ABSTRACTS
of the
57th Annual Meeting

April 8–12, 1992
Pittsburgh Hilton & Towers—Pittsburgh, Pennsylvania
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Cover: Owl effigy pipe of Ohio Pipestone, Madisonville Site, by Martin T Fuess.

Published by the
Society for American Archaeology
808 17th Street NW, Suite 200
Washington DC 20006

SOCIETY FOR
AMERICAN ARCHAEOLOGY
Fifty-Seventh Annual Meeting

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ABSTRACTS OF SYMPOSIA

[1] SOCIETIES IN ECLIPSE: PITTSBURGH AND ENVIRONS AT THE DAWN OF COLONIZATION.
Between AD 1450 and 1700, Native American populations throughout the Eastern Woodlands experienced massive upheavals. Regional depopulation, the development of pan-tribal organizations, shifting political alliances, and the emergence of new economic priorities resulted. While European colonization of the Northeast and Southwest played a tremendous role in disrupting traditional Native American societies, populations in interior areas removed from direct European contact experienced disruption at the hands of their Indian neighbors. This symposium focuses on these changes, emphasizing the social dynamics within and between various parts of the eastern woodlands at the dawn of history.

[101] SECTION 106: AN ARCHAEOLOGICAL PERSPECTIVE.
Section 106 of the National Historic Preservation Act requires that federal agencies take into account the effects of their undertakings on properties eligible for, or listed on, the Register and to afford the Advisory Council a reasonable opportunity to comment with regard to a project. In the last twenty-five years the Section 106 review process has become a formal procedure for deciding the fate of archaeological and traditional cultural properties. This symposium addresses common standards that are practiced for federally mandated investigations and examines whether the implementation of the 106 process results in justifiable research.

[102] SOCIETIES IN ECLIPSE: EASTERN NORTH AMERICA AT THE DAWN OF COLONIZATION.
Between AD 1450 and 1700, Native American populations throughout the Eastern Woodlands experienced massive upheavals. Regional depopulation, the development of pan-tribal organizations, shifting political alliances, and the emergence of new economic priorities resulted. While European colonization of the Northeast and Southwest played a tremendous role in disrupting traditional Native American societies, populations in interior areas removed from direct European contact experienced disruption at the hands of their Indian neighbors. This symposium focuses on these changes, emphasizing the social dynamics within and between various parts of the eastern woodlands at the dawn of history.

[103] INTRASITE SPATIAL PATTERNING IN THE PALEOLITHIC OLD WORLD.
Although a large number of Old World Paleolithic sites have been examined for spatial patterns and structure over the last 20 years, the methods used and the results achieved are extremely diverse and have never been synthesized adequately. This symposium brings together those working with a variety of approaches and analytic methods in a manner that allows comparisons to be made between different sites and regions. Such an examination of the range of variability in intrasite spatial patterning as it changes with time and region is a necessary step in building our understanding of how Paleolithic peoples used and organized their spatial landscape.

[104] PLANTATIONS ON THE PERIPHERY: THE ARCHAEOLOGY OF SMALL SLAVEHOLDING SITES.
Archaeological research regarding slavery has focused primarily on large plantations of the Lowland or Tidewater South. This research has provided a critical comparative base for the analysis of slave material culture and social relations within the plantation hierarchy. However, the archaeology of slavery in the South rarely has addressed sites outside the Tidewater and Lowland areas. This symposium explores the archaeological record of non-plantation slave sites or small plantations located in the peripheral areas of the South.

[105] HOUSEHOLD ARCHAEOLOGY IN SOUTHERN MESOAMERICA: THE CEREN SITE, EL SALVADOR.
The eruption of Laguna Caldera volcano rapidly buried the Classic period Cerén site, preserving organic and inorganic artifacts in situ along with structures, gardens, and milpas. Households, as co-residential adaptive groups, coordinate functions of production, sharing and redistribution, reproduction, and transmission. Each household built multiple structures for particular purposes, including domiciles, storerooms, and kitchens. Other buildings had public or specialized functions. The sophistication of adobe residential architecture in southern Mesoamerica, with large platforms, cornices, lintels, and even a dome and a window, was hitherto unsuspected. Multidisciplinary research includes volcanology, geophysics, archaeology, botany, and conservation.
[106] THE ESSENTIAL SKILLS OF ARCHAEOLOGY.

Although archaeologists and educators have made efforts to include archaeology in the pre-college curriculum, the most appropriate avenues must still be located. Even the most enthusiastic teachers may face resistance from administrators and parents who may view archaeology as a peripheral subject. How can we ensure that archaeology is taught effectively and integrated into the curriculum? This session will focus on strategies for teaching archaeology in different educational settings.

[108] SOCIAL DYNAMICS OF THE PREHISTORIC CENTRAL MEDITERRANEAN.

Italy and its neighbors in the Central Mediterranean have some of the richest cultural remains. The region is known for its prehistoric and historic heritage, as well as its current cultural diversity. This symposium will explore the social dynamics of the region through the lens of recent archaeological research.

[109] EL NIÑO SOUTHERN OSCILLATION EVENT, ENVIRONMENTAL CONSTRAINTS, AND THE GEO-ARCHAEOLOGICAL RECORD IN THE CENTRAL ANDES.

El Niño is a natural phenomenon that affects the southern Pacific Ocean. Its impact on the Central Andean region is significant, affecting climate, agriculture, and human societies. This session will discuss the implications of El Niño events on the prehistoric and historic cultures of the region.

[201] GRANT WRITING: A STUDENT'S GUIDE.

Grant writing is an essential skill for students and professionals in archaeology. This session will provide helpful guidelines and advice for preparing grants in the upcoming year. Participants will have the opportunity to develop their grant writing skills and learn from experienced grant writers.

[260] THE REALITY OF REPATRIATION: ISSUES IN IMPLEMENTATION.

The repatriation of cultural property is a complex issue with significant implications for the conservation and presentation of archaeological remains. This session will explore the legal and ethical considerations involved in repatriation and the implications for archaeological practice.

[263] BUILDING METHODOLOGY FOR AN EVOLUTIONARY ARCHAEOLOGY.

Building evolutionary theory for archaeology is not an end in itself, but a means to generate a more comprehensive understanding of human history. This session will focus on the development of evolutionary methodology and its application to archaeological research.
study with emphasis on problems of ethnic and national identity, dependency relationships, and implicit evolutionism.

[302] TESTING THE PRUFER MODEL OF OHIO HOPEWELL SETTLEMENT PATTERN.
In the 1960s Olaf Prufers is known for his model of Ohio Hopewell settlement which dispersed, sedentary agricultural farmsteads clustered around geometric earthworks located in the center of a community. The papers in this symposium explore various facets of Prufers's model, including degree of sedentism, pattern of dispersion, subsistence strategy, and the earthwork-burial-settlement relationships. They are based upon various data acquired largely during the last decade, much of it unpublished, and go far toward bringing together the knowledge of the Ohio Hopewell area up to par with other areas of the Eastern Woodlands in which Middle Woodland settlement pattern data have been available for some time.

[303] NEW LIGHT ON OLD ART: ADVANCES IN ROCK ART RESEARCH.
Recent advances in dating, field techniques, and interpretive approaches contribute to make rock art research increasingly valuable as an adjunct to other aspects of the archaeological record, especially for the reconstruction of hunter-gatherer religious and symbolic systems. A series of these advances are presented in this session, focusing on western North America. These include cation-ratio and AMS radiocarbon dating, rock art site excavations, contextual/distributional studies, and iconographic, gender-based, and ethnographic analyses.

[304] HISTORIC AND PREHISTORIC CHANGES IN ZUNI SOCIAL ORGANIZATION.
Among the outstanding research projects in the American Southwest is the nature of late prehistoric and historic Zuni social organization. Systematic efforts to reconstruct key aspects of Zuni social organization are presented, which draw on archaeological work undertaken on and around the Zuni Indian Reservation over the past decade. The theory and method behind reconstructing social organization is a prime concern. Papers encompass a range of perspectives and utilize innovative and innovative analytic approaches to the study of mortuary, settlement pattern, lithic, ceramic, and architectural data to better understand the processes of economic development, political dynamics, and social structural change.

[305] HIGH ALTITUDE ARCHAEOLOGY IN THE NEW WORLD.
This symposium brings together those archaeologists working in high elevation (over 2500 m) areas in both North and South America to provide a continent view on how high altitude areas were integrated into the prehistoric regional organizational and mobility strategies of hunting and gathering populations. The research and ideas presented in this symposium materially add to our understanding of the range of variability exhibited by prehistoric highland populations and the environments.

[306] COASTAL-HIGHLAND INTERACTION IN PREHISPANIC OAXACA.
This symposium provides the first synthesis of Oaxaca's coast consisting of an鲷condor corridor for communication and commerce with the highlands. Coastal resources such as shell, cacao, and cotton were sought by highland populations. Formative-Classic period interaction is discussed, as is the role of the Entula Valley as an intermediary of coastal-highland interaction. The impact of the Postclassic coastal city-state of Tututepec on the highlands is discussed.

[307] SUBSISTENCE AND ENVIRONMENTAL CHANGE IN OCEANIA.
The islands of Oceania provide natural laboratories for the study of evolutionary change because they vary in their ecological complexity and relative isolation. Islands also vary in their histories of human occupation, with colonization dating from the Pleistocene to modern times. In this regard, archaeological research on floral and faunal assemblages in Oceania traces the evolution of human subsistence and the associated impact on island environments. Documenting subsistence and environmental change requires solving problems of recovery, quantification, and comparability. In this symposium we address these methodological issues and their link to theoretical models in island settings.

[308] BEYOND THE ELITE: OLD KINGDOM ARCHAEOLOGY AND THE GIZA PLATEAU MAPPING PROJECT.
The archaeology of Old Kingdom Egypt has long focused on the elite members of society. This perspective has profoundly limited attempts to examine the development and working of this early state. Drawing on the results of recent excavations at the Giza Plateau and other sites, the papers in this symposium begin to correct this imbalance by focusing on the economy, subsistence, and social organization of Old Kingdom Egypt.

[407] LOWLAND MAYA AGRICULTURE AND ENVIRONMENT.
Mayanists can now debate questions of environmental change in the Maya Lowlands and human impact on the landscape with significant new data from soil science, geology, pedology, limnology, macrobotanical remains, and agroecology. These data demonstrate early forest clearance and reveal a fresh perspective on crops grown, plants utilized, and degree of forest cover over the course of

[401] PUBLIC ARCHAEOLOGICAL SCIENCE WORKSHOP.
Most of our archaeological information about America's prehistoric, prehistory, and history today comes from projects conducted in response to public land use laws. Each such project provides some scientific information, but the quality and quantity of those data, and their use in synthetic scholarship, is uneven. These discussions are an opportunity for sharing information about ways to enhance the quality of public archaeological science, within the constraints of cultural resource management requirements and the realities of limited fiscal resources, and diminution of non-renewable scientific information.

[402] CULTURAL AND ECOLOGICAL DIMENSIONS OF ANTHROPOGENIC ENVIRONMENTS AND PLANT DOMESTICATION.
The recipient of the 1992 Fryske Award for Interdisciplinary Research is Richard A Yarnell, selected for his contributions to ethnoarchaeology and archaeology. Professor Yarnell has increased the understanding of human-plant interactions through rigorous analysis, key publications, and dedicated teaching. This Fryske Symposium demonstrates Professor Yarnell's profound intellectual influence, particularly in the application of ecological and cultural perspectives to studies of humanly modified environments and agricultural evolution. The participants present results of research in Japan, Peru, the western United States, and western North America from the Canadian subarctic to the Gulf of Mexico.

[403] GREAT TOWNS AND REGIONAL POLITICS: CULTURAL EVOLUTION IN THE US SOUTHWEST AND SOUTHEAST.
This session presents comparative analyses of sociopolitical development both within and between the US American Southwest and Southeast. The comparisons are done within the framework of a multiscalar perspective, focusing on questions about successively larger scales of analysis: How great were the southwestern and southeastern great towns? How complex were their political economies? How were their polities organized? What kinds of ties bound these polities together into macro-regional systems? What kinds of ties did the southwestern and southeastern macro-regions have with Mesoamerica? The concluding papers evaluate how well current evolutionary models explain southwestern and southeastern sociopolitical development.

[404] THE ORGANIZATION OF STONE TOOL TECHNOLOGIES.
Studies of technological organization attempt to understand how technological strategies are linked to environmental conditions and prehistoric behavior. Technological organization is determined through a consideration of raw material procurement, manufacture, use, reuse, and discard of tools types as related to social, economic, and environmental factors. In this symposium, investigations of prehistoric stone tool assemblages utilizing an organization of technology approach are presented. New perspectives on the study of technological organization are advanced, and the utility of employing an organizational approach to prehistoric stone tool technologies is demonstrated.

[405] INFLUENCE, INTEGRATION, OR INCORPORATION: RECENT RESEARCH ON THE TIWANAKU PHENOMENON OUTSIDE THE CORE AREA.
Existing data have long suggested a significant diffusion of Tiwanaku style arts to parts of Bolivia, southern Peru, and northern Chile beyond the Tiwanaku altiplano homeland. Only recently, however, has a body of problem-oriented research focused on the nature of Tiwanaku economic, political, and cultural dominance across the South Central Andes. This symposium brings together recent research from Peru, Chile, and Bolivia on the expansion and peripheral integration of Tiwanaku (AD 350-1000). The diversity of the Tiwanaku phenomenon is represented as it relates to trade, colonization by altiplano Tiwanaku settlers, or some other form of state or imperial hegemony over indigenous inhabitants.

[406] PUBLIC EDUCATION AT ARCHAEOLOGICAL PARKS: DOING IT EVERY DAY.
Archaeological parks (i.e., archaeological sites that have been preserved and opened for public visitation) hold a unique place in public education precisely because of their daily contact with the public. Maintaining a year-round educational program that can impart knowledge to visitors from diverse backgrounds and ages, while continuing to attract return audiences, offers special opportunities and challenges for on-site educators and archaeologists. Participants discuss the history and development of such sites, as well as the exhibits, reconstructions, special events, and tours that reflect the range of methods used to educate the public at archaeological parks.

[407] LOWLAND MAYA AGRICULTURE AND ENVIRONMENT.
Mayanists can now debate questions of environmental change in the Maya Lowlands and human impact on the landscape with significant new data from soil science, geology, pedology, limnology, macrobotanical remains, and agroecology. These data demonstrate early forest clearance and reveal a fresh perspective on crops grown, plants utilized, and degree of forest cover over the course of
[602] Lifestyles of the Rich and Common

cities and offers directions for future research strategies. Included are two case studies describing
cultural resource management programs in Alexandria, Virginia, and Pittsburgh, Pennsylvania.

[505] SOCIOECONOMIC PERSPECTIVES ON ANCIENT TEOTIHUACAN.
The ancient city of Teotihuacan, Mexico, was the most complex urban center in Mesoamerica
during the Middle Horizon (AD 200-750). Over the years numerous archaeological projects have
contributed to an understanding of this vast metropolis. The symposium participants integrate these
earlier studies with recent research and present new interpretations, and alternative models, of the
social and economic structure of the city, focusing particular attention on social groups, domestic
institutions, occupational specialization, production activities, health, poverty, and politico-religious
ideology.

[506] SEASONALITY AND SEDENTISM: COMBINING NEW AND OLD WORLD
PERSPECTIVES.
Issues of seasonality and sedentism form a significant part of current research involving "complex"
hunter-gatherers and early agriculturalists in both the Old and New Worlds. In both areas there is a
growing awareness of the complexity of the concepts of seasonality and mobility, and the development
of new techniques to try to evaluate settlement patterns. However, work in the two areas has
proceeded largely independently. The papers in this session combine methodological, theoretical, and
case studies to explore these shared issues in both the Old and New Worlds and to examine the
diversity of approaches to address them.

[507] SMALL STATES: CASES OF DIFFERENT PARADIGMS.
Most constructs for state formation and development stem from analyses of large states. But these
models of centralization, hierarchical development, institutional integration, etc. often fail to possess
any explanatory power in the analysis of small states. Small states are different. They can possess
qualities such as heterarchical organization or incomplete formation, which rarely figure into models
of large state organization and change. This symposium seeks to isolate useful paradigms for the
study of small states and illustrate their archaeological approaches.

[508] FAUNAL EXPLOITATION IN CHIEFDOM LEVEL SOCIETIES.
Differences in economic organization between chieftoms and smaller societies are manifested at
the community and regional levels in various aspects of the archaeological record, including faunal
remains. Chieftoms should be distinguished from simpler societies by indicators of status differenta-
tion and specialization, and intensive variability. The papers in this symposium explore faunal exploita-
tion in chieftoms of varying complexity, including both hunting and gathering and agriculturally
based groups, with particular regard for organizational complexity.

[512] CORRELATING ARCHAEOLOGY AND LINGUISTICS: ALGONQUIANS AND
IROQUIANS.
At European contact, Algonquians of the Great Lakes were separated from their linguistic relatives
along the Atlantic Coast by Iroquoian tribes, who spoke completely unrelated languages. Ethnologists
and linguists have long recognized the implications of these historic distributions, but archaeologists,
until recently, have tended to ignore them. Papers in this symposium examine the archaeological
record with the goals of identifying prehistoric ethnic/linguistic groups, describing their movements
and interactions, and developing theoretical models for migration, population replacement, and
linguistic diffusion.

[601] ARCHAEOLOGY FOR THE PUBLIC.
The SAA has recognized the need to encourage the dissemination of archaeological information to
the public, as well as to encourage interaction between archaeologists and the public. This session is
the second one to be held at the Society for American Archaeology annual meetings, organized
specifically for the public. Presentation topics include the search for the Columbus landing site, the
impact of European contact on Native Americans, and archaeology in western Pennsylvania.
Comments are provided by representatives from the SAA and the Pennsylvania Bureau of Historic
Preservation. Awards will be presented to the winners of the SAA-sponsored student essay contest.
A question and answer period follows the presentations. The session is free to the public. SAA
members are encouraged to attend and interact with the public.

[602] LIFESTYLES OF THE RICH AND COMMON: THE CONJUNCTIVE APPROACH TO
COPAN ANCIENT HISTORY.
Traditional Mayanists emphasize geography and elite history, rather than settlement systems and
population histories. This symposium presents a methodological overview and a synthesis of mature
research results from the Pennsylvania State University's Copan Archaeological Project. The project
continues to investigate the ancient Maya prehistory and history. Information on sea level rise and climate change is presented. Agricultural limiting factors, effects of erosion in the Late Classic period, and Maya responses are discussed. Use of data on modern farmers is investigated.

[408] CONTINUITIES AND DISCONTINUITIES IN EUROPEAN SETTLEMENT SYSTEMS.
Current European archaeology emphasizes investigation of settlement sites and settlement systems.
Increasingly fine chronologies enable us to pinpoint times of establishment and abandonment of
settlements. Through analysis of patterns of continuity and discontinuity, it is possible to address
anthropological and historical questions about changes in subsistence practices, migrations to and
from regions, and effects of such events as the Roman conquest. Papers here explore questions of
settlements from prehistory, investigating the nature of change and continuity in settlement systems from the Late Bronze Age into the Middle Ages, and in relation to changes in other aspects of human culture.

[409] HOUSEHOLD STATUS IN AN INDUSTRIAL SETTING: PRELIMINARY FINDINGS
FROM THE EAST LIVERPOOL DATA RECOVERY PROJECT, 1800-1930.
In 1990 urban archaeology was conducted in East Liverpool, Ohio, a major ceramics manufacturing
center, as part of an Ohio Department of Transportation CRM project to investigate the social and
industrial development of the community. A series of excavations, comprising residential units, and
commercial establishments, and sites of early pottery, were excavated to provide data to examine the
development of the ceramics industry and the nature of status differentiation between the various
factors comprising the city's workforce. This symposium presents an overview of the project and
assesses the implications of current perspectives on social status in archaeological research.

[413] TECHNOLOGIES FOR PREHISTORIC AND HISTORIC PRESERVATION.
The rapid development during the last two decades of new methods and techniques, and equipment
has greatly facilitated archaeological research and cultural resources management. This symposium
provides a forum for the latest in technology, including the development of new and emerging
technologies to improve the efficiency and effectiveness of archaeological research.

[501] PHYTOLITH ANALYSIS IN THE 1990s: APPLICATIONS IN ARCHAEOLOGICAL
INTERPRETATION.
Continuing research in phytolith analysis increasingly shows the wide applicability of the method
to archaeological questions. Diet, farming techniques, animal husbandry, domestication processes,
site formation processes, and climatic reconstruction are a few of the topics able to be
addressed through phytolith analysis. This symposium focuses on botanical information and new
extraction methods useful for the interpretation of phytolith data in relation to archaeological objec-
tives and goals. Recent case studies illustrate the application of phytolith analysis at archaeological
sites and indicate that phytolith analysis is a robust methodology.

[502] ADVANCING SCIENCE THROUGH FIELD SCHOOLS ON NEW MEXICO'S PUBLIC
LANDS.
A productive partnership has developed between the New Mexico Bureau of Land Management
(BLM) and academic institutions, private research foundations, and graduate students. Funding pro-
vided by the BLM is enabling more field schools to be held on public lands than ever before. This
symposium presents research results from a diverse set of seven field schools. These include excava-
tions and research at two 19th-century military forts, Navajo pueblos, a classic Mimbres pueblo, a
Mogollon rock art site, pithouse villages, and large Pueblo pueblos. Advances in southwestern archaeol-
ogy made possible by these cooperative projects are explained.

[503] THE LATE CERAMIC AGE IN THE NORTHEAST CARIBBEAN.
The Late Ceramic Age (AD 600-1500) in the northeast Caribbean (from Puerto Rico in the Greater
Antilles to Montserrat in the northern Lesser Antilles) is well known despite considerable research
on many islands. Archaeologists from Europe, the Caribbean, Canada, and United States compare
their research on 12 islands/island groups in the region. The goals of the symposium are to: (1) identify
the common elements that link and the dissimilar elements that separate various islands; (2) examine
variability in site densities and settlement patterns; and (3) explore prehistoric sociopolitical organiza-
tion in the region, especially as it relates (or perhaps does not relate) to the complex societies
(chieftoms) in the Greater Antilles and the post-Salado culture in the southern Lesser Antilles.

[504] ARCHAEOLOGY "IN" AND "OF" CITIES.
Sponsored by the Urban Archaeology Group and inspired by method and theory discussions at the
Group's annual workshops, this symposium addresses the current status of archaeology in American

is a long-term study designed to address questions regarding cultural evolution and human adaptation to a tropical ecosystem. Participants discuss the diverse analytical methods employed, including paleopathology, agronomy, palynology, energetics, spatial analysis, obsidian hydration dating, and ethnohistory. These independent research results are shown to be complementary, thus demonstrating the value of a conjunctive approach to archaeological research.

[603] MODELS AND THEORIES ON THE EMERGENCE OF CULTURAL COMPLEXITY.

Several decades of research have focused on developing the dynamics of states and complex civilizations that have existed in the past. Attention is increasingly focused on models and theories which seek to explain the emergence of middle-range sociopolitical complexity and ascribed social inequality. This symposium presents current theoretical developments, critiques of existing paradigms, and recent advances in the study of the emergence and development of complex societies. The symposium features papers by leading scholars in the field, including case studies from South America, Africa, and the Middle East. The symposium organizers will lead a discussion on the implications of these findings for understanding the emergence of complex societies around the world.

[604] SETTLEMENT AND SUBSISTENCE IN THE LATE ARCHAIC AND EARLY CERAMIC PERIODS OF THE SOUTHERN SOUTHWEST.

The late preceramic and early ceramic periods in the southern Southwest witnessed many changes in subsistence and settlement patterns. This symposium examines these changes in the context of regional developments, including the introduction of new technologies and the adoption of new social and economic practices. The symposium features papers by leading scholars in the field, including case studies from the American Southwest, Mexico, and Central America. The symposium organizers will lead a discussion on the implications of these findings for understanding the emergence of complex societies around the world.

