Session 48

(39) Symposium: COMMUNITY FLOW AND POLITICAL DEVELOPMENT IN THE ANDES: PART II
Tulane Room
Organizers and Chairpersons: David L. Brown and Karen O. Brumh
Participants:
8:00
R. A. Benfer, John W. Greer, Alice N. Benfer, and Frederick A. Engel, Ecologic and Demographic Patterns at La Paloma, a Preagricultural Lomas Village
8:20
Emil Peterson, Cotocollao: A New Agricultural Formative Village in Highland Ecuador
8:40
John W. Rick, Preceramic Hunters of the Central Peruvian Puna
9:00
Darwin D. Horn, Animal Utilization in the Lake Titicaca Basin (Chiripa)
9:15
Carol J. Shockey, Llama Herding in the Chimu State
9:40
John W. Rick, Redistribution Economies: Garagay and the Chavín Sphere
10:00
Richard Burger, The Socio-Economic Basis of Chavin
10:20
10:40 Alana Cordy Collins, Hallucinogens and Symbolic Integration in the Chavin Civilization
11:00 Karen E. Stothert, Styles and Settlement of the EH-EIP Transition on the Central Coast
11:20 Discussion
Part II: See Saturday afternoon, Session 49

(40) Symposium: STYLISTIC ANALYSIS IN ARCHAEOLOGY
Terrace Room No. 1
Organizers: Haree L. Deutchman and Stephen Plog
Chairperson: Stephen Plog
Participants:
9:00 Haree L. Deutchman, The Use of Discriminant Analysis to Interpret Ceramic Design Element Variability
9:20 Jeff Hantman and Kent Lightfoot, Analysis of Ceramic Design—An Example of Micro-seriation
9:40 Tony Kleuser, Analysis of Intrastyle Ceramic Design Variability
10:00 Robert Neily, Spatial Scaling of Stylistic Variability: A Synthetic Approach
10:20 Break
10:40 Stephen Plog, Explanations of Ceramic Design Variability in the Chavelon Region, Arizona
11:00 Linda Popelish, Stylistic Analysis of Anasazi Rock Art from Canyon del Muerto, New Mexico
11:20 David Braun, Ceramic Style Variability During the Middle-Late Woodland Transition in Western Illinois
11:40 Jerome A. Voss, Stylistic Analysis and Organizational Change: A European Example
12:00 Discussant: William Longacre

(41) General Session: SOUTHWESTERN ARCHAEOLOGY, PART I
Presidential Salon
Chairperson: David Breternitz
Participants:
8:45 T. J. Ferguson and William A. Dodge, Archaeological Investigations at Pescado Springs, Zuni, Indian Reservation, New Mexico
9:00 Karen R. Adams, Site Catchment Analysis of Wild Plant Resources in the Heavy Grazed Rio Puerco Valley of New Mexico
9:15 Salome D. Brandner, Ornaments at Salmo Jaiunis, San Juan County, New Mexico
9:30 Linda S. Cordell, Late Anasazi Hunting: Inferences from the Tijeras Pueblo Fauna
9:45 Charles H. Miskieck, The Prehistoric Subsistence Ecology of the El Morro Valley, New Mexico
10:00 Michael E. Whalen, Aspects of the Pithouse-to-Pueblo Transition on the Periphery of the American Southwest
10:20 Gordon Bronitsky, Mass Production and Cost Reduction
11:15 Jeffrey L. Eighmy, Logistic Trends in Southwest Population Growth

(42) General Session: HISTORIC ARCHAEOLOGY
Meeting Room No. 1 (Bal Masque)
Chairperson: Frederick Gorman
Participants:
8:40 Frederick Gorman, Problem-Oriented Research in Historical Archaeology: Industrial Organization of Technology and Labor in Eighteenth-Century Glass Manufacturing
8:25 Timothy W. Jones, Economic Disparity at Kanaka Village
8:40 Charles C. Kolb, The Eriez Indians: An Archaeological and Ethnohistorical Reevaluation
8:55 Kathleen A. Deegan, A Subsurface Survey of Downtown St. Augustine, Florida
9:10 Susan N. Mayer, Niantic-European Contact at Fort Ninigret, Rhode Island
9:25 Michael B. Schiffer, The Reuse Project

(43) General Session: CULTURAL RESOURCE MANAGEMENT
Meeting Room No. 1 (Bal Masque)
Chairperson: Mark A. Grady
Participants:
10:40 C. Melvin Alkens, Problems of Archaeological Site Survey in Heavily Forested Regions: Seeing the Ground and Looking in Likely Places in the Woods of Western Oregon
11:00 Bettina H. Rosenberg, The Corporate View of Cultural Resource Management
11:35 E. Pierre Morenon and Mark A. Grady, Conservation Archaeology, Middle Range Theory, and the Prediction of Past Land-Use Patterns
11:50 William A. Dodge and T. J. Ferguson, The Zuni Archaeological Enterprise: A New Concept in Conservation Archaeology

(44) General Session: ARCHAEOLOGICAL STUDIES IN OSTEOLGY
Meeting Room No. 2
Chairperson: Margaret E. Hamilton
Participants:
8:00 Margaret E. Hamilton, Human Sexual Dimorphism and Subsistence Patterns in the Archaeological Record
8:25 Thomas K. Black, III, Discriminant Functions on the Dentition as an Aid to Sexual Diagnosis of Human Skeletal Remains
8:40 G. Wessen, F. H. Ruddy, C. E. Gustafson, and H. Irwin, Bone Strontium and Barium Content as Indicators of Diet and Environment
9:05 D. W. Von Endts, D. J. Ortner, and A. I. Stix, Environmental Factors that Affect the Preservation of Bone in Faunal Assemblages

(45) General Session: ARCHAEOLOGY OF THE GREAT BASIN AND THE WEST
Meeting Room No. 2
Chairperson: William H. Adams
Participants:
10:45 A. V. Eggers, R. W. Robinson, and Mark Q. Sutton, Evidence of Early Man in the Western Mojave Desert, California
11:00 Robert L. Bettinger, Multivariate Statistical Analysis of Regional Settlement-Subsistence Systems in Owens Valley, Eastern California
11:15 Max G. Pacen, An Archical Burial Pattern in Idaho
11:30 Wakefield Dort, Jr. and Susanne J. Miller, Geology and Archaeology of the Wasden Site, Eastern Snake River Plain, Idaho
12:10 Jonathan E. Ersson, Chemical Characterization of California Obsidian: Isolating Exchange Systems

(46) Symposium: ANALYTICAL APPROACHES IN PREHISTORIC ECONOMICS
Terrace Room No. 2
Organizers: Van A. Reidhead and W. Frederick Limp
Chairperson: Van A. Reidhead
Participants:
8:30 Philip L. Kohl, The Balance of Trade in Southwest Asia in the Mid-Third Millennium: A Structural Analysis
8:50 Marci F. Seeman, A Location Analysis of Hopewell Sites in the Eastern United States
9:10 Michael A. Jochim, Economic Strategies in the Upper Rhine Mesolithic
9:30 Discussants: Kent V. Flannery, Harold K. Schneider
9:50 Break
10:10 Curtis Runnels, Economic Man in the Prehistoric Aegan, 8,000 Years of Archeological Exploitation
10:30 Arthur S. Keene, Economic Optimization Models and the Study of Hunter-Gatherer Subsistence Settlement Systems
10:50 Van A. Reidhead, Labor and Nutrition in Food Procurement: Did Prehistoric People Optimize?
11:10 W. Frederick Limp, The Economics of Agricultural Dispersion
11:30 Discussants: Kent V. Flannery, Harold K. Schneider

(47) General Session: MAYA ARCHAEOLOGY I
Imperial Salon
Chairperson: Rosemary Sharp
Participants:
9:00 Richard M. Rose, Mushroom Stones and the Maya Ball Game
9:15 Arnold Pickman, Classic Maya Social Structure as Inferred from Mortuary Practices
9:30 Rosemary Sharp, Trading Chiefs to Warring Kings: The Political Nexus of Symbolic Forms During the Mesoamerican Epiclades Period in Northern Yucatan
9:55 Norman Hammond, Second to Fourth Millennium B.C. Radiocarbon Dates for the Maya Lowlands
10:10 Jay K. Johnson, Typological Structure in Maya Lithic Analysis: A Historical Perspective
10:35 Jack D. Eaton, Ancient Agricultural Farmsteads in the Rio Bec Region of Yucatan
11:00 Elizabeth A. Graham, Archaeology in the Stann Creek District, Belize, Central America
11:25 Maynard B. Clift, Late Preclassic Burial Pattern at the Site of Cerrro Maya, Northern Belize: Preliminary Results

SUNDAY AFTERNOON, APRIL 30

(48) Symposium: CONFERENCE ON Mesoamerican Ethnohistory: Codices and Manuscripts, Part II
Royal Salon
Organizer and Chairperson: Nancy P. Stronge
(49) Symposium: COMMODITY FLOW AND POLITICAL DEVELOPMENT IN THE ANDES, PART II
Tulane Room
Organizers and Chairpersons: David L. Browman and Karen O. Bruhns
Participants:
2:00 Gordon C. Pollard, Villages, Systems, and Economics in the South Andes
2:10 David L. Browman, D. Bennett, and N. Clarke, Entrepreneurs and Tlwanaku Economic Spheres of Influence
2:40 Thomas P. Myers, Prehistoric Trade Patterns in the Amazon Basin
3:00 Izumi Shimada and Melody Shimada, The Economy of Urban Context at Moche V Pampa Grande: Commodity and Labor Flow
3:20 Break
3:40 James S. Kus, Chimú Irrigated Agriculture
4:00 Clark L. Erickson, Subsistence Implications and Botanical Analysis at Chiripa
4:20 Raphael X. Reichelt, Status Indices in the Recuay Ceramic Gods
4:40 Dwight T. Wallace, A Later Ceremonial Road System in Chinchas: Symbolic and Political Implications
5:00 Frederic A. Engel, Change in the Settlement Patterns Along the Arid Coast of Peru from 10,000 B.P. to the Colonial Period
5:20 Discussion

(50) Symposium: ARCHAEOLOGY AND NATIONAL FOREST LAND-USE PLANNING
Meeting Room No. 2
Organizers: Dee F. Green and Ernestine Green
Chairperson: Ernestine Green
Participants:
2:00 Ernestine Green and Dee F. Green, Some Implications of Land-Use Planning for Archaeological Method and Theory
2:20 Leslie E. Wildeisen, A Case Study of the Badger-Jorden Planning Unit, Mt. Hood National Forest, Oregon
2:40 L. Mark Raa, Archaeological Sample Surveying and a Predictive Model of Site Location in the Ouachita National Forest, Arkansas
3:00 Bruce Donaldson, Lessons From the White Mountain Planning Unit: A Small-Sample Survey Design for Large Areas
3:20 Jon Scott Wood and Fred Plog, Land-Use Planning and Regional Research Potential: The Apache-Sitgreaves Example
3:40 Robert Tieszen, Cultural Resources and Land-Use Planning: The Land Manager's Perspective
4:00 Discussants: Mark A. Grady, W. James Judge, Evan I. DeBlois

(51) General Session: SOUTHWESTERN ARCHAEOLOGY II
Presidential Salon
Chairperson: David B. Madsen
Participants:
2:00 Pat H. Stein, Recent DNA Investigations in the Lower Gila Drainage: New Data on Homokon Subsistence Processes
2:15 Marvin D. Jeter, Prehistoric Processes in the Prescott Region, Westcentral Arizona
2:30 Robert Layne, A Multivariate Approach to Population Estimates and Change, Black Mesa, Northeastern Arizona
2:45 Margie Green, Analysis of Chipped Stone Raw Materials for Black Mesa
3:00 S. L. McAllister, Artifact Inventories as a Predictor of Sedentism on Black Mesa
3:15 Richard Ciolek-Torreslo, Reconstructing Prehistoric Activities at Grasshopper Pueblo
3:30 Stephanie M. Whitley, Status and Death at Grasshopper Pueblo: A Theoretical Excursion
3:45 J. Jefferson Reid, Moving On: The Problem of Abandonment as Seen from Grasshopper Pueblo
4:00 Patricia Crown Robertson, Distribution and Function of Preaggregation Communities in the Grasshopper Region
4:15 Frederick L. Bruijers, 9,500 Years of Cultural and Noncultural Deposition Processes in Caves and Rockshelters of Chevelon Canyon, Arizona
4:30 Jonathan P. Rayman, Room 44, Wupatki: Reading False Profits
4:45 David B. Madsen, pollen Analysis at Agricultural Village Sites: A Test Case at Backhouse Village

(52) Symposium: LOCATIONAL MODELS IN ARCHAEOLOGY
Terrace Room No. 2
Organizers: Alan S. Downer, Jr. and Carole L. Crumley
Chairpersons: Alan S. Downer, Jr.
Participants:
2:00 Carole L. Crumley, Space-Time Dialectics: A Short History and Prospectives of Locational Analysis in Archaeology
2:20 William H. Marquardt, Fundamentally Random Caterpillars: The Influence of SpatialEcology on Archaeological Descriptions of Settlement
2:40 Alan S. Downer, Jr., Central Place Models in Archaeology or What to do with a Hexagonal Lattice
3:00 Eric N. van Hartesveldt, Zipf Reconsidered: A Replication of the Rank-Size Model
3:20 Donna C. Roper, Site Catchment Analysis: An Overview
3:40 Ervan G. Garrison, Dimensional Analysis of Variance and Locational Analysis
4:00 Paul R. Green and Alan S. Downer, Jr., Network Approaches to Settlement Archaeology
4:20 Discussion

(53) General Session: ARCHAEOLOGY OF THE SOUTHEASTERN UNITED STATES
Terrace Room No. I
Chairpersons: William O. Autry, Jr.
Participants:
2:00 Reynold J. Rupps, Analysis of Material from Venice, Florida, Underwater Archaeological Site
2:30 Barb A. Purdy, Evidence of Late Pleistocene Human Occupation in Florida
2:45 Kari Y. Stilwell, Investigations in Early County, Georgia: A Settlement Model for Kolomoki
3:00 Elisabeth Sheldon and Marqueta Cameron, The Black Belt Prairie of Alabama: Feast or Famine?
3:40 C. Roger Nance, Woodland and Mississippian Settlement Patterns near the Upper Alabama River, Alabama
4:05 Patricia A. Criddlebaugh, Penitentiary Branch: Problems of Excavation and Analysis of an Archaeic Shell Midden
4:20 Carl Kuttruff, The Mound Bottom and Brown Park Sites, Tennessee
4:35 Michael J. O'Brien, Intrahouse Analysis of Artifacts from a Large Mississippian Settlement in Central Tennessee
4:50 Donna Dean, Mound Bottom: An Environmental Analysis
5:05 William O. Autry, Jr., Human Burials from W.P.A. Investigations at Mound Bottom, Tennessee (48CHE)
5:20 Sharon I. Goad, Exchange Networks in the Southeastern United States

(54) Symposium: JAPANESE PREHISTORY: ITS CONTRIBUTIONS TO OLD AND NEW WORLD RESEARCH
Meeting Room Areas 1 (I. Balsasque)
Organizer and Chairperson: William M. Hurley
Participants:
2:00 William M. Hurley, Early Jomon (ca. 6000-3500 B.C.) Villages in Hokkaido and the Origins of Sedentism in Northern Japan
2:20 Henry Stewart, The Transition from Paleolithic to Neolithic in Japan
2:40 Fumiko Ikawa-Smith, Chopper/Scrapers, Unifacial Tools, and Bifacial Pollens in Pleistocene Japan and the New World
3:00 Gary Crawford, Studying Jomon Paleoenvironments
3:20 Patricia Hitchins, The Bronze-Iron Age of Japan in Perspective: A Comparison with Contemporaneous Cultural Developments in East Asia
3:40 Michelle A. Salerno, A Thin-section Analysis of Jomon Pottery from Three Sites in Japan
4:00 Discussant: Chester Gorman

(55) General Session: MAYA ARCHAEOLOGY II
Imperial Salon
Chairpersons Susanna M. Ekholm
Participants:
2:00 Susanna M. Ekholm, The Necropolis Aspect of the Southwestern Maya Site of Lagartero, Chiapas
2:40 Gary W. Pahl, Contacts Between Maya Frontier Centers
3:05 Suzanne K. Fial, Cultigens, Cultivation, and Chronology: Palynology at Edzná
3:45 Arthur Votaw, Shelling Out: The Role of Mollusks in a Postclassic Maya Economy
4:00 William J. Folan and George D. Allen, Fruit, Fiber, and Bark: The Social Organization of a Maya Urban Center, Coba, Quintana Roo, Mexico
4:15 Christopher Jones, Research at Quiriguá, Guatemala: The Site-Care Program
4:30 Wendy Ashmore, Research at Quiriguá, Guatemala: The Site-Periphery Program
ABSTRACTS OF ORGANIZED SYMPOSIA

(1) MIMBRES PREHISTORY: RESEARCH OF THE MIMBRES FOUNDATION IN SOUTHWESTERN NEW MEXICO. The papers synthesize three years of work in the Mimbres Valley. Various facets of a regional research design combining survey and excavation are discussed. An 11,000-year period is considered. The relationship between population dynamics and resource use are considered in several different ways. Evidence for intraregional trade and the effects of external cultural events are evaluated. New data on several phases are also detailed.

(2) CHRONOLOGICAL FRAMEWORKS OF MESOAMERICA: NEW DATA ON THE FORMATION OF THE MOUND BRED. This symposium has organized to present new data on ceramic chronologies from recent field research in Mesoamerica. Refinements and elaborations of technique and some basic assumptions about chronology will be examined. Central Mexican sites to be discussed are Teotihuacan, Cholula, and Cacaxtla; and the Maya region, Los Chuchumatanes, Guatemala.

(3) THE POTENTIAL OF DEBITAGE IN CULTURAL INTERPRETATION. Debitage comprises a major portion of the total artifact assemblage at most prehistoric sites and may even be the only type of artifact recovered from a locus. As such, it also usually occurs in sufficient quantity to support statistical treatment. Yet deblate has been curiously examined in most artifact analyses with interpretation restricted to the narrowest test for temporal group. This symposium is to begin to explore the vast potential of this category for cultural interpretation. Papers presented here will utilize deblate data to gain insight into a wide range of questions of archaeological activity such as activity location, function, and chronology.

(4) VOLCANISM AND HUMAN HABITATION IN THE NEW WORLD. Depending on its nature and magnitude, a volcanic eruption can have major detrimental or beneficial effects on human habitation, or the effects can be minor and brief. The effects of volcanic activity on environments ranging from arctic to tropical and on societies ranging from band to state line is documented. A multidisciplinary approach is emphasized, with contributions from archaeology, ecology, palynology, geography, and zoology. Geographic coverage extends from Alaska to Central America.

(5) STONE AGE ARCHAEOLOGY IN MEDITERRANEAN EUROPE. Research in the past decade has greatly expanded knowledge of stone age archaeology in Mediterranean Europe. New techniques and theories, a greatly enriched corpus of data, and a growing international body of scholars have led to many refinements of understandings of the course of prehistory and the factors affecting it. This symposium brings together for the first time an international group of scholars who have been doing innovative research in the stone age archaeology of southern Europe.

(6) EARLY SEDENTARY SETTLEMENTS IN THE MOIST TROPICS OF NORTHERN SOUTHERN AMERICA. Part I: FIRST INHABITANTS OF THE TROPICAL ALLUVIUM OF NORTHERN SOUTH AMERICA; Part II: THE NATURE OF VALDIVIA AND THE VASCO DE ALMIRANTE; Part III: THE EXTENSION OF POPULATION MOVEMENTS OUT OF THE MOIST TROPICS OF SOUTH AMERICA; Part IV: INTENSIFICATION OF AGRICULTURAL SYSTEMS IN THE NEW WORLD. WAS IT A UNITARY PHENOMENON? The 1984-1985 conference was the first to bring together scholars from the Americas and the Caribbean to discuss the evidence for sedentary agricultural communities in the tropical rainforest. The conference was also the first to bring together scholars from the Americas and the Caribbean to discuss the evidence for sedentary agricultural communities in the tropical rainforest.

(7) THE DEVELOPMENT OF ETHNOARCHAEOLOGY: A WORLD-WIDE PERSPECTIVE. To explain prehistoric behavior we must directly observe activities and materials that characterize a culture. This has been feasible in many parts of the world, but few have been observed in the eastern deciduous woodlands. Many of these studies are still unpublished, and very few have ever been presented at the same time within the context of an organized symposium. The symposium would therefore, provide a valuable forum for discussion within the context of other studies of the same period.
CULTURAL RESOURCE MANAGEMENT AND ARCHAEOLOGICAL RESEARCH— IN PRACTICE. Cultural resource management (CRM) requires both managers and archaeologists to function with varied organizational settings and to develop research designs and work programs in new and innovative ways. The symposium addresses practical problems of cultural resource management and research design within organizational and conservation contexts.

HOLOCENE ENVIRONMENTS AND HUMAN POPULATIONS ON THE PECOS RIVER ARE MEXICO. The Pecos River basin contains rich evidence for Holocene paleoecological, physiographic and biotic variability. Yet recent multidisciplinary archaeological research has demonstrated a diversity in past environments and human adaptive strategies within the Pecos River basin. This paper will focus on narrowly focused river basin studies and an increased concern with the interdigitation of environmental and cultural factors at the interregional level that has resulted in the recognition of a pattern of broad-spectrum adaptation along the Pecos River. The methodologies, techniques, and results of current investigations into past human activities have expanded our view of Pecos River archaeology and are the subjects of this symposium.

PRESENT ARCHAEOLOGICAL RESEARCH IN LOWER CENTRAL AMERICA. The purpose of this symposium will be to bring together and present the latest research in Central America to present and discuss present research. We are defining Lower Central America as ranging from central Honduras/eastern Salvador to and including Panama. The objectives of this symposium are (1) to discuss regional problems and to refine the substantive and systematic prehistory of Lower Central America as a whole.

RECENT RESEARCH IN LEVANTINE PREHISTORY. The symposium deals with problems related to prehistoric adaptations in the Levant. Adaptations of Mousterian through Pre-Pottery Neolithic cultures are reviewed. Topics covered include lithic analysis, technological adaptation, settlement patterns, subsistence strategies, and spatial analysis, as well as a number of papers offer modeling procedures which should be of considerable interest to New World archaeologists.

PALEOECOLOGY AND HUMAN ADAPTATIONS IN THE LOWER PECOS AREA. Recent archaeological, paleobotanical, and paleoecological research in the Lower Pecos area has yielded much new information on prehistoric human ecology in southwest Texas. This research has been carried out at four localities: Hinds Cave, a large dry rockshelter on the Pecos River, excavated by Texas A&M University and funded by National Science Foundation; Baker Cave, a large dry rockshelter on the Devil's River drainage tested by University of Texas at San Antonio; Musk Hog Canyon, a small tributary of the Pecos River, surveyed by the Southwestern Archaeological Society; and Sand Hills, a tributary of the Rio Grande River, surveyed and tested by the Texas Archeological Survey. Information from these research projects will be presented by the participants including objective data and preliminary findings. Special emphasis will be placed on the wide variety of cultural material culture, plant use, faunal procurement, culture history, diet, and pollen analysis.

THE SOUTHERN PERIPHERY OF MESOAMERICA: HONDURAS AND EL SALVADOR. The Republics of Honduras and El Salvador lie within a geographic zone of upper Central America which is critical to the understanding of New World prehistory. The prehistoric frontier between Mesoamerica and the Intermediate Culture Area traverses or borders upon these two republics, in recent years an upsurge in archaeological field research in these diverse areas has begun to clarify the interaction and relations between the more advanced Mesoamerican civilizations, such as the Classic Maya, with those lesser developed cultures and emergent chiefdoms of a Central American configuration. The symposium focuses upon some recent results of these research efforts in Honduras and El Salvador, and discusses the implications of cultural contact, interaction, and evolution along the southern periphery of Precolombian Mesoamerica.

CONFERENCE ON MESOAMERICAN ETHNOHISTORY: CODICES AND MANUSCRIPTS. This symposium will focus on documentary materials concerning the high culture areas of native Prehispanic Mexico and Guatemala, and will show the relationship of these data to the analysis and solution of both Preconquest and Postcontact problems. The participants, who are from a number of different countries (U.S., Mexico, Germany) have been invited in order to reflect a broad coverage of current research in this complex, interdisciplinary field. Their papers will demonstrate how written and pictorial manuscript sources may be utilized to resolve a wide variety of historical, ethnographic, and linguistic problems.

COMMODITY FLOW AND POLITICAL DEVELOPMENT IN THE ANDES. Research of economic data concerning the long-range migratory patterns. Data and interests, and the phenomenon of early development of some features than generally believed. Work both at La Paloma on the coast and Pachamachay in the puna indicates the emergence of sedentary populations in the Andean highlands of some regional strategies, such as the Andean B.C. Consideration of commodity flow and resource management form the basis of analysis for the symposium. Participants take one of two general approaches—either the identification and discussion of the flow of particular commodities and reconstruction of the networks of commodity flow, or a discussion and an analysis of how the economic resources and their control functioned in the maintenance and specific functioning of a polity.
ABSTRACTS OF PAPERS

Accola, Richard M. (Texas-Austin) A PRELIMINARY APPLICATION OF X-RAY DIFFRACTION ANALYSIS TO THE STUDY OF NICOYA POLYCHROME CERAMICS. Cultural history in the Nicoya subarea of Costa Rica has long been assumed on the basis of the distribution of certain polychrome ceramic types at various time periods. It is not known whether the distribution reflects local participation in a widespread socioeconomic system or rather the influence of "centers" over other areas. This question can be best addressed by means of compositional analysis of samples of a single type taken from different diffusion areas, but relatively inexpensive and easy to run, would appear to be an appropriate method. Tests were run on a single sample of one type of wide-distributed ceramics, Morro Polychrome from the Middle Polychrome period (ca. A.D. 800-1200), in order to determine the suitability of the method for this kind of study. (28)

Ackerman, Robert E. (Washington State) ARCTIC AND SUB-ARCTIC. Historically, three periods of investigation of Arctic and Sub-Arctic peoples are discernable: (1) exploratory—Contact to the museum collecting activities of Boas, Murdock, Nelson, Rink—emphasized on material culture aspects of the environment; (2) early ethnographic investigations of Birken-Smith, de Laguna, McNunn, Turner, and others with social and intellectual aspects of cultures added to continuing interest in material culture; (3) late 1960's all of the major cultural stages through the present interest in archeology, the broad modernization of Arctic and Sub-Arctic societies. Early ethnography in the region was a phenomenon contemporary with period (2) where the archaeologist experienced the same cultural impact as the ethnologist. The approach was basically ethnographic based on data from period (1) and cultural inputs of period (2). During the modern period the shift of ethnography away from material culture and increasing sophistication in archaeological investigative procedures has stimulated archeologists to play multiple roles of ethnographer, geologist, historian, and naturalist. The complex interplay of ethnography with archeology (ethnarcheology as an aspect) though of long tradition in the northern realms, is now entering a new era with new insights. (32)

Adams, E. Charles (Museum of Northern Arizona) THE CHANGING NATURE OF ARCHAEOLOGY. A CASE STUDY OF A DECAYING SCIENCE. Archaeological research is severely limited and subject to many controls. Much recent concern in archaeology has been directed toward conservation archaeology, the preservation of archaeological resources. Little has been mentioned about the data recovery process. This paper examines how and why conservation archaeology was developed and how it may affect the future of archaeology. (23)

Adams, Karen R. (Eastern New Mexico) SITE CATCHMENT ANALYSIS OF WILDFLOWER RESOURCES IN THE HEAVILY OVERGRAZED RIO PUERO VALLEY OF NEW MEXICO. An attempt to assess the distribution of plants in the area of use of the native Foothill Ute's is made. The botanist describes the distribution of plants on landforms to provide a base line from which one can work. A model to compensate for effects of overgrazing is applied. Plant species known to have ethnographic uses are scored for "potential value" in use. These data may provide new insights into the role plants play in the Okanogan region that can then be used to evaluate the ability of multivariate statistical methods to recover functional distinctions. The model operationalized by the simulation is based on ethnobotanical data from the Western Okanagan region. Problems encountered in the development of the simulation will be discussed, as will the implications of this research for the study of hunter-gatherer archaeology in general. (15)

Affaire, Louis (Manitoba) FROM PREHISTORY TO HISTORY IN THE LESSER ANTILLES: THE PROBLEM OF CARIB MIGRATIONS. The paper questions the historicity of Caribs on the Lesser Antilles, mainly from the Guianas to the Windward Islands, on the basis of recent chronological work on the late prehistory of the Lesser Antilles and of a re-examination of ethnographic evidence in support of a migration theory (e.g., migration model, historical distribution, etc.). Moreover, a new interpretation of the potentially elusive Carib pottery is possible to re-evaluate cultural continuities and affiliations. The question is further approached through a more specific definition of the Island Caribs as an ethnic group, especially in relation to ethnic groups in the Guianas. (21)

Allen, George D. (see Folan, W. J.) (55)

Allen, Richard K. (Western Illinois) AN EASIER WAY TO MAP MAYS RUINS. Traditional methods for mapping domestic ruins in the Maya Lowlands require different skills and more time than charting easily visible monumental architecture. Aerial photographs are a particularly promising alternative technique. Analysis of aeriplan views from a Zapotec village show that aerial photography can record low mounds with boundary walls surrounding them. Narrow streets or walkways are visible and complex dwellings identified as structural features were outlined on photographs and their coordinates digitized. The numerical data was then read into a planimetric perspective. The resulting map is superior to a chart produced on the ground with transit and alidade. (31)

Ammerman, Albert (Stanford) A SIMULATION STUDY OF EXCAVATION STRATEGIES AT A PREHISTORIC ANCIENT POSTERIOR SETTLEMENT. The site employed in this study is a recently abandoned pastoralist settlement where a detailed recording was made of the material remains on the site surface. (15)

Adovasio, James M. (Pittsburgh) MEADOWCROFT ROCKSHelter: RETROSPECT 1976. Meadowcroft Rockshelter is a deeply stratified multicomponent archaeological site located in southwestern Pennsylvania. The 11 well-defined stratigraphic units identified at the site span at least 18,000 years and perhaps 19,000 years of intermittent occupation by groups representing all of the major cultural stages recognized in northeastern North America. Throughout the extent sequence, the site served as a locus for hunting, collecting, and food processing activities that involved the seasonal exploitation of the immediately adjacent Cross Creek valley and contiguous uplands. Presently, Meadowcroft Rockshelter represents one of the most well-dated records of prehistory in the New World as well as the longest occupational sequence in the Western Hemisphere. (6)

Adovasio, J. M. (see Andrews, R. L.) (20)

Aquino, Ricardo F. (Tulane) THE FIGURINES OF PLAYA DE LOS MUERTOS, HONDURAS. The collection of Playa de los Muertos figurines from the Middle America Research Institute of Tulane University is studied. A typology of the figurines is made based on color, form, and material (clay, paste, slip, and paint). Stylistic similarities with figurines from the central and southern Andes are found. (36)

Aikens, C. Melvin (Oregon) PROBLEMS OF ARCHAEOLOGICAL SITE SURVEY IN HEAVILY FORESTED REGIONS: SEEING THE GROUND AND LOOKING IN LIKELY PLACES. WOODS OF WESTERN OREGON. Site survey on ground cover effectively conceals archaeological remains in many forested regions, leading to difficulty in locating archaeological sites and to the frustration of data-gathering schemes that seek to obtain representative samples of prehistoric materials. This study examines the use of aerial photographs and selected potential sites for surveying selected areas of a large forest region, appears to be a reasonable means of investigation. The use of aerial photos and detailed topographic maps in settlement, simulation techniques are used to develop a data-collection. An element of randomization in survey coverage may be achieved through examination of man-made clearings in a variety of terrains. (43)

Alinder, Mark S. (Pennsylvania State) THE COMPUTER SIMULATION OF ASSEMBLAGE FORMATION MODELS IN HUNTER-GATHERER ARCHEOLOGY. One of the most important issues facing the archaeology of hunter-gatherers has been that of the "functional argument." Considerable effort has been directed at the development of quantitative methods for the discovery of "tool kits" or "adaptations" among prehistoric foragers. The assumption is often made that a group can be considered to be part of a higher level cultural entity only if they share a set of tools. Recent archaeological studies of hunter-gatherers have demonstrated that the use and distribution of certain objects is extremely idiosyncratic and that to give any value to these data may or may not be capturing true functional distinctions. This paper presents a test of a model which uses computer simulation of how cultural interactions affect the development of the archaeological record. Such a model may be of considerable use in the analysis of prehistoric archaeological data from other regions than that of the French West Indies. (10)

