Program and Abstracts

Society for American Archaeology

Thirty-Eighth Annual Meeting

San Francisco, California 3, 4, 5 May 1973
GENERAL INFORMATION

Registration A registration desk will be located in the French Parlor on the hotel's second floor from 5 p.m. to 9 p.m. on Wednesday, 7 May; 8 a.m. to 4 p.m. Thursday and Friday; and 8 a.m. to noon on Saturday. Registration includes a copy of the Program and Abstracts.

Advance Registration Members who pre-registered through the SAA executive office by 10 April should claim their badges and programs at the ADVANCE registration desk in the French Parlor.

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 next to the advance registration.

Membership Services and Publications A desk will be maintained from 5 p.m. to 9 p.m. on Wednesday, 8 a.m. to 4 p.m. Thursday and Friday, and 8 a.m. to noon Saturday in the French Parlor for those who wish to purchase publications or enroll in the Society.

Business Meeting The Society's annual business meeting will be held at 5 p.m. Friday, 4 May, in the Rose Room.

Open House A cash bar reception to which everyone is invited will be held from 6 p.m. to 9 p.m., Thursday, 3 May, in the Rose Room.

Luncheons Tickets for Archaeology in the Round, which will be held on Friday at noon in the Regency Room, may be purchased at the Advance Registration desk. Attendance is limited, and it is recommended that reservations be made early.

Lounge and Snack Bar The Royal Suite, on the second floor, has been set aside as an informal meeting place from 9 a.m. to 5 p.m., Thursday through Saturday. Sandwiches and beverages may be purchased from a snack bar which will be open in the Royal Suite from 10 a.m. to 6 p.m., Thursday through Saturday.

Program Committee Members of the Committee will be available in the Sierra Room.

Message Center A self-service message center will be located in the French Parlor throughout the meeting. Please check the board frequently.

Exhibits Publishers' exhibits will be on display in the lower lobby of the French Parlor from 8 a.m. to 5 p.m. on Wednesday, and 9 a.m. to 5 p.m. Thursday, Friday, and Saturday. Participating exhibitors include American University Press Services, Seminar Press, University of Texas Press, and Warner Modular Publications.

Baby Sitting A baby sitting service is available through the Bristol Agency at 776-9100.

Directory of Hotel Restaurants and Lounges
Garden Court: main dining room, 7 a.m. to 9:30 p.m.
Tudor Room: cocktails and dinner-dancing, 11:45 a.m. to 2 a.m.
Minute Chef: breakfast, luncheon, dinner, 7 a.m. to midnight
Happy Valley Bar: 11 a.m. to 1 a.m.
Blum's Coffee Shop: breakfast, luncheon, dinner, 7 a.m. to 8:30 p.m.

NOTE TO PARTICIPANTS FROM THE PROGRAM COMMITTEE
It would appear that this year's meeting is going to be an exceptionally exciting, intellectually stimulating, and large meeting. This program reflects our efforts to schedule with a minimum of theoretical, regional, and personal conflicts, the sessions and symposia. The final program contains corrections from the large amount of mail we have received. The SAA has developed a large number of guidelines for the Society's meetings. We felt it was neither our role, nor did we have the resources to act as policemen, but we wish to thank the large number of participants who followed these guidelines. We hope you enjoy the meetings and San Francisco.
PROGRAM
THURSDAY MORNING, 3 MAY

(1) Symposium: ECOLOGICAL ANTHROPOLOGY
Rose Room
8:30 - Organizers and Chaired by: Olga S. Puleston, Richard Blanton
12:00 - Participants:
      Daniel Bates, Production and Population Among Nomadic Herders
      William Iorns, Social Convention and Population Dynamics Among the Yomut Turkmen of Northern Persia
      Susan Lees, Irrigation, Ecological Feedback, and Political Development
      Richard Blanton, A Systemic Approach to the Relationship Between Population Growth and Socio-Cultural Change
      Robert Sussman, Preagricultural Mobility—A Factor Limiting Growth in Human Populations
      Thomas C. Greaves, The Ecology of Uncertainty: Response to a Disastrous Flood by an Agrarian Andean Community
      Claire Cassidy, Nutritional Differences Between Hunting-Gathering and Sedentary Agricultural Populations in the Eastern Woodland Region of North America
      Ellen Messer, Sown and Unsown: Aspects of Productivity in Agricultural Systems in the Valley of Oaxaca, Mexico
      Olga Puleston, Cultural Variability as an Adaptive Factor in the Lowland Maya Area
      Dennis Puleston, The Manipulation of Environmental Variables by Human Populations and Significance Thresholds
      Daniel Gross, Carrying Capacity and Population Dynamics in the Amazon Basin—An Alternative View

(2) Symposium: LITHIC TECHNOLOGY SYMPOSIUM: DEBITAGE ANALYSIS
Bonanza Room
8:30 - Organizer and Chaired by: Harry J. Shafer
12:00 - Participants:
      Michael B. Collins, Ethnography and Experimentation in the Study of Archaeological Lithic Debitage
      Pavson D. Sheets, The Two Chipped Stone Industries of Barriales, Western Panama
      Harry J. Shafer, Debitage Analysis and Reduction Systems at the George C. Davis Site, Texas
      Paul R. Katz, The Lithic Technology of a Ceramic Complex
      Carl J. Phagan, Lithic Debitage Analysis, the Ayacucho Valley, Peru
      Guy Muto, Attributes of Technology vs. Artifacts of Culture
      Barbara A. Purdy, The Arrowhead Factory Site (MR 122), Marion County, Florida
      George C. Frison, Practical Considerations in the Analysis of Tool Use
      Daniel Stiles, Assessment of Similarities and Dissimilarities in Lithic Assemblages: MNK Chert Factory Site and HWK East at Olduvai Gorge, Tanzania
      Kenneth D. Williamson, Edge Damage to Unmodified Stone Flakes: A Quantitative Approach

(3) Symposium: DATA BANK AND RELATED USES OF COMPUTERS IN ARCHAEOLOGY
Regency Room
9:00 - Organizer and Chaired by: Frank B. Fryman, Jr.
12:00 - Participants:
      Frank B. Fryman, Jr., Data Banks on the State Level with Proposed Federal Coordination of Various Programs
      Sylvia W. Gaines, A Pragmatic Approach to Archaeological Data Banks
      Charles W. McNett, Jr., Regional Data Banks for Cooperative Research: The Potomac River Example
      James A. Brown, An Application of a Specialized Data Bank for Analysis and Information Retrieved in the Field
      Dee F. Green, Data Banks and Specific Research Design: The SARG Example
      Sandra Scholtz and Robert G. Chenhall, Networks of Archaeological Data Banks
      Cynthia Irwin-Williams and Paddy Clarke, The Development of a System of Data Recording, Storage, and Retrieval for the San Juan Valley Archaeological Program
      George L. Cowgill, Data Banks and Statistical Analysis
      Discussant: Robert G. Chenhall

(4) Symposium: HOLOCENE CLIMATIC CHANGE IN THE GREAT BASIN: PRESENTATION OF REGIONAL SEQUENCES
English Room
9:00 - 12:00
Organizers: Don Fowler, Robert Eiston
K. T. Harper, Climates of the Last 10,000 Years in the Northeastern Great Basin as inferred from Cultural Deposits in Caves.
B. W. Butler, Late Glacial and Post Glacial Fluctuations in the Carrying Capacity of the Sage-Brush-Grass Region of Eastern Idaho.
Donald K. Grayson, The Nightfire Island Avifauna and the Altithermal.
Discusants: Don Fowler, Heralda E. Kliendorf, Vance Haynes.

(5) General Session: MESOAMERICAN CERAMIC ANALYSIS
Comstock Room
Chair: T. Patrick Culbert
Participants: T. Patrick Culbert, Vessel Shape in Ceramic Analysis.
J. Guirante, Zapotec and Mayan Traits in Teotihuacan III Pottery.
L. E. J. Rice, The Mound Site of Teotihuacan. Does it have a Mixtec or Zapotec Pottery.
D. H. Rice, The Mound Site of Teotihuacan. Does it have a Mixtec or Zapotec Pottery.
R. E. Fry and Scott C. Cox, Late Classic Pottery Manufacture and Distribution at Tikal, Guatemala.
Michael J. Snarski, Pilot Study of Ceramics from Cerro Chivo, Acmaba: A New Site in Western Mexico.

(6) Panel Discussion: ARCHAEOLOGY IN THE 70's—MITIGATING THE IMPACT
California Room
Chair: Carl Chapman
Panel #1: Archaeology and the Law
Chair: Charles R. McGimsey III
J. Hester, John Music, and Marvin Wolf, Questions and Answers on What is Legal and What is Possible at the State and Local Level in Preserving and Protecting Archaeological Resources.
Panel #2: Approaches to Mitigating the Impact of Recent Archaeological Legislation on Archaeological Resources and on Archaeologists
Moderator: Hester A. Davis
Participants: Tom King, California's Approach to State and Federal Laws.
David S. Dibble, Approaches to Determining Cost in Preparing Archaeological Information for Environmental Impact Statements.
Panel #3: Moderator: Rex Wilson
Participants: Ray Thompson, Bill Haag, Mike Fowler, Don Lehmer, Curtis Tunnell, Marian White, Mike Morato.

(7) General Session: NORTH BY NORTHWEST
Golden Gate Room
Chair: Edwin S. Hall
Robert F. Black, Late Quaternary Geomorphic Events Related to Paleo-Aleutian, Umnak Island, Alaska.
John Aigner and Douglas Veltre, Umnak Burials from Southwestern Umnak Island, Alaska.

8:00 - 10:00
W. B. Workman, Dated Traces of Early Holocene Man in Southwest Yukon, Canada.
W. N. Irwin, Some Implements from Old Crow Flats, Y.T.
Ann Moseley-Erwin et al., Road Fryxell, Carl Gustafson, Henry Irwin, and Guy Muts, Interdisciplinary Investigations at the Lind Couler Site, Grant County, Washington.
Ed Clewett, A Preliminary Report on an Early Archaic Site in Northern California.

SPECIAL SESSION: CULTURAL ECONOMICS AND ANTHROPOLOGICAL ARCHAEOLOGY
Forty-Niner Room
Chair: Arthur Saxe
Participants: Arthur Saxe, Cultural Economics and Anthropological Archaeology.
Lou Binford, Minimizing Labor in Response to Stress.
Donald B. Hays, Testing Economic Hypotheses in Archaeology.
Discusants: Kent Flannery.

THURSDAY AFTERNOON, 3 MAY
9:00 - 5:00
Symposium: THE GREAT AMERICAN DREAM MACHINE: ARCHAEOLOGISTS IN THE WORKS
Rose Room
Chair: William L. Rathje, J. Jefferson Reid, Michael B. Schiffer
Robert L. Shuyler, Pre- and Post-Industrial Society and Archaeology as the Science of Material Culture.
Mark P. Leone, Material Culture in American Utopias.
Michael B. Schiffer, Undergraduate Contributions to Modern Material Culture Studies.
Frederick Gorman and William L. Rathje, Beef and Booze II: Demography of Food Consumption in an Urban Environment.
Donald E. McVicker, Pots—Past and Present.
Discusants: Raymond H. Thompson.

Symposium: ISLAND ADAPTATION: CURRENT RESEARCH IN HAWAIIAN ARCHAEOLOGY
Bonanza Room
Chair: H. David Tuggle, William K. Kikuchi
Participants: William K. Kikuchi, Prehistoric Hawaiian Aquaculture.
H. David Tuggle, Introductory Remarks and Models of Agricultural Growth in Island Environments.
Patrick V. Kirch, Early Settlement and Problems of Adaptation in Hawaii.
Farley Watanabe, Varieties of Irrigation Complexes in Winward Kohala, Hawaii.
T. H. Earle, Hawaiian Irrigation in the Hailua District, Kauai.
Dennis Callan, Settlement Patterns in Hawaiian Valley Environments.
Kenneth Moore, Natural Environments and Social Boundaries in Hawaii.
Ed. J. Ladd, Archaeology in Arid Environments: National Park Service Archaeology in the Fiftieth State.
Paul Rossendahl, Aboriginal Agriculture and Residence in Upland Lapakah, Island of Hawaii.
Michael Kaschko, Trail Systems and Boundaries in Leeward Kohala, Island of Hawaii.
Thomas J. Riley, Agricultural Archaeology in Hawaii: Problems and Prospects.
Robert J. Hommon, Archaeology by and the Primitive State: The Hawaiian Exemple.
Discussion: Ezra Zubrow, Edwin N. Ferdon, Dick Ford.

Symposium: ARCHAEOLOGY AND EDUCATION
Regency Room
Chair: Lilliya Bergs, John M. Hartman
Participants: Hoster Davis, Training Amateur Archaeologists and Public Relations.
(12) Symposium: HOLOCENE CLIMATIC CHANGE IN THE GREAT BASIN: CORRELATION OF REGIONAL SEQUENCES AND REEVALUATION OF PREVIOUS CLIMATIC MODELS

English Room
2:00 - Organizers: Robert Elston, Don D. Fowler
5:00 - Chaired by: Robert Elston
Participants:
James A. Young, Raymond A. Evans, and Paul T. Tueller, Great Basin Plant Communities: Pristine and Gated
Don D. Fowler and Harold Killeforth, Holocene Climatic Change in the Great Basin
Peter Mehringer, Claude M. Warren, and Austin Lang, Dune Chronology, Occupancy, and Resources, Amargosa Desert, Nevada
David B. Madson, Pluvial-Post Pluvial Vegetation Changes in the Southeastern Great Basin
G. F. Fry and J. M. Adovasio, Human Adaptation During the Allertal in the Eastern Great Basin
Discussions: Don D. Fowler, Vance C. Haynes, Harold E. Killeforth, James A. Young

(13) General Session: SETTLEMENT PATTERNS AND ARCHITECTURE IN MESO-AMERICA

Comstock Room
2:00 - Chaired by: James A. Neely
Participants:
Robert E. Greeno, Settlement Pattern Survey in Northeastern Guerrero, Mexico
Prentice M. Thomas, Settlement Pattern Survey at Becan, Campeche, Mexico
Melvin L. Fowler, The Late Preclassic of the Valley of Puebla: Settlement Systems, Land Use, and Urbanism
James A. Neely and Michael J. O'Brien, Irrigation and Settlement Nucleations at Monte Albán: A Test of Models
David F. Potter and Joseph W. Ball, Preclassic Architecture at Becan, Campeche, Mexico
Rosemary Shara, Architecture as Inter-Kite Communications in Pre-Conquest Veracruz, Oaxaca, and Yucatan
David S. Hyman, Prehispanic Mesopotamian Cemeteries
Dwight T. Wallace and Robert M. Carmack, Style and State in Peru—A Suggested Structuralist Approach
Discussion

(14) Symposium: FEDERAL ARCHAEOLOGY: THE PUBLIC WORKS PROJECT OF THE DEPRESSION YEARS

California Room
2:00 - Organizer: Ernestine S. Elster
5:00 - Chaired by: James B. Griffin
Participants:
Ernestine S. Elster, Why Look Backward?
James B. Griffin, A Review of the Significance of Federal Programs in Archaeology
Preston Holder, Home Space, Will Travel: The Archaeologist as Migratory Worker
Jesse D. Jennings, Public Works Archaeology in the Southeastern United States, 1933-1941
Franklin Fonerge, Public Works Archaeology in California and Nevada
William G. Haag, The Tennessee Valley Authority Archaeological Program
Stuart Struever, Modern Archaeological Research Strategies Through the Perspective of W.P.A. Archaeology
Discussions: Douglas Osborne, John L. Cotter, Arthur Kelly

(15) Symposium/General Session: PALEO-INDIANS IN THE GREATER SOUTHWEST

Golden Gate Room
2:00 - Chaired by: Emma Lou Davis
5:00 - Participants:
Emma Lou Davis, Hunting, Work, and Living Practices of Early Americans
Alan C. Ziegler, Richard H. Brooks, and Sheila Brooks, Early Faunal and Cultural Correlations
Frank J. Findlow, Suzanne P. DeAtley, and Jonathan Ericson, A Tentative Hydration Rate for the Obsidian from the Borax Lake Obsidian Source
George T. Jefferson, A Reexamination of the Pinto Basin Site

THURSDAY EVENING, 3 MAY

OPEN HOUSE
Rose Room 8:00 No Host Bar
SOCIETY FOR CALIFORNIA ARCHAEOLOGY 7:30 Comstock Room Business Meeting
FRIDAY MORNING, 4 MAY

(17) General Session: GENERAL THEORY AND ETHNO-ARCHAEOLOGY

Rose Room
9:00 - Chaired by: Walter W. Taylor
Participants:
Robert C. Dunnell, The Normative Straw Man: An Oblique Defense?
Walter W. Taylor, Archaeological Typology and Paleo-Psychology: A Reply
C. William Clelauw, Jr., Paleo-Indian Prehistory and the Origin of Language
Margaret Kimball Brown, The Application of a General Systems Model to the Study of Culture Change
Richard A. Gould, Continuous and Discontinuous Models in Ethno-Archaeology
Blon P. Griffin, Hunters in the Humid Tropics: Ethno-Archaeology of Ebubul Agla
Michael B. Stanislawski, Ethno-Archaeology and Settlement Archaeology
Discussion

(18) General Session: INTERPRETATIONS OF SOCIAL AND DOMESTIC ACTIVITIES

Bonanza Room
9:00 - Chaired by: William Longacre
Participants:
Jerry V. Jordan, A Condensation of Computer Methods in the Study of Prehistoric Community Pattern Structure
Richard S. Ciolek-Torrello and J. Jefferson Reid, Prehistoric Social Change: A southwestern Case
Meade Kenner, The Developmental Cycle of Domestic Groups in a Prehistoric Pueblo Community
James T. Rock, The Construction Unit in a Prehistoric Pueblo
Michael D. Mauer, Structural Analysis of High Status Burials from the Prehistoric Southwest
Patrick C. McCoy, The Household Unit in the Easter Island Settlement Pattern
Frederick W. Lange, Slave Mortuary Practices on Barbados
Carole L. Crumley, An Exercise in Paleo-Ethnography
Stanley Olsen, Introduction of Domestic Animals into the Southwest
FRIDAY MORNING AND AFTERNOON, 4 MAY

(22) Symposium/General Session: SAMPLING IN ARCHAEOLOGY
California Room
A.M.: Organizer and Chaired by: James W. Mueller
Participants:
  Robert G. Chenhall, A Rationale for Archaeological Sampling
  Michael B. Collins, The Sources of Bias in Processual Data: An Appraisal
  Robert A. Benfer, Iterative Detection of Case and Variable
  Dwight W. Read, Regional Sampling
  David Hurst Thomas, The "How," "Why," and "Should-have-been" of Sampling
  W. James Judge, James I. Ebert, and Robert K. Hitchcock, Transect Sampling in Regional Archaeological Survey
  Richard G. Matson and William D. Lipe, Regional Sampling: A Case Study
  Craig Morris, Sampling Problem in the Excavation of an Urban Site: The Case at Huanuco Pampa
  James A. Brown, Deep Site Excavation Strategy as a Sampling Problem
  James W. Mueller, Archaeological Research as Cluster Sampling
  David L. Asch, Some Problems in Geophysical Archaeology
  Charles L. Redman, Productive Sampling Strategies for Archaeological Sites
  Arthur M. Rohn, How Well We Sample Archaeological Sites
  Edward B. Jess, The Use and Misuse of Random Sampling in Archaeology
  David R. Wilcox, Sampling Pueblos: The Problem of Comparability
  Discussants: George Cowgill, Lewis Binford

FRIDAY AFTERNOON, 4 MAY

ARCHAEOLOGY IN THE ROUND: AN EXPERIMENTAL LUNCHEON
Regency Room
1:00–1:30: Informal discussion at tables for eight. Hosts are Lewis Binford, James Griffin.
1:30–2:00: James N. Hill, Raymond Thompson, Richard Woodbury

(23) General Session: SETTLEMENT PATTERNS AND ADAPTATIONS
Rose Room
A.M.: Chaired by: Donald A. Graybill
Participants:
  Robert Gibson, Monarch Meadows and Cold Air Drainage - A Hypothesis
  Frank W. Eddy, Pueblo Settlement and Adaptations in the Upper San Juan Basin of New Mexico and Colorado, A.D. 1-1125
  John E. Rice, Subsistence and Settlement Patterns of Early Masonry Hamlets - Mogollon Tradition
  Donald A. Graybill, Prehistoric and Locational Analysis in the Mimbres Region, New Mexico
  Bruce Dickson, Locational Analysis of Prehistoric Settlement on the Duck River in Middle Tennessee
  Jon Muller, Late Mississippian Settlement in the Kentucky Area
  S. Alan Skinner, Burned Rock Middens and Prehistoric Settlement Patterns
  William S. Dancey, Riverine Period Settlement and Land Use Pattern in the Priest Rapids Area, Central Washington
  David R. Yesner, Aleutian Subsistence-Settlement Systems: The Southwest Unmakk Focus
  E. Gary Stickel and Rainer Berger, A Spatial and Chronological Analysis of Neolithic Settlements in the Alpine Foreland of Switzerland

(24) Symposium: COMPUTER SIMULATION STUDIES IN ARCHAEOLOGY
Bonanza Room
A.M.: Organizer and Chaired by: David H. Thomas
Participants:
  A. J. Aamot and L. L. Cavalli-Sforza, A Simulation Study of Bandkeramik Settlement Patterns
  R. Bettarel and R. Schwartz, Demography and Early Man in the Americas: A Computer Simulation Model of Population Growth and Dispersal Relating to Man's Entry into the Americas
  L. S. Cordell, Simulating Wetterli Mesa Settlement Pattern Changes: A Discussion of General Implications
  T. E. Downing and H. A. Luebbermann, Will Computer Simulations Improve Archaeological Theories?
  C. Shaffer, Food Procurement in a Semiarid Plain: A Programmed Model
  H. M. Webst, Neolithic Population, Settlement, and Activity Patterns
  H. T. Wright and M. A. Zeder, The Simulation of Linear Reciprocal Trade System Under Equilibrium Conditions
(26) General Session: ANALYSIS OF MATERIAL CULTURE METHODS AND INTERPRETATIONS

English Room

Chairperson: J. M. Adovasio

Participants:

1:10
Thomas G. Cook, Structural Comparison of Artifact Collections: The Discovery of Behavioral Systems in Settlement Systems

2:00
Mary McCutcheon and Morgan J. Tampin, Computer-Generated Keys for Ceramic and Lithic Typologies

2:10
Richard W. Keatings, Chimu Ceramics from the Moche Valley, Peru: Attribute Analysis as a Basis for Seriating Domestic Pottery

3:10
Allison C. Paulson, Similarty Seriation and the Type-Style Concept: An Empirical Comparison of Two Methods of Ceramic Analysis

3:20
Michael D. Mau and John P. Molloy, A Comparative Study of Four Southwestern Polychromes

4:10
William M. Hurley, Multivariate Analysis of Orr Focus Ceramics

4:20
Paula H. Kroiter, Examples of the Use by an Archaeologist of Her Ethnographic Studies of the Technology and Sociology of Mexican Village Potters

4:30
Joanne M. Mack, Implications of "Shield Figures" from the Big Horn Mountains of Wyoming