[605] WHO WAS WHO? TRACING ETHNICITY ALONG THE IROQUOIS-ALGONQUIAN BORDERS IN PREHISTORY.

American archaeologists conventionally assume that discrete ethnic groups can be traced back into the past by continuities in cultural traits. Paramount in such endeavors has been the assumption that material culture provides reliable indicators of cultural beliefs and traditions. However, recent archaeological research suggests that the in situ model of Iroquoian prehistory has been overly simplistic. This symposium will examine the evidence for ethnic and cultural boundaries in the Iroquoian region, with a focus on the Northeast and the Great Lakes region. The symposium features papers by leading scholars in the field, including case studies from the Iroquoian region. The symposium organizers will lead a discussion on the implications of these findings for understanding the emergence of complex societies around the world.

[606] THE HISTORIC CHESAPEAKE: FROM FRONTERA ECONOMY TO URBAN TENEMENTS.

The Chesapeake's economy, ecology, and history make it an extraordinarily rich area for archaeological study. The various papers in this symposium provide an overview of current research in Chesapeake archaeology. This symposium features papers by leading scholars in the field, including case studies from the Chesapeake region. The symposium organizers will lead a discussion on the implications of these findings for understanding the emergence of complex societies around the world.

[607] MISSISSIPPI VALLEY PALEOENVIRONMENTS AND CULTURAL CHANGE: INTERDISCIPLINARY STUDIES IN SOUTHEASTERN IOWA.

An interdisciplinary research program is focusing on environmental and cultural changes in a portion of the Mississippi Valley in eastern Iowa and adjacent areas. Paleobotanical and geomorphological investigations have defined trends in local and regional climatic patterns, vegetation changes, and landscape evolution. Joint geological and archaeological research has focused on alluvial fans as sources of data for landform development and buried Archaic and Early Woodland occupations. Near-surface woodland communities have been intensively investigated. The symposium papers present the results of this effort to understand both the natural and cultural parameters of the prehistoric Upper Mississippi Valley.

[608] OPERATIONAL SEQUENCES AND PREHISTORIC TECHNOLOGY.

The 1980s saw the emergence of new theoretical and methodological approaches to the study of prehistoric technology by American archaeologists, in part due to influence from European archaeologists, ethnologists, and paleoethnographers. The working definition of technology employed by many archaeologists has been expanded from the traditional concern with the forms and functions of artifacts to include a concern with culturally and environmentally conditioned choices of techniques and materials, as well as regional and interregional aspects of raw material procurement. This new way of thinking about technology is embodied in research that attempts to reconstruct and understand entire operational sequences from choices of raw material through production, use, and discard. This symposium presents several examples of progress in this important area of research.

[609] UNRAVELING THE GORDIAN KNOT: NEW EXCAVATION AND SURFACE SURVEY AT YASSIHÖYÜK (GORDION) TURKEY.

The mound called Yassihöyük has been identified as historic Gordium. Excavation from 1950 to 1973 exposed the Phrygian capital ruled by Mithras, destroyed c. 700 BC. Current research is focused on recovery of environmental and economic data within a stratigraphic sequence. Between 1500 and 100 BC, texts suggest Hittite influences, occupation by Indo-European speaking Phrygians, and conquest by the Persians, Alexander, and the Romans. Qualitative and quantitative shifts in floral remains, fauna, and material culture provide a new understanding of the changing economic and political role of the site and its people.

[615] WPA: WHAT PRICE ARCHAEOLOGY?

This year marks the fortieth anniversary of the end of the Works Progress Administration, one of the most ambitious governmental programs of the Roosevelt years. Despite its impact at the time, the role of the WPA is little understood today. The Committee for the History of Archaeology sponsors this session to heighten awareness of the continuing importance of past archaeological work and to underscore the ways in which records of past work can be utilized. The session explores the WPA accomplishments, its legacy, and its contributions, both actual and potential, to the discipline of archaeological history, and related discussion.

[701] COMPREHENDING SOCIOPOLITICAL COMPLEXITY: NEW APPROACHES TO TONTO BASIN PREHISTORY.

The elaboration of sociopolitical structures in the Tonto Basin, Arizona, has been a perennial issue of regional scope. Until recently, the absence of intensive scientific archaeology has limited the debate to speculation regarding this and the role of the WPA. The Committee for the History of Archaeology sponsors this session to heighten awareness of the continuing importance of past archaeological work and to underscore the ways in which records of past work can be utilized. The session explores the WPA accomplishments, its legacy, and its contributions, both actual and potential, to the discipline of archaeological history, and related discussion.

[702] PUBLIC PROJECT ARCHAEOLOGICAL SCIENCE AND RESEARCH.

Public archaeology is usually accomplished under a series of management constraints with limited funding in specific geographical areas. A common complaint is that such restrictions inhibit research potential and project quality. A number of sound and successful public archaeology research programs have been accomplished. The results and contributions of these are evaluated and discussed.

[703] FROM BROKEN POTS TO AIRLINE TRASH: RECONSTRUCTING HUMAN BEHAVIOR AND BEYOND.

Behavioral Archaeology, now about 20 years old, was introduced as a program for the development of archaeological research and theory. It is behavior an appropriate analytic unit for archaeological research? What theoretical approaches are most appropriate for reconstructing and understanding behavior in the archaeological record? Is there a future for a behavioral approach in archaeology? In this symposium, these and other questions are addressed by individuals with diverse experiences and theoretical backgrounds. Through a combination of case studies and theoretical exercises, an assessment is made of a behavioral approach and recommendations are offered for development or redirection.

[704] LAND HOLDING, TENURE, AND BOUNDARY MAINTENANCE: ISSUES OF ARCHAEOLOGICAL METHOD AND THEORY.

This symposium brings together a diverse set of studies that address the problem of understanding prehistoric land holding practices and community boundaries. The geographical focus is broad, including archaeological and ethnographic research from the South Pacific, the Andes, and the rest of Europe, and West Africa. Land holding practices are discussed in terms of agricultural intensification, access to resources, socio-economic integration, ancestor worship, warfare, trade, and hydraulic organization. The emphasis of each paper is to link a well documented archaeological database to the theory of how and why people partitioned prehistoric landscapes.
INNOVATIVE APPROACHES TO CULTURAL RESOURCE MANAGEMENT IN THE NORTHEASTERN UNITED STATES.

This symposium addresses methodological and theoretical changes occurring in cultural resource management in the northeastern United States. CRM as discussed here refers to research, activities, and programs that seek to conserve, protect, and present historic and prehistoric archaeological resources. The symposium papers reflect the diversity and complexity of approaches to CRM as represented by "academic," contract, and avocational archaeology, and preservation planning. Topics include innovations in sampling and analytical procedures, revised modeling and interpretive frameworks, recent strategies for site protection and management, effective ways to increase public awareness and public involvement in archaeological research, and retrospective and prospective evaluative views.

TERMINATION AND DEDICATION RITUALS IN THE ARCHAEOLOGICAL RECORD: INTERPRETING THE GEOGRAPHY OF SACRED SPACE IN ANCIENT MESOAmerICA.

Recent archaeological investigations of Pre-Columbian monumental structures have revealed the presence of patterned assemblages of selected material phenomena. Within a more contextual framework, the authors in this symposium explore the role of ideology in structuring the alternation and/or deposition of these cultural materials. Attention is focused on the role of these objects in rituals of termination or dedication in which sacred place was manipulated to activate or contain power. This ritual complex has considerable time depth in Mesoamerica, from the inception of cultural complexity through the period of European contact.

CONTRIBUTIONS OF THE US ARMY CORPS OF ENGINEERS TO NORTH AMERICAN ARCHAEOLOGY.

The Corps of Engineers has played an active role in the identification, evaluation, and management of our nation's archaeological resources. Considerable archaeological work has been completed in support of Corps projects nationwide. This symposium draws on the extensive corpus of archaeological work completed by the Corps and demonstrates, through papers presented by Corps archaeologists, the contributions of Corps archaeologist to the larger archaeological community.

SOCIETAL STRUCTURE: REFLECTIONS IN METAL.

Societal complexity can be characterized by internal and external relationships based on the production and exchange of valuable goods. The existence of craft specialists, the hoarding of artifacts, and the control of redistribution is exemplified by non-manufacturing segments of a population can lead to the control of redistribution and the concentration of wealth. This symposium explores how uses and exchanges of iron and bronze can be used to indicate levels of status within societies and extent of interactions between communities. The geographic regions to be examined are central and northern Europe, Africa, Asia, and North America.

COASTAL ADAPTATIONS IN SOUTHERN NEW ENGLAND.

New perspectives on prehistoric and early historic period Native American adaptations to the coast of southern New England are provided from recent archaeological investigations in Massachusetts, Connecticut, and Rhode Island. Papers in this symposium include analysis of individual site excavations, site distributional studies, ethnohistory, folklore, and paleoecological, paleoanthropological, and faunal research. Many previously "foggy" areas in our understanding of changing adaptations to coastal and estuarine environments are made more "clear" through new discoveries and the diversity of research approaches used by the authors in this symposium.

ABSTRACTS OF PAPERS

Abbott, Alyssa L & Robert D Leonard (New Mexico)
[304] EXPLAINING VARIATION IN PUEBLO LITHIC TECHNOLOGY: PRELIMINARY ANALYSES FROM ZUNI, NEW MEXICO.

Much attention has been paid in recent research to distinctions between the lithic technologies of mobile versus sedentary groups. Differences in such aspects as core technology and the presence of flake technology have been interpreted as indicative of group location along a mobility/sedentism continuum. Such analyses often assume that once groups are fully sedentary and focused on agricultural production, variation in lithic technology is minimal. Using materials from Badger Springs in the Zuni area of western New Mexico, we argue that this simple dichotomy of core/blade technologies is insufficient to account for the variation exhibited, and offer an alternative framework.

Abbott, L.J. & R.D. Leonard (New Mexico)
[707] THE EFFECTIVENESS OF STRATIFIED CLUSTER SAMPLING FOR RIVER BASIN SURVEYS: EXAMPLES FROM SOUTHWEST VIRGINIA AND SOUTH-CENTRAL NORTH CAROLINA.

Stratified cluster sampling is a standard and widely accepted methodology for estimating site densities within large tracts of land. This method often is used for projects involving cultural resource management because it is cost effective and reliable for statistical analysis. This method was recently used within the Upper Smith River Basin in Virginia and the Rocky River Basin in North Carolina. The results of these surveys and the usefulness of this sampling method as a resource management tool are discussed. Particular emphasis is placed on the special situations created by river basin surveys in terms of the statistical universe and the effects on the interpretations of settlement patterns.

Abrams, Elliot (Ohio)
[602] ARCHITECTURAL ENERGETICS AND THE STRUCTURE OF SOCIAL POWER AT LATE CLASSIC COPAN, HONDURAS.

Models of sociopolitical relations for the early Maya state of Copan, Honduras, which combines stratified, ranked, and egalitarian statuses, is described. One means of testing this model—architectural energetics—is detailed. The energetic analysis translates architecture into its energy equivalence as a means of refining the observation of settlement hierarchies as reflections of relative social power. The results of this analysis confirm that the Late Classic Copan Maya did establish political institutions endemic to the early state. Finally, potential applications and refinements to the energetic model are discussed.

Ackerly, Neal (New Mexico State)
[110] PREHISTORIC SETTLEMENT VARIABILITY AROUND PLAYA MARGINS IN THE JORNADA DEL MUERTO, NEW MEXICO.

Playas have long been argued to play a crucial, if sporadic, role in settlement strategies during the prehistoric period in southern New Mexico. This paper presents the results of a controlled comparative study of prehistoric settlement patterns around three playas ranging from 20-585 acres in size. Analyses rely heavily on reconstructed hydrological fluctuations and dated pollen spectra indicative of paleoecological changes. By linking these data with archaeological findings, this study demonstrates that prehistoric settlement variability intensifies directly with the periodicity of wet-dry cycles.

Ackerman, Robert (Washington State)
[513] AN ENDURING CULTURAL TRADITION: MICROBLADE TECHNOLOGY IN NORTHWESTERN NORTH AMERICA.

The recovery of microblades from late site contexts (last 3000 years) in Alaska raises several questions—is this the result of cultural mixing, are the radiocarbon dates reliable, is it possible that microblade technology was derived from a culture that was not derived from Asia, is there a reduction in microblade technology, or is there a resurgence of cultural continuities in the past 10,000 years? The cultural complexes of northeastern Asia, Alaska, and the Northwest Coast are explored in an attempt to provide insights into the prehistoric contexts and chronology of the microlith tradition.

Adams, Karen R (Crow Canyon)
[596] ARCHAEOBOTANICAL INDICATORS OF SEASONALITY.

Modern observations on the seasonality of plant resource availability in a region provides critical background for interpreting seasonal patterns of acquisition in prehistory. Good examples of seasonal
indicators described in the American Southwest include reproductive parts, vegetative parts, and cases of plant-insect inter-relationships. Condition of parts, association of seasonally specific taxa, and complementarity of data sets can combine to make a strong case that season of acquisition may also equal season of use. The pollen in human coprolites offers yet another way to evaluate seasonal plant use by humans.

Adams, Karen R (see Ciolek-Torrello, Richard S) [701]

Adler, Michael A (see Harris, John) [110]

Adler, Michael A (Southern Methodists) [704] LAND TENURE SYSTEMS AND PREHISTORIC LAND USE: PERSPECTIVES FROM THE AMERICAN SOUTHWEST.

Land tenure systems socially mediate human access to important resources, and as such, are important in any consideration of past human settlement and land use. However, the concept of land tenure must be differentiated from the archaeological concept of land use. While land use is the actual utilization of the environment, land tenure is the system utilized to gain access to important resources. This paper attempts to bridge this gap between the archaeological interpretations of land use, and our understanding of land tenure systems, through the application of cross-cultural observations on land tenure to archaeological data on long-term land use from the American Southwest.

Adovasio, J M (Mercyhurst/SMU), Olga Soffer (Illinois-Urbana-Champaign) e Dennis Dirkmaat (Mercyhurst) [211] FLOTATION SAMPLES FROM MEZHRICH, UKRAINE: A MICROVIEW OF MACROISSUES.

Analyses of flotation samples from the ca 15,000 BP Upper Paleolithic site of Mezhrich have produced new insights into site use and occupancy patterns. Fine fractions from extramural pits have yielded worked and unworked wood, concentrations of burned and unburned micritic bones, fragments of ivory, and such exotic raw materials as glass and palm. Furthermore, microscopic debitage is scarce and suggest a consistent lithic production of artifacts. Finally, flotation also produced a variety of plant food such as ceratostigma, phyllopodium, and pyrus, as well as a fragment of the oldest cordage yet recovered from the Old World. These remains were used to construct and quantify, and their potential significance is addressed in terms of site use patterns and processes.

Adovasio, J M (see Soffer, Olga) [211]

Ahler, Stanley (North Dakota/NAU) [515] RELATIVE AGE OF KNIFE RIVER FLINT ARTIFACTS AS MEASURED BY UV FLUORESCENCE.

Intensity of patination (visible surface weathering) has been recognized for some years as a meaningful measure of relative age in Knife River flint artifacts. The absence of patination is not an indicator of recent age in KRF artifacts. A pilot study of ultraviolet fluorescent shows a strong correlation between age and intensity of fluorescence in unpatinated and lightly patinated KRF artifacts. This study, focused on time-diagnostic projectile points from the Lake Ilo area in western North Dakota, has significantly increased relative-dating techniques available to KRF artifacts.

Aimers, Jim (Trent) [209] RECENT INVESTIGATIONS INTO THE MAYA E-GROUP PROBLEM.

Maya E-Groups are monumental architectural assemblages considered since the 1920s to have been used for solar observation. Recent investigations have located at least 14 additional E-Groups assemblages aside from the 29 previously published. Summer solstice observations at six of the sites suggest that the accuracy of these observations may vary considerably. The E-Group problem raises questions about both the nature of Maya astronomy and the process through which archaeological hypotheses become accepted as fact.

Aldenderfer, Mark (UC-Santa Barbara) [305] FORAGING ADAPTATIONS IN THE SOUTH-CENTRAL ANDES: 11,000-4000 BP.

Foraging adaptations from 11,000-4000 BP in the high-elevation environments (6000-4700 m) of the south-central Andes of southern Peru and northern Chile are characterized by the following general stages: initial entry, colonization, relative stability, and transformation. Each of these stages is characterized by variability and flexibility in the scale and frequency of residential mobility, size, and settlement. Transformation of the co-resident group, change in diet breadth and composition, and relationships with adjacent populations. The tempo of these observed changes, as well as the causal factors that lie behind them in this mountainous environment, are explored.

Altschul, Jeffrey H (Statistical Research), Ronald H Towner (Arizona) e Steven D Shelley (Statistical Research) [701] GIS MEASURES OF REGIONAL PRODUCTION POTENTIAL.

Measures of productive potential for the Tonopah Basin for the period AD 700-1450 are the focus of this paper. The methods for linking soils information, dendroclimatic data, plant yields, and...
Ambrose, Stanley H (Illinois-Urbana-Champaign)

[211] STABLE AND INORGANIC ISOTOPE ANALYSIS OF PLEISTOCENE ARCHAEOFAUNAS FROM CENTRAL EUROPE.

Teeth, bones, and other remains of non-human mammals from the open site of Millowice (Czechoslovakia, 26,000 BP) and Vindija Cave (Yugoslavia, 80,000 BP) have well preserved collagen. Stable carbon and nitrogen isotope analysis of collagen provided results consistent with those on modern European mammal communities and late Upper Pleistocene archaeofaunas. Carbohydrates and herbivores can be distinguished with nitrogen isotopes. If Middle and Upper Paleolithic hominids in Europe also have well preserved collagen, it should be possible to use isotopic analysis to reconstruct their positions in their foodwebs.

Ames, Kenneth M (Portland State)

[113] SOUTHERN SOUTHEAST COAST ELITE CONTROL OF THE HOUSEHOLD ECONOMY.

The economic history of the Northwest Coast's chiefly elite is ethnographically well described for the 19th century, but there is little relevant archaeological data for the contact and pre-contact periods. Recent excavations of a large plank house dating between ca AD 1400-1800 in NW Oregon show clear differences between low and high status ends of the house in food processing, storage, and access to and use of exotic and native metals (iron and copper). These results suggest much stronger elite control of this household's economy than predicted from available ethnographic sources.

Amick, Daniel (Desert Research Institute)

[403] SNAKES AND LADDERS: TECHNOLOGICAL ORGANIZATION AND THE STRUCTURE OF INFERENCE IN LITHIC ANALYSIS.

The relationship between lithic data and technological organization is complex. While the theoretical aspects of technological organization have evolved substantially, consideration of the structure of inference in lithic technology remains underdeveloped. This paper uses Folsom assemblage case studies to argue that the linkage between lithic data and organizational theory requires a greater focus on behavior. The sequential nature of stone tool manufacture, use, and discard provides a unique dimension to behavioral reconstruction. In addition, behavioral inferences must be placed within the context of situaional decisions in order to understand the conditions under which organizational strategies are responding.

Ammerman, Albert J (Colgate) [Discussant 108]

Anderson, David G (National Park Service)

[403] EXPLAINING CHANGE IN THE SOUTHEAST: EVALUATING EVOLUTIONARY MODELS FROM THE MULTISCALAR PERSPECTIVE.

A diachronic analysis of the southeastern Mississippian archaeological record has proceeded by a number of scalar frameworks, including analyses at the intrasite, site, locality, regional, and interregional levels. Research employing multiple scales of analysis going beyond the site or locality level is comparatively infrequent, yet has proven to be remarkably productive in advancing and evaluating explanatory models for the emergence, expansion, and collapse of complex societies within the region. Examples of multiscalar analyses employing archaeological, paleontological, paleoecological, ethnological, and ecological data are reviewed. The success of these approaches suggest profitable directions for future research.

Anderson, David G (see Milner, George R) [102]

Anderson, Jeff (Anderson Environmental Services)

[707] FIELD PARAMETERS USED TO RECOGNIZE RECENT HISTORICAL ALLUVIUM ON THE UPPER MISSISSIPPI RIVER VALLEY.

Federal agencies are responsible for locating and managing significant historic properties on their lands. One difficult task when natural and human-induced forces have masked or degraded cultural deposits and landscapes. During the 1980s the Corps of Engineers contracted numerous archaeological investigations. Geomorphologic assessments revealed that as early as 1830 pre-Euro-American settlement surfaces "native" soils were severely eroded in uplands or buried in valleys by recent historical alluvium. This paper describes field indicators used to distinguish historical deposits from native soils, and addresses implications for research design, site interpretation, and effective management.

Arnold, Philip, Robert S Santley & Ronald R Kneebone

[313] FORMATIVE PERIOD SETTLEMENT ORGANIZATION IN THE SIERRA DE LOS TUXTLAS, VERACRUZ, MEXICO.

The southern Gulf Coast of Mexico is a key region when discussing the development of Mesoamerican complex societies. Despite the acknowledged importance of this "heartland," regional Gulf Coast settlement information dating to the Preclassic is extremely rare. The first season's results of the Tuxtlas Survey Project provided unexpected data on the density and diversity of Formative period
Arter, Susan R & Melinda Zeder

Gulf Coast occupation. This paper presents these settlement data and discusses their implications for sociopolitical development within this important area of Mesoamerica.

Arter, Susan R o e Melinda Zeder (Smithsonian)

ANIMAL UTILIZATION AT GORDON.  

Analysis of the Gordonian fauna has two primary goals: 1) to reconstruct changing patterns of animal exploitation over a 1500 year period, tracking relationships between animal exploitation, site function, and ecological setting, and 2) to see if animal bones can be used to identify material culture correlates of ethnicity. The 112,000 bone sample shows significant differences in the representation of species between chronological phases. Detailed study of other attributes is used to determine the factors that directed these differences.

Athens, J Stephen (International Archaeological Research) o Jerome V Ward (Ansburn)  

VEGETATION CHANGE AND PREHISTORIC SETTLEMENT IN HAWAI'I.  

The impact of Polynesian settlement on the flora of Hawai'i is examined using pollen data from a variety of lowland locations. Building on earlier findings of massive prehistoric lowland vegetation change following Polynesian settlement of Hawai'i, the concern of this study is primarily comparative. The different sampling locations throughout the Hawaiian Islands are examined for 1) the chronology of vegetation change, 2) the nature of both pre-and post-Polynesian communities, and 3) the rate of vegetation change. Such information can provide useful insights into the variability of Polynesian settlement and land use in regionally diverse lowland environments throughout the Hawaiian Islands.

Aoudoux, Françoise M (CNRS)  

A DYNAMIC APPROACH TO SPATIAL ANALYSIS.  

Spatial analysis of the Magdalénien site of Verberie in northern France is based on a dynamic approach that takes into account the duration of human activities that created the site. Time is reconstructed through the analysis of the different technical "packages of operations" and the traces they leave on the living floors. Flint and bone assemblages are associated with experimental and ethnographic models to achieve this reconstruction. An improved version of unconstrained cluster analysis is used to create a context for these analyses.

Aumant, Bruce W (Archaeological Services Consultants)  

VARIABILITY IN TWO MIDDLE WOODLAND HABITAT SITES FROM THE CENTRAL OHIO UPLANDS.  

The hamlet model for Middle Woodland settlement/subsistence in central Ohio is based on survey data from the major river valleys. CRM related surveys in the past ten years have identified Middle Woodland sites in upland settings. Two habitation sites (33FF85 and 33FF81) situated along the divides between the major river and neighboring drainages have been test excavated providing a body of comparative data. Overviews of site structure and artifact assemblages document the present range of variability in this site type and allow for an initial evaluation of the continued utility of the hamlet model.

Ayres, William S, Osamu Katoaka, eRufino Mauricio (Oregon)  

DIETARY AND SOCIAL CONTEXT OF PRESTIGE FISH, Pohnpei, Micronesia.  