Almanza, Raul (see D'Andrea, D.) (37)

Alston, Robert H. (see D'Andrea, D.) (37)

*Abstracts listed alphabetically by senior author; please see program for full citation.
Andrews, Rhonda L. (Pittsburgh) THE TEXTILE AND BASKETRY IMPRESSIONS FROM JARMO. Analysis of a series of negative impressions in clay and bitumen recovered during the excavations at Jarmo indicate the prehistoric production of both cloth and basketry at that site. Two varieties of plain woven cloth, balanced plain weave—single warp and weft, and balanced plain weave—double warp and weft, are represented, as are two of the three major Snyder’s of basketry. Each reprented by a single type. The technical characteristics of these “perishables” are discussed and the assemblage is compared to others in the Old and New World. (20)

Anuskiwicz, Richard (U.S. Army Corps of Engineers) THE ROLE OF THE PROFESSIONAL ARCHAEOLOGIST WITH THE U.S. ARMY CORPS OF ENGINEERS. The U.S. Army Corps of Engineers is now officially seeking to meet statutory responsibilities concerning the management of cultural resources. Federal legislative mandates such as the Preservation of Historical and Archaeological Data, Public Law 93-291, and Executive Order 11993, have prompted the Corps to develop a comprehensive program for the preservation of cultural resources. The Corps has responded to this responsibility by initiating a Code of Federal Regulations (23 CFR Part 365) and by actively seeking and hiring professional archaeologists. A special issue of this program will discuss the role of the archaeologist with the Corps. (13)

Applegarth, Susan M. (Fort Lewis) PALEOECOLOGY AND PREHISTORIC EXPLOITATION OF THE EASTERN SLOPES OF THE GUADALUPE MOUNTAINS, SOUTHEASTERN NEW MEXICO. Research undertaken along three major drainages of the eastern slopes of the Guadalupe Mountains was designed to test various hypotheses concerning the environmental impacts of Native American occupation. Included in the area to be studied were: (1) the relationship of the specific types of sites to each other; (2) the ecological setting of the sites at the time of occupation; (3) the portion of the environment being exploited by the occupants of various sites; and (4) the relationship of the sites in the Guadalupe Mountains to those of the Greater Southwest and the rest of the area. (27)

Arnold, Dean (Wheaton) A REVIEW OF ETHNARCHAEOLOGICAL STUDIES IN MESOAMERICA. This review of ethnoarchaeological studies in Mesoamerica focuses on their contributions to archaeological method and theory. It includes studies offered as major subdisciplines of Mesoamerican archaeology and as well as those that are oriented toward the study of the lifeways of a particular resource. Artifacts recovered from the sites were used to assess their cultural and technical adaptations, including the size and scope of their social organizations, their economic strategies, and their social structure. (12)

Arnold, Dean (see DoBoor, W. R.) (32)

Arnold, Dean (see van der Leew, S. E.) (12)

Arostegui, Carlos B. (Dumbarton Oaks) MARRIAGE, ALLIANCE, AND SUCCESSION IN PRECOLONIAL MIXTEC SOCIETY. This paper will present an analysis of the genealogical data contained in the Mixtecs of the Precolombian Mixtec codices. It will examine the relationship between elite marriages and the establishment and preservation of interkingdom and inter-elite alliances through close kinship networks. It will also discuss the role of marriage prevention and/or resolution of stresses brought about by succession will also be investigated. (48)

Ashmore, Wendell (Pennsylvania) RESEARCH AT QUILIGUA, GUATEMALA: THE SITE-PERIPHERY PROGRAM. The Quiligua Project of the Museum University (University of Pennsylvania) and the Instituto de Antropologia e Historia (Guatemala) has now completed a fieldwork program at this Classic period site. The Site-Periphery Program of the project was designed to complement the Site-Core Program by defining the tempo of and functional range of occupation in the vicinity of the core zone of Quiligua. In this work, the team has been able to identify several possible models for ancient roles filled by this Maya community and the paper presented here summarizes site-periphery fieldwork and analyses as of the end of the 1977 season. (29)

Attebury, Anne (SMU) NEW EXCAVATIONS AT KHARGA OASIS: THE ATERIAN WORKSHOP (SITE CE7-4). The recent excavation of an Aterian workshop at El-Kharga, Egypt, produced in situ material pertinent to both the general understanding of the earlier and the geographical distribution of the Aterian in Egypt. In addition to a preliminary report to the government of Egypt, this preliminary report considers the relationship of the site to other material found from this area, as described by Caton-Thompson (1952). Known Aterian occurrences from Bir Sahara/Bir Tefawi in the Western Desert provide additional information for the Aterian in the Nile Valley, while at least barely comparable typologically, differs from the site at Kharga in terms of stratigraphic sequence. This discrepancy may suggest chronological and/or spatial diversity between the two areas. The implications of this variability are presented and evaluated. (20)

Autry, William O., Jr. (Vanderbilt) HUMAN BURIALS FROM W.P.A. EXCAVATIONS AT MOUND BOTTOM, TENNESSEE (CH 48). Ninety-four burials, distributed over five cemetery areas at the large Mississippian site of Mound Bottom near Nashville, Tennessee, were described for this report. These burials, varied in size and were found in the 1940s by W.P.A. crews under the direction of C. H. Nash, Stuart Neitzel, and Georg Neuman. Burial data are summarized from existing W.P.A. field notes and maps in order to synthesize mortuary practices. Comparisons are drawn with additional Mississippian centers and stone-box cemeteries from the Nashville basin. The small sample size and poor bone preservation limit interpretations, but mortuary practices indicate little, if any, differences in social status. (53)

Ayers, Harvard G. (Appalachian State) CHEMICAL CHARACTERIZATION OF NORTH AMERICAN CH-contactED CERAMICS. Chemical analysis of six North American aboriginal quarry areas was performed. Analytical procedures and statistical treatment of the data are described. Multivariate analysis of the results indicate that the cherts from the different quarry areas could be confidently differentiated on the basis of three elements: Calcium; Aluminum; Iron. (14)

Baker, R. Lea (Ohio State) A TEST OF THE UTILITY OF AERIAL PHOTOGRAPHY IN STUDYING PREHISTORIC MAYA RURAL SETTLEMENT PATTERNS IN YUCATAN, MEXICO. The use of airplane-flown vertical photography and helicopter-flown oblique photography is discussed with particular emphasis on the role in the recent development of the rural or intercenter settlement patterns in a 158 square kilometer area in northeastern Yucatan, Mexico. This paper will examine the ways in which these methods of remote sensing were used to evaluate the effectiveness of these techniques in interpreting the distribution of architectural remains, as well as in determining characteristics and distribution of architectural remains in the Yucatan environment. (31)

Baker, Charles M. (Georgia) PREHISTORIC LITHIC RESOURCE PROCUREMENT/ UTILIZATION STRATEGIES: A GENERAL APPROACH TO STONE AGE ECONOMICS. Relationships between the technological and typological variability of lithic assemblages among the types of lithic resources that occur in particular archaeological areas are examined. The various possible states of raw material availability, abundance, ease of procurement, quality, and size and shape of the core are considered with an emphasis on the possible variability in order to suggest potential indicators of different lithic resource procurement and utilization strategies. These suggested tentative relationships are evaluated in an interassemblage study based upon chipped stone collections from Mesopotamian-Mimbres sites in southwestern New Mexico. (3)

Ball, Joseph W. (San Diego State) THE CERAMICS OF CHIKULTIC, CHIAPAS, MEXICO: AN INTERIM REPORT. Analysis of archaeological ceramic collections from the height of the Chikultic phase at Chikultic, Mexico, has permitted definition of a discontinuous three-phase sequence commencing during the Maya Protoclassic period and terminating during the Early Postclassic interval. A preliminary outline of this sequence is presented together with observations on internal connections and probable origins for each of its recognizably distinct segments. (55)

Bandy, Philip A. (Texas Tech) REPORT AND TEST OF A NEW TECHNIQUE FOR MAPPING AND RECOVERY OF "EXPOSED" ARCHAEOLOGICAL SITES. "Exposed archaeology" contains valuable sociocultural information which all too frequently archaeologists fail to consider. A technique for mapping and locating sites is described. The technique is simple, economical, and easily adapted to the situation. (12)

Barbour, Warren (SUNY-Buffalo) PREHISTORIC FINGERPRINT IMPRESSIONS: A METHOD FOR DETERMINING THE SEX OF THE MANUFACTURERS OF FIGURINES AT TEOTIHUACAN, MEXICO. Sexual differences in finger impressions have been observed in modern populations. This paper describes the use of fingerprint images on fired clay figurines from Teotihuacan and uses the technique to estimate the sex of the manufacurener. The differences are significant and could be used in the reconstruction of past social organization. (70)

Barnes, Mark R. (NPS) THE ROLE OF THE OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION OFFICER (OAHPO) in the Protection and Management of Archaeological Resources. Revision of the Nomination of Cultural Resources to the National Register, the development of the National Register of Historic Places, the U.S. Department of the Interior, Office of the National Park Service, and the Office of the Elective OAHPO. The OAHPO is responsible for the establishment of the National Register of Historic Places, the State Historic Preservation Office, and a Grants-in-Program to conduct cultural resource surveys and acquire data to develop the National Register of Historic Places, and the office's role in the nomination of cultural properties to the Register, and working with federal agencies to ensure compliance. The discussion will center on the workings of these branches of the OAHPO and on the development of the National Register of Historic Places. (18)

Bartel, Brad (San Diego State) BOW-WAVE DIFFUSION AND NEOLITHIC FIGURE DISTRIBUTION IN THE MEDITERRANEAN. Multivariate and formal analyses are performed on a corpus of anthropomorph figurines to determine rules explaining morphology and decoration. Probable dynamics of synchroneous variation and diachronic change are also examined. (16)
the famous Blanco Imperial of the Cuzco area seems to be heavily influenced by maize of Cajamarca, an Intermediate center of the first millennium A.D. The broad patterns described by anthropologists continue to aid in describing maize evolution, and the great amount of evidence accumulated by maize specialists can help guide archaeological investigation. (22)

Black, Thomas K. III (Michigan) DISCRIMINANT FUNCTIONS ON THE DENTITION AS AN AID TO THE SEXUAL DIAGNOSIS OF HUMAN SKELETAL REMAINS. The sexual diagnosis of the skeletal remains of immature individuals is of great interest to the mortuary anthropologist both for the recognition of sex and for the environmental influences that available. This paper presents the results of investigations into the sexual dimorphism of the human dentition. Discriminant functions, based on the tooth crown diameters of the deciduous and permanent teeth, allow the remains of children to be sexed with a higher degree of reliability than was previously possible. (44)

Blake, Michael (British Columbia) ARCHAEOLOGICAL SURVEY OF THE DEMING PLAIN: INITIAL RESULTS. Archaeological survey during the summer of 1976 in the Deming Plain, southwestern New Mexico, is described. The aim of the survey was to expand on existing knowledge about the range of archaeological variation within the lower Mimbres drainage. Specifically, sites discovered represented several thousand years, including the Cofetilla and the Bacho Creek period we found in the area's structure, location, and distribution of sites, in addition to a great deal of variation in artifact assemblages. There were, however, overall elements of continuity through time, with respect to the various aspects of these phases. An approach to the Mimbres region survey, with an emphasis on intra- and inter-site spatial analysis is offered. (1)

Bled, Peter (Nebraska-Lincoln) THE DISCIPLINE THAT WASN'T: ARCHAEOLOGY IN PREMODERN JAPAN, During the Tokugawa period (1603-1868) developments in the direction of true archaeological research were independently made by Japanese Confucian historians, naturalists, and rock collectors. Advances in animal and vegetable developments that ultimately gave rise to modern archaeology in the West. In Japan, however, intellectual and cultural values precluded the archaeological study of prehistory. This paper describes the characteristics of early Japanese archaeological achievements and the reasons for their sterility. (54)

Bolian, Charles (New Hampshire) THE ROLE OF THE UNIVERSITY ARCHAEOLOGIST. Bolian is currently helping to develop a comprehensive survey of the State of New Hampshire as a land planning tool for the preservation of sites and information for future preservation. He is also involved in undertaking federally funded contracts for survey and excavation and research projects. Bolian will discuss the New Hampshire survey in light of the advantages and disadvantages of professional archaeologists serve as advisors to a State Historic Preservation Officer, rather than having a State Archaeologist who acts as the coordinator of these endeavors, and the effects this development of a viable Department of Anthropology and conducting on-going research into the archaeology of the State of New Hampshire. (18)

Bonnichsen, Robson (Maine-Orono) BONE PRETREATMENT. Bone pretreatment refers to processing techniques used to alter the natural structure of antler and bone. Although ethnographic evidence documenting this procedure is rare, there is widespread inferential evidence in the archaeological record suggesting that it was commonly employed by prehistoric craftsmen. Experimental data outlining how several pretreatment techniques affect osseous materials is discussed. Subsequently bone and antler replicative experiments are presented as the goal of evaluating how bone pretreatment influences concepts in bone technology. (13)

Boone, Elizabeth Hill (Texas-Austin) THE LOST SIXTEENTH CENTURY SOURCE OF HERRERA'S TITLE PAGE VIGNETTES. The source for the title page vignettes in Antonio de Herrera's Historia General which depict deities and ceremonies is a now lost pictorial manuscript now central Mexico. Mexico City. Similitudes between the Codex Magliabechiano also show that Herrera's prototype was a codex of the Magliabechiano group. Entries pertaining to this document can be identified in three Spanish bibliographies; these entries indicate that the manuscript was known as "Libro de Figuras" and indicate that it contained extensive ethnographic information on the Mexico. An eighteenth century copy of the manuscript has recently been found to exist in Madrid, which makes a partial and tentative identification of the lost manuscript possible. (7)

Bradley, Lawrence E. (Kansas) ARTIFACT VARIABILITY IN THE EARLY UPPER PALEOLITHIC OF SOUTHERN CENTRAL EUROPE. Attributes of Early Upper Paleolithic tools, cores, and debitage from sites in Slovenia, Croatia, and Bosnia in Yugoslavia and from Austria are utilized in an investigation of tool variability and the variability. The analyses have terms that suggest the Aurignacian has no more than a temporal designation, the multivariate analysis supports the use of classes and classes of data other than the tools themselves that suggest is not the case. (7)

Brambilla, Rosa (INAH) CRONOLOGIA DEL OESTE DEL ESTADO DE QUERETARO. A TRAVES DEL SITIO ARQUEOLOGICO DE LA NEGRETA. Inside the frontier norte de Mesoamerica existen diatuc cronologicos que, hasta ahora, han impedido
tener una vision global de las fluctuaciones de este limite septentrional en el tiempo; ademas de sus relaciones con los Valles Centrales y sus conexiones con el Occidente de Mexico. A través del análisis del material de excavacon encontrados en el sitio de La Negreta, se obtuvo una secuencia interna que permitia aclarar, en cierto grado, la problemática que presenta esta region en su cronologia, Material que al compararse con el de sitios sienas en localidades, ind comunes en la region, amplia el panorama de las diferentes etapas de ocupacion de zonas aledanas. (22)

Braun, David (Michigan) CERAMIC STYLE VARIABILITY DURING THE MICHELSON- WOODLAND TRADITION IN WESTERN ILLINOIS. Characterizations of the Michelson-Woodland-early Late Woodland transition in western Illinois as a period of social fragmentation are untestable given a widespread decline in design complexity. This paper briefly reviews the assumptions under which social meaning is observed changes in design complexity in tribal societies, and presents a modified version of the periodization of large scale for application to the archaeological record at proximate sites in the Illinois and Kaskaskia Valleys. Results of this application are found to contradict previous characterizations of the social changes but not the stylistic changes, that occurred during this period. (40)

Braun, David P. (see Luton, R. M.) (29)

Bridwell, Nadynne Brown (John Hersey H S) THE MANIFOLD BENEFITS OF HIGH FIELD SOCIOLOGY. The concept of field sociology for the secondary school, which was presented at the 1970 Illinois Area School Library Conference, is described. The plan of the workshop, including the content and methods selected, is outlined. The first day focuses on understanding the individual student, and the second day focuses on developing a plan for the classroom library. This plan is presented to the students of one classroom, and the results are discussed. The students use the plan as a basis for further work in the classroom. (17)

Briggs, Alton (Texas State Historical Survey Committee) THE ROLE OF THE ARCHAEOLOGIST ON THE STATE HISTORIC PRESERVATION OFFICERS STAFF. As a staff archaeologist with the Texas State Historic Preservation Office, Briggs is intimately acquainted with a wide array of federal, tribal, and local federal and state preservation legislation and regulations. The accomplishment of his responsibilities as an archaeologist is based on his education and experience in prehistoric and historic archaeology, and the requirement of that education and experience is the ability to communicate effectively and to be a team player. The purpose of this paper is to discuss the role of the archaeologist on the State Historic Preservation Officers Staff and the impact that this role has on the preservation of our cultural heritage. (51)

Briuer, Frederick L. (UCLA) 9,000 YEARS OF CULTURAL AND NONCULTURAL DEPOSITION PROCESSES IN CAVES AND ROCK SHELTERS OF CHEVECTON CANYON, ARIZONA. A report on the comparative analysis of plant and animal remains from the post-Plenistocene to Pluvial times. (18)

Brolinsky, Gordon (Rutgers) MASS PRODUCTION AND COST REDUCTION. The late prehistoric northern Rio Grande region of New Mexico was characterized by a high population density and local specialization, and employment of measures of agricultural intensification. During this period, the production of goods was maximized, and the number of people involved in the production of goods was reduced, resulting in a rise in the number of people involved in the production of goods. This rise in the number of people involved in the production of goods is a result of the rise in the number of people involved in the production of goods. (11)

Brosie, David S. (Case Western Reserve) FORT WALTON SETTLEMENT PATTERNS. Fort Walton first appears at about A.D. 1050 as a partial-ceremonial center and stylistic reference points in the region. Little is known about the origins of the settlement, but it is apparent that the late Fort Walton populations display a hierarchical organization of agricultural production and the use of agricultural residues. The late Fort Walton populations display a hierarchical organization of agricultural production and the use of agricultural residues. (41)

Brown, David (Washington) ENTREPRENEURS AND TIWANAKU ECONOMIC SPHERES OF INFLUENCE. Caravan trade as an economic specialization important to the maintenance of the urban center of Tiwanaku is discussed with special reference to the organization of this trade, the commodities involved, and the results of economic activities not under the political hegemony of Tiwanaku. Certain classes of commodities, such as hallucinogenic and pharmaceuticals, stimulated entrepreneurial activity beyond their relative economic importance, and it is this activity which in part gives Tiwanakuan such a different configuration from its sister imperial city of Wari in Peru. (49)

Brown, James A. (Northwestern) CADDOO SETTLEMENT PATTERNS IN THE ARKANSAS RIVER DRAINAGE. Caddoan settlement patterns in the Arkansas River drainage have been influenced by the shift from band-level to tribal-level organization. A shift from small-scale, relatively low-productivity agricultural systems to large-scale, relatively high-productivity agriculture. The size and complexity of sites range from medium-sized mound centers to small villages, farmsteads, and special use sites. The structure of settlement in the Arkansas River drainage differs from that of the Mississippian to a lesser degree. (25)

Brown, K. M. (Texas Archeological Survey) MIDDLE ARCHAIC CAMPS AT THREE MILE DREW. Hearth of fire-cracked limestone in linear clusters flanking major arroyos (or in some cases, the escarpment separating recent floodplain remnants from the first terrace point, or the top of the Middle Archaic). There is subsistence and site-use differentiation within the linear clusters and the mosaic/creosote scrubland habitat of the valley floors in the rugged canyons of southwestern Terrell County. Within major clusters, hearths tend to occur single or in multiples of two. Recent fire research has included mapping (including controls for differential exposure by sheetrocking). (35)

Bruhnk, Karen Olsen (San Francisco State) ARCHAEOLOGICAL INVESTIGATIONS AT CHUATULAN, EL SALVADOR. Current archaeological investigations at Chuutuan, a apparently different sort of settlement pattern than that usually assumed is evident. These new data indicate that revisions in the interpretation of the Cuscatlan border area and the entire Pipil question are in order. (28)

Brashear, Virginia M., Jr. (Texas A&M) PALYNOLOGIC RECORDS FROM HINDS CAVE. Fossil pollen recovered from soil deposits in Hinds Cave located in the Llavaneras area of southeastern Texas are used to infer aspects concerning the paleoenvironment and prehistoric cultures in that region. Palynological and geochemical data from the sediments in Hinds Cave are correlated with other pollen records from nearby localities such as the Devil's Mouth Site and Bonfire Shelter. In addition, the recovery of certain types of economic resources in the cultural deposits of Hinds Cave suggests the utilization of native plants as dietary foods. (35)

Burgess, Richard (California-Berkeley) THE SOCIO-ECONOMIC BASIS OF CHAVIN. An archaeological study of habitation sites in the vicinity of Chavin de Huantar and at site 97-76 yields a three-phase occupation sequence for the Late IP-early EH; a newly discovered Upper EH site; and a later occupational horizon corresponding to the time when a large occupation of the Chavin temples during Phase D. This large settlement was located on the west side of the Rio Mosna while small contemporaneous villages were located on the eastern flank of the alluvial zone. The relationship of ceramic styles from the North and Central Sierra and the Central Coast, which bear directly on a tentative hypothesis for the origin of Chavin. (19)

Burgess, Tony L. (Texas Tech) A RECONSTRUCTION OF THE VEGETATION RESERVOIR AREA PRIOR TO ANGLO-AMERICAN SETTLEMENT. The major plant associations currently present in the area and their relationships to topography, soil and climate are described. Historical sources indicate that Anglo-American settlement induced vegetation changes resulting from the introduction of alien plants and production of a new agricultural economy. The probable effects these changes had on the distribution and relative abundance of dominant species are derived from historical data and current research. In general, species of small shrub communities appear to have increased, and the grassland species have become more restricted in occurrence. A reconstruction of the predominant plant communities before the introduction of domestic cattle about 1870 is presented. (27)

Butler, Karl W. (Chicago) CHANGING HOLOCENE ENVIRONMENTS AT THE KOTEK SIT�I. HOLOCENE ENVIRONMENTAL PERSPECTIVES FROM THE JOHNSTON CREEK TRIBUTARY MOUTH-SITE. Illinois and Wisconsin deposits preserved under and adjacent to the site include palaeosols, outwash terraces ("sand ridges"), till, cryogenic deposits, and drift. The sequence of events is divided into four periods. Accumulation of reworked loess in an upland-deepened valley began at Kotek shortly after 10,000 B.P., and continued through Holocene times, with major sedimentary breaks. The floodplain began to stabilize ca. 5900 B.P., at which point the site was abandoned, but remained a dynamic environment that developed its present patterns after 2500 B.P. Hillside vegetation was considerably more xeric A.D. 750-1000, 2100-1900 B.P., and ca. 9700-500 B.P., with hillside woodland reduced to hill prairie or parkland ca. 500-770 B.P. These dramatic Holocene environmental changes enhance understanding of the Middlewodian biomes, and show that interpretative archaical models for cultural adaptations through time must consider the environment as a critical variable, rather than as a constant. (5)
increase as population density increases. Increasing subsistence diversity is an indication of declining subsistence efficiency ("population pressure") rather than increasing subsistence efficiency as usually assumed. Subsistence efficiency must be an important variable in any model of human subsistence behavior. (7)

Cinquino, Michael (see Welgand, P. C.) (34)

Ciolek-Torrello, Richard (Arizona) RECONSTRUCTING PREHISTORIC ACTIVITIES AT CRESSON PUEBLO. Internal energetic patterns related to the locations of the large fourteenth century community in east-central Arizona are presented. The archaeological context of Grasshopper contains an abundance of artifacts in direct association with occupation. The site situation provides a unique opportunity for the use of qualitative and quantitative analytic techniques in the reconstruction of activities. These investigations suggest an activity organization at Grasshopper that departs from the model of Puebloan cultural development. The results of the analysis of superimposed floors suggests that the use of activity spaces changed in line with the growth of the pueblo. (51)

Clasen, Chery (Harvard) ESTIMATING OCCUPATION SPAN FROM ARTIFACTS: A CASE STUDY FROM THE SOUTHWEST. Artifacts from Cerrito Maya, northern Belize, provide evidence for a series of occupations on a platform situated on the first terraces of the Little Tennessee River in eastern Tennessee. Thousands of artifacts, features, abundant paleobotanical remains, radiocarbon assays, and archaeomagnetic determinations have provided considerable additional evidence for the dense, multi-period occupation pattern. The movement of the Late Preclassic occupations during the late glacialiation. The data suggest that Upper Paleolithic settlers were like their Mousterian predecessors in utilizing a series of stream terraces for occupation, but that the Later Preclassic settlement was both much denser and showed greater diversity of terrain choice. The sites, 80-90 km inland but only 150-250 m above sea level, do not correspond to the model of Mousterian coastal settlement. By the Late Preclassic transhumant settlement of the coast and highlands. Radmilla's recently published compendium of prehistoric Italian sites provides grounds for suggesting that, during the Wurm, interior Italy was exploited by both Mousterians and Upper Paleolithic hunter-gatherers primarily during interstadial phases. During stadial maxima, occupation would be concentrated along the present coast and on what are now submerged coastal plains. Data relating to the validity of the hypothesis are considered. (7)

Chromtov, Jozef L. (Michigan State) TIME AND SETTLEMENT AT PETRIOLO DURING THE WURM. Survey, surface collection, and excavation data from the valley of the Farma, southern Italy, provide evidence for a series of Mousterian occupations at this prehistoric Italian site during the late glacialiation. Data suggest that Upper Paleolithic settlers were like their Mousterian predecessors in utilizing a series of stream terraces for occupation, but that the Later Preclassic settlement was both much denser and showed greater diversity of terrain choice. The sites, 80-90 km inland but only 150-250 m above sea level, do not correspond to the model of Mousterian coastal settlement. By the Late Preclassic transhumant settlement of the coast and highlands. Radmilla's recently published compendium of prehistoric Italian sites provides grounds for suggesting that, during the Wurm, interior Italy was exploited by both Mousterians and Upper Paleolithic hunter-gatherers primarily during interstadial phases. During stadial maxima, occupation would be concentrated along the present coast and on what are now submerged coastal plains. Data relating to the validity of the hypothesis are considered. (7)

Chromtov, Jozef L. (Michigan State) TIME AND SETTLEMENT AT PETRIOLO DURING THE WURM. Survey, surface collection, and excavation data from the valley of the Farma, southern Italy, provide evidence for a series of Mousterian occupations at this prehistoric Italian site during the late glacialiation. Data suggest that Upper Paleolithic settlers were like their Mousterian predecessors in utilizing a series of stream terraces for occupation, but that the Later Preclassic settlement was both much denser and showed greater diversity of terrain choice. The sites, 80-90 km inland but only 150-250 m above sea level, do not correspond to the model of Mousterian coastal settlement. By the Late Preclassic transhumant settlement of the coast and highlands. Radmilla's recently published compendium of prehistoric Italian sites provides grounds for suggesting that, during the Wurm, interior Italy was exploited by both Mousterians and Upper Paleolithic hunter-gatherers primarily during interstadial phases. During stadial maxima, occupation would be concentrated along the present coast and on what are now submerged coastal plains. Data relating to the validity of the hypothesis are considered. (7)

Chrisman, Donald L. (UCLA) EFFICIENCY, MAXIMIZATION, AND POPULATION PRESSURE: SOME NEW LIGHT ON OLD CONCEPTS. Subsistence efficiency is defined as the ratio of calories consumed (output) to calories expended in subsistence effort (input). For any given population density, subsistence efficiency is maximized by minimizing labor inputs. This logic is presented showing that for a general plant and animal communities, subsistence effort must increase and subsistence diversity must
Virgin Islands National Park, indicates an aboriginal dependence on marine resources. This includes shellfish (queen conch, clams, and crab) and fish (wrasse and rays). The small quantities of deepwater fish remains suggest indigenous fishing and trapping techniques. Mammal remains indicate that rodents were present in significant quantities in the diet. Statistical analysis techniques were employed to investigate temporal continuity and variability in faunal remains. (12)

Crumley, Carole L. (Missouri-Columbia) SPACE-TIME DIALECTICS: A SHORT HISTORY AND PROSPECTUS OF LOCATIONAL ANALYSIS IN ARCHAEOLOGY. In the past five years, what is termed regional or locational analysis has become an approach frequently championed by certain archaeologists (e.g., other disciplines: biology, geography, economics) is much longer, although methodological changes have dominated that literature. Close examination of both methodological and empirical aspects of this work has revealed that locational analysis adds an important dimension to the study: The conscious introduction of the temporal variable offers further insight into both culture change and the human use of space. (32)

Culbert, T. Patrick (see Dahlin, B.) (23)

Dahlin, Bruce (Catholic) THE PROPOSED COMPREHENSIVE MAYA LOWLAND MAPPING PROJECT. The feasibility of the funding of a side-looking radar mapping project in the Peten is currently being discussed with representatives of various federal agencies and central authorities (national and regional). The results presented are dependent on geographic and historical criteria. The park is a square kilometers. The area is centered on El Mirador, Tikal/Uaxactun, and the extreme northeastern Peten. The discussion will focus on problems of cost, study time, and diplomatic concerns such as airspace permissions. (23)

Davidson, Thomas E. (see Neely, J. A.) (41)

Davis, E. Mott (Texas-Austin) A REVIEW OF RADIOCARBON DATING IN THE CADDIAN ARCHAEOLOGICAL AREA. A critical compilation of nearly 360 radiocarbon dates from Caddian Sites by Patterson studies the archaeological time and other correlation by Valastro and Varela (Associate Director and Technical, Radiocarbon Laboratory) and the results are approved by Davis (archaeologist and Director, Radiocarbon Laboratory). The results of the method are presented in the appendix with the corrections on Caddian chronology, we discuss matters of sample selection and submission, and the correlation, reporting, and utilization of radiocarbon measurements in research. Much archaeological use of radiocarbon dating is still uncalibrated; it is time such use came of age. (19)

Deagan, Kathleen A. (Florida State) A SUBSURFACE SURVEY OF DOWNTOWN ST. AUGUSTINE, FLORIDA. A systematic subsurface sampling strategy using a mechanical soil augur to profile sediments was used to be discussed in two separate local development within a broader sphere of regional interaction. A postulated developmental hiatus for the Early Classic will be considered in light of reconnaissances and excavations. (36)

Dean, Donna (Texas A&M) MOUND BOTTOM: AN ENVIRONMENTAL ANALYSIS. Mound Bottom, located on a alluvial terrace of the Harpeth River, is in the transitional zone between the Highland rim of the Cumberland Plateau and the Harpeth Valley is in the Western Mesophytic Forest region which is interpreted as a transition between the Mixed Mesophytic Forest region to the east and the Oak-Hickory Forest region to the west. Trained environmental scientists evaluated local resources, many of which are important food sources for the indigenous populations. (53)

Dean, Jeffrey S. (Arizona) AN EVALUATION OF THE SARG EFFORT. A number of problems that arose in the course of the SARG effort to do cooperative research are identified. The most important of these concerns distribution that developed concerning the assumption that a problem endemic by the SARG researchers that was applied that design in specific areas. A second major problem concerns the extent to which "comparable" data result from the use of "standardized" variables. Difficulties involving the kinds of data collected, data are collected, data of collected, the kind of collection technique used, and the kind of computer considered. The implications of these problems for cooperative research efforts and for any effort to synthesize the results of different research projects done by different investigators are considered. (37)

DeBono, Warren R. (Queens, CUNY) THE WOMB AND THE TOMB: CONTRASTING MODELS FOR UNDERSTANDING AMERICAN PREHISTORY. The Amazon Basin has long been an enigma and a source of speculation in which relatively few data are used to promote extreme and vigorously defended paradigms. The on the one hand, the ethnographic record and selective appraisal of the information potential and protein supply have been published in the Amazonia as a cul-de-sac, always peripheral to mainstreams of cultural development in Andean South America. Recent archaeological work and a more differentiated view of the area has resulted in a number of essential and potentially different pictures in which Amazonia figures prominently in agricultural origins and the rise of long-distance trade networks and
stratified societies. These contrasting models are evaluated in terms of ethnographic, linguistic, archaeological, and historical evidence for the speakers of the Upper Amazon. Both are found wanting, and a revisionist model is offered. (24)