4:40
J. M. Adovasio, The Evolution of Basketry in Prehistoric Mexico

4:40
Verla Berkeley, Seven Independent Aspects of Color

(27) Symposium: THE RISE AND FALL OF THE CENTRAL MEXICAN CLASSIC

Comstock Room

1:00
Organizers and Chairperson: Joseph B. Mountjoy, Donald L. Brockington

Participants:

1:10
Donald L. Brockington, The Development of the Classic on the Oaxaca Coast

2:10
Richard A. Dieth, Tula and the Collapse of the Mesoamerican Classic

3:10
Charles Kelley and Ellen A. Kelley, The Rise and Fall of the Classic as Seen from the Northwestern Frontier of Mesoamerica

4:10
Jaime Ludiv-King, The Rise and Fall of the Classic at Xochicalco

5:10
Joseph B. Mountjoy, The Collapse of the Classic at Cholula as Seen from Cerro Zapotecas


Jeffrey R. Parsons, The Rise and Decline of Classic Teotihuacan: Some Implications of Changing Regional Settlement Patterns in the Valley of Mexico

Evelyn C. Rattray, Ceramic Evidence on the Collapse of the Classic at Teotihuacan

Michael N. Spence, The Development of the Classic Period Teotihuacan Obsidian Industry

Warren Barbour, The Role of Religion in the Fall of Teotihuacan

(28) General Session: NEW PARAMETERS IN APPLIED ARCHAEOLOGY

Golden Gate Room

Chairperson: Paul Schumacher

Participants:

1:20
George J. Cumerman, The Reconciliation of Theory and Method: The Role of Salishan Prehistory

2:20

3:20
Jon Nathan Young, Inventory of Archaeological Resources and Entries into the National Registry of Historic Landmarks

3:30
Richard Brooks and Shelagh Brooks, Excavation by Request: Archaeological Recovery of Pioneer Burials

3:40
R. A. Symes and George H. Abrams, Custer Died in Vain: The Archaeologist and the Indian Today

Discussion

(38A) General Session: ARCHAEOLOGY: THE DISCIPLINE AND ITS VARIETY

Forty-Niner Room

Chairperson: Christopher Drover

Participants:

9:40
Jean S. Blumberg and Bruce Fullem, Sandy Beach Bay, a 4300-5600 B.P. Aleut Village

10:00
Christopher E. Drover, Early Ceramics from Coastal Southern California

10:20
William R. Davis, The Twentieth Century Prehistoric Mining of Great Plains Bluff Sites

10:40
Ray T. Matheny, The Meander "Fortress" of Edna, Campeche, Mexico

11:00
Donald W. Forsyth, Ceramic Stratigraphy and Occupational Sequence at Edna, Campeche, Mexico

11:20
Forrest Richard Hauck, The Preclassic Hydraulic Complex at Edna, Campeche, Mexico

11:40
Larry D. Able, The Hudson-Meng Paleoindian Bison Kill, Northwestern Nebraska: An Analysis After Two Field Seasons

SATURDAY AFTERNOON, 5 MAY

(38B) Symposium: RECENT STUDIES OF CORE AND BLADE TECHNOLOGY

Rose Room

2:00
Organizer and Chairperson: Thomas Roy Hester

Participants:

2:10
Dane C. Crabtree, Experiments in Mesoamerican Core Preparation and Traction Techniques

3:10
Jeremiah F. Catlin, Aztec Core-Blade Technology

3:20
Thomas R. Hester, Technological and Functional Analyses of Obsidian Artifacts from Southern Mexico

3:30
Dan F. Morse, The Cahokia Microlith Industry

4:00
Buck R. Murdock, Levallois Blades in the Old and New World

Jean Pitzer, A Microlithic Industry from the Channel Islands, California

Irwin Rovner, Technology and Typology of the Obsidian Industry at Mayapan

4:30
Dana W. Ahlers, Prehistoric and Protohistoric Analysis of Obsidian from Prehistoric Tula

Lawrence H. Feldman, A Tale of Two Stones: Flint and Obsidian in the Ethnology of Mesoamerica

(39) General Session: ARCHAEOLOGICAL METHODS

Bonanza Room

Chairperson: Antoniette White

Participants:

2:20
Jonathan E. Reynard, Archaeoastronomical Fieldwork

2:40
Peter P. Pratt, A New Technique for In-Site Mapping

3:00

3:15
Louis James Tortilla, Infrared Archaeology

3:30
Harold F. Turnbull and R. E. Taylor, Radiocarbon Dating of Fossils by Amino Acid Analysis

4:00
Antoniette White and Roger Goss, Application of Fourier Series to the Time-Area Archaeological Analysis

4:20
Leslie E. Skidmore, A Quantitative Factorial Model for Archaeological Site Development

4:40
George B. Thomas, Demonstrating the Pot Hunter Factor: Uncontrolled Selective Treasure Hunting, and Controlled Surface Collection Near Milla, Oaxaca

(40) General Session: INTERSOCIETAL CONTACTS

Regency Room

Chairperson: Alice Keohoe

Participants:

2:00
Chris White, Methodological and Technical Problems Involved in the Analysis of Patterns of Prehistoric Warfare

2:20
Carol M. Hubbard and John P. Molloy, Political and Economic Institutions in Late Postclassic Southern Mesoamerica

2:40
John B. Townsend, Eighteenth and Nineteenth Century Eskimo and Indian Movements in Southeast Asia

3:00
Alice B. Keohoe, Derivation and Testing of a Model of Culture Contact from an Eighteenth-Century Fur Trade Post

3:20
Yoshikiko H. Sinoto, Polynesian Occupation on Pictarn and Henderson Islands, Southeast Pacific

(41) General Session: ECOLOGY, RESOURCES, AND SUBSISTENCE

English Room

Chairperson: John M. Fritz

Participants:

2:20
Morgan J. Tampin, Land-Inventory Resource Data for Archaeological-Environmental Reconstruction
3:00 Karen Olsen Bruhns, Absolute Dates for the Quimbaya Culture of Central Colombia
3:30 Akkarajal Sarma and Barry R. Bogin, Climatic and Botanical Observations from South Coastal Ecuador
4:00 Evelyn S. Kessler, Ceramics from the Tolas of Otavalo, Ecuador
4:15 Paul P. Ossa, Quiriquiuac Shelter: Dating the Paipa Lithic Complex in North Coastal Peru
4:30 James S. Kus, Chimú Irrigation at the Quebrada de Oso Site, North Coast Peru
ABSTRACTS OF ORGANIZED SYMPOSIA

Note that not all symposia have abstracts nor do any general sessions.

(1) ECOLOGICAL ANTHROPOLOGY. There are 2 main objectives for this symposium. The first is to determine how components of the behavioral repertoire of a particular population interplay with non-cultural as well as other cultural elements within the ecosystem. Ideational and other "social" or "cultural" elements can be variables in function with other variables; as has been demonstrated by the recent emphasis on ecological and regulatory mechanisms must be capable of maintaining and reestablishing appropriate relationships if the system is to persist. When the operation of these mechanisms fails, evolution may be said to occur. This symposium will explore the processes of stability and change and the role cultural factors play in them.

(2) LITHIC TECHNOLOGY SYMPOSIUM: DEBITAGE ANALYSIS. This symposium session will present a selection of papers devoted to the topic of lithic debitage analysis. Emphasis on lithic technology in the past decade has focused chiefly on analyzing finished tools, recognizing reduction techniques, and experimental studies aimed at replicating prehistoric tools and wear patterns. Recent studies of debitage have brought to light the data potential. It is the purpose of this symposium to bring together studies illustrating some of the kinds of information that can be gained through debitage analysis.

(3) DATA BANKS AND RELATED USES OF COMPUTERS IN ARCHAEOLOGY. During the last several years SAA meetings, there has been an increasing number of papers on the uses of computers in archaeology, but usually scattered almost randomly throughout the meetings in various sessions. Some have been on archaeological data banks, while others have been on other uses of computers in archaeological research. Now, it is time to have a session devoted to using computers in archaeology. This suggested symposium is emphasizing the role of archaeological data banks since they are seemingly attracting considerable attention among archaeologists today and are relevant to almost any purpose. The general reaction to this symposium is to present some of the different ways in which data banks are being used by archaeologists around the country and to suggest other possibilities and future goals.

(4) HOLOCENE CLIMATIC CHANGE IN THE GREAT BASIN: PRESENTATION OF REGIONAL RESULTS. Several recent archaeological research projects have employed paleo-climatic reconstructions which, although based on different kinds of data gathered from different parts of the Basin, are quite similar. The study seems ripe for an archaeology raise questions of urgent relevance. What is left to do? How much time remains? Who will undertake the studies? How can we pay for them? How do these questions relate to anthropology in general? Representatives from the various regions will explore these topics and discuss mechanisms and approaches by which solutions can be found and implemented.

(5) THE GREAT AMERICAN DREAM MACHINE: ARCHAEOLOGISTS IN THE WORKS. For the past decade the discipline of archaeology has been in a state of flux and ferment over issues of epistemological goals and relevance, accountability, and purpose. We archaeologists must reexamine our role as archivists and study the material culture in modern human behavior. Archaeology can build on its core of method and theory and study material culture and its behavioral correlates in any cultural setting.

(6) ISLAND ADAPTATION: CURRENT RESEARCH IN HAWAIIAN ARCHAEOLOGY. During the past several years Hawaiian archaeological research has concentrated on patterns of adaptation to island environments. The extensive remains of agricultural systems, in particular, have been the subject of several studies. The results of this research by emphasizing development and change in agricultural and residential systems, resource intensification, and social boundaries and complexity. The theme of island adaptation provides the basis for arguments of relevance to larger anthropological problems, such as expansion into inhabited environments, population growth and resource use, and the elaboration of social stratification.

(7) ARCHAEOLOGY AND EDUCATION. The topics under consideration are specific to relevance to archaeologists in public positions such as those working in museums and on salvage and survey work. Proper education in archaeology has often been restricted to academic programs and the public and special interests. The critical state of American archaeology and its fate depend on, to a great extent, on an educated, public informed legislators and industrial managers, and on cooperation with local communities. The symposium is designed to cover several aspects of public education and their attendant problems.

(8) HOLOCENE CLIMATIC CHANGE IN THE GREAT BASIN: CORRELATION OF REGIONAL SEQUENCES AND REEVALUATION OF PREVIOUS CLIMATIC MODELS. An important component in the understanding of recent climatic sequences presented in the previous symposium, as well as comments on the implications of the data in terms of their particular specialties; vegetation, geomorphologic, paleopedologic, and, weather systems and, other systems, and data from the floor will be called for, after which the panel, the participants of the previous symposium, and those in general attendance will engage in free discussion. The proceedings will be taped.

(9) FEDERAL ARCHAEOLGY: THE PUBLIC WORKS PROJECTS OF THE DEPRESSION YEARS. It is over 40 yr since shovelers were handed to participants in the first publicly funded projects in archaeology organized as a response to the unemployment of the Depression. Among these were the PWA, CCC, NCA, WPA and TWA. This paper will examine the following issues: what was probably the first publicly funded salvage archaeology, the symposium will cover the history of the public works projects; how archaeology came to be incorporated; how projects were selected, organized, funded, published. Discussion will include a consideration of the goals of this research and whether participants believed these were reached. The effect of "New Deal" archaeology on subsequent American research (i.e., the development of excavation, research design, periodization, analysis, etc.) will be discussed.

(10) PALEO-INDIANS IN THE GREATER SOUTHWEST. Information has been steadily accumulating. Paleolithic faunal remains are being organized to exchange and synthesize data. The time is now ripe for a symposium of experts to discuss and codify problems; procedures and theories pertaining to the description of site materials. This symposium will contribute significantly to knowledge of early hunter-gatherers in the New World.

(11) HISTORIC INDIANS OF FLORIDA AND SOUTHEASTERN GEORGIA: ETHNO-HISTORICAL-ARCHAEOLOGICAL CORRELATIONS. Changes in aboriginal southeastern population patterns are only one aspect of the situation for the study of rapid culture change occurring through contact between western cultures and non-western, (derived), non-white cultures. Because such contact situations are widespread, this study of the impact of contact on cultural diffusion in the Southeast has been conducted in a manner which suggests that the results are not unique to any particular area. The project has resulted in a large number of data, which are being analyzed to form the foundations for a model of Southeast European-Indian contact situations and to test hypotheses with archaeological methods. Likewise, the scope of the project is intended to allow general methods to be tested. Thus, the symposium will include papers on: (1) ethno-historical investigation of rapid change; and (2) demonstrate which archaeological artifacts and features represent realistic tests and approaches to future studies.

(12) FUNCTIONAL ANALYSIS OF STONE TOOLS. The aims of the symposium will be to similar to those of the symposium held at the SAA meeting held in Miami. Discussion will center on (1) the mechanics of flaking stony bone by percussion and pressure, and the application of these principles to the study of edge damage on stone tools; (2) experiments on the production of edge damage on stone flakes by various activities; (3) the current and status of functional analysis of stone tools.

(13) PREHISTORIC RAW MATERIAL TRADE AND ARCHAEO-ECONOMIC PROCESSES. Recently, archaeologists have devoted a great deal of attention to the problem of determining prehistoric trade through their contributions to the study of materials and artifacts within archaeological sites. The value of this archaeological research is that it provides an opportunity to study the broad economic processes that are important in prehistoric societies. The archaeologist is provided with a record which reflects the repeated phenomena of socio-economic interaction, although the archaeological research remains to be determined. Although much work has been done, economic theory has been debated up until now, it is hoped that this symposium will serve as a stage in its development.

(14) NARRATIVE SCENES IN MESOAMERICAN ART: A SOCIO-CULTURAL PERSPECTIVE. Participants in the symposium will discuss the scenes and the potential of the use of a socio-cultural framework to understand the figures and scenes portrayed in pre-Columbian art. Some of the figures and scenes portrayed seem to represent historical events. For these
pictures to convey information about the individuals and/or the events taking place, there must be visual signals or cues that identify the individuals' position in the socio-cultural universe. These visual signals are usually found in items of dress, hair style, ornament, and ethnic stereotypes. The symposium papers will be oriented around the application of the socio-cultural framework to different art media in Mesoamerica. Each paper will be concerned mainly with 1 medium and 1 stylistic zone. They will deal with the socio-cultural information obtainable on one or more level (individual, group, society). They will assess how useful this is in the different media and how the results of analysis can aid in a better understanding of the structure of Mesoamerican society.

(27) THE RISE AND FALL OF THE CENTRAL MEXICAN CLASSIC: A long-standing topic of interest in Mesoamerican archaeology has been the elucidation of possible factors involved in the rise and fall of Classic Maya civilization. Two recent contributions have examined the subsistence base for Classic Maya civilization in the light of marine resources and both internal and external stresses which may have been involved in the collapse of the Classic Maya Civilization. By contrast, it would seem that little concentrated effort has been expended toward careful examination of factors involved in the rise and fall of central Mexican Classic civilization. The papers of this symposium will focus on the processes involved in either the initial development of the central Mexican Classic or its collapse, as seen from various geographical and cultural perspectives.

(28) SAMPLING IN ARCHAEOLOGY. Three general topics will be discussed during the symposium: (1) the theoretical and technical problems in the application of probabilistic sampling to archaeological data, (2) sampling within a single site, and (3) sampling within a single chronological period. The first topic includes papers that relate all aspects of archaeological research and the nature of the archaeological record to the sampling of total populations. Two technical papers discuss various applications of sampling and of samples and the nature of archaeological research. The last 2 topics—sampling within the site and the region—have the same format: an introductory paper that attempts to blend the remaining case studies together. The case studies are descriptive statements and self-criticisms of the sampling experiences of the authors.

(31) CURRENT DIRECTIONS IN CALIFORNIA ARCHAEOLOGY. Prehistoric California provides a laboratory for the study of social and cultural change among non-agriculturists in a varied and dynamic environment. This symposium attempts a broad overview of current attempts to realize this potential, utilizing a diversity of theoretical, methodological, and organizational approaches.

(42) PROBLEMS AND POSSIBILITIES OF ARCHAEOLOGICAL FIELD SCHOOLS. Archaeological field schools are offered to provide training to students and to acquire archaeological evidence. This symposium focuses on the problems in achieving these goals. The strategies and problems of field school programs and how the achievement of the dual goals are presented in the papers with a general discussion to follow.

ABSTRACTS OF PAPERS

Ackerman, Robert E., A MACROCORE AND FLAKE INDUSTRY IN SOUTHEASTERN ALASKA (CIRCA 8280-3700 B.P.). The Ground Hog Bay site #2 is 40 mi west of Juneau, Alaska. The early occupation (Component III, 10,185±500 B.P.; 9,639±220 B.P.) is evidenced by a large stone hearth that remains enigmatic. The next major component (Component II, 8230±130 B.P.; 7570±200 B.P.) is well defined by a lithic assemblage which contains micromotes and microliths with a macrocore and flake industry. The upper cultural layer (Component I, 6625±190 B.P.; 5285±650 B.P.) is characterized by a microlithic assemblage in a split plank house. The macrocore and flake industry of Component II will be presented as a further elucidation of the cultural inventory of the GHB 2 site. Specifically, attention will be directed to the technological attributes of the two macrocore types—blade-flake cores, and Levallois cores. Finally, the association of the macrocore industry with the collection of the lithic assemblage from Component I will be presented in the concluding part of the paper with a tentative formulation of a lithic complex in Southeastern Alaska at this time level.

Adams, R. E., FINE ORANGE POTTERY AS A SOURCE OF ETHNOLOGICAL INFORMATION. The Altar and Balancán (X and Z) groups of Fine Orange pottery yield certain sets of indicators that are useful in the characterization of the archaeologically defined component. Specifically, culture traits are thought to include the makers, located on the Gulf of Mexico to the west of Laguna de Terminos, and more rarely, people from the zone of classic Maya culture. Cultural and historical implications are discussed. (22)

Adovasio, J. M., THE EVOLUTION OF BASKETRY IN PREHISTORIC MEXICO. Recent analyses of some 2000 well-dated specimens of coiled, twined, and plaited basketry have provided the data necessary for a detailed reconstruction of the technical evolution of basketry in prehistoric Mexico. The major aspects of this 3000 year developmental sequence are discussed with special emphasis on the spread of Mexican techniques into the American Southwest. (25)

Agenbroad, Larry D., THE HUDSON-MENG PALEO-INDIAN BISON KILL, N.W. NEBRASKA: AN ANALYSIS AFTER TWO FIELD SEASONS. Excavations, test pits, and backhoe trenching in the 1972 field season have led to a better understanding of the site occurrence and a tripling of its size and faunal estimate. Twenty artifacts of two distinctive styles were recovered from the bone bed. Lithic workshop areas have been identified and new information on butchering techniques and faunal analysis have been derived. (18A)

Aigner, Jean S., MULTIDISCIPLINARY TRAINING AND RESEARCH IN THE ALEUTIAN ISLANDS. The current University of Cincinnati multidisciplinary project in the Aleutians has several major goals: research into human biocultural adaptation over time to a rich, maritime ecosystem; biomedical and other studies which positively benefit the Aleut people; and training of undergraduate and graduate students in various disciplines in multidisciplinary research. The training aspect of the project is discussed here. The training offered as part of the project makes use of a model research area in which recoverability of information through multidisciplinary design and strategy is patent. The skills and knowledge gained from this integrated approach serve as intellectual models for participants of the geographic area and particular disciplines in which they concentrate their professional work. (42)

Aigner, Jean S. and Bruce Fullem, SANDY BEACH BAY, A 4300-5600 B.P. ALEUT VILLAGE. The 1972 reconnaissance of southwestern Unalak was led to the discovery of Sandy Beach Bay, a large maritime village which has been located on a bay subsequently destroyed by filling and uplift. Excavations revealed a 1600 year sequence of semi-subterranean houses with rich representation of Aleut stone tool kits from each of 6 houses floors and from roof tops. Technological comparison with other earlier Arangula (8400 B.P.) and later Chalika (4990 B.P.) Aleut base villages reflects the chronology of Sandy Beach Bay. Activity loci reconstructed from the remains indicate the nature of behavioral continuity in Aleut villages spanning thousands of years in the same locale, and the magnitude of change in the faunal and material culture. Stone tool manufacturing stone tools, etc. (17E)

Aigner, Jean S. and Douglas Vetere, UMQAN BURIALS FROM SOUTHWESTERN UMNAK ISLAND, ALASKA. The 1972 reconnaissance of southwestern Unnak island led to the discovery of some 50 features identified by the Aleuts as root storage facilities. Upon excavation these umqans proved to be structures for the interment of both adult and young Aleuts, removed from habitation sites and occurring in clusters on hills overlooking water, umqan burials reinforce patterns noted by both the early Russian observers and later demographers: for birth, stillbirth, and abortion were reported to the Aleut community, as well as the death of adolescents and adults. It would appear further that the value of all individuals as community members, both realized and potential, is reflected in the care and considerable effort invested in the umqan pattern of burial. (7)
Ams, Kenneth M., CULTURAL STABILITY ON THE NORTHWEST COAST. Results of recent archaeological excavations in the Prince Rupert Harbor region of British Columbia suggest that the area has been culturally stable for almost 8000 yr. This stability is based upon the evolution of an efficient adaptation to a highly variable, high diversity environment. The data to test this hypothesis required a complex interplay between technology, social organization, and population density. (37)

Ammerman, A. J., and L. L. Cavalli-Sforza, A SIMULATION STUDY OF BANDKERAMIK SETTLEMENT PATTERNS. This simulation study represents an attempt to explore the relationships between some of the main factors involved in the formation of Bandkeramik settlement patterns. Particular attention is paid to the role of local migratory activity in the spread of the Bandkeramik and in determining patterns of settlement. Simulation results and archaeological evidence can be evaluated in light of one another. Some comments are made on the formulation of certain Bandkeramik interpretations and questions. (24)

Asher, David L., SOME PROBLEMS IN ARCHAEOLOGICAL SAMPLING. A number of problems in the sampling of archaeological sites will be discussed. Effective sample sizes are often based on a statistical description of the variance in the quantities of cultural material that have been excavated. Several reasons for this are enumerated, and the effects upon sample reliability are discussed. For the solution of certain kinds of archaeological problems it is difficult to design suitable probabilistic schemes. The random selection of sites is particularly difficult to investigate using probability techniques. Several issues are raised in the application of analytical techniques. The statistical techniques used by archaeologists are often based on the assumption that the samples are representative of the population.
and deep water. Some younger sites of Paleo-Altoids were on bays now filled and on islands now joined to Umnak Island by infilling. Other sites are being eroded. A Neoglacial about 3000 yr ago had little direct effect on the people. (7)

Blanton, Richard, A SYSTEMIC APPROACH TO THE RELATIONSHIP BETWEEN POPULATION GROWTH AND SOCIO-CULTURAL CHANGE. Some theoretical approaches to the explanation of socio-cultural change attribute key causal significance to population growth and population pressure. In particular, increase in population size and density is held to explain the intensification or specialization of agriculture and the increase in population size and density? In this paper some of the inconsistencies in this approach are pointed out and the application of a systemic causal framework is suggested. This framework is based on the notion that the population variable is a key element in the process, and not the result of a process. But this is very different from a number of related factors. In addition, I will point out some of the problems involved, when using limited archaeological data, in determining whether changes in population variables were caused by changes in the environment. This is a controversial issue, with different interpretations of the evidence. (1)