Fish remains form a significant portion of the food resource found in archaeological sites on Pohnpei, Micronesia. They are used to reconstruct past dietary patterns and social status variations based on an ethnographic model. Certain fish and mammals are used today in prestations to chiefs within the complex redistributional systems. Differential use of the historically identified prestige fish in archaeological sites is evident from this analysis, and quantification of these remains shows a pattern consistent with other measures—portable artifacts and stone architectural forms and sizes—used for defining site activities and functions within the Pohnpei chiefly political system.

Babson, David W (Illinois State)  

WESTYNGTON AND ASHLAND-BELLE HELEN: COMPARING SHERDS OF THE PLANTATION MONOLITH.  

Westyngton was a large tobacco and stock plantation in western Tennessee. Ashland-Belle Helen was a large sugar plantation in southern Louisiana. Comparison of preliminary archaeological studies on these two very different plantations points out differences, and some similarities, between two varieties of what has too often been described as a single form of culture, geography, and economy.

Boenziger, Marsha S o Zhoulan Zhao (Missouri-Columbia)  

CLUES IN THE SEARCH FOR THE MILLETS OF THE PAST: OPAL PHYTHOLITHS AND HOW THEY MAY TELL THE STORY.  

Identification of phytoliths from millets in prehistoric soils may further knowledge of the first domestication of these grain crops. To make this determination, phytoliths were extracted from modern cultivated millets and related wild grasses, and criteria were developed for identifying these plants archaeologically. Our goal is to study all the millets; however, this study reports on only two species, common millet (Panicum miliaceum) and foxtail millet (Setaria italica). Preliminary results suggest that certain dumbell shaped phytoliths and trichomes are promising for distinguishing the taxa. Results of this research, and the potential and limitations for identifying millets through phytolith analysis, are discussed.

Biede, Carlos (see Santoro, Calogero) [305]  

THE INFLUENCE OF HOUSEHOLD DECISION MAKING STRATEGIES ON SETTLEMENT PATTERNS.  

Most models that have been developed to explain differences in settlement densities (nucleated vs dispersed) have relied upon arguments concerning the political complexity of the cultures in question. These often include cultural biases that consider wet tropics as less suited for the development of complex societies than river valleys. A model is proposed to account for differences in settlement densities among several Mesoamerican sites. The model suggests that variation in settlement densities is the result of different risk reducing strategies that are adopted by households within diverse communities.

Baker, Joseph (Pennsylvania Bureau for Historic Preservation)  

CULTURAL RESOURCE MANAGEMENT ARCHAEOLOGY IN PENNSYLVANIA:  

This poster compares the results of two very large-scale CRM projects conducted in the Commonwealth during 1990 and 1991. The poster explores the role that agency attitudes play in the results of compliance archaeology projects, and the lessons those results can teach us all. The presentation focuses on the quality and volume of data that have resulted from projects that were sponsored by two very different agencies.

Baker, Larry L (Daggett o Chenault)  

TESTING AND APPLICATION OF PORTABLE GLOBAL POSITIONING SYSTEMS IN CULTURAL RESOURCE MANAGEMENT ARCHAEOLOGY.  

Trimble Navigation's Pathfinder Global Positioning System (GPS) is a highly portable device capable of precisely locating coordinates or a series of coordinates in remote and unmapped areas. The system employs transmitted signals from Department of Defense NAVSTAR satellites to triangulate any point with considerable accuracy. Several applications for the equipment are tested in terms of general utility and effectiveness in cultural resource management archaeology. The applications involve both locational and cartographic uses. The discussions include description of the equipment, theoretical considerations, technical limitations, practical problems, and tested results.

Baker, Richard G o Mary K Whelan (Iowa)  

EASTERN IOWA PALEOENVIRONMENTS AND CULTURAL CHANGE: INTRODUCTION AND PALEOECOLOGICAL BACKGROUND.  

This paper introduces the results of paleoecological and archaeological research at alluvial fans along the western side of the Mississippi Valley, southeastern Iowa. Paleoecological investigations established a clear record of vegetation change, from late Pleistocene spruce-larch forest, to deciduous forest, to dominance by grass and cheno-ams. Archaeological survey and excavations examined the impacts of changing ecological parameters on Archaic and Woodland groups. Alluvial fans surveyed contained small Woodland deposits on the surface, but one large fan, the East Farm site, contained substantial Middle and Late Woodland communities. Preliminary analyses suggest a pattern of post-Early Woodland nucleation from the surrounding region.

Baker, Thomas R (Garaw o Associates) o James B Petersen (Maine-Farmington)  


Data recovery investigations conducted by the University of Maine at Farmington Archaeological Research Center at the Smith and Smith's Landing sites in the Kennebec River drainage in west-central Maine have resulted in the recovery of approximately 50,000 artifacts and ecofacts. The data encountered at the Smith site reveal repeated occupations during the Terminal Archaic period Susquehanna tradition (ca 1800-800 BC), while those recovered at the Smith's Landing site reveal repeated occupations from the Middle Archaic period forward (ca 5500 BC-AD 1000). These important data allow for more precise comparison and continued refinement of faunal northeastern North American chronology and cultural process.
Bamforth, Douglas (Colorado-Boulder) & Peter Bleed (Nebraska-Lincoln)

[404] RISK AND THE ORGANIZATION OF FLAKED STONE TOOL TECHNOLOGY.
Recent lithic analyses identify many factors which affect flaked stone technology, but lack a unified theory. This paper expands recent discussions of risk as the basis for such a theory. We begin by defining risk, emphasizing two distinct components of existing definitions: probabilities of problems occurring and the costs of such occurrences. Second, we argue that technological behavior can be seen as a means of reducing these probabilities in the face of unacceptable costs. Finally, we illustrate how risk affects flaked stone technology along a continuum from raw material procurement through tool production and use. Finally, we illustrate our perspective with an archaeological example.

Bar-Yosef, Ofer (Harvard)

[506] ARCHAEOLOGICAL MARKERS FOR EMERGING SEDESMIGHT AT THE ORIGINS OF AGRICULTURE IN THE NEAR EAST.
This paper discusses how we can recognize, given the limitations imposed by the archaeological records, the seasons or seasons during which Near Eastern Epipaleolithic and Neolithic sites were occupied. Employing known and reconstructed distributions of resources and their annual and decadal fluctuations as a scale which archaeo-botanical and zoo-stratigraphical remains are compared as a basis for reconstructing the seasons of habitation of selected sites. Identifying the settlement patterns practiced by hunter-gatherers and early farmers from about 15 k years to 5 k years BP enables us to suggest a series of alternative hypotheses for the emergence of farming and later of pastoral societies.

Barber, Michael (see Rogers, Anne) [412]

Bardsley, Sandy (British Columbia)

[706] INSCRIBED STONE THRONES: DEDICATIONS OF AUTHORITY. At Copan a group of monuments exhibiting unusual juxtapositions of hieroglyphic and iconographic content provides clues to understanding the interrelated social, political, and religious functions of sculpture. Investigation reveals a distinction between conventional monuments emphasizing royal portraiture as validation of authority, and this innovative set of benches and altars focusing instead on supernatural setting as the source of power. Also evident is a shift from more common, public, Copan records of anniversary celebrations to the more private documentation of dedicatory rites. At Copan the rise of dedication eventually became the most significant declaration of right.

Barker, Graeme, Annie Graat (Leicester) & Tom Rasmussen (Manchester)

[108] HELD SURVEY AND ETURSCAN STATE FORMATION: THE TUSCANY PROJECT.
The notion of an exotic origin for the Etruscan civilization, which developed in central Italy in the 8th century BC, has long been abandoned in favor of indigenous development. However, the dominance of cemetery studies in Italian iron and Etruscan studies has resulted in a lack of understanding of the process of state formation in terms of transformations in regional settlement systems. The Tuscania Survey has helped address this problem, using different regional sampling methodologies to obtain important new information on the process of state formation in Etruria.

Barnett, James F Jr (Mississippi Department of Archives & History)

[406] EDUCATION FOR THE PUBLIC AT THE GRAND VILLAGE OF THE NATCHEZ.
The Grand Village of the Natchez Indians is a National Historic Landmark site administered by the Mississippi Department of Archives and History. Since 1977, the museum has worked to increase the public’s awareness of the Natchez Indians, their interaction with European explorers and colonists, and the tribe’s predecessors. The museum’s educational programs for each school grade and encourage the participation of adult groups such as elderhostels.

Barrett, William (American Museum of Natural History)

[405] CERAMIC PRODUCTION IN THE SOCIOECONOMIC ORGANIZATION OF THE TIWANAKU PERIPHERY.
Despite various interpretations of the Tiwanaku culture, the nature and scope of Tiwanaku peripheral control and socioeconomic integration remain unknown. Ceramic production data can approach questions of the nature of Tiwanaku related economies outside the Titicaca Basin. Preliminary survey and SEM/EDS analyses of local and Tiwanaku style ceramics from the sites of Tiwanaku, Arapi (Cochabamba), Moquegua (Peru), and San Pedro de Atacama (Chile) are used to identify patterns of pottery production and technological variability.

Beauregard, Alan

Barr, Kenneth (Corps of Engineers)

[707] GIS AND GEOMORPHOLOGICAL MODELING FOR ARCHAEOLOGICAL SITE MANAGEMENT ON THE UPPER MISSISSIPPI RIVER.
Results of 10 years of systematic archaeological surveys, testing geomorphological landform modeling, and data recovery projects are presented for a 315 mile (53,000 acres) portion of the Upper Mississippi River managed by the Corps of Engineers. Portions of Wisconsin, Illinois, Iowa, and Missouri lie within this river corridor. Geographic Information System (GIS) database for resource management and impact evaluation is discussed, along with an evaluation of the utility of the landscape analysis approach (geomorphology) for research design, data analysis, cultural interpretation, and GIS database management.

Barreto, Cristiana (see Heckenberger, Michael) [510]

Baryshnikov, Gennady (see Hoffacker, John) [211]

Bass, Patricia Marie (Rice)

[303] A GENDERED SEARCH THROUGH SOME WEST TEXAS ROCK ART.
Most archaeologists studying rock art agree that the methodological studies of the content of this visual artifact require a more anthropological approach to extracting social information from these data. This paper employs a multi-model approach to interpret rock art located in west Texas. The models used include: a cognitive archaeology model developed in South Africa for hunter-gatherer research and adapted to interpret California rock art using ethnographically informed analogical models; a neuropsychological model suggesting certain eneptic images are experienced cross-culturally across altered states; and symbolic/semantic models employed to illuminate visual patterns and repetitions. A deliberate focus is engaged in an effort to track gender content in the art.

Bauer, Brian S

[111] NEW DIRECTIONS IN THE STUDY OF THE CUZCO CEQUE SYSTEM.
The ceque system of Cuzco was composed of at least 326 shrines which were organized along 41 hypothetical lines (or ceques) that radiated out of the capital of the Inca. This paper documents the layout of these ceques, the probable projections of nine ceques in the southeast quarter of the Cuzco Valley. The orientations of these ceques are compared with predictions set forth in current models of the system. The findings suggest that the locations of the shrines and the projections of the ceques varied to a greater extent than is suggested in the literature.

Baugh, Timothy (see Bray, Tamara L) [202]

Bayham, Frank (see Szuter, Christine) [604]

Beach, Timothy (see Dunnig, Nicholas) [407]

Beaubien, Harriet F (Smithsonian)

[105] RECOVERY AND CONSERVATION OF ORGANIC MATERIALS AT CEREN.
Artifacts made from organic materials do not ordinarily survive burial in tropical locations. Suprisingly, at Ceren a wide variety of organic materials has been found, and in several different modes of preservation—either directly preserved, carbonized, or directly molded by surrounding materials. These "negatives" have presented the greatest preservation challenges. Examples are given which illustrate the different preservation techniques for providing otherwise retrievable technical analogical, painted organic artifacts are featured. The critical importance of the on-the-spot conservation for these fugitive materials is emphasized.

Beaudry-Corbett, Marilyn (UCLA)

[105] FROM ARTIFACT ASSEMBLAGE TO HOUSEHOLD INVENTORY: THE MATERIAL REMAINS OF THE CEREN SITE.
The recovery situation at Ceren provides an opportunity to "revisit" the various components of an archaeologically recovered artifact assemblage into household inventories. By studying these integrated inventories we can examine numerous aspects of the Ceren community as it was functioning at the time of its destruction. This paper focuses on several analyses: 1) household strategies related to sustenance—food storage, processing, preparation, etc; 2) residents' participation in production activities (food and craft items) as well as in religious rites; and 3) the spatial organization of domestic structures as "containers" for household commodities. Implications of the Ceren data for other archaeological situations are discussed.

Beauregard, Alan (SUNY-Binghamton)

[605] STRUCTURE, AGENCY, AND THE SUSQUEHANNOCKS: TRACKING SOCIAL DIFFERENTIATION AT THE SOUTHERN FRINGE OF IROQUOIA.
History and archaeology regard the Susquehannocks as an Iroquoian-speaking group that became politically and ethnically distinct from the precursors of the Five Nations Iroquois during the early
16th century. Archaeological endorsements of this interpretation primarily cite differences in ceramic technology and decorative style, but barely consider social conditions and practices that contribute to the formation of ethnic identity. This presentation treats the emergence of ethnic identity, and explores the requirements for evaluating this proposition on archaeological and ethnohistorical data. The resulting model is briefly applied to Susquehannock archaeology and ethnohistory.

Beck, Colleen (see Pippin, Lonnie CJ) [702]
Beck, Lane (see Geselwitz, Michael) [509]
Becker, Marshall I (West Chester)
[108] THE FIRST COLONY IN ITALY, 775 BC: BIOLOGICAL EVIDENCE FOR MICROEVOLUTIONARY CHANGE.
By 775 BC Greek traders from Euboea had set up a post on the island of Ischia in the Bay of Naples. Italy. From this location, on the southern margin of the Etruscan realm, these enterprising merchants linked the rich metals production centers of central Italy with the spice and silk markets of the Orient. Micronelvationary changes in the skeletons of the inhabitants of this early outpost reveal clues to the social dynamics between Greeks and their native hosts as the settlement developed into a major Greek colony.

Bellantoni, Nicholas F (Connecticut State Museum of Natural History) o David A Poirier (Connecticut Historical Commission)
[705] CONNECTICUT'S PRESERVATION MECHANISMS FOR PROTECTION OF NATIVE AMERICAN AND COLONIAL BURIAL GROUNDS.
The Connecticut Historical Commission (CHS) and the Office of State Archaeology have sought to overcome historical miscommunication and distrust between archaeologists and the state's Native American community. Recent state legislation has created the Native American Heritage Advisory Council to facilitate Indian-archaeologist interaction concerning the sensitive issues of sacred sites and burials. The late 17th century Pequot Long Pond Burial Ground and the colonial Walton sites on Sagamore Island, both now protected by law, represent two recent case studies where emergency situations required the excavations of human remains in accordance with new state legislation.

Beno, Nancy L (George Washington)
[213] MANUFACTURE AND USE OF CERAMIC SICKLES IN ANCIENT MESOPOTAMIA.
Clay objects shaped like sickles are commonly found at emergent urban sites throughout southern Mesopotamia. Despite their ubiquity, they have received little concerted attention from archaeologists. This paper surveys the literature on clay sickles and presents a technological and spatial study of 1650 clay sickles from the Urqum Mound, Abu Salabikh, in southern Iraq. The study indicates that clay sickles were multipurpose tools used in activities related to agricultural and craft production; moreover, their distribution and use may have been restricted. The paper closes by discussing the conditions that may have led to their development and disappearance.

Bender, Barbara (University College-London)
[301] STONEHENGE - 2000 AD.
Stonehenge has always been a contested landscape. Different groups have always attempted to appropriate it, physically and symbolically. In the material record of prehistoric, the written record of historic, and the media coverage of contemporary times, the 'sickles' are underrepresented and misrepresented. This paper attempts to contextualize—cultural, social, political—the contemporary cacophony of claims made on Stonehenge, the different ways in which the landscape is conceptualized and experienced. The paper will discuss, by the English Heritage lobby, the tourist industry, archaeologists, New Age groups, Free Festivalers, Druids, not to mention the government, police, and media.

Bender, Susan J (Skidmore) o Hettie Jo Brumbaugh (SUNY-Albany)
[605] MATERIAL MANIFESTATIONS OF ALGONQUIAN ETHNICITY: A CASE STUDY FROM THE UPPER HUDSON.
The nature and meaning of ethnicity and the contexts in which it is likely to have material expression are discussed. Although ceramics are frequently conceived of as reliable indicators of ethnicity, archaeological and ethnohistorical data suggest that stylistic patterning may have ethnic identity. Using an archaeological example from the Upper Hudson Valley, we test the hypothesis that ceramics are not good indicators of Algonquian/Iroquoian differences. In this example, ethnicity appears to have been signaled more clearly through other material manifestations.

Benedict, James B (Center for Mountain Archaeology)
[306] HIGH-ALTITUDE CULTURAL ECOLOGY OF THE COLORADO FRONT RANGE.
Prehistoric human use of the Front Range alpine region was constrained by topography, climate, lack of good tooolstone sources, and scarcity of edible plants. Large herbivores were a major attraction,

Bettison, Cynthia Ann

They were hunted on the tundra uplands using communal drive-and-ambush techniques that evolved during late Paleoindian time. Two seasonal transhumance systems brought people to the crest of the Front Range from winter base camps in the eastern foothills. One involved simple up-and-down seasonal migration, and the other a 400- to 400-km counter-clockwise 'grand circuit.'

Bender, Robert A (Missouri-Columbia)
[610] LOGIC PROCESSING, A SOLUTION TO UNDERDETERMINATION OF ARCHAEOLOGICAL EXPLANATIONS.
Expert systems are applications developed from cognitive science contributions to artificial intelligence. This paper could correct a flaw found in archaeological explanations, that of underdetermination by hypotheses that purport to link ideas with empirical observations. Goal-seeking expert systems evaluate assumptions stated as rules or heuristics which relate items in the knowledge base. Construction of an expert system permits existing knowledge and theory to be logically processed toward the equivalent of point predictions. Bioarchaeological predictions are examined and found to be severely underdetermined. The process of establishing the expert system leads directly to suggesting relations or observations that are needed.

Benn, David W [Discussant 607]

Benson, Robin (Texas-Austin)
[206] EXCHANGE PATTERNS AND FUNCTIONAL DIVERSITY IN RESERVE PHASE SITES, WEST-CENTRAL NEW MEXICO.
The relationship between Devils Park and the WS Ranch Site during the Reserve phase in west-central New Mexico provides an example of how goods and information flow between large aggregated sites and smaller sites, while differences between two excavated sites within Devils Park illustrate differing interaction patterns within a dispersed agricultural settlement. The distribution of ceramic types and the elemental composition of the types highlights exchange patterns, while the differences in architectural features and overall artifact assemblages point out possible functional diversity.

Bergmann, Marc (Pittsburgh)
[405] THE SOUTHERN TIWANAKU MARGIN: A VIEW FROM ORURO.
Recent survey of previously uninvestigated areas in the department of Oruro has revealed Tiwanaku materials at a number of sites. The nature and distribution of these materials suggest that interaction between the Tiwanaku state and the indigenous population took a range of forms. The research raises new questions about the relationship between the Tiwanaku state and the indigenous Wankarani culture.

Bernaldo de Quirós, Frederico (see Cabrera, Victoria) [608]
Bernstein, David (SUNY-Stony Brook) [Discussant 709]

Bettiger, Robert L (UC-Davis)
[305] GREAT BASIN ALPINE ADAPTATIONS.
Seasonal villages used by families engaged in mixed plant and animal procurement have now been located at extreme elevations in three central and western Great Basin ranges. They were established late in time and replaced a pattern of restricted alpine land use centered on short-term hunting forays. Alpino villages or substantial change in alpine land use, however, are seeming to lack in central Nevada, where surveys disclose a casual and relatively changeless pattern of mixed plant and animal procurement. The dichotomy parallels and helps explicate adaptive and cultural-historical contrasts previously noted between the eastern and western Great Basin.

Betts, E Arthur (Iowa DNR) o Nutt Goldman (Michigan)
[607] LANDSCAPE EVOLUTION AND THE DISPOSITION OF THE ARCHAEOLOGICAL RECORD IN THE MISSISSIPPI VALLEY OF SOUTHEASTERN IOWA.
The Mississippi Valley in southeastern Iowa contains a mosaic of landforms and underlying sediments that record the last 12,000 years of landscape history. Regional and local patterns of landscape evolution have exerted a profound influence on the disposition of the archaeological record by controlling many environments contemporaneous with occupations, and passing the evidence of those occupations through a filter that preserves, alters, or destroys the record of the human past. A regional pattern of alluvial fan development has preserved a detailed record of Archaic occupation of the valley margin, while a local floodplain stratigraphic sequence permits correlations of occupations dating from the last 4500 years.

Bettson, Cynthia Ann (Western New Mexico Museum)
[10] THE DETERMINANTS OF SETTLEMENT PATTERNS AMONG PREHISTORIC AGRICULTURALISTS IN EAST CENTRAL ARIZONA.
The objective of this study is to understand the prehistoric settlement patterns of the Lower Zuni River Valley between AD 900 and 1540. To accomplish this objective, this study differs from tradi-
Bevan, Bruce W

Bibb, Lisa (Southern Methodist)
[110] RESIDENTIAL UNIT SIZE AND COMPOSITION PRIOR TO NUCLEATION IN THE PREHISTORIC RIO GRANDE.

The prehistory of the northern Rio Grande is less understood when contrasted with other areas of the Southwest. While more is known about the large pueblos of the region, discussion of the basic residential units prior to aggregation is underrepresented in the literature. The purpose of this paper is to examine variation in household function, size, and spatial distribution across time in the region. This information from the northern Rio Grande is contrasted with prehistoric data from more intensively investigated areas in the northern Southwest, and patterning of residential unit size and composition is discussed in light of these larger regional trends.

Bicho, Nuno (Southern Methodist)
[311] TECHNOLOGICAL VARIABILITY DURING THE PLEISTOCENE/HOLOCENE BOUNDARY IN THE PORTUGUESE ESTREMADURA.

This study is focused on technological variability during the Tardigrade and Postglacial time (12,000 to 8500 BP) in the Rio Maior area (Portuguese Estremadura). The relationship between typology and technology, particularly defined for any European Upper Paleolithic group, is examined through a detailed study and reconstruction of reduction strategies. Also, "desired end products" are examined through the relationships between raw material selection, blank production, and tool blank selection. The results suggest that there are significant differences in technology during this period where factors such as water and raw material sources are not likely to account for the lithic diversity.

Binford, Lewis R (see Kuhn, Steven L)
[103] Black, M Jean (North Carolina-Chapel Hill)
[402] ETHNOARCHAEOLOGY AND PALEOETHNOBOTANY: SOME OBSERVATIONS ON A DOUBLE LIFE.

In recent years, ethnoarchaeology has received currency among professional archaeologists. This method of gaining insights into prehistory by means of ethnarchaeological studies has been practiced by paleoethnobotanists even longer. Beginning with Melvin Gilmore and continuing to the present time, asking the experts—that is, native peoples—has had an impact on our thinking about plant utilization in the past. In this paper, I briefly discuss some aspects of ethnarchaeological studies jointly undertaken by this author with Richard Yarnell in the Caribbean subarctic over a 27 year period.

Blackman, M James (see Myers, I Emlyn)
[309] Blair, Carl (Minnesota)
[311] THE PRODUCTION OF IRON IN LATE IRON AGE EUROPE.

The production of iron in the La Tene C and D periods of European prehistory was of great importance to the cultures of western and central Europe. Abundant archeological evidence, including iron slag, ores, and the characteristic Burgenland style furnaces, provides a useful base for the study of the scale and organization of this iron production. However, until May 1991 no Burgenland furnace had been reconstructed and studied in a full production smelt. The results of the May 1991 production smelt provide significant corroborative data that allow for more detailed models of large-scale iron production to be suggested.

Bled, Peter (Nebraska-Lincoln)
[404] RISK AND COST IN JAPANESE MICROCORE TECHNOLOGY.