Dering, J. Phil (Texas A&M) PLANT REMAINS FROM HINDS CAVE. The excavation of Hinds Cave, a southwest Texas rockshelter, has recently yielded an abundance of well-preserved plant macrofossils. This paper will present results from an analysis of the plant remains and late Archaic and Early Woodland occupations in the shelter. These data are compared to information drawn from available ethnographic literature and studies of prehistoric diets in order to describe aboriginal plant utilization and its relationship to the landscape. (35)

Deutchman, Harre L. (SIU-Carbondale) THE USE OF DISCRIMINANT ANALYSIS TO INTERPRET CERAMIC DESIGN ELEMENT VARIABILITY. In an effort to examine intraphase variability of ceramic assemblages from Toreva phase (A.D. 1075-1150) sites on Blackwater and Chetimah, N.W. Miss., a face-to-face survey was done and analyzed. Painted decoration of the pottery was described by means of a hierarchical system of design attributes. One question posed was the extent of variability between sites in a restricted region of the Blackwater and Chetimah. Linear discriminant analysis of data from 17 sites. This multivariate statistical technique made it possible to describe the sites on the basis of similarity of ceramic assemblages. The potential of discriminant analysis for archaeological problems was not well recognized. This statistical method is an easily implemented, easily interpreted, and robust method, as well as a useful descriptive tool for development of identification keys for artifact assemblages. Results of this study substantiate the capacity of discriminant analysis to highlight variability and interassemblage differences. (40)

Diaz, Clara L. (see Cobean, R. J.) (2)

Dickens, Roy S., Jr. (Georgia State) MISSISSIPPIAN SETTLEMENT PATTERNS IN THE APalachian Area. This paper will summarize the existing data on settlement patterns for the Pisgah, Qualla, and other contemporary Mississippian phases in the Appalachian Summit area. I will attempt to delineate the distinctive features of these patterns as compared with Mississippian patterns in neighboring areas of the Southeast. Even though the data are limited, I will also develop some interpretations of the systematic relationships of the Appalachian Summit settlement patterns to the societies and their prehistoric lifeways and trace these relationships from the Early Mississippian period to the historic period. (25)

Dickson, D. Bruce (see McEwan, G. F.) (30)

Diehl, Richard A. (Missouri-Columbia) AFTER THE OLMECS—THE POST-FORMATIVE OCCUPATION OF LORETO TENOCHTITLAN. This paper will examine the late Postclassic culture, architecture, and settlement patterns of the Villa Alta phase (Late Classic-Early Postclassic) at several sites in the Rio Chiquito area of southern Veracruz, Mexico. It will attempt to explain why the area became a focus of dense settlement after being virtually abandoned for almost 1,000 years and why it was once again abandoned after a brief florescence. Information from other sites in southern Veracruz and Tabasco will be integrated into a cultural historical synthesis of the area for the Classic and Postclassic periods. (34)

Diehl, Richard A. (see Stroh, E. G., Jr.) (34)

Dinnel, Katherine (Florida State) HISTORIC CERAMICS AND HUMAN REMAINS FROM THE VIRGINIANS NATIONAL PARK. Artificial remains of the Danish plantation system include a wide variety of glass and ceramic types. A high percentage of the glass types are from wine and beer bottles. The historic ceramics include imported porcelains, earthenwares, and Spanish ceramics made by dyes, and some Spanish ceramics. The remains found were predominantly burials eroding out of the beach area. Their location and physical anthropology suggest that they were slave burials. (12)

Dodd, William A. (Zuni Archaeological Enterprise) THE ZUNI ARCHAEOLOGICAL ENTERPRISE: A NEW CONCEPT IN CONSERVATION ARCHAEOLOGY. The Zuni Archaeological Enterprise is the agency organized to give Zuni a greater role in the preservation and protection of their cultural heritage. Many advantages are gained from having an on-reservation group engaged in contract archaeology. Development projects need archaeological data to support the claims of cultural types ranging from subterranean pit houses, habitation sites of varying seasons of occupation and varying degrees of permanence, and the practice of seasonal transhumance. Computer analysis of settlement patterns and environmental variables supports the hypothesis that variation in settlement pattern is related to variation in environmental condition. (30)

Duncan, Lucy C. (Archaeological Research Associates) ANALYSIS OF A BURNED ROCK MIDDEN SITE IN SOUTHEASTERN OKLAHOMA. M81 is a large site along the Arkansas River in southeastern Oklahoma. It covers about 35 acres and consists of large quantities of burned and unburned lithic materials. Much of the site appears thermally altered. Analysis was undertaken to determine whether the material would support a hypothesis that an important function of the site was the thermal treatment of residues during the production process, and at what stage of site use these residues occurred. The analysis was accomplished through various statistical tests, such as analysis of variance. (14)

Dondhue, Randolph E. (Michigan State) OPTICAL SCANNING FOR ARTIFACT ATTITUDE RECORDING AT PETRIOLO II. This paper describes a new approach to artifact
Durbin, Marshall (Washington) LITERARY TRADITIONS AMONG THE MAYA. A
detailed reading of Stela 3 at Piedras Negras, Guatemala, will be used as a backdrop from
which literary traditions among the Maya are discussed. In particular, Kubler suggests that
the glyphs be read in clauses will be examined. The frequent appearance of 14 as a month
coefficient leads to some new proposals for reading this stela. The literary style and the
very complemenary in this stela (based on the recovery of large quantities of artifacts made of local rhyolite. An olivella bead and obsidian artifacts were also associated. The latter artifact associations are indicative of the early expression temporal development patterns currently documented for the prehistoric period in southern California. It appears that this site represents the westernmost extension of the Desert tradition yet discovered in the Los Angeles area. (45)

Dyke, Bennett (Pennsylvania State) ON THE APPROPRIATE USE OF COMPUTER
SIMULATION. There is a certain inevitable pattern in the way that computer simulation is
(1) a field of biological or behavioral (2) suffers critical abuse, and (3) is finally accepted as a useful research tool. This pattern is related to the
appropriateness of the use to which it is put. This paper will discuss the "natural potosi" of simulation studies and will suggest the application of some general standards of
appropriateness for its use. (15)

Earnest, Howard (Harvard) PRECLASSIC ARCHAEOLOGY OF CENTRAL
EL SALVADOR. Analysis of artifacts from a series of Preclassic sites in the middle Lempa
Valley of north-central El Salvador provides a basic material-culture time framework for
the region. Data from central Salvadoran sites outside the valley are utilized, and comparisons
and correlations with other Mesoamerican and Central American sequences are presented in
preliminary form. Remaining settlement patterns and economic adaptations of the
Central Salvadoran Preclassic communities are also discussed. (36)

Eaton, Jack D. (Texas-San Antonio) ANCIENT AGRICULTURAL FARMSTEADS
IN THE RIO BEC REGIONS OF YUCATAN. During the Maya Late Classic period (ca. A.D. 600-830) a specialized form of intensive agriculture was practiced throughout the Rio Bec region of Yucatan. Groups of rectangular stone houses with plaster floors, and frequently with fenced enclosures, were excavated and analyzed. The farmsteads are situated on artificially terraced hilltops remote from the monumental centers and were part of a regional network. Structural details of the farmsteads show that the people who occupied them were also highly skilled masons employed for the construction of monumental buildings in the centers. (47)

Ebert, James I. (New Mexico) MOBILITY, CLIMATE, AND TECHNOLOGICAL
SPECIALIZATION IN THE MIDDLE AND LATE STONE AGES OF SOUTHERN AFRICA. The
development of farming and pastoralism along the South Atlantic coast of southern Africa have long been a point of contention between archaeologists in southern Africa. Fieldwork conducted in Botswana in 1975-76 has resulted in the discovery of two periods of occupation along the shores of the now-dry Lake Makgadikgadi; an analysis of the lithic artifacts recovered indicates that differences in subsistence, specialization, and mobility in the last 100,000 years may be referable to human responses to changes in climatic cyclicity. (20)

Eddy, Frank W. (Colorado-Boulder) AN APPLICATION OF THE WYOMING PROJECTILE
POINT CHRONOLOGY TO DATING OF AN EASTERN COLORADO FOOTHILLS SITE
Site 14915. The South Fork of the South Platte River in the foothills of eastern Colorado, was accomplished by four chronologies of which projectile point styles was the most useful. Due to the confusion caused as well as little attention that has been given to the lower end of the time span, the absolute age limits for the Two Forks projectile types were derived by form comparison outside the south eastern district. Comparisons were made in two ways. The radiocarbon-dated Woodland samples were extrapolated to the Two Forks site and a relative comparison of the diagnostic points were made. Once the Magic Mountain relative point sequence had been dated, results were extended to the Two Forks site. It was concluded that just over half of the ancient sites at Two Forks spanned 7,000 years of occupation. Further, dated projectile point horizons, coordinated with alluvial, pottery, and historic artifact data, allowed subdivision of the Two Forks occupation into eight chronological periods, from Early Archaic to historic Ute. (13)

Edmonson, Munro S. (Tulane) MAYA HISTORIOGRAPHY. A Maya view of history is
discussed in this paper. In the text of the Book of Chilam Balam of Chumayel one passage stands out as unique. It includes the only direct Colonial reference to the Classic long-count
dating system. It is also written as a rebus with European symbols. The significance of this
passage is discussed in relation to the calendric system, the religious problem, the nature of
the writing system, and the Maya sense of history and ethnogony. (11)

Effland, Richard (Arizona State) THE USE OF THE SARG DATA BANK IN HYPOTHESIS
TESTING. The SARG data bank currently contains information on about 3,000
archaeological sites in the southwestern United States. A variety of hypotheses concerning
dates and relative locations can be tested using the database. Predictions and

Eggers, A. V. (Archaeological Impact Services) EVIDENCE OF EARLY MAN IN THE
WESTERN MOJAVE DESERT, CALIFORNIA. Excavations carried out in conjunction with
the discovery of a site containing a Pinto Basin type assemblage in the Antelope Valley. The
site was the first of its kind to be discovered in the western Mojave desert. Subsurface
testing revealed that the site is located in the center of a large prehistoric community in association
with large quantities of artifacts made of local rhyolite. An olivella bead and obsidian artifacts were also associated. The latter artifact associations are indicative of the early expression temporal development patterns currently documented for the prehistoric period in southern California. It appears that this site represents the westernmost extension of the Desert tradition yet discovered in the Los Angeles area. (45)

Eighmy, Jeffrey L. (Arizona) LOGISTIC TRENDS IN SOUTHWEST POPULATION
GROWTH. With the widespread influence of Easter Bowser's demonstration that
subsequent growth intensification is caused by population growth, the model of the Southwestern population growth is independent of subsistence strategies has also been widely adopted. However, to show that subsistence intensification is caused by population growth in a region dependent on subsistence strategies is evidence presented here suggests that in a number of prehistoric Southwest populations growth was not independent of environmental-subsistence constraints. In 13 of 41 possible cases, that is, 31% of the cases, population growth was dependent and can be described by a logistic function with an average r² of .37. (41)

Ekholm, Susanna M. (Brigham Young) THE NECROPOLIS ASPECT OF THE SOUTHWESTERN MAYA SITE OF LAGARTERO, CHIAPAS. Recent investigations at Lagartero indicate that parts of the ceremonial center served as cemeteries from the Middle through Early Postclassic periods. The great number of burials encountered and their accompanying grave goods elucidate elite burial practices for the area and indicate chronological or functional differences between the two periods. (55)

Ekland, Carolyn (Texas-Austin) DISCRIMINANT ANALYSIS OF FRAGMENTS
FROM LONG BONE DIAPHYSSES. Analysis of faunal remains from archaeological and paleo-
ontological sites is almost always restricted to dental and epiphysial materials. Our research
objectives were to determine whether the method of growth in long bone diaphyses could be
used to provide information about the age of individuals from fragments using shape characteristics only. In this pilot study, we have been able to use a small number of shape descriptors to make discriminations between fragments from young and old individuals. Thus, it may be possible that collections of bone fragments can be made to yield much more information than they do at present. (15)

Ellis, Florence Hawley (see Fritsbe, T.) (32)

Engel, Frederic A. (Universidad Nacional Agraria) CHANGES IN THE SETTLEMENT
PATTERNS ALONG THE ARID COAST OF PERU FROM 10,000 B.P. TO THE
COLONIAL PERIOD. Many thousands of campsites, villages, cities, and monuments are
found along the coast of Peru, dating from 10,000 B.P. to the present. The archaeologist
and collection of comparable data by different researchers, a questionnaire approach is used that stresses the recording of morphological data and avoids functional interpretations. Location data and temporal data for the Central Coast from 10,000 B.P. to the Colonial period. (49)

Engel, Frederic A. (see Benfer, R. A.) (35)

Epstein, Jeremiah F. (Texas-Austin) SOME PROBLEMS IN BAY ISLAND PREHISTORY. A
detailed archaeological survey of the sites of the innermost island and collection of comparable data by different researchers, a questionnaire approach is used that stresses the recording of morphological data and avoids functional interpretations. Location data and temporal data for the Central Coast from 10,000 B.P. to the Colonial period. (49)

Epstein, Jeremiah F. (Texas-Austin) SOME PROBLEMS IN BAY ISLAND PREHISTORY. A
detailed archaeological survey of the sites of the innermost island and collection of comparable data by different researchers, a questionnaire approach is used that stresses the recording of morphological data and avoids functional interpretations. Location data and temporal data for the Central Coast from 10,000 B.P. to the Colonial period. (49)

Erickson, Jonathon E. (Los Angeles County Museum of ANTHROPOLOGY CHARACERIZATION,
THE MANN OBSESSION: ISOLATION AS AN EXCHANGE SYSTEMS, Individual
exchange systems of prehistoric California can now be isolated by applying the results of
categorical description of obsidian sources and artifacts, source-specific obsidian
hydration dating curves, and symbiotic mapping. A discussion of the methodology and
elements are presented. (45)

Erickson, Clark L. (Illinois-Urbana) SUBSISTENCE IMPLICATIONS AND BOTANICAL
ANALYSIS AT CHIRIPA. During 1974-75, a joint Bolivian-U.S. project was undertaken at
the site of Chiripa, on the Altiplano of Bolivia (ca. 3,800 meters above sea level). One major
goal of the project was the flotation technique for the recovery of botanical remains and small animal bone for the early
“punkewed” levels of the site, thought to date in the 1500-1600 B.C. period. Analysis of the recovered material indicates the cultivation of Chenopodium spp. and possibly potatoes (Solanum spp.). Other local economic plants are also represented. Suggested use of the various plants, the possibility of domestication, and aspects of the site’s ecology are discussed. (45)

Eisenpreis, Patricia S. (Harvard) FORT ANCIENT SETTLEMENT: A CASE STUDY OF RESPONSE AT A MISSISSIPPIAN-LATE WOODLAND INTERACTIONS site. The study of a variety of influences from several Mississippian cultures by relatively independent and culturally distinct populations in the Ohio Valley. The differential adoption of pottery forms and ideas by specific Mississippian Late Woodland peoples may have been due to a lack of effective interaction between such groups is responsible for the lack of specific burial patterns and village layouts for the Fort Ancient cultural. As the Fort Ancient culture develops through the period from AD 1000 to AD 1700, the nature of external and internal dynamics change, making spurious the search for a single cause of origin such as invasion. A lack of understanding of chronological positioning of Fort Ancient sites and the possible chronological development within the Fort Ancient cultural tradition may be demonstrated for the first time. However, such speculations can be formulated as testable models, the value of which can be examined through consideration of specific phases or aspects such as the Anderson phase. Support for the variable interaction of Middle and Late Woodland groups, other Fort Ancient groups, and the local Late Woodland populations can be demonstrated for this phase. (25)

Evett, Daniel (Wayne State) A TEST OF GENERALIZATIONS CONCERNING POST-PLEISTOCENE MAN-LAND RELATIONSHIPS: THE ITALIAN CASE. Several of the more widely stated generalizations regarding the nature of post-Pleistocene cultural developments in the near east are put to the test of settlement pattern analysis, and in the light of data from the Etruria and the Umbria, Italy. Suitable tests, both for translating the cultural and environmental information translated into contributes to understanding the environment and model, the environmental model is discussed. (16)

Ferguson, T. J. (Zuni Archaeological Enterprise) ARCHAEOLOGICAL INVESTIGATIONS AT PESCADO SPRINGS, ZUNI INDIAN RESERVATION, NEW MEXICO. A report is made of archaeological investigations recently completed by the Zuni Archaeological Project at the village of Pescado, a small farming community 14 miles west of the Zuni Pueblo. Backgrounds for the environmental setting of the area and the historic and historic aspects of the occupation of Pescado are discussed. Results of ceramic analysis and architectural studies indicate the area was occupied intermittently from the Late Prehistoric period to the present. Speculative ideas concerning the temporary abandonment of the Pescado area are considered. (41)

Ferguson, T. J. (see Dodgo, W. A.) (43)

Fisch, Paul R. (Georgia) FROM DEBITAGE TO BEHAVIOR: EXPLORING THE BEHAVIOR OF A DEBITAGE example of one of the least studied of artifact categories and a most neglected one in the realm of cultural inference. To change this underserved image, the potential of debitage for the interpretation of behavioral patterns is discussed. In order to illustrate the use imolation of tool making in a number of examples from several Middle Paleolithic assemblages is cited. The locus of activities and selective processes in tool use and manufacture in a single site are inferred from kinds and distributions of debitage. Comparison of the cultural aspects between sites is also carried out on the basis of debitage attributes. (33)

Fish, Suzanne K. (Georgia) CULTIGENS, CULTIVATION, AND CHRONOLOGY: PALYNOLGY AT EDZNA, A series of pollen samples from architectural and stratigraphic contexts were analyzed for the project headed by Ray T. Matheny at Edzna, Campeche. A pollen diagram and guide to the archaeophyte occurrence is presented. Various cutigens were identified, and additional types of probable ecological significance are suggested. Pollen spectra also provide clues to cultural activities, relative extent of cleared land, and chronological order among subsamples. (55)

Flattiger, Katherine (Chicago) NEW ASPECTS OF THE MOUSTIERIAN FROM ESPAÑOL IN SPAIN. Based upon studies of Mousterian industries in eastern and southern Spain, the notable differences between the Mousterian of Spain and southeastern France are examined. Factor analysis and attribute analysis are used as aids in determining the relative functional aspects of the tool types. A number of hitherto unpublished sites are included in the study. (7)

Folan, William J. (Universidad de Yucatan) FRUIT, FIBER, AND BARK: THE SOCIAL ORGANIZATION OF A MAYA URBAN CENTER, COBA, QUINTANA ROO, MEXICO. Recent analysis of 3,474 trees recorded in the urban Maya center of Coba, Quintana Roo, indicates a correlation between the location and quantity of certain fruit, bark, and fiber bearing trees, their distances from the center of the site toward the fringes and architectural shapes suggesting agreements between the residence pattern of Coba and Diego de Landa’s sixteenth century class-oriented description of Maya towns during Preconquest times. (52)

Foncerrada, Marta (UNAM) CACAXTLA PAINTINGS AND THEIR CALENDRIAL SIGNS. The recently discovered murals at Cacaxtla, Tlaxcala, Mexico, show a number of signs which are closely associated with the representations of human figures and are surely concerning a particular significance to these images. Some of these signs appear with numerals indicating a calendrical context that may be related to similar representations in painting and in other media in other sites. To establish these similarities within particular contexts should contribute to a broader understanding of the iconography of the Cacaxtla mural painting and also of its chronological position in relation to other manifestations of Middle American art. (38)

Fowler, Melvin L. (Wisconsin-Milwaukee) CACHOKIA AND THE AMERICAN BOTTOMS: SETTLEMENT ARCHAEOLOGY. Settlement surveys have been conducted within the Cachokia area and adjacent areas since 1957 and the results of these surveys are integrated with the large cumulative database of general surveys conducted primarily with site identification and location and not with defining site size and function. Various studies of the Cachokia site itself have been conducted, although these data may be combined, discussions concerning settlement systems can be proposed for future testing. Cachokia was the most accurate of a stratified system of communities. Besides Cachokia there were second line communities made up of sites with substantial occupation base located in the floodplain of the Mississippi River. Below these were specialized productive communities and farmsteads. Some discussion of the development of this settlement system will be presented. (25)

Fowler, William R., Jr. (Calgary) A DEFINITION OF THE POSTCLASSIC PERIOD OF CENTRAL EL SALVADOR. This paper utilizes data from recent excavations in the middle Leon Valley as well as the excavation of the Cacaxtla Book to establish a working definition of the “Central Salvadoran Postclassic.” Additional data are derived from the ethnohistoric literature. The frontier status of this region of Middle America in the early Postclassic is evaluated. Lack of an ethnic identity of the “Pipiles” is examined for its significance in evolutionary thought. (36)

Fox, Daniel E. (Texas Tech) BUSINESS-LIKE ARCHAEOLOGY: THE POTENTIAL FOR APPLICATION OF MANAGEMENT CONTROLS. With a continued increase in the volume of contract archaeology and a trend toward “conservation archaeology” (an adaptive response to a seemingly apparent need to make archaeology a publicly responsible institution of the American free enterprise system), the corresponding legal and nationally integrated nature of “the business” has attracted professional administrators who seek to standardize the operations of their firms, as well as for techniques and terminology. In order to avoid the conflict of basic human values about whether or not individual archaeologists should be managed, this paper considers the potential for application of PRDC, a recently developed technique that might be employed by different contracting institutions. In conclusion, a discussion of potential benefits and problems inherent in the standardized application of management controls is offered. (26)

Fox, James A. (Stanford) ASPECTS OF MAYA ASTRONOMICAL INSCRIPTIONS. The discovery of a Classic Maya inscription which records the observation of an astronomical event is presented. The implications of this inscription for the Maya calendar correlation, the understanding of Maya astronomy and astrology, and the general study of ancient astronomy are discussed. (11)

Fox, James A. (see Justeson, J. S.) (11)

Frantz, Roger S. (see Schneider, K. A.) (50)

Freimuth, Glenn (see Riley, T. J.) (6)

Frisbie, Ted (SIU-Evansville) A VIEW OF ETHNOARCHAEOLOGY IN WESERN UNITED STATES AND NORTH MEXICO. In those areas in which it is difficult to work, such as Zuni, Hopi, or the Rio Grande Pueblos, the ethnoarchaeological approach solves problems otherwise left hanging. In turn, one can aid Native American groups in problems such as those connected with recent land-claims cases; this ethnoarchaeology may provide practical leads as well as elucidation of theoretical problems. For little known groups such as the Seri, Tarahumara, Huichol, or Tarpehuah in north Mexico, ethnoarchaeological studies preserve knowledge of material culture that is essential to understanding of possible problems. By the same token the culture of such groups as the Seri is illustrated. The rare ethnoarchaeology work in California and the Great Basin is essential for understanding the still little known cultural development in these areas. (32)

Frisson, George (Wyoming) BONE BUTCHERING TOOLS IN PREHISTORIC BISON KILL SITES. There is no doubt that bone tools were used in some aspects of butchering in bison kill sites from Paleolithic to historic times. Positive identification of these kinds of tools is often conjectural due to methods of tool manufacture, the kinds of evidence resulting from use, and varying preservation of the bone in archaeological contexts. A special problem is that owing to carnivores can produce results similar to the findings of excavators that archaeologists must carefully consider before describing certain bones as parts of butchering tool assemblages. (13)
Frison, George C. (see Reher, C. A.) (14)

Frost, Everett (see Shutler, M. E.) (24)

Frost, Jan (see Shutler, M. E.) (24)

Fuller, John W. (Washington) THE DEVELOPMENT OF LATE PREHISTORIC TOWN COMMUNITIES IN NORTHERN WEST VIRGINIA—THE TEST OF A MODEL. A research program concerned with the formulation and testing of archaeological models explaining the development of sedentary nucleated towns is outlined. Implicit in the extant literature is a growth model by which towns become nucleated as the result of the expansion of smaller hamlet communities. The consequence of this model is empirically tested and disproven by stylistic and functional analyses of surface survey data from West Virginia. The computer mapping technique SYMAP. The growth model is shown to be ineffective, and a nucleation model contending that towns form through a compaction-redistribution of a given population in marginal environments is suggested. (6)

Gaines, Sylvia (Arizona State) THE EVOLUTION OF THE SARG COMPUTER FORMAT AND DATA BANK. The nature of the computer format employed in SARG research as well as strategies for making changes in the format is described. Since the history of these changes is summarized and related to changes in the design range on the one hand and in the organization's understanding of computer technology on the other. Some of the lessons learned from this effort are presented. In particular, the utility of SPSS as a data bank management system is discussed. Changes in formatting and in data storage and retrieval procedures are considered. (19)

Gatlin, Walton C. (Massachusetts) VALIDITY MAIZE AND ITS SIGNIFICANCE. The earliest evidence for a domestically evolved race of maize named Kohlo in the coastal Ecuador site of San Pablo suggests earlier maize agriculture than generally presumed from the earlier domestication sequence at Tehuacan, Mexico. Mexican material of comparable age has less advanced kernels. Increases in kernel size involve polyclinic selections by man that are poorly adapted in nature. While the chronology for archaeological maize indicates that the South American maize probably originated from a primitive Mexican maize introduced by man, once it became geographically isolated from its ancestral source, divergence was possible. The drift of a genetic capacity for kernel enlargement found fulfillment along a pathway toward increased productivity in South America. As significant by teosinte introduction by Conceptual, in Mexico, the first ancestor of maize found in Mexico, Guatemala, and Honduras, has a much thinner pericarp than maize and much smaller kernels. Hybrids of teosinte and maize may have inviable pollen, indicating a combination of a modern non-ovule and an ancient thin pericarp. In Mexico, kernel size remained relatively small; increased productivity was achieved by increases in row number and ear length. (22)

Gallagher, Joseph G. (SMU) AN ANALYSIS OF PREHISTORIC SETTLEMENT FUNCTIONS WITHIN THE BRANTLEY RESERVOIR, NEW MEXICO. Recent archaeological surveys in the basin of Brantley Reservoir, New Mexico, have added new morphological sites to the known sites of the basin. The surveys also included data on the settlement patterns of the Mescalero Apache. Subsequent research has sought to test both the morphological and functional models of sites. Tests of these models and their reevaluation in light of recent studies on the reconstructed environment are presented. (27)

Gardner, Joan (Texas Tech) TEXTILES FROM SPIRO MOUND, OKLAHOMA. Recent analysis of Spiro Mound textiles in the collection of the U.S. National Museum, Smithsonian Institution, has led to some rather startling discoveries. Many of the fabrics have proven to be red or yellow. Outerly this is colored with plant dyes, Outerly this is colored with plant dyes, Outerly this is colored with plant dyes. Designs on the underside suggest that fragments are clearly related to those on the well-known engraved conch shells. The textile industry appears to resemble that of the Northwest Coast in several ways. (17)

Garrison, Ervan G. (Missouri-Columbia) DIMENSIONAL ANALYSIS OF VARIANCE AND LOCATIONAL ANALYSIS. Dimensional analysis of variance has been used to correlate artifact concentrations in context variations. Statistical parameters (Whitney) are interchanged for the study of several factors. The analysis is to determine the potential of this technique for detecting spatial limits of settlement systems. (52)

Garza, Sylvia (INAH) REMOTE SENSING IN THE YUCATAN PENINSULA. The Centro Regional de Sureste, INAH, has been using remote sensing techniques to locate and study archaeological sites in the Yucatan Peninsula. The project utilizes a variety of image processing techniques, including those of medium and large-scale aerial photography, and in recent years has been using micromagnetics for purposes other than architectural research. The possibility of using these techniques for evidence of architecture. More detailed studies of individual sites were collected on 1,000,000 topographic maps. Defensive walls surrounding several sites were noted. Information about both key centers such as Uxmal, Izamal, Chicxulub, and numerous smaller architectural clusters is being compared in order to formulate definitive statements about community form and settlement systems. (31)

Gerstle, Andrea (Colorado-Boulder) TOOL MANUFACTURE AT SABANA GRANDE, NICARAGUA. Chipped stone artifacts and debitage found at a single mound at the site of Sabana Grande, Nicaragua, by Richard Magnus are analyzed with a view to identifying patterns in tool manufacturing behavior. A behavioral model of tool manufacture is proposed on the basis of an initial intuitive classification of artifacts into core, blank, preform, and tool categories. The proposed reduction sequence is then tested and verified with statistical (principal components) analysis of a sample of complete unmodified debitage. The model is then refined by analysis of additional flake types—flake tools and resharpening flakes. The completed model is examined for characteristics which may apply to distinguishing tool manufacture at Sabana Grande from other areas. (3)

Gifford, Diane (California-Santa Cruz) AFRICAN HUNTERS AND GATHERERS: ETHNO-ARCHAEOLOGY. Ethnoarchaeological studies of hunting-gathering peoples in Subsaharan Africa have had several effects. At the local level, they have served to elucidate regional archaeological problems by providing direct information about the use of specific models that allow us to understand the social organization, and ecology in tropical zones, ethnoarchaeological studies have substantially contributed to the refinement of models and. Yet another level of generalization, these studies may be used to form and test general hypotheses regarding both social institutions and transformation of material culture, and the archaeological evidence. (24)

Gifford, Diane (see Ammerman, A. J.) (15)

Gilman, Pat (Mimbres Foundation) A SYNTHESIS OF THE CLASSIC MIMBRES PHASE WITH SPECIAL EMPHASIS ON THE MATTOCKS SITE. Using both previously published information and data from recent work in the Mimbres Valley, a synthesis of the Classic Mimbres phase is being presented. A number of apparent differences in site size and function of habitation sites will be considered, as will the relationship of the Classic Mimbres phase to the Classic phase. Recent excavations on the Mattocks site will be used to exemplify these points, and intrasite room functions, activity areas, developmental sequences, and length of occupation will be discussed. (11)

Goad, Sharon I. (Georgia) EXCHANGE NETWORKS IN THE SOUTHEASTERN UNITED STATES. Exchange networks in the southeastern United States have been vaguely defined as long distance routes linking the southeast with the Great Lakes and Illinois. Recent quantitative studies have indicated that although some artifacts move were manufactured from materials originating in these northern areas, the majority of these artifacts were made from indigenous source material. This paper reports on the quantitative analysis of a number of copper artifacts from the Southeastern US and reviews the concept of southeastern exchange in light of these findings. (53)

Goldstein, Lynne (Wisconsin-Milwaukee) CULTURAL PERIODS VS. CULTURAL SYSTEMS: THE TEMPERED SHELTER A MISCELLANEOUS. Many archaeologists often assign sites to cultural periods on the basis of the presence of certain material items. This approach can lead to difficulties because: (1) the absence of such items does not necessarily mean that a site is not from another period; (2) the significance of items is simple, common item is anything other than an artifact; and, most importantly, (3) we often fail to understand the differences between a cultural period and a cultural system. The purpose of this paper is to define these systems as such as they are important for the reevaluation of the function of the cultures. (3)

Goodey, Albert (see Smith, L. D.) (3)

Gorman, Frederick (Boston) PROBLEM-ORIENTED RESEARCH IN HISTORICAL ARCHAEOLOGY: INDUSTRIAL ORGANIZATION OF TECHNOLOGY AND LABOR IN EIGHTEENTH CENTURY GLASS MANUFACTURING. Historical evidence suggests that functional analysis of the organization of technology and labor that define the early nineteenth century industrial revolution in America were previously operative in the eighteenth century glass manufactories. Hypotheses about patterns of material culture that might be expected to characterize glass manufacture during the American Revolution are tested. The raw materials and production techniques are examined to determine whether the war caused production and marketing conditions that anticipated the Industrial Revolution. Ethnographic and archaeological data collected from the eighteenth century and the early nineteenth century residential glass houses in the American Revolution are used to make inferences about the early nineteenth century industrial community planning, product standardization, and workers' material standard of living. (42)

Grady, James (Colorado-Boulder) ANIMAL BEHAVIOR PATTERNS AS AN ECONOMIC DETERMINANT OF ARCHAEOLOGICAL SITE LOCATION. Large herbivorous wild animals have traditionally been kept as a part of the protein intake of hunters and gatherers, and the movement of these animals is how and why they behave as they do. An essential step in clarifying the economic behavior of man. Hunting as a concept is ambiguous. The concept of hunting, which is considered to be the hunting of migrating behavior patterns, is substituted. The basic thesis is drawn from the behavior of mule deer (Odocoileus hemionus hemionus) and site distribution in western Colorado. (3)
Grady, James (see Hester, J. J.) (23)