Blanton, Richard E., and Dudley P. Varner, THE RISE AND DECLINE OF THE CLASSIC IN THE VALLEY OF OAXACA. Recent systematic, intensive surveys of Monte Albán and the Elta (north) arm of the Valley of Oaxaca allow detailed comparisons of this region with the Valley of Mexico in terms of demographic shifts and settlement pattern shifts during those periods pertaining to the rise and fall of the Classic. While the Monte Albán urban complex is in many respects quantitatively and qualitatively unlike Teotihuacán, certain similarities exist regarding the impact of the growth and decline of these centers on populations in their sustaining areas. (27)

Botani, Charles, FINCA RIVERA: A POLYCHROME SITE IN THE TRAPICIO OF AMAZONAS, COLOMBIA. Excavations at Finca Rivera in the Trapicío of Amazonas revealed that the carriers of the Polychrome tradition had reached this section of the Amazon Basin by A.D. 1000. The ceramics from the site are of the Miracaguera sub-tradition and appear to be closely related to the Napo complex of the Caimito complex of eastern Peru. If these ceramics represent the ancestors of the historic Omajis or the historic Cocoma, Tupian-speakers had migrated into this area earlier than previously proposed. The Carbon-14 dates from Finca Rivera suggest that the presence of Polychrome ceramics in this section of the Amazon Basin are the result of an upstream migration. (16)

Brier, Frederick L., A STUDY OF NATURAL AND CULTURAL REFUSE IN NORTHEASTERN ARIZONA ROCK SHELTERS. The excavation of both cultural and natural rock shelters near Chiricahua, Arizona, and Tonto Basin, Arizona, has produced a number of sites of interest to archaeologists. Dry cave preservation presents an opportunity to investigate both natural and cultural depositional processes as well as questions concerning site formation and environmental change. The main objectives of the project are: (a) to test the hypothesis that rock shelters are good indicators of the cultural and natural environments they reflect; (b) to translate the results into a general model for the archaeological analysis of site formation, and allow for the identification of the significant variables of change. Such a model will provide a study of the Illinois indians. The Illinois in the seventeenth century were a large and powerful group, but since the Illinoisans no longer exist, the model so constructed must be used. All in all, the model has produced coherent explanations for the changes which took place in the culture and demonstrates the utility of the application of general systems theory to cultural change. (17)

Brown, Margaret Kimball, THE APPLICATION OF A GENERAL SYSTEMS MODEL TO THE STUDY OF CULTURAL CHANGE. The changes which occurred in the culture of Indian tribes from European contact generally have been considered by ethnichistorical studies which have used a linear model of causation. Such models can be shown to be too simplistic for the complex network of interactions found in any culture, and not capable of use for generalization. A model based on general systems theory is considered more useful in explaining the development of a complex society. A summary of the model is as follows: (a) a system consisting of layers in the cultural structure, and allowing for the identification of the significant variables of change. Such a model was utilized for a study of the Illinois indians. The Illinois in the seventeenth century were a large and powerful group, but since the Illinoisans no longer exist, the model so constructed must be used. All in all, the model has produced coherent explanations for the changes which took place in the culture and demonstrates the utility of the application of general systems theory to cultural change. (17)

Brown, R. B., A BRIEF SURVEY OF EASTERN GUANAJUATO. The archaeological knowledge of Guanajuato is very sketchy. In the United States it is known through the salvage work of Muriel Porter at Chacicoac in the 1950s. More recently there has been work by Columbia in the south of the state, INAH and Stanford in the west, and INAH in the north and east. As a graduate student at the University of the Americas, R. B. Brown has carried out a site survey in the eastern part of the state. The report will be divided into 2 sections, a description of the sites and a discussion of the cultural processes. The model has produced coherent explanations for the changes which took place in the culture and demonstrates the utility of the application of general systems theory to cultural change. (17)

Bruhns, Karen Olsen, ABSOLUTE DATES FOR THE QUIBAYA CULTURE OF CENTRAL COLOMBIA. Archaeological survey and surface sampling along the Cordillera Central (Depths of Quinde and Valle) of Colombia have led to the formulation of a cultural sequence for the late prehistoric period. Remains of 2 major subgroups of the material culture periodized into 3 stages were recovered and distributed throughout the Central Cordillera. Although the historic component has yet to be identified there is now proof that neither of these 2 cultural complexes pertain to the historical Quibaya tribe. Instead, there is evidence of a heavy population with a single culture spreading from Cauca to Valledupar, through the Northern Antioquia to date to about A.D. 300-1200 with a rather drastic depopulation of the entire area some 150 yr before the Spanish Conquest. This may be tied to prehistoric conditions during late prehistoric and the Spanish Conquest period and the cultural and historical migrations up and down the Cauca drainage, one of which migratory groups was the Quibaya. (43)

Bullen, Ripley P., THE TOCOBAGA INDIANS AND THE SAFETY HARBOR CULTURE, Ortiz, lost from the Narvaez expedition of 1528 and rescued by De Soto in 1539; De Soto's chroniclers; Fontaneda, a slave of the Indians for 17 yr; and Menendez, who visited the Tocobagas an unspecified number of times in the summer of 1616. The sixteenth-century Tocobagas were considered to be the last of the Indians of the Florida peninsula. Ortiz generally believed that the Safety Harbor site on Old Tampa Bay is the main town of the Tocobaga, the one visited by Menendez. Archaeology has given us many data that define the Safety Harbor cultural area, support the belief that the Safety Harbor site is Menendez's Tocobaga, and agree with other clues gleaned from these sources. (19)

Burger, Marjorie K., THE IROQUOIS OF THE ST. LAWRENCE VALLEY PROBLEMS OF TRIBAL IDENTIFICATION AND DISAPPEARANCE. Jacques Cartier was the first
survey settlement pattern data for the pre-Conquest period in the Valley of Mexico. With a few exceptions, the conceptual frameworks underlying both data recovery and data interpretation have not developed in sophistication. Further studies of the continuing archaeological record in the Teotihuacan Valley (A.D. 1400-1650), I suggest several procedures to modify the theoretical framework of pre-Conquest archaeological studies may be elaborated and strengthened. (35)

Cheek, Charles D., THE STUDY OF NARRATIVE SCENES IN MESOAMERICAN ART—AN OLMEC EXAMPLE. An introduction is given to the strategy of using narrative scenes in Mesoamerican art as a means to reconstruct details of the socio-cultural system of a past society. It is assumed that the scenes served largely to commemorate information and that they can be interpreted by reference to their internal structure and through comparison with other scenes of the same cultural and temporal period. Using Olmec scenes as given evidence, it is shown that similar scenes and the differences and similarities among individuals portrayed in scenes within a socio-political framework. (22)

Chenhall, Robert G., A RATIONALE FOR ARCHAEOLOGICAL SAMPLING. There are several areas of archaeological fieldwork and laboratory analysis where sampling techniques alone are not sufficient to give the type of long-term results in prehistoric artifact assemblages. The possibilities of the various types of sampling are: in the location of sites, in the selection of surface artifacts found at sites, in the selection of portions of sites or of artifacts, and in the analysis of such portions. The implications of the various possibilities of the possible applications of sampling are: in the location of sites, in the selection of surface artifacts found at sites, in the selection of portions of sites and artifacts, and in the analysis of such portions. (21)

Clayton, Dennis, SETTLEMENT PATTERNS IN HAWAIIAN VALLEY ENVIRONMENTS. Settlement patterns in four Hawaiian valleys are compared in terms of residential locations and distribution of agricultural systems. In particular, the archaeological basis for making statements about political control and social stratification is considered. (10)

Campbell, John M., AN EXPLANATION OF PREHISTORIC POPULATION SIZES AND DENSITIES IN INTERIOR ALASKA AND THE YUKON. Late aboriginal and early historic human communities in the interior far northwest were uniformly small, and population densities were low. However, normal numbers of food species were sufficient to support larger communities and higher densities. The archaeology and paleontology imply that these very different populations of the past. The prehistoric Nunamiut Eskimos, and the Tanana, Atha, and Tutchone Indians failed to establish that social or environmental variables (i.e., religious restrictions, subsistence scheduling, warfare, infant mortality, sexual avoidance, abortion) were the root causes of the widely shared human population characteristics noted. On the contrary, it appears that the pattern of synchronic osmosis between the different vertebrate food species was simple, critical limiting factor. This conclusion is explained, and a prehistoric analogue is suggested. (41)

Cassidy, Claire Monod, NUTRITIONAL DIFFERENCES BETWEEN HUNTING GATHERERS AND SETTLED AGRICULTURAL POPULATIONS IN THE EASTERN WOODLANDS OF NORTH AMERICA. Nutrition and general health were studied, using 5 techniques of skeletal analysis. In two Amerindian archaeological populations—Indian Knoll (Archaic, western Kentucky, hunter-gatherer) and Harlin Village (Fort Ancient, eastern Kentucky, agricultural, Agricultural) results of the skeletal analysis indicate that the hunter-gatherers were healthier and suffered far less from malnutrition than the agriculturalists. The well-adapted agriculturalist generation, they were on a diet that was relatively common, without the availability of a stable food supply, alone, does not ensure good nutrition, nor does it necessarily follow that the overall dietary balance, nor, more generally, its consequences (e.g., deficient growth, lack of resistance to infectious disease) become more common. (11)

Castel, Richard W., ASSESSMENT OF LIVE WEIGHT AND MINIMUM NUMBER OF INDIVIDUALS FOUND IN THE ANIMAL SKELETON. Results of the study indicate that the number of the minimum number of individuals (MINI) represented in fish-feeding assemblages. (31)

Castillo-Toledo, Noemí, THE SO-CALLED "MIXTEC POLYCHROME" WARE IS NOT A MIXTEC PRODUCT. Based on recent studies of the Oaxaca, Puebla, and Tlaxcala areas, including surface finds but also different explorations, we believe we can prove that the pottery attributed to the Mixtecs is not actually a product of the Mixtecs people but of their neighbors, those of the Puebla, Tlaxcala, area as Negriera proposed 20 yr ago. (5)

Chilton, Thomas H., THE IMPLICATIONS OF POST-CONQUEST ARCHAEOLOGY FOR METHOD AND THEORY IN PRE-CONQUEST RESEARCH IN THE VALLEY OF MEXICO. During the last 2 decades there have been significant accumulations of surface
Shepard (1965), little attention has been paid to comprehensive analyses of the physical properties of prehistoric ceramics. One of the reasons for this neglect is that problems that have not been formulated for which such data are relevant. The problems of the spectacular demographic restructuring occurring in the Maya lowlands (ca. A.D. 800-900) between the Classic and Postclassic periods provides an opportunity to systematically approach ceramic analyses to better understand the past. A set of hypotheses that have recently been developed which relate this restructuring to changes in economic production and distribution systems. One important archaeological fact that Fine Orange Ware is a prime candidate for this transition. This paper presents the results of a preliminary exploration of a research design to evaluate this implication. (21)

Cook, Thomas Genn, STRUCTURAL COMPARISON OF ARTIFACT COLLECTIONS: THE DISCOVERY OF BEHAVIOR SETS WITHIN SETTLEMENT SYSTEMS. The meaning of the overall variability of subsets of artifacts is achieved by comparing the distribution of the behavior sets across the landscape. If we assume that the presence or absence of a given artifact reflects the performance of a specific task, then a subset collection theory provides a precise mathematical and logical framework to discover task-specific tool kits. The identification of specific tasks to these combinations of tool types can then be tested with other data, i.e., environmental evidence (e.g., environmental evidence such as vegetation, topography, etc.) at each site under study. Paleo- and Prehistoric examples will be used. (22)

Cordell, Linda S., SIMULATING WETHERILL MESA SETTLEMENT PATTERN CHANGES: A DISCUSSION OF GENERAL IMPLICATIONS. The results of 3 computer simulations that attempted to predict changes in location of settlements which occurred on Wetherill Mesa, Colorado, between A.D. 700 and A.D. 1300 are briefly presented. Problems of a general nature arising from a comparison of the results are discussed. These problems include the choice of models for simulation, the necessity of replicating simulations which include random variables, and difficulties in assessing the relative success of a simulation experiment. It is argued that simulations of a variety of archaeological problems may be useful for increasing understanding by simulation research, but that the archaeologists should be aware of possible sources of error in interpreting the results. (23)

Cowgill, George L., DATA BANKS AND STATISTICAL ANALYSIS. (3)

Crabtree, Don E., EXPERIMENTS IN MESOAMERICAN CORE PREPARATION AND TRUNCATION TECHNOLOGY. This paper discusses recent experiments which have provided insight into obsidian blade preparation technology in Mesoamerica. Experiments have been undertaken to test the validity of these techniques with the goal of improving our understanding of obsidian blade preparation technology. (30)

Crew, Harvey, EXAMINATION OF THE LITHIC MANUFACTURING METHODS AND TECHNIQUES FROM TARAPACA 2A: PROVISIONAL RESULTS AND FUTURE UTILITIES. Work undertaken on the Tarapaca 2A site in the Atacama Desert in northern Chile, in 1975 to determine what lithic techniques and methods were utilized in their creation. The results obtained provide the hypothesis for the presence of spatial and temporal changes in lithic technology. (31)

Crumley, Carl L., CELTIC SOCIAL STRUCTURE: AN EXERCISE IN PALEO-ETHNOGRAPHY. Two lines of evidence are used to reconstruct the social structure of the Gaulish Celts, who occupied France in the first century B.C. The first is literary. Roman and Greek records, and the second is archaeological, which identifies a aristocratic class of artisans, bureaucrats, and magistrates, and a lower class of rural-based agriculturists and urban migrants. The discrepancy between lines of evidence is discussed and a composite model presented. (32)

Culbert, T. Patrick, VESSEL SHAPE IN CERAMIC ANALYSIS. In some systems of ceramic analysis, vessel shape is a secondary variable. This paper argues that any ceramic analysis that pretends to completeness must include a full investigation of vessel shape as an independent variable. Ceramic data from Tikal, Guatemala, indicate that vessel shape (1) is important in the classification and statistical analysis of ceramic use patterns and (2) provides quantitative measures of standardization in ceramic production that cannot be duplicated in the usual typological attributes. (33)

Dancay, William S., RIVERINE PERIOD SETTLEMENT AND LAND USE PATTERNS IN THE PINE RAPIDS AREA, CENTRAL WASHINGTON. Survey data from the pine-rimmed region adjacent to the Pine Rapids Reservoir on the Columbia River together with data from the floodplain reveal a pattern of differential land use and settlement distribution that appears essentially unchanged during the last 2000-3000 yr. (34)

Davis, Emma Lou, HUNTING, WORK, AND LIVING PRACTICES OF EARLY AMERICANS. Three years of research in China Lake basin, Mojave desert of California, have crystallized problems typical of desert surface archaeological sites and a system of accurate techniques for coping with them has been developed. As a result, we are now in a position to formulate and test hypotheses about Paiute Indian preferences in land use for hunting, for lookouts and for workshops; origins and changes in the present topography of this landscape; relations of early hunters to a local Rancholabrean fauna; and differences in land use for male and female activities. (35)

Davis, Hector A., TRAINING AMATEUR ARCHAEOLOGISTS. Not every state has an organized amateur archaeology club. However, there are several groups that have been formed and continue to do archaeology, whether with professional leadership or not. There are thousands of people who are members of these clubs and are interested in archaeology. The present work is part of an effort to provide training of field and laboratory training to some of these groups to one degree or another. In Arkansas we have provided field training for 5 yr, but in the past 2 yr we have been able to train more than 300 people in laboratory methods of field work and analysis. The Arkansas Archaeological Society, a formalized group of training which results in Certification by the Arkansas Archaeological Survey, has been particularly important in providing this training. We have also trained individuals who have become professional archaeologists. In order to provide this training, we have developed a course of study which includes the requirements. We do not believe we are training pathfinders to be more efficient—we believe—and have proof—that we are training lay archaeologists who will provide one of the answers to the present problems of protecting and recovering our archaeological resources. (36)

Davis, Jonathan O., and Robert Elston, GEOLOGIC AND PEDOLOGIC CHRONOLOGY OF ARCHAEOLOGICAL SITES IN NORTHEASTERN ARIZONA. Stratigraphic evidence from recently excavated archaeological sites at Steamboat Springs (south of Reno) and at the margin of the Black Rock Desert (northeast of Reno) documents recurring Lahontan episodes of soil formation, erosion, and soil horizons. Alternating sand deposition and surface hardening at the margin of the Black Rock Desert and the epirateral Medimnlar lake in the Black Rock Desert playa. At Steamboat Springs, eroded and colluvial deposition, and intervals of soil B horizon formation, reflect fluctuations in sediment sources. Radiocarbon and relative dating enable correlation with the Neoglacial sequence and with Holocene records from the Great Basin. (37)

Davis, Leslie B., THE TWENTIETH CENTURY COMMERCIAL MINING OF GREAT PLAINS BISON KILLS. Prehistoric bison kills were effectively destroyed in the northern Great Plains by intensive bone mining for fertilizer and steel refining. This activity flourished during World War II, and during both World Wars the mining provided the primary center of exploitation and Alberta and the Dakotas received secondary attention by bone miners. The short term economic benefits are analyzed in relation to the very long-term cultural and national investment that was required for the historical continuation of an adaptive strategy appropriate through time in this arid- to semi-arid environment. (38A)

Deegan, Kathleen A., ETHNIC CONTINUITY IN FLORIDA: THE EASTERN TIMUCUA AND THE PONCE DE LEON PRESESSI. When the first Europeans arrived in Florida during the sixteenth century, they found the eastern Timucua Indians with a culture substantially unaltered from that of more than a millennium earlier. This long cultural continuity in the northeastern part of Florida has been archaeologically excavated and documented, and the definition of this area as an ethnohistorically identifiable unit can be proposed through the application of the direct historical method. The adaptation of the eastern Timucua has been defined as an archeological record of the riverine to coastal transition in the Southeast, and the relationship of their culture, and the external relations with the rest of the Southeast are considered in an explanation of the processes of their development until the final decimation in historic times. (39)

DeLay, Suzanne A., and Frank J. Findlow, ON RAW MATERIALS USE AND ENVIRONMENTS IN THE OMAHA. The patterns of raw material procurement of any cultural system are seen as adaptive responses that are sensitive to environmental change. A hypothesis designed to explain some of the operations of raw materials procurement during periods of environmental change is presented. Test is presented in the form of an analysis of patterns of prehistoric obsidian use in the Cheyenne Drainage of Arizona, A.D. 900-1500. (40)

DeBoer, Warren R., CERAMIC LONGEVITY AND ARCHAEOLOGICAL INTERPRETATION: AN EXAMPLE FROM THE UPPER UCAYALI RIVER, PERU. The relative frequencies of various ceramic vessel forms in use at any one time may differ significantly from the relative frequencies of these same forms when projected into the archaeological record. One factor accounting for this difference is varisc ceramic longevity; the shorter the period of time over which a vessel form has been used, the more rapidly it will be replaced by replacements as new technologies and preferences are adopted by the archaeological observers. The observed and projected relative frequencies of vessel forms among the Conibo Indians of the Upper Ucayali are compared to the frequencies of analogous forms in the historical ceramic assemblages of the Iquitos area and to the mid-Holocene archaeological record from the Maynas. The utility of ceramic longevity data in providing estimates for the population size needed to generate an archaeological midden is also explored. (41)

Dickson, Bruce, LOCAUTIONAL ANALYSIS OF PREHISTORIC SETTLEMENTS ON THE DIAMOND RIVER IN MIDDLE TENNESSEE. This paper is an attempt to reflect hypotheses concerning locational stability and change in the prehistoric settlements of this area.
middle Tennessee. A preliminary attempt is also made at generating polythetic definitions of settlement patterns during the Archaic and Woodland periods in the area. Data is drawn from the ongoing intensive reconnaissance being conducted on the Duck River by the University of Tennessee. (23)

Dienst, Richard A., TULA AND THE COLLAPSE OF THE MESOAMERICAN CLASSIC. The evidence for Tula's participation in the demise of Teotihuacan and Classic Maya societies is examined. There is no solid evidence at present that Tula was a functioning center at A.D. 750, and thus it could not have contributed to Teotihuacan's downfall. It is also possible that some Tula-based Toltecs intruded into the Maya area and were involved in the collapse of Classic Maya societies. (27)

Dillehay, Tom D., SHIFTING RANGES AND SUCCESSIVE FLUCTUATIONS OF BISON ACROSS THE SOUTHERN PLAINS DURING THE LATE QUATERNARY. The archaeological record of the southern Plains was thoroughly examined for the presence or absence of bison bones. The results were that 2 primary temporal spans from about 8000-6000 B.C. to 2500 B.C. and A.D. 900 to A.D. 1200-1300 were characterized by the absence of any species of the genus Bison in the area. Two alternative concepts are presented as explanations for these changes in bison populations. One concept is that their range shifted by migrating either partially or completely to areas beyond the southern Plains. The other is that the density of bison populations may have decreased dramatically, causing a very substantial reduction in the economic exploitation of these animals in some areas. (44)

Downing, T. E., WILL COMPUTER SIMULATIONS IMPROVE ARCHAEOLOGICAL THEORIES? Common metatheoretical difficulties face archaeologists and anthropologists when they model cultural dynamics. I question if computer simulations offer any unique solutions to overcoming these difficulties. If they don't, then no matter how elegant, elaborate, or analytic their simulations, anthropologists might better spend their time playing with their other tools. (21)

Drover, Christopher E., EARLY CERAMICS FROM COASTAL, SOUTHERN CALIFORNIA. Excavations of 4-ORA-64, a site located on the east bluff of upper Newport Bay, was undertaken by the California State University, Fullerton, in 1971. Excavations revealed a large, early Milling Stone Horizon site which contained an artifact assemblage including fired-clay ceramics associated with early Carbon-14 dates. A grant from the National Science Foundation will allow the study to verify this early level. Discussion will be made of the approach to the problem, analytical techniques, and the archaeological results. The artifact assemblage, specifically ceramics, will be considered in light of prehistoric archeology. (38)

Duffield, Lathel F., and Louise M. Robbins, MR DEFICIENCY: A PREHISTORIC DISEASE? (44)

Duffield, Lathel F., PHYSIOGRAPHIC PROVINCES AND KENTUCKY PREHISTORY. (44)

Dunnell, Robert C., THE NORMATIVE STRAW MAN: AN OBLIQUE DEFENSE WITH increasing frequency archaeologists dichotomize the notion culture into "normative" and "systemic" concepts in discussing the rationalities of traditional and modern approaches. Many deficiencies of traditional approaches in both recovery and interpretation are attributed to the normative view. While the deficiencies cited and the contrast of the systemic view are apparent, the normative concept of culture appears to be a post hoc rationalization by the holders of the systemic view. Other accounts for traditional practice may prove more useful in guiding innovation than the attribution of this particular notion as the prime mover in recovery and interpretation. (17)