At the end of the Pleistocene, mobile hunting groups throughout Japan used wedge-shaped cores to produce microblades. Techniques involved in making and using these cores have been reconstructed in minute detail, and their age and distribution are well documented. To address the role cores and microblades played in terminal Paleolithic economy, this paper uses event tree analysis to identify patterns of risk in the production of microblade cores at a terminal Paleolithic site.

Bostwick, Todd (see Stone, Connie L)

in stages and at different sites. Their analysis therefore also illuminates broader patterns of cost management and mobility of the period.

Bleed, Peter (see Banforth, Douglas)

Bloom, Paul R (Minnesota) o Mary Pohl (Florida State)
[407] SOILS AND ANCIENT MAYA AGRICULTURE IN THE LOWLANDS OF NORTHERN BELIZE.

In the Karstic lowlands of northern Belize, the ancient Maya practiced both swidden cultivation as well as permanent cultivation in drained wetlands. The soils generally have a high fertility status compared to the highly weathered soils found in many tropical regions. Most of the soils are mollisols and incipient soils with swelling clays that are residual from the weathering of the Karst. Some of the fine textured soils that become dry at the surface during the dry season exhibit some vertic activity and are difficult to cultivate. The soils tend to be high in potassium but low in phosphorus, and some are low in zinc and boron. Organic nitrogen is high in the wetland soils, and phosphorus was the limiting nutrients for ancient Maya agriculture.

Blau, Cheri (Tucson Unified School District)
[106] WHY ARCHAEOLOGY IN THE CLASSROOM?

Teaching archaeology in the classroom benefits both the students and the teacher. It encourages many students to pursue archaeology as a field of study. This paper describes a study of the influence of classroom teaching on students' interest in archaeology.

Boone, Sheila (see Maines, Clark)

Bonhage-Fraud, Mary Theresa (Penn State)
[310] A PALEOETHNOBOTANICAL ANALYSIS OF FOUR UPLAND SITES IN NORTH CENTRAL GEORGIA.

Although Mississippian settlements are typically associated with riverine environments, over 300 "homestead" sites are known in the Piedmont uplands of the Oconee watershed in north central Georgia. Most of these sites date to the last two phases of the Lamar period, Dyer and Bell (AD 1550-1660), during which dramatic regional demographic growth has been postulated. Paleoenvironnmental analysis of four upland sites reveals a diachronic shift in plant exploitation strategy, from the targeting of a limited number of highly favored taxa, to the utilization of an extensive range of species. This pattern reflects increasing economic stress, supporting the hypothesized population expansion.

Borrero, Luis Alberto (Conicet)
[212] DUNG AND STRATIGRAPHY AT CUEVA DEL MYLONDO, CHILE.

Cueva del Mylonod is a huge cave located in southern Patagonia, Chile. Archaeological excavations have demonstrated short-term human occupations at Cueva del Mylonod, 2000 BP and a thick deposit of ground sloth Mylodon darwinii dung, found between 13,500 and 10,000 BP. The latter deposit covers an area of over 400 square meters. A wide variety of cultural and natural formation processes were identified. Paleoenvironmental and cultural inferences are relevant for understanding of the regional archaeology, focusing on the extinction of Pleistocene megafauna and the process of human colonization of cold habitats.

Bostwick, Todd (see Stone, Connie L)
 Bowen, Joanne (Colonial Williamsburg) [604] A COMPARATIVE ANALYSIS OF THE COLONIAL NEW ENGLAND AND CHERSEKAHE HERDING SYSTEMS.
Colonial New England and Chesapeake agriculture are compared to show how colonists developed distinctive herding systems that ultimately affected primary uses for cattle. Analysis of documents and archaeological kill-off patterns show that in New England a system of well-developed fields and herd management practices produced cattle for both beef and dairy products. In contrast, agriculture and herd management practices produced cattle for both beef and dairy products. Cattle were left to fend for themselves on the Chesapeake focused on the cash crop tobacco. Cattle were left to fend for themselves on undeveloped lands, and when combined with the warm climate, the effect was that dairying remained unimportant.

Boyd, Cliff o Donna C Boyd (Radford) [599] LATE WOODLAND MORTUARY VARIABILITY IN CENTRAL AND WESTERN VIRGINIA.
Much variability in the modes of human interment and kinds of associated grave goods has been noted in the Late Woodland [AD 800-1600] and archaeological record of central and western Virginia. During this period, secondary interments in accretional burial mounds, primary inhumations in village cemeteries and, even interments in platform mounds are noted in different areas. Grave goods include exotic items, possibly indicating status differentiation. This variability in Virginia is summarized by region and compared to mortuary patterns of nearby contemporaneous Mississippian cultures, such as Hiwassee Island, Dallas, and Pisgah.

Boyd, Donna C (see Kimball, Larry B) [310]
Boyd, Donna C (see Boyd, Cliff) [599]

Boyter, Ron (UCLA) [405] TERMINAL TIWANAKU TEXTILE STYLE IN THE COASTAL OSMORE VALLEY, SOUTHERN PERU.
The Tiwanaku culture of the lower coastal Osmore Valley emerged with the decline of the Tiwanaku state. Examination of textiles from tombs of Algodon has revealed a distinct local style. This style is defined on the basis of innovative weaving techniques, design motifs, design, location, and color patterns. The comparison with textiles from elsewhere in Moquegua and the Peruvian and Chilean coasts provides a basis for evaluating interaction between Tiwanaku and the populations in these areas.

Bradley, Bruce o James Kleidon (Crow Canyon) [514] PUBLIC ARCHITECTURE IN A PUEBLO III COMMUNITY: NEW INFORMATION FROM THE SAND CANYON LOCALITY, SOUTHWESTERN COLORADO.
Long-term research in the Sand Canyon locality in southwestern Colorado has investigated community organization including scale, differentiation, mobility, and integration. Integral to this study is the identification and interpretation of public spaces that may have served the community as a whole. Three such features have been identified at Sand Canyon Pueblo: a plaza, a central, D-shaped, walled structure, and a great kiva. Excavations have shown that all of these structures are contemporary with the rest of the site. Labor investment and spatial analysis indicates that they probably were built by and served groups larger than a household.

The Onondaga are notable, not only for their historic importance as the center of the Iroquois Confederacy, but as one of the few Native American cultural groups in eastern North America that continue to reside in their ancestral homeland. The archaeological and documentary records for the Onondaga are reviewed from late prehistoric through the early 17th century. Emphasis is placed on understanding why the Onondaga were able to survive, and on how we reconstruct the processes of cultural change and continuity.

Brady, James (see Houston, Stephen D) [610]

Brand, Uwe (see Rollins, Harold) [109]

Brashler, Janet G (Grand Valley State), Steve Kite (West Virginia) o Nicholas Friedlin (Marshall) [710] NEW PERSPECTIVES ON THE ST ALBANS SITE.
Threatened by riverbank erosion and vandalism, fieldwork was initiated at the St Albans site in the summer of 1991 to explore areas adjacent to the 1960s' excavations. Hand excavation of eight 2x3 m units and profiles at two locations along the streambank complemented a core drilling program. Results of the work contribute to knowledge of the site and the Kanawha Valley in three areas discussed in this paper: the geologic and sedimentary history of the site, the previously undocumented later prehistoric occupations, and attributes of late Pleistocene and early Holocene occupations in the area.

Braun, Tamara L, Timothy Baugh o Thomas W Killian (Smithsonian) [202] HERITAGE AND OWNERSHIP: THE ISSUE OF COMPETING CLAIMS IN REPATRIATION.
Native American groups have been able to recapture some control over their own heritage through repatriation legislation. The complexities involved in the actual implementation of these laws are becoming apparent as specific cases unfold. At the Smithsonian, one problem that we have encountered repeatedly revolves around the issue of multiple or competing claims. This paper examines issues of ownership, the structure of competing claims, how disputes may be resolved, and the implications of repatriation decisions for tribal integrity.

Bremer, Mark (see Dahlin, Bruce H) [407]
Bremer, Mark (see Leyden, Barbara) [407]

Braxton, Barrett (Massachusetts-Amherst) o Alan J Osborn (National Park Service) [210] FOOD STORAGE BEHAVIOR: ARCHAEOLOGICAL AND ETHNOGRAPHIC CASES FROM THE COLORADO PLATEAU.
Food storage behavior can only be understood in the multiple contexts of seasonality, nutritional needs, food processing, mobility, social organization, and architectural design. Our paper highlights the need to integrate these contexts to further an understanding of human adaptation to and environments in both the past and present. We discuss the biocultural evolution of storage areas through time on the Colorado Plateau. Finally, we make recommendations for recognizing and interpreting the variability of storage facilities in the prehistoric Southwest.

Brecker, Harvey M (Tulane) [183] SPATIAL PATTERN AND STRUCTURE OF CHATELPERRONIAN OCCUPATIONS AT LES TAMBOURETS (HAUTE-GARONNE, FRANCE).
At the open air Chatelperronian site of Les Tamburets, attempts to understand spatial patterns and structure have concentrated on the study of lithic artifacts, the only class of occupational debris preserved. Various techniques for recognizing and defining clusters were employed. Although the archaeological horizon was rather thin (c. 8 cm), three-dimensional solutions that attempted to "unpeel" the stratigraphically indistinguishable palimpsests were clearly more informative than two-dimensional clustering approaches.

Bridges, Sarah T (US Fish o Wildlife Service) [Workshop 401]

Brittain, James (see Tamplin, Morgan) [410]

Brook, Richard o Mary Tisdale (BLM) [112] CAN A FEDERAL AGENCY EDUCATE THE PUBLIC ABOUT ITS HERITAGE?
Is cultural resource education really the cure-all for the long-term preservation of the nation's cultural heritage? Can cultural resource managers demonstrate the benefits to the public, the profession, and their own agencies of heritage education when the results are so remote and conjectural? These questions are examined from several perspectives. They also are considered in light of the Bureau of Land Management's own decision to focus its national flagship education program on cultural resource education to help combat the growing crisis in American education. Suggestions are provided regarding educational opportunities for young people, while providing internal resource management objectives are also discussed.

Brown, David S (Cleveland Museum of Natural History) [24] PENSUMER PROTHOLOGY ON THE NORTH COAST.
Aboriginal societies along the central lowland and Appalachian edge portions of northern Ohio displayed markedly differing Late Woodland cultural trajectories. Between AD 1200 and 1300, Mississippian influences from the Ohio Valley, carried north to the Maumee River thence east along Lake Erie, transformed local groups. By AD 1450 northeastern Ohio groups, pressed against western Iroquois by expansion of their western neighbors, adopted defensive settlement and economic systems. Between AD 1550 and 1650, local retreatment was followed by regional abandonment.

Brown, David S (see Pratt, G Michael) [204]

Brownman, David L (Washington-St Louis) [Discussant 405]
Butler, Virginia L (Colorado-Boulder)

[307] HERBIVORE VS CARNIVORE FISH CAPTURE: THE CASE FOR VARIATION IN LIPITA FISHING STRATEGIES.

Most arguments regarding fish use by Lipita peoples of the southwest Pacific rely on limited direct evidence from fish remains. Comparison of fish assemblages from Lipita contexts in the Manus Islands, Papua New Guinea, with other assemblages from Melanesia and western Polynesia reveals significant variability in taxonomic representation. Some assemblages are dominated by herbivores (scads, acanthurids), while others are dominated by remains of carnivorous fishes (e.g., lethrinids, serranids). Although differences in analytic and archaeological recovery practices, as well as natural abundances, may explain some of this variation, differences in capture techniques used (netting/hook and line) better explain the taxonomic variation.

Butterworth, Kolleen R (Ohio DOT)

[409] A VIDEO OVERVIEW OF THE EAST LIVERPOOL URBAN ARCHAEOLOGY PROJECT.

Using funding provided by the Ohio Department of Transportation, four different archaeological contracting firms were given the unique opportunity to participate in an urban archaeology project in East Liverpool, Ohio. This project involved the excavation of two pottery manufacturing areas and three residential areas related to the pottery industry in East Liverpool. Of special interest are the residential areas which cross-cut social and economic bounds. Using the medium of videotape, a general overview of the project is presented. Each of the individual target areas within the project area is reviewed and the research goals outlined.

Bylund, Bruce E (Lehman) o' John M D Pohl (UCLA)

[306] TILANTONGO AND TUTUTPEC: POSTCLASSIC RELATIONS BETWEEN THE MIXTECA ALTA AND COSTA.

Various indigenous and colonial documentary sources mention political and economic interaction between communities of the Mixteca Alta and Costa. Such anecdotal evidence does little to inform us as to how and why relations were maintained between relatively small communities over such distances. In this paper we attempt to derive an anthropological model of political and social organization which can account for documentary evidence of long distance interaction in the Mixteca. This model is used to make predictions about archaeologically recoverable evidence of interaction which can be sought in future exploration of Postclassic Costa and Alta regions.

Cabrera, Victoria (Universidad Nacional de Educación a Distancia) o' Federico Bernaldo de Quirós (Universidad de León)

[408] LITHIC MANAGEMENT DURING THE EARLY UPPER PALEOLITHIC IN CANTABRIAN SPAIN.

This paper compares the use of lithic materials in the Early Aurignacian of Castillo Cave with that of other sites excavated with modern controls such as Chufin (Solutrean) and Altamira (Lower Cantabrian Magdalenian). Special references are made to the use of flint and quartzite.

Caesar, Margaret D (see Lundberg, Emily R) [503]

Calabrese, F A o' Ruthann Kandson (National Park Service)

[702] PUBLIC PROJECT ARCHAEOLOGY: MAINTAINING A RESEARCH ORIENTATION.

Many academically based scholars consider archaeology associated with public land use compliance as “place oriented” and restricted to management rather than ultimately directed to quality research. Any divorce of research from cultural resource management is not a reflection of laws and regulations, but of the attitude of archaeologists advising land managers and participating in public archaeology program implementation. Many public archaeology programs have made significant contributions to both the science and to our understanding of North American paleoenvironments, prehistory, and history.

Callaghan, Richard T o' Donna Fremont (Calgary)

[415] A COMPUTER SIMULATION OF ROUTES OF PASSAGE IN THE CARIBBEAN AND GULF OF MEXICO.

This computer simulation analyzes the difficulty of travel between the mainland and the Caribbean with indigenous watercraft. The environmental factors considered are the winds, currents, gale and hurricane frequencies, and swell conditions. The performances of watercraft from Central and South America are examined under these environmental conditions in the Gulf and Caribbean region. The performance data were collected for actual watercraft in Central and South America. Both accidental and intentional voyaging are examined. Drift routes from the mainland to the islands are ranked by the probability of crew survival. Intentional voyages are ranked by navigational difficulties.
Cameron, Catherine M

Cameron, Catherine M (School of American Research)
[110] PROCESSES OF SITE GROWTH AT SOUTHWESTERN PUEBLOS.

Dean's [1969, 1970] classic study of Tesuque phase sites in northern Arizona demonstrated the value of site growth studies for understanding social processes at archaeological sites. Unfortunately, few sites have the remarkable temporal control that Dean relied on at Kirt Siel and Betakaltik. This paper compares a recent study of architectural history at the Hopi pueblo of Orabbi with architectural processes at 14th-century Arroyo Hondo Pueblo in the northern Rio Grande Valley. Patterns of site growth, abandonment, and reoccupation at Arroyo Hondo may be partially explained by social patterns that caused architectural change at Orabbi.

Campagna, Douglas V (New York)
[606] TRENDS IN UPPER PALEOLITHIC AND EPI-PALEOLITHIC BONE TECHNOLOGY IN THE SOUTHERN LEVANT.

Levantine Aurignacian assemblages include only a small number of bone implements of very few types, most of which seem related to the hunting of sizeable game. With the arrival of the Natufian the number and diversity of bone implements increased dramatically. Much smaller barbed bone points, implying smaller game, replaced the Aurignacian types, and many craft related bone implements appeared. The working of antler and bone primarily with flint tools, however, remained a consistent tradition. During the Natufian abrasive techniques of bone working were largely confined to decorative objects, abrasive techniques only began in the late pre-pottery Neolithic.

Canaday, Timothy (Washington)
[305] ARCHAEOLOGY AT ALTITUDE: PREHISTORIC HUNTING PATTERNS IN THE TOYAVE RANGE, NEVADA.

High altitude archaeology in the Great Basin has focused on developing models to explain the advent of alpine villages at about AD 800. These models have at least one thing in common—a shift from alpine logistic hunting to alpine villages. To date, however, very little attention has been paid to alpine hunting patterns. Instead, the villages have been the focus. This paper attempts to rectify this situation by examining Great Basin alpine logistic hunting patterns. Current research in the alpine zone of the Toyave Range is examined in light of models suggesting a shift in late prehistoric alpine land use.

Cande, Kathleen (Arkansas Archaeological Survey)
[310] AN ANALYSIS OF THE 1934 DELLINGER COLLECTION FROM CRADDOCK BLUE SHEETS, ARKANSAS.

In 1934, Samuel C Dellinger and Wayne A Henbest of the University of Arkansas Museum conducted excavations at three dry bluffs in the Boston Mountain subdivision of the Arkansas Ozarks. Crawford County, Arkansas. They recovered a substantial collection of perishable artifacts including basketwork, cordage, arrow shafts, and floral remains, as well as chipped and ground stone tools and pottery. In conjunction with test excavations in shelter one, and in advance of planned highway construction, the Arkansas Highway and Transportation Department funded analysis of the 1934 Dellinger collection. This funding provided a unique opportunity to examine a valuable museum collection.

Cannon, William J (BLM) [Workshop 401]

Capone, Patricia (Harvard)
[514] CERAMIC PETROGRAPHY OF SALINAS, NEW MEXICO, AND PROTOHISTORIC PUEBLO INTERACTION NETWORKS.

This petrographic study of protohistoric ceramics from the Salinas area of New Mexico sheds new light on previously characterized sherds, and forms the basis for examining the extensive prehistoric interaction networks at Abo Pueblo. Reexamination of numerous sherds, following previous characterization by A H Warren, with examinations of previously unstudied sherds are presented. These preliminary data from Abo, which include data on ceramic microwear and inclusions as well as data from geological raw materials, begin an in-depth look at protohistoric ceramic trade and production in the Salinas area.

Carambolino, Christopher R o' Robert G Elston (Intermountain Research)
[711] BETWEEN A ROCK AND A HARD CLAY: OPALITE EXTRACTION FROM SUBSURFACE SOURCES AT THE TOSAWIHI QUARRIES, NORTHERN NEVADA.

This paper explores the relationship between the geological context of a lithic resource and human decision making in toolstone extraction. Data collected from Locality 36 of the Tosawihari Quarries suggest that the geomorphological setting of a lithic resource influences the initial placement of quarry workshops, and that geological features of the resource influence the extent to which a particular working is exploited. We propose that variation in extraction methods observed at Locality 36 is best explained by a least-cost/rate-maximizing approach to toolstone procurement.

Carbollo Marina, Flavia (see Franco, Nora Viviana) [212]

Carlisle, Ronald C (Michael Baker Jr) [Discussion 504]

Carlisle, Ronald C (Michael Baker Jr), Barbara J Gandy o' Deborah Casselberry (Pittsburgh)
[409] EXCAVATIONS AT THE MANSION POTTERY, A 19TH CENTURY YELLOW EARTHENWARE POTTERY IN EAST LIVERPOOL, OHIO.

Excavations at the Mansion Pottery (1842-1914) in East Liverpool, Ohio, identified the bases of the two original bottle kilns and recovered an extensive collection of yellow Rockingham-glazed earthenwares. The Mansion Pottery is one of only two potteries that have been excavated in East Liverpool, a city that once turned out half of all US ceramics. The excavations and attendant research afford an opportunity to explore 19th-century ceramic technology, site layout and architecture, labor utilization, ceramic decorative techniques, and production repertoire. The resultant data base forms an important contribution to the study of the industrial transformation of 19th-century North America.

Carmean, Kelli (UC-Berkeley)
[113] NEW INVESTIGATIONS IN THE CAPE REGION OF BAJA CALIFORNIA.

Fieldwork undertaken in the fall of 1991 in the Cape Region of Baja California is described within the context of previous excavations by Massey on the "Las Palmas" burial caves in the 1940s. Preliminary results are presented for regional site survey and test excavations. Overall research design is discussed, as is the application of new dating methods (subvarnish radiocarbon) in an area lacking good prospects for temporal control.

Carnett, Carol (Leagal Aid Bureau of Maryland) o' Ray A Williamson (Office of Technology Assessment)
[112] SITE PROTECTION AND 'REVERSE ARCHAEOLOGY' IN THE GRAND GULCH, UTAH.

Detailed provenience information for Basketmaker artifacts taken from SE Utah nearly 100 years ago is now available for the first time through the recent efforts of the Wetherill Grand Gulch Project. The project team has traced the location of numerous dry alcoves in SE Utah, most of which are on public lands, and uncovered historic records documenting the artifacts dug there. This paper briefly describes the project's major accomplishments and suggests methods by which federal and state land managers, working with private citizens, could provide more effective protection of these unique cultural resources.

Carr, Kurt W (Bureau for Historic Preservation) [Introduction 601]

Carr, Philip (Tennessee)
[404] TECHNOLOGICAL ORGANIZATION AND PREHISTORIC HUNTER-GATHERER MOBILITY: EXAMINATION OF THE HAYES SITE [40ML139].

Studies of prehistoric hunter-gatherer mobility have benefited from using an organizational approach to technology. However, simple correlations between technological strategies (curated, expedient) and mobility strategies (collector, forager) are unwarranted. An interpretive framework based on organizational concepts is developed in order to understand the Middle and Late Archaic occupation of the Hayes Site (40ML139). The relationship between technological and mobility strategies is considered, as is the specific raw material distribution in the region. It is concluded that the site was used as a forager residence during the Middle Archaic and as both a collector and forager residence during the Late Archaic.

Casselberry, Deborah (see Carlisle, Ronald C) [409]

Cassell, Mark S (SUNY-Binghamton)

John Kelly established his commercial shore whaling station and hired 80 eskimo employees in 1891-1892, within five years of the initial use of Eskimos as wage laborers in the western commercial whaling industry. In the course of those five years Yankee whaler/traders combined their moral and material resources with those of Christian and federal interests to undermine traditional Eskimo social relations of production and gain control over the labor of virtually every Eskimo in north Alaska. The present paper links archaeological data from Kelly's whaling station with documentary data to understand the sociomaterial circumstances of the creation of an Eskimo industrial labor force.

Cederstrom, Thoric (see Haley, Harold) [411]
Chadderdon, Thomas J

Ceramic corpus from Giza with other collections from Egypt and with the descriptions of vessels in the scenes of daily life found in tombs in Giza and Saqqara.

Cheek, Charles D & Donna J Seifert (John Milner Associates)

[606] FANNY HILL AND MARY MCNAMARA: HOUSEHOLD TYPES AND NEIGHBORHOOD IN 19TH CENTURY WASHINGTON, DC.

Archaeological investigations at Federal Triangle included the excavation of ten city lots in a working-class neighborhood in downtown Washington, DC. Archaeological and sociological research has demonstrated that distinctive combinations of three variables—socioeconomic status, ethnicity, and household composition—characterize neighborhoods. These three variables affect the consumption patterns of the neighborhoods. This paper focuses on the definition of household types in the neighborhood and the effect of household composition on artifact assemblages.

Chiang, Clarence M (see Ravesloot, John C) [202]

Childs, S Terry (Florida)

[708] SOCIAL DIFFERENTIATION AND COPPER IN SOUTHEASTERN ZAIRE.

Typological and frequency studies of grave goods from the burials at five cemeteries in southeastern Zaire indicate that social stratification and differentiation of individuals existed during the last millennium. In contrast, the social relations between the communities of people represented by those buried at each cemetery are little known. One avenue towards understanding group relations is to study the importation patterns of a shared valuable good. The paper focuses on the copper imported from the south and uses chemical analyses to consider the degree to which different sources of copper were used by the five communities and why.

Chilton, Elizabeth (Massachusetts-Amherst)

[399] NEW LIGHT FROM OLD LEGACIES: INSIGHTS INTO CERAMIC VARIATION AT THE GOAT ISLAND ROCKSHELTER.