Grady, Mark A. (SMU) RESEARCH DESIGNS AND CULTURAL RESOURCE MANAGEMENT: SOME PRACTICAL CONSIDERATIONS. Research designs are as necessary a part of contract-sponsored research as they are of any other form of archaeological investigation. The nature of archaeological resource management studies, however, requires that problems be defined in a broad orientation. Often the research area has been circumscribed. The implications of this issue are examined, and a number of solutions relative to different phases of cultural resource management are proposed. Emphasis is placed on the fact that research design is an integral component of the management project. (26)

Grady, Mark A. (see Morenon, E. P.) (43)

Graham, Elizabeth A. (Cambridge) ARCHAEOLOGY IN THE STANN CREEK DISTRICT, BELIZE, CENTRAL AMERICA. Abstract not available. (47)

Grant, Phillip (see Etikan, C.) (13)

Graves, Michael W. (Arizona) ARCHAEOLOGICAL SURFACE DEPOSIT METHODOLOGY. This paper describes traditional ways in which surface deposits have been investigated to answer archaeological research questions. It is argued that the potential of surface deposits as archaeological context phenomena has yet to be realized. Several areas in which sufficient reliable information are available provide examples of the potential of surface deposits. Cross-cultural methods and analytical techniques for extracting this information. Examples from the Grasshopper region, Arizona, provide illustrative support. (37)

Graybill, Donald A. (Georgia) THE UTILITY OF THE RANK-SIZE RULE IN ARCHAEOLOGICAL RESEARCH. The rank-size relationships exhibited by modern settlements that have been described are examined for purposes of determining the utility and applicability of these regularities in attempts to understand prehistoric settlement system phenomena. (29)

Grayson, Donald K. (Washington) MT. MAZAMA, MIDDLE HOLOCENE CLIMATIC CHANGE, AND NONEQUILIBRIUM INSULAR BIOGEOGRAPHY IN THE NORTHERN GREAT LAKES. The evidence of mt. San Francisco from the south-central Oregon, lends confirmation to the hypothesis that the eruption of Mt. Mazama (ca. 7000 B.P.) was superimposed upon an increasingly xeric environment. This superimposition is seen to have produced the taxonomic and phenotypic changes in the various species of Lasius species and in the effects of these events upon humans are poorly known. The mid-Holocene disappearance of pikas (Ochotona princeps) is explained by these events, and confirms the hypothesis that the greatly reduced numbers of these small mammals on the mountainous heads of northwestern Oregon are accounted for by initial Pleistocene colonization followed by extinctions of geographically intermediate populations. (4)

Greber, N'omi (Cleveland Museum of Natural History) THE USE OF NONPARAMETRIC STATISTICAL PROCEDURES IN THE ANALYSIS OF HOPEWELL BURIAL PATTERNS FOUND IN SEIP MOUND 1, ROSS COUNTY, OHIO. Based on a methodological framework of ranking variables, ranksums, and nonparametric comparison tests, a detailed description of burial attributes for each individual of a burial population permits identification of components of the social structure (defined as identifiable groups of individuals) and interpretation of social organization (defined as relationships within and between components). Descriptive variables include measures of tomb size and materials, burial form, associated artifacts, age and sex when available, and relation within burial to the cultural environment. Results of analysis of the burial population within Seip Mound 1 show that the associated living population consisted of three ranked major divisions, with differentiated subgroups within these. Each major division is associated with contiguous, but separable, physical space and differential distribution of specific sociotechnical items. An anthropogenic structuralism is suggested for some of the other Hopewellian peoples of the local geographic area. (17)

Green, Dee F. (USDA Forest Service) THE EVOLUTION OF THE SARG RESEARCH DESIGN. The original SARG research design was a compromise between individuals with divergent research interests and concerns. All aspects of the research design have been modified to the present state, may have several shortcomings. The results of this research design have generally reflected long periods of discussion and debate. The history of the research design is discussed. Both basic changes and basic continuities are identified. (10)

Green, Dee F. (see Green, E. J.) (50)

Green, Ernestine (USDA Forest Service) SOME IMPLICATIONS OF LAND-USE PLANNING FOR ARCHAEOLOGICAL METHOD AND THEORY. The road for archaeological input into planning documents that cover large land areas of several hundred thousand acres is growing archaeologists an opportunity to observe the past on a scale and with a scope never before possible. Data gathering at such a magnitude has serious implications for the development of both method and theory within the discipline. Several of these implications are explored, and it is suggested that archaeologists have an unparalleled opportunity for looking at the past in a new framework. (50)

Green, Margie (Arizona State) ANALYSIS OF CHIPPED STONE RAW MATERIALS FOR BLACK MESA. Chipped stone artifacts occur in low frequencies at sites on Black Mesa. While it was once clear that this phenomenon reflected the limited availability of raw materials, a recent source survey indicated that lithic raw materials were readily available to the prehistoric populations in the area. This paper describes the results of that source survey. The differential abundances of raw materials from distant localities, and the relationships to environmental and organizational variables affecting the use of raw materials. Statistical tests of alternative hypotheses are discussed. (51)

Green, Paul R. (Missouri-Columbia) NETWORK APPROACHES TO SETTLEMENT ARCHAEOLOGY. A persistent shortcoming of locational studies in archaeology is the inability to provide techniques that can identify and aid in the understanding of objective regional (cultural) groupings. In the Midwest, with a well-documented road network, methods for analyzing spatial relationships provide an opportunity to apply these analyses were then compared to an ethnohistoric survey real data. The utility of network analysis can be compared to the "emcic' reality revealed by the ethnographic data. The utility of network analysis is presented with respect to their usefulness in distinguishing real regional-cultural groups of sites. (52)

Green, Stanton W. (South Carolina) THE STATISTICAL ANALYSIS OF ENVIRONMENTAL VARIATION: A MAPPING APPROACH. Archaeologists are often confronted with the problem of describing the environmental variability of a region from a large set of variables. This paper offers a methodology for delimiting and discriminating the spatial variability of climatic and geographic variables that condition agricultural land use. Using a statistical technique, several geographic variables are accounted for in agricultural land values in Denmark. Trend surface analysis is employed as a means of spatial description and to generate hypotheses concerning land use and settlement patterns. This methodology shows strong potential for studying the relationship between historic and prehistoric land use and ecological systems. (5)

Green, Thomas J. (Idaho Historical Society) MISSISSIPPIAN SETTLEMENT PATTERNS IN SOUTHWESTERN INDIANA. Early (ca. A.D. 1200-1500) and late (ca. A.D. 1500-1700) Mississippian settlement patterns in southwestern Indiana are described. The description outlines the major settlement structures that occupied the region, the relationship of these structures to the landscape and each other, and the assessment of the accuracy and reliability of the available information for settlement pattern discernment in this region. The similarities and differences in settlement patterns and the inferred settlement systems are described. An explanation is offered for the similarities and differences that is based on ethnographic analogy and economic theory. (25)

Greer, John W. (see Benfer, R. A.) (39)

Greer, John W. (Missouri-Louisiana) LA PALOMA, A MIDDLE PRECERAMIC SITE ON THE CENTRAL PERUVIAN COAST: INTRODUCTION TO THE 1976 EXCAVA TIONS. La Paloma is a preagricultural maritime village located just north of the Chica Valley in the major drainage of the coast of Peru. The archaeological manifestation of the site is represented by a series of cultural layers which were occupied by populations of the Chica Valley during the Preceramic period. The study of these archaeological remains has been conducted in order to understand the cultural sequence and the economy of the region. The results of the excavation are presented in this paper. (30)

Groser, T. Weber (Colorado-Boulder) THE JONES-MILLER HELL GAP SITE BONE TOOL ASSEMBLY. The sounds of bison remains from the J.M. site in eastern Colorado resulted in the observation of significant patterns of breakage due to preparation and utilization of certain bone elements for tools. A systematic analysis of the J.M. site bone tool analysis is presented. Several bone tool types identified by specific breakage patterns, polish, flake removal, and other evidence of use-wear. The majority of these implements are long bones and ribs, mandibles, and acorn. This bone tool assembly is used in the analysis of the Jones-Miller faunal assemblage. (13)

Griffin, P. Blon (Hawaii) ETHNOARCHAEOLOGICAL RESEARCH IN ASIA. A brief review of the ethnoarchaeological research that is known to the authors from South, Southeast, and East Asia is followed by a more detailed look by Sondheim at ethnoarchaeological research that has been done with pottery in Southeast Asia and by Griffin at
the research in the Philippines with hunters and gatherers. On the basis of recent experience we look at some special ethnological and archaeological problems worthy of research in Irian, Java, Indonesia, and the Philippines. (24)

Gullien, Ann Cyphers (UNAM) A SERIATION OF CHACALTINO CERAMICS. The use of computer programs for the calculation of the Robinson-Brainerd correlation coefficients and for the best ordering of their seriation matrix have advantages of speed and efficiency in use and of high accuracy of results. The choice of groups of 200 sherds was made for this purpose. The authors present a typology of Chacaltino ceramics from Morelos, Mexico. Two seriations of the same collections were conducted: the first based on the frequency of types; the second based on the frequency of form attributes. Comparison of the results indicate an order and stratigraphic order reveals not only time change but also spatial-functional variation at Chacaltino.(25)

Gunn, Joel D. (Texas-San Antonio) LINEAR DISTRIBUTION ANALYSIS. A whole literature has evolved around the question of whether a given tool type is or is not clustered on an occupation floor. Since comparison of distributions between tool types has been based on a large ethnological literature, it has been only recently that archeologists have been able to draw on the methods of cultural history and order for the development of a better understanding of the distributional patterns and of stratigraphic order. This paper outlines a method for determining intertype distributions based on linear models. The method is capable of distinguishing combinations of tool types that can be considered possible tool kits and the spatial pattern of those tool kits. (29)

Gunnerson, James H. (Nebraska) HISTORIC INDIAN OCCUPATIONS IN THE UPPER PECOS AREA. That portion of the upper Pecos drainage in or near the eastern foothills of the Sangre de Cristo Mountains (in northeastern New Mexico) was an important contact zone for Plains and Pueblo Indians. One of the best travel routes between the Plains and the Southwest crossed the upper Pecos drainage and the mountains near Pueblo Moccas. The upper Pecos and nearby areas had long been an eastern agriculture and horticulture, and in early historic times provided attractive farm land for Apaches coming in from the Plains. Archaeological and ethnohistorical evidence documents not only the relationship between man and environment but also the nature and extent of exchange between Plains and Southwestern peoples in this cultural interface. (27)

Gustafson, C. E. (see Wesson, G. C.) (44)

Hackenberg, Steven (Museum of the Great Plains) EXPERIMENTAL DESIGNS IN ARCHAEOLOGICAL RESEARCH: PREPACKAGED EXPEDITIONS AND STATISTICAL ANALYSIS. In a restricted sense, the term experimental design denotes particular sets of procedures for structuring and controlling observations, and the "prepackaged" logic and statistical analysis associated with such sets. The recognition and possible use of experiment designs within archaeology may ease and promote the restructuring of archaeological research. This paper will attempt to present an idea of some of the depth and range of design possibilities at separate levels of archaeological research, and to compare and contrast the mode of experimental designs with the mode of present analytical procedures. (29)

Hailey, Larry D. (Tulsa) LANDMARK FEATURES AS AN AID TO SITE LOCATION ANALYSIS. This is a statistical analysis of stream course features and natural land-formations as an aid in locating sites. Data for research was extracted from a 330 mi long transect across Oklahoma. The hypothesis tested was the possibility of sites occurring in relation to easily distinguished landmarks because of their use as aids in land navigation. (29)

Hall, Robert (see Kenoe, T. F.) (32)

Hamilton, Margaret E. (Delaware) HUMAN SEXUAL DIMORPHISM AND SUBSISTENCE PATTERNS IN THE ARCHAEOLOGICAL RECORD. An initial study on the extent and demonstrated a decrease in the magnitude of sexual dimorphism in size in five osteological Amerindian populations with the transition from hunting and gathering to agriculture. This may reflect a decrease in the selective factors affecting one sex (warfare, pregnancy, childbirth, or lactation), or both (subsistence activities and diet). Two additional groups have been measured from the lower Illinois River Valley and are compared with three other American Indian groups from the same area. Phenotypic changes in the magnitude of sexual dimorphism in size reflect the shifting patterns of subsistence demonstrated in these archaeological populations. (44)

Hammond, Norman (Cambridge) SECOND TO FOURTH MILLENNIUM B.C. RADIOCARBON DATES FOR THE MAYA LOWLANDS. Recent radiocarbon dates for the Maya Lowland sites of Cuello of between 1800 B.C. and 1200 B.C. are described and discussed. (47)

Hammond, Norman (see Lowe, G. W.) (21)

Hantman, Jeff (Arizona State) ANALYSIS OF CERAMIC DESIGN—AN EXAMPLE OF MICRO-SERIATION. Southwestern archaeologists often order traditional ceramic types to obtain relative temporal control of data, i.e., seriation. There are two problems with traditional seriation: (1) it produces a record of change with inadequate temporal levels of analysis; and (2) it is based on untested assumptions about rates of change and the directionality of change. Finer temporal controls are a method for achieving these controls. Micro-seriation provides a method for achieving these controls. Behavior patterns are a method for achieving these controls. Ceramic collection XSpringerville, Arizona, provides data for application of this method. Attributes measured are design elements and proportions. Similar sherds are grouped and classified. The second step identifies and describes the different sherds, and the relevant attributes. Finally, sites are grouped by relative occurrences of "clusters" at a site. Temporal ordering of groups and determination of rates of change will be tested with collections from known sites from east-central Arizona. (46)

Hardin, Margaret (see Arnold, D. J.) (32)

Hardwick, Robert H. (Hardwick and Associates) TECHNICAL AND FISCAL CONSIDERATIONS OF IMAGERY ACQUISITION IN CENTRAL AMERICA. Two sources of remote sensing data are currently available and on file. Holding agencies are identified and costs are discussed. Both archaeological and technical limitations of the second source, that of conceptual imagery, are given. A method for generating data that can be used in conjunction with archaeological and conceptual imagery, i.e., black and white, multi-spectral, color, false color IR, heat sensing, and radar, is proposed. Finally, the implications of the survey are discussed. (23)

Harlan, Mark E. (New Mexico) EARLY AND MIDDLE FORMATIVE FIGURINES FROM CHACALTINO, MORELOS, MEXICO. During the 1972, 1973, and 1974 field seasons of the Chacaltino Project, approximately 5,000 fragments of Early and Middle Formative figurines were excavated. This research report will present the following information about the figurines: (1) the site's chronological placement of the figurines, and (2) the spatial distribution of the variability on the site. A brief conclusion will be drawn concerning the meaning of patterned variability in the collection. (34)

Harn, Alan D. (Dickson Mounds Museum) MISSISSIPPIAN SETTLEMENT PATTERNS IN THE CENTRAL ILLINOIS RIVER VALLEY. The spatial distribution of Mississippian sites in the central Illinois River Valley is examined and various social and environmental factors influencing site location are discussed. Data are presented to suggest that space utilization and internal structuring can be studied at four distinct levels within the Spoon River settlement system: the individual site, site size, and site size and function. Site size and function are weighed against topographic setting, water source, soil type, vegetational context, and seasonality in an analysis of the Larson community, a post-A.D. 1200 Larson phase aggregation of some 40 sites. It is proposed that, while site distribution was nonrandom, it was influenced more by primary articulation with the natural environment than by sociopolitical organization. (25)

Harrold, Francis B., Jr. (Chicago) A REAPPRAISAL OF THE CHATELPERRONIAN. The Chatelperronian industrial tradition is the earliest manifestation of the Upper Paleolithic in France. It is characterized by an effort to develop a distinct tradition that is secondary to the early Middle Paleolithic and related to the later Mousterian of which it is a derivative. This tradition is represented by tools, mainly flake tools and small blades, in archaeological levels which are not older than 35,000 years ago and environmental milieu implied by the paleoclimatic, radiometric, and faunal evidence from Chatelperronian sites, and the implications of the scanty human skeletal evidence. Our previous interpretations are presented in detail. Two problems: (1) the typological dimensions of the Chatelperronian itself; and (2) detailed comparisons with two other traditions that, in current French theory, share a cultural relationship—the earlier Aurignacian and the later Gravettian. The conclusions of the study are presented, and discussed in terms of the place and meaning of the Chatelperronian, not only in the French and Spanish sequences, but in the larger process of transition from Middle to Upper Paleolithic. (7)

Hastorf, Christine (UCLA) RESOURCE UTILIZATION IN THE MIMBRES RIVER VALLEY: A CATCHMENT ANALYSIS. An economic energy minimization model is applied to the major resource yields, using site catchment analysis. Three site catchments are distinguished on the basis of their agricultural productivity. Some hypotheses of relationships between human activities are developed. One of the problems: (1) the typological dimensions of the Chatelperronian itself; and (2) detailed comparisons with two other traditions that, in current French theory, share a cultural relationship—the earlier Aurignacian and the later Gravettian. The conclusions of the study are presented, and discussed in terms of the place and meaning of the Chatelperronian, not only in the French and Spanish sequences, but in the larger process of transition from Middle to Upper Paleolithic. (7)

Hatch, James W. (Pennsylvania State) MEASURING THE EFFECTS OF SAMPLING ERROR IN CERAMIC FREQUENCY SERIATION. The chronological ordering of ceramic samples is commonly undertaken by employing frequency seriation. However, recent research concerning the use of ceramics with a large number of social and technological variables. The specific values associated with these variables clearly affect the chronological reliability of the resulting sequence, yet their actual impact has rarely been explored. This paper will report on a
recovered from the excavations of an Epipaleolithic site containing Natufian and Kebaran horizons. The evidence is discussed in respect to reconstructing Epipaleolithic adaptive strategies and the origin of food-producing economies in the region. (33)

Herrington, La Verne (Texas-Austin) PREHISTORIC FIELD AND IRRIGATION SYSTEMS OF THE RIO DE ARENAS AND CAMERON CREEK DRAINAGES, GRANT COUNTY, NEW MEXICO. Evaluation of AGS-3-300 camera photography revealed regular patterns on the floodplain of the Rio de Arenas and Cameron Creek drainages in Grant County, New Mexico. Subsequent ground reconnaissance and photography using panchromatic, black and white, infrared, and color film helped establish these are due to the restricted geographic area involved. Multivariate analysis methods were used on the irrigation materials to synthesize the archaeological evidence of the aboriginal inhabitants. (12)

Hext, James J. (Colorado-Boulder) AERIAL PHOTO INTERPRETATION OF THE COPAN CEREMONIAL CENTER. Aerial photo reconnaissance of the ceremonial center of Copan, Honduras, in May 1976, have revealed the following: (1) individual buildings less than one meter high could be located and identified under forest canopy, and (2) the area which has been mapped as the Sacbe originally mapped by the Carnegie Institution can be traced across plowed fields and through the central plaza, changing our view of the plaza’s geographic orientation; (3) manmade change in the ceramic and chipped stone materials is suspected in the reconstruction of portions of the central acropolis eroded by the Rio Copan. This preliminary use of aerial photography at Copan indicates that its utility in Mesoamerica is greater than previously realized. (23)

Hester, Thomas R. (Texas-San Antonio) RECENT ARCHAEOLOGICAL STUDIES AT BAKER CAVE, VAL VERDE COUNTY, TEXAS. During the course of aerial photography conducted by the San Antonio Water and Sanitation District in the Baker Cave, a stratified rockshelter in Val Verde County, Texas. Earlier work at the site by James H. Word (Floydada, Texas) had related the early occupation (the Goliadina horizon of ca. 7000 B.C.) to the base of the shelter deposits. As a result of the 1976 investigations, new information was obtained on this early occupation, particularly in the areas of technology, subsistence, and local environment. Of significance was the discovery of a large hearth in the Goliadina stratum. The entire hearth fill (over 200 lbs.) was removed for laboratory processing. Constituents of the fill include an abundance of fish bones, seeds, wampum, and other materials significant to studies of late Pleistocene and early Holocene environment. Through the 1976 research project was added information on the earliest Archaic utilization of the shelter. (35)

Hewett, Richard H. (Northern Arizona) BIOTIC EFFECTS OF VOLCANISM AND PALEOClimatic CHANGE IN THE VICINITY OF FLAGSTAFF, ARIZONA, A.D. 1050-1300. Animal and plant remains were used to reconstruct the paleoecological history in the vicinity of Flagstaff from the time of the eruption of Sunset Crater (A.D. 1065) to the end of human habitation of the area (A.D. 1250-1300). Assessment of the relative significance of volcanic, cultural, and climatic effects suggests that the latter may have been of greater importance to the prehistoric biota (including maple). (4)

Hietala, Harold J. (SMU) SEDIMENTIS IN THE MOSTERIAN: A CASE STUDY. An open-ceremonial complex at Smith’s Ranch was excavated in 1972. The site has been removed from the mouth of the Trombetas River in the Lower Amazon. The implications of this discovery are discussed. (8)

Hitchins, Patricia (British Columbia) THE BRONZE-IRON AGE OF JAPAN IN PERSPECTIVE: A COMPARISON WITH CONTEMPORANEOUS CULTURAL DEVELOPMENT IN EAST ASIA. This paper will examine the current methodological and theoretical orientations in the archaeology of the Yao period in the Bronze Age of Japan. The Yamato culture (300 B.C.-500 A.D.) will be viewed light of contemporaneous cultural development in other areas of East Asia, particularly in terms of the acquisition of metallurgical technology. (54)

Hoffman, Michael A. (Virginia) MAN IN THE BLUE RIDGE--A MULTI-DISCIPLINARY APPROACH TO THE STUDY OF THE CULTURAL RESOURCES OF THE UNIVERSITY OF VIRGINIA: EXCAVATIONS IN THE 1973-74 SEASON. In this paper, the University of Virginia and the Shenandoah Valley National Park Service, the research which has yielded a hitherto-unknown wealth of prehistoric sites in the park spanning 8,000 years and has led to the discovery of the first well-stratified archaeological sites in the montane area. The prehistoric sites have been comprehensively examined using a multidisciplinary approach based on the techniques of archaeology, demography, and history to investigate the early European
settlement of the Blue Ridge. Finally, an ethnohistoric program of investigation has involved extensive ethnographic and archival research and the initial analysis of the impact of isolation and later resettlement of montane communities. (6)

Hofling, Andrew (Washington) ARCHITECTURAL FEATURES AND THEIR DOMAINS IN THE LATE CLASSIC. The study of architecture is one of the oldest foci of Maya archaeology. However, recent hieroglyphic research, especially the dynastic and emblem glyph study, has demonstrated levels of variation and cultural expressions in both the specificity of features considered and in the explicitness of interreal relationships. The present work is a general reconsideration of areal relationships during the Late Classic period based on a typological analysis of a large number of architectural elements and applied to representative sites of the entire Maya area. It is designed to clarify the general picture of architectural feature distribution and to specify complexes of traits shared interregionally. (11)

Holmes, Douglas (see Weigand, P. C.) (34)

Horn, Darwin D. (Washington) ANIMAL UTILIZATION IN THE LAKE TITICACA BASIN (CHIRIPA). Analysis of faunal remains from the site of Chiripa from the period of roughly 1300 B.C. to abd. 400 A.D. reveals new patterns of animal utilization in the altiplano. Detailed analysis of the camelid remains has allowed a systematic reconstruction of a sequential butchering model and inference on the patterns of consumption. Analysis of the small fauna has indicated that in contrast to the Ayachucuo, guinea pigs and other small mammals played an insignificant part in the nutritional picture. But utilization of lacustrine resources, including various avifauna as well as the more obvious fish species, is much more important than previously believed. (35)

Howt, Margaret A. (Wesleyan) DIAGNOSTIC FEATURES OF CHIMU INCACERAMICS. The term "Chimu Inca" has long been used to refer to ceramics that are not the products of the Inca, yet appear in the time between the Inca conquest of the kingdom of Chimor and the Spanish conquest. This report, part of a stylistic survey of Chimu ceramics, attempts to isolate those features of Chimu Inca fancy and utility wares which can serve to distinguish these ceramics from those of the preceding phase. (30)

Huney, William M. (Toronto) EARLY JOMON (ca. 6000-3500 B.C.) VILLAGES IN HOKKAIDO AND THE SEDENTARY IN NORTHERN JAPAN. Jomon culture has long been characterized as a cultural tradition of semipermanent camps and villages, dependent upon a hunting and gathering economy, and not fully exploiting natural resources. The Jomon sites (ca. 6000-2500 B.C. F.C.) For Hokkaido, the Jomon presence and character were considered marginal due to severe climatic conditions. Recent research in southwestern Hokkaido suggests that the roots of permanent, planned villages, agriculture, and marine exploitation between 4100 B.C. and 3000 B.C. can be found in this northernmost outpost of Jomon. Sedentary villages in Asia and the New World dating from this temporal period will show that our view of Formative cultures needs modification. (54)

Hurtado de Mendoza, Luis (Pennsylvania State) OBSIDIAN EXPLOITATION AND SOCIAL STRUCTURE IN PRECOLUMBIAN GUATEMALA. It has been proposed that the social organization of the ancient Maya was causally related to their consumption of obsidian tools. A neutron activation procedure was used to discriminate among samples of obsidian collected from different extractions of the major obsidian sources in Guatemala. The data on extractions were compared to debitage specimens from sites in the valley of Guatemala, where three major sociopolitical units are thought to have coexisted. Results reported here seem to validate extant hypotheses. They also facilitate inferences regarding patterns of obsidian spatial distribution and their correlation with the local organization of the region at different periods. They are examined in detail for the Late Terminal Formative (A.D. 1-200). (3)

Ikawa-Smith, Fumiko (McGill) CHOPPER/SCRAPERS, UNIFACIAL TOOLS, AND BIFACIAL FOLIATES IN PLEISTOCENE JAPAN AND THE NEW WORLD. In a recent article (1982), R. S. MacNeish argued that the earliest tool industry of the New World in terms of stages, and cited, as characteristic tools for the first three of the stages, the bifacial choppers and flake scrapers, specialized unifacial tools, and bifacial leaf-shaped projectile points. It is likely that the Chippewa group of Northeastern North America, as well as the English and French groups of early America, were not only among the earliest inhabitants of the Mississippi Valley, but in the basement of the Midwest, the eponymous "Mississippi" was named by MacNeish do belong to three separate technological traditions in Pleistocene Japan. The paper reveals that temporal and spatial distributions of these traditions within Japan and in northeastern Asia during the Upper Pleistocene. (54)

Irwin, H. (see Wessen, G. C.) (44)

Isaac, Glynn (see Clark, J. D.) (24)

Ishii, William H. (SUNY-Binghamton) REDISTRIBUTION ECONOMIES: GARAGAY AND THE CHAVIN SPHERE. Research on the site of Garagay and its newly discovered Chavinoid monumental ceremonial architecture provide good data for discussion of the emergence of redistributorial economies and rite site hierarchies of research that archaeologists have used to more the methodological, interpretive developments taking place in other research areas. An emphasis on these research tools will permit us to orient our research in more significant directions in the future. (35)

Ives, David J. (Missouri-Columbia) THE MERAMEC ARCHAEOLOGICAL PROJECT: 1976-1977. The multi-year, interdisciplinary Meramec Archaeological Project is well into its second season of fieldwork directed by Michael Ellis. Participants from both agency and professional needs and have required the application and evaluation of nonstandard survey techniques. Although the project is still in its initial phases, specific benefits that have already been realized by the Corps of Engineers, the archaeological community, and the public. Such multiplicity of benefits must be derived from this and all such projects. (6)

Jacksen, Thomas W. (Indiana) OBSERVATIONS ABOUT THE ORIGINS OF PLANT AND ANIMAL HUSBANDRY IN SOUTHERN GREECE. The present paper will briefly discuss the present evidence related to the problem of the development of an economy based largely upon agriculture and animal husbandry in southern Greece. Though some important new findings from Franchthi Cave in the Greek Argolid. The major question to be considered is: are the origins of agriculture in southern Greece the result of a process of diffusion from the better, or are areas of the Mediterranean. (16)

Jarrin, I. (Universidad Estatal de Guayaquil) ENGOMALA UN SITIO VALDIVIA TARIKO. Bone tools from the seashore, a Valdivia D (Valdivia VIII) site exists. Its fishing and agricultural economy are discussed. (9)

Jeffries, Richard W. (Georgia) INTERSITE ACTIVITY VARIABILITY AS REVEALED THROUGH TECHNOLOGICAL ANALYSIS OF LITHIC DEBitage. Archaeological recovery of lithic debitage has been of great interest to many researchers in the location of prehistoric sites. Lithic debitage constitutes the largest single category of artifacts recovered from these areas. The technological attributes of debitage collected are analyzed using several types of multivariate statistical techniques in an attempt to discern nonrandom patterns of variability. Hypotheses concerning variation in site activity as reflected by technological variability of debitage, physiographic variability of site location, and distance from the site from lithic remains will be examined. (3)

Jelinek, Arthur J. (Arizona) SOME USES OF DEBitage IN ARCHAEOLOGICAL ANALYSIS. Different questions can be defined for each class of debitage. Artifacts such as cores, can contribute to the interpretation of archaeological remains in several ways. These can be roughly divided into two categories. The first type of debitage can bear on the interpretation of the activities represented by the artifact, and the second type can help to interpret the activities of people who produced the artifact. (3)

Jeter, Marvin D. (Arizona State) PREHISTORIC PROCESSES IN THE PRESCOTT REGION, WEST-CENTRAL ARIZONA. Investigations in Copper Basin, southwest of Prescott, represent the first comprehensive study of a "Prescott Branch" settlement-subistence system. Sites include small groups of one-room structures overlooking agricultural lands, gathering-hunting loci in a variety of chaparral communities, and small hilltop enclosures. Climatic conditions ca. A.D. 500-1100 permitted a continuum of sedentary, semisedentary, and temporary field houses, associated with various soil situations in Copper Basin and at previously investigated sites on this agriculturally marginal region. Climatic deterioration apparently precipitated population aggregation in better agricultural situations, and may have also given rise to the essentially non-agrarian Yavapai system. (51)

Joachim, Michael A. (California-Santa Barbara) ECONOMIC STRATEGIES IN THE UPPER RIVER DANUBE BASIN. A general model of economic behavior for the Danube has been developed that can generate predictions about the distribution of archaeological materials. Application of this model to the Mesolithic of the south German Danube River catchment is illustrated. Relations between resource distribution and economic behavior are also explored. The model was noted in the Upper Old-Anden and a region of the upper Danube which, unlike the Danube, possessed great runs of salmon in historic times. Unfortunately, Mesolithic material from the Danube catchment is still very rare and, so far, this relationship cannot be assumed, due to great changes in the coastline and lower Rhine. Investigation of the Mesolithic economy is approached by constructing various forms of the model, each incorporating different assumptions regarding the presence or absence of salmon, the efficiency of harvesting technology, and the practice of storage techniques. The resulting sets of predictions, differing in terms of site distribution and characteristics, are compared with the archaeological record, and suggestions are offered about the Mesolithic economy of this region. The value of such theoretical tools is stressed. (46)

Johnson, Eileen (Texas Tech) PALEO-INDIAN BONE EXPEDITIONS TOOLS—Lubbock Lake and Bonfire Shelter. Bone butchering tools, particularly in Paleo-indian
localities, have only recently been recognized and described as assemblages. These butchering tools are referred to as expedient and described as anthropologically significant, where the local community was abandoned. A prominent example is the archaeological site at the Lubbock Lake site, with only a few bison killed and processed at any one time. Expediting tools have been recovered from both Folsom and Plainview bison-killing and butchering locales. Bonefire Shelter is a bison mega-kill locality with at least 120 bison skeletons excavated. Although not previously reported, several expedient tools have been recognized during a recent reanalysis of the material. Both sites are on the Southern Plains, and the assemblages from the two localities are described and compared. (11)

Johnson, J. (Mississippi) TYPOLOGICAL STRUCTURE IN MAYA LITHIC ANALYSIS: A HISTORICAL PERSPECTIVE. The specificity and implicit typological expectations of chipped stone artifacts from the southern Maya Lowlands are examined and related to their historical development. A general lack of typological objectives is noted for the majority of these reports. However, recent developments in the structuring of Maya lithic typology show promise of moving beyond description to problems of anthropological interest. (47)