Dwyer, Edward B., and Jane P. Dwyer, EARLY URBANISM IN THE DEPARTMENT OF CUCZO, PERU. IN 'ENIGMA.' It is argued that ample evidence exists, both in the literature and as a result of recent fieldwork, to generate an understanding of the highland settlement and economic systems which required centralized political authority. A model is developed in an attempt to characterize this development as one of early dependence upon domestication of animals, the growth of urbanism as a residence pattern, and the ultimate necessity for hillside terracing and irrigation projects. It is suggested that in Cuzco, the Early Horizon event which was not greatly influenced by the spread of Chavin culture. (12)

Earle, Timothy K., HAWAIIAN IRRIGATION IN THE HALELEA DISTRICT, KAUAI. The extent and intensity of irrigated taro production for a traditional political unit, the Halelea District, Kauai. The significance of this subsistence production in regional economy, culture, and social hierarchies, and population distributions is examined. (10)

Eddy, Frank W., PUEBLO SETTLEMENT ADAPTATIONS IN THE UPPER SAN JUAN BASIN OF NEW MEXICO AND COLORADO, A.D. 1-1232. Changes in settlement distributions of the upper San Juan Basin are described and explained in terms of a compromise strategy model. This adaptive model postulates that settlement location will be chosen among sets of opposing natural considerations affecting the agricultural basis of society. Among these factors, soil moisture and length of growing season were the most determinative to settlement location along a xeric to mesic, elevational gradient. (23)

Edwards, William Ellis, CLASSIC MAYA DECLINE BY POSTULATED SLASH AND BURN SOIL OVERUTILIZATION. (17)

Edwards, William Ellis, DETERMINANTS OF PRODUCTIVITY AND POPULATION WITH VARYING ENVIRONMENTS AND ECONOMIES. To avoid consumer-consumed food-goods, a generalized model of selected subsistence strategies is developed. Various considerations influence the population ceiling, food-procuring efficiency, or consumption tend to change. The interrelations among these, with implications for choice of food-producing techniques under various economic conditions, is analyzed, and examples are discussed. (47)

Ekholm-Miller, Sumina, PIETRA PARADA, CHIAPAS. In 1945 Matthew W. Stirling carried out archaeological investigations at Piedra Parada, near Ocozocuautla, Chiapas, and the New World Archaeological Foundation has undertaken joint analysis with Dr. Stirling of the data gathered during that project. The site seems to have been occupied from Late Preclassic times through the Late Formative Indian occupation. Of particular interest is the so-called acropolis or Mound 1, which underwent unusual architectural development during the early Classic. (43)

Epstein, Jeremiah F., AZTEC CORE-BLADE TECHNOLOGY. Over the past several years, a very extensive collection of obsidian core-blade materials from the site of Tlatelolco has been analyzed. As a result, new data are now available on the core-blade technology of the Aztec period. (38)

Ericson, Junohon E., PREHISTORIC TRADE IN CALIFORNIA—A PRELIMINARY STUDY; Surface trend analyses and computer contour mapping of obsidian artifact data were used to present a prehistoric trade pattern for California. Prehistoric trade patterns using demographic and ethnographic data were used to test some deductive models, derived for the reconstitution of the trade systems of hunters and gatherers in California. (21)

Fagan, Brian M., CAN'T THOU DRAW OUT LEVIATHAN WITH A HOOK? AN ESSAY IN THE TEACHING OF INTRODUCTORY ARCHAEOLOGY. The teaching of archaeology at introductory level poses many problems relative to the subject, purpose, and goals of the course, character of the students, and the methods to be used. This paper considers the short and long range objectives of teaching archaeology to large groups of students, most of whom will not be archaeologists. Various options for teaching introductory archaeology are examined and the paper concludes with a summary of 5 yr of research on the topic. (42)

Fairbanks, Charles H., ARCHEOLOGY OF THE FLORIDA SEMINOLES. Document sources indicate the changes which took place in Seminole material culture and settlement patterns during the eighteenth and nineteenth centuries. To some extent archaeology has been able to confirm the shift away from cohesive, town-square villages toward a more diffuse settlement pattern, perhaps due to the assumption of European-American farming methods. Ethnographic descriptions of changes in Seminole house types during the eighteenth century are much more difficult to verify archaeologically due to the lack of precise, extensive excavations of sites involved. The documentation of Seminole artifact inventories, however, has been possible. Changes following the Second Seminole War when the Seminole moved into the Everglades and Big Cypress Swamp areas have not been investigated because of the systematic approach relative to these problems relating to the subsistence, settlement, and material culture from ethnohistoric sources. Neither has it been possible to distinguish material culture differences that can be related to the 2 major language groups among the Seminole. (5)

Feldman, Lawrence H., and R. V. Joesph-Merendino, AN ETHNOHISTORICAL PERSPECTIVE OF THE ACEH III AND IV POTTERY. Native potters of prehistoric central Mexico had over 70 terms for different containers. In this paper the principles of the classification system of nontradepots are presented and a modified system is proposed of these terms, their definitions in the old dictionaries, and pictorial representations in codices prepared according to prehispanic stylistic conventions. The archeologist has found ceramic forms to be the most obvious indicators of social change. The major efforts in this study are made to the classification and reconstitute some of these archaeological artifacts with the aid of the ethnohistoric record. (5)

Feldman, Lawrence H., A TALE OF TWO STONES: FLINT AND OBSIDIAN IN THE ETHNOHISTORICAL MEXICO. This paper is a survey of obsidian and flint usage in the central, eastern, and southern Central Mexican highlands. Definitions and descriptions in the native language vocabularies define the different use categories for these flakey stones. References are cited on the origins of these stones and the techniques involved in producing them. The same rocks were ground and polished by a group of specialists, the lapidaries. Information on the organization of these
Craftsmen is presented in the hope that, to some extent, they reflect the organization of all who made flint and obsidian artifacts in sixteenth century Mesoamerica. (38)

Fenenga, Franklin; PUBLIC WORKS ARCHAEOLOGY IN CALIFORNIA AND NEVADA. (4)

Fellow, Frank J., Suzanne P. De Atley, and Jonathan E. Erickson, A TENTATIVE HYDRATION RATE FROM THE OBISIAN FROM THE OHIO SIOUX TRADE RELATIONSHIPS. BORAX LAKE OBSIDIAN source. Previous work has shown that useful hydration dating schemes are possible even in areas of complex volcanic histories if allowance is made for the obsidian in question. The variation in hydration rate for the Borax Lake obsidian source, archaeological obsidian from Lak-261 was first analytically confirmed and the control source variation was used to determine the hydration analysis was carried out on all samples from the Borax Lake source that were directly dated with charcoal dated by the Carbon-14 method. The tentative rate for this source was subsequently applied to archaeological obsidian samples from the Borax Lake site. (35)

Ford, Richard I., TRAINING IN ANTHROPOLOGICAL ARCHAEOLOGY AT THE UNIVERSITY OF ILLINOIS. More than 40 years ago, the University of Illinois began training undergraduate and graduate students in the field and laboratory techniques for solving archaeological problems. Although the museum is a degree granting research institution, staff members hold appointments in the Department of Anthropology, a separate teaching unit. Classroom instruction, field experience, and laboratory research are coordinated for achieving common goals. University courses serve as the basis for teaching both theory and data. The museum offers an opportunity for students from any department to participate in ongoing laboratory research throughout the year. For graduate students, this research is directed with problem-solving as the basis for the training. Finally, the museum attempts to give undergraduate archaeology students field experience on one of its many excavation or survey programs. All graduate students have field opportunities all year long and are encouraged to participate in excavations in at least 2 continental areas. The means, funding base, and accomplishments of this ambitious program will be discussed. (42)

Forsyth, Donald W., CERAMIC STRATIGRAPHY AND OCCUPATIONAL SEQUENCE AT EDOZNA, CAMPECHE, MEXICO. In connection with the investigation of ancient hydraulic systems at the Maya site of Edzna, Campeche, Mexico, a test program was undertaken to determine the character, sequence, and use of the archaeological ceramic stratigraphy. This paper reports the results of this program to date. It has been determined that the occupations at Edzna span a period from Late Preclassic times through Terminal Classic times. (38A)

Fowler, Don D., and Harold Killeworth, HOLOCENE CLIMATIC CHANGES IN THE GREAT BASIN: CORRELATION OF REGIONAL SEQUENCES AND REEVALUATION OF PREVIOUS CLIMATIC MODELS. (12)

Fowler, Melvin L., THE LATE PRECLASSIC OF THE VALLEY OF PUEBLA: SETTLEMENT SYSTEMS, LAND USE, AND URBANIZATION. The valley of Puebla in central Mexico was extensively occupied in the period from 600 B.C. to A.D. 200. The characteristic site is a terraced hilltop with mound surrounding a plaza. The slopes of the hill were often terraced perhaps for habitation. A less common type of site was a mound group and plaza on the valley floor. It is suggested that this other type of site is central among sites of hilltop sites. Ceramic and other cultural debris suggests an extensive occupation of the valley outside of the central region. Systems of water control for agriculture for different purposes were well established. The implied sociopolitical organization is contrasted with the Middle Preclassic and Classic of same area and compared with the processes of development of complex societies and population densities. (18)

Frederickson, David, A, CULTURAL DIVERSITY IN EARLY CENTRAL CALIFORNIA: A VIEW FROM THE NORTH COAST RANGES. Investigations in the North Coast Ranges have added to accumulating data which suggest that the traditional central California cultural regions are more differentiated rather than a single genetic system. The North Coast Ranges investigations, together with work already reported from San Francisco Bay and the Southern California region, provide data on faunal collections, obsidian hydration measurements, and an array of differences which suggest that a model of interregional diversity is more appropriate for the earlier time periods in central California than the traditional model of primary differentiation. (11)

Freeman, L. G., THE VIEW FROM THE CAVE: THE TRAINING OF PALEOECOLOGICAL PREHISTORIANS AND PALEO-ANTHROPOLOGISTS IN THE NEW WORLD. A specimen of some of the problems for the training of paleoanthropologists and prehistorians for Old World research. The Training Program in Anthropology of the Department of Anthropology of the University of Texas is described in such a way as to implement such a program alone. Factors affecting this kind of training are the interdisciplinary and international nature of such research and the relatively high costs of travel, special requirements of field research on prehistoric hominids, and pressures on trainees and, as a result, ensure that the population of professionals maintains itself below the level of current and projected demand. A further disadvantage to students in this country is the lack of centers with facilities and staff to the spectrum of essential disciplines. Some remevers are foreseen but they will involve a certain degree of dissolution of inter- and intra-institutional boundaries which are now rather jealously defended. (42)

Frisbie, Theodore R., NEW PERSPECTIVES ON SOUTHWESTERN PUEBLO TRADE RELATIONSHIPS. Pueblo trade has been a constant feature in archaeological reports with object orientation as the primary goal. This paper outlines an attempt to isolate some of the mechanisms of trade phenomena at various levels of abstraction. Consideration is given to reciprocity versus trade, intra- versus extravillage reciprocity, and the possible role of non-monetary factors in the prehistoric trade. The role of a middleman in prehistoric trade is treated, with a particular emphasis on the possibility of prehistoric-historic fixed value commodities, i.e., money. Inferences drawn through the use of analogy suggest that a multi-component network of trade relationships is observable in the archaeological record. (36)

Frolix, George C., PRACTICAL CONSIDERATIONS IN THE ANALYSIS OF TOOL USE. Large animal bone evidence of individual and group tool use. Analysis of the skeletal remains, tools, and sharpening debitage recovered indicate many similarities and changes in butchering techniques through time and from one cultural group to another. Differences in the frequencies of different cultural groups were not great enough to account for raw materials. Applying the results of these analyses to experimental butchering situations provides working hypotheses regarding tool manufacture, hafting, use, sharpening, and other considerations. (7)

Fritz, John M., MODELS FOR PREHISTORIC SUBSISTENCE SYSTEMS. The creation, explication and systematization of categorical and theoretical systems for prehistoric subsistence systems and for their material indicators in the archaeological record are necessary conditions for the expansion of empirically confirmed knowledge of such systems. Categorical systems for productive organizations and sequences of organizations have been explicated and applied in the generation of a set of models for a subsistence system existing in east-central Arizona at about 70 B.C. These categorical systems are defined and their application is exemplified by the description of a model for an animal procurement system. The usefulness of these systems and the implications of their application for the testing of models and for the development of subsistence and archaeological theory is considered. (11)

Fry, G. F., and J. M. Adovasio, HUMAN ADAPTATION DURING THE ALTITHERMAL IN THE EASTERN GREAT BASIN. Recent data from lines of inquiry strongly suggest that the Altithermal interlude in the climate of the eastern Great Basin was a period of high precipitation. The local effects of this climatic episode do not appear to have had substantial impact other than human adaptation or settlement patterns in this area. The utility of the Altithermal as an explanation for causal mechanisms in archaeological interpretations in this sector of the Great Basin is therefore rejected. (12)

Fry, Robert E., and Scott C. Cox, LATE CLASSIC POTTERY MANUFACTURE AND DISTRIBUTION AT TIKAL, GUATEMALA. New information on the internal structuring of Maya sites has been produced through the use of multi-dimensional scaling techniques. Analysis of ceramic data from Late Classic phases at the major Maya site of Tikal demonstrates how the distribution of attribute classes can be used to determine community boundaries. Recent evolutions in ceramic collections is explained primarily through the effects of social class distinctions. (5)

Frym, Frank B., DATA BANKS ON THE STATE LEVEL WITH PROPOSED FEDERAL COORDINATION OF VARIOUS PROGRAMS. The computerized archaeological data bank and some of its applications are briefly reviewed, with emphasis on the development of a state-level data bank. In Florida, a data bank is being compiled containing information on all recorded prehistoric and historic sites in the state. This data base is being accumulated primarily from an annual state-wide survey of all significant sites for input with relay into a computer bank with the National Park Service data bank system at Washington, D.C. In addition to the site data, all of the artifact data from site surveying or excavation plus all historical artifact data being acquired for a history of Florida museum and university libraries is being compiled in Florida. This information is being produced as a comprehensive data base for input to programs protecting and preserving Florida's historical resources, and in interpretative research. (3)

Gaines, Sylvia W., A PRAGMATIC APPROACH TO ARCHAEOLOGICAL DATA BANKS, An approach to planning an implement for implementation of a comprehensive archaeological data bank. Use of a computer utilizing available hardware and software is considered. The concept of independent data banks within the framework of larger networks is being developed. Access by universities to information in such a database is a significant concept. (31)

Gibson, Robert, MONACHE MEADOWS AND COLD AIR DRAINAGE—A HYPOTHESIS. Archeologists are often concerned with the explanation of the settlement system in a given area. A number of variables have been examined in order to better understand why archaeological sites are located where they are. Some of these include proximity to water,
proximity to exploitable resources, edaphic conditions, available site area, nearness to trade routes. From recent surveys of Monache Meadows another variable, cold air drainage, seems to be operating on site distribution in this area. (23)

Gilman, Antonio, APPROACHES TO THE STUDY OF THE NEOLITHIC OF THE MAGHREB. The Neolithic period in the Maghreb has usually been studied in narrow culture-historical terms. Features have been analyzed to demonstrate the derivation either of specific traits from North Africa or of North African traits from Europe. It is suggested that the importance of the Maghreb area for later European prehistory is the contrast which the cultural stability of the former presents to the progressive culture of the latter. The question of evidence for the diffusionistic origin of the Maghreb suggests possible factors underlying this broad difference. (25)

Gleann, William S., THE BAKER SITE—AN EARLY LITHIC ASSEMBLAGE FROM THE MOJAVE DESERT. The Baker site, located to the west of Pleistocene Lake Mohave, has yielded an assemblage of surface collected chipped stone artifacts. The temporal and cultural characteristics of the Baker site are recognized, and its relationship to other sites in the region, its relationship to Lake Mohave, other sites, and the raw materials, the character, form, frequency, and raw material of the various types of artifacts, and the implications of these data for the Mojave Desert. Preliminary findings indicate that the artifacts reflect an occupation of the site 10,000 years or more ago. (15)

Gorman, Frederick, and William L. Rathje, BEEF AND BOOZE II. Our project (Beef and Booze I) investigates contemporary purchase, consumption, and discard of meat and liquor in terms of Ayres' variables (ethnicity, household income, and number, volume, and cost of commodities). Differential patterning of meat and liquor consumed in an urban environment is viewed here with regard to a larger continuing project which is currently attempting to determine relationships between modern material refuse (household garbage) and relevant census and other elicited survey data. The results of both projects (Beef and Booze I and II) are compared to derive trends which characterize a century of meat and liquor consumption in an urban environment. (9)

Gould, Richard A., CONTINUOUS AND DISCONTINUOUS MODELS IN ETHNO-ARCHAEOLOGY. Ethnoarchaeology, as a general approach, has been widely used (and sometimes misused) in the past. An effort is needed now to make this approach more scientifically self-conscious. Several areas of ethno-archaeology are discussed here with reference to their nature and limitations, and new models of ethno-archaeology, ethnoarchaeological visibility, the site-oriented approach, native versus "archaeological" classification of artifacts, etc. These problems can be best viewed in terms of a dichotomy distinguishing between continuous stratified and stratigraphic stratigraphic continuity between the archaeological stratigraphic stratigraphic stratigraphy of the archaeological stratigraphy for that area, and discontinuous models, where ethnographic adaptations from areas distant from the sites of excavation are being compared and where there is no stratigraphic continuity. (17)

Graybill, Donald A., PREHISTORIC AND LOGICAL ANALYSIS IN THE MIMBRES REGION, NEW MEXICO. Empirical regularities discerned in the size and spacing of prehistoric sites in the Mimbres Region of New Mexico are considered from theoretical and analytical perspectives. An archaeological-case-specific Central Place Theory is discussed. The apparent operation of a site rank size rule is treated from the viewpoints of comparison and explanation. (23)

Grayson, Donald K., THE NIGHTFIRE ISLAND AVIFAUNA AND THE ALTERTHERMAL. The Nightfire Island site, on northern California's Lower Klamath Lake, was occupied from approximately 4000 B.C. to A.D. 1400. Analysis of the avifaunal remains from this long occupation suggests that between 4000 B.C. and 2000 B.C. Lower Klamath Lake levels were lower, averaging 10 feet, while in the subsequent years represented at the site, 2000 B.C. to A.D. 1400. This in turn suggests that the traditional model of postglacial climatic history, which includes a hot and dry Altithermal period between approximately 5000 B.C. and 2500 B.C., does not apply to the Desert West. Neither analysis of the mammal remains from Nightfire Island nor previous palynological and archaeological studies in the Lower Klamath Basin seem to test those conflicting hypotheses concerning the reality of a hot and dry Altithermal in the Lower Klamath area. (4)

Green, Dee F., DATA BANKS AND SPECIFIC RESEARCH DESIGN. THE SARG EXAMPLE. Problems of data bank design are considered for regional cooperative research of the kind being tried by the Southwest Anthropological Group. These problems include general systems versus specific systems, open versus closed systems, program compatibility, hardware and software requirements, data bank control and use, and system design. The data bank design problems discussed in relation to the long term regional project are taken up in the evolving research design. Status of the SARG data bank is discussed along with comments on data bank usage by members of the SARG research team. (33)

Greegor, Robert E., SETTLEMENT PATTERN SURVEY IN NORTHEASTERN CHICAGO IN THE 19TH CENTURY. This paper represents a first approximation in the analysis of settlement data collected in 1867, and is part of a long term study of land use in the region. Sixty-two sites are included in the present sample of which most (55) are in the drainage of the Rio Tepexilco which site was next in area to the other 7 are draining to the Rio Balsas. Data are classified by site type, size, elevation above sea level, and type of terrain. The largest proportion of sites (34 or 43.5%) were not as noted having multifunctional characteristics, in fact, the same site was associated for the survey of the Mojave Desert. It is clear from the preliminary survey of sites that both the earliest period, Preclassic, and the latest, Aztec, range through the extremes of terrain types delineated in the study. More intensive survey is protected for more detailed control of cultural and ecological variables. (13)

Griged, Teresa, THE EARLY INTERMEDIATE SYSTEM OF IMAGES SEEN FROM PASHASH. Two systems of images were established in the Anasazi Region. The first is Chavin, emphasized non-objective signs (5-curve, equal-arm cross) and multi-animals. The second, founded in the Early Intermediate and persisting into the late Horizon, consists of a purely human figure surrounded by feline-serpents, often double-headed, and birds. The human, usually frontal, may have superhuman traits (fangs), but often is indistinguishable from a warrior. This use of this system from Tiwanaku to San Agustin indicates widespread intellectual contacts, despite abundant evidence of warfare and its glorification in the images. (32)

Griffin, James B., A REVIEW OF THE SIGNIFICANCE OF THE FEDERAL PROGRAMS 1975. From the first relief labor archaeological excavation at Marksville, Louisiana, in August, 1933, to the current programs about 1942, a great number of archaeological sites were surveyed and excavated in the United States with support from the Federal Government. Griffin's 1942 report on the first 10 yr period that American archaeology has had in terms of accumulation of data, development of a chronological framework, and recognition of extensive inter-area relationships. A large number of images are drawn from this work and many current archaeologists participated in the programs. (14)

Griffin, James B., THE SOURCE OF HOPEWELLIAN OBSIDIAN AND ITS DISPERAL PATTERN IN MIDDLE WOODLAND SITES. For many years archaeologists attempted to ascertain the source of obsidian found in Hopewellian sites in Ohio and Illinois. While sources in Mexico, the Southwest, and even in Peru were suggested, the most reasonable source identified by most archaeologists was the Yellowstone area. Neutron activation studies at the Universities of Colorado and Michigan strongly indicated the Yellowstone area as the source of the obsidian. However, in 1968 other studies were published showing the Yellowstone area as the source of the obsidian. It is clear that the obsidian was not a part of the well-organized economic exchange or trade system, but that other explanations must be sought for the meaning of the pattern of its distribution. (21)

Gripping, P. Bion, HUNTERS IN THE HUMID TROPICS: ETHNOARCHAEOLOGY OF EBUDIK AGTA. The Ebudik Agta are hunter-gatherers in the Sierra Madre of Isabella, Luzon, the Philippines. Unlike the Tasaday, they are successful exploiters of the larger fauna and, following a seasonal round of subsistence activities, with changes in seasons, settlements, and amount of contact with non-Ebudik, I will offer a preliminary model of the Ebudik subsistence system and outline objectives of future ethno-archaeological research. (17)

Gross, Daniel, CARRYING CAPACITY AND POPULATION DYNAMICS IN THE AMAZON BASIN, AN ALTERNATIVE VIEW. (1)

Grossman, Joel W., LONG DISTANCE TRADE AND IDEA EXCHANGE DURING THE INITIAL PERIOD. Until recently the Initial period has been defined as the time of regional isolation with little or no interaction between the various early pottery making peoples of the Andean area. However, recent work in the south central highlands has provided evidence which supports a more fluid situation. The analysis of a new Initial period site, from the Chincana valley in the north, shows that the pool of commonly held ideas may have existed throughout the central and southern regions of Peru during the first 2 millennia B.C. This is indicated not only by general features of ceramic types, but also by the clear parallels in specific types which are found as far apart as the Chimana valley in the north and the Cuzco basin in the
south. Furthermore, while indirect contact may have been a factor, several lines of independent evidence suggest that direct trade, or even possibly movement of groups, was taking place between both coast and sierra and between southern and central highlands at least as early as 1300 B.C. (32).