Major syntheses of Hudson Valley prehistory have ignored archaeological sites investigated by Mary Butler as part of the Hudson Valley Archaeological Survey [1939-1940]. A careful evaluation of one of the 45 sites tested by Butler, the Goat Island Rocksdelter (Dutchess County, New York), demonstrates the importance of analyzing previously excavated collections. The rocksdelter was used sporadically over the past 6000 years, with the most substantial occupation during the Middle Woodland (2000-1000 BP). By employing a detailed materials analysis, focusing on ceramic attributes and a minimum vessel count, this study challenges the efficacy of regional ceramic typologies.

Chippindale, Christopher (Cambridge)

[383] DIRECT DATING OF ROCK ART: WHERE IT’S AT AND WHERE IT’S GOING.

New studies, mostly dependent on radiocarbon, are making rapid progress in direct-dating of rock art. In each case, one may ask: just what is the material being dated? Just where does the carbon come from? Just what is the relation between the dated material and the act of making the picture? so as to know just what the date represents.

Chisholm, Brian S & R G Matson (British Columbia)

[295] ISOTOPIC EVIDENCE ON BASKETMAKER II DIET AT CEDAR MESA, UTAH.

Since the early 1990s various estimates have been made about the use of maize in Anasazi diet. Stable isotope analysis of bone gelatin from eight humans, recovered from the Cedar Mesa area, indicates that both Basketmaker II and Pueblo people in that area obtained about 75%, or more, of their protein from C4 plants, suggesting that maize was extremely important in their diet. The Pueblo people appear to have used perhaps 5% more C4 species than Basketmaket II people. Both were approximately 40 to 60% higher than the C4 plant intake of an Archaic individual from the same area.

Church, Flora (Archaeological Services Consultants)

[302] BEYOND THE SCIOTO VALLEY: MIDDLE WOODLAND OCCUPATION ON THE SALT CREEK DRAINAGE.

The record of Middle Woodland occupation in Ohio is not confined to major river valleys like the Scioto Valley. Peripheral drainages like Salt Creek have provided substantial evidence of occupation throughout the Early and Middle Woodland periods. An examination of the Salt Creek drainage, centered on the mitigation of 3JW315—a Middle Woodland occupation in Vinton County—integrates data on subsistence, community structure, and relationship to mounds and earthworks in the vicinity to test Prue's settlement model.

Church, Flora (see Nass, John P Jr) [204]
Cinque, Michael


The prehistoric population of the Tonto Basin developed an intricate subsistence system involving intensive farming and the exploitation of a variety of desert plants. Several approaches are used to gain a better understanding of this system. Modern distribution of usable plants is mapped using vegetation survey techniques, and the prehistoric distribution of cultivars and wild plant resources is reconstructed from flotation, pollen, and phytolith analyses of samples from archaeological contexts.

Cioek-Torrello, Richard S

[205] ROOTS OF ANASAZI AND PUEBLO Symbolism as EVIDENCED by BASKETMAKER II ROCK ART AND MATIERIAL CULTURE.

Basketmaker II rock art styles are well documented, and associated materials have been excavated and reported. Continuities in Basketmaker II style and symbolism are found throughout the Colorado Plateau and include representation of distinctive subjects. The symbolic cohesion appears to have resulted from extensive sharing of ceremonial practices and paraphernalia. These developments provided a foundation for symbolism associated with Anasazi and western Pueblo socioreligious systems. Evidence for this lies in the nature of Basketmaker symbolism and its relationship to ceremonial materials and art of the Basketmaker III-Pueblo IV period and to those of the Hopi and Zuni.

Coles, Sally J

[205] ROOTS OF ANASAZI AND PUEBLO Symbolism as EVIDENCED by BASKETMAKER II ROCK ART AND MATIERIAL CULTURE.

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Conner, Stuart & Lawrence L Loendorf

successive operational sequences and assigning them to particular cultures. New methods (multiple pigment analysis, direct radiocarbon dating, TL) are beginning to be applied. This paper deals with their development, methods, and comparison with traditional dating methods (stylistic sequence, archaeological context).

Cobb, Charles R, Jeffrey H Maymon & Randall H McGuire (SUNY-Binghamton) [403] EXTERNAL RELATIONS: SOUTHWEST AND SOUTHEAST TIES TO MESOAMERICA.

The Southwest and Southeast exhibit very different types of evidence for links with Mesoamerica. Whereas the Southwest has yielded Mesoamerican artifacts, features (halls, courts, animals [macaws], and symbols), ties with the Southeast have been most strongly argued from thematic similarities between Mesoamerican and Southern Cult art styles, hattested by the occasional find such as a possible stela in Florida. This paper compares not only the possible impacts of such ties at different spatial scales in the Southwest and Southeast, but explores how differences in the nature of the evidence between the two regions have strongly affected the types of explanations sought to account for those ties.

Coles, Sally J [205] ROOTS OF ANASAZI AND PUEBLO SYMBOLISM as EVIDENCED by BASKETMAKER II ROCK ART AND MATIERIAL CULTURE.

Basketmaker II rock art styles are well documented, and associated materials have been excavated and reported. Continuities in Basketmaker II style and symbolism are found throughout the Colorado Plateau and include representation of distinctive subjects. The symbolic cohesion appears to have resulted from extensive sharing of ceremonial practices and paraphernalia. These developments provided a foundation for symbolism associated with Anasazi and western Pueblo socioreligious systems. Evidence for this lies in the nature of Basketmaker symbolism and its relationship to ceremonial materials and art of the Basketmaker III-Pueblo IV period and to those of the Hopi and Zuni.

Conard, Nicholas J (Connecticut) [308] NEW EXCAVATIONS IN FLINDERS PETRIE'S "WORKMEN'S BARRACKS" AT GIZA.

Since the turn of the century when Petrie excavated the galleries west of Kephren's pyramid, this area of about 400 by 50 m has been known as the "workmen's barracks." In the winter of 1989 members of the Giza Plateau Mapping Project excavated parts of nine of the roughly one hundred galleries. These excavations documented many aspects of the architecture and demonstrated that the galleries were not workers' housing. The finds from the 1989 excavation suggest that the galleries were at least partially roofed and served as workshops and storage areas.

Conides, Cynthia A (Columbia) [506] CRAFT SPECIALIZATION AND THE DEVELOPMENT OF THE STUCOED POTTERY PAINTING TRADITION AT TEOTIHUACAN, MEXICO.

The mural paintings and the stuccoed and painted ceramics from Teotihuacan have long been viewed as a single painting tradition, produced by the same artisans. This paper challenges this description and presents another that is based on the visual reality of the paintings, specifically those painted by the slopped-relief decorative technique (post-firing scrape excision). The relationships of stuccoed and painted ceramics to other pottery styles also are examined to suggest some economic implications for the development of this painting tradition.

Conkey, Margaret (UC-Berkeley) [Discussant 103]

Conner, Stuart (Montana Archaeological Society) & Lawrence L Loendorf (North Dakota) [208] THE RADIOCARBON AGE OF THE PECTOL SHIELDS.

The age of the large, leather, Pectol shields has been debated since their discovery in a dry cave in Utah in 1924. A C-14 date obtained in 1968 was modern. Recently we noticed a shiny substance on
Connolly, Robert

the shields (perhaps a preservative added after their discovery), which might have skewed C-14 analysis. Consequently, an unaffected sample was submitted for AMS. The new C-14 date of 364 ± 55 BP shows the Peckot shields to be contemporaneous with aboriginal rock drawings of shields. The similarity of Peckot shields with rock art drawings validates the latter as native pictures of prehistoric cultures.

Connolly, Robert (Illinois)

[302] HOPEWELLIAN HABITATION AT THE FORT ANCIENT SITE.

Recent research has revealed evidence of Hopewell structures adjacent to the Fort Ancient hilltop enclosure in southwestern Ohio. The findings tend to support claims that Ohio Hopewell monuments are contemporaneous with Fort Ancient. Excavations have identified substantial structures, fire pits, hearths, house depressions, and several shallow pits on the upland plateau immediately east of the North Enclosure. The excavations are directly north of the area described by O. N. Frutner in 1969 as the "best candidate here for a true Hopewell settlement." Distinct scatters of Hopewell artifacts litter the surface of an additional 30 ha east of the study area.

Corbett, Jack (Lewis & Clark) o Nelly Robles Garcia (Georgia)

[313] MANAGING ARCHAEOLOGICAL SITE PRESERVATION AND RESTORATION IN MEXICO.

This paper examines the organizations, issues, and policies affecting archaeological site preservation and restoration in Mexico. Mexico has a fairly well-organized and sophisticated approach to site management, yet resource scarcity, a shortage of trained personnel, inter-organizational rivalries, and frequent policy shifts, and competing visions of what site preservation and restoration should accomplish. The paper discusses the need to reduce its effectiveness and place important cultural resources in jeopardy. Drawing on field study, the paper focuses on national, state, and local efforts to manage archaeological sites in Oaxaca.

Cordell, Linda S (California Academy of Sciences)

[403] HOW WERE PREHISTORIC SOUTHWESTERN POLITIES ORGANIZED?

Southwestern polities varied in size and degree of apparent integration. The variation was temporal and geographic. Southwestern archaeologists have drawn on models of states, big man systems, chiefdoms, and states, world economic systems, and recently, empires as plausible models for these polities. Some of the diversity in the models relates to the ground differences in polity scale. This paper examines food procurement and production, aspects of population density, craft production, trade, and the organization of labor as archaeologically visible dimensions useful for evaluating the models and resolving ambiguities.

Cource, Shari (see Harris, John) [110]

Coupand, Gary G (Toronto)

[603] THIS OLD HOUSE: CULTURAL COMPLEXITY AND HOUSEHOLD STABILITY ON THE NORTHERN NORTHWEST COAST OF NORTH AMERICA.

This paper challenges the traditional view that Northwest Coast houses and households increased dramatically as a result of the emergence of cultural complexity. Evidence from the northern coast suggests little change in household size over a 1500-2000 year period, during which time ranked societies are thought to have evolved. The labor requirements of large-scale production associated with cultural complexity may have been accomplished in these communities by relatively small households working together as units under the organizational leadership of a village chief, a system quite different from that which existed during the early historic period.

Courty, Marie-Agnes (CNRS)

[207] THIRD MILLENNIUM ENVIRONMENTAL ADAPTATION: THE CANAL SYSTEM OF DRY-FARMING NORTHERN MESOPOTAMIA.

Deep trenching at the foot of archaeological sites on the Habour Plains, NE Syria, provides stratigraphic records of the Holocene evolution of the flood plain. The hydrographic system suffered an important reduction of the alluvial discharge during the 5th-4th millennia when stone embankments were constructed at the foot of settlements. During the 3rd millennium, evidence suggests that the canal system was renewed because of flood plain accretion due to siltation. At ca 2000 BC exploitation of the flood plain was drastically modified because of desertification of the region.

Cowen, C Wesley (Cincinnati Museum of Natural History)


Shortly after AD 1450, much of the middle Ohio Valley witnessed a reorientation of human occupation, development of new forms of population. Wholesale abandonment of formerly occupied drainages, development of new forms of community types, and evidence of increasing communication with geographically disparate peoples marked the onset of a period of remarkable cultural change in the Midwest heartland. This period culminated in 1690 in the near total abandonment of the middle Ohio Valley in an area that today encompasses large portions of western West Virginia, southern Ohio, central and northern Kentucky, and southwestern Indiana.

Cowgill, George L (Arizona State)

[505] TEOTIHUACAN: ACTION AND MEANING IN MESOAMERICA.

We cannot make sense of Teotihuacan-related manifestations throughout Mesoamerica without paying attention to what Teotihuacan meant in various places. Its significance was grounded in part on very concrete military and political phenomena, although evidence for a strong economic system is weak. Preoccupation with material aspects is inadequate, however. Meanings generated by Teotihuacan themselves evolve, both for the city and for other groups in Mesoamerica. This is illustrated by a variety of evidence, including recent finds at the Feathered Serpent Pyramid in the Teotihuacan Ciudadela.

Cowin, Verna L (Carnegie Museum of Natural History)

[504] IDENTIFYING ARCHAEOLOGICAL RESOURCES: A CASE STUDY OF PITTSBURGH PENNSYLVANIA.

Ten years ago, Pittsburgh's archaeologists discovered that significant archaeological resources survived urban development and two major redevelopment episodes within the central business district. The city has progressed from emergency salvage excavations, through a general survey of Pittsburgh resources, to a current project wherein computerized maps help city planning and the Urban Redevelopment Authority identify the archaeological potential throughout the city and particularly at proposed construction sites. This paper is offered as a cultural resource management model for other major cities.

Cowin, Verna L (Carnegie Museum of Natural History)

[601] WESTERN PENNSYLVANIA ARCHAEOLOGY.

Slides from the Carnegie Museum of Natural History's archives illustrate the history of 95 years of archaeological investigations in western Pennsylvania and the results of excavations throughout the region. The history of human utilization of the land draining the Ohio River is outlined, from the prehistoric occupations at Washington County's Meadowcroft rockshelter to 19th-century commercial enterprises in downtown Pittsburgh. The chronology is elaborated with comments about the availability of resources within the area and with the archaeological data that reflect changes as well as continuity in settlement and subsistence strategies.

Crabtree, Pam (New York)


Brandon is a Saxon Mound (ca AD 650-900) settlement located in eastern England. Ten seasons of excavation at Brandon have produced a rich and diverse faunal collection of over 150,000 fragments. When compared to the faunal assemblage from the nearby early Saxon site of West Stow, the Brandon assemblage shows an increased reliance on adult male sheep. The Brandon harvest profiles, when combined with morphological, paleobotanical, and artifact evidence, indicate an increasing use of sheep for wool production in the Middle Saxon period. This shift toward wool production can plausibly be related to the rapid development of urbanism and trade in the Middle Saxon period.

Craig, Douglas B (Desert Archaeology), David Jacobs (Arizona State) e Mark D Elson (Desert Archaeology)

[701] ARCHITECTURAL VARIABILITY IN THE TONTO BASIN: A ROOSEVELT PHASE PERSPECTIVE.

The Roosevelt phase (ca AD 1150-1300) in the Tonto Basin witnessed the emergence of platform mounds as a distinctive form of public architecture. During the same time period, important changes in household organization and domestic architecture also were taking place. This paper examines some of the changes at the household level as a backdrop for understanding changes at the community-wide level. Examples from recent investigations at several platform mound communities in the eastern Tonto Basin are discussed.

Craig, Douglas B (see Doelle, William H) [701]

Crawford, Gary W (Toronto)

[402] ARCHAEOLOGICAL GRASSES AND ANTHROPOGENESIS IN PREHISTORIC JAPAN.

Human induced changes to local habitats created important collecting territories during the Early Jomon. By the Middle Jomon, gardening may have been one form of anthropogenic influence. At least
one grass, barnyard grass, may have been grown. Several other grasses figure prominently among the Jomon period plant remains. By 300 BC wet rice paddies were being cultivated in southwestern Japan, and by AD 300 a dryland farming complex arose in the northeast. Both systems relied on a cultivation of grasses and hardier weedy grasses. This paper reviews the archaeological grasses from Japan and explores their ecological and economic meaning.

Creel, Darrell C (Texas-Austin) [506] RESEARCH AT THE OLD TOWN RUIN, A MIMBRES SITE IN LUNA COUNTY, NEW MEXICO.
Systematic investigations at the old Town site began in 1969 as part of the Texas A&M University archaeological field school and have continued since then as a project of the University of Texas at Austin. Excavations have focused on assessing the research potential of this large and extensively intensive site. Seven much disturbed Classic period surface rooms have been excavated. An intensive effort has also been made to acquire information on the site from archives and widely dispersed collections.

Creer, C Clifton, Anan W Raymond o' Amy J Dansie o' US Fish o' Wildlife Service) [410] TREATMENT OF HUMAN REMAINS AT STILLWATER NATIONAL WILDLIFE REFUGE, NEVADA.
The Memorandum of Understanding Concerning Human Remains [1988] is a standing document drafted prior to the Native Graves Protection and Repatriation Act in response to Bureau of Indian Affairs' requirement of hundreds of burials. The Memorandum outlines procedures, which are to be followed by the Repatriation Act, for identification, excavation, curation, analysis, and return of human remains on the Stillwater National Wildlife Refuge. This Act has been a major step in the repatriation of Native American remains. The Memorandum has guided a successful program of archaeology.

Cressey, Pamela J (Alexandria Archaeology) [504] PLANNING THE FUTURE OF A CITY'S ARCHEOLOGICAL PAST: CODES, MASTER PLANS, AND COMMUNITY FORUMS IN ALEXANDRIA, VIRGINIA.
The City of Alexandria Code established the Alexandria Archaeological Protection Procedure in November, 1989. This mandated protection procedure only operates in large-scale commercial developments, small, residential, and neighborhood projects. The City has identified a number of different approaches to historic preservation. The Alexandria Archaeology Commission has been a driving force behind this. The Alexandria Archaeological Commission is currently working to identify and evaluate the historic preservation of the city.

Crofts, Constance (Massachusetts Historical Commission) [709] "WHEN THEIR ANCESTORS FIRST CAME..." THE ARCHEOLOGY OF WAMPANOAG ORAL TRADITIONS.
This paper explores possible links between Wampanoag oral traditions and archaeological evidence for the development of an intensive focus on marine resources over the past 5000 years among Indian peoples living in southeastern Massachusetts.

Cristino, Claudia (see Stedman, David) [307]
Crosen, Kristine J (see Holmes, Charles E) [812]
Cratty, Helen K (Archaeological Society of New Mexico) [502] THE ARCHEOLOGICAL SOCIETY OF NEW MEXICO'S ROCK ART RECORDING PROJECT.
Since 1987, the ASNM's Rock Art Recording Field School has been documenting the rock art at the Three Rivers Petroglyph site under a cooperative management agreement with the Bureau of Land Management. The volunteers recruited nationally spend one to two weeks at the site photographing, drawing, and mapping the petroglyphs, noting any natural deterioration or vandalism. The BLM is promoting public interest and support services for and processing of photographic records. On completion in 1993, the project will provide a basis for monitoring future visitor impact and a database for analysis and interpretation of this renowned rock art site.

Cumings, Linda Scott (Paleo Research Laboratories) [501] PHOTOLITH ANALYSIS AT ARCHAEOLOGICAL SITES FOR RECOVERY OF SUBSISTENCE DATA AND IDENTIFICATION OF STAINS.
Phytoliths and crystals may be recovered representing utilization of plants for food and for other purposes. Recovery of Opuntia crystals may represent exploitation of prickly pear fruits and/or pods. Concentrations of phytoliths at butchering or small sites probably represent deterioration of stomach/ intestinal contents of animals. Interpretation of pits and stains in the Pacific may be aided by recovery of phytoliths representing palms and other trees. Specific examples of recovery of phytoliths in archaeological contexts from a variety of sites are presented in this guide to the use of phytolith analysis for interpretation of non-environmental data.

Curtis, Antonio (Arizona State) [415] DEMOGRAPHIC AND SOCIOPOLITICAL CHANGE IN PREHISTORIC PUERTO RICO.
Several of the hypotheses suggested for the development of social complexity in the Caribbean are based on population pressure premises. The so-called prehistoric Project of the Valley of Maina has been conducting a regional study designed to test such hypotheses in a small coastal valley in southeastern Puerto Rico. A sampling survey and surface collections were used to gather data for calculating population estimates and the carrying capacity of the valley. The results of the survey show that although population increase was experienced at the same time as chiefdoms developed, it never reached the carrying capacity of the valley, leading to the rejection of most of the hypotheses.

Currow, Anna (see Meadow, Richard H) [207]
Curren, Caleb (see Holstein, Harry O) [310]

Curtain, Edward V (Skidmore) [705] INTEGRATING SMALL SITE METHODS IN REGIONAL RESEARCH: AN EXAMPLE FROM THE HUDSON VALLEY.
Two recent initiatives, the Upper Hudson Survey and Planning Study and the Small Sites Methods Project, have identified the need for an approach to discovering and studying small or low density archaeological sites in eastern New York state. Methods developed for a variety of cultural resource management projects address the need for small sites research. Several examples suggest changes in approaches to field work, and reevaluate assumptions about the comprehensiveness of surveys and the nature of archaeological data in the Northeast.

Czaplicki, Jon S o' Thomas R Lincoln (Bureau of Reclamation) [702] NOT JUST COMPLIANCE: FEDERAL ARCHAEOLOGY PROJECTS AND THEIR SIGNIFICANT CONTRIBUTIONS TO ARIZONA PREHISTORY.
Large federally sponsored archaeological projects are complex: both in their management and logistical and in their research orientation and methods. In its Theodore Roosevelt Dam Archaeology Project, the Bureau of Reclamation has combined 25 years of management practices with an innovative research approach to plan, design, and implement a research program that is contributing major new information about prehistoric Salado culture [AD 1050 to 1450]. The research is also contributing to Reclamation's own considerable history and to the development of American society in the greater southwestern United States.

Dabney, Mary K (Columbia) [597] STATE FORMATION IN PREHISTORIC CRETE.
Palaces were the first sites extensively excavated during the archaeological exploration of prehistoric Crete. The traditional approach focuses on the construction of the palaces in the early Middle Bronze Age as the archaeologically recorded event representative of state formation. This study, however, shows that supporting evidence for organizational complexity, such as survey and mortuary data, indicates that state formation in Crete proceeded throughout the Middle Bronze Age. As the development of religious rituals and secondary economic centers led to increased social and economic integration, the palace became the centers of small states.
occurs, and the social and economic status for those who practice reuse most often have important implications for understanding prehistoric artifact variability and spatial patterning. These and other aspects of reuse are addressed through a comparison of ceramic reuse practices among the modern Chiaapan Maya and Pervuvian Wanka.

DeCarlo, Valerie (Advisory Council on Historic Preservation) [104] CURATION, OR WHY ARE WE SAVING ALL THIS STUFF!
The disposal of federal archaeological collections has become an enormous problem. Inadequate space and limited funds are placing the fate of existing collections in question, to say nothing of the complications faced by ongoing and future projects. In addition, new legislation regarding potential repatriation has further complicated the future of federal collections management. This paper examines the current curation crisis and discusses agency responsibilities under federal legislation. Suggestions for solving the problem are presented.

Décima, Elena B (Timelines) oe Dena F Dincac (Massachusetts-Amherst) [709] 4000 YEARS AGO IN THE BACK BAY OF BOSTON: THE BOYLSTON STREET FISH WEIR REVISITED

The latest investigations of the Boylston Street Fish Weir, a repeatedly utilized Late Archaic site, have produced new insights into construction techniques, utilization, and chronometric sequence of the weir structures. The archaeological monitoring of the construction of new buildings, together with excavations and interdisciplinary studies (some still pending), clearly establish the existence of several fish weirs, spanning approximately 2000 years, which were continuously modified to accommodate topographical and environmental changes through an evolving technology.

Deloria, Vine (Center for Studies of Ethnicity oe Race in America) [124] SACRED SITES AND SACRED COWS.

Delpech, Françoise (Université de Bordeaux I) [506] SEASONAL STRATEGIES OF UPPER PALEOLITHIC HUNTERS IN WESTERN EUROPE.

In this paper I present and discuss published information concerning the hunting seasons of large mammals during the Upper Paleolithic in western Europe. The Aquitaine region serves as an example where climatic and topographic factors dictated animal seasonal behavior that resulted in the use of variable strategies by local hunters. The conclusions obtained in this research are based on methods for age definition which are still under development.

Denny, J Peter (Western Ontario) [512] ALGONQUAN AND IROQUOIAN COMPETITION IN THE NORTHEAST AFTER 1500 BC.

Archaic populations of the Northeast probably speak languages related to Iroquoian-Siouan-Caddoan. Algonquians intruded around 1400 BC, moving down the Missouri from the Columbia Plateau and occupying the upper Illinois and mid-Ohio drainages. From these Midwestern centers, their social and cultural ideas were spread, by means of Red Ocher/Glacial Kame ceremonialism, to groups along Lake Michigan, the St. Croix, and Lake Champlain, Middlesex, based at Lake Champlain, stimulated development of Eastern Algonquian languages. Meadowood was an initiatory response by Northern Iroquians.