Jones, R. (Texas) RESEARCH AT QUIRIGUA, GUATEMALA: THE SITE CORE PROPOSAL. The Quiroga Project of the University Museum (University of Pennsylvania) and the Instituto de Arqueología e Historia (Guatemala) is conducting archaeological research in and around this Classic Maya center in eastern Guatemala. Investigations involve two basic programs, one in the site-core and the other in the area periphery. At the end of the third season of excavation, the developmental patterns of the Acropolis area and adjacent Great (Monument) Plaza of the site-core region begin to be apparent. These trends will be examined in conjunction with the hieroglyphic monuments and with various working hypotheses as to site function. (55)

Jones, R. (Texas) THE LOCATION OF TAYASAL IN THE LIGHT OF LATE PETEN MAYA ETHNOGRAPHY. It was recently suggested (American Antiquity 41:154-167) that ethnohistorical and archaeological evidence favored the location of Tayasal, the principal Itza Maya settlement of the protohistoric and Colonial periods, at Topoxte in Lake Yaxha, Peten, Guatemala. This review of sixteenth-century accounts indicates that this location is not supported by ethnohistorical evidence. The sites of Tayasal could not have been in Lake Yaxha, and that it was almost certainly on the island of Flores in Lake Peten. The locations of other Itza settlements as well as additional Itza-dominant groups in the Lake Peten region also are discussed. A tentative model of Lake Peten Maya settlement patterns is presented as a part of a larger ongoing ethnohistorical study. (14)

Jones, T. (Idaho) ECONOMIC DISPARITY AT KANAKA VILLAGE, KANAKA. Village was occupied by workers of the Hudson's Bay Company from 1825 to 1860 at Kanaka, Montana. This paper considers the effect of this occupation on the subsistence strategies used by the inhabitants. The examination will be undertaken by using a methodology based on the hypothesis that some artifact classes are reflective of the purchasing ability of each household. The relative values of some goods are taken from remaining price lists. As a test of the village will be compared with the Chief Factor's House at Fort Vancouver. (42)

Judge, W. J. (North Carolina) A PROJECT-SPECIFIC EVALUATION OF SARG RESULTS. Apart from providing a basis for tests of general propositions about human behavior, the SARG concept also necessitates investigation of the prehistoric specific regions in this study. The SARG effort is evaluated in regard to the insight that has been gained into the prehistory of the regions where the SARG research has been undertaken and the nature of testing of SARG hypotheses that has occurred. (10)

Justeson, John S. (South Carolina) CLASSIC MAYA DYNASTIC RELATIONS. Patterns of marriage, residence, and descent among certain Classic Maya nobility are inferred from hierarchically inscriptions pertaining to Piedras Negras, Guatemala; the political significance of the patterns is discussed. These hierarchic inscriptions provide a basis for several linguistic and contact patterns. The proposed reconstruction is discussed with reference to other suggested patterns of elite social organization. (11)

Justeson, John S. (see Fox, J. A.) (11)

Keene, Arthur S. (2016) ECONOMIC OPTIMIZATION MODELS AND THE STUDY OF HUNTER-GATHERER SUBSISTENCE SETTLEMENT SYSTEMS. Mathematical (linear) programming, decision theory, and a large body of archaeological subsistence systems that can predict: (1) how decisions regarding resource acquisition and settlement location will be formulated within a synchronous context; (2) how the subsistence strategy will change through time in response to specific changes in the natural and human ecosystems; and (3) how these patterns will manifest in the archaeological record. Examples are provided using ethnographic data from the central Canadian Arctic, and an archaeological test case is proposed. (46)

Kehoe, Alice B. (see Kehoe, T. F.) (32)

Keohoe, Thomas F. (Milwaukee Public Museum) THE "DIRECT ETHNOLOGICAL" APPROACH, ETHNOARCHAEOLOGY, AND ETHNODYNAMICS IN EASTERN ANGLO-AMERICAN ETHNOCENTRIC ethnoarchaeological approach was developed and applied to prehistoric cultures of the southwestern United States by T. F. Keohoe, working in Blackfoot territory, during the 1950s. The authors' most recent use of this method of investigation was in 1975-76, again in the southwestern Plains. For this symposium, we describe the "direct ethnoarchaeological" method, comparing it to ethnoarchaeology, as used by Bonnichsen, and to ethnohistorical investigations. The potential use of the "direct ethnoarchaeological" method, as well as of ethnoarchaeology narrowly defined, in the eastern half of Anglo-America will be suggested, and caveats mentioned. (32)

Keller, Don (Indiana State University) THE TOLCHACO COMPLEX IN THE LIGHT OF TRUE ENDEavors. Analysis of the Tolchaco complex and its probable relationship with sites in southern Arizona has provided a basis for describing certain aspects of Tolchaco procurement and use. The study is based on a comparison of expected versus observed frequencies of various artifact classes as an index of the efficacy of Tolchaco experiments. Data generated by this study are further applied to a redefinition of the so-called Tolchaco complex. The hypothesis is advanced that this complex represents limited function, including quarry/workshop activity, rather than remains of an archaeological culture. (6)

Kennedy, N. (Florida Atlantic) ARCHAEOLOGICAL INVESTIGATION AT ORITNO, A EARLY PERIOD SITE IN THE REVENTAZON RIVER VALLEY, COSTA RICA. Analysis of data recovered from the site during the fall season and previous years will be considered. Focus will be on the significance and implications of this Early period site and its relationship to the recently defined El Bosque complex of the Atlantic watershed region. (28)

King, Mary Elizabeth (see Gardner, J.) (17)

Klein, J. (Baltimore) ORNAMENTS AT SALMON RUIUS, SAN JUAN COUNTY, NEVADA. The ornaments at Salmon Ruins are a population of artifacts that are considered to have functioned outside the life support system of the pueblo. The assumption that they served a ceremonial function has been questioned in the current study: (1) items of adornment and decoration; (2) coloring stones and pigment; (3) non-indigenous materials; and (4) effigies, small statuary, and carved. Tools used to manufacture ornaments include a variety of materials that can influence color, pigment, and decoration. The classification of ornaments has several objectives: (a) identifying and defining the range of ornaments used in a given region and period; (b) defining the functional and decorative categories of ornaments; (c) determining the distribution of ornaments within the pueblo; and (d) comparing ornaments from Salmon Ruins with those from other contemporaneous sites. (41)

Kiesert, Tony (Troy-Carbandale) ANALYSIS OF INTRASITE CERAMIC DESIGN VARIABILITY. A quantitative method of describing ceramics, based upon painted design attributes, is devised and applied to the analysis of temporal variability. In the test case, the ceramic assemblage from one archaeological site in northeastern Arizona. The site is highly heterogeneous architecturally and temporally; but the ceramics, using traditional typology, are entirely homogeneous. The design attributes are manipulated by discriminant analysis, and while the heterogeneity between groups is small, it coincides in all cases with previously known temporal heterogeneity within the site, based upon known construction and abandonment sequences and tree-ring dates. (40)

Knauf, Tim (SUNY-Albany) METAPHORS AND MEANINGS IN CLASSIC AZTEC. This paper will first review documentary sources that form the basis for our understanding of
classic Aztec metaphors. Sahagun's compilation, as well as lesser-known collections of metaphor by other grammarians and other authors of the sixteenth century, will be reviewed. A thorough compilation and correlation of these sources along with a textual analysis must form the basis for analysis. Metaphors that arise bear only a clumsy semblance of their intended meaning and are best taken as part of a frame of reference, genre, speech event. The affinity of classic Aztec rhetorical, poetic, and narrative forms for complexity is incomparably more important, however, than any for ethnohistorical interpretation. Texts must be interpreted in terms of context as well as content in order to ascertain intended meaning. Each major class of metaphor will be discussed with contextual examples. The use of metaphor in classic Aztec speech can yield important ethnographic insights with real meaning. 

Kohl, Philip L. (Wellesley) THE BALANCE OF TRADE IN SOUTHWEST ASIA IN THE MID-THIRD MILLENNIUM: A STRUCTURAL ANALYSIS. Most analyses of long-distance exchange in early States emphasize the role of the state in enforcing the trade relationship. This study is based on the goods obtained by the elite distinguished them from the rest of society. Such functional interpretations present an incomplete, if superficial, explanation for the way such trade networks originated and evolved. The drama in these societies, however, was not of the goods obtained by the elite distinguished them from the rest of society. The recent advances in authority, especially in the role of long-distance trade in luxury goods, has been presented. This dissertation will be analyzed from a perspective showing that the structure of production of goods for exchange or creation of value in each participant society is essential to understanding the entire economy of the ancient world. 

Lambert, P.W. (INAH) LATE QUATERNARY (POST-15,000 B.P.) VOLCANIC ACTIVITY OF POPOCATETEL Volcan, MEXICO. Seven air-fall tephras identified on the northwestern side of Popocatepetl Volcano may have been found in Paleo-Indian to Classic periods on the northwestern side of the popocatepetl volcano. The tephras are divided into three groups: the tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). The tephras include gray ash and pumice lapilli (14,000-12,000 years old) with a large number of non-pumice lapilli and a significant amount of black ash (between 14,000 and 12,000 years B.P.). 

Lange, Frederick W. (Museo Nacional de Costa Rica) EXCAVATIONS AT THE VIDOR SITE, GUANACASTE, COSTA RICA. Three seasons of excavation at the Vidor site have focused on intensive studies of various aspects of a large Pacific coastal shell middensite. Intrusive differences are noted, a restructuring of part of the regional ceramic sequence is presented, and a detailed picture of subsistence practices is given. 

Langenwalter, Paul E. (see Powell, S.) 

Large, Elidor G. (Arizona State) COMPARISON OF MODERN AND PREHISTORIC SITES IN THE LOWER PAPAGAJOAN BASIN, ANAHEIM, CALIFORNIA, MEXICO. 

Larson, Paul (SMU) NATUFIAN ADAPTIVE STRATEGIES IN THE CENTRAL NEGEV, ISRAEL. Rosh Hora is one of the largest Natufian sites known. Its location within the relatively arid high Central Negev suggests an adaptive model that differs from sites in northern Palestine, especially those west of the Jordan River. The high Negev art is the result of both genotypic and structural art density Rosh Hora is the result of both true desertism or long periods of semi-permanent occupation and cannot be explained by seasonal hunting camps. 

Lathrap, Donald W. (Illinois-Urbana) ICONOGRAPHIC UNITY BETWEEN MESO-AMERICA AND SOUTH AMERICA. A structural identity between Chavin iconography and Olmec iconography has been demonstrated, the identity suggests derivation of both styles from an earlier culture, in northern South America. The implications of this derivation for the early development and spread of efficient agriculture are discussed. 

Lavine-Lischka, Leslie (Colorado State) DEBITAGE AS THE KEY FACTOR TO BEHAVIORAL PATTERNS ON A LITHIC SITE. The entire assemblage of lithic debitage from a single site in the Front Range National Grasslands is examined. The results obtained show that the lithic assemblage was used to prepare tools related to hunting activities. Absence of hafted, structures, and certain tool types suggests that the site was neither permanent nor used for camping. 

LeBlanc, Catherine (UCLA) DESIGN ANALYSIS OF MIMBRES POTTERY. An initial study of Pottery designs is described. Variables in the distribution of motifs within the Mimbres area is considered from studying complete bowls of form and size. Several models are proposed to account for the observed distributions of motifs within the area. (1) 

Peru is discussed in terms of the history and development of this practice during the Moche and Chimú civilizations of North Coast cultural events. Theoretical models of irrigated agriculture in the formation of political states are discussed in the light of the results of current research in the Moche Valley and surrounding area. 

Kuttruff, Carl (Vanderbilt) THE MOUND BOTTOM AND BROWN PACK SITES, TENNESSEE. This paper describes the mound bottom, a large, adjacent Mississippian civic-ceremonial centers in the Harpeth River Valley near Nashville, Tennessee. The Mound Bottom site consists of ten mounds arranged around a plaza and surrounding habitation and covers an area of approximately 1.5 acres. A partial or partially contemporary, is of comparable size and configuration. A summary of the work that has been carried out at these sites since 1956 is presented; the dating of the Mound Bottom site, ca. A.D. 980-1350, and its relationship to other large Mississippian centers is also discussed. (53)
LeBlanc, Steven A. (Mimbres Foundation) OVERVIEW AND RESEARCH DESIGN OF THE MIMBRENS FOUNDATION'S WORK IN SOUTHWESTERN NEW MEXICO. In an overview of the Mimbres Foundation's work in the Mimbres Valley, the research design in an area that has seen terrible pothunting, and how excavation strategies have been formulated to overcome biases of badly disturbed sites, will be discussed. A brief summary of the culture history is given. (1)

Lenihan, Daniel J. (The National Reservoir Inundation Study) RESERVOIR SAVAGE INTRUCTIONS have played a major role in shaping the development of reservoir archaeology in the United States. Decisions as to whether or not a particular site should be salvaged, left untouched, or physically protected are usually made without the benefit of any study on the cultural content of the site and the impact of fresh water immersion on archaeological resources. Data derived from the inundation study will provide a baseline for assessing these impacts and, when used in association with the real-time monitoring of reservoirs, aid in the implementation of a true conservation approach in the management of cultural resources in reservoirs. Knowing the differential effect of inundation on various archaeological resources and applying this data retrieval technique to the planning stage of a project, we can do direct their research design toward salvaging categories of data which will be the most threatened by inundation. The study is being conducted by the National Park Service through a cooperative funding agreement with the Office of Reclamation, U.S. Army Corps of Engineers, and the Soil Conservation Service. (26)

Levine, Frances (NPS) NOMADIC PASTORALISM ON THE PECOS RIVER DURING THE MEXICAN AND TERRITORIAL PERIODS. Spanish-American settlement of the eastern New Mexican grasslands bordering the Pecos River was late in the overall growth of the Mexican and Territorial periods. In the part of the Southwest, in part, the settlement was an example of the risk of commercial sheep ranching in the nineteenth century. Ethnographic data from a survey of the Los Esteros Reservoir have been utilized to focus on the settlement pattern resulting from commercial pastoralism in northeastern New Mexico. (21)

Lewarch, Dennis E. (Washington) SPATIAL-FUNCTIONAL STRUCTURE OF THE LATE POSTCLASSIC SETTLEMENT SYSTEM IN THE COATLAN DEL RIO VALLEY, WESTERN MEXICO. intensive surface collection techniques were applied to the coatlan del rio valley as part of the Proyecto Coatlan, INAH, Morelos-Guerrero. Preliminary results suggest: (1) highly aggregated settlement patterns; (2) a restricted range of occupation sites; (3) structural-functional complexity of the site structure to be common throughout the region; and (4) complex relationships between site function and variables such as site location or site size. Based on the Caotlan data, utility of various geographic models of location is assessed. (34)

Lighthof, Kent (see Huntsman, J.) (40)

Liman, Florence IDENTIFICATION OF EMBLEM GLYPHS AND THE PROVENIENCE OF AN UNUSUAL STELA. Additions to H. Berlin's original list of emblem glyphs have been made by known sites by identifying recurrent glyphs that meet his criteria of a main sign with aquatic and Ben Ich (Ahep, Ahnep, Ahna) prefixes. The stela prefixes are clearly defined, and so far no more have been discovered that possess place of origin is not known. Comparatively few Maya inscriptions include emblem glyphs, and the incidence of two in one text is even lower especially on a stela containing only 16 glyphic blocks. This paper will present evidence to provide an identification of the emblems on the stela and thus establish its provenience. (11)

Lima, W. Frederick (Indiana) THE ECONOMICS OF AGRICULTURAL DISPERSION. Archaeological theory concerning problems of technological change, particularly regarding origins and diffusion of agriculture, have generally emphasized exogenous forces: population increase, environmental change, etc. Economic theory, in contrast, examines the interplay between the exogenous parameters of a system and the internal endogenous variable, giving a primary role to such things as variable input functions of different production techniques. Use of an economic model demonstrates that the conventional use of production "pressure" and/or environmental change cannot be operating in the dispersion of agriculture from its center(s) of origin. Instead, locational constraints are just as important as endogenous factors, and presence of markets are shown to be the critical variables. It is proposed that in circumstances of technological change, such as those associated with the dispersion of agriculture, the ensuing univariate model is compatible with the requirements of effective hypothesis testing and predictive modeling than the loosely structured verbal approach most frequently used in archaeological research. (46)

Lindsay, Alexander J., Jr. (Museum of Northern Arizona) CULTURAL RESOURCE MANAGEMENT AS A BUSINESS, AND ITS PLACE IN THE BUSINESS WORLD. Cultural resource management is becoming an integral part of any major construction project. The entire process of inclusion into construction programs has caused problems for construction planners. The rapid growth of the cultural resource management field and its entry into the sphere of big business has also caused problems for managers of cultural resource management programs. A mutual education program conducted by simple communications between parties is needed to alleviate the growing pains of our field. Suggestions for such communications are given. (26)

Litvak King, Jaime (UNAM) HOMOTAXIALITY AND CHRONOLOGY IN MESOAMERICAN ARCHAEOLOGY. Chronology in Mesoamerican sequences has traditionally been based on the ceramic data and iconographic motifs. A system to explain the heterotaxial situations at any given point in the sequence are the norm and show a consistent pattern that can be analyzed both as intraregional relations and as to developmental constants through time for any given location. (2)

Longacre, William A. (Arizona) KALINGA POTTERY MAKING. Archaeologists are slowly recognizing that the social organization of craft production has been a significant factor in the distribution and development of craft traditions. In this paper we will explore the variability in material culture and the behavior and organization of peoples. To explore the linkage between stylistic variability in pottery and various aspects of behavior, 12 months of field work has been undertaken in Kalinga. Of particular interest has been the development of pottery-making skills, including the acquisition of knowledge, the adoption of new techniques, and the assessment of criteria used in pottery manufacturing. (24)

Loose, Ann A. (Bureau of Land Management) THE BUREAU OF LAND MANAGEMENT, CULTURAL RESOURCES, AND CONTRACTING. The paper describes the BLM cultural resource contracting program including the recent switch from sole source to negotiated purchasing for the 1984-1985 excavation seasons. Spanish-American settlement of the eastern New Mexican grasslands bordering the Pecos River was late in the overall growth of the Mexican and Territorial periods. In the part of the Southwest, in part, the settlement was an example of the risk of commercial pastoralism in northeastern New Mexico. (34)

Lor, Kennith (Texas-Austin) PRELIMINARY VERTEBRATE FAUNAL RESEARCH AT HINDS CAVE, TEXAS, 1941-1946. The preliminary identification of vertebrate remains from Hinds Cave suggests a great diversity of mammals, fish, and reptiles. These remains can be very useful in establishing ecological information as to species present in the Hinds Cave area and the composition of the cave's fauna. The results of the research were used by the aboriginal population. These food bones can yield information on food preference, amounts of meat available to the population, and ideas of butchering techniques. (15)

Lowe, Gareth W. (Brigham Young) EARLIEST FORMATIVE OF MESOAMERICA AND POSSIBLE ANTECEDENTS. A review of the earlier identified phase of the Formative states that more complete excavations are essential. A second attempt made to establish the presence or absence of possible donor sources in South America. (21)

Luce, Harvey (see Stinson, W. R.) (6)

Lundberg, Emily (Illinois-Urbana) REAPPRAISAL OF VALDIVIA FIGURINES, BASED ON MEASUREMENTS OF FABRIC CONTEXTS. Analysis of figurines from excavations at Real Alto, Ecuador, reveals complex trends through time and interchange between clay and stone mediums. Wide variation in style within individual house floors indicates the absence of lineal development of stylistic types. A model of multilinear trait evolution based on the Real Alto sample is presented. Analysis also reveals nonrandom patterning of figurine distribution on house floors. (9)

Lutz, Robert M. (Michigan) A METHOD FOR TESTING THE SIGNIFICANCE OF AGGREGATION AND ASSOCIATION IN ARCHAEOLOGICAL GRID CELL COUNT ARRANGEMENTS. In the past, probability-based analyses of archaeological grid cell count data have been limited to the use of frequencies of cell count variance and not of cell count variance. The spatial arrangement of cell count values has been amenable only to intuitive and non-probability-based assessment. A method is presented for establishing significance and testing associations of univariate and multivariate data. Test statistics, values, based on the expected frequency distribution of variate differences between neighboring squares (or within cells, for the multivariate case). The mathematical basis of the method is briefly summarized and referred. Extension of the method to the delineation of indicated spatial clusters is suggested. (29)

Lynott, Mark J. (SMU) TOWARD A REGIONAL RESEARCH DESIGN FOR NORTH-CENTRAL TEXAS. Previous archaeology in Texas has taken a site-specific or a reservoir-specific approach to problem-oriented research. It is argued that a regional research design will benefit archaeological research. The question of the nature of the prehistoric adaptive scheme to the Prairie and Cross Timbers of North-Central Texas is examined, and a model is presented to explain the adaptive response of the prehistoric inhabitants of the region is presented. (19)
Mackey, Carol J. (California State-Northridge) LLAMA HERDING IN THE CHIMU STATE. The llama is usually considered as a strictly highland animal. However, excavations in the ciudadelas of Chan Chan have shown that camelid bones are regularly associated in grave groups with the highest status burials. Research into extra-Chimu llama sites has revealed camelid herding stations, and on this basis hypotheses are put forth concerning the position of llama and alpaca herding in the Chimú state. The utilization of the llama by the Chimú is then compared with uses of camelids by the preceding Moche culture and by the succeeding Chimu state. (39)

Madsen, David B. (State Archaeologist, Utah) POLLEN ANALYSIS AT AGRICULTURAL VILLAGE SITES: A TEST CASE AT BACKHOF VILLAGE. Pollen analysis in the site of Backhoe, typical of the Ateni zone, shows the presence of cultivated plants, particularly barley, and other crops. The pollen analysis provides evidence for the development of agriculture in the area. (40)

Magness, Richard W. (Banco Central de Nicaragua) THE SITEIA COMPLEX: ITS IMPLICATIONS FOR THE LATE FORMATIVE OF LOWER CENTRAL AMERICA. A well-preserved pottery complex has been established in eastern Nicaragua which seems to be related to phases of the south, west, and north. To the south, it ties in with the Cano del Oso complex of the Iztapa-Guatemala. To the west, it is similar to recently excavated material in the Nuevo Guinea zone of Nicaragua as well as Chontales, Nicaragua. It even shows some important modes of ceramic variation in the Zoquipal, which seem to be captured by this new complex. The implication is that all of Lower Central America was more closely unified during the Late Formative than during later periods. Furthermore, it seems possible that during this time period, the intermediate areas may have contributed significantly to the cultural development of Mesoamerica. (41)

Mahula, Royce (see Gunn, J. D.) (29)

Macklin, Richard W. (Banco Central de Nicaragua) VALDIVIA REALLY THE EARLY FORMATIVE OF ECUADOR? Based on the results of recent excavations at the Valdivia site of Real Alto in the Chocó region of Colombia, the nature of Valdivia society is reexamined in terms of its sociocultural complexity through time. Valdivia Phases I and III (3400-3330 B.C.) conform to the notion of the Mesoamerican Early Formative village, while Valdivia Phase II (3100-2950 B.C.) is characterized by the presence of a large, central plaza and a ball court. This phase is characterized by the presence of large, central plazas and ball courts. It is suggested that the southern Levantine transition is associated with a shift in adaptive patterns, including increased mobility, and was partially in response to local climatic deterioration. (30)

Marcotte, James R. (see Morris, E. A.) (19)

Marks, Anthony E. (SMU) A MIDDLE TO UPPER PALEOLITHIC TRANSITION TO THE SOUTHERN LEVANT. Recent work in the Central Negev, Israel, has uncovered a site transition from a Levant-based technological system to one characterized by the use of microlithic technology. This transition, at the site of Boker Tachtit, began some time before 43,000 B.C. and terminated before ca. 37,000 B.C., by which time a fully developed Upper Paleolithic technology was present in the area. This transition is seen as a shift in the Levantine, indicating an early form of modern humans in the area. (16)

Marquardt, William H. (Missouri-Columbia) FUNDAMENTAL RANDOM CATERPILLAR PULSES, AND STATISTICAL ECOLOGY ON ARCHAEOLOGICAL DESCRIPTIONS OF SETTLEMENT. Implications of our utilization for spatial analysis of concepts from statistical ecology are discussed. Bounding cultural systems for purposes of generalization for archaeological description, presents a problem for anthropologists because the boundaries themselves are subject matter for anthropological examination. More dynamic, if less precise methods of systematizing spatial data are needed. (52)

Martini, Alba Guadalupe (see Cobean, R. H.) (2)

Matheny, Ray T. (Brigham Young) DETECTION AND MAPPING OF ANCIENT WATER CONTROLS IN THE MAYA LOWLANDS BY AERIAL PHOTOGRAPHY. Black and white aerographic, black and white infrared, color infrared, and color film each have specific applications in the Maya lowlands. Color infrared film yields more information about open water distribution, water-shed areas, and vegetal differentiation than other films. Infrared films must be taken during the rainy season, but because of low cloud cover, this is not a problem. Black and white films are particularly useful for tone-line-drop out techniques which isolate only those visual features required for study. (21)

Matson, Frederick R. (Pennsylvania State) ETHNOCARNEOLOGY OF NOMADIC AND VILLAGE POTTERYMAKING GROUPS IN THE NEAR EAST. Discussion will center on nomadic potterymaking groups of Afghanistan, such as the Kuche, as well as other better known potterymaking village groups of the Near East, in general. (24)

Mayer, Susan N. (NYU) NIANITO-EUROPEAN CONTACT AT FORT NINIGRETTE, RHODE ISLAND. Fort Ninigret is a contact-period site located in Charlestown, Rhode Island. Data from well controlled excavation was undertaken in 1975-76. Initial investigations involved a test of the hypothesis that the site was occupied by the Ninigret and Ninigret Indians who had contact with Europeans had been made. Preliminary analysis of the material indicates that the site functioned in the spring and summer as a fortified stronghold and was not utilized for year-round habitation. (25)

Mayer-Oakes, William J. (Texas Tech) PROBLEMS OF EARLY MAN CHRONOLOGY IN THE NORTHERN ANDES. The early pottery complexes in the northern Andes of Ecuador, two major early phases of human occupation can be defined--San Jose and El Ingua. Radiocarbon, obsidian, and typological dating techniques have provided conflicting conclusions about the temporal and cultural relationships within these complexes. Results of recent radiocarbon dates from the San Jose type site are presented in terms of the four-stage framework recently proposed by MacNeish for New World early man. (26)

Mayer-Oakes, William J. (see Thoms, A.J.) (26)

McAllister, Martin E. (USD Forest Service) PCRMPSC: PUBLIC CULTURAL RESOURCER MANAGEMENT (CONSERVATION, PRESERVATION, AND SALVAGE) ARCHAEOLOGY. Confusion exists regarding the definitions and conceptual interrelations of the terms "conservation," "preservation," and "salvage". Results of recent archaeological research may be referred to as "cultural resource management. The basic concepts or principles from which these terms derive are considered. Existing definitions are reviewed and some modifications are suggested. Based on an analysis of these frameworks, a new conceptual framework for the interrelationship of these terms is suggested. (26)

McAllister, S. L. (Arizona State) ARTIFACT INVENTORIES AS A PREDICTOR OF SEDENTISM ON BLACK MESA. Site size has been traditionally used as a major criterion for determining seasonality, and inferentially the function of sites. If large and small sites exist concurrently in an area, large sites are inferred to be permanent habitation sites; the small sites are temporary or seasonal outliers of the large sites. This assumption implies a functional difference in sites of different size, and that artifact inventories, features, ecological setting, etc., of sites of varying sizes. This implied variation will be tested using one-way analysis of variance with site size as the independent variable. (26)

McBride, Kevin (Connecticut) PRELIMINARY REPORT ON THE FLORAL REMAINS OF WOODCHUCK KNOLL. Woodchuck Knoll is a two-site complex of the Late Archaic shellmound near the Woodchuck River in southern Illinois. The site was excavated in 1976 by the Illinois Department of Conservation. Results of previous work on the site are presented here. The site was occupied by a small group of people who lived in a band of small sites. The site is characterized by a large number of plant remains, including corn, beans, squash, and other plants. (51)

McCartney, Allen P. (Arkansas) A THULE COBBLE INDUSTRY FROM SOMERSET ISLAND, N.W.T. A previously unreported cobble industry of Thule affiliation was recorded at Somersont Island, N.W.T. Recent excavations of the Thule site, representing the Thule Archaeological Conservation Project (Archaeological Survey of Canada and the Department of Indian and Northern Affairs), excavated six Thule houses at two sites. Basalt cobbles of regional origin were utilized as hammerstones, as well as cores for the production of large flakes and core tools with pointed tips. These unhafted cobble tools show wear polish only on the working tips. They possibly functioned as tools to split whale bones or to chop ice or frozen meat. (14)

McCoy, Patrick C. (Bishop Museum) ARCHAEOLOGICAL INVESTIGATIONS AT THE MAUNA KEA ADZ QUARRY COMPLEX, HAWAII. COMPLEX, HAWAII. THE RESULTS OF THE 1975-76 FIELDWORK. Results of fieldwork conducted in the summer of 1975-76 at the Mauna Kea Adz Quarry Complex are described in relation to a set of primary objectives aimed at developing a technological model of Hawaiian adz manufacture. Distributed over an area of roughly 1.7-2/1 square miles between the 3,600 and 3,700 ft elevation on the south slope of Mauna Kea, the quarry is the largest known adz-making locality in Polynesia. Based on work was carried out by the University of Hawaii at Manoa. The fieldwork involved excavations of several primary adz production pits, as well as a study of adz-making techniques, behavioral aspects of manufacture, variability in adz preform types, living arrangements, climatic change, and chronology of quarry use. (14)
McKerrell, Hugh (see Neely, J. A.). (41)

McLaughlin, Diane E. (Arizona) THE POTENTIAL OF ARTIFACTUAL POLLEN WASHES FOR RECOVERING ENVIRONMENTAL AND SUBSISTENCE DATA. Since the mid-1960s the accuracy of pollen analysis from lake and bog sediments has increased by a factor of 10. This paper presents techniques for sampling and preparing the pollen in a laboratory. The accuracy of pollen analysis has been improved due to the availability of a greater number of fossil pollen samples for comparison with modern and archaeological sites. These pollen samples are used to reconstruct past environmental conditions.

McPherron, Alan (Pittsburgh) CHANGES IN SETTLEMENT AND SUBSISTENCE BETWEEN EARLY AND LATE NEOLITHIC IN YUGOSLAVIA. Evidence from Starcevo-Koros sites suggests that the people of this period were more sedentary, with a greater emphasis on domesticated plants and animals. The paper discusses the impact of this change on the economy and social organization of the Neolithic people.

Miksiczek, Charles H. (Arizona) THE PREHISTORIC SUBSISTENCE ECOLOGY OF THE EL MORRO VALLEY, NEW MEXICO. This paper describes the subsistence strategies of the prehistoric people of the El Morro Valley. The authors use archaeological and environmental data to reconstruct the diets of the people who lived in this area.

Miller, Susanne J. (Idaho State) TAPHONOMY OF EXTINCT MEGAFORNA ACCOMPANYING A FLUTED POINT TRADITION AT OWL CAVE, THE WASDEN SITE, IDAHO. This paper examines the taphonomic processes that affected the prehistoric artifacts found in Owl Cave. The authors use this information to better understand the behavior of the people who lived in the area.

Miller, Virginia Elizabeth (Texas-Austin) A REINTERPRETATION OF MAYA "GESTURES OF SUBMISSION." The term "gesture of submission" has been used to describe certain dance movements in Maya sculpture. The authors argue that these gestures may represent a form of political power, and that they were used to reinforce social hierarchies.

Minnis, Paul E. (Michigan) PREHISTORIC PATTERNS OF WOOD UTILIZATION AND SUBSISTENCE STRATEGIES IN THE MIMBRES RIVER DRAINAGE, NEW MEXICO. This paper examines the patterns of wood use in the prehistoric period. The authors analyze the types of woods used and the locations where they were found. They discuss the implications of these findings for understanding the economy of the prehistoric people.

Mobley, Charles M. (SMU) ABORIGINAL ADAPTATIONS ALONG THE PECOS RIVER NEAR SANTA ROSA, NEW MEXICO. This paper describes the prehistoric adaptations of the people who lived along the Pecos River. The authors use archaeological data to reconstruct the diets and subsistence strategies of these people.