Gunneman, George J., THE RECONCILIATION OF THEORY AND METHOD: THE ROLE OF SATELLITE ARCHAEOLOGY. There no longer exists a debate of theory in American archaeology. While there is still a search for funding and the lack of personnel and time to test complex theories concerning the development of settlement systems, there is an increasing willingness to test prehistoric systems. As a result, archaeological methods have not kept pace with theory. I indicate here the need for improved funding. Some objectives for the realm of salvage archaeology, which would allow researchers to use the large funding available for restructuring field and laboratory research. Both large and small projects could be structured toward theory testing, thereby facilitating the melding of archaeological method with theory. (23)

Haag, William G., THE TENNESSEE VALLEY AUTHORITY ARCHAEOLOGICAL PROGRAM. The origin of TVA's involvement in archaeology is an integral part of the whole development of TVA as an agency. The years 1933 through 1940 exceeded in number all the scientific excavations that had ever been done before in the United States. The obstacles that had to be overcome were numerous also, not the least being the image of the government and the public distrust of the project. Despite these, one Fourth of the TVA program was spent on road construction. Most of the driving force behind the TVA program came from one man, W. S. Webb, but there were trained archaeologists to structure the fieldwork, the New Archaeology of that generation. Most of the excavations have been described, but analyses and interpretations are greatly limited. (14)

Hall, Edwin S., Jr., and Robert A. McKee, AN ARCHAEOLOGICAL SURVEY OF OLD JOHN LAKE AREA, NORTHERN ALASKA. During the summer of 1972, a survey in the area of Old John Lake, near Arctic Village in the eastern Brooks Range, resulted in the discovery of 42 sites. Most were chipping stations, although the presence of large salmon meal and domestic tools at some suggests short-term campsites associated with caribou hunting. Recovered artifacts include small knife blades, fish-hooks, and a projectile point of bone, and a number of small stone and bone tools. No structures were found, and the results suggest that no systematic faunal, and ecological survey to date is presented in a preliminary descriptive report. (43)

Hammond, Norman, ARCHAEOLOGICAL INVESTIGATIONS IN NORTHERN BELIZE (BRITISH HONDURAS). (17) The results of excavations at the primary sites, Vask and Yaxhac, and ecological survey to date are presented in a preliminary descriptive report. (43)

Haran, Mark, TRADING SPHERES IN PREHISpanic MESOAMERICA. This paper analyzes evidence for the existence of distinct spheres of trading activity in prehispanic Mesoamerica. The trading sphere concept of evidence considered is ceramic. An attempt is made to define the boundaries of these trading spheres and to adduce evidence for their elaboration. The similarity of this construct to the concept of "ceramic sphere" utilized by type-variety analysis is discussed. The existence of two types of ceramic spheres is supported by data. The evidence indicates that a more general interpretation of the model are examined and some suggestions are made for further research. (38)

Hansen, K. T., CLIMATES OF THE LAST 10,000 YEARS IN THE NORTHEASTERN GREAT BASIN AS INFERRED FROM CULTURAL DEPOSITS IN CAVES. During the past score of years, the cultural deposits of a number of caves in the northeastern Great Basin have been excavated. A rich diversity of biological remains from known age have been recovered from many sites. Among these, a number of underground storage conditions prevailing during the various periods of deposition. Based upon such evidence, a climate sequence for the northeastern Great Basin is formulated and the supporting evidence presented. The sequence is compared with other climatic models and its implications for human ecology are discussed. (42)

Hatch, Marion P., A POSSIBLE CALENDAR IN THE MADRID CODEX. It is shown that the pictures accompanying the 260-day count on pp. XII to XVIII in the Madrid Codex correlate with known values of the solar cycles of certain known cultural periods. The correlation was observed after the year 1848. This paper presents the results of this research and discusses the implications for the understanding of the cultural cycles that it may have been important, along with ethnographic information, to support the argument. (12)

Hauke, Forrest Richard, THE PRECLASSIC HYDRAULIC COMPLEX AT EDZNA, CAMPECHE, MEXICO. During the months of October through December, 1977, a variety of hydraulic systems were investigated at the lowland Maya site of Edzna. These systems consist of canals, reservoirs and aqueducts which were evidently constructed for the purpose of drainage and manual irrigation. The canals vary in size from 12 km to 600 m long and the reservoirs range from 25 m in diameter to large constructions over 100 m in length by 60. The investigation of these hydraulic features was accomplished in 3 parts: an ecological study of climate, soil, and animal agriculture; a surface survey and mapping of areas containing evidence of the hydraulic systems; and excavation at critical points for the purpose of determining temporal aspects, construction techniques, and function. (18A)

Heltmuth, Nicholas M., TEOTIHUACAN-COTZUMALHUAPA-VERACRUZ ART IN ESCUINTLA, GUATEMALA. Hundreds of whole Teotihuacan-like figurines, incense burners, candelabra, and cylinder tripods have been excavated recently throughout the coastal lowlands of Veracruz State. Some of these cylinder tripods are in pure Teotihuacan style, others are in a possibly proto-Cotzumalhuapa style, others have Veracruz or Teotihuacan style, which are in a strange style, and finally there are other styles in the same scene. This contemporaneity (ca. fifth to sixth centuries A.D.) may necessitate revising traditional dates for Cotzumalhuapa and (Toltec) Chichen Itza style. (5)

Hoffman, Michael A., ARCHAEOLOGICAL EXCAVATIONS AT HIERAKONPOLIS AND THE RISE OF THE EARLY EGYPTIAN STATE. Excavations and site surveys conducted at Hierakonpolis in Upper Egypt by the American Museum of Natural History in 1969 have revealed demographic and environmental evidence for human occupation of the area during the predynastic period. This period has been considered the most important stage in the development of the prehistoric and state settlement patterns and paleo-economy provided a new and more detailed record of the emergence of the Egyptian state. It can be seen that a combination of factors, including both microclimatic change and social organization shifts, coincided at a point in time and generated the rapid development of state level organization in Egypt at the end of the fourth millennium B.C. (25)

Horder, Preston, HAVE SPADE; WILL TRAVEL—THE ARCHAEOLOGIST AS MIGRATORY WORKER. (14)

Hollis, Thomas D., and Robert B. Pickering, ANALOGUES IN A CHALCHIHUIHUACULTURE, SOUTHERN MICHOCAN, MEXICO. Analyses of over 700 obsidian artifacts, blades, bifacial and unifacial tools provide new information on Mesoamerican obsidian-flaking techniques. Microscopic examination of two patterns on tools in the collection have led to the development of hypotheses regarding their function. (38)

Hodson, Doris, CHICOMOZtoc IN TEOTIHUACAN? Analysis of the cave recently discovered under the Pyramid of the Sun in Teotihuacan, based on historical written sources and archaeological evidence, refutes the idea that the cave is Chichmacoztoc, place of creation. I suggest some local evidence for the building of the Pyramid of the Sun and that later Aztec accounts of rulers being buried underneath the pyramid may have been based on the tradition of the building made by Millon, Dreyfus, and Benioy, and to their anticipation of a sacred pit or tomb within the earliest structure. (35)

Hibben, Frank C., PALEO-INDIAN AND DESERT ARCHAIC MANIFESTATIONS AT CAMANCHE SPRINGS, NEW MEXICO. (16)

Hickey, Clifford G., INPUT-OUTPUT (INTER INDUSTRY) ECONOMICS OF ARCHAEOLOGICAL SYSTEMS, INPUT-OUTPUT (INTER INDUSTRY) ANALYSIS IS A MATRIX-ANALYTICAL TECHNIQUE GAINING WIDE USE IN ECONOMIC CYCLES. It is of interest to the enology and technological change, and when comparing national or cultural systems from an economic perspective, the approach is valuable. While this method may provide a way toward understanding the complex, interdependent economic relationships of archaeological societies, it is a useful tool for the study of cultural change. (21)

Hicks, Frederick, and H. C. Nimelson, THE CLASSIC PERIOD AT CESERRO PORTEZUELO, BASIN OF MEXICO. The Classic period in central Mexico was dominated by Teotihuacan. It has been suggested that Teotihuacan played such a pervasive role that the invasion of central Mexico that few other centers of substantial size flourished at this time, perhaps as the direct result of Teotihuacan economic and population relocation policies. One site whose earliest phase was corral with at least the later portion of the floruit of
Teotihuacan was Cerro Portezuelo, located about 31 mi to the south. The artifactual typology and architecture of Cerro Portezuelo’s Classic period phase are summarized and compared with the contemporaneous artifactual types and architectural remains at Teotihuacan and other relevant central Mexican sites. The nature of the relationship between Teotihuacan and Cerro Portezuelo is discussed in the context of the larger problem of possible sociocultural interactions between Teotihuacan and other central Mexican communities. (35)

Hirth, Kenneth Gale, SOIL PHOSPHATE AND SETTLEMENT ACTIVITY: A MESOAMERICAN TEST CASE? Although the known correlation of phosphate concentrations with ancient occupation areas has been discussed, this relationship is now well known. In the 1930s, the use of these concentrations in the study of human settlement has been hindered by the lack of a suitable technique to perform the laboratory analysis. We have used a new technique of sample processing to test the applicability of phosphate analysis for use by archaeologists concerned with settlement activity. On the basis of tests from 2 Mexican archaeological sites, it is concluded that phosphate analysis can be used to find and compare areas of differential human activity when other traditional methods cannot. (33)

Hamon, Robert J., ARCHAEOLOGY AND THE PRIMITIVE STATE: THE HAWAIIAN EXAMPLE. The Hawaiian primitive state hypothesis, which is supported by the ethnographic literature of the late eighteenth and early nineteenth centuries, states that at least one primitive state had evolved in the Hawaiian Islands and formed a prehistoric political system. An alternative to the assumption that Hawaiian socio-political systems had not advanced beyond the chieftain level before contact, this hypothesis proposes a framework within which archaeological research can be conducted. Recent emphasis on settlement patterns and ecological approaches has stimulated the study of problems related to this hypothesis such as the nature of Hawaiian social stratification, settlement nucleation, and agricultural intensification. (19)

Hubbard, Carol M., and John P. Maley, POLITICAL AND ECONOMIC INSTITUTIONS IN LATE POSTCLASSIC SOUTHERN MESOAMERICA. Political and economic institutions of Late Postclassic southern Mesoamerica are examined in a diachronic reference frame. Attention is focused on political units in Tabasco, Yucatan, Cozumel Island, and the Bay of Honduras. Historical events occurring between A.D. 1250 and A.D. 1520 are correlated and inferences about inter-polity interaction are made. It is concluded that many historical events considered in isolation can be filled into an overall framework of inter-polity conflict and alliance. (49)

Hudson, Lu Anne, PREHISTORIC COMMERCE NETWORKS: A TYPOLOGY. A typology for determining the commerce among ancient networks, mechanisms of commerce, population density, and settlement patterns is presented. The model uses quantitative approaches to data. It will initially be applied to data from the southwestern United States, specifically the area around the Mogollon Rim. (36)

Hurst, William M., MULTIVARIATE ANALYSIS OF ORR FOCUS CERAMICS, Oneota Orr Focus ceramics excavated from the Armstrong site (47-Pe-12) in western Wisconsin date from ca. 3000-1200 B.C. Diagnostic specimens have been coded and subjected to histogram, matrix correlation, dendrogram, principal component and multivariate analysis of variance programs. The results of these taxonomic orderings will be compared and correlated with previously published results for other areas. (29)

Hyman, David S., PREHISPANIC MESOAMERICAN CEMENTS. New information is provided on the use of concrete, stuccoes, and mortars utilized in pre-Columbian building construction. Field observations and comprehensive laboratory analyses of representative samples from Central America and the United States provide the basis for this discussion. The use of lime mortars derived from limestone rock were exclusively in Mesoamerica; that additives, surface treatments, and hardeners were commonly employed; and that early Central American mortars were quite technologically advanced. The question is raised concerning a Formative period development stage or exotic introduction. (13)

Ingerson, Daniel W., THE ASH-MAN COMETH. Archaeological and non-archaeological artifacts and printed records relating to material culture are used to analyze contemporary popular attitudes toward the Spanish American War. Attitudes inferred from material culture, discussed in terms implicit or direct reflection of the conflicting and other historical accounts, contemporary and recent. It is concluded that the average American citizen (U.S.A) approved of or favored imperialistic expansion and war and the nation’s role as a great power. The role of education, anti-imperialist attempts to encourage the expansion of the economy, and the nation’s history are dealt with in this paper. It is concluded that the average American citizen supported the war as a major source of political support and for the retention of territories gained. (9)

Irons, William, SOCIAL CONVENTION AND POPULATION DYNAMICS AMONG THE YOMUT TURKMEN OF NORTHERN PERSIA. This paper examines a particular tribal group in northern Persia relevant to Wynne-Edwards' hypothesis concerning regulation of population size through social conventions. The specific proposition examined is that among this group certain social conventions limit fertility in such a way as to maintain a stable balance between population size and the overall wealth of the tribe. After examining the data relevant to one specific group, the implications of this sort of evidence for an understanding of the general role of population growth in cultural development is discussed. (1)

Irving, W. N., STONE IMPLEMENTS FROM OLD CROW FLATS, Y.T. Of the several hundred stone implements from lookouts around Old Crow Flats, Northern Yukon Territory, very few can be attributed to the assigned typological groups. Paleo-Euro-American types were not found. This may be due to the fact that the first Euro-Americans to travel through this area were looking for resources and did not document their finds. (6)

Irwin-Williams, Cynthia, MODELS FOR THE ANALYSIS OF PREHISTORIC TRADE PATTERNS. (21)

Irwin-Williams, Cynthia, and Paddy Clarke, THE DEVELOPMENT OF DATA STORAGE AND RETRIEVAL SYSTEMS IN ARCHAEOLOGY: THE SAN JUAN VALLEY ARCHAEOLOGICAL PROGRAM. One of the most serious problems in the investigations of large complex sites is the organization and retrieval of data. The San Juan Valley Archaeological Project has developed a computer-based system for organizing and retrieving a prodigious amount of data generated. Computer data storage and retrieval systems represent the only feasible solutions to these difficulties, and also present opportunities for the improvement of the network of communication within archaeology, by combining increased availability with increased comparability. Where possible, from the inception of research, every element of information handling, including all phases of field recording, various stages of laboratory analysis, and contributions of ancillary sciences, should be adapted to computer format. Particularly critical are the methods adopted for the structuring and description of data. It is essential to design structures which represent the maximum efficiency in trade-offs between machine-time and human-time expenditure, retaining flexibility. Examples are drawn from the San Juan Valley Archaeological Project in northwestern New Mexico. (3)

Isebl, William K., AN ALTERNATIVE THEORY OF THE ORIGIN OF ANDEAN STATE FORMATION. This paper considers the possibility that Andean states are not the result of a simple transformation from band to chiefdom to state-level political organization. Rather, it is argued that Andean states emerged as a result of processes of political innovation and development in the Andes. These processes involved economic factors, the development of complex political institutions, and the evolution of new social and political organizations. (22)

Jack, Robert N., THE SOURCES AND PREHISTORIC DISPERSAL OF OBSIDIAN IN NORTHERN CALIFORNIA. Obsidian sources and more than 1500 obsidian artifacts from northern and central California has revealed widespread prehistoric trade of obsidian from at least 18 principal geologic sources in California and Nevada. (5)

Jackson, Thomas L., ON THE ECONOMICS OF OBSIDIAN TRADE IN CENTRAL CALIFORNIA. Recent applications of the X-ray fluorescence spectrography analytical technique have allowed archaeologists to determine the geographic source of artificial obsidian. The method has demonstrated the presence of obsidian originating east of the Sierra Nevada in the central basin of the San Francisco Bay region, east of the Sierra Nevada to sources of the Napa region which later come to dominate in the Bay Region. Possible explanations are presented. (31)

Jefferson, George T., A REEXAMINATION OF THE "PINTO BASIN SITE." Since the initial description of the "Pinto Basin Site," the questionable association of cultural material with certain occupation levels and the existence of extinct animal species are no longer resolved. An analysis of faunal remains recovered in contexts with Pinto lithic artifacts indicates that paleoecological conditions at the time of aboriginal occupation were not greatly different from present conditions. This analysis also demonstrates a time duration lies between the cultural debris and underlying lacustrine deposits which yield a late Pleistocene, Rancholabrean vertebrate fauna. (15)

Jennek, Arthur, AN ANALYSIS OF THE MIDDLE AND LOWER PALEOLITHIC IN- DALNES CAVES, TAMBUN CAVE, JAVA. EXTRADENTAL RESULTS. Between 1967 and 1971, over 40,000 lithic artifacts were recovered from over 69 depositional layers in the cave site of Tambun on Mount Carmel by the University of Arizona-Archeology of Michigan Project. These materials, range from Late Acheulean industries in the lowest levels to Levallois-Mousterian in the upper levels, and include
Katz, Paul R., THE LITHIC TECHNOLOGY OF A CERAMIC COMPLEX. Analysts agree that, because of its reductive procedures, the reconstruction of a lithic technology necessitates a concentration on debitage rather than, but not excluding, the shaped products. The fact that Kansas City Hopewell refuse pits are the only lithic-bearing units available for analysis, however, reveals that the general temporal, spatial, and cultural context of the data. Since these data are debitage not only desirable, but mandatory. One goal of my study is the establishment of a model for Kansas City Hopewell lithic technological processes, using observation, replication, and combination of theoretical and methodological analyses; and testing the results on other projective value of the processes that with ceramic complexes for the same complex. The goals of the study will be presented. (2)

Katz, Robert R., POLLEN FROM HUMAN COPROLITES IN NORTHERN CHILE. Pollen extracted from human coprolites in archaeological contexts in northern Chile indicates the forager's diet, as well as the general environmental conditions of the time. This method provides a unique perspective on the relationship between human activity and the environment in prehistoric Chile.

Kern, Alice G., DERIVATION AND TESTING OF A MODEL OF CULTURE CONTACT FROM AN EIGHTEENTH CENTURY FUR TRADE POST. Data from the Francois-Finlay site, a contact-period (1768-73) "peddlers'" fur trading post on the Saskatchewan River, is used to construct an archaeologically meaningful model of intercultural relations. The model is based on the analysis of ceramic and material culture as well as the examination of written records. The results suggest that the model can be applied to other sites and time periods.

Kettaneh, Richard W., CHIMU CERAMICS FROM THE MOQUE VALLEY, PENNSYLVANIA: ATMOPHYTELIC MONOMORPHIC AS A BASIS FOR SERIATING DOMESTIC POTTERY. The presence of similar pottery styles in different regions suggests the existence of a regional tradition. The study of ceramic styles from the Moque Valley, Pennsylvania, provides evidence for the existence of a ceramic tradition that is distinct from other traditions in the region.

Kettaneh, Richard W., CERAMICS FROM THE MOQUE VALLEY, PENNSYLVANIA: ATOMORPHIC AS A BASIS FOR SERIATING DOMESTIC POTTERY. The presence of similar pottery styles in different regions suggests the existence of a regional tradition. The study of ceramic styles from the Moque Valley, Pennsylvania, provides evidence for the existence of a ceramic tradition that is distinct from other traditions in the region.

Kettaneh, Richard W., CERAMICS FROM THE MOQUE VALLEY, PENNSYLVANIA: ATOMORPHIC AS A BASIS FOR SERIATING DOMESTIC POTTERY. The presence of similar pottery styles in different regions suggests the existence of a regional tradition. The study of ceramic styles from the Moque Valley, Pennsylvania, provides evidence for the existence of a ceramic tradition that is distinct from other traditions in the region.

Kettaneh, Richard W., CERAMICS FROM THE MOQUE VALLEY, PENNSYLVANIA: ATOMORPHIC AS A BASIS FOR SERIATING DOMESTIC POTTERY. The presence of similar pottery styles in different regions suggests the existence of a regional tradition. The study of ceramic styles from the Moque Valley, Pennsylvania, provides evidence for the existence of a ceramic tradition that is distinct from other traditions in the region.
Arizona, through dendrochronological and architectural feature analyses. Relationships between the structure and expansion of domestic groups and pueblo growth at Kiit Siet are examined. Finally, the implications of this intrusive demographic analysis for testing hypotheses concerning in-migration, pueblo abandonment and environmental stress are explored. (18)

Keister, Evelyn S., a Preliminary Description of Ceramics from the Tolas Site, A Chumash Site on Santa Cruz Island 1. In the summer of 1972 at a small site near the central coast of California, 449 sherds and 575 vessels were excavated and described. Also, certain ceramics which appear to be trade ware will be shown. An attempt will be made to correlate these with the description of the "Caro Phase," by Meggers, and to establish new site associations within the society which supported them, and the time period to which they can be assigned. (45)

Kishita, William K., Prehistoric Hawaiian Aquaculture. Found on all islands and in all districts, the 12 types of the prehistoric Hawaiian aquacultural system were geographically determined. Many of them were water-based. After a long period of shallow water aquaculture, the introduction of the Ulua fish is a significant event in the development of Hawaii's aquacultural system. (10)

King, Chester, an Explanation of Differences and Similarities of Beads. Differences in the dimensions of beads which are contemporary are related to the maintenance of separate flow networks connecting different energy stores. The use of different beads in different networks results in differential distributions and contexts of beads in mortuary contexts. Differences in the dimensions of beads over time can be described in terms of energy invested in manufacturing and resulting use. Changes in beads can be either the result of (1) increased or decreased networks resulting in change or (2) changes in the cost of maintaining sufficient stock to valid as status. This is related to the adaptation in different networks and the participation in a cost-sharing strategy for explaining the sequences of shell beads in different areas of California indicate continual growth of cultural systems accompanied by increased specialization of flow networks, increases in energy stored, and increased specialization of managerial roles. (31)

King, Thomas F., Buchanan V., A Study of Political Organization in the Central California Middle Horizon, California hunter-gatherers may be considered typical of non-agriculturalists living in rich, varied environments, so considerable effort has been devoted in recent years toward understanding this type of society. Most such studies, however, have been hampered by poor data-bases, the possibility of "contamination" by contact with white culture, or both. A recent study of 1000 yr old cemeteries on the Chowchilla River in central California provides the basis for some new assessments. (31)

Kirch, Patrick V., Early Settlement and Problems of Adaptation in Hawaii. Recent archaeological excavations on Oahu and Molokai Islands have provided evidence of Polynesian settlement by at least AD 600, on watercraft and foraging. Evidence from these early sites also suggests that the initial settlers possessed a fairly wide-ranging base of subsistence techniques, including shifting (dryland) and irrigated cultivation, animal husbandry, and marine exploitation. In this paper the data for local intensification of agricultural systems will be considered. The time period involved is roughly AD 600 to 1000. (18)

Klein, Joel L., The Relationship of Ceramic Sites to the Occurrence at Archaeological Sites. The occurrence of a specific ceramic type at sites discovered during a 1972 site survey in west-central New Mexico by the Cibola Archaeological Research Project is described. Analytic techniques are described, and an empirical test of the hypothesis concerning raw material distribution. The validity of a movement rate model for cases dealing with limited geographic areas is considered. (14)

Knudson, Ruthann, Edge Morphologies and Functional Units, Ayacucho, Peru. Computer-assisted attribute analysis of patterns of edge characteristics on lithic implements was presented this past year on 5000 yr old site in the Ayacucho heartland. Findings are discussed. (26)