DeRoche, Carole D (Cambridge) [311] ORGANIZATION OF TEXTILE PRODUCTION IN FIRST MILLENNIUM BC BRITAIN.

Great changes in economic and social organization are documented for the last millennium of Britain’s prehistory. The emergence of specialization in both metal and ceramic production reflects these developments. Much recently excavated material related to fabric manufacture, including preserved fragments of cloth and tools associated with spinning and weaving, now allows the textile technology to be similarly assessed. Intra-site spatial patterning indicates specific activity areas within settlements. The correlation of the apparent production diversity with variation in environmental, regional, and chronological factors is examined.

Diamanti, Melissa (Archaeological oe Historical Consultants) [602] CONJUNCTIVE APPROACH TO ANALYSIS OF LARGE HOUSEHOLDS.

The wide range of analyses undertaken since the inception of the Copan Archaeological Project, Phase II, has produced a rich body of data for the interpretation of Late Classic Maya society. Extensive excavations in the residential zone at Copan have uncovered large elite house compounds. Evidence from many sources has been brought together to reconstruct the social organization of these elite households, including ethnographic analogy, architectural lay-out and energetics, identification of assemblages, spatial distribution of artifacts, and paleodemography.
Dibble, Harold L

Donahue, Randolph E (Sheffield) & Daniela B Burroni (Siena) [311] PETRIOLO III SOUTH AND THE TRANSITION TO AGRICULTURE IN THE WEST MEDITERRANEAN

Two fundamental problems for the transition to agriculture in the West Mediterranean continue to impede advances in the understanding of this process. The first is the hotly debated substantive issue of whether the process is primarily the result of colonists or of the indigenous Mesolithic populations undergoing culture change. The second, primarily a theoretical issue, is the specific nature of culture contact or interaction between "agriculturalists" and "hunter-gatherers." Both issues are addressed with data from the early Neolithic occupation level (7480 F1 100 BF) of Petroilo III South Tuscany, Italy.

Dore, Christopher D (see Smyth, Michael P) [411]

Dorn, Ronald (Arizona State) [309] ROCK VARNISH DATING OF PETROGLYPHS.

Rock varnish is a process by which rocks become covered with a thin layer of weathering products. This layer is often used for dating purposes, as it can provide information about the age of the rock. The paper discusses the application of rock varnish for dating purposes, focusing on the development and use of varnish dating techniques.

Doug, John C (BLM) [Discussant 702]

Dowel, David (Arizona State) [110] IN THE SHADOW OF THE RIM: EXPLAINING PREHISTORIC SETTLEMENT DISTRIBUTIONS IN THE UPLANDS OF CENTRAL ARIZONA.

Extensive survey in high elevation 1500-2500 m localities under the Mogollon Rim escarpment in Arizona has yielded data on 300 prehistoric archaeological sites. Most sites are small, have limited numbers of artifacts, and usually lack surface evidence of architecture. Subsistence strategies involving hunting, gathering, and agriculture have been suggested. Discussions of assemblage variation and effective environmental focus on identifying factors that influenced settlement distributions. Ethnographic data are used to illuminate alternative subsistence and settlement models.

Drass, Richard R (Oklahoma) [314] EARLY PLAINS VILLAGE ADAPTATIONS ON THE SOUTHERN PLAINS.

Investigations at several villages along the eastern margins of the Southern Plains have provided information on the transitional Plains Village period (AD 800-1250) and the development of Plains Village societies. Tool assemblages, pottery technology, and lithic resource use indicate a gradual development of a Plains Village adaptation. Macrobotanical remains support some previous suppositions on the importance of corn horticulture. However, bison were not a significant food source for these early villages. Dry conditions around AD 1250-1300 may have resulted in an increased bison population in the eastern plains of Oklahoma allowing for selection of increased bison hunting rather than intensified horticulture.

Drennan, Robert D (Pittsburgh) [603] ONE AND ALL AND ALL FOR ONE: ACCOUNTING FOR VARIABILITY WITHOUT LOSING SIGHT OF REGULARITIES.

Cultural evolutionary approaches have emphasized broad regularities in the development of complex societies worldwide, and single models for their emergence have been applied indiscriminately to "chiefdoms" and "states" of all sorts. Subsuming many cases under a single explanation is intellectually satisfying, but comparative studies show important qualitative differences not only between chiefdoms and states but also between members of one class. Successful explanations of complex societies, then, must account not only for the broadest general similarities but also for substantial variation. Some approaches to social complexity are much more promising than others when considered in this light.

Drennan, Robert D (Pittsburgh) [Discussant 403]

Driver, W David, Lauren A Sullivan (Texas-Austin) & James F Garber (Southwest Texas State) [706] RITUAL ACTIVITY AT THE SITE OF BLACKMAN EDDY, BELIZE.

Investigations at the Maya site of Blackman Eddy, Belize, have revealed evidence of complex ritual activity. Located at the edge of the Belize River Valley, this site served as a medium-sized ceremonial center during the Late Preclassic and Early Classic periods. The 1991 field season included excavations...
within a small plazuela group near the site core. These excavations exposed several deposits that contained artifact assemblages typically associated with ritual behavior. This paper examines these deposits in light of recent interpretations of possible dedication and/or termination rituals within the last deposits in the study area.

Dublin, Susan (CLEU) and Nan A Rothschild (Barnard) [304] DEEP TRASH: A TALE OF SEVERAL MIDDENS. Excavation at the farming village of Lower Pescado, an aggregated pueblo occupied and abandoned during the 13th through 16th centuries, revealed a satellite settlement of 21 mounds. During the 14th through 15th centuries the site was occupied by people who may have been descendants of the inhabitants of the nearby village of Chaco. The site was occupied during two widely separated periods. A comparison of patterns of trash activity across the site suggests that there may have been a significant change in the use of the site during one of these periods. These data indicate that the site may have been occupied by people who were not part of the same community, but who were related to each other.

Duffy, Andrew T (Arizona State) [304] THE STRUCTURE OF ECONOMIC INTERACTION THROUGH CERAMIC SOURCING: IMPLICATIONS FOR SOCIO-POLITICAL ORGANIZATION. This paper examines the nature of economic interaction in the urban area of Neri during the last 300 years of occupation. The analysis includes a ceramic assemblage from a site in the area, which includes both local and regional sherds. These sherds provide evidence for the exchange of goods between the two areas, and suggest that there was a significant degree of interaction between them.

Duncan, Rick and Jack Donahue (Pittsburgh) [710] SEDIMENT ANALYSIS AND PALEOCLIMATE, DANGER HOLE, UTAH. An analysis of sediments from the Danger Hole, Utah, was used to determine the sedimentology of the area. The analysis included a study of the sediments, which were collected at the site, and a comparison with similar sediments from other sites in the region. The results suggest that there was a significant degree of interaction between the two areas, and that there was a significant difference in the sedimentology of the area.

Dunford, Frederick J (Cape Cod Museum of Natural History) [709] CONDITIONAL SECTINENT: THE LOGISTICAL FLEXIBILITY OF ESTUARINE SETTLEMENTS IN CIRCUMSCIBED ENVIRONMENTS: LATE WOODLAND SETTLEMENT SYSTEMS ON CAPE COD, MA. The archaeological record of Cape Cod includes both large and small component Woodland sites situated at the major estuaries, and many smaller, contemporary sites often located more than 1/4 mile from the immediate coast. While the functional relationship between these two types of sites is not always clear, it can be demonstrated that population aggregation and periodic dispersal were significant elements of Late Woodland settlement systems on Cape Cod. Focusing on the archaeological record of the outer Cape, it is argued that population density and dispersal were complementary elements of a conditional adaptation. The sediment record from all of those demographic, economic, social, political, and territorial attributes traditionally associated with sedentism.

Dunn, Robert (Corps of Engineers) [707] GEOARCHAEOLOGICAL MANAGEMENT OF THE ARKANSAS RIVER NAVIGATION SYSTEM. This paper discusses the geoarchaeological management program for the McClellan-Kerr Arkansas River Navigation System (ARKS) in Arkansas. A geoarchaeological approach has been developed which integrates geospatial and landform analysis, the GIS software package GRASS, modern-accessed computerized databases, and a variety of innovative archaeological techniques. The geoarchaeological approach is conceptually similar to that developed by geographer Karl Butzer in Archaeology as Human Ecology. Landforms with horizontal and vertical dimensions become the principal units of analysis. Landforms are conceptualized as three-dimensional repositories of buried cultural deposits.

Dunnell, Robert C (Washington, D.C.) [203] WHAT IS IT THAT ACTUALLY EVOLVES? In applications of evolutionary theory in archaeology it is often not clear what actually is evolving. While human beings may present some special problems in this regard, the issue is by no means a settled one in biology as evidenced by the continuing debates on the nature of species. This literature is reviewed, and the implications of cultural trait transmission on the scale and units of selection in cultural areas are considered. It is clear that archaeological systematics are not well adapted for the use of evolutionary theory.

Dunning, Nicholas (Cincinnati) and Timothy Beach (Georgia) [407] SOIL EROSION, SLOPE MANAGEMENT, AND ANCIENT TERRACING IN THE MAYAN LOWLANDS. Whether significant land degradation in the form of soil erosion factored in the Classic Maya collapse has been a persistent question over the years. This paper examines data on soil loss and sedimentation and the decision to terrace certain areas and not others in the Mayan lowlands. Particular attention is given to data recently obtained by the Petexbatún Regional Archaeological Project. Comparison is made with other regions, and a typology of terracing is suggested as part of a behavioral model reflecting a combination of slope management considerations, regional environmental circumstances, and socioeconomic necessities.

Dunning, Nicholas (see Killion, Thomas W) [704] Durand, Stephen R (Eastern New Mexico), Martin R Rose and Fred L Nials (Desert Research Institute) [514] TECHNIQUES FOR IDENTIFYING TREE SOURCE AREAS. At least 200,000 trees were used in building construction at Chaco Canyon, New Mexico, AD 900-1200. These are not present in the canyon today, and the source of construction timbers is a matter of contention. This paper presents the results of a study that has established the location and size of the major tree species used at Chaco Canyon construction timbers. Analysis of 62 trees growing in separate areas of the San Juan Basin demonstrates that tree stands can be distinguished by the trace elements present in the tree wood and by the climatic signal derived from the tree ring indices.

Egan, Kathryn C (see Lovis, William) [204] Ehrengrech, Robert M (National Academy of Sciences) and Michael L Weyman (Alberta) [708] ACCULTURATION IN THE ARCTIC: THE INUIT MEET SIR MARTIN FROBISHER. Frobisher's expeditions to Baffin Island between 1576 and 1578 mark the Inuit's first encounter with Europeans. Although historical records state that interaction was predominantly confined to scavenging and hostage taking, the effect on both cultures is evident in local folklore and western iconography. The discovery of apparently European-derived artifacts within 16th-century, indigenous tents during recent excavations has confirmed that the Inuit were able to obtain copper-melted metal by either ransom or European sites or trading with the expeditions. This presentation explores the actual extent of interaction between cultures using the examination of archaeological evidence to elucidate Inuit legend and historical record.

Ellick, Carol J (Statistical Research) and Cheri Bludau (Tucson Unified School District) [106] PRACTICUM: WHY ARCHAEOLOGY IN THE CLASSROOM? Archaeology can be used as a tool to teach major concepts to elementary age students. By hooking into the lives of children at an early age, the teacher can lead them through the steps that allow the students to go beyond the basics to the level of hypothesizing. This activity-based approach explores teaching through the use of concept learning, and projection with archaeology as the key.

Elston, Mark D (see Craig, Douglas B) [701] Elston, Robert G (Intermountain Research Institute) [Workshop 401] Elston, Robert G (see Carambas, Kristopher R) [711] Engelbrecht, William (Buffalo State) [102] POPULATION TRENDS AMONG THE ST. LAWRENCE IROQUOIS. During late prehistoric times there was a large Iroquois population in northern New York, just east of Lake Ontario and south of the St. Lawrence River. Nineteenth and early 20th century accounts describe at least 75 village sites in this region. Sometime during the late 16th or early 17th centuries, the region was abandoned. Warfare, European disease, and climate change all have been suggested as factors involved in this abandonment. Current research seeks to trace population shifts during the 14th century through to the abandonment in order to document whether this depopulation was sudden or gradual and whether any trend of population nucleation or dispersion was present. Trends in site size, natural defensibility, and elevation of settlements also are considered.
Engwall, Evan
[610] ARCHAEOLOGICAL INVESTIGATIONS OF CHORERRA CULTURE: TABUCHILA PHASE CERAMICS FROM NORTHERN MANABI, ECUADOR.

Recent archaeological investigations in the Jama River drainage in western Ecuador have documented the presence of a significant Late Formative Chorrera Culture occupation, locally designated the Tabuchila phase. Systematic regional survey and test excavation of this occupation have revealed a diverse Tabuchila ceramic assemblage, segregated into early and late components. Archaeological sites and sites with ethnoarchaeological data in the interpretation of archaeological site structure. The upper Formative site of Pimentel exhibits extraordinary preservation not only of artifacts, bones, and features, but also of their spatial distributions and relationships among narrators and features. Section 27 is a residential habitation unit, consisting of a large principal hearth which serves as a focal point for the organization of artifactual and faunal debris. A variety of mathematically based pattern recognition techniques are applied to the identification of faunal remains and are used in conjunction with ethnoarchaeological data for the interpretation of spatial patterning and site structure. These results yield information relevant to specific activities and overall site function.

Erickson, Clark I (Pennsylvania)
[111] BEFORE PUKARA AND TIWANAKU: EVIDENCE OF STATE FORMATION IN THE NORTHERN LAKES TITICACA BASIN OF PERU.

Despite a long period of scholarly interest in the state level societies of the Lake Titicaca Basin, there is very little archaeological information available for the important period immediately preceding the formation of the Pukara and Tiwanaku polities. In this paper, I summarize what is known about this period of state formation, and I present recent data from excavations and archaeological survey conducted in the department of Puno with a focus on subsistence, community organization, settlement patterns, and socio-political structure in the northern Lake Titicaca Basin. The traditional chronological framework for this area is re-examined in light of this evidence.

Ericson, Jonathon (UCI Radiocarbon Lab) o' Michael D Glascok (Missouri-Research Reactor)
[309] OBSIDIAN FLOW DIFFERENTIATION BY INAA, COSO, CALIFORNIA.

Instrumental neutron activation analysis (INAA) of obsidian flow and andesite samples of Coso Volcanic Field has been used to chemically differentiate five obsidian flow groups. INAA results in additional and more discrete chemical groups than x-ray fluorescence analysis. The Coso flow sources are used to evaluate the isotopic differences resulting from the interaction of these techniques with the results of prehistoric quarry analysis.

Erkolems, Conrad o' Melissa Kirkendall (Hawaii-Manoa)
[307] HAWAIIAN FRACTION AND IMPACT ON THE SHELLFISH OF NUALOLO KAI, KA'U, HAWAII.

An isolated rockshelter on the north coast of the island of Kauai in the Hawaiian Islands has provided a well preserved and deeply stratified deposit of marine shellfish and other remains of human occupation. Radiocarbon dates indicate continuous occupation in this valley for the last 800 years. Our analysis of the marine deposits documents the subsistence changes in shellfish exploitation and the impacts of human predation on shellfish in this small valley's bounded ecosystem.

Erlandson, Jon M (see Haggarty, James C) [702]
Evett, Dennis
[108] NEOLITHIC LIMITS OF GROWTH: THE CASE FROM THE TAVOLIERE (PUGLIA), SOUTHERN ITALY.

This paper explores whether the early Neolithic mixed farming populations of the Tavolare set in motion processes which so reduced the productive capacity of the landscape that lifeways, settlements, and the region were abandoned by the end of the Middle Neolithic. As part of this inquiry, we present two methods (a simulation and a data based approach) for assessing the ecosystem dynamics of early agriculturalists. Finally, the long term viability of prehistoric mixed farming economies is considered.

Ezzo, Joseph (see Price, T Douglas) [210]

Fiedel, Stuart J
[512] PROTO-ALGONQUIN EXPANSION: LINGUISTIC AND ARCHAEOLOGICAL MODELS.

Linguistic evidence shows that the Proto-Algonquians originated in southern Ontario. Expansion from this homeland, and divergence of Algonquian-speakers into separate Central and Eastern branches, probably occurred between 500 BC and AD 800. Northern Iroquois intrusion probably
 exacerbated this process. Early and Late Point Peninsula horizons are possible archaeological correlates of the hypothesized population movements. Technological (bow and arrow, social ranking, and exchange systems), and adaptive factors may have facilitated Algonquian expansion.

Figueroa, María José & Débora M Kligmann
[Buenos Aires]
[212] Site Formation Processes in Shell middens from Tierra del Fuego, Argentina.

In Tierra del Fuego, similar sites on the Beagle Channel share several common features—site distribution is high and shell refuse is densely aggregated with clearly defined limits. Many sites have superimposed layers distinguished by coloring, texture, and faunal composition. These traditionally have been interpreted as different occupations but could also correspond to activities arising from the same event. A model based on artifact reassembly, debitage analysis, and invertebrate faunal composition is used to define these depositation units and is useful for understanding localities with more complex sites.

Finn, Fred A (Iowa State Archaeologist Office)
[509] A RE-APPRAISAL OF ECONOMIC INTERPRETATIONS FOR CAHOKIA'S NORTHERN HINTERLAND.

Several recent papers have discussed the evidence for economic control and/or centralization in Cahokia's northern hinterland. Various authors have presented arguments for the presence of economic control and/or centralization, while others are against this position. This paper reviews these arguments and perspectives. It also presents one example of intra-site distributional evidence for the production of local products and the consumption of non-local exotic items in the Woodland Late and Middle Mississippian setting. This example contributes new data and perspectives on the economic organization of Cahokia's northern hinterland.

Finsten, Laura (McMaster)
[206] THE MIXTEC SIERRA: A CHANGING PERIPHERY.

The systematic survey of 850 km² of mountains between the Valleys of Oaxaca and Nochixtlán yielded evidence of numerous and widespread prehispanic settlements. This zone, in some periods, contained the boundary between Zapotec and Mixtec language and culture. Settlement pattern and other data are analyzed to examine frontier relationships and to compare core/periphery relationships in the Classic and Postclassic periods.

Fish, Suzanne K & Paul R Fish (Arizona State Museum)
[403] HOW COMPLEX WERE THE SOUTHWESTERN GREAT TOWNS' POLITIES?

Settlement patterns provide objective measures of aspects of complexity in southwestern great town polities that are expressed in territorial attributes and organization. During successive time intervals, a number of these attributes and their articulation are compared among regions for which sufficiently complete settlement information is available. Modalities and trends within the upland regions of the northern Southwest and the low desert basins of the south are established. Finally, expressions of territorial complexity are compared between these two broad geographic divisions.

Fish, Paul R (see Fish, Suzanne K) [210]

Fish, Paul R (see Fish, Suzanne K) [403]

Fitzgerald, William

Contemporary accounts are largely mute on what caused the seemingly rapid transformation of the Neutral Iroquoians of southern Ontario from a dynamic cultural entity to one relegated to historical obscurity. The Iroquoian conquest between AD 1647 and 1651 terminated this distinctive culture; the cumulative effects of geographical location, environment, and human events that had earlier molded Neutral culture also were ultimately responsible for its demise. Archaeologically derived trends in material culture, settlement pattern, inter-regional interaction, and subsistence pursuits are evaluated in light of cultural evolution, foreign influences (Native and European), for a society living in a transitional biotic zone during a period of climatic deterioration.

Fitzhugh, William W (Smithsonian)
[513] CULTURE CONTACT IN THE ARCTIC: IMPACT OF THE FROBISHER VOYAGES ON INUIT CULTURE.

The Frobisher voyages (1576-78) provide an unexplored venue for interdisciplinary studies of early European-Inuit contact. This paper reviews historical records of the light of recent archaeological research at both the Frobisher site and Inuit sites in Frobisher Bay. Data suggest a contact sequence of (1) initial exchange and barter, (2) mutual hostility and hostage-taking, and (3) post-contact scavenging and utilization. The Frobisher voyages supplied Eskimo Inuit with European materials for

Frankenberg, Susan R

nearly three hundred years until European whaling began in Davis Strait in the late 19th century. Hence the dominant effect of Frobisher contact was post-contact and utilitarian. This pattern is compared with contact scenarios in Greenland, Labrador, and the North Pacific.

Flegenheimer, Nora (Conicet)
[212] PALEOINDIAN OCCUPATIONS IN THE ARGENTINE PAMPAS: A CASE FOR INTERSITE VARIABILITY.

Early assemblages recovered at Co. La Chinita and Co. El Sobrero, both in 10,000-10,000 yr BP and including Fishlaw's Cave Stemmed projectile points, are analyzed. Great diversity is registered in the lithic production stages present at the sites, as well as in the percentages of bifacial and bipolar flakes, tool types, and raw materials. Explication of the relationship between sites, site function, and characteristics of the technological organization. The assessment of variability within the system is considered important for establishing correlations with other sites.

Forney, Sandra (US Forest Service) [Workshop 401]

Fosberg, Stephen (see Gerow, Peggy) [502]

Fowler, William R (Vanderbilt) & Dean Lombard (Texas-Austin)
[610] THE SOCIAL CONTEXT OF SIXTEENTH-CENTURY CACAO PRODUCTION IN IZALCO, EL SALVADOR.

Izalco is known historically as the richest cacao-producing region of colonial Guatemala. Data from 16th-century tribute records, censuses, and other legal documents and ethnobotanical field studies on modern cacao production in the region illuminate the social context of cacao production in Izalco. These observations are combined with archaeological data to construct a model of the social context of Izalco cacao production at the time of the conquest.

Fowler, William R (Vanderbilt) [Discussion 105]

Francis, Julie (Wyoming State Archaeologist Office)
[366] CAUTION-RATIO DATING AND CHRONOLOGICAL VARIATION WITHIN DINUWOODY STYLE ROCK ART IN NORTHERN WYOMING.

Dinwoody style rock art in northwestern Wyoming is best known for large, complex interior line figures. This style is spatially restricted to the Wind River and lower one-third of the Bighorn River drainage system, and figures were manufactured over a several thousand year interval from Archaic to Protohistoric times. Analysis of several sites shows that the supernatural-appearing human figures can be classified into multiple types. Cation-ratio dating is used to examine chronological variation in the manufacture of these types and to offer initial hypotheses regarding the evolution of Dinwoody anthropomorphs.

Franco, Nora Viviana (Conicet) & Flovia Carballo Marina (Universidad Federal de la Patagonia Austral)
[212] VARIABILITY OF SCRAPPERS IN THE LAKE ARGENTINO AREA (SANTA CRUZ PROVINCE, ARGENTINE REPUBLIC).

The objective of this paper is to compare the lithic assemblage collected at Estancia Bon Accord Site 1 with collections from the upper Santa Cruz Basin which were obtained in transect, concentrations, and sites. The higher percentage of instruments and high ratio of side scrapers versus other categories of artifacts clearly separate Site 1 from the rest of the archaeological occurrences in the Santa Cruz Basin. In addition, the side-scrapers collected at Site 1 display distinctive properties. Functional interpretations are discussed in relation to the availability of raw materials, and its relevance for Patagonian archaeology is analyzed.

Franke, Judith A (Illinois State Museum)
[406] PUBLIC PROGRAMS AND PUBLIC CONTROVERSY AT DICKSON MOUNDS.

In January 1990, the 63-year-old public display of human skeletal remains in a Mississippi cemetery at Dickson Mounds Museum became central to a public controversy that came to involve museum personnel, local residents, politicians, Native Americans, archaeologists, and the general public, and attracted much media attention. The lengthy controversy affected every aspect of museum operations, including short- and long-term planning, as well as the quality, character, and overall objectives of exhibits, public programming, and archaeological site interpretation.