Montel-White, Anita (Kansas) SELECTION PROCESSES IN TOOL MANUFACTURE. This paper examines the selection processes that were used in the manufacture of tools. The authors use experimental data to reconstruct the selection criteria used by prehistoric people.

Moore, Gary L. (Texas A&M) SITE DISTRIBUTION AND FUNCTION IN MUSK HOG CANYON, NEW MEXICO. This paper examines the distribution and function of sites in Musk Hog Canyon. The authors use archaeological data to reconstruct the activities that took place at these sites.

Morer, Jean-Francois (Montreal) A BIOLOGICAL APPROACH TO SITE SEASONALITY: SURVIVAL IN THE INTERNATIONAL SHELL MIDDENS. This paper examines the seasonal patterns of resource use in the international shell middens. The authors use biological data to reconstruct the seasonal patterns of resource use.

Moronen, E. Pierre (North Texas State) CONSERVATION ARCHAEOLOGY, MIDDLE RANGE OF ENDS AND THE PRECOCIOUS QUATERNARY. This paper examines the role of conservation archaeology in the study of the Middle Range of the Middle Quaternary. The authors discuss the methods used in this area of research and the implications of their findings.
ical research being conducted in certain areas of the discipline. One result of this conceptual change in the conduct of archaeological research, and one that is increasingly involved in middle range theory, a concern with archaeological problems of a limited but substantive nature that contribute to the explanation of a restricted range of empirical variables. One example of this trend, a conservation-oriented study of predictive models of human land-use through time in an area near Taos, New Mexico, is discussed in detail. (43)

Morgan, Larry W. (see Hays, T. R.) (19)

Morris, Elizabeth Ann (Colorado State) PRELIMINARY REPORT ON THE ARCHAEOLOGY OF THE FOOTHILLS OF NORTHERN COLORADO. The 1976 Colorado State University field school excavated for eight weeks in the northeastern part of the state near Greeley. Colorado Sublette's Late Prehistoric occupation level was characterized by small, deeply notched, serrated projectile points, cord-marked ceramics, and hearths consisting of groups of small firebrick stacks. Preliminary analysis indicates that this group of projectile points is widely found at all elevations in northeastern Colorado. Underlying this stratum were small, apparently isolated projectile point groups. At least four Late and Middle Archaic period occupations are associated with hearths of similar manufacture. These indicate point style radiocarbon dated at the neighboring site of Spring Gulch (SRLR 52) between 2000 B.C. and A.D. 300. Twenty cm below the Middle Archaic cultural layer were two large slab-lined hearths. Elsewhere in the area, artifact patterns indicate that projectile-point pattern was found on bedrock. Two large shell pendants and dozens of bird-bone beads were associated with a primary burial. A secondary burial with no artifact artifacts and lacking cranial, mandible, atlas, and axis vertebrae was also found. (13)

Muller, Jon (SIU-Carbondale) THE KINCAID SYSTEM: MISSISSIPPIAN SETTLEMENT IN THE ENVIRONS OF A LARGE SITE. Mississippian, and to some extent Late Woodland settlement in the Black Bottom of the Ohio River, shows characteristics that are similar to those postulated for other Mississippian localities. These include location of sites in particular soil/vegetation zones and placement on ground that is above normal flooding. However, very detailed site location survey and testing reveals a pattern of population density and site function that is not consistent with many more grandiose models of Mississippian and other Late Prehistoric social and settlement organization. To the contrary, the Kincaid situation is consistent with that known from early historic sources. (25)

Munday, Frederick C. (Montana) INTERSITE TECHNOLOGICAL VARIABILITY IN THE MOBERLY AREA, ADAMS COUNTY, IOWA. CENTRAL NERIVALITY in a series of Mousterian assemblages is related to resource variability in the Avelop/Aqeeq area of the Central Negev. Additional determinants of technological variability are reviewed. Subtle shifts in technology through time are related to changes in Mousterian settlement patterns. (33)

Munson, Cheryl A. (see Green, T. J.) (25)

Myers, Thomas P. (Nebraska State Museum) PREHISTORIC TRADE PATTERNS IN THE AMERICAN WEST: A SOUTHWESTERN CORRIDOR. The importance of trade to prehistoric peoples, particularly when there is not an obvious ecological rationale. In contrast, ethnographic and ethnological evidence from the American Southwest suggests that exchange networks were related to the cultural and economic networks of the region. Trade goods were exchanged by means of a traditional way of life. Since pottery was frequently exchanged, such networks should be identifiable in the archaeological record even though the reciprocal goods may not have been. (43)

Nance, C. Robert (Alabama-Birmingham) WOODLAND AND MISSISSIPPIAN SETTLEMENT PATTERNS NEAR THE UPPER ALABAMA RIVER, ALABAMA. Four seasons of fieldwork were conducted just east of Selma, Alabama in an environmental transect of ten towns, aligned north and south, extending from the center of the Fall Line Hills, south to the mouth of the Alabama River, through the northeastern part of the state. The site collections on the eastern edge of the site area to locate and examine prehistoric site constructions thought to be comparable to those associated with the so-called "tide rings" on the northern plains of North America. (10)

Nissley, Claudia (see Hester, T. J.) (23)

Noguex, Javier (Tulane) THE TIRTA DE TEPECHEAN. This paper will present an analysis of some historic data concerning the kingdoms of Tepecap and Tenochtitlan (fourteenth-sixteenth centuries) revealed by this Colonial pictorial manuscript of the Azcahuiztlaco. (23)

Newey, James A. (Texas-Austin) NEUTRON ACTIVATION ANALYSIS AND MESA VERDE-CHACO CANYON CERAMIC TRADE: NEW LIGHT ON OLD PROBLEMS. A brief historical summary of the probable existence of ceramic trade between the Mesa Verde and Chaco Canyon regions is presented. Ceramic types apparently involved and the directions of trade-flow are noted. A neutron activation analysis of a relatively small sample of sherd from sites in the Mesa Verde and Chaco Canyon regions provides detailed, quantitative information concerning the ceramic interchange between these two Southwestern culture centers. The application of Mahalanobis D2 statistics are used to augment the analytical technique, thereby refining the results as well as the validity of the interpretations. (41)

Neely, Robert (SIU-Carbondale) SPATIAL SCALING OF STYLISTIC VARIABILITY: A SYNTHETIC APPROACH. The spatial dimension of ceramic design variability is explored through the use of multivariate statistical techniques and an approach which employs a replicable system of spatial analysis. Both ceramic design symmetry patterns and ceramic design variability are examined in an attempt to reveal new questions about inter-site design patterning. The approach tests several scaling and clustering techniques in conjunction with different measures of similarity and distance. Results of the various techniques are used to provide a classification of the design variability. (40)

Nelson, Ben (SIU-Carbondale) CLIFF PHASE: THE TERMINAL PUEBLO OCCUPATION OF THE MIMBRES VALLEY. The material culture of this phase, recently named a Salado variant, is reviewed. Consideration is given to both culture-historical and behavioral models relevant to the study of the cliff dwellers. The single most significant obstacle to research is rejected, since influences are seen from both Chihuahuan and heartland Mogollon sources. However, the presence of locally made Gila Polychromes and the preceding phase conflicts with the old argument of a Toltec origin for Salado. Possible interpretations of inter-site and intra-site organization are developed. The terminal pueblo abandonment, which was clearly a rapid one, is evaluated in the light of recently obtained dates. (1)

Nelson, Bonnie A SPATIAL ANALYSIS OF THE CLASSIC SITES OF THE RIO MIMBRES ON THE TOPSAIL MESA SHORELINE IN SOUTHWESTERN NEW MEXICO. Geographical and settlement patterns of the Classic phase sites along the Rio Mimbres. The Classic phase represents the densest puebloan occupation of the valley and is characterized by a range of site size and complexity. The nearest neighbor technique is applied to the analysis of settlement hierarchies in both linear and two dimensional frameworks. Comparisons of the relative value of the various methods employed is considered. (1)

Nelson, Sarah M. (Donover) MODELS OF SHIFTING SETTLEMENTS IN BUTLER WASH, UTAH. This study has examined a settlement system in the Butler Wash, southwestern Utah. Since such a pattern might be due to different underlying causes, two models have been generated. The first is a model of expanding occupation in a sequential order; the second is a model of habitational pattern in different periodicities. Finally, the combination of these models is considered. Ultimately, excava tional data will demonstrate which of these models is applicable in Butler Wash. (29)

Netherly, Patricia J. (SUNY-Fredonia) ON DEFINING THE NORTH COAST OF PERU. As a culture area, the North Coast of Peru is usually understood to comprise a series of distinctive cultural areas that separate the sea and andes. This paper presents a new view of the North Coast which is based on a detailed study of the socioeconomic organization of the use of natural resources in Chimu and Chimu-Inca times, together with an analysis of the settlement pattern data from earlier periods, suggests that the coastal areas have a lower density of the lower andes than does the north coast. An approximately 2,000 meters should be included within the largely self-sufficient sphere of the coastal Inca societies. A major redefinition of boundaries between highlands and coast could be possible if the coastal Inca rule and an analogous disruption of the coastal/highland boundary may be hypothesized for the Middle horizon as well. (30)

Neuman, Robert W. (Louisiana State) AN ARCHAEOLOGICAL SURVEY OF THE DRY PAMPA AREA, WESTERN ARGENTINA. In 1974, an archaeological survey was conducted in the dry pampa regions of Mendoza, La Pampa, and Rio Negro provinces, Argentina. The principal purpose was to locate and examine prehistoric site constructions thought to be comparable to those associated with bison drives and other referred to as "tide rings" on the northern plains of North America. (10)

Nisley, Claudia (see Hester, T. J.) (23)

Noguex, Javier (Tulane) THE TIRTA DE TEPECHEAN. This paper will present an analysis of some historic data concerning the kingdoms of Tepecap and Tenochtitlan (fourteenth-sixteenth centuries) revealed by this Colonial pictorial manuscript of the Azcahuiztlaco. (23)
Northby, Larry V. (NPS) UPPER PECOS RIVER VALLEY ARCHAEOLOGY: A REVIEW AND A BEGINNING. During the summer of 1976, the National Park Service conducted a cultural resource survey of the upper Pecos River Valley. Lands examined included N.P.S., U.S. Forest Service, and private holdings. The objectives of the survey were to (1) Identify site occupants from among several groups who have occupied the valley (Pueblo, Apache, Anglo, Spanish); (2) to create from morphological site typologies a typology of site function which may more closely reflect technological and environment articulation; and (3) to determine whether outlying sites are located according to environmental or cultural interaction parameters, given the role of Pecos Pueblo as a proto-Historic and Historic trade center connecting the regions with the Southwest. This presentation will review the results of and the degree to which the survey accomplished these objectives. (27)

Preston, Nestley (Ecological Anthropological Foundation) LOMA ALTA. The early dates for Loma Alta that there might have been an ethnic boundary between the agriculturists occupying the floodplain of the Valdivia River and the fishermen occupying its estuary and mouths. 3600 B.C. (uncorrected). The interaction between agriculturists and fishermen is apparent by the amount of estuary and marine fauna in the Loma Alta midden over 15 miles inland. The earliest Valdivia ceramic at the type site is a more evolved form of the early Valdivia ceramic given at about 3500 B.C. (uncorrected). Loma Alta ceramics appear not to have been traded by the coastal fishermen as can be seen in Valdivia and Real Alto, since a trade ware of different tradition appears first in the upper estuary. A summary of the data indicates that the Río Negro is a Valdivia site of occasional occupation where the earliest Valdivia pottery from Loma Alta appears. This site seems to represent seasonal shell collecting by Valdivians. (3)

O'Brien, Michael J. (Texas-Austin) INTRAHOUSE ANALYSIS OF ARTIFACTS FROM A LARGE MISSISSIPPIAN SETTLEMENT IN CENTRAL TENNESSEE. An intra-house analysis was undertaken on remains from Mound Bottom, a large Mississippian period community in central Tennessee, to determine how space was utilized within various residential structures. The results, while identifying recurring everyday activities, varied within structures, allowed the tentative identification of areas of craft specialization. (53)

O'Connell, James (see Hayden, B.) (24)

Oehl, Milla Y. (Chicago) THE CLACTONIAN-ACHEULIAN INTERFACE IN BRITAIN: REEXAMINATIONS AND RECONSIDERATIONS. The present study was generated by recent excavations at Clacton, Hoxne, and Swanscombe. It is the contention of this paper that new data derived from these diggings must be incorporated into existing information in order to explain the relationship between the Clactonian and its closest relationship to the Acheulian. The present study is the result of detailed analysis of about 9,000 flakes and cores from 41 archaeological units. Results obtained lead to a reinterpretation of the Clactonian in technological terms. Coupled with environmental and other considerations, the conclusion arrived at is the following: the Clactonian, although having a distinct technological entity, lasted for a relatively short period of time during the early part of the Acheulian mid-interglacial. In this study, a prolonged interglacial, mid-interglacial, and interglacial relationship is stressed. This paper is a discussion of the evidence, which suggests the familial and political bonds between these two centers, appears in hieroglyphic inscriptions from both centers. (55)

Olsen, Stanley J. (Arizona) THE STATUS OF FAUNAL ANALYSIS IN THE PEOPLE'S REPUBLIC OF CHINA. From the mid-7th month of the July 1974, the speaker visited the People's Republic of China, hoping to compare candid material from early sites in China. The status of vertebrate collections and studies as well as the availability of these specimens to workers outside the PRC is briefly discussed. (44)

Ott, J. D. (see Von Endt, D. W.) (44)

Pahl, Gary W. (UCLA) CONTACTS BETWEEN MAYA FRONTIER MOUNTAINS. The paper discusses the possible contacts and alliance relationships between two major Maya centers: Copan representing the eastern frontier of the Maya realm, and Palenque representing the western frontier of the Maya realm. In the region, a series of small centers and villages have been identified which suggest the existence of a complex network of relationships between the two centers, and there may be a period of occupation in the region. (55)

Parsons, Cindy J. (see Snively, A. N.) (15)

Parsons, James J. (Califonia-Berkeley) RIDGED FIELDS IN COLOMBIA AND ECUADOR. Parsons has led to substantially increased estimates of the areas in "ridged" or "raised" fields in the Magdalena and the Guayas Valleys of Colombia and Ecuador. In the former probably 100,000 hectares, in the latter perhaps 20,000 hectares. There appear the extensive areas of such Colombian fields have been obliterated by flooding and silting deposition. In the San Jorge Valley, Colombia, sedimentation since initial ridge construction has been shown to have been highly episodic. At least three episodes of tremendous black silts, and three less distinct episodes of lighter colored alluvium, are identifiable at lowest water stage in silted-up furrows between ridges that line Cano Carate, near San Marcos. Isostatic downwarping of the entire sedimentary basin has been shown to have been rapid, with rates as high as one meter in 200 years. Radiocarbon dates from these buried soils do not extend beyond 750 B.C. The age in central Colombia is almost certainly 4000 years BP. In Ecuador, similar conditions, two samples from buried soil horizons at the base of furrows between ridges opposite Guayaquil have given dates of 590 B.C. and 205 B.C. respectively. These dates fit very well with the model proposed by Guatay, and numerous other dates are in the area. Since by roots is almost inevitable in most ridged field sites, the oldest dates may be taken as minimal. If so, the Guatay model might be further corroborated by the Ecuador ridged fields. (22)

Patterson, Patience E. (see Davis, E. M.) (19)

Pavesic, Max G. (Boise State) AN ARCHAIC BURIAL PATTERN IN IDAHO. A unique prehistoric burial pattern is coming into focus in western Idaho. While many Idaho archaeologists have recognized that burial complexes were poorly documented, there is little published work on this subject. This presentation is a pioneering attempt to describe and explain the pattern. The report stresses the type and distribution of artifact materials, which include: "turkey-tail" and bi-pointed burial blades, pipes, projectile points, obsidian trade materials, and miscellaneous. A time range comparison to local nonburial sites, and evidence favoring an inter-northern origin, is supported by the data. (45)

Pearson, Deborah M. (Illinois-Urbanana) THE BOTANICAL ANALYSIS OF REAL ALTO: AN INITIAL MODEL OF VALDIVIA SUBSISTENCE. This paper reports the continuing results of the study of real Alto site, in the lower estuary of the Río Negro. Based on the promising preliminary results of the use of phytochemistry, the plants are analyzed to detect the presence of maize, this technique is refined and applied to additional samples from sites in the Real Alto area. Information on the identification of species with potential uses is also presented. (22)

Pearson, Charles E. (Georgia) ANALYSIS OF LATE MISSISSIPPIAN SETTLEMENT ON OSSABAW ISLAND, GEORGIA. Reasonable statements indicating prehistoric settlement systems as complete units require that the systems be bounded in some meaningful and logical manner. Osabaw Island, Georgia, provides a test bed for such a site. The universe under which rigorous analysis is to be conducted is the 6660-1550 B.C. settlement system is possible. Cluster analysis of site sizes indicates that a hierarchy of site sizes is present. Each level of this hierarchy is shown to be systematically associated with different recognized environmental conditions. The validity of the regional environment is considered to consist of a number of cultural activities occurring at different levels of the hierarchy. The overall structure of the Elleph island settlement system is compared to that of other Mississippian systems and is shown to differ. This difference is considered to result in the temporal and spatial variation of site populations to Mississippian development as well as increased exposure to environmental factors. (25)

Pearson, Charles E. (see Graybill, D. A.) (29)

Peebles, Christopher S. (Michigan) DETERMINANTS OF SETTLEMENT SIZE AND LOCATION OF THE MOUNDVILLE PHASE, ALABAMA. The location of Moundville phase (ca. A.D. 1200-1550) settlements in the Black Warrior River Valley is determined by (1) agricultural requirements for cultivation, and (2) for the location of adjacent fauna. The data indicates that the productivity of adjacent fauna may be explained by a combination of resources for consumption in a 1 km walk of the settlement. Given these constraints of the environmental site, sites exhibit a nonrandom, clustered distribution, and a nearest-neighbor analysis shows a hierarchy of sites which reflects their position in a ritual-regulatory network. (25)

Percy, George R. (see Brose, D. S.) (25)

Perrott, Donald M. (Minnesota-Duluth) THE LOCATION OF ARCHAEOLOGICAL SITES IN THE ICE-FREE CORRIDOR OF NORTH AMERICA: A CONSIDERATION FOR ADAPTATION IN PALEO-FOHN HABITATS. Data from thermographs in selected montane areas along the eastern slopes of the range suggest the presence of warm foehn or chinook (snowider) winds during the winter months. Longitudinal Canadian data on the winter foehn from Lethbridge, Calgary, Jasper, and Selkirk; and from Ft. St. John, Fort Nelson, Fort St. James, and Ft. Good Hope—demonstrate extremely local climate amelioration in valleys adjacent to topographical features. These valleys areas generally remain snow-free due to melting, retarding the economy of winter. Known availability of grazing habitats for contemporary upland herb suggests similar habituation strategy for Upper Pleistocene ungulates and land predators. This paper proposes a methodology for location of archaeological sites within the great corridor and Keewatin ice sheets based on (1) general approaches in superimposition of contemporary foehn (chinook) isotherms and present settlement pattern distribution in potential location sites; (2) specific approaches utilizing past moraine, palynological, faunal, and artificial data in predicting location of paleo-foehn habitats within the corridor. (29)
Petersen, Emil (Museo-Banco Central del Ecuador) COTOCOLLA: A NEW EARLY AGRICULTURAL FORMATIVE VILLAGE IN HIGHLAND ECUADOR. Archaeologists from the Museo-Banco Central del Ecuador have found a Formative village site in the town of Cotocollo, north of Quito. A volcanic eruption about 1000 B.C. sealed off the cultural levels, thus preserving a quantity of organic remains. The site lies on the shore of a now-dry lake bed, and covers one square km. Investigations point to an agricultural base subsistence, supplemented by hunting and gathering. (D. 1900 B.C.). 1000 B.C. was a fairly large woodland and floodplain buildings clustered on the banks of several small streams. Ceramic vessel form and decoration are contemporary with the Early and Middle Formative periods of coastal Ecuador, dating from 3500—1500 B.C. (35)

Pickman, Arnold (NYU) CLASSIC MAYA SOCIAL STRUCTURE AS INFERRED FROM MORTUARY PRACTICE. A study of the classification of burials in the Classic period maya social structure and organization. Methodology includes a technique for identifying social status by examining the distribution of burials. Analysis suggests that 'temples' served as mortuary structures for members of dispersed sites. Rank and status were allocated according to a combined achievement-ascription system. Secular authorities had social identities corresponding to Classic Maya "palace" burials suggest the emergence of a "new class" sharing wealth and power with the old elite families. (47)

Pillet, Peter J., Jr. (USDA Forest Service) SUNSET CRATER AND THE SINAGUA: A NEW INTERPRETATION. The eruption of Sunset Crater in A.D. 1065—67 has traditionally been given significant effects on patterns of distribution in the Flagstaff, Arizona, The ash fall is believed to have created new agricultural lands that attracted numerous people from surrounding culture areas. Resultant integration of the cultural development between local cultural elements and favorite patterns. However, a different interpretation is offered here. Climatic change is thought to have been just as important as the ash fall in creating new farming lands. Post-eruption sites are viewed as redistributions of the indigenous population base, rather than a major population increase. It is argued that the eruption of Sunset Crater had very little long-term effect upon the prehistoric inhabitants of the Flagstaff area. (4)

Plog, Fred (Arizona State) THE REVISED SARG RESEARCH DESIGN. Used effectively, a research design is a dynamic tool for organizing and structuring research. As understanding of a research design increases, so will the knowledge of the research field. On the basis of results obtained to date, both positive and negative results, modifications in the SARG research design have been proposed. These changes pertain to the management of the research process, from the operational definition of specific variables. Some of the more important changes are identified and their relationship to results obtained by SARG members as well as to disagreements that have arisen within the group is discussed. (19)

Plog, Fred (see Wood, J. S.) (50)

Plog, Stephen (SIU—Carbondale) EXPLANATIONS OF CERAMIC DESIGN VARIABILITY IN THE CHEVELON REGION, ARIZONA. Tests of several possible explanations for variability between sites in the Chevelon Canyon area of Arizona will be discussed. Variables such as ceramic exchange and design change through time are considered. It is argued that such variables explain a significant amount of variation in the design of ceramic vessels and that many recent studies of design variability have not taken these variables into account. (40)

Pohl, John M. D. (UCLA) THE SIGNIFICANCE OF HUMAN SACRIFICE IN THE CODEX ZOUCHE-NUTTALL. This paper will concern the pictorial style used in the Preconquest Mixtec manuscript, the Codex Zouche-Nuttall. The Zouche-Nuttall presents a graphic depiction of human sacrifice in both Aztec and non-Aztec warfare, depicted rather simply in other manuscripts, but here often shown as detailed scenes with elaborate ceremonies. The significance of human sacrificial scenes will be discussed in the context of Mixtec iconography. Finally, the method by which the artist was able to use stylized postures to convey specific information concerning relationships between various persons will be reviewed and demonstrated with a short, animated color film. (48)

Pohonriokko, Anato (Tulane) ON THE CULTURAL AND HISTORICAL VALIDITY OF CHRONOLOGICAL CORRELATIONS. THAT ARE BASED ON A GMTAETIC VIEW. A temporal sequence erected primarily with ceramic material of a given culture or culture area should not be regarded as the cultural sequence or historical process undergone by that culture or culture area. Such processes are influenced by other causes and, therefore, rely on a model of the cultural processes, in addition to those that constitute a whole culture. Though chronological frameworks based on ceramic sequences may be of limited cultural and historical value, the study of their distribution, and classification is important in the archaeological knowledge of an area and in understanding the cultural complexes with which ceramics interrelate. A few such complexes are: trading networks; manufacturing techniques; levels of aesthetic achievement; social systems; and habitational complexes. A methodology that would not only enable us to establish a chronological framework processually from a cultural-historical frame of reference, but also limit the role of ceramics to its proper placement within the systems or complexes that make up archaeological culture. (2)

Pollard, Gordon C. (SUNY-Plattsburgh) VILLAGES, SYSTEMS, AND ECONOMICS IN THE SOUTH ANDES. The northern portion of the southern Andes has long been described as an area which was occupied by a variety of sedentary tribal groups during the late Preclassic period. Small to medium-sized villages, consisting of 20-50 households, have been relatively substantial, but generally piecemeal and untheoretical. A model is herein proposed that depicts the area of N. Chile, S. Bolivia, and N.W. Argentina as having comprised a variety of regional systems that are linked by the exchange of goods and resources. Except for late Inca intrusion and domination, the area remained essentially separate from central Andean cultural developments. (49)

Popelish, Linda (NPS) STYLISTIC ANALYSIS OF ANASAZI ROCK ART FROM CANYON DEL MUERTO, ARIZONA. Design analysis, focusing on elements of form and technique, have been used to reexamine the stylistic evolution of the rock art. Results from National Park Service surveys of Canyon del Muerto, Canyon de Chelly, northeastern Arizona. Factor analysis produced clusters of elements that define possible "styles" of individual rock "styles" are seen as indicative of individualization of experience and their distribution related to factors of time, social grouping, and site function in the canyon system. (40)

Porras, Pedro L. (Universidad Catolica de Quito) FASE PASTAZA. Se trata de una nueva fase perteneciente al Formativo Temprano (2000 a.C.) hallada por el conferencista en la llanura que limita el Río Huaylas con el Pastaza. Son notables en la cerámica de esa Fase las semejanzas con la de Vidadia en la Costa del Ecuador, pero que en la fase de la primera tiene morfológica diferente y la decoración es más sofisticada. (40)

Powell, Susan (UCLA) CHANGING SUBSISTENCE PATTERNS AS REFLECTED IN FAUNAL REMAINS FROM THE MIMBRES RIVER AREA, NEW MEXICO. Faunal remains from sites of three periods in the Mimbres River Valley are analyzed. It is proposed that a combination of three major trends in animal utilization occurred: (1) a population increase, agriculture was emphasized and wild game became less important in the diet of people; (2) as agriculture increased, natural communities were altered and animals that became more numerous were used in greater proportions; (3) as population and food demand increased, a wider range of animal species were used. The reverse of these trends occurred when population decreased. (1)

Price, James E. (Missouri-Columbia) THE POWERS PHASE SETTLEMENT SYSTEM. Archaeological research over the past decade in southeast Missouri near the Ozark border has revealed a Middle Mississippian phase of rather short duration. Studies of the Moundville and the Etowah areas, at the center of Southeastern Mississippian culture, show that the Powertown phase is a unique microenvironment. Second, this analysis is based on the entire lithic assemblage, rather than being limited to the formal tools which are the data base of traditional European lithic studies. Comparative materials are also presented. (7)

Puleston, Dennis E. (Minn.) RAISED FIELDS IN MESOAMERICA AND SOUTH AMERICA: GROWTH OR INDEPENDENT INVENTION? Raised field systems have been found in a variety of locations in the Americas. Seemingly with origins in the humid tropics, they date back to Early/Middle Formative times in Mesoamerica. With South America, far from the Andes where the case for a direct link is examined critically. In light of various data, a division of rivers, floodplain agriculturists, up along the Gulf Coast of Central America, is proposed. (22)

Purdy, Barbara A. (Florida) EVIDENCE OF LATE PLEISTOCENE HUMAN OCCUPATION IN FLORIDA. Chert implements have been recovered from a deposit formerly considered to be in a vegetally sterile. These stone remains and their possible chronological placement are discussed. (53)

Purinton, Burton L. (Appalachian State) CHANGING PATTERNS OF HABITAT UTILIZATION IN A SOUTHERN APPALACHIAN LOCALITY. Statistical correlations of prehistoric components and environmental variables including land form, elevation, aspect, vegetation, and plant community, and soil type (genus, parent material, and capability) have been made for the upper Wataga Valley (Tennessee River drainage) of Appalachian North Carolina. Preliminary results suggest a broad spectrum pattern of utilization of several
Quilter, Jeffrey (California-Santa Barbara) AN ANALYSIS OF PRECERAMIC BURIALS FROM THE LA PALOMA SITE, CHILCA VALLEY, PERU. The burial goods and practices of over 100 burials from the pre-ceramic component (6000-4000 B.P.) of the preceramic site of La Palomá are described. Qualitative and quantitative analyses have revealed that quantity and types of grave goods, burial positioning, and grave markings are not correlated with sex of the skeleton. Elaborate burials in which bodies were wrapped in mats, tied with rope, and then entombed under house floors or in house depressions are described. The burial traditions at the site are compared with summary burial practices in the Isla de Díaz region. Ten percent of burial is compared with similar practices at the nearby deposits of Mimbres and La Paloma. Implications about the economic and social organization of the La Paloma community are also discussed. (10)

Raab, L. Mark (Arkansas Archeological Survey) ARCHAEOLOGICAL SITES IN THE OUACHITA PLAIN. A NAZCA PLANE ITEM. The results of a 1974-1975 sample survey of the Caddo-Mississippian period of the Ouachita National Forest, Montgomery, Pike, Garland, and Hot Springs counties, Arkansas, are presented. The purpose of the survey was to develop a predictive model for archaeological site location in a 1% statistical sample of the planning unit. Sampling was carried out in three stages by means of transects. In addition to archaeological resource information, data were collected about environmental variables associated with archaeological sites. The secondary and complementary environmental setting of the Ouachita National Forest is described. The results can be used to predict the occurrence of archaeological sites within this environmental setting in which one can expect to find archaeological resources. (50)

Radosavovic, Ivana (Beograd) EDGECUSH AND TOOLS TYPES AT PETRIOLO II. Tools from the 1976 excavations and surface collections at Petriolo II were examined using 40-X microscope enlargement at the Institute of Archeology and Human Paleontology, University of Siena. The assemblage contains tools diagnostic of both Mousterian and Azelian Life. The emphasis was on the Mousterian artifacts. The principal types were choppers (20%) and sidescrapers (15%). The choppers were used for making a variety of tools, and the sidescrapers were used for making knives and scrapers. Other types of tools, such as retouched flakes, were also present. The classification of the assemblage is based on the presence of choppers and sidescrapers. (7)

Randall, Mark E. (see Lindsay, A. J., Jr.) (26)

Rasson, Judith A. (SUNY-Binghamton) COAST-INTERIOR RELATIONSHIPS IN THE ADRIATIC NEOLITHIC. Neolithic links between the Yugoslav Adriatic coast and the interior beyond the Dinaric Alps have been the subject of recent research. The aim of this paper is to present a review of the current understanding of these links, with particular emphasis on the role of the estuary of the Vardar and the surrounding area. The analysis is based on a survey of the sites from the period, and the results are compared with data from other regions. The paper concludes by discussing the implications of the findings for our understanding of Neolithic societies in the Adriatic region. (20)

Rattray, Evelyn C. (UNAM) THE TEOTIHUACAN CERAMIC CHRONOLOGY. LATE TLAMIMILOPA TO METAPEC PHASES. This paper presents a brief report on the results of analyses of ceramics from the Teotihuacan site of Tlamimilpa. The samples were collected from the Tlamimilpa area and the nearby site of Metapec. The samples were analyzed using a variety of methods, including X-ray diffraction, electron microscopy, and thin-section analysis. The results indicate that the ceramics from Tlamimilpa are similar to those from Metapec, and suggest that the sites were occupied simultaneously. The paper also discusses the implications of the findings for our understanding of the social and political organization of the Teotihuacan community. (20)

Ravesdolt, John (SIU-Carbondale) THE POST-MIMBRES OCCUPATIONS OF THE PERIOD ABANDONED WARES AND THE CASAS GRANDES INTERACTION SPHERE. Data from two Animas Phase sites that were tested in the summer of 1976 by the Mimbres Foundation will be summarized. The sites are located in the Mimbres Basin, and the results of the excavations are presented. The sites are characterized by a variety of artifacts, including pottery, stone tools, and bone figurines. The results suggest that the Mimbres community was in contact with other cultures, and that the sites were occupied by people of different ethnic backgrounds. (20)

Rehm, Charles L. (Wyoming) TERRITORIAL INHERITANCE FROM SOURCE ANALYSIS OF LITHIC ASSEMBLAGES. That sources of lithic assemblages indicate the territory being exploited and other aspects of prehistoric behavior is one of the most common archaeoological assumptions. Several specific models have been published which cite factors such as trade across band boundaries, proximity to quarry sources, and direction of economic dominance as fundamental. These were discussed and constructing a model for testing inferences regarding buffalo kill site assemblages on the Great Plains. The Late Prehistoric Vore buffalo jump in northeastern Wyoming is compared to assemblages from Paleo-Indian, Archaic, Atlatl thermal, and other Late Prehistoric kill site, sites. Inferences concerning the degree of mobility and residential centralization of the users of these sites are presented. (14)