Koeb, Charles C., The Old Shell Game: A Mesoamerican Trade Network. Quantities of unworked marine shell from both the Panamanian and Caribbean Marine Faunal Provinces were recovered from excavations and surveyed sites in the Tehuacan Valley, central Mexico. The bulk of the material was associated with Classic Teotihuacan ceramic materials (Late Tlamimilolpa to Late Xolotlan, ca. AD 400-700) at a rural site, S. Zacate, excavated by the University of California, Los Angeles. A formative Project (William T. Sanders, director). The archaeological distribution of Spondylus calcaratus (Gmelin) is presented, and the role of shell as a form of value in the importation of Pacific Coast shell to Teotihuacan, and were possibly involved in the subsequent market distribution to artisans at the urban center. Alternative hypotheses are also examined. (16)

Kroeber, Felix D., Examples of the Use of an Archaeologist of Her Own Sex to Define a Local Concept and Investigate Village Potters. It is proposed that the archaeologist working where ceramics are part of the artifact inventory has much to gain from observing potters whose techniques approximate those of the prehistoric culture. Not only will he recognize the marks of tools and techniques of construction and decoration on the sherds, which should make his types more closely reflect the potters' modes, but he will also acquire a fund of knowledge about their culture and economy and of the potters that will contribute to a more sophisticated interpretation of his total data. (26)

Krowne, C. M., R. V. Sidrys, and H. B. Nicholson, Mayan/Christian Date Conversion Program. A computer program has been developed for correlation to the Julian calendar for the 21000 year period preceding A.D. 108. This program eliminates the possibility of error in performing a large number of conversions and is much quicker than using correspondence tables. The Modified Thompson 2 Correlation Constant is used. An alternative constant may be employed. (25)

Kus, James S., Chimu Irrigation at the Quebrada de Oso Site, The Quebrada de Oso site is a small (ca. 50 hectares) site of irrigated agriculture associated with the Chicama-Moche Canal, an important inter-valley canal in northern coastal Peru. The site contains, but is not preserved for long-term use in agriculture. The irrigation and site were abandoned. The site was studied in detail. Six different furrow design types were identified and analyzed, particularly with regard to such factors as slope, field size, and possible crops. (45)

Laity, Edmund J., Archaeology in Arid Environments: National Park Service Project 77-528, The Pottery Trade in the Southwest, present is within the National Park Service system is examined, in particular. Halseakula, Maui, and the City of Refuge and Volcano areas of the island of Hawaii. (10)

Lane, Frederick W., Slave Mortuary Practices on Barbados. Excavations were conducted in a pre-Emancipation slave cemetery on the island of Barbados during the spring of 1971. The site, located near the sea shore, was found to be a cemetery containing the bones of male and female slave mortuary practices and grave goods. The site contained a series of profound changes in Guaule culture. These changes produced another group of the cultural type that became identified "La Florida" in the sixteenth century, the "Spanish." (13)

Laughlin, W. S., A. B. Harper, and S. B. Laughlin, Sea Level, Stratigraphy and Radiocarbon Dating of the Anangula Unifacial Industry. 8400-7600 B.P. Three forms of evidence independent of each other - sea level, volcanic ash stratigraphy, and radiocarbon dating - are used in the settlement record of换 curriculum and being used in the settlement record of the Arctic coastal zone. A comparison of the occupation of the western Canadian north coast, 6 m above an exposed water cut terrace which substantially the site. This is considered to be the site. This recent high upland occupation is at 22 m above sea level, this elevation and the adjacent occupation is at 12 m above sea level, an alternation 1972 site. A similar site was found 15 m above sea level. A rising sea level curve based on data from Nikolai Bay indicates that the inhabitants were forced to leave because of sea level encroachment around 7600 year ago. The site was protected by ten foot cliff taking place between 6800 and 5500 year ago, an event which drained Nikolai Bay and altered the southern end of Umnak Island. (7)

Lee, Susan L., Irrigation, ecological feedback, and Political Development. Archaeological recontruction of the development of complex, centralized political
structures generally ignore ecological feedback processes arising from concomitant environmental-mental-experimental patterns. The study of hydraulic facility development in relation to political organization is particularly enlightening in this regard. The explanation of cyclical patterns in the growth, expansion, decline, and disintegration of centralized hierarchical political organization in societies dependent upon hydraulic works is a timely and relevant concern. The paper will describe and discuss such a pattern as it has occurred in the Valley of Oaxaca, Mexico, and attempt to apply conclusions from this study to apparently similar patterns occurring elsewhere in the archaeological and ethnographic record.

Leone, Mark P., MATERIAL CULTURE IN AMERICAN UTOPIAS. Utopias founded under religious aegis usually attempted to express their principles for guiding life in every activity, including the community's technology. Most objects had explicit ideological significance. This was especially true in 19th-century Mormonism. In the framework of these objects, the utopian residents were often fashioned in such a way that their form and use reinforced the ideology manifested in their function. This relationship was usually an opaque one in American utopianism and the objects employed were not always necessary. For these utopians, the objects served to maintain American society, the explicitness of the relationship between their ideological ideas and the form of objects disappeared. The specificity of this evolutionary sequence is treated in an effort to understand the paper in the context of the 20th century's thinking.

Lewis, Father Clifford M., THE CALUSA. The group covered in this presentation was described by Boggs and Sturtevant as the Calusa, a stratified, non-agricultural society occupying southwest Florida. Their principal areas of occupation were along the west coast of Florida between Charlotte Harbor and Key Marco, with lesser sub-areas to the east, principally that near Lake Okeechobee. The culture is characterized by construction of elaborate mounds and canals, whose features seem to indicate ritual as well as practical significance. Efforts to establish and Franciscan missionaries to establish centers among the Calusa met with failure, but first-hand reports on the culture by the Jesuits and the early accounts of Menendez's attempts to cultivate the group provide many valuable details.

Linares, Olga F., ADAPTIVE RADIATIONS AND POLITICAL GROWTH IN THE TROPICS: A CONTROLLED COMPARISON OF EVOLUTIONARY DIVERGENCE DURING THE CLASSIC PERIODS IN WESTERN AND EASTERN MEXICO. The study of differences in subsistence-settlement patterns between the Atlantic sector (Bocas province) and the Pacific sector (Chiriqui province) of western Panama during the Classic period (A.D. 300-900) has revealed the evolutionary divergence in mass of agriculture-based population which migrated to either coast during the Classic and possibly before. A controlled archaeological test of long-range micro-environmental influences on the adaptive strategies of 2 migrant populations. (27)

Linares, Olga F., and Payson Sheets, LATE FORMATIVE ADAPTATIONS TO THE WESTERN LANDFRONT IN PANAMA: NEW SETTLEMENT-SUBSISTENCE DATA FROM BARRILES AND ADJACENT AREAS. Systematic survey and excavations in the basins of El Hato and Cerro Punta (Volcan area) and Chiriqui (Barriles area) revealed the existence of dense Late Formative (A.D. 600-800) "Barries," occupation comprising more than 40 sites located in the high terraces of Rio Chiriqui, at elevations between 1200 and 2000 m. The discussion in the light of micro-ecological differences, of contrasts in settlement patterns and subsistence techniques between the two areas. (27)

Lindquist, Alexander, Jr., and R. Gwinn Vivian, ARIZONA CONTRACT ARCHAEOLOGY: A SUCCESS, WHY? Publication of Public Archaeology has focused attention on the Arizona Archeological Survey, a successful model for programs designed for the management of cultural resources. An alternative to this model iscdfed in Arizona, a collaborative mosaic of institutes work in concert to formulate administrative practices, field strategies, and contemporary and future designs for archaeological resource management.

Livak-King, Jaime, THE RISE AND FALL OF THE CLASSIC AT XOCHECALEQ. A paper examines the processes of formation and dissolution of the complexes in the Classic and the consequences for the region's political and economic development. The study of these processes allows for a more general understanding of the role of social and economic factors in shaping political and economic development.

Lyons, Thomas R., James I. Ebert, and Robert K. Hitchcock, THE USE OF REMOTE SENSING IN THE MAPPING AND ANALYSIS OF A PREHISTORIC IRRIGATION SYSTEM. A prehistoric irrigation system at Kin Bineola near Chaco Culture National Historical Park in New Mexico was mapped and reconstructed using aerial photographs and geophysical data. The study demonstrates the potential of remote sensing for archaeological research.

Mack, Arlene M., IMPLICATIONS OF "SHELLED FIGURES" FROM THE BIG HORN MOUNTAINS OF WYOMING. While recording and analyzing pictographs from 4 sites in the Big Horn Mountains of Wyoming, some difficulties were encountered with "shelled figures." It is considered likely that the present known distribution of "shelled figures" is restricted to the Big Horn Mountains. It is also concluded that the "shelled figures" (other than a circular design element), which make up the shield figure, should be analyzed and compared, rather than the whole figure. (16)

Mackey, Carol J., DIFFUSION AND INVASION IN THE MOCHE VALLEY, PERU. A critical examination of the role of diffusion in the development of the Moche culture and the implications for the archaeological record. New models of the role of diffusion and invasion on the Peruvian north coast. This paper generates an alternative model for the role of these factors during the prehistoric occupation.

MacNeish, Richard S., THE ACACUCO ARCHAEOLOGICAL SEQUENCE. In Acacuco during the late 1970s, a 250,000 yr sequence of archaeological remains has been uncovered. This sequence is based on the excavation of 25 stratified sites and is confirmed by 46 radiocarbon dates. The sequence is divided into four phases: an early Holocene period, a Middle Holocene period, an Early Formative period, and a Late Formative period. The sequence provides new insights into the climatic and environmental changes that have occurred throughout the region.
throughout which there has been a stimulating set of interactions with other developments in the highlands and on the coast. (32)

Madden, Darryl, TESTING ECONOMIC HYPOTHESES IN ARCHAEOLOGY. (8)

Madden, David B., PLUVIAL-PLUVIAL VEGETATION CHANGES IN THE SOUTHEASTERN GREAT BASIN. A sequence of vegetational and climatic changes is provided for the arid Great Basin through integrated age of fossil radiocarbon dates. Plant macrofossils from 12 dated woodrat middens indicate a transition from a vegetation dominated by grasses to one dominated by woody angiosperms and an increase in the intensity of human activities. (31)

Maguire, John E., MARAQUARA INCISED CERAMICS AND THE POLYCHROME HORIZON. A close relationship between the Marajó phase of the mouth of the Amazon and the Napo and Caimito phases of the upper Amazon has been proposed. However, the techniques of Marajó incised ceramics will be compared with the motifs, vessel forms, and decorative techniques of Napo and Caimito. These comparisons and their implications for South American Tropical Forest culture history will be examined in the light of the devastation of the Marajó phase. (38)

Marcus, Joyce P., REGIONAL DRESS PATTERNS OF CLASSIC MAYA WOMEN. The Iconographic study of Maya women portrayed on Classic period monuments reveals distinct regional dress patterns. Elite women in the upper Usumacinta drainage were probably members of a common lineage, linguistic group, and all wear embroidered textiles. In the Peten, women were members of a different linguistic group and wear tubular-beaded “jade” skirts. The pattern recovered from these monuments can be explained by linguistic, political, economic, and ecological variables. (22)

Marr, Walter H., A STATISTICAL ANALYSIS OF HUMAN PALEOFECAL SPECIMENS. Data from human paleofecal specimens collected in Salts and Mammoth Caves, Mammoth Cave National Park, have been analyzed with a variety of statistical techniques. Cultural historical implications are discussed. (33)

Martin, Paul S., AN APPROACH TO TRAINING ARCHAEOLOGISTS AS ANTHROPOLOGISTS: AN EDUCATIONAL PHILOSOPHY. The training of archaeologists is designed by and for each individual. Consequently, we find that an open approach to learning about sciences creates opportunities for research participation that are not usually found in normal curricular patterns. By placing a premium on the problem-oriented approach a powerful motivator. Accordingly, learning proceeds along experimental, broadly based, and multi-dimensional lines. Theoretical rigor is introduced and applied throughout the course. Innovative aspects of the field school include theoretical orientation, an atmosphere of individual intellectual freedom, and an emphasis upon interdisciplinary and differing approaches within anthropology. (42)

Marriott, John P., Robert V. Morey, and James A. Zoldier, RECONNAISSANCE OF THE UPPER ARAARI REGION, DEPARTMENT OF THE METTLERNORIA, COLOMBIA. An archaeological survey of the upper Arari River has recorded a total of 15 sites, the first ever reported for the Llanos Orientales of Colombia, an area of 150,000 square kilometers. Most of the sites are located along the Arari floodplain. The expected size and depth of the sites suggest occupation by large sedentary societies. The traditional interpretation of the environment may require that the present site be examined further. (45)

Matheny, Ray T., THE MOATED “FORTRESS” OF EDZNA, CAMPECHE, MEXICO. A water moat system linked to a 4-km-long canal is currently under excavation. The moat is about the same size as the site of Teotihuacan but only contains a few constructions of the Late Preceramic and Early Classic periods. The site may have functioned in late Preceramic period or as a Late Classic period. The site may have functioned in late Preceramic period or as a Late Classic period military operations. (38)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mehring, Peter C., N. Warren, and Austin Long, DUNE CHRONOLOGY: THE STOPPINS SITES, ARIZONA, USA. Radiocarbon dating of dune samples from this site has been used to determine the age of dunes formed during the late Pleistocene and early Holocene. The results are consistent with other radiocarbon dating of dune samples from this site. (45)

Matson, Richard G., and William D. Lipe, REGIONAL SAMPLING: A CASE STUDY. The Cedar Mesa Project is an effort to characterize the archaeology and prehistory of the approximately 100 sq mi area of south-central New Mexico. Randomly selected sites are used to provide sampling units or clusters. Each cluster is randomly sampled within specified strata by means of 400 m square quadrats. The rationale for selecting this type of methodology will be discussed. The sampling design is critical. (12)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)

Mayer-Oakes, William J., AN OBSIDIAN SOURCE IN HIGHLAND ECUADOR. Recent field investigations have located a major obsidian source at a high elevation in the eastern Andes of Ecuador. Obsidian has been used in the southern Cordillera for at least 3000 years, and its origins date back to the late Agua Blanca period. The source is located at 4000 m above sea level, and the obsidian has been used by prehispanic cultures throughout the region. (26)
Morris, Craig, THE DEVELOPMENT OF ANDANE URBAN PATTERNS: A PERSPECTIVE FROM THE LATE HORIZON. The combination of documentary information and increasingly rich archaeological evidence in certain areas is enabling us to outline a picture of urbanization in the Inca period. The purpose of the paper will be to summarize the major urban centers and their contributions to the development of urban and rural society. (32)

Morris, Craig, SAMPLING PROBLEMS IN THE EXCAVATION OF AN URBAN SITE: THE CASE AT HUANUCO PAMPA. The paper will consider the design of an excavation strategy for an Inca city within the more general context of attempts to deal with the excavation of large urban sites. The paper will deal with the following issues: the assumptions and objectives that underlie the design of excavation strategies; the potential for testing these assumptions and objectives; and the potential for using excavation data to test hypotheses regarding earlier stages in the development of urban, state societies in the Andes. (32)

Morrison, Roger B., THE HOLOCENE GEOLIC-CLIMATIC RECORDS IN THE GREAT BASIN AND IMPLICATIONS FOR THE FUTURE. Effects of climatic changes during the last 11,000-10,000 yr (the Holocene epoch) were intensified in the Great Basin because of the separation of this region from the oceanic effects of the equatorial Pacific Ocean. Fluctuations in levels of "Pluvial lakes," in details of geologic-sedimentary sequences of various kinds, and in archaeological records of the human population. Nevertheless, the Holocene populations were comparable to those of the preceding Pleistocene. This region, front suggests that the warm interglacial climate of the Holocene climate has already ended or will end within several centuries and consequently with the ensuing glacial interval, mankind soon will be subjected to climatic stress far more severe than any since Indo-European civilization began ca. 6000 yr ago. (41)

Morse, Dan F., THE CAHOKIA MICROLITH INDUSTRY, Paleo-Indian, Jatokan, and Hopewell blade and core industries in the eastern United States have been widely known for 2 decades or more, although normally only Hopewell blades and cores are discussed in the literature. Other core and blade assemblages are now becoming known, such as the Cahokia microlith industry. Centered at the Cahokia site, located near St. Louis, characteristic cores, blades, and tools have been recognized in Arkansas and Florida, possibly associated with a frontier Mississippi culture. Apparent techniques of manufacture and hafting and probable uses of tools are described. May have involved the use of a vane, a grooved shaft. Both have been found in the literature. Cahokia microliths seem to have functioned mainly as gravers and drills. (38)

Moseley, E. M., LABOR ORGANIZATION IN LARGE SCALE CONSTRUCTION PROJECTS. An examination of large scale building projects within the Moche Valley indicates that the Moche labor force was probably organized into groups or "nests," with workmen each responsible for a specific task or distinct segment of construction. The hypothesis is advanced that different work teams were drawn from distinct social units obliged to fulfill a labor tax. (116)

Moseley, M. Edward, THE DEVELOPMENT OF URBANISM IN THE MOCHE VALLEY, Peru, 500 B.C., 500 A.D. Several years of survey and excavation in the Moche Valley on the north coast of Peru conclusively demonstrates that large scale urbanism was not introduced into the valley during the Middle Horizon via the process of "contact-induced urbanism." The primary origins of urban development in the valley can be traced to the Preclassic and Pre-Inca periods. The Moche Valley is considered to be one of the major pre-Inca urban centers in Peru. The hypothesis is that Long and Early Intermediate Period. (32)

Morden, Joseph B., THE COLLAPSE OF THE CLASSIC AT CHOLULA. As seen from Cerro Zapotecas. During 2 summers (1944 and 1945), study of prehispanic Indian mound use on the eastern edge of Cholula revealed drainage of a fertile lowland area during the Preclassic-Classical transition, plus evidence that the area was abandoned during the terminal Classic period. After the abandonment of Cerro Zapotecas, study changes in a different ecological setting. Surface sampling and excavation yielded extensive representation of Late Classic-Early Postclassic transitional materials. Some of the data collected as a result of this research and what may reveal about factors involved in the collapse of Cholula are discussed. (32)

Muehler, James W., ARCHAEOLOGICAL RESEARCH AS CLUSTER SAMPLING. The thesis of this essay is that certain kinds of archaeological research conform to the definition and properties of cluster sampling. Cluster sampling is defined as follows: sample element, sampling unit, and population—and is illustrated archaeologically. The differences between cluster sampling and other methods—simple random, systematic, and stratified sampling—are illustrated. The implications of this theorem for nonstatistical inference are grave; significance levels based on cluster sampling are different from those based on the other kinds of sampling. (28)

Muller, Jon, LATE MISSISSIPPIAN SETTLEMENT IN THE KINCAID AREA. Excavations and intensive survey in the area around the Kincaid site in Pope and Massac Counties,
Illinois, tend to support some, but not all, of the traditional models of Mississippian settlement in this area. Former estimates of population appear to have been too high, but settlement is organized in a more or less hierarchical fashion. (23)

Muto, Guy, ATTRIBUTES OF TECHNOLOGY VERSUS ARTIFACTS OF CULTURE. Recently we have come to better understand the mechanical principles of flintworking, and through the work of Faulkner, Speth, Muller-Reck can list those attributes of technology which are mechanically constant: a) related to the flintworking process, and b) attributes of technological form. Typology has long been a standard means of investigation and recently modified by the use of metric analysis and the super toy "The Machine." However, there seems some confusion about what to consider significant. The suggestion presented here is that technique and culture equals technology, and that metric attributes must be wed to qualitative features to provide a tool for the archaeologist. (22)

Muto, Guy, LEVALLOIS BLADES IN THE OLD AND NEW WORLD. The recent recognition of Levallois-like technology in the New World by DeGrand, and the discovery of diagnostic blade types not conforming to the classic definition of a blade and not derived from a uniaxial core. Blades have long been known from the Pacific Northwest but have not been associated with artifacts in the older assemblages. The technology which lies behind this phenomenon is explored. (38)

Neely, James A., and Michael J. O’Brien, IRRIGATION AND SETTLEMENT NUCLEATION AT MONTE ALBAN. Fieldwork during the summers of 1971 and 1972 has determined the presence of water control and irrigation systems at the site of Monte Albán, Oaxaca, Mexico. The findings are presented as a practical test of irrigation based theoretical models proposed to explain the development and maintenance of prehispanic settlement nucleation. (13)

O’Brien, Patricia J., A NEW SYNTHESIS OF STEELE-KISLER (WESTERN MIDDLE MISSISSIPPIAN) CULTURE. For the past 5 yr new research has resulted in sufficient data with which to radiocarbon revise the accepted views of the nature, settlement pattern and social structure of these people. The new view saw this was one of small agricultural villages using local resources the plains and having an unstratified and undifferentiated social order. New hypotheses concerning these notions as well as demograhic data are presented here which suggest a settlement pattern of individual household units as a basis for the organization of the site. The population would be integrated into a common mortuary area and ritual with probably only 6 to 8 households represented per cemetery. The implications of such a cultural pattern are examined in light of the present research and the idea that a related cultural origin originates from the Cahokia area and evolves or is transformed into Nebraska culture. (44)

O’Connell, James F., and Robert B e t t e n g e r , LITHIC ANALYSIS IN SETTLEMENT STUDIES: AN EXAMPLE FROM THE NORTHERN GREAT PREHISTORIC. Prehistoric sites in Surinam, Guyana, are divided into several functional categories on the basis of locational criteria and the formal character of artifact assemblages. Reconstruction of activities at each site permits predictive statements about certain characteristic tools, a comparison of formal to cultural changes, and a consideration of quantitative and qualitative aspects of variation among these characteristic tools at different kinds of sites. Confirmation of the predictive statements is seen as a basis for the settlement model. The general implications of the research for the reconstruction of prehistoric settlement and subsistence patterns are discussed. (14)

Olsen, Stanley J., INTRODUCTION OF DOMESTIC ANIMALS INTO THE SOUTHWEST. Most archaeological interpretations of domestic animals known to the Indians of the southwestern United States were the dog and turkey, prior to 1540. Between 1540 and the Pueblo Revolt of 1680, stock raising became a part of the culture of a few southwestern Indian societies. By 1700, domestic animals, the horse, camel, and donkey, have yielded domestic animal bones of a quantity sufficient to compare with known breeds today. The animals at Awatovi as well as those of other pueblos are discussed and illustrated. (18)

Olsen, Stanley J., ZOOARCHAEOLOGY IN THE ANTHROPOLOGY CURRICULUM. The value of the study of faunal remains as an aid toward interpreting archaeological assemblages is rare. In most of the current interdisciplinary studies (genetics, paleoclimatology, soil studies, etc.) how to best implement a course of studies so as to be of the most importance to archaeologists has already been offered by bioarchaeology or biology departments. The acquisition and handling of required research materials also must be considered. The use of both laboratory and field methods of instruction must be correlated. These and related subjects are discussed, giving particular emphasis to programs already in operation and how they have fared. (13)

Olsen, Alan P., AN EXAMINATION OF SOME FRONT RANGE ARCHAIC COMPLEXES IN COLORADO. Projectile points from recently excavated stratified sites from the Denver Basin north have been analyzed by multivariate cluster analysis and cluster analysis of attributes. The techniques show promise for the separation of various Archaic types from each other and from the later Woodland period. Earlier postulates of the Archaic sequence in the region may be in need of additions or revisions in view of these data. (44)