Frankenberg, Susan R (GAI Consultants)
[104] IMPLICATIONS OF SLAVE DEMOGRAPHY FOR HISTORICAL ARCHAEOLOGY IN THE UPPER SOUTH.

Many site occupancies by the Upper South fall outside traditional definitions of plantations. These sites represent a historical phenomenon that served to set the South apart from the rest of the nation.
This paper presents a demographic analysis of late antebellum white, slave, and free black populations in areas of Tennessee and Kentucky in order to generate expectations about slaveholding and site structure in part of the Upper South. The goal is to contribute to region-specific, temporally sensitive models of slaveholding and agriculture.

Freidel, David [Southern Methodist] [Discussant 706]

Fremont, Donna [see Calloghan, Richard T] [415]

Freter, Anna Corinne [Ohio] [602] A METHODOLOGICAL SUMMARY OF THE REGIONAL SETTLEMENT SURVEY AND OBSIDIAN HYDRATION DATING PROJECTS AT COPAN, HONDURAS.

The methods employed during the PAC Phase II regional settlement survey and accompanying test excavation project are detailed. Following this, the history, design, and methods used in the Copan obsidian hydration dating project are discussed and the resultant chronological implications presented.

Freter, Anna Corinne [see Payne, Richard R] [209]

Frieden, Nicholas [see Brasier, Janet G] [710]

Friedman, Ed [Bureau of Reclamation] & Christopher Judge [Diachronic Research Foundation] [106] PRACTICUM: ARCHAEOLOGY IN THE SOCIAL STUDIES CURRICULUM.

For the past three summers the University of South Carolina has offered a course entitled: South Carolina Classroom Archaeology: Summer Institute for Social Studies Teachers. This graduate level course is a nine-day intensive workshop incorporating lectures, slide presentations, video film, and multi-sensory experiences such as replicating aboriginal technologies and visits to sites, which result in a non-traditional learning format. Participants learn first hand knowledge from the top scholars in the state, then prepare teaching modules based on the information. Practicum participants work with a small portion of the curriculum through a participatory experience.

Friesen, Max [McGill] [513] ARCHAEOLOGICAL APPROACHES TO INTERSOCIAL CONTACT: INUVIALUT-EUROAMERICAN INTERACTION ON HERSCHEL ISLAND, YUKON TERRITORY.

The past decade has seen increasing academic interest in the interaction between colonists and the indigenous peoples encountered during expansion of the European world-system. Analyzes of the internal dynamics of non-institutional societies prior to and during early phases of contact must rely primarily on archaeological data. This paper explores the nature and meaning of one instance of interaction through analysis of material culture from an early historic Inuvialuit (Eskimo) sod house on Herschel Island, Yukon Territory.

Frisson, George [Wyoming] [Discussant 303]

Fritz, Gayle J [Washington-St Louis] [Introduction 402]

Fry, Robert E [Purdue] [411] CERAMICS AND THE EVOLUTION OF RITUAL: A LOWLAND MAYA CASE STUDY.

Most studies of change in productive systems with emerging social complexity concentrate on changes in the organization of production. In this study I examine the relationship between the emergence of complex societies in the Maya Lowlands and the appearance and evolution of specialized ceramic ritual wares. The changing nature of Lowland Maya rituals is mirrored in the first appearance and diversification of ritual vessels, cache vessels, and inclusions. Similarities in rituals across regions give us clues about the nature of interregional relationships.


Sebring Pottery began operations in 1863 and continued through 1912. Very little is known about the operations of early commercial potteries such as Sebring Pottery. This pottery originally produced yellow ware ceramics, but switched to whiteware and then porcelain as consumer preferences changed. The changes in ware production generally coincided with improvements in the manufacturing technology and expansion of the factory. This paper focuses on the pottery manufacturing technology and the stylistic diversity of the wares from 1863 to 1894 when yellow ware was produced. Technology includes information on architectural features, manufacturing methods, and manufacturing defects.

Frye, Lori A [see Sprague, Rao] [409]

Garber, James F [National Park Service] [406] INDUSTRY IN THE WILDERNESS: THE DEVELOPMENT OF IRONMAKING IN THE GREAT VALLEY OF MARYLAND.

In 1761, four Baltimore merchants erected a small ironworks, Antietam Furnace, in the newly settled Great Valley of Maryland. Unusually intact archaeological deposits, combined with a short 15-year span of operation, make this furnace site a "time capsule" of ironmaking technology and development during the latter half of the 18th century. The central premise of this paper is that the unusual size and configuration of the smelting complex at Antietam represents a tentative response to a challenging frontier environment. Its demise represents part of the transition from a preindustrial emphasis on local markets to one involving a larger market economy.

Gurney, Robert J [Kent State] [409] EVALUATION OF THE HOME LOT CONCEPT AS A MEANS TO STUDY HOUSEHOLDS.

Excavations conducted on two 19th-century domestic complexes associated with common pottery workers in East Liverpool, Ohio, recovered large quantities of domestic refuse felt to be indicative of household status. The analysis of both the material culture and extant historical documents afforded an opportunity to examine views of the household as it relates to working class families. Comparison with data obtained from temporally similar household units provides a means to evaluate archaeological concepts of the household.

Hues, Martin T & Jack Donahue [Pittsburgh] [503] THE USE OF AGED POTTERY IN THE NORTHERN LESSER ANTILLES: LESSONS LEARNED FROM THIN SECTION PETROGRAPHY.

Petrographic analysis of inclusions in post-Saladooid sherds thin sections from five islands in the northern Lesser Antilles allows a number of conclusions to be drawn. Volcanic bedrock islands (Montserrat and St Martin) consistently have ceramics with volcanic inclusions. In contrast, carbonate or limestone islands (Anguila and Barbuda) have pottery with either volcanic inclusions or grog and carbonate inclusions. The former were brought from other islands while the latter were probably produced on the island. Pottery from Antigua, with both carbonate and volcanic behavior, also contains both inclusion categories.

Fuller, Richard S [see Brown, Ian W] [310]

Goertner, Linda M [Wisconsin-Madison] [412] USE-WEAR TRACES ON EARLY ARCHAIC DALTON ADZES FROM NORTHEAST ARKANSAS.

Fifteen Dalton adzes (c. 10,500-9500 BP) from northeast Arkansas were examined for use-wear traces using the proposed use-wear analysis of the chert tools. High power (50-200x) incident light microscopy was used to compare use-wear traces on several experimental tools with traces on the Dalton adzes. The results implied that Dalton adzes were used with hafted and used most often in heavy charred wood-working activities.

Gallin, Lenore [Diablo Valley] [108] ARCHITECTURE OF THE NURAGHI TOWERS OF BRONZE AGE SARDINIA.

New information about the construction technology and organizational abilities of prehistoric Sardinian builders is emerging from data collected during five seasons of architectural investigation of the Nuraghi. Teams of archaeologists, architects, engineers, and surveyors studied 150 Bronze Age towers in west Sardinia. Aerial photography, electronic surveying, detailed analysis of solid/void relationships, and examination of stone masonry suggest development of construction formulas to deal with the statics of unreinforced masonry and a well defined geometry related to building style. The architectural similarity of Nuraghi over a wide area reflects strong cultural traditions, while stylistic variation may indicate age and function.

Garber, James F [Southwest Texas State] [411] A POSSIBLE CYCLE 7 CARVED STELA FROM THE LOWLAND MAYA SITE OF BLACKMAN EDDY, BELIZE.

Investigations at the lowland Maya site of Blackman Eddy, Belize, revealed the presence of a stela carved in an early style. Its similarities to existing Cycle 7 Inscriptions, and its dissimilarities to the known lowland Maya carved stelae, support a proposed Late Preclassic date. Although the presence of non-standard features on the Blackman Eddy stela present problems in reading it as a Long Count inscription, a tentative suggestion of 7.10.10.0.0 [146 BC] is offered. Its presence in the Maya lowlands provides important clues to the origins and development of Maya hieroglyphic writing and calendric notation.

Garber, James F [see Driver, W David] [706]
Gardner, Paul S

[402] THE CULTURAL AND ECOLOGICAL IMPLICATIONS OF MAST EXPLOITATION.

The structure of prehistoric nut exploitation strategies remains poorly understood. This paper summarizes current information on the costs and benefits of nut exploitation. Rather than being a cornucopia of easily available nuts, the Eastern Woodlands forest may have provided only limited yields without human management. In the Archaic period, the management of localized stands, combined with the storage potential of nuts, would have mitigated the advantages of residential mobility. By favoring increased sedentism and the opening of the forest canopy, nut tree management would have added impetus to the creation of domesticities and the exploitation of native weed plants.

Garrow, Patrick H (Garrow & Associates)

[504] THE STATUS AND FUTURE OF URBAN ARCHAEOLOGY.

This paper summarizes the status of urban archaeology and discusses the current research themes that are being explored on urban domestic sites. The paper focuses on the need for greater emphasis on household and neighborhood-related studies as means of better understanding the people of the city versus larger theoretical constructs that cannot really be understood from a lot, block, or even neighborhood study universe.

Gear, Kathleen O'Neal (see Gear, Michael W) [414]

Gear, Michael W o Kathleen O'Neal Gear (Tor Books) [414]

WHEN SCIENCE AND FICTION MEET: POPULAR FICTION AS A VEHICLE FOR PUBLIC AWARENESS AND EDUCATION.

Public interest in archaeology has never been higher, and works of fiction are not only feeding this appetite, but are molding the American perception about archaeology, sites, and prehistoric peoples. Two bestselling authors discuss the powerful role of market fiction and elaborate on opportunities for public education and problems inherent in the work. A negative image of archaeology, archaeologists, and prehistoric peoples is currently portrayed by fiction authors without a background in archaeology—and here's what we can do about it.

Gearhart, Robert (see Bond, Clell) [702]

Geilh, Phil R (Navajo Nation Archaeology o Dale Davidson (BLM) [205]

ANASAZI ORIGINS: A PERSPECTIVE FROM PRELIMINARY WORK AT OLD MAN CAVE.

Resolving the question of Anasazi origins partially depends upon finding Basketmaker II antecedents. An essential place to search for antecedents is in the San Juan region of southeastern Utah where Basketmaker II remains were first discovered in the late 1800s, and where subsequent investigators have documented various aspects of Basketmaker lifeways. Old Man Cave, located along Cedar Mesa's northeast edge, sheds considerable light on the origins issue. Test excavations have revealed Basketmaker remains above Archaic strata dating back to at least 4000 BP. Test results are summarized, and their significance for the origins issue are highlighted.

Gelb, Diane E (Soil Conservation Service) [Introduction 601]

Geneste, Jean-Michel (Direction des Antiquités Préhistoriques d’Aquitaine) [606]

ON THE INTEGRATION OF TECHNICAL SYSTEMS DURING THE PALEOLITHIC.

This paper presents a methodological consideration of the integration of different technical systems during the Paleolithic.

Genheimer, Robert A (Cincinnati Museum of Natural History) [302]

THE STUBB'S CLUSTER: HOPEWELLIAN SITE DYNAMICS ALONG THE MIDDLE REACHES OF THE LITTLE MIAMI RIVER IN SOUTHWEST OHIO.

Between 1979 and 1983, more than two dozen Middle Woodland sites were recorded along a broad bend of the Little Miami River in Warren County, Ohio, associated with the Stubb's Earthwork complex. In general, the larger denser sites were close to the earthworks, while those sites of greater distance or opposite the earthworks were noticeably smaller and lower in density. There was no evidence that any of the sites had served as agricultural communities, and it seems probable that intermittent/cyclical occupation and abandonment was occurring, perhaps as a function of ceremonial or socio-political activities.

Gerow, Peggy (Archaeological o Historical Research Institute, LouAnn Jacobson o Stephen Fosberg (BLM) [502]

ARCHAEOLOGICAL INVESTIGATIONS AT FORT CRAIN, NEW MEXICO.

Excavations conducted at Civil War era Fort Craig focused on questions regarding culture conflict, economics, and environmental adaptations. Throughout the 31 years of the fort’s occupation, conflict

Gardner, Paul S

Gilman, Antonio


Gerszten, Andrea I (Western Michigan) [105] THE STOREHOUSES OF CEREN.

Storage facilities are a component of the well-preserved Classic period site of Ceren in El Salvador. Similarities and differences in the location, architecture, and contents of these facilities reveal some characteristics of household and community economics and social organization. These also provide a good comparative example for ethnographic interpretations and other archaeological reconstructions where preservation is not as good.

Geselowitz, Michael (MIT) o Lane Beck (Harvard-Peabody) [509] RANK-ORDERING OF GRAVE WEALTH: A PROTOHISTORICAL TEST CASE.

Archaeologists seeking to determine social position from mortuary data often focus on relative cost of burials as a possible correlate to social rank. There are obvious difficulties in determining the original value of material found in burials, simple measures which are better for comparative purposes may mask the true complexity of the situation. Various cost-ranking schemes are analyzed using data from a cemetery where the relative exchange values of the different burial goods can be determined from historical records. From this test case we suggest that relatively simple archaeological schemes can work under appropriate conditions.

Gibson, D Blair (California State) [704] THE SOCIAL DIMENSIONS OF PREHISTORIC IRISH FIELDS: SOCIOECONOMIC TRANSFORMATIONS IN LAND USE IN BURREN OF COUNTY CLARE.

Archaeological landscapes in the Burren region of County Clare date back to the Irish Early Bronze Age. These landscapes consist of conflated complexes of field systems, cemeteries, and field boundary wall systems of stone representing many periods of activity. Data from survey and excavation of selected sites present a picture of starkly differing patterns of land use over a span of 2800 years—corresponding to changes in the economic potential of the Burren's land forms, and to changes in the degree to which the Burren's past inhabitants were socially integrated.

Gifford, John (RSMAS-Miami) [407] RECOVERY OF LATE HOLOCENE SEDIMENT SEQUENCES FROM CHETUMAL BAY, BELIZE.

In May 1991 eight 3-meter cores were recovered from two areas in western Chetumal Bay: [1] from the modern fishing village of Consejo north to the mouth of the Rio Hondo, and [2] between Cerros and the mouth of the New River. Sediment sequences up to 2.6 m long were located by hand probing and recovered by vibrocore. Core from both areas exhibit a marine carbonate mud-overlying a mangrove peat. Results of sedimentological analyses of these cores are discussed as they relate to local relative sea level rise in Chetumal Bay during the late Holocene.

Gillespie, Susan D (Illinois-Urban-Champaign) [313] EXCAVATIONS AT AN OLMEC MONUMENT WORKSHOP.

Recent excavations at Llano del Jicaro, Veracruz, have identified this site as a monument workshop for the nearby Olmec center of Laguna de los Cerros. At least ten unfinished monuments and worked boulders, two of them clearly in the Olmec style, were located in an area of natural basalt flow. Surrounding the worked boulders were large flake, basalt hammerstones, and tools made from an imported stone. Preliminary steps in the manufacture of carved stone monuments can be reconstructed from these data. A possible residential area for the stone carvers also was located.

Gilman, Antonio (California State-Northridge) [605] GERMANIC SOCIAL FORMATIONS IN EUROPE AND BEYOND.

Bronze Age social formations in the Iberian Peninsula (and in some other regions of Europe) exhibit incipient class hierarchies, but lack the centralization that most ethnological syntheses attribute to 'chiefdoms'. They resemble, rather, the 'Germanic' societies well known in the ethnographic record of the periphery of Classical and Medieval Europe. An examination of the ethnographic record suggests that similar cases are widespread beyond Europe. This calls into question the general validity of the managerial accounts of incipient stratification that still dominate the anthropological literature.

Gilman, Antonio (California State-Northridge) [Discussant 704]
parallel data from studies of contemporary bone, ceramic, and lithic technologies. The relevance of the evidence for metallurgical production and consumption to recent literature regarding the domestic mode of production is discussed.

Gnahasik, Virginia (Corps of Engineers)  
[707] CATCHING THE MOUSE: FLOOD CONTROL ARCHAEOLOGY ALONG THE SOURIS RIVER IN NORTH DAKOTA.
Since 1974, the Corps of Engineers has been conducting cultural resource investigations in connection with flood control projects along the Souris River. Surveys and limited testing suggest changing occupational patterns in the Souris Valley from Paleolothic to Historic times. Variations in site location preference between the upper and lower portions of the Souris River loop in North Dakota are detailed. Use of the Souris Valley as a travel corridor between the Assiniboine and Missouri is discussed.

Goland, Carol (see Winterhalder, Bruce) [402]  
Goldman, Nurit (see Beets, E. Arthur) [607]

Goldstein, Lynne (Wisconsin-Milwaukee)  
[202] REBURIAL IN PRACTICE: THE TRANSFORMATION OF THE CASE-BY-CASE APPROACH.
Archaeologists and many Indians promoted a case-by-case approach to reburying laws, or careful consideration of the unique qualities and circumstances of each case. This was thought necessary if we truly wanted to respect the wishes of tribes or nations. Now that legislation is largely in place, it is useful to see how the idea of case-by-case has been put into practice. It appears we have replaced our old methods of operation with new sets of rules that have trouble accommodating the case-by-case approach. The potential consequences of this situation is examined.

Goldstein, Paul (Southern Peru Copper Corporation)  
[493] TIWANAKU STATE SETTLEMENT OF THE AZAPA AND MOQUEUGUA VALLEYS: A PRELIMINARY COMPARISON.
Initial survey and examination of Tiwanaku settlement patterns in the Azapa Valley of northern Chile suggest altiplano state suzerainty over ethnically distinct indigenous peoples. This differs radically from the colonized and fully incorporated into the Tiwanaku state system that previous work has demonstrated for Peru's Moquegua Valley between AD 500 and 1000. Settlement pattern, material culture, and domestic and monumental architecture are used to contrast the patterns of regional diversity and state hegemony that prevailed in both areas.

Golin, Nancy (Penn State)  
[209] TEST-PIT HEAVEN: WHEN THE SAMPLE REPRESENTS THE POPULATION.
Numerous projects use test-pitting to help understand the chronology and function of sites and to reconstruct the settlement system of a region. At Copan, Honduras, an empirical check of this methodology is possible for the rural area. Six sites were tested and then later completely excavated, allowing for an analysis from sample to population. In most cases, the test-pitting data are highly representative of site function and chronology, thus supporting the reconstruction of the Late Classic Copan settlement system from the test-pit survey.

Goodyear, Robert G (Brown)  
[785] PROCESSUALISM, POST-PROCESSUALISM, AND CULTURAL RESOURCE MANAGEMENT IN NEW ENGLAND.
Cultural resource management and processual archaeology have dominated the study of New England's prehistory since the 1970s. In becoming the dominant approach to the study of prehistory, the processual approach to cultural resource management systematically excluded from consideration questions of meaning, ideology, history, and individual action in the past of Native Americans. This situation persists at a time in which processualist archaeology is under increasing criticism in academic circles. The consequences of this situation are considered, and specific strategies are suggested to make cultural resource management studies more amenable to emerging "post-processual" alternatives to the study of prehistory.

Goodyear, Albert C (South Carolina)  
[611] GEOARCHAEOLOGICAL CRITERIA FOR THE STRATIGRAPHIC RECOGNITION OF THE PLEISTOCENE-HOLOCENE BOUNDARY IN ALLUVIAL CONTEXTS IN THE SOUTHEASTERN US.
Based on the past two decades of geoarchaeological field studies, it is clear that floodplains were the most dynamic situations for both deposition and erosion during the 11,500 to 10,000 BP interval.
Geological and pedological studies at Paleoindian sites show a sedimentological and pedological pattern which reoccurs in the northern Appalachians. Evidently, the Pleistocene-Holocene stratigraphic boundary is marked by channel-related sands overlying eroded B-horizon paleosols. In the clearest cases, post-Clovis lanceolate points are contained within the first pulse of Holocene alluvium, suggesting that deposition did not begin until sometime during the 11th millennium BP.

Gordon, Elizabeth A & Terry L Hunt

307] SHIFTING PARADIGMS AND SUBSISTENCE CHANGE IN OCEANIA: A HISTORICAL CRITIQUE.
This paper provides a historical and critical review of studies of subsistence change in Oceania. We show that the changing goals of archaeological research are reflected not only in methodological concerns, but in the kinds of conclusions reached. Early researchers were preoccupied with origins and migrations, and showed little interest in subsistence. Later cultural evolutionary assumptions led others to “neolithic” visions in many island cases. Recent years have witnessed a growing sophistication with issues of recovery, quantification, and comparability. New research and re-analysis challenge some conventional models of subsistence change.

Grant, Annie (see Barker, Graeme) [108]

Graves, James R (see Stothers, David M) [512]

Graybill, Jeffrey R (GAI Consultants)

204] THE SHENKS FERRY TRADITION: LATE WOODLAND SETTLEMENT CHANGE IN SOUTHEAST PENNSYLVANIA.
The Shenks Ferry tradition dates to AD 1250-1550. Based upon an analysis of the Shenks Ferry settlement record, the broad historical trends emerge: (1) a decrease in the size of the inhabited territories, (2) a decrease in the size of villages, and (3) a decrease in village numbers. These settlement changes exhibit clear parallels to cultural systems reported for other parts of mid-latitude eastern North America at this time. The rationale for these settlement trends within a larger framework of environmental, demographic, and other change is discussed.

Grayson, Donald K (Washington) [Discussant 307]

Greber, N’omi (Cleveland Museum of Natural History)

302] THE SEIP GEOMETRIC ENCLOSURES AND ENVIRONS: AN ESTIMATE OF POSSIBLE CHANGES IN COMMUNITY PATTERNS THROUGH TIME.
A very important part of the settlement pattern of Ohio Hopewell peoples is designated by the remains of extensive earthen and stone walls that apparently mark special areas within the landscape. Patterns of the variations in the plan forms, the topographic locations, and environmental features found in the areas of the major earthworks are briefly discussed. Within this background, an example of possible changes through time in the use of the earthwork area as part of local and regional Hopewell community patterns in Ross County is presented for the Seip Group.

Green, William (South Carolina)

310] A CRITICAL EVALUATION OF THE SIXTEENTH-CENTURY SPREAD OF DISEASE IN THE INTERIOR SOUTHEAST.
Anthropologists have argued that following contact, pandemics spread rapidly throughout the southern United States, causing a massive collapse of Native American populations. Recently, however, there has been a growing dissatisfaction with this model, and a number of historians and anthropologists have begun to raise questions concerning its validity. A critical examination of the historical, bio-archaeological, and epidemiological data reveals that there is little evidence to support a model of disease-induced depopulation, and that competing models taking into account political, economic, and social factors offer better explanations for the collapse of the southeastern chiefdoms.

Green, William (Iowa)

607] THE WEAVER RING-MIDDEN COMMUNITY AT CAST FARM [13L12]: AN EXAMPLE OF A PAN-MIDWESTERN EARLY LATE WOODLAND VILLAGE ORGANIZATION PATTERN.
This paper reviews the evidence for Weaver (Early Late Woodland) community patterning at the Cast Farm site, southeastern Iowa, based on aerial photos, controlled surface collections, and excavations. The 1.25 ha community consisted of a "ring-midden" of structures, features, and activity areas surrounding a circular central plaza. This is the first report of a Late Woodland ring midden west of the Mississippi River, but similar, contemporary community forms have been identified elsewhere in the Midwest. These villages are viewed as egalitarian and generally sedentary, reflecting greater domestic nucleation compared with Middle Woodland communities in many regions.

Greenlee, Diana (Washington)

[309] INVESTIGATING DIAGENETIC ALTERATIONS IN PREHISTORIC BONE USING ELECTRON MICROBEAM ANALYSIS.
Compositional analyses of archaeological bone are frequently used in dietary reconstruction and/or dating. Clearly, understanding the diagenetic processes that can alter bone composition is critical for these applications. Electron microprobe analysis has proven useful in identifying elemental concentration patterns within bone taxa. This poster presents the results of a slightly different approach, combining SEM imaging and electron microprobe analysis to examine the chemical composition of individual crystalline structures in bone from a range of depositional environments.