Reichelt-Dolmatoff, Gerardo (UCLA) THE MAGDALENA. Abstract not available. (8)

Reichert, Raphael X. (California State-Fresno) STATUS INDICES IN THE RECAYU CERAMIC GOODS. The Recayu culture, successor to Chavin in the northern sierra of Peru, is largely unknown from excavation. The assembly of a large data bank of photographs of the deposits examined by this method shows that many of the assemblages are of this culture. In this context, status indices will be discussed, particularly the position of women who are accorded central positions in the art. The roles of Precolumbian Andean women in society will be discussed. In the light of archaeological and ethnographic information and compared to the insights given by the art of Recayu into the status of women in that culture. (49)

Reid, J. Jefferson (Arizona) MOVING ON: THE PROBLEM OF ABANDONMENT AS SEEN FROM GRASSHOPPER PUEBLO. One old-time, Southwest favorite, pueblo abandonments, the so-called "grasshopper" pattern, is defined. A general model is developed, and previous approaches and "explanations" are reviewed. Major points are illustrated by examining the phenomenon at Grasshopper. (51)

Reidhead, Van A. (Missouri-St. Louis) LABOR AND NUTRITION IN FOOD PRODUCTION: DID PREHISTORIC PEOPLE OPTIMIZE? This study focuses on the decision-making process involved in Late Woodland and Fort Ancient food resource utilization in the Missouri River basin. Optimization can be illustrated visually as a linear programming model of optimal resource utilization. The model identifies those resources that would have been used if the people in question had chosen to minimize labor in the production of a minimum acceptable nutrient intake. The implications of the model and its test against archaeological data are discussed. The model indicates that, while some resources were selected to minimize labor, but suggests that decisions to use others significantly added to required labor input. Additionally, the model predicts limiting nutrients on a seasonal basis. This information is useful in examining the nutritional implications of plant and animal resources. (46)

Renfrew, A. Colin (Southampton) THE POTENTIAL OF CATASTROPHIC THEORY FOR ARCHAEOLOGICAL RESEARCH. Recent developments in mathematics, largely based on the work of Rene Thom, have permitted the application of catastrophe theory to a number of fields, including mechanics, engineering, and elsewhere. Where sudden, even discontinuous change, can now be explained coherently in terms of the operation of continuously operating variables. The analytical basis for organizing some resources is presented. The approach to catastrophe theory is illustrated by the case of the so-called "dispersed settlement" and the possibility of further applications to systems collapse and to cultural morphogenesis indicated. It is argued that catastrophe theory offers a number of important insights into the dynamics of culture change. (37)

Renfrew, A. Colin (see Smith, E. W.) (4)

Reyes, Roberto (Banco Centroamericano de Integracion Economica) PETROGLIFOS DE HONDURAS: ESTilos Y SECUENCIA TENTATIVA. Los petroglifos y pinturas rupestres que se encuentran en la zona centroamericana del Caribe tienen un origen muy antiguo. Aporte no cuenta con un registro claro y definido. Hay que destacar la importancia de los datos obtenidos a través de las excavaciones arqueológicas. Los resultados obtenidos durante el período precolombino muestran la importancia de estos artefactos en la historia del área. (28)

Reynolds, Jonathan E. (Iowa) ROOM 44 WUPATKI: REAPING FALSE PROFITS. Several solar alignments were found to be present in the east window of Room 44 at Wupatki. Analysis shows that these alignments were the accidental products of NPS construction and not intended design of the original builders of the pueblo. This paper provides an excellent example of the problems inherent in the study of architecture at "reconstructed" sites. (51)

Riyna, Rosa (INAH) RELATIVE DATING OF TWO PRECLASSIC SITES IN THE BASIN OF MEXICO. In this paper I will discuss briefly: (1) absolute and relative chronology in the discovery of relationships between ceramic, biological, and cultural data; (2) relative dates and ceramic sequences at Telapén, D.F. and Teremote, Cuitláuitlan, Mexico. (2)
A COMPARISON OF APPROACHES FOR INVESTIGATING HETEROGENEITY AND POTENTIAL PRODUCTIVITY OF THE LOWLAND MAYA ENVIRONMENT. Ecological analyses being conducted in the Central Peten lakes region of Guatemala are providing new information on the nature of environments of the Maya Lowlands, the Maya Mayapán, and its effects on the productivity of the lowland Maya landscape. (23)

Richardson, James B., II (Pittsburgh) THE TALAFLAR TAR PITS: 11,000 YEARS OF HUMAN OCCUPATION IN THE AMANTANAO. The preceramic sequence in the Talaflar region of western Bolivia near the Atacama Desert is documented. The site is considered to be a part of the Tarija Basin, and it is associated with the Quimbaya culture. The site has produced evidence of early human occupation, including stone tools and ceramics, depicting a sedentary lifestyle. (39)

Rice, John W. (Michigan) PRECERAMIC HUNTERS OF THE CENTRAL PERUVIAN PUNA. The year-round stability and productivity of hunting resources in the central Peruvian puna is the basis for a model of sedentary and permanent human occupation in the Preceramic period. The preceramic pattern of hunting was based on the seasonal movement of the vicuña. Excavations at the site of Chullucay in the Atacama Desert produced evidence of an early hunting culture. The site contains remains of vicuñas and other evidence of early hunting activities. (39)

Riley, Thomas J. (Illinois-Urbana) FIELD SYSTEMS AND FROST DRAINAGE IN NATIVE NORTH AMERICA. Hypothesizing that the function of prehistoric ridge and furrow fields in the midwest were to stabilize the land, the ridge-and-furrow fields were analyzed. The result of the analysis was the identification of a ridge-and-furrow field system. These ridge-and-furrow fields were used to stabilize the land and prevent erosion. (6)

Robertson, Donald (Tulane) SOME MEXICAN PICTORIAL MANUSCRIPTS IN THE TULANE UNIVERSITY LATIN AMERICAN LIBRARY. This paper will present, with slide illustrations, some remarks on the Early Colonial manuscripts in the Codex Tulean and other pictorial documents of Mexico, including the Codex Catherwood and the Tulean manuscript. Such manuscripts as the Codex Chichimeca and the Tulean are included. An early copy of the Codex of Cuxahca is also illustrated. (48)

Robertson, Merle Greene (Tulane) A CORRELATION BETWEEN THE CODEX TRO-CORTESIANUS AND PALÉNQUE'S EAST SOUTHERNEST. A large portion of the Codex Tro-Cortesianus is concerned with the ritual hunting of a chieftain. In the Codex Tulean, this chieftain is shown hunting a jaguar in the eastern forests. The sun god rushes to the south to find the chieftain.He is shown to be the archetypal sun god, whose face is held by the underground chambers. The Sun god crouches on top of the western head of the creature. The iconographic portrayal on this manuscript is used to explain the role of the chieftain in hunting rituals. (38)

Robertson, Patricia Crown (Arizona) DISTRIBUTION AND FUNCTION OF PRE-AGGREGATION COMMUNITIES IN THE GRASSHOPPER REGION. The Late Mogollon II period in the grasshopper region of east-central Arizona was defined by the presence of ceramic structures that were associated with specific environments. Significant developments developed evidence that Late Mogollon II sites were more complex than sites of the Late Mogollon I period. (51)

Robles, Ferdinando (see Benavides, A.) (31)

Rogers, John M. (USDA Forest Service) BUREAUCRACY AND CULTURAL RESOURCE MANAGEMENT. This paper discusses the practical and plausible implications of developing a cultural resource program within an established federal bureaucracy. The bureaucracy is the Klamath National Forest, USDA, the cultural resource program, and the management of cultural resources. CRM, as it must exist, is not, indeed cannot be, restricted to archaeological materials alone. The development of the present program is outlined, and its strengths and weaknesses are discussed. (26)

Rockman, Diana diZerega (NYU) THE HOPEWELLIAN WAY OF DEATH. In this study, several attributes related to mound burials are compared among several Middle Woodland regional traditions that have been linked in the literature as participating in the Hopewell Interaction Sphere. It is demonstrated that there are statistically significant differences among the regional traditions for most of the attributes examined. This conclusion tends to support the hypothesis that the regional traditions participating in the Hopewell Interaction Sphere were part of a single ceremonial-mortuary complex or a shared ideology; rather these, ideologies and mortuary practices were related to various aspects of the individual traditions themselves. (17)

Roper, Donna C. (Missouri-Columbia) SITE CATCHMENT ANALYSIS: AN OVERVIEW. During the last decade, Old World archaeologists working with prehistoric sites have developed site catchment analysis. The technique involves the use of computer models to analyze the natural features, such as water, soil, and topography, in order to determine the possible sources of resources and the movement of people. The technique can be applied to various regions and has been used in different contexts, such as the study of ancient trade routes and the identification of early agricultural practices. (52)

Rose, Richard M. (Hampshire) MUSHROOM STONES AND THE MAYA BALL GAME. Mushroom stones are generally believed to be representative of a divinatory mushroom cult among the Formative and Classic period Maya of Highland Guatemala. Analysis of close to 1000 mushroom stones and pottery objects has provided iconographic and structural evidence suggesting an interaction between mushroom stones and the Maya rubber ball game. It is argued that mushroom stones were employed in the manufacture of the sacred ball game, and that mushroom stone iconography is representative of the power of healing within the ball game. (47)

Rozenberg, Bettina H. (Salt River Project) THE CORPORATE VIEW OF CULTURAL RESOURCES. How can federal and state agencies be most effectively involved in the planning and implementation of projects that will result in the preservation of cultural resources? This paper presents a framework for discussing the relationship between federal and state agencies and cultural resource management. It argues that the federal government has a critical role in setting standards and procedures for the protection of cultural resources, while state agencies are responsible for implementing these standards and procedures in the field. (43)

Rothschild, Nan A. (Lehman, CUNY) SKELETONS IN THE CLOSET: THE ANALYSIS OF INTRADISTRICT ORGANIZATION THROUGH THE STUDY OF SITES. In order to test the hypothesis that societies with different subsistence bases socialize their social systems and bury their dead according to different principles, two large mortuary sites were excavated. The burials were examined for evidence of cultural contact, social status, and other cultural factors. The results of the analysis suggest that mortality patterns differ between the two sites. (17)

Ruddy, F. H. (see Wessen, G. C.) (44)

Ruggie, Dale (California-Santa Barbara) PETROGRAPHIC STUDIES OF THE MIMBRES WITH AN EMPHASIS ON INTRAREGIONAL TRADE PATTERNS. This section analysis of ceramics from a spatially and temporally diverse sample of sites within the Mimbres Valley is described. Correlation of shared assemblages with other ceramic and lithic materials is discussed. The analysis of temper sources is given. Documentation for locally produced and traded ceramics is given. Evidence for substantial trade of Mimbres corrugated jars over a 3-mile stretch of the valley is given; this trade is shown to fit a linear distance model. (1)

Ruggio, Peggy (California-Santa Barbara) TEMPORAL AND SPATIAL VARIATION IN THE SITI MIMBRES. Artificial inclusion of lithic materials in the Mimbres Valley. Lithic materials from sites spanning a 1,100-year period of time in the Mimbres Valley are...
evaluated. Changes in raw material selection are measured against raw material availability. Changes in assemblages are considered in terms of changes in resource utilization over this time span and relative availability of various classes of raw materials within the valley. (1)

Runnels, Curtis (Indiana) ECONOMIC MAN IN THE PREHISTORIC AEGEAN: 8,000 YEARS OF ANDESETITE EXPLOITATION. There has been little or no recognition in the literature on Aegean prehistory of the Formative Substantivists who worked on the Prehistoric Aegean have used economic theory drawn primarily from the Substantivists. In the Argolid, southern Greece, there is archaeological and ethnographic evidence for the exploitation of and domestication of animals until the present. It is argued here that certain spatial and temporal variations in this exploitation are best explained by postulating rational, economic choices rather than other factors. Models based on utilizing formal economic theory are offered to explain the prehistoric use of alternative sources of andesite. (46)

Ruppe, Reynold J. (Arizona State) ANALYSIS OF MATERIAL FROM THE VENICE, FLORIDA, UNDERWATER ARCHAEOLOGICAL SITE. Two summits are involved, one on the summit of a submerged archaeological site near Venice, Florida, and the other on the summit of a submerged archaeological site near the Hama-nasu site, Minamikyoe, Hokkaido, Japan. The analysis was made in an attempt to answer some cultural questions concerning Jomon ceramics. Since the Jomon ceramics are the most common of the Jomon pottery, the analysis results include a discussion of the ceramic temper changes in Jomon pottery throughout time. This study discusses sources of materials and clay and the possibility of changes in tempering of pottery in terms of clay collection and temper selection also explored. (54)

Salerno, Michele A. (Toronto) A THIN-SECTION ANALYSIS OF JOMON POTTERY FROM THREE SITES IN JAPAN. Thin-section analyses were done on pottery from three Jomon sites: the Hime site, Kyushu; the Sazan site, Nanae, Hokkaido; the Hamawasa site, Minamikyoe, Hokkaido, Japan. The analysis was made in an attempt to answer some cultural questions concerning Jomon ceramics. Since the Jomon ceramics are the most common of the Jomon pottery, the analysis results include a discussion of the ceramic temper changes in Jomon pottery throughout time. This study discusses sources of materials and clay and the possibility of changes in tempering of pottery in terms of clay collection and temper selection also explored. (54)

Schiffer, Michael B. (Arizona) THE REUSE PROJECT. This paper reports the results of the first two seasons of work on the Reuse Project, an extensive excavation project in contemporary Tucson, Arizona. Preliminary findings are discussed relative to reuse patterns and socioeconomic groups, and the implications for prehistoric research are noted. (42)

Schmidt, S. Paul (UNAM) THE CERAMIC SEQUENCE OF XOCHITLAPA, GUERRERO. Analysis of surface and stratified ceramics from the Valley of Xochitlapa have yielded no apparent increase in diversity of ceramic types and decorative styles. The paper will consist of the presentation of the first draft of the Xochitlapa ceramic phases and their correlation with Mesoamerican periods. (2)

Schneck, Robert J. (see Neely, J. A.) (41)

Schneider, Fred E. (North Dakota) HENDRICKSON: A COALESCENT FORTIFIED SITE IN EASTERN NORTH DAKOTA. Excavations at a fortified site along the James River in northeastern North Dakota have revealed a major center of prehistoric culture not previously recognized in this region. The Hendrickson site, 32SN40, is a large fortification ditch surrounding three circular depressions. Outside the ditch there are two rectangular depressions. Examinations of cross-sectional profiles indicate that the ditch and investigated portions of one interior circular depression and one interior rectangular depression. Preliminary analysis of the excavation data indicates a cultural affiliation with the Crow Creek complex. Radiocarbon dates indicate a temporal placement of the site at approximately A.D. 1450. (19)

Schneider, Kent A. (USDA Forest Service) CULTURAL RESOURCES AND LAND USE PLANNING: ARCHAEOLOGY AND GRID, PHASE I. This paper describes an experimental approach involving 20,000 acres of National Forest land in Green County, Georgia. Using a grid system, we are mapping known archaeological sites with other inventoried variables to generate computer models for predicting the existence of additional archaeological site locations and types. Each model developed will then be evaluated by comparison to the data. More than twenty maps have been generated. National Forest Projects 80,000 acres have been inventoried utilizing GRID. Twenty variables, such as land form, water regime, forest type and streams, have been mapped. GRID allows us to compare and analyze the relationships among these variables and graphically display the results. (50)

Schoeninger, Margaret J. (Michigan) DIET AND SOCIAL STATUS DURING THE FORMATIVE PERIOD IN MESOAMERICA. Archaeological records show that a great increase in human population size and in complexity of social organization occurred during the Early and Middle Formative period in central Mexico. Dietary correlates of these changes in population size and organization have usually been determined indirectly. Archaeologists have been limited by the assumption that available food resources or the use of food resources by certain groups are identified. This paper examines the relationship between diets of groups within a population or between populations in similar ecological situations. Strontium content was determined in bone samples from Chalcatzingo, Morelos, and rural and urban Huiztiliapan, Oaxaca, and the results show that the proportion of meat in diets within and between social groups during the Early and Middle Formative periods. Ethnographic accounts from the early contact period indicate that meat was a basic food, yet little is known about the levels to which meat consumption increased. The amount of meat in diets of various groups can be expected to reflect social differences. (24)

Schroeder, H. Bruce (Toronto) NACHCHARINI, A STRATIFIED POST-NATUCFAN CAMP IN THE ANTI-LEBANON MOUNTAINS. As archaeological evidence accumulates from sites in the Middle and Late Bronze period, a larger range of geographical and environmental zones, Levantine prehistorians are beginning to understand the diversity of Early and Middle Bronze period occupation in the Levant. Early folk traditions are being examined in a more detailed fashion, and the evidence is being considered in terms of regional and local contexts. The specific aspects of Early and Middle Bronze period occupation that are continuing to receive attention are the nature of cultural continuity, the nature of cultural change, and the nature of cultural adaptation. (18)

Sandoval, O. Mario (Universidad Central de Venezuela) LA TRADICION BARRANCOIDE Y EL FORMATIVO SUPERIOR. Los origen de barrancoide, parece estar relacionado con el preceramico y el desarrollo de los cultivos vegetativos en el norte de Suramerica. De manera general, se podra postular a Puerto Hormiga como el sitio ancestral de la tradicion, hecho en el cual coinciden la mayoria de los investigadores del area. Es posible, igualmente, que Puerto Hormiga constituya uno de los centros o el centro de domesticacion de la variedad no toxica de la yuca, la cual habria constituido uno de los soportes de la economia de sustentacion de las poblaciones tempranas del norte de Suramerica hasta 1200 a. c., cuando habria tomado auge en esta region la utilizacion de la variedad toxica de la yuca merced a la creacion del complejo de tecnicas y artefactos de cesteria adecuados para tal fin. Podriamos hablar, quizas, de un formato de las regiones basado en cereales que en Puerto Hormiga y otras partes del norte de Valdivia, habria estilizado el desarrollo del Formativo en los Andes Centrales. No obstante, este proceso historico se habrian dado dentro de un marco de contactos internos de una poblacion en un ambito de sentidos de diversos elementos superestructurales, particularmente los alfareros. (9)
Sheehy, James J. (Arizona) ARCHAEOLOGICAL INVESTIGATIONS AT TRAVESIA, HONDURAS: A PRELIMINARY REPORT. Recent salvage archaeology undertaken at the site of Travesia is described and data on the architecture and ceramics are summarized. Preliminary indications are that Travesia was probably part of the Late Classic period to, and possibly including, the Early Postclassic period. It is suggested that this period of occupation be divided into four phases. The first three phases are distinguished by changes in polychrome and ceramic designs and vessel shapes. The fourth phase is marked by the presence of a fine paste ceramic tradition that, although showing some similarities, appears to be a distinct and local tradition. (36)

Sheets, Payson D. (Colorado-Boulder) ENVIRONMENTAL AND CULTURAL IMPACT OF THE SUAVIZ HOPANGO EUPRAGUS IN, EL SALVADOR. The ca. A.D. 200 eruption of Volcan Ilopango sufficiently dammed a lake over which it necessitated the immediate migration of many Protoclassic Maya. Recent and past archaeological and geological research indicates that the ultimate extent and magnitude of the disaster. Pre-eruption land use and settlement patterns may have unintentionally facilitated the population's transition to drier and more arid environments. This hypothesis would change throughout the Classic period. (37)

Sherman, Elizabeth A. (Georgia State) THE BLACK BELT PRAIRIE OF ALABAMA: FEAST OR FAMINE? The Black Belt prairie of central east central Mississippi is a crescent-shaped region of calcareous clay soils underlain by Silurian limestone. Before European settlement, its oak-hickory forest was distributed in a mosaic of grassland and savanna areas. This hypothesis would change throughout the Classic period. (38)

Sherratt, Mary Elizabeth (Washington State) POTHERDS AND PEOPLE. The paper is an examination of the possibilities of reconstructing prehistoric social patterns from the pottery assemblages. The study of pottery assemblages in the Pacific Northwest in general, and from the ethnographic and archaeological study of Wuski Village, in the New Hebrides, in particular. (49)

Shillinger, Richard, Jr. (see Shillinger, M. E.) (24)

Simmons, Alan H. (SMU) PRE-POTTERY NEOLITHIC B OCCUPATIONS OF THE WESTERN NEVADA, ISRAEL, ECONOMIC POTENTIALS. A systematic archaeological survey was conducted in the Negev desert within the Negev-Edom region of southwestern Israel. Two research objectives were examined. The first was to view settlement patterns through time and develop a prehistoric landscape while the other was to concentrate on PPN—B settlement and economy in the region. Correlation with the second point, an examination of a unique collection of PPN—B assemblages in the western Negev was undertaken. Site catchment analysis was applied to evaluate the potential for a prehistoric landscape. Preliminary results are reviewed in this paper. (40)

Skinner, S. Alan (SMU) QUALITY CONTROL IN AMERICAN ARCHAEOLOGY. The advent of the 1970s has resulted in a flurry of archaeology in the American Southwest. The fractic pace has brought to the forefront concerns about professional standards, registration of archaeological sites, quality control, professionalism, and ethical standards. An examination of the effectiveness of these procedures is necessary. (41)

Smith, Bruce D. (Georgia) VARIATION IN THE COMPLEXITY OF MISSISSIPPIAN SETTLEMENT PATTERNS. Eastern North American archaeology has tended to work with a rather general, abstract Mississippian settlement pattern-system model that could theoretically be applied with few modifications to large geographical areas of eastern North America. This approach of looking for similarities between Mississippian settlement patterns has not surprisingly tended to ignore the great degree of variation that exists between such systems. A fairly large sample of recently developed Mississippian settlement pattern models will be analyzed in terms of the evident dimensions of variation, as well as in terms of observed similarities and differences. Observed variations of a similar type, and otherwise, will be discussed in terms of possible ecological and cultural factors. (25)
Smith, Erasmus W. (Southampton) Minoan CRETE AS LOST ATLANTIS? THE THERA ERUPTION OF CA. 1500 B.C. Thera underwent a catastrophic eruption of Plinian type ca. 1500 B.C., with the destruction of the extensive settlement at Akrotiri recently excavated by Boyd-Dunlop. Estimates of this disaster, by ash fall, tsunami, and earthquake in the Aegean and beyond; the destruction of the Minoan palaces of Crete and even the loss of “lost Atlantis” have been attributed to it. The evidence is briefly reviewed, with references to deep-sea cores and to analysis by Drs.

Smith, Landon D. (USDA Forest Service) EXPERIMENTAL DISCRIMINATION OF PERSPECTIVES IN TOOL ANALYSIS. A tool approach to studying the transition to ceramics has a concern with the role and effect of the percussion in stone tool manufacture on the tools produced. The subjective appraisal of these effects is subjected to statistical analysis using calculation of a two-way contingency table of which was expected frequency, expected columns of different material and, consequently, different weight-density. Multivariate analysis indiscriminates support a quantified difference a hard and soft hammer as evidenced by morphological variables such as blade flake and platform dimensions. The result is to partially condition the variation of the effect of the variation of the effect of the difference in the area, much work remains to be done in this area. The overall importance of this approach for discriminating manufacturing technique through debitage analysis is apparent.

Smuts, Michael (Museo Nacional de Costa Rica) FINCA GUARDIRIA: FIRST ANALYSIS OF A FLINT INDUSTRY FROM COSTA RICA. Surface collections at Finca Guardiria, a site in the Turrialba Valley of Costa Rica, have recently yielded 15 examples of Clovis-like points and knives or preforms, along with numerous steeply keeled end-scrapers, large side-notched knives, and rounded, flakes. The Clovis points are not present at this site, but no radiocarbon date is as yet available. Morphologically and geometrically, the points are intermediate between the classic Clovis points to the north and the South American points. If confirmed, the South American points may represent the beginnings of technological change as the early hunters adapted to the tropical forests on their way south.

Snively, Alan N. (Pennsylvania State) SIMULATION AND BLACK BOX PROCESSES: FOREST GROWTH AND INTRASITE ARTIFACT DISTRIBUTION Efforts by archaeologists to create explanatory statements of sociocultural events and processes are largely frustrated by the constraint of dealing with “black box” phenomena. The ability to delineate and study the parameters of incompletely observable systems processes thus depends upon the creation of sophisticated analog models that can illustrate their operation. In particular, possess the potentially powerful attributes of dynamism, visibility, and system/model control. The applicability of this modeling technique for archaeology is demonstrated by a simulation program (SETU) developed to investigate the impact of forest succession and artifact distribution on the preservation of cultural resources. This model is presented and discussed, as are the methodological implications of the quantitative rigor demanded by simulation. The consequences of artifact displacement for archaeological survey, stratigraphic data collection, and behavioral interpretations are also examined.

Sotheim, Wilhelm G., II (see Griffin, P. B.)

Specht, J. R. (The Australian Museum) A REVIEW OF ETHNOARCHAEOLOGICAL STUDIES IN NEW GUINEA. A brief review of postwar ethnoarchaeological studies in New Guinea, emphasizing village settlements, and pottery-making and lithic studies, with some comments on the re-appraisal of the archaeology of New Guinea and Australia that has resulted from the recent work.

Spence, Michael W. (Western Ontario) LATE MIDDLE HORIZON OBISIDAN PRODUCTION IN TEOTIHUACAN, MEXICO. Although data are accumulating on the collapse of Teotihuacan, both the processes leading up to it and the event itself remain poorly understood. One of the most important questions of that event is the role that obsidian production played in its economic structure as well as its external relationships during those critical years. Obsidian dating allows the identification of some late Teotihuacan obsidian workshops, which in turn gives us some idea of the changing structure of the Teotihuacan obsidian industry at that time.

Spier, Charles J. (Advisory Council on Historic Preservation) THE ROLE OF THE ADVISORY COUNCIL ON HISTORIC PRESERVATION. Notwithstanding the reservations of the Advisory Council is to assist federal agencies in carrying out their statutory responsibilities in the field of preservation. The thrust of preservation legislation is to ensure that archaeological resources are afforded consideration due within the federal agency decision-making process. The Council’s comments are intended as a means of communication on the preservation problem in which they are an attempt to reconcile the need for the federal project with the state of the preservation on the consideration of the archaeological resource base. This manner archaeological resources can be realistically considered in the federal agency decision-making process.

Spores, Ronald (Vanderbilt) ETHNOGRAPHIC CONTENT OF POSTCONQUEST MIXTEC CODICES. Studies of pictographic manuscripts have emphasized derivation, style, personal and narrative content, and form and chronology. These documents, particularly those containing glosses and/or accompanying texts, provide an ethnographic information that may not be found in conventional written sources. A half-dozen late 18th-century Codexes from the Mixteca Alta... analyzed for types of data suggested are provided, and methods, and for more adequate and extensive utilization of pictographic sources are suggested.

Stark, Barbara L. (Arizona State) LINEAR NEAREST NEIGHBOR ANALYSIS OF INDIAN BURIAL SITES, VERACRUZ, MEXICO. Levee sites are identified through photointerpretation and are mapped from aerial photographs. As linear point patterns they are easier to recognize, cluster, or dispersed distributions using the linear nearest neighbor technique. Dispersion is argued to suggest a degree of contemporaneity of what may have been house locations.

Stark, Barbara L. (see Dahlin, B.)

Stark, Louis (Wisconsin-Madison) LINGUISTIC EVIDENCE FOR EARLY IMMIGRATIONS IN SOUTH AMERICA. Recent linguistic studies are used to throw light on the pre-Columbian migration patterns in South America. The distribution is correlated with archaeological evidence for the prehistory of these areas will be examined.

Steel-McIntyre, Virginia (idaho) TEPHRACHRONOLOGY (VOLCANIC ASH DATING) AND ITS APPLICATION TO ARCHAEOLOGY. Tepha are fragments of solid material (volcanic glass, crystals, rocks) ejected during volcanic eruptions. Tephrachronologists study deposits and samples of these fragments and seek to characterize, through precise and inexpensive dating, providing archaeologists who are excavating sites within a region with a temporal framework. Tepha are not uninformative layers but layers of specific age that may be distinguished, for example, by changes in mineralogical properties or by the presence of a particular eruption. By focusing on a zone of intensive utilization northwest of Idaho Bend, contract investigations near the Polo Verde Hills, Arizona, suggest that many sites that were historically occupied by the Jicarilla Indians as a result of extensive small ceramic components. This pattern allows for the development and/or creaming of some of the most important aspects of this research.

Stein, Pat H. (Museum of Northern Arizona) RECENT MNA INVESTIGATIONS IN THE LOWER GILA DRAINAGE: NEW DATA ON HOHKAM SUBSISTENCE STRATEGIES. Studies on Hopi settlement in the Lower Gila drainage have traditionally focused more on large villages in alluvial terraces and only recently on smaller sites in secondary resource zones that could have contributed to the support of villages on a seasonal basis. By focusing on a zone of intensive utilization northwest of Gila Bend, contract investigations near the Polo Verde Hills, Arizona, suggest that many resources were harvested or hunted by the Ho-Hokam at a time when irrigation agriculture and permanent villages were at a peak of development in nearby plains.

Stoimen, Karl T. (West Georgia) ARCHAEOLOGICAL INVESTIGATIONS IN THE EARLY COUNTY, GEORGIA: A SETTLEMENT MODEL FOR KOLOMOKI. Archaeological investigations in South Carolina have shown several aspects of the tradition of ecological and ecological relationships in the area of the Kolomoki site in early prehistory, such as its site. Surface collections and the analysis of private collections indicate that Kolomoki was the only major center that existed in this region. This area is likely to have extremely small ceramic components. This pattern allows for the development of a model of settlement patterning for this area of the Chalchahuan River drainage basin.

Stepanakits, Vincas P. (Michigan) CENTRAL PLACE MODELS IN PRE-MARKET CONTEXTS: A MISSISSIPPIAN EXAMPLE. Christaller’s Central Place Theory has been widely applied by archaeologists in recent years. The use of this model is appropriate, however, only in cases where the location of central places are constrained primarily by market centers. Clearly, where central place hierarchies are pre-market contexts—as in pre-Columbian simple states—a different model is called for. The administrative and tributary relations in complex societies are often more significant than land use or topography. On this basis, a general locational model is formulated and applied to data from the Middle phase of the Black River Valley. It is found that the relative locations of chiefdoms are consistent with the archaeologically documented system significantly with the model’s predictions.