Osse, Paul P., QUIRIBUCA SHELTER: DATING THE PAJUAN LITHIC COMPLEX IN NORTH COASTAL PERU. Excavations at Quirobacu Shelter and the La Cumbre site, Moche Valley, Peru, have located the Pajuan lithic complex. The dating of this complex is discussed from the view of radiocarbon age determinations at both sites and geological data at La Cumbre. From this an attempt is made to relate the Pajuan complex to the other early lithic complexes in Andean South America both chronologically and stylistically. (45)

Paradis, Louise Iseut, ECOLOGICAL AND CULTURAL MARGINALITY IN THE TIERRA CALIENTE OF GUERRERO. The analysis of the archaeological and ethnohistorical records and of the ecological and modern data led to the construction of a model of human-environmental interaction in the Tierra Caliente of Guerrero in Mesoamerica. A pattern of constant movements of goods and people in and out of the middle Balsas River Basin has been—up to now—no more than an hypothesis. Corresponding to the ecological situation and to maintain contact with the rest of Mesoamerica. The nature of exterior influences (Olmec, Tarascan) is analyzed in this context. (16)

Parsons, Jeffrey R., THE RISE AND DECLINE OF CLASSIC TEOTIHUACAN: SOME IMPLICATIONS FOR EARLY POSTCLASSIC RIVERS IN THE TIERRA BAJA REGION. Classic Valley of Mexico. The delineation of regional settlement patterns between Late Formative and Early Postclassic times (ca. 300 B.C.—A.D. 900) in the eastern and southern Valley of Mexico indicates some marked dichotomy between the two periods. The role correspondence to the development and demise of the Teotihuacan state. This demographic and distributional perspective suggests that there are at least 3 radically different settlement systems in use in this area: a late Formative, a Classic, and an Early Postclassic. This paper attempts to offer a preliminary description of these 3 systems. (27)

Paulsen, Allison C., SIMILARITY SERiation AND THE TYPE-CHARACTER CONCEPT: AN EMPIRICAL COMPARISON OF TWO METHODS OF CERAMIC ANALYSIS. A system of classification that can be extended to other material has been widely used in ceramic analysis. This system is one of the most useful, and has been used for many years. The purpose of this paper is to develop a type-variety system that has been advanced and largely accepted as a method for analyzing and classifying pottery. Two recent and independent studies on the Teotihuacan period of early Mesoamerica using the type-variety method, the other the similarity, thus providing valid comparisons between the principles, procedures, and results, and the weaknesses and strengths of the 2 somewhat differing methods. (26)

Pauzen, Louis, C., CREVIS CREEK: NEW LIGHT ON THE FARMINGTON COMPLEX. Chacoans, but not others, are related to the Farmington complex have been found in situ in cemented graves exposed along Crevis Creek in central California. Analysis of the geology, landforms, and soils in the Crevis Creek valley establish a series of terraces reflecting a climate thought to be linked to Pleistocene climatic shifts. Tentative correlations are made with recently available studies of Quaternary landscape evolution and stratigraphy for adjoining river valleys. Stratigraphic position of the artifact assemblages found in the Farmington suggest that some of the collections may be related to Wisconsin glacial and eustatic events. Temporal and archaeological implications are discussed. (15)

Phagan, Carl J., LITHIC DEBITAGE ANALYSIS, THE AYACUCHO VALLEY, PERU. Debitage analysis, the study of detritus, is the only domestic method available for the study of tool manufacture. The study of detritus is important because it allows the researcher to study the general behavior of the tool maker. The study of detritus can also be used to study the technological processes of the manufacture of chipped stone implements. The analysis system was applied to a sample of the materials from the Ayacucho Valley, Peru. Each of the 76 samples was subjected to a number of analytical techniques, including microanalysis, analysis of raw materials, and examination of the size and shape of the tools. The results of these analyses suggest that the people of the Ayacucho Valley were able to produce a variety of stone tools, including knives, adzes, and axes. These tools were used for a variety of purposes, including cutting, digging, and woodworking. (10)

Pires-Ferreira, Jane Wheeler, EXCHANGE SYSTEMS IN FORMATIVE MESA AMERICA. (6)

Pitzer, Jean, A MICROLITHIC INDUSTRY FROM THE CHANNEL ISLANDS, CALIFORNIA. The author, in collaboration with W. R. Beuster and R. P. Heizer, has been analyzing an over 1000 lithic specimens from Santa Cruz and Santa Rosa Islands, California. These analyses include a study of microblade technology, including microliths, blades and burins; the greatest proportion of these materials are microblades ranging from 17 mm to 48 mm in length. The probable methods of detachment of the microblades are described. The wear patterns on the drills and burins are described and differences are made as to their
Plog, Fred, MODELS OF ECONOMIC ORGANIZATION AND EXCHANGE. This paper describes theoretical and substantive models of economic and exchange relations appropriate to the interpretation of patterns of distribution of non-local raw materials and finished products. The theoretical import of alternative models as well as their explanatory power is considered. Research strategies for evaluating the merits of alternative models are discussed. (11)

Puleston, Dennis E., THE MANIPULATION OF ENVIRONMENTAL VARIABLES BY HUMAN POPULATIONS AND SIGNIFICANT THRESHOLDS. In contrast to the highlands of Mesoamerica it has often been stated that the tropical lowlands is essentially homogeneous. Now appears to be an oversimplification of the case. New evidence indicates that the response of the sub-tropical forests of the region were manipulated in a variety of mutually distinct ways. This approach suggests a number of specific environmental factors. Some of the food production sub-systems resulting from this response include slash-and-burn agriculture, river levee irrigation, and the cultivation of swamps and fallow fields. Within each of these sub-systems there are functional relationships between productivity, population density, demography, settlement patterns, and some organization factors such as social Incaic social hierarchies, architectural adaptation, etc. Assessment of some of these relationships is presented in an attempt to discover significant thresholds. (1)

Puleston, Olga Stavarek, CULTURAL VARIABILITY AS AN ADAPTIVE FACTOR IN THE LOWLAND MAYA AREA. It is possible that variability even within small communities is adaptive, providing alternatives for situations of environmental change and thus helping maintain ecological stability. Thus populations with a greater number of subsistence alternatives in their behavior might be observed to have greater potential survival than populations with fewer alternatives. Upon examination of the food production techniques and site distribution in the Peten, Guatemala, it was noted that the adoption of a variety of food-producing techniques, the existence of social hierarchies, and the adoption of subsistence practices which are "preserved" by a few individuals but only be utilized by a larger portion of the population in situations of environmental change. In light of these data and interpretations from the literature, the effect of variability upon the stability of the ecosystem and the survival potential of the population is examined. (1)

Purdy, Barbara A., THE ARROWHEAD FACTORY SITE (MR 22), MARION COUNTY, FLORIDA: REPORT OF INVESTIGATIONS. Outcrops of high quality chert throughout north-central Florida were exploited by prehistoric peoples to fashion chipped stone tools. The site of the Arrowhead Factory Site, located in Marion County, was intensively and extensively utilized. In 1976, an acre of this site was bulldozed by amateurs to a depth of 6 in which approximately 10,000 stone tools were recovered, and loaned to me for study. In an effort to present the analysis of the chipping debris, discarded cores, and crude implements which were of no interest to the amateur collectors, a backhoe trench 5 ft wide and 160 ft long was excavated in addition to the amateurs' collections. The analysis of the material from this trench has been completed. A study of this kind contributes to our knowledge of lithic techniques and to a greater understanding of the types of activities (other than tool production) which took place at workshop sites. (2)

Quirarte, Jacinto, IZAPAN AND MAYAN TRAITS IN TEOTIHUACAN III POTTERY. Recent research demonstrates that the Xiaoluan basin found by Linne (1934) and used by VanMetre (1958) to characterize Teotihuacan III pottery, are actually non-Teotihuacan in style. The iconographic programs and the use of a vertical rather than horizontal format clearly point to Chiapas-Guatemala highland sources. A study of these vessels and other Teotihuacan III pottery fragments with Maya figurals and narrative patterns (reproduced by Linne 1934 and Sejourn 1936) will further elucidate the role played by Izapan and Mayan artists in the development of Teotihuacan art. (5)

Rathje, William L., and Frederick Gorman, THE GARBAGE PROJECT: OSCAR AS ARCHAEOLOGIST. Archaeology can be viewed as a series of conceptual schemes and technical procedures designed to resolve general questions of cultural change. The general goal of the Garbage Project is to identify the garbage collection, and census and other survey data to construct a systems model of the dynamics of resource distribution and consumption within a contemporary urban environment. This paper will describe the specific goals, data retrieval strategy, and tentative results of the project. (9)

Rattay, Evelyn C., CERAMIC EVIDENCE ON THE COLLAPSE OF THE CLASSIC AT TEOTIHUACAN. Recently, 25 small-scale, extremely detailed excavations were carried out by archaeologists of the Teotihuacan Mapping Project. The majority showed strong Metepec (Teotihuacan IV) occupation overlying occasionally occupations of the Olmec-Tecpan phase that occupied the site. Data from excavations and surface survey have modified the picture of a drastic reduction in population during Metepec times and clarified the relationships between various periods immediately preceding and following ceramic chronology provides a more solid foundation for understanding the processes involved, in the decline of Teotihuacan. (27)

Raymond, J. Scott, SOME SPECULATIONS ON THE ECONOMIC IMPORTANCE OF THE UPPER MONTANA DE PERU TO PREHISTORIC ANDINIAN CIVILIZATIONS. The importance of the forested eastern slopes and valleys of the Andes to the central Andean civilizations has been repeatedly emphasized by ecologists and anthropologists. Some have argued that the rugged terrain and dense vegetation of the valleys was inhospitable, or otherwise exploiting this vast region to the east. Archaeological and historical data from the montaña and sierra of the Department of Ayacucho are used to support a theory that there was extensive colonization of selected areas of the montaña during the later prehistoric and historic periods of Peruvian prehistory. The Middle Horizon is suggested as the possible time for the onset of such colonizations. (38)

Read, Dwight W., REGIONAL SAMPLING. This paper will discuss some of the theoretical issues involved in sampling strategy, such as the selection of units, the efficiency of different types of sampling that might be done, the mathematical implications that a particular sampling scheme has for descriptive statistics and statistical hypothesis testing, and the efficiency of different types of sampling schemes. (26)

Redman, Charles L., PRODUCTIVE SAMPLING STRATEGIES FOR ARCHAEOLOGICAL SITES. There are numerous steps in the archaeological investigation of individual sites which can be made more efficient and reliable if a sampling strategy is employed. These include the selection of areas to be excavated, the clearing of debris, and the evaluation of the data. A sampling strategy can be used to select areas for excavation, samples of soil to be screened or floated, and selection of levels and artifacts to be analyzed in detail. In all types of sampling it is necessary to make important decisions which have a bearing upon the interpretation of the archaeological material, and his knowledge of sampling design. Questions of sampling procedure, stratification of the population to be sampled, size of the sampling unit, and procedure for population to be sampled must be evaluated in such a way as to maximize usable results and not to carry on sampling for its own sake. (28)

Reid, J. Jefferson, THE ARCHAEOLOGIST AT WORK: PAST AND PRESENT. It is proposed that archaeologists can apply their method and theory to the study of material culture, in order to better understand the social, political, or economic systems of the past. This approach is especially relevant to modern human behavior. This symposium theme is discussed as a promising research strategy within the framework of accepted archaeological procedures for investigating relationships between material culture and human behavior. (5)

Renfrew, Colin, THE LAW OF MONOTONIC DECREMENT. An empirical observation of trends in material culture exchange. Exchange of material culture is subject to a "law," departure from the law may be used as an indication of redistribution or other central-place trade. (21)

Reymann, Jonathan E., ARCHEO-ASTRONOMICAL FIELDWORK. This paper discusses the formulation of archaeo-astronomical hypotheses and the equipment, techniques, and data that are necessary for testing them. (32)

Rice, Glen Eugene, SUBSISTENCE AND SETTLEMENT PATTERNS OF EARLY MASONRY HAMLETS—MOLLETON TRADITION. A model of successive prehistoric settlement/subsistence systems will be proposed for the Molleton tradition of central-eastern Arizona. Behavioral and functional analysis of artifacts from early masonry hamlets of the Blue River will then be used to load the model in an attempt at explaining changes in distribution of Mollecon settlements through time. (23)
Riley, Thomas J., AGRICULTURAL ARCHAEOLGY IN HAWAII: ITS PROBLEMS AND PROSPECTS. Agricultural practices of Neolithic societies have been treated on various planes by prehistorians. In some instances they have been virtually ignored in model construction; in others, detailed descriptions of fossil agricultural systems have played an important part in understanding cultural stability or change. It appears, however, that a considerable amount of information concerning Hawaiian agricultural practices can be attained through archaeological methods. The problems of agricultural reconstruction and its implications are probed. (19)

Rock, James T., THE CONSTRUCTION UNIT IN A PREHISTORIC PUEBLO. This report is a preliminary analysis of the investigation of a construction unit (a single room) that was dug in at Grasshopper (Ariz. PI:4:14), during the 3 season fields of 1970, 1971, and 1972. The report defines the concept of construction unit and its interrelationship with the site and then demonstrates through the use of topographic data the possible related social unitary behavior that might have constructed the rooms and later lived in them. The project has 2 major thrusts: first, to demonstrate the existence of architectural units, and in a single room, and second, to investigate the social behavior demonstrated by the physical unit of the construction unit. (18)

Ros, Peter G., THE PANONI AFFILIATIONS OF THE CUMANCAYA COMPLEX. Recent stratigraphic excavations at the site of Cumancayacocha, UCA-22, in the Peruvian-mountains have recovered a large sample of ceramic pottery. Of particular interest is the number of vessels produced by modern Panoni-speaking riverine groups like the Shipibo-Chocho and the most developed ceramic of the inter-fluvial Panonias, those of the Cashinahua. In addition to these marked characteristics, a special feature of the Cumancaya ceramics, is the evidence of affinities with the Valdivia and an ancient female burial recovered from the Cumancaya mound. Since this ceremonial complex is an exclusive Panoni trait, the artifact's discovery, along with the other ceramic data, presents a good indirect argument for the Panoni linguistic affiliations of the Cumancaya complex. (30)

Rohn, Arthur H., HOW WELL CAN WE SAMPLE ARCHAEOLOGICAL SITES? Archaeological sampling procedures can be properly evaluated only by their abilities to predict the natures of the universes from which the samples are derived. At low levels of excavation, the Milliken site makes a comparison of the site from areas excavated using a 2 m. square grid permits an evaluation of several possible sampling procedures. Subjective selection of major features, tufurrences, artifact density plots, and excavation squares by random numbers all would fail to predict significant settlement characteristics. (28)

Rosendahl, Paul, ABORIGINAL AGRICULTURE AND RESIDENCE IN UPLAND LAPAKAHI, ISLAND OF HAWAI. Recent research has defined an extensive dryland agricultural adaptation based on upland cultivation shifting to the valleys in wetter seasons. It is suggested that the prehistoric Lapakahi peasants were shifting their agricultural base in response to complex socio-political pressures rather than simple population increase pressures alone. (19)

Rovner, Irvin, TECHNOLOGY AND TYPOLODY OF THE OBISIAN INDUSTRY AT MAYAPAN. The Carnegie collections of obsidian from Mayapan, Yucatan, Mexico, have been studied for a number of years and the retouching process has been defined, and techniques of core reutilization have been recognized. Many blades were deliberately broken, probably by a punch technique, and retouched into a variety of tool types including fluted scrapers, denticulates, burners, and so forth. (18)

Sanford, Patricia R., A COMPARISON OF POLLEN ANALYTICAL DATA FROM FECAL AND SOIL SAMPLES: SOME IMPLICATIONS FOR ARCHAEOLOGY. Human or other animal coprolites from archaeological sites are often submitted to pollen analysis in an attempt to learn something about the diet and ultimately the subsistence economy and environment of prehistoric peoples. No direct comparisons have been made between pollen analytical data derived from fecal material and similarly derived pollen samples that result from soil samples. The pollen that was collected from soil samples yield macro-environmental interpretations, while data from fecal samples yield micro-environmental interpretations. This assumption is tested with analyses of modern fecal and soil samples from sheep, deer, and elk and with archaeological fecal materials of putative human origins from a cave in eastern Oregon. (23)

Sargent, Kathryn E., REDFISH OVERHANG: A SURPRISING HASKETT SITE FROM THE GLACIAL-CONFUSING SETTING OF CENTRAL IDAHO. New evidence of the Haskett Early Man tradition, usually associated with the Idaho, Wallowa Plains and southern Idaho and Oregon, is found in a glacial valley of central Idaho. A cache of preforms and a finished point, radiocarbon dated at 9860 B.P., illustrate the tool making technology in various stages of completion. In addition, there are earlier and later materials of the same tradition at the site. Stratigraphy allows important inferences about climate and glacial retreat in the Sawtooth Mountains of central Idaho. (7)

Sarma, Akkara, and Barry A. Bopin, CLIMATIC AND BOTANICAL OBSERVATIONS FROM SOUTHEAST COASTAL ECUADOR. During the period of the Latacunga occupation at 9871 B.C., Ecuador had a climate more similar to that of the normal. Such extensive rainfall has been thought to be in a 7 yr cycle along the Peruvian and Ecuadorian coasts, although deposits were collected from Santa Elena Peninsula, Ecuador after the rainfall was over, new plants not local to the region have been identified. A discussion of the relevant environmental observations and botanical findings will be presented. (45)

Saxe, Arthur, CULTURAL ECONOMICS AND ANTHROPOLOGICAL ARCHAEOLOGY. (8)

Schiffer, Michael B., UNDERGRADUATE CONTRIBUTIONS TO MODERN CULTURAL Ecology. A recent class in archaeological interpretation at the University of Arizona permitted students to investigate relationships between material culture and biological and cultural variables of the United States. Several of these studies have implications for understanding the operation of complex industrial societies. This paper describes the results of several interesting projects. One study, exploring the relationship between the size and shape of the pottery vessel and the probability of that vessel being a vessel of higher social status, produced an important positive feedback loop contributing to system disequilibrium and growth. (19)

Schultz, Sandra, and Robert Chenhall, NETWORKS OF ARCHAEOLOGICAL DATA BANKS. The behavioral models which are the theoretical result of the analysis of archaeological data depend upon the availability of data to archaeologists. Some system would facilitate the dissemination and exchange of information would seem desirable. A network of archaeological information exchange could function theoretically at a number of different levels, including: a tightly controlled common data bank system; a decentralized system which required no more than standardization of terminology and definitions; or a system which supplied only advice concerning computerizing and analyzing data. An evaluation of the practicality and/or desirability of the alternatives for research in archaeology necessitates an examination of the nature of and extent of the use of archaeological data for research purposes; the structure of the network itself should not restrict or dictate the structure of the research applications of the data. (3)

Schuyler, Robert L., PRE AND POST-INDUSTRIAL SOCIETY AND ARCHAEOLOGY AS THUNDER AND COAL. A number of aspects of social change and cultural development have been discussed and in some cases called for a redefinition of archaeology as the scientific study of material culture irrespective of temporal position in contrast to the implicit traditions of prehistoric social development. This paper suggests that the concept of "center" used to produce a number of serious problems: problems which, however, are only relevant to a "Looking Backward Attitude." If in contradistinction an evolutionary perspective is assumed, it is suggested that prehistoric cultures exist in a position to make vital contributions to the study of modern society. In turn, such studies are predicated to have extensive and positive impact on the total discipline of archaeology. (9)

Shaffer, Harry J., DEBITAGE ANALYSIS AND REDUCTION SYSTEMS AT THE GEORGE C. DAVIS SITE, TEXAS. Analysis of lithic debitage at the Davis site revealed that local lithic reduction strategies varied with respect to the raw material classes (flint, quartz and chert) and from the site of Mayapan to the site of Naco. In addition, certain raw materials were not used at the site. However, one non-local resource, a natural glass, was brought to the site in significant quantities. There are significant differences in the types of tools manufactured on the site. (18)

Shaver, Rosemary, ARCHITECTURE AS INTER-ELITE COMMUNICATION IN PRE-CONT. VERACRUZ, OAXACA, AND YUCATAN. Recent investigations strongly suggest that within a particular society great art is produced. This art is a communication device conveying diverse symbolic messages as a means of conveying complementary symbolic meanings. During Late Classic and Postclassic times suggest, first, that this theory can be extended to inter-societal relationships on an elite level, and, second, that the "great" style functioned in a similar manner for participating and contributing to a common identity. (3)

Shapin, Philip B., THE TWO CHIPPED STONE INDUSTRIES OF BARRILES, WESTERN MEXICO. The results of a high school project investigating the Barriles chieftain, Chiriqui Province, Panama, within was recently conducted. The chieftain, located in the highlands between 4000 and 5000 ft, dates to ca. A.D. 300. The results of the analysis of lithic tools and wattle indicate the existence of 2 separate industries: flake tools and celts. The flake industry seems to be a household or cottage industry, directed toward the production of general cutting tools. The used flakes, wattle, and cores from this industry were encountered at a few sites. Celts, on the other hand, were manufactured and reshaped only at the major sites. Celt manufacture
apparently was an emergent occupational specialization. The industries differ even in the nature of errors made in the direction and amount of applied force. (2)

Shaffer, Charles, FOOD PROCUREMENT IN A SEMIARID PLAIN: A PROGRAMMED MODEL. The model is designed as a dynamic simulation of a food procurement system based on a well-documented and gravity model. The model uses a series of equations and parameters to simulate the interactions between different components of the system. It is intended to provide a framework for testing hypotheses about the effects of various factors on food procurement efficiency. (23)

Sidrys, R. V., TRADE INDICES FOR UTILITARIAN IMPORTS OF THE CLASSIC MAYA. It is suggested that the methodologies of recent models of Classic Maya exchange systems contain several sources of significant error. These include the treatment of interactions and interrelationships as discrete events, and the neglect of trade as a process of cultural transmission. The model uses a system of trade indices to quantify the extent and nature of trade, and to identify areas where further research is needed. (24)

Simons, Michael P., EXTERNAL TRADE AT ASH TEMPER IN NORTHERN YUCATAN. Volcanic ash is a major tempering material for several common ceramic wares in northern Yucatan, although it is not known to occur naturally anywhere on the peninsula. Although its ultimate source is unknown, the distribution of this material has suggested the hypothesis that it was a valued trade item that was not equally available to all potters. Change in its distribution may thus serve as an indicator of shifts in trading patterns. (16)

Simons, Dwight, FAUNAL REMAINS FROM NORTHERN CHILE. The analysis of the faunal remains from 4 preceramic sites in the Tarapaca region of northern Chile is presented. The faunal remains are used to infer the environment and subsistence strategies of the preceramic population. (17)

Singer, Clay, A., Robert O. Gibson, and Herrick E. Hanks, LITHIC ANALYSIS AND SAMPLE DESIGN IN THE UPPER SANTA CLARA RIVER VALLEY. Recent archaeological research in the upper Santa Clara River Valley region of Southern California has focused on the development of the standardization of archaeological techniques for interpreting and analyzing lithic assemblages. This study describes the use of different analytical techniques and their results. (18)

Singer, Clay, A., SELECTED COMMENTS ON THE ANALYSIS OF MESOAMERICAN OBSCUDB BLADE ASSEMBLAGES. In conjunction with the symposium on lithic analysis, this brief presentation is intended to stimulate discussion of the need for more standardization of techniques used to interpret obsidian blade assemblages from Mesoamerica. Two aspects are examined: first, the identification of blade forms derived from both sources, and second, the identification of blade forms on or off the various blade forms. Examples from both surface and subsurface collections are presented. (19)

Sinoto, Yoshio H., POLYNESIAN OCCUPATIONS ON PITCAIRN AND HENDERSON ISLANDS, SOUTHEASTERN PACIFIC. A round-ended rectangular dwelling pit was uncovered on Pitcairn and used as a quarry for volcanic rock before AD 1000. Excavations conducted in 1888 at Henderson Island, known as an unhitched raised atoll, yielded evidence of human occupation for 800 years after AD 1169. (20) The settlement was abandoned in the 17th century. The Mesquites were occupied by the Spanish in AD 1700. It seems probable that this was the last occupation on both Pitcairn and Henderson Island. Especially Henderson was most likely occupied and occupied by the Mesquites. (21)

Skinner, S. Alan, BURNED ROCK MIDDENS AND PREHISTORIC SETTLEMENT PATTERNS. For over 30 years, enthusiastic burned rock middens have been recorded, tested, and trenched, but little attention has been given to the associated settlement patterns. (22)

Smith, Carlyle S., A COMPARISON OF FIFTY BELL-SHAPED CACHE PIT SITES AT THE TOTANAKA, SOUTH DAKOTA site. The TOTANAKA, SOUTH DAKOTA site is a bell-shaped cache pit site in South Dakota. Fifty bell-shaped cache pits, all filled with trash, are attributable to the 2 Coalescent components. No pits of any kind are attributable to Plains Woodland. Shallow burials and fire hearths are also present. The site is located in a transition zone between the Plains Woodland and the Woodland, and locations of the 50 bell-shaped cache pits were coded and punched on IBM cards. The results indicate that dimensions vary in relation to components and in whether or not the pits were outside of dwelling. The bell-shaped cache pits were used in the Initial Coalescent variant then in the Post-Coalescent variant. (23)

Smith, Hale G., and Mark Gottlieb, SPANISH-INDIAN RELATIONSHIPS IN SOUTHEASTERN GEORGIA AND FLORIDA. This paper deals with the Spanish colonization of Florida and the relations between Florida Indians and their Spanish neighbors. The time period includes that from Ponce de Leon's voyage, A.D. 1513, to A.D. 1800. The initial contact, aside from trade, appears to be that of procuring slaves. The main reason for the Spanish Involvement in Florida was military and it defense of its trade routes. In order to attain Indian support, as allies as well as a means of foodstuffs and conversion of the Indians to Christianity, 2 mission chains were established. The initial mission chain extended into the Gualas area of the present state of Georgia and was maintained by the Jesuits. Later, the St. Augustine-Fort San Luis chain was established and maintained by the Franciscans. Ft. San Luis is on the site of present Tallahassee, Florida. The Spanish, in addition to being militarily and mission oriented in their activities in Florida, also had a hacienda complex in operation. (24)

Snrdis, Michael J., PILOT STUDY OF CERAMICS FROM CERRO CHICO, ACAMBARO, A NEW SITE IN WESTERN MEXICO. Preliminary analysis of sherd s from 2 test pits at Cerro Chico, in western Guanajuato, is presented. This is an ongoing project extending from pre-Class to post-Class times. Although some previously recognized types appear, local pottery traditions seem to predominate. Sherd lots from several potential phases and sites is hoped that a better ceramic sequence for this area will be extended in the near future. (25)

Speth, Carl D., TOWARDS A MODEL FOR THE EMERGENCE OF INTEGRATIVE AGRICULTURE AND COMPLEX SOCIETY. The most complete record of ancient agriculture from the Andes region comes from the desert coast of Peru. There is little archeological evidence to support the hypothesis that political authority developed independently from economic forces. Instead, political authority was dependent on internal factors, was in response to more advanced systems external to it, and is a result of the development of complex societies. The time scale for the development of complex societies is much shorter than that needed for the development of agriculture. (26)

Spence, Michael W., THE DEVELOPMENT OF THE CLASSIC PERIOD TEOTIHUACAN OCCUPATION IN MEXICO. The Teotihuacan Project has defined several classic-period workshops dating to the Late Preclassic Tzacualt phase. These are compared with Classic workshops in terms of location, extent, items manufactured, etc., to determine the factors influencing their development. (27)

Spelbauer, Ronald H., CULTURAL USE OF THE LITHIC RESOURCE BASE IN UNION COUNTY, ILLINOIS. Recent investigations into the aboriginal utilization of prehistoric environments, undertaken within a settlement pattern framework at an isolated site, will be presented. The lithic resource available to the aboriginal occupants of Union County, Illinois, and adjacent areas. Further work has been aimed at determining differences in the acquisition and modification of these resources most specifically chert, by the various archaeological cultures in the area through time. (28)
interaction systems. The data consist of large-scale map units on which a standardized scheme of resource potential for forest, fish, wildfowl, and other resources is plotted. A system of quantifying and comparing the total resource potential of areas is discussed, and applied to archaeological data from The Pas, Manitoba, and other sites along the Saskatchewan River. (41)

Tartaglia, Louis James, INFRARED ARCHAEOLOGY. Infrared photographic investigations were undertaken with the attempt to translate Julian Steward's theory of historic Great Basin Shoshonean settlement patterns into a set of archaeologically testable propositions. As with most simulations of this sort, the Basin I model was severely restricted by the existing ethnographic reporting (especially with regard to material culture), by an imperfect grasp upon the behavior of critical environmental parameters and by the general lack of adequate controls to check how well the simulation runs mirror reality.” This paper also discusses the procedures necessary for this particular case to articulate archaeological field data with the computer output. (74)

Thomas, Davis Hurst, THE HOW, \"WHY,\" AND \"SHOULD-HAVE-BEEN\" OF SAMPLING IN THE REESE RIVER ECOLOGICAL PROJECT. Most of the fieldwork of the 1976-77 season demonstrated that the project involved the exploration of a single valley system in central Nevada. Because almost no pragmatic guidelines for such sampling existed in 1968 when the research design was initially contrived, the effort was necessitated. However, as a result of this study, a first approximation of a stratified unequal cluster sampling technique was applied, using individual archaeological sites as sampling units, 580 square tracts as clusters and modern vegetational floristics as strata. In order to test and evaluate this novel field procedure, 12 weeks of fieldwork were required. In other words, the field operation alone consumed more than 2000 man-days. The advantages, disadvantages, and cost of that sampling scheme will be evaluated in future reports. (21)

Thomas, Davis Hurst, MICROWEAR STUDIES ON SOME ETHNOGRAPHIC NORTH AMERICAN HAFTED STONE TOOLS: PRELIMINARY FINDINGS. This working paper presents some preliminary findings of microwear investigation on 2 categories of ethnographic North American stone tools. Seven tools were utilized including variable wave-length lighting and scanning electron microscopy. Over 100 hafted Eskimo end scrapers were examined for consistent microwear patterns, and some consistent microwear patterns between Eskimo end scrapers and between each category of ethnographic microwear patterns were observed. In conclusion, the number of historic Plains Indian arrowheads and spears were studied to determine what sort of wear, if any, appeared on thrusting implements. If a consistent \"random background\" of microwear can be established, microwear data may be made toward separating prehistoric knives from blanks, from projectile points. (20)

George, Thomas D., 

GEORGIA, \"SHOULD-HAVE-BEEN\" OF SAMPLING IN THE REESE RIVER ECOLOGICAL PROJECT. Most of the fieldwork of the 1976-77 season demonstrated that the project involved the exploration of a single valley system in central Nevada. Because almost no pragmatic guidelines for such sampling existed in 1968 when the research design was initially contrived, the effort was necessitated. However, as a result of this study, a first approximation of a stratified unequal cluster sampling technique was applied, using individual archaeological sites as sampling units, 580 square tracts as clusters and modern vegetational floristics as strata. In order to test and evaluate this novel field procedure, 12 weeks of fieldwork were required. In other words, the field operation alone consumed more than 2000 man-days. The advantages, disadvantages, and cost of that sampling scheme will be evaluated in future reports. (21)

Thomas, Davis Hurst, MICROWEAR STUDIES ON SOME ETHNOGRAPHIC NORTH AMERICAN HAFTED STONE TOOLS: PRELIMINARY FINDINGS. This working paper presents some preliminary findings of microwear investigation on 2 categories of ethnographic North American stone tools. Seven tools were utilized including variable wave-length lighting and scanning electron microscopy. Over 100 hafted Eskimo end scrapers were examined for consistent microwear patterns, and some consistent microwear patterns between Eskimo end scrapers and between each category of ethnographic microwear patterns were observed. In conclusion, the number of historic Plains Indian arrowheads and spears were studied to determine what sort of wear, if any, appeared on thrusting implements. If a consistent \"random background\" of microwear can be established, microwear data may be made toward separating prehistoric knives from blanks, from projectile points. (20)

Thomas, Prentice M., Jr., SETTLEMENT PATTERN SURVEY AT BECAN, CAMPECHE, MEXICO. During the spring of 1972 a National Geographic Society sponsored expedition led by this writer initiated the first season of prehistoric settlement study at Becan in the Rio Bec region of Yucatan. Clearing operations and mapping of remains of prehistoric domestic structures netted a total of over 1168 mounds or structures within the several square kilometers immediately surrounding the site. First season results confirm a
surprisingly large, densely settled population radiating from Bocan. Also, the settlement remains at Bocan seem unlike those previously reported from the Maya area in 2 respects. The survey turned up over 680 very small artificial mounds which surely served non-religious functions. Second, the project located a series of variable sized artificial ridges for which several functions seem possible. (13)

Tonn, John B., EIGHTEENTH AND NINETEENTH CENTURY ESKIMO AND INDIAN TRADE ON THE SOUTHWESTERN UNITED STATES. The identities of peoples and population movements during the eighteenth and nineteenth centuries is developed from oral traditions, historical manuscripts, and archaeology. This is suggested by the present distribution of Tanana, Athapaskan people, 1800-1920. The Tanana-Iliamna Lake and interior regions of southwestern Alaska is a recent phenomenon. Tanana penetrated the interior to the Stony and Kuskokwim Rivers in response to Russian fur trading stimulus while Aleiglit moved into the Taku area region impinging on Tanana territory in response to inter-tribal hostilities elsewhere as well as the fur trade and slaving practices. (43)

True, D. L., ARCHAEOLOGICAL INVESTIGATIONS IN NORTHERN CHILE: PROJECT TANAHUACAL. Archaeological Investigations in northern Chile over the past several years have resulted in the identification of a number of sites dateable to the Archaic period in that region. A hypothesis is proposed that accounts for the extant settlement patterns in the region. The statement is that data recovered from 5 separate cultural contexts that fall within this time period. (16)

Tuggle, H. David, MODELS OF AGRICULTURAL GROWTH IN ISLAND ENVIRONMENTS. Postulated increases in production pressure in pre-European Hawaii are considered in terms of theories of agricultural growth, particularly those of Brookfield, Boserup, and Geertz. Agricultural systems responses are expressed as expansion versus intensification alternations within natural and social island environments. Examples of generated archaeological models are presented. The testing emphasis is placed upon the elimination of theoretical models rather than on the identification of patterns suggested by ethnographic models. (10)

Tuckey, Donald R., A COMPARATIVE STUDY OF LATE PALEO-INDIAN MANIFESTATIONS IN THE GREAT BASIN. One of the problems in the study of Desert West archaeology is the identification of Late Paleo-Indian manifestations in the Great Basin, and now these relate, if at all, to Plains-based Paleo-Indian groups of ca. 9000 B.C. to 6000 B.C. and compares data from the natural surface and excavated sites located in the central and western Great Basin, and attempts to taxonomically order the evolution of these cultures or complexes, based on similarities and differences in technology, as well as certain site features, and other data. (50)

Turnbull, Harold F., and R. E. Taylor, DIRECT DATING OF FOSSILS BY AMINO ACID ANALYSIS. Amino acids in living tissue degrade to simpler compounds by a characteristic rate after the death of the organism. These degradation rates provide a potentially valuable chronometric indicator. The age of a fossil can be determined by measuring the ratio of living and dead species in a fossil sample and employing the appropriate reaction rate constants. The feasibility of the method has been tested on a series of fossil elephant teeth ranging in radiometric age from 2 to 9000 years. The amino acid dates thus far determined are discussed in comparison to accepted radiometric dates. (39)

Varner, Dudley M., and Richard N. Betling, ARCHAEOLOGY AND POST-CONQUEST SITES IN THE VALLEY OF OAXACA, MEXICO. Oaxaca, the example of Charleson in the Teotihuacan Valley, studies have begun of ceramic technology, market systems and settlement patterns during the Colonial and Republic periods of the Valley of Oaxaca. Rural structures including haciendas and mills have been surveyed. Many are unoccupied and offer interesting research opportunities. In addition, colonial and precolonial structures have been abandoned in the historic period have been located. Their characteristics have important implications for the study of prehispanic settlement patterns. Continued archaeological research, coordinated with those of ethnography and ethnohistory, will increase our understanding of Oaxaca and effects of the Spanich conquest on them. (53)

Vivian, R. Gwinn, and Robert C. Buechner, PRE-COLUMBIAN ROADWAYS IN THE CHACO CANYON REGION, NEW MEXICO. Recently a series of prehistoric roads and road features have been identified, and a bridge have been "rediscovered" in the Chaco Canyon area of New Mexico. These roadways, forming networks linking Chacoan towns and tying outlying colonists to a possible nuclear center in Chaco Canyon, may be the advanced for Canyon people who are generally non-Anasazi phenomenon including use for military movements and for ceremonial functions. The hypothesis that this network served to facilitate the movement of goods or services is considered. (26)

Voors, Barbara, ARCHAEOLOGICAL INVESTIGATIONS IN THE COASTAL ZONE, CHIAPAS, MEXICO. This is a preliminary report of investigations (January-March, 1973) on small mounds located on the Pacific littoral southwest of Esquintla, Chiapas. The mounds, forming islands of dry land in a mangrove swamp environment, are formed of large concentrations of the marsh clam, Polyveneops sp. Previous investigators reported nonceramic strata underlying ceramic strata. The study focuses on the lower material, in order to reconstruct the prehistoric culture of these early coastal peoples. (43)

Wagner, Erika, CULTURAL RELATIONSHIPS AND CHRONOLOGY OF SOME UN-CERTIFIED SITES IN SOUTHERN ALASKA. The distribution of Tanana-Iliamna Lake and Los Banos sites of the Yana-Aqua Viva river (state of Trujillo) are related to some ceramic phases, so far unclassified, such as Belidfeo, on the basis of stylistic comparison with the central Alaskan Kiana and Tanana-Iliamna Lake radiocarbon environment will be compared with the site and the Iliamna lake and Iliamna lake zones. The new data will further clarify the culture history of the Intermediate area. (45)

Wallace, Dwight T., and Robert Carmack, STYLE AND STATE IN PERU: A SUGGESTED STRUCTURAL APPROACH. Taking a broad, structural view of style, it is possible to position the style of Chavin culture as a style that is both fully developing and still validly rests on internal structure, as well as on its historical reality. It contrasts with a northern (Chavin-Moche), southern highland (Tiwanaku-Wari), and southern coastal (Pachacamac-Nasca) tradition. Given its similarities with the tropical forest traditions, it may represent the older central Andean tradition. Regarding possible socio-political correlations, the visual display of state and political organization of style suggests broad patterns underlying such as a highland-cost diction, an old passive versus new aggressive patterns, and broad underlying patterns contrasting with the multiplicity of states reflecting on the formation and interaction of political units. (13)

Watanabe, Farley, VARIETIES OF IRRIGATION COMPLEXES IN WINDWARD KONA, HAWAII. Irrigation complexes in the windward valleys of Kohala, Hawaii, are examined in terms of size and formal types relative to topography and location. (19)

Weber, Ronald, CAIMATO PHASE CERAMICS OF EASTERN PERO. (39)

Weigand, Philip D., TRADE PATTERNS FOR TURQUOISE IN Mesoamérica AND SOUTHWESTERN UNITED STATES. Employing the technique of neutron activation, described at the 1972 SAA annual meeting, we have analyzed a substantially increased number of samples representing aboriginal groups in the southwestern United States. The results have been presented and compared to those of the sources already studied. The results offer some quantification of the aboriginal trade routes for this rare resource. (21)

Wemyss, John W., and Marrie Mandeveille, X-RAY DIFFRACTION ANALYSIS OF CLAY AND MINERALS FROM THE KUMLU Valley, PERU. This is an attempt to elucidate the degree of heat treatment on chert an X-ray diffraction analysis was done on samples of chert heated to different temperatures. In each case as higher temperatures were utilized the X-ray diffraction lines became more distinct. This indicates that heating causes the extent of the microscopic crystalline order to decrease or that the chert becomes more glassy-like. In fact it is possible to quantify the extent of this decreasing short range in each case. The X-ray diffraction technique used and the significance of the results with respect tool technology will be discussed. (20)

Whalen, Norman M., DELAYED ACCEPTANCE OF AGRICULTURE IN THE SOUTHWEST. Maize agriculture entered the Southwest during the Chiricahua stage of the Casita culture complex and not much after the time of Christ. In the light of general systems theory, It is proposed that mutagenic changes in maize led to the adoption of maize agriculture on a wide scale by the San Pedro culture, with effects on other aspects of their culture culminating in their transformation into early Mogollon. (41)

Whallon, Robert J., JR., ARCHAEOLOGICAL TRAINING IN COMPUTER APPLICATIONS AND STATISTICAL ANALYSIS. Basic training in quantitative methods of data analysis and the use of the computer in archaeology research is offered in an advanced seminar. The stress is on the methodology of dealing with large and complex data sets. The emphasis is on the acquisition of an accurate good understanding of the actual mechanisms or manipulations involved. Specific attention is given to the fitting of quantitative methods to archaeological problems. The basic premise is that a student above will enable the student to make appropriate choices of quantitative procedures in particular research situations. The approach of this course is from a problem orientation to a method oriented course and allows the possibility for analyzing archaeological data. The content and structure of the course are described, and its potential and place in the graduate training program are evaluated. (42)

White, Chris, METHODOLOGICAL AND TECHNICAL PROBLEMS INVOLVED IN THE ANALYSIS OF PATTERNS OF PREHISTORIC WARFARE. Drawing from current research in the Chewah drainage area, Arkansas, a number of interrelated problems of methodology and logistics related to an explanation of prehistoric warfare will be discussed. While archaeologists recognize the importance of understanding the "social environment" of the cultural unit or units under investigation, emphasis is usually placed on the more easily
defined and measured role of cooperation, while the role of conflict is frequently ignored.

Wilcox, David R., SAMPLING PUEBLOS: THE PROBLEM OF COMPARABILITY. An analysis of what constitutes comparability among data sets is presented, as is an evaluation of the nature of the samples collected from a relevant database of pueblo sites and to study social change. A field strategy which will lead to recovery of comparable data sets adequate for solution of this problem will then be briefly discussed.

Wildes, Leslie E., A QUANTITATIVE FACTORIAL MODEL FOR ARCHAEOLOGICAL SITES: The study of archaeological sites from North America aimed at understanding how cultural and environmental factors in site development can be expressed as a series of partial differential equations. Solution of these equations yields a reconstruction of degree and rate of change of both culture and environment through time.

Wilke, P. J., RECENT LARGE-SCALE ENVIRONMENTAL CHANGE IN THE SALTON BASIN, CALIFORNIA. Presently much concern rests on the archaeological implications of environmental changes observed at the site. These changes are expressed in the form of environmental changes that have taken place over time and space, and are responsible for the observed changes in the use of land resources. The result is a significant shift in climate, within the past 5000 yr. Preliminary data on adaptations before and after the change, and the implications of the change, are presented.

Willkerson, S. Jeffrey K., PRE-COLUMBIAN SUB-CULTURE AREAS OF THE MEXICAN GULF COAST. Archaeological and historical literature frequently proposes or assumes a static bipolar or tripartite cultural division of the general Veracruz area in prehistoric times. Recent archaeological and ethnohistorical research in north-central Veracruz suggests a two-fold division in the Early Formative period that becomes fourfold by the Late Classic and Post-Classic periods. These subculture areas are seen as non-static entities both in terms of their time and parameters. However, the areas do correspond to significant ecological, geographical, and social factors of a developmental nature.

Williams, J. Raymond, PREHISTORIC ECONOMIC RESOURCE UTILIZATION ON TAMPA BAY. Excavations at a shallow shell midden on Tampa Bay reveal the extent of utilization of several ecoregions for food. Over 30 species of shellfish have been identified and utilized by different groups at various times. Faunal and floral remains also indicate the extent of the utilization of land resources.

Williamson, Kenneth D., EDGE DAMAGE TO UNMODIFIED STONE FLAKES: A QUANTITATIVE APPROACH. Several controlled experiments were carried out to determine if substrate and other variables affected the degree to which unmodified stone flakes would be damaged when struck. Quantitative results of the pilot study suggest that several factors are responsible for edge damage of this type and these controlling variables can be differentiated. Implications and proposed future research are discussed.

Wing, Elizabeth S., THE ROLE OF DOMESTIC ANIMALS IN THE ANDES. The native domestic animals in the Andes are llamas, alpacas, guinea pigs, and dogs—which play a number of roles in the lives of people of the Peruvian Andes. Data from archaeological excavations augmented by ethnohistoric information are used to define these roles and to present a model of prehistoric livestock management.

Wiseman, Frederick, THE ARTIFICIAL RAINFOREST: A MODEL FOR OPTIMUM PRODUCTIVITY IN LOWLAND MAYA AGRICULTURE. A possible alternative to Milsa or Raman cultivation is the creation of a system which stresses simultaneous cultivation of root crops, shrubs, and trees. A combination of selective clearing and natural regeneration could eventually result in a self-perpetuating, self-sustaining, and self-renewing system of plantings.

Wobst, H. M., NEOLITHIC POPULATION, SETTLEMENT AND ACTIVITY PATTERNS.
Zubrow, Ezra, THE SIMULATION OF PREHISTORIC REGIONAL SYSTEMS. This paper considers some general problems of simulation and its application to prehistoric regions. Regional definitions and their applicability to the generation of simulated settlements and communication in time and space will be discussed. Also, various models will be tested against actual data from the United States and Mexico. (24)

Zucchi, Alberta, and William M. Denevan, PREHISPANIC AGRICULTURAL FIELDS IN THE VENEZUELAN SAVANNAS. Archaeological excavations of prehispanic ridged fields in the Barinas area have proved their artificial origin and also revealed their internal structure, size, disposition, and soil characteristics. In addition, the location and testing of several prehispanic settlement sites in the surrounding area allow the formulation of new hypotheses regarding the group who built these features and the probable factors that caused the implantation of this agricultural system in the western Venezuelan Llanos. (30)

Zuidema, R. T., TIMUCUA KINSHIP AND SOCIAL ORGANIZATION. (19)