Stieb, Ronald H. (Milwaukee) A SUGGESTED ELEMENTAL SOLUTION TO THE IDENTIFICATION PROBLEM OF THE CONCENTRICALLY BANDED, BLUE-GRAVE CHERTS FROM SOUTHERN INDIANA AND ILLINOIS. Recent investigations into prehistoric utilization of lithic raw materials, such as chert, have recognized the need for both the identification of these resources and the subsequent distribution can be effectively studied. Discrimination between blue-grey cherts available from sedimentary deposits in both southern Indiana and Illinois is seen as currently the most critical aspect of archaeology. The most obvious task is to distinguish between these two areas distinct from resources through macroscopic and microscopic techniques have not yet met with success. On the other hand, elemental composition analysis, or trace element analysis, allows for the possibility of developing this approach and the general trend toward the identification of these resources.
Sterud, Eugene L. (SUNY-Binghamton) THE DYNAMICS OF EARLY FOOD PRODUCTION IN THE MEDITERRANEAN REGION: MODELS AND ANSatz TO ACCOUNT FOR THE BEGINNINGS AND SUBSEQUENT CHANGES IN THE NATURE OF FOOD PRODUCTION IN THE Dinaric Region of Yugoslavia, from the standpoint of historic records, ethnographic and cultural geographical research, and recent archaeological and faunal studies. A model is presented to account for the changes through time, the applicability of which to Mediterranean Europe generally is argued. (16)

Stevens, Dominique E. (see Hietala, H. J.) (33)

Stewart, Henry (Toronto) THE TRANSITION FROM PALEOLITHIC TO NEOLITHIC IN JAPAN. In Japan, there are several sites that provide a stratigraphical record of a smooth transition from the Paleolithic into the Neolithic. The archaeological record shows a change from large flake tools to microliths, the stage at which the production of pottery was at the climax of the Final Paleolithic. This paper will attempt to probe the dynamics behind the transition and then make comparisons for similar transitions as observed in other parts of the world. Through this comparison, it is hoped to contribute to an understanding of the mechanisms working behind this transition. (54)

Stewart, Marilyn C. (Rolling) ARCHAEOLOGICAL PITS: A RESEARCH DESIGN AND A TYPOLOGY. Archaeological pits are artifacts of human activities and as such can be analyzed by techniques similar to those used for pottery or stone tools. The analysis of a pit as a basis for space-time and other typologies (e.g., functional and structural) is fundamental. There is an additional dimension to pits, however, in their artificial contents. These need to be analyzed separately from form, and the two dimensions must be treated systematically if meaningful statements about function and structre are to be made. The typological method was tested on a sample of 328 pits from a site in New York state, with promising results. (37)

Stinson, Wesley R. (Connecticut) WOOLCHUCK KNOLL: SOIL SCIENCE AND ARCHAEOLOGICAL SCIENCE. In this paper, the author discusses the significance of soil science in the interpretation of archaeological sites. Soil analysis can provide information about past environmental conditions and human activities. The study of soil stratigraphy is crucial for understanding the temporal and spatial distribution of archaeological remains. (6)

Stix, A. I. (see Von Endt, D. W.) (44)

Stollman, James B. (Wisconsin-Madison) OBSERVATIONS AND EXPERIMENTS ON THERMAL DETRIMENT OF CHEST FROM AN EARLY ARCHAIC QUARRY- WORKSHOP IN SOUTHWESTERN WISCONSIN. Surface investigations and excavations at an Early Archaic (Hardin) quarry-workshop in southwestern Wisconsin produced vast quantities of bone and stone debris, with high percentages of red and gray flakes also present. Examination of some chertdebit tools revealed no evidence of such color variation, suggesting the possibility of intentional thermal pretreatment. A series of controlled experiments were conducted in which nonartificial cherts were subjected to varying temperatures to ascertain which physical alterations are produced. The positive results of these experiments are summarized in this paper and their implications for interpreting chert workshops are behaviorally explored. (14)

Stone, Doris (Peabody Museum, Harvard) THE POSSIBLE ROOTS OF ROSALES ZONED ENGRAVED WARE FROM THE GREATER NICoya REGION: A HYPOTHESIS. Preceramic and Early Ceramic marine merchants, particularly from the Guayaquil Gulf, using ocean-going rafts, appear responsible for the introduction of a ceramic ware, Rosales Zoned Engraved, during the Zoned Bichrome period in Greater Nicoya. The artistic tradition changed to reflect the economy from a coastal to a more inland one, with changes in the ceramic assemblage and in cultural concepts. The association of Chara and Pocosi Islands in the Nicoya Gulf with rafts and a different language on Chara suggests ports of call inhabited by foreigners. The bays of Tamarindo, Culebra, and Santa Elena probably also served as anchorages with Santa Elena the port for Rivas and Lake Nicaragua. (28)

Stothert, Karen E. (Fordham) STYLES AND SETTLEMENTS OF THE EHEI TRANSITION ON THE CENTRAL COAST. Based on newly excavated data, a revised culture sequence is described for the end of the Early horizon and the beginning of the Early Intermediate period on the Central Coast of Peru. Chronological arguments are based on the analysis of ceramic styles, while other data are used to interpret the political and economic conditions of the period. New light is shed on the Ventanilla style and settlements at the end of the Early horizon and the newly discovered Villa Style and occupation at the early phases of the Early Intermediate period in the lower Lurin Valley. Culture change is outlined for this period, and the conditions antecedent to the development of complex society later in the Early Intermediate period are tentatively identified. (39)

Stoutamire, James W. (Florida State) INTRODUCTION TO THE HISTORY OF RESEARCH IN THE VIRGIN ISLANDS NATIONAL PARK. Several different archaeological investigations have been conducted in the Virgin Islands National Park during the last few years. The most recent and power-line trenches were dug revealing historic and aboriginal materials which were collected by the Park staff. Surveys and excavation in the Historic area were conducted by Edward Rutsch in 1969 and 1970. The Southeast Archeological Center, National Park Service, conducted surveys and excavations throughout the Park in 1976. Each of these projects has contributed significant new information about the archaeology of St. John. SUMMARY OF VIRGIN ISLAND ARCHAEOLOGY AND RECOMMENDATIONS FOR FUTURE RESEARCH. The archaeological evidence from the Virgin Islands National Park indicates that the aboriginal cultures flourished on most of the islands along the coast of St. John. The ceramics are consistent with a South American origin of the aboriginal culture and are similar to those found on the mainland in parts of the country. Little information is available from the Putt and St. Croix, but the remains of a somewhat earlier type of culture are found in the organization of the ancient city. Additional work is necessary, especially to determine seasonality in the aboriginal economy. (12)

Stroh, Edward G. Jr. (Missouri-Columbia) CAN THE SPATIAL DISTRIBUTION OF UTILITARIAN STONE TOOLS BE USED TO IDENTIFY KITCHEN AREAS? A TEST CASE INVOLVING TULA, HIDALGO, MEXICO. Food preparation areas are often a focus of interest in archaeological investigations, and the presence of a broad range of artifacts or certain ground stone and stone used in cooking wares is often considered sufficient evidence for making such a functional assignment. Little has been done to determine if utilitarian stone implements actually do form a distinct tool kit after deposition, and the identification of such a spatially distinct activity area. Data is here presented for the Postclass site of Tula, which demonstrates that manos, metates, and pestles indeed do show a propensity to occur together in certain rooms of the site. Criteria are presented for maximizing the probability of correct kitchen identification. Finally, some hypotheses concerning the social organization of the ancient city are presented. (34)

Stuckenrath, R. (see Adovasio, J. M.) (6)

Suguira, Yoko (see Serra, M. C.) (2)

Sutro, Livingston D. (see Wilk, R. J.) (55)

Sutton, Mark Q. (see Eggers, A. V.) (45)

Tainter, Joseph A. (New Mexico) WOODLAND SOCIAL AND ECONOMIC SYSTEMS IN WEST-CENTRAL ILLINOIS. The problem of Middle to Late Woodland social and economic change has been one of the most difficult areas of interpretation confronting Middlewoodists. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. Data from the Illinois Valley indicate that change in the Late Woodland period involved increases in population, the formation of economic and social groups, and changes in the nature of social systems. (17)

Thoms, Alston (Texas Tech) RESEARCH DESIGN—THEORETICAL UNIFORMITY, CLARIFICATION, OR STAGNATION? Recent trends toward increased uniformity (by means of computation, regional research designs, and contract archaeology proposal requirements) are an example of a positive trend toward clarification of potential agreement on research goals and objectives. In addition, if a detailed framework of creative scholarship is indicated in a statement of renewed concern about the relationship between "directed," or applied research, and basic, or "pure" research. (26)

Thomson, James W. (NPS) RECENT NATIONAL PARK SERVICE ARCHAEOLOGICAL FINDS AT THE VIRGIN ISLANDS NATIONAL PARK. In February and March of 1978, the Southeast Archeological Center, National Park Service, conducted a survey of the cultural resources of the Virgin Islands National Park. The purpose of this survey was to determine a site inventory of the Park area to propose Park personnel for visitor interpretive purposes. The survey and limited excavations supplement and support the results of earlier archaeological investigations with respect to site types and environmental location. (12)

Thomson, James W. (see Hays, T. R.) (19)

Tippecanoe, Robert (USDA Forest Service) CULTURAL RESOURCES AND LAND-USE PLANNING: THE LAND MANAGER'S PERSPECTIVE. Land management in a multiple-use forest setting is an example of the role of the cultural resource in land use planning. Survey and excavation in the national forest for possible landfill use and to execute a cultural site identification in the study area provides the land manager with a valuable tool for assessing the impact of the cultural resources on other resources. He is better able to assess the impact on project level work and design strategies for both cost effective as well as wise use of the entire resource base. (50)

Townsend, Joan B. (Manitoba) ETHNOARCHAEOLOGY: PERSPECTIVES FROM THE NORTH AMERICAN SUB-ARCTIC. Ethnoarchaeology in the Alaskan and Canadian Sub-Arctic is examined through a historical critique of the interrelations developed in
ethnography and archaeology and their usefulness as tools for historic and prehistoric analysis. Special emphasis is directed to Athapaskan studies and the time period from 1950 to the present. Suggestions and conclusions derived from historic and ethnographic studies and anthropological theory are made concerning ethnoarchaeological interpretations. (32)

Tringham, Ruth E. (Harvard) RESOURCE UTILIZATION IN NEOLITHIC YUGOSLAVIA. The paper will discuss recent information on the changing pattern of resource utilization from the early Neolithic to the late Neolithic in Yugoslavia. This information is provided by two excavations: one from a number of Neolithic sites in southeast Europe, covering technological, functional, and stylistic aspects of the stone tools. It is also provided by the preliminary results of the excavations of the early Vinca-Plочник site of Seleucia in central Macedonia. The growth of the range of resources exploited, the distance from which they were procured, and the scale and regularity of their exploitation during this period will be examined. The relation of this growth to the establishment of fully sedentary and a productive agricultural economy will be discussed. The process will be compared to similar situations in other parts of southeastern and Mediterranean Europe. (16)

Troeke, Nancy P. (Texas-Austin) RULERSHIP CEREMONIES IN THE MISTEC CODES. Several ceremonies shown in the Mistec codices appear to be associated with the selection and tenure of an individual or ruler, a Spanish misunderstanding in the historical examination of these occurrences in both Pre- and Posthispanic Mixtec pictorial manuscripts, including data on the genealogical background of the persons involved, the historical process, and the sequences of the ritual activities, the objects used, and the sites at which the events were conducted. It will be shown that there are several distinct clusters of ceremonies and that each occurs under specific historical circumstances. (48)

Ulrich, Thomas (see Green, S. W.) (5)
Valastro, S., Jr. (see Davis, E. M.) (19)
Valastro, S., Jr. (see Lambert, P. W.) (4)

Van Alsburg, John (Michigan State) FOURIER SHAPE ANALYSIS OF MONTUERIAN AND UPPER PALEOOLITHIC TOOLS FROM PETRIOLO II, ITALY. Fourier series shape equations provide a method for analyzing artifact shapes as single attributes, and for comparing artifacts according to their geometric form. The tool geometry is transformed into a series of equations expressing the shape of the artifact using a series of complex exponentials. These equations are complex numbers with amplitude and phase values that can be used to describe the form of the artifact by examining the interaction of the components that make up the overall shape. The method is applied to a collection of jasper artifacts from Petrigho II, a Middle/Upper Paleolithic open air site 20 km south of Siena, Tuscany, Italy. It tests to determine how much information is transmitted from the experimental measurements of the Mousterian by examining the implication that if only one occurrence is present, shape distinctions should separate functionally discrete types while joining functionally similar shapes. The results will be used to reflect on differences between the Mousterian and the Upper Paleolithic. (7)

Van Der Leeuw, S. E. (Amsterdam and Michigan) ETHNOARCHAEOLOGY OF ANDEAN SOUTH AMERICA: EUROPEAN AND AMERICAN VIEWS. The two authors will present contrasting European and American views on the problem of ethnoarchaeological studies of the Andean South American region. Ceramic studies, in particular, will be stressed. (42)

Van Der Leeuw, S. E. (see Watson, P. J.) (24)

Van der Veen, J. New Mexico) LATE HOLOCENE VEGETATIONAL TRANSITION IN ROCKY ARROYO AND LAST CHANCE CANYON, NEW MEXICO. Indurated packrat (Neotoma) middens from Rocky Arroyo and Last Chance Canyon (1130-1310 m elevation, limestone, Eddy County, New Mexico, record past vegetation. Macroflorids in late Pleistocene middens (RAI: 18550105 B P. on Juniperus, A-1548) are dominated mostly by Quercus, Juniperus, Rhus, Celtis, Fallopia); Holocene samples contain more desert plants (Agave, Dasylirion, Nolina, Opuntia, Prosopis). Late Pleistocene Antarctina, Quercus, Pinus, and especially, low-spine Compositae and grass pollen; Holocene samples contain more Chenopodiaceous. The fossils record a transition from a Juniper-oak woodland with abundant grass, to a Chihuahuan desert scrub with persistent Juniper and oak. (27)

Van Hartesveldt, Eric N. (Missouri-Columbia) ZIPF RECONSIDERED: A REPLICATION OF THE VALIDITY OF THE ZIPF LAW. The validity of Zipf's original law, Zipf's law, has been questioned. Previous tests concerning the validity are examined: the size of the sample used was inappropriate; the application of a statistical measure of goodness of fit was lacking; and definitions of homogeneous and heterogeneous data have been misunderstood. This analysis employed all 3,163 cities used in Zipf's original study, the original definitions of homogeneous and heterogeneous were accepted, and a Chi-square test for goodness of fit resulted in the rejection of the model. However, since the lognormal transformation of the "expected" data was originally employed, the data was similarly transformed for this study, a regression line was fitted to it and a correlation analysis was performed. The original results were then more nearly approximated. (52)

Varela, Alejandra V. (see Davis, E. M.) (19)

Vega, Constanza (INAH) CERAMIC STRATIGRAPHY IN THE SACRED PRECINCT OF TENOCITLITAN. The present research was carried out by the Mexican government to consolidate the foundations of the pyramid-shaped Cathedral provides new data on ancient Tenochtitlan. The present ceramic sequence is the result of this project. The north part of the garden. Results of obsidian hydration tests will also be reported. (36)

Velasco, Margarita (see Brambilla, R.) (2)

Veliz, R. (Instituto Hondureno de Antropologia y Historia) ANCIENT HUMAN FOOTPRINTS IN GUAIMACA, HONDURAS. At the summit, an area of human footprints are discernible on the surface, including one of a pendeen (claw) and one of a human with a distinctive rock of present and unexplored geologic age. Three of the human footprints are discernible and they are quite unique. While others are less visible. The footprints of human are yet to be found in association with the sand. In many respects the site is similar to footprints localities in both El Salvador and Nicaragua. (36)

Vickers, David T. (see Allen, R. K.) (1)

Vokes, Arthur (Arizona) SHELLING OUT: THE ROLE OF MOLLUSKS IN A POST-CLASSIC MAYA ECONOMY. The island of Cozumel, off the northeastern coast of the Yucatan Peninsula, was the location of a joint University of Arizona and Harvard prehistoric excavation program between 1972 and 1974. Analysis of shell artifacts and debitage was made to provide a clue to the report of a wide range of natural resources, including man-made materials, and social patterns. It is felt that shell, being one of the few natural resources that was available locally and in quantity, would reflect the intrasite economic structure, thereby giving insight into the relationships between the numerous small coastal sites and their larger inland counterpart. (55)

Von Endt, D. W. (Smithsonian) ENVIRONMENTAL FACTORS THAT AFFECT THE PRESERVATION OF BONE IN FAUNAL ASSEMBLAGES. It is well known that burials in certain places and regions are significantly longer periods of time. However, little is known concerning the actual mechanisms of bone preservation. The relevance of environmental factors affecting the preservation of bone tissue has been a major concern for paleontologists. The impact of temperature, humidity, and other physical factors on bone preservation has been studied extensively. The study of bone preservation in archaeological sites is crucial for understanding the past. The presence of bone in the archaeological record provides valuable information about past environments and human interactions with the environment. The objective of my research is to identify the causes of these transformations. (34)

Voss, Jerome A. (Michigan) STYLISTIC ANALYSIS AND ORGANIZATIONAL CHANGE: A PERSIAN EXAMPLE. A study of changes in the stylistic variability of pottery assemblages in the early Proto-Elamian period and the organizational change in an urban area of central Persia. The data is based on the analysis of pottery assemblages from the Elamite tombs in the city of Susa. The results of this study will be presented at the conference. The study of the results presented will be placed on the significance of such early ceramic sites as Ranco Pelo, La Pita, and Lagunillas. (8)

Wallace, Dwight T. (SUNY-Albany) A LATE CEREMONIAL ROAD SYSTEM IN CHINCHA: SYMBOLIC AND POLITICAL MEANING. A series of roads of late date in the Chincha Valley is open to interpretation at two levels. At one level, their regular and geometric lay-out indicates a possible ritual or symbolic function, the focus being the
external and internal communication, linking a series of ep-choric and choritic sites into a system which is comparable with the level of site organization by the documents for Chichina, but not suggested by population centralization or site size. The layout of the valley, with one arm leading to the upper river, another to the upper Pisco Valley, and a third arm leading into the Paracas area, and the occurrence of various sites directly along the road network would be evidence for such a system. (49)

Wallace, Ilen (Cornell) POLYCHROME CERAMICS IN THE VALLE DE NACO AND THEIR EXTERNAL RELATIONSHIPS. This paper presents a new approach to analyzing Classic Maya and related ceramic complexes. This method involves a synthesis of modal and variety analyses, direct paired-comparisons of specific styles, and an examination of biconical bases on potsherds. The method is a separate analytical procedure from our technologically based typology, which is used for analyses of ceramics within our local area. This design-oriented approach produces a new understanding of cultural contacts within eastern Mesoamerica and relationships between Maya and so-called "mayoid" polychrome pottery. (38)

Ware, John A. (see Chandler, S. M.) (14)

Watson, Patty Jo (Washington) ETHNOARCHAEOLOGY IN THE NEAR EAST. There is considerable literature on ethnoarchaeological research in the Near East at the present time, with a variety of studies completed or underway in Cyprus, Turkey, Iran, and Israel; but with the exceptions of Frank Hole's observations on the Iranian Baharand sheep/goat nomads, and Shuttle and Strier's discussions of pottery material in Bedouin villages these studies are all focused on village dwelling peoples because the archaeologists involved are concerned with prehistoric (early food-producing) villages. In this paper, we present a brief overview of ethnoarchaeological work in western Asia and the Levant as well as references to relevant but more traditional ethnoarchaeological studies. Comparative facts and figures drawn from a few of the most recent ethnoarchaeological investigations of contemporary villages are also provided. (24)

Welgand, Phil C. (SUNY-Stony Brook) ATTILIANAS CUEVAS: A POSTCLASSIC PORT-OF-TRADE IN THE ANDES, WESTERN MEXICO. The Attilianas Cueva site is located on a former island in the municipio of Antonio Escobedo, Jalisco. The site is characterized by a relatively small ceremonial center, a large ball court, and a large public service area, a large cemetery, a large habitation area, and an extensive "cave" at the ancient shore line. Obsidian outcrops and quarry areas, and a massive obsidian workshop. Ceramics of ordinary origin found in the area characterize much of the area. Most important is the pottery typical of the area. However, not as abundant as on Yellow (New Mexico) attest to contacts even further afield. It is postulated that control over high quality obsidians and the ability to mass produce large quantities of blades allowed the site to specialize as a port-of-trade. (34)

Welgand, Phil C. (see Arnold, D. J.) (32)

Welgand, Phil C. (see Shadow, R. D.) (24)

Wessen, Gary C. (Washington State) BONE STRONTIUM AND BARIUM CONTENT AS INDICATORS OF DIET AND ENVIRONMENT. Neutron activation analysis of the calcium, strontium, and barium content of over 350 samples of recent and archaeological bone has shown important differences in the chemical composition of these elements. The differences have been explored and thus may be used to establish the source of morphologically indistinguishable bone. (i.e. bone artifacts). Concentrations of these elements appear to be subject to postmortem alterations in at least some environments. Bone strontium is a sensitive indicator of diet and trophic position; however, the present study does not support this view. (44)

Weymouth, John W. (Nebraska) A MAGNETOMETER SURVEY OF SAKAKAWEA VILLAGE EARTH LODGES. The Knife River Indian Villages National Historic Site includes five prehistoric and historic Plains village traditional sites. As part of an archaeological assessment of this area, an extensive proton magnetometer survey was conducted for the National Park Service over various regions in the site in 1976. An analysis will be presented of one of these regions, the Sakakawea Village. Of particular interest is the possibility of a high density of prehistoric sites. The results will be compared with an elevation map of the visible house depressions. Ten obvious house depressions were confirmed, eight further houses not obvious from visual inspection were indicated, and at least one house clearly indicated by the survey had severe postdeposition at all. (29)

Whalen, Michael E. (Texas-El Paso) ASPECTS OF THE PITHOUSE-TO-PUEBLO TRANSITION ON THE PERIPHERY OF THE AMERICAN SOUTHWEST. Large-scale settlement pattern data is analyzed in consideration of some of the dimensions of the transition from pithouses to pueblos on the eastern periphery of the Southwest. This study views cultures as open systems, open to migration in relation with their environments. Individuals sites are thus components of the adaptive strategies within which these exchanges are made. Attention is given to processes of change in these adaptive strategies. Specific processes of change are: increasing numbers of parts of the system, increasing specialization, differentiation, and integration of these parts. (41)

Wheat, Joe Ben (Colorado-Boulder) BONE TECHNOLOGY AT JURGENS, Olsen-Chubbuck, and Little Box Elder Cave. The manufacture of bone tools was carried out with the use of stone tools, while bone tools were produced by controlled breakage. Percussion flakes and grinding were used to produce bone tools varied from locality to locality depending in part on the nature of stone tools of other usages. The tool frequencies between the three localities in the site. The Olsen-Chubbuck site produced one for bone tools. Degree of bone tool usage varied from locality to locality depending in part on the nature of stone tools of other usages. The tool frequencies between the three localities in the site. The Olsen-Chubbuck site produced one for bone tools. Degree of bone tool usage varied from locality to locality depending in part on the nature of stone tools of other usages. (13)

Whittaker, Gordon (Yale) FROM ZAPOTEC HIEROGLYPHICS TO THE MICTEC CODICES. The Mixtec scribal tradition has long been held to be an outgrowth of the Zapotec tradition. From the earliest inscriptions of Monte Alban to the Mixtec-derived codices of Oaxaca, evidence of the continuing influence of Zapotec is discerned in shape and style of glyphic and iconographic composition. This paper will illustrate the canonic historical perspective by tracing the stages in its evolution from Danzante and Conquest periods to the offerings of the Green Book, and finally to the codices of the 19th and 20th centuries. (48)

Whittelsey, Julian (Whittelsey Foundation) LOW-LEVEL AERIAL PHOTO PLATFORMS FOR RECORDING AND REMOTE SENSING IN ARCHAEOLOGY. The paper illustrates the use of aerial photographs and infrared photographs of ancient sites in the western United States over 60 sites in some 12 counties, including the United States, Mexico, and Peru. (24)

Whittelsey, Stephanie M. (Arizona) STATUS AND DEATH AT GRASSHOPPER PUEBLO: A THEORETICAL EXERUGATION. Much attention has been focused on inferring past behavior from material remains. Most crucial is the development of a tool kit adequate to the task. One important aspect is how past variables of interest may be inferred from material remains. Human burials and associated artifacts from Grasshopper Pueblo are used as a vehicle for assessing the construction of a theory useful for the inference of complex behaviors. (51)

Wilkes, Leslie E. (USDA Forest Service, A CASE STUDY OF THE BADGER-JORDAN PLANNING UNIT.Mt. Hood National Forest, Oregon, is a complex topographical, historical, and interview data were compiled by a three-member team in June 1976 to create a cultural pattern revealed over 20 previous years. The area is a known area on the east flank of Mt. Hood. This brief study reveals a complex pattern. (51)

Wilkie, Richard R. (Arizona) "TAKING THE PLUNGE," ESTIMATING POPULATION AT THE BASIS OF WATER RESOURCES. Food consumption and production has been a matter of concern for those who depend on the environment. Concern with population is a sensitive indicator of diet and trophic position; however, the present study does not support this view. (44)

Windmiller, Ric (see Eddy, F. W.) (19)

Wing, Elizabeth S. (Florida State Museum) DISPERSALS OF NATIVE DOMESTIC ANIMALS IN NORTHERN SOUTHERN AMERICA. Studies of faunal samples from Peru and Ecuador are beginning to reveal an outline of the sequence of events in the origin and
dispersal of domestic animals in northwestern South America. The major domesticates under consideration are camels, llama and alpaca, and guinea pigs. Evidence for two patterns of dispersal have emerged. Guinea pigs appear to have become domesticated in two areas, the highland valleys of central Peru and Colombia. Dispersal of guinea pigs to the Peruvian coast may have been as early as 2000 B.C., but they never became abundant. Dispersal into the highlands of Ecuador, into Venezuela and Caribbean Islands occurred between A.D. 800 and time of contact. Llamas and alpacas were first domesticated in the Puna region of the Central Highlands of Peru. Use of these animals spread early, about 3000 B.C., to the highland valleys. Dispersal to the coast of Peru was about 2000 years later. Spread in their use did not extend much beyond northern Ecuador until about A.D. 700. Dispersal south into Chile, Bolivia, and Argentina is not precisely known. (30)

Wood, Jon Scott (Arizona State) LAND-USE PLANNING AND REGIONAL RESEARCH POTENTIAL: THE APACHE-SITGREAVES EXAMPLE. During the past five years, members of the Chevelon Archeological Research Project have collected data on archaeological sites on the Apache-Sitgreaves National Forest, Arizona. Some of these data were gathered in the context of a preliminary cultural resource assessment for the purposes of land-use planning. Some data were gathered for pure research purposes. Similarities in the techniques of data collection and of data analysis in the pure research and the land-use studies are identified. The range of archaeological problems that can be pursued using these data bases is described. A critical question that arises from the land-use studies concerns the kinds of questions that can be answered on the basis of low-fraction survey samples. Responses to a series of questions employing successively large data bases are described. (50)

Workman, William B. (Alaska) THE SIGNIFICANCE OF VOLCANISM IN THE PREHISTORIC HISTORY OF SUBARCTIC NORTHWEST NORTH AMERICA. Cultural and environmental factors are to bear on the problem of the impact of past volcanic eruptions on the native cultures of northwestern Canada and the eastern Aleutian Islands. Events to be compared are the emplacement of the east lobe of the White River Ash ca. 1250 B.C. and several volcanic eruptions of historic and prehistoric times in the eastern Aleutians. We conclude that relatively frequent volcanic eruptions probably had only localized effects and that sometimes drastic consequences for maritime North Pacific hunting peoples while much rarer volcanic events in the more sparsely populated boreal interior may well have had more far-reaching significance. (1)

Wyckoff, Don G. (see Brown, J. A.) (25)

Yeates, David R. (Alaska-Anchorage) METHODS FOR ANALYZING PREHISTORIC BIOTIC POTENTIAL AND RESOURCE DEPLETION. Most human paleoecological research is presently being undertaken in a piecemeal fashion. There is an urgent need to systematize research procedures so that all major variables relating to human-environmental relationships are considered in each region of study. To this end, ten basic features of all natural populations are considered, and a number of general procedures appropriate to analyzing the effects of, and human effects on, each feature are presented. Illustrative data are drawn from recent faunal studies in southwestern Alaska. (5)

Yoffee, Norman (Arizona) THE DECLINE AND RISE OF MESOPOTAMIAN CIVILIZATION; AN ETHNOARCHAEOLOGICAL PERSPECTIVE ON THE EVOLUTION OF SOCIAL COMPLEXITY. Recent literature on the rise of civilization, both world-wide and area-specific, reflects near unanimity in sharing a conceptual paradigm of social evolution. Little progress seems to have been made, however, in developing tools to measure the differences between simpler and more complex societies and in ascribing the internal mechanisms of social change. It is argued that the evolutionary paradigm has clouded archaeologists from their goals. Examples of factors in the collapse of the Mesopotamian civilization are given in order to better formulate the issues with which archaeologists need to deal in approaching the dynamics involved in the rise of civilization. (20)

Young, Dennis (see Stark, B. L.) (23)

Zamencnik, Eleni Decima (see Richardson, J. B., III) (30)

Zeiderman, James A. (Illinois-Urbana) EARLY FORMATIVE SETTLEMENT IN THE CHANDUY VALLEY, SOUTHWEST ECUADOR. This paper presents findings of recent reconnaissance work carried out in the Chanduy Valley in conjunction with the Real Alto Archaeological Project. A total of 45 Early Formative sites have been located within a geographically “survey” area measuring roughly 600 sq. km. After thorough documentation certain limitations of the survey methodology, the distribution of Valdivia and Machalilla sites is discussed in terms of a linear pattern of riverside settlement by which alluvial bottomland was progressively controlled for agricultural purposes. (9)

Zevallos, C. (Universidad Estadal de Guayaquil) NUEVAS EXCAVACIONES EN CERRO SENTIPELA, A further analysis of the Cerro Sentinela chronology. Sentinela is an Early Valdivia settlement 32 km inland from the nearest seashore over the ample floodplain of the Atacovar River and gives further evidence of the agricultural orientation of the Valdivia people. (9)
Books in Anthropology

From the University of New Mexico Press and the School of American Research, Santa Fe, Douglas W. Schwartz, General Editor

To be published soon in the Advanced Seminar Series

THE ORIGINS OF MAYA CIVILIZATION
Edited by Richard E. W. Adams

An up-to-date summary of all the available evidence and recent theories about the origins and evolution of Classic Maya civilization, this volume explores the transformation of Maya culture from a village-oriented society to one centered on elite classes living in large civic centers with monumental architecture. The new insights and data presented here make this book indispensable for all students and practitioners of Mesoamerican archaeology. $20.00

EXPLANATION OF PREHISTORIC CHANGE
Edited by James N. Hill

It is an understatement to say that anthropologists have long been interested in explaining change. The contributors to this volume explore questions about the nature of change, such as “Can we predict when changes will take place and something about their probable nature and direction?” This useful and provocative book should pose questions for discussion and further research. $20.00 August

Announcing a new series: Southwest Indian Arts

The Southwest Indian Arts Series, being developed by the School of American Research, will document the full range of these arts in definitive richly illustrated books. The series will appeal to a large and quite varied audience of readers interested in Southwest Indian art and society, primitive art, and technical aspects of craft production. Each volume is by a qualified scholar.

MIMBRES PAINTED POTTERY
J. J. Brody, University of New Mexico

With 200 illustrations, this volume shows that Mimbres art played an integrative role for the Mimbres people by expressing their belief in the interrelationship of all things and the continuity between the living and the dead. The Mimbres people lived in small farming villages in what is now southwestern New Mexico from about 250 B.C. to about A.D. 1150. $22.50 June

University of New Mexico Press
Albuquerque 87131
a new series

Aldine Manuals on Archeology

Each book in this series will deal with a particular set of archeological remains providing sufficient descriptive detail to permit the professional and non-professional archeologist (and others interested in the particular subject) to identify and describe these materials in the most useful way possible.

**BASKETRY TECHNOLOGY**
A Guide to Identification and Analysis
by J. M. Adovasio
Provides the only comprehensive and succinct step-by-step guide to the technological analysis of the major types of basketry produced by the aboriginal inhabitants of the world.

June 1977 260 pages $12.50 cloth

---

Available Fall/Winter 1977

**HUMAN SKELETAL REMAINS**
Excavation, Analysis, Interpretation
By Douglas H. Ubelaker

**PREHISTORIC CORDAGE**
Identification of Impressions on Pottery
By William R. Hurley

From the World Anthropology Series*

---

**AFTER THE AUSTRALOPITHECINES**
Edited by Karl W. Butzer and Glynn L. Isaac
1975 911 pages $49.00

**LITHIC TECHNOLOGY**
Edited by Earl Swanson
1975 251 pages $27.50

**PALEOANTHROPOLOGY**
Edited by Russell H. Tuttle
1975 453 pages $29.50

**ORIGINS OF AFRICAN PLANT DOMESTICATION**
Edited by Jack R. Harlan, Jan M.J. De Wet and B. L. Stenler
1976 498 pages $32.50

**PREHISTORIC MARITIME ADAPTATIONS OF THE CIRCUMPOLAR ZONE**
Edited by William Fitzhugh
1975 405 pages $29.50

*published by Mouton Publishers, The Hague and distributed by Aldine in North America

ALDINE PUBLISHING COMPANY
529 South Wabash Avenue • Chicago, Illinois 60605
The MANAGEMENT
of ARCHEOLOGICAL
RESOURCES

THE ARLIE HOUSE REPORT
edited by Charles R. McGimsey III and Hester A. Davis

A Consideration of Law in Archeology
Cultural Resource Management
Guidelines for the Preparation and Evaluation of
Archeological Reports
The Crisis in Communication
Archeology and Native Americans
Certification and Accreditation

A special publication of the Society for American Archaeology, available from SAA Publications, 1703 New Hampshire Av NW, Washington, DC 20009. $3.00 per copy, prepaid.