Gremling, Kristen J (Ohio State)

402] NEW PERSPECTIVES ON THE PALEOENTHORBOTANY OF THE NEW KASHI SHELTER.
The Newkash rockshelter generated much of the original seedstock for the model of early and independent agricultural origins in the Eastern Woodlands of North America that has only recently earned widespread acceptance. Recent reexamination of material from Newkash employing modern methods of analysis and quantification has greatly enhanced the empirical basis for many initial interpretations. In conjunction with new evidence from a variety of sources, these studies have contributed towards ongoing revision of the chronology and ecological context of the initial development of plant husbandry in eastern North America.

Griffin, James B (Smithsonian)

615] AN OUTSIDER'S VIEW OF THE WPA.
The relief labor program devoted to archaeological research from 1933 to about 1941 resulted in major contributions to American archaeology. It provided employment for large numbers of workers directed by the first large group of college-trained field and laboratory personnel. It revolutionized the knowledge of early United States archaeology and added new data bases to many other areas. It provided the cultural-historical foundation for new research directions in the 1960s and 1970s.

Griffin, James B (Smithsonian) [Discussant 1]

Griffin, James B (Smithsonian) [Discussant 102]

Griffin, James B (Smithsonian) [Discussant 302]

Griffits, Janet (Colorado-Boulder)

314] MODIFIED BONE AND BONE TOOL USE ON THE SOUTHERN PLAINS: AN EXAMPLE FROM WEST CENTRAL TEXAS.
Excavations at Site 42RN169 revealed evidence of a Late Prehistoric bone production station. Rapid burial during flooding episodes limited post-depositional disturbance and left in situ artifacts associated with well defined activity areas and features. Remains of bison, deer, and smaller mammals were recovered. Among features recorded were three leg features of vertical bison ribs, including a ring of 10 ribs driven into the ground. Formal and informal bone tools were present; use-wear is examined. Excellent site preservation, unusual features, and variety of bone tools provide insight into subsistence in the Southern Plains.

Grove, David C (Illinois-Urbana-Champaign)

313] THE 1991 LA ISLA, VERACRUZ, OLMEC PROJECT.
The site of La Isla, Veracruz, is situated 12 km north of the Gulf Coast Olmec center of Laguna de los Cerros. 1991 research at La Isla was devoted to gaining data on the community structure, domestic organization, and subsistence at this village-level Olmec settlement. The La Isla excavations are discussed, along with observations on Laguna de los Cerros and its hinterland, and new Olmec monument discoveries.

Guevin, Bryan

[707] PALEOECOLOGY AND ABDICATION SETTLEMENT WITHIN THE LOWER GUADALUPE RIVER/SAN ANTONIO BAY REGION OF THE CENTRAL TEXAS COAST.
Archaeological investigations for maintenance dredging along the Victoria Barge Canal were conducted in 1990 for the Corps of Engineers. While investigations focused on surveying and testing sites for National Register significance, a unique opportunity for post-data recovery investigations at seven sites affected by barge construction in the late 1950s was provided. Artifact analyses (including the application of the type-variety system of ceramic classification), along with radiocarbon dating and examination of faunal remains, were utilized in assessing overall concomitant relationships.
between aboriginal settlement and paleo-environmental changes throughout the lower Guadalupe River Valley.

Gundy, Barbara J (see Carlisle, Ronald C) [409]

Hagedorn, Ewan (NOVA-WGBH)
[301] THE LANGUAGE OF THE MEGALITHS.
A general discussion of interpretations of European prehistoric ritual art and monuments and how they have often served distinctly 20th century viewpoints and preoccupations is presented. Do the megaliths and Neolithic art motifs "speak" to us directly, as researchers such as the Thornes and Gumbutas seem to assume, or do we tend to manipulate them into a "language" or exotic landscape of our own making?

Haggar, Jane C (Shoreline Archaeological Service), Christopher Wooley (Chumis Cultural Resource Service) & Jon M Erlandson (Oregon)
[702] EXXON'S CULTURAL RESOURCE PROGRAM: THE PROCESS AND RESULTS OF SITE PROTECTION IN PRINCE WILLIAM SOUND AND THE GULF OF ALASKA.
Exxon Company, USA, in compliance with state and federal historic preservation law, funded a major site protection program in Prince William Sound and the Gulf of Alaska in response to the grounding of the TV Exxon Valdez on March 24, 1989. With the assistance of the Alaska State Historic Preservation Officer, Coast Guard, Forest Service, National Park Service, Fish and Wildlife Service, Chugach Alaska Corporation, and the Kodiak Area Native Association, the three year program identified sites, determined the effect of planned treatment on cultural resources, and mitigated impacts to sites in the spill area during the shoreline treatment. Archaeological data collected and synthesized contributed substantially to an understanding of the Alutiq region.

Hagstrum, Melissa (see Deal, L Michael)
[703] Hajic, Ed [Discussant 707]

Haley, Harold (Baylor) & Thoris Cederstrom (Arizona)
[411] MAPA METLATUYOC: FIELD SURVEY AND ETHNOGRAPHIC PROVENIENCE.
Mapa Metlatuyoc is an early colonial Mexican lienzo attributed to northern Puebla. Analysis of its place signs and personal names suggested a Mixtec provenance in northern Oaxaca. Comparisons of modern topographic maps with river patterns on the lienzo suggested Tapiltepec in the Coixtlahuaca Valley as the site. Survey and photographs of Tapiltepec confirm river and roads similar to those on the lienzo. At the location of a pyramid on the lienzo, there is an early Dominican church. Ethnographic lienzo, modern maps, and field survey give strong evidence locating this lienzo in Tapiltepec.

Haley, Shawn (Red Deer) & Lynn M Mallinowski (Argonne National Lab)
[210] COOPERATIVE CONSERVATION ARCHAEOLOGY, MANTI-LASAL NATIONAL FOREST, UTAH.
In the Archaic Southwest, construction activities and looting of archaeological sites are severely affecting the prehistoric resources of that area. In a joint effort to reduce the impact of looting, in particular on the Anasazi sites in the Manti-LaSal Forest of southeastern Utah, the Sierra Club and the US Forest Service have created a unique "Inventory and Protection" program. Going into its fourth year, the project has amassed a significant data base that already has contributed considerably to the understanding of Anasazi settlement patterns. In addition, the project has become a model for conservation archaeologists across the Southwest.

Hall, Thomas D (DePauw) & Christopher Chase-Dunn (Johns Hopkins)
[206] WORLD-SYSTEMS IN PREHISTORY.
This paper outlines a theoretical approach to the comparative study of world-systems small and large, and explores the particular issues of conceptualization and theory construction which are raised by the analysis of prehistoric intersocietal systems. How should such regional interaction networks be conceptualized and empirically bounded? What kinds of processes are of particular interest from the perspective of comparative world-systems? How can the study of prehistoric systems contribute to a general theory of social development?

Hantman, Jeffrey L (Virginia)
[102] GEOGRAPHIC CENTRALITY AND INTER-TRIBAL RELATIONS IN VIRGINIA, 1450-1700.
The focus of this study is the transformation of inter-tribal sociopolitical relations among Virginia Indian groups following the establishment of the Jamestown colony. It is suggested that prior to European colonization, Indian groups in the Virginia interior were more central to continent-based prestige exchange systems. The European presence at Jamestown shifted the center of prestige exchange links in Virginia to the Atlantic Coast. These shifts dramatically affected local and regional political organization. To evaluate that hypothesis, archaeological data from before and after 1630 are reviewed for the coastal plain (Powhatan), piedmont (Monacan), and southwest Virginia regions.

Hantman, Nathan (Southern Maine)
[614] FREESTANDING MARITIME FISHING STRATEGIES IN CASCO BAY, MAINE.
Fish remains from eight prehistoric sites situated on coastal island and mainland settings are compared for Casco Bay, Gulf of Maine. Detailed study of marine fish remains from stratified Archaic and Ceramic period contexts includes fourteen species represented by ca 25,000 specimens. Diagnostic cultural remains are combined with 30 radiocarbon dates to establish temporal changes in species usage and seasonal procurement of various marine fishes. The seasonal nature of exploitation is reconstructed through study of ontolith growth patterns. The maritime nature of the fishing subsistence pattern is correlated with Archaic and Ceramic period sites elsewhere in the Gulf of Maine.

Hamilton, Rachael I (Tulane), Barbara Fash (Northern Illinois) & E W Andrews V (Tulane)
[209] SCULPTURE OF 10L-32, COPAN, HONDURAS.
Archaeological and iconographic evidence from Classic period remains at Copan, Honduras, are combined to elucidate the function of structure 10L-32. Precise excavation methodologies permit the rearticulation of sculptural facets, and also permit a detailed iconographic study of the sculptural elements. The 1990 investigations of this ceremonial pyramid yielded 1038 pieces of sculpture, which form a complex series of motifs relating to water, ritual, sacrifice, and warfare, indicating the 10L-32 Group's function as a place of ritual.

Hamilton, Rachael I (Tulane) [Introduction 201]

Hammatt, Julia E (New Mexico)
[402] INTERREGIONAL PATTERNS OF LAND USE AND PLANT MANAGEMENT IN NATIVE NORTH AMERICA.
Regional perspectives have dominated the landscape of North American archaeology and hence paleoethnobotanical studies. Preliminary cross-regional comparison of land use strategies results in the emergence of several patterns. A select number of plant families were the source of most native crops in temperate North America. Later, although approximately 1000 years apart, corn and beans diffused separately, but apparently simultaneously, into the Great Basin and eastern United States. By the time of European contact, periodic burning in discrete patches was practiced extensively by Native Americans to manage plant and animal resources. This interregional perspective is essential to understanding plant/people interactions throughout North America.

Hancock, Ronald G V (Toronto), Patrick J Julig (Laurentian) & Laurence A Pavlish (Toronto)
[309] PROVENIENCING PRE-COLUMBIAN CULTURAL MATERIALS IN THE GREAT LAKES REGION OF EASTERN NORTH AMERICA.
Copper and chert raw materials were among the valuable commodities utilized in the production of the technological tool kits for many prehistoric cultures throughout the world. It is, however, often quite difficult even with experience to visually differentiate copper and chert items with respect to their raw material source location. Chemical analyses using instrumental neutron activation analysis (INAA) provide a rapid technique for the proveniencing of copper and chert. Chemical discrimination based on a suite of elements can provide useful insights into pre-Columbian people's economic behavior.

Hancock, Ronald G V (see Pavlish, Laurence A) [309]

Handman, Russell G (American Indian Archaeology Institute) [Plenary session]
[216] ARCHAEOLOGY AGAINST HISTORY: EXPLORING FUTURE PASTS.

Hantman, Jeffrey L (Virginia)
[102] GEOGRAPHIC CENTRALITY AND INTER-TRIBAL RELATIONS IN VIRGINIA, 1450-1700.
Hare, Timothy S
The Middle Woodland component at the Gast Farm site (13LA12), identified by the presence of Havana and Hopewell ceramics, is characterized by a blade core industry which utilized Warsaw Tabular and Burlington cherts. The Middle Woodland blade industry was part of an interregional exchange network, and Gast Farm was the location of Warsaw Tabular chert blade production. This paper describes and discusses blade production and intra-site distribution patterns, emphasizing the value of studying core technologies for identifying Middle Woodland sites and influences.

Hare, Timothy S (see Enloe, James G) [103]

Hargrave, Michael (Southern Illinois-Carbondale)
[509] FACTORS UNDERLYING CHANGE IN MIDDLE WOODLAND-MISSISSIPPIAN DOMESTIC ARCHITECTURE IN ILLINOIS.
The Middle Woodland-Mississippian interval (200 BC-AD 1400) in Illinois was marked by dramatic changes in the design of domestic architecture. For example, Middle Woodland structures were built at surface level, with circular, oval, or rectangular floor plans, and floor areas ranging to above 100 square meters. By the Emergent Mississippian, most structures were semisubterranean, rectangular, with floor areas less than 10 square meters. Changes in design are examined using data on approximately 700 structures. Key factors underlying these changes include household size, scheduling and diversity of subsistence tasks, and costs related to structure construction, maintenance, and winter heating.

Harris, John, Michael A Adler & Shari Counce (Southern Methodist)
[110] RECENT RESEARCH ON PREHISTORIC POPULATION AGGREGATION IN THE NORTHERN RIO GRANDE REGION.
The Puebloan occupation of the northern Rio Grande region is often cited as an example of a relatively late (13th-14th century AD) adoption of aggregated settlement patterns in the prehistoric Southwest. A number of factors have been cited for this relatively late population aggregation, including high availability of wild resources, low population density, and isolation from important prehistoric socioreligious movements (i.e., kachina cult). These hypotheses are considered in light of recent archaeological work carried out at both small habitations and large aggregated village sites in the vicinity of Taos, New Mexico.

Hart, John P (CAI Consultants)
[204] LATE PREHISTORIC SUBSISTENCE-SETTLEMENT CHANGE IN THE LOWER UPPER OHIO RIVER BASIN.
The late prehistoric Monongahela tradition in the lower Upper Ohio River basin is characterized by large nucleated villages. Unlike many other areas of the Eastern Woodlands, many of these villages are located in upland settings. Explanations of this phenomenon have centered upon intercultural warfare. In this paper I suggest that Monongahela subsistence-settlement change must be modeled as a response to the topography and climate of the region. Village locations are explained as a means of dividing risk of crop failure by providing access to a variety of topographic and edaphic settings.

Hartley, Ralph J [see Osborn, Alan J] [702]

Hasenstab, Robert (Rutgers)
[107] PREHISTORIC POLITICAL PROCESS AND SPATIAL SCALE: LATE WOODLAND IROQUOIAN INTERACTIONS.
Why did prehistoric Iroquoian peoples undergo tribalization? Were lineages an outgrowth of horticulture? Was warfare a product of blood-feeding between lineages? Or were larger-scale forces involved? This paper uses world systems theory to argue that regional-scale political processes were the force driving social change. Evidence for this argument, and mechanisms by which they occurred are suggested. Data to be sought to shed light on this issue are proposed.

Haviland, William (Vermont) [Discussant 602]

Haviser, Jay B (Archaeological Institute, Netherlands Antilles)
[503] A POST-SALADOID INTERACTION SPHERE AT ANGUILLA AND ST MARTIN-ST MAARTEN, NORTHERN LESSER ANTILLES.
Archaeological investigations of post-Saladoid sites on Anguilla and St Martin-St Maarten, in the northern Lesser Antilles, indicate a complex pattern of interaction among the Amerindian inhabitants. Geographic and economic aspects of the resources available on these islands are discussed to identify prehistoric resource-exploitation emphases, and to identify the variety and distribution of prehistoric sites. This paper demonstrates that during the post-Saladoid period, the two islands of Anguilla and St Martin-St Maarten should be seen as a single interaction sphere unit.

Hay, Kelley Ann (Museum of Northern Arizona/Arizona) & Laurie D Webster (Arizona) [205] NEW TRAILS FOR OLD SHOES: SANDALS, TEXTILES, AND BASKETS IN HIKERMARKER II.
New research on Anasazi origins is augmented by the study of sandals, baskets, and textiles collected by E.H. Morris, A.V. Kidder, and Samuel Guernsey in the early 20th century. Relationships among decorative style, technology, and social processes are examined. We contrast these household items with the style and religious content of rock art and discuss the potential relationship between sandal decoration and the role of the individual in society. We show that the technology and style of basket decoration in the Basketmaker II period predates the later Anasazi ceramic tradition.

Hayward, Michele, Marlene Ramos Vélez & Marisol Méndez Míaz (Instituto de Cultura Puertorriqueña)
[208] CHARACTERISTICS OF ROCK ART IN PUERTO RICO.
Recent investigations of rock art in Puerto Rico and the Caribbean are beginning to provide a more systematic basis for the description and analysis of petroglyphs and pictographs. The results of one such investigation involving three municipios in Puerto Rico, along with a review of previous studies, are presented in graphic form, focusing on such characteristics as design elements, environmental locations, relationships to socio-political and religious systems, and techniques of reproduction.

Head, Genevieve (National Park Service) & James Snead (UCLA)
[110] RECYCLING THE CULTURAL LANDSCAPE: PREHISTORIC SITE RE-USE ON THE PAJARITO PLATEAU, NEW MEXICO.
A poorly documented aspect of late prehistoric settlement on the Pajarito Plateau of New Mexico is a consistent pattern of re-use of earlier habitation sites as agricultural features by later populations. This conversion suggests that elements of the former cultural landscape were perceived as resources by later inhabitants. The National Park Service has recorded many sites with characteristics of re-use in its archaeological survey of Bandelier National Monument. Using this information to examine hypotheses related to the social and economic processes behind the manipulation of the cultural landscape, this paper explores the significance of archaeological sites for prehistoric populations.

Healy, Paul F (Trent)
[209] THE ANCIENT MAYA BALLCOURT AT PACHBITUN, BELIZE.
Excavations undertaken in 1984 and 1987 of a ceremonial ballcourt at the lowland Maya center of Pachbitun, Belize, have provided details about ancient Maya construction techniques and major diachronic structural changes to this special class of PreColumbian architecture. A description of the excavations and construction history is provided. Analysis of the artifactual remains from the ballcourt indicates it was built during the Late Preclassic period (100 BC-AD 300), but repeatedly and substantially altered during the Classic period (AD 300-900). The significance of the court at Pachbitun is discussed.

Heckenberger, Michael & Cristina Barreto (Pittsburgh)
[510] EPIDEMIC DISEASE AND DEMOGRAPHIC STRESS IN THE UPPER XINGU:
IMPLICATIONS OF AN ARCHAEOLOGY OF EUROPEAN/AMERICAN CONTACT.
In the Upper Xingu region of southeastern Amazonia, direct sustained Amerindian/European contact did not occur until the late 19th century. Examination of disease-related depopulation among Xinguano societies since that time reveals that overall regional depopulation was characterized by punctuated and often isolated demographic "shocks" among individual villages, often followed by periods of recovery. Indigenous responses to these isolated periods of stress, typically invisible archaeologically, were a preeminent factor of change as these societies adapted to decreased numbers and an ever expanding western frontier. General patterns of contact-related change among Amerindian populations are discussed based on these findings.

Hedeker, Lotte & Kristian Kristiansen (Ministry of the Environment)
[600] WARRIORS AND FARMERS IN LATER EUROPEAN PREHISTORY.
The relationship between warring and farming communities is considered in a long-term evolutionary perspective divided into three phases. First, there is interaction between pastoral and sedentary farmers during the 4th-3rd millennia BC. The relationship is characterized by a gradual retreat of the frontier of sedentary farmers. Second, during the Bronze Age, warrior societies develop at the peripheries of complex sedentary agrarian/mining communities, introducing a new dynamic of regional
Hegmon, Michelle

[309] HIGH RESOLUTION CHRONOLOGICAL CONTROL THROUGH CERAMIC ATTRIBUTE ANALYSIS: DATING PUEBLO III WHITE WARES IN THE NORTHERN SOUTHWEST.

Complex changes in settlement patterns (culminating in regional abandonment) characterized the late Pueblo III period (AD 1200-1275) in the Mesa Verde region. Chronology of these changes requires more precise chronological control than is presently possible with dating based on ceramic attributes. Describing and interpreting these changes requires the basis of a method developed to date ceramic assemblages using attribute analysis. This technique focuses on seven attributes of rim morphology and painted designs and can be used to date assemblages with a resolution of thirty to forty years.

Henderson, James M (see Wallace, Henry D) [410]

Henderson, Julia A (Harvard)

[209] FORMATIVE PERIOD SOCIO-POLITICAL EVOLUTION IN SOUTHERN MESOAMERICA: EVIDENCE FROM RECENT WORK IN CENTRAL HONDURAS.

Two seasons of survey and excavation in the Catagua and Olamán valleys, a department of Yoro, Honduras, have revealed a significant Formative period occupation in this region, called the Late Formative phase. Drawing on relevant research in Honduras, El Salvador, and Guatemala, this paper discusses the implications of the Yoro material for current models explaining sociopolitical development in southern Mesoamerica during this period. Among the issues considered are the nature and importance of interaction between non-Indian and Indian populations and the role of the ballgame in the florescence of complex political organization during the Formative period.

Henderson, Robert C (Smithsonian)

[609] A CERAMIC PERSPECTIVE ON ETHNIC AND POLITICAL CHANGE AT GORDONIA 1500-200 BC.

From 1500-200 BC a series of ethnic and political groups were dominant at Gordon, identifying and interpreting their possible impacts on the local ceramic tradition depends on the broad-based reconstruction of ceramic technology and organization of production. The effects of ethnic, economic, or political change may vary in both type and degree among components of an assemblage. At each transitional period, the development of the utilitarian, special, and fine wares are distinctively different at Gordon.

Hill, Curtis (see Holstein, Harry D) [310]

Hill, James N (UCLA), W Nicholas Triuwerer (Marisch Associates) o' Robert W Preucel (Harvard)

[603] THE EVOLUTION OF CULTURAL COMPLEXITY: A CASE FROM THE PARIJATO PLATEAU, NEW MEXICO.

Data from the Parijato Plateau, New Mexico, are used to test nine theoretical propositions concerning evolutionary responses of hunter-gatherer-horticultural populations to long-term population growth combined with repeated, severe, drought-induced food stress. Four propositions were confirmed, as theoretically expected; the other five yielded mixed but interesting results. It is concluded that such stress can cause evolving cultural complexity, but that the strength of the causal linkage should always be questioned.

Hilliard, Jerry (see Mintz, John) [104]

Hillman, Gordon C (see Moore, Andrew M T) [213]

Hirt, Kenneth C (Kentucky) [Discussant 505]

Hodges, Mary (Houston-Clear Lake)

[507] ARCHAEOLOGICAL AND DOCUMENTARY VIEWS OF SMALL STATES IN POSTCLASSIC Mesoamerica.

Although documentary accounts of Postclassic central Mexico describe the political histories of small states and report distinct ethnic or social differences among them, archaeological definitions of these entities remain problematic. Methods for identifying and differentiating these small states from one another using archaeological data are presented. The potential of archaeological evidence for identifying social, ethnic, or economic differences among these states is discussed.

Holms, Charles E, David R Yesner & Kristine J Crossen

[607] BOTANICAL ANALYSIS OF THE WEAVER OCCUPATION AT GAST FARM, 13LA12, SOUTHEASTERN IOWA.

This analysis is the first study involving intensive flotation of a systematic sample from several communities along the Mississippi River. Botanical identifications focused especially on small seeds and nuts. Comparisons are made to contemporary Woodland botanical assemblages from Illinois and Missouri.

Hoffecker, John (Argonne National Lab) o' Gunnedu Baryshnikov (USAR Academy of Sciences) [211] ZOOARCHAEOLOGICAL STUDIES AT MEZMAISKAYA CAVE (NORTHERN CAUCASUS, USSR).

Mezmaiskaya Cave, discovered and excavated by L V Golovanova, is situated at 1350 m asl in the foothills of the northern Caucasus. The cave contains several Mousterian layers dated to the last glacial that have yielded numerous vertebrate remains. Steppe bison and goat predominate among medium/large mammals. The bones are unusually well preserved and many exhibit tool cut marks, evidence of carnivore modification is less common. Skeletal representation cannot be accounted for in terms of weathering effects and appears to reflect selective treatment by the occupants of the cave. The Mezmaiskaya assemblage offers interesting comparisons with faunal assemblages from other Mousterian sites in the northern Caucasus, such as Matuzka Cave, Barakaveyskaya Cave, and II'kaya I and II.

Hoffman, Curtis R (Bridgewater State)

[705] ARCHAEOLOGY UNDER THE GUN: DATA RECOVERY, SALVAGE, AND THE CONSERVATION ETHIC.

A consideration of three data recovery operations in Westborough, Massachusetts, demonstrates some of the opportunities and logistical problems of large scale, open-area excavations. A series of recommendations is made to those who contemplate undertaking operations of this scale in the future.

Hofman, Conlin e' Menno L Hoggland (Rijksuniversiteit Leiden) [503] POST-SALADOD陶 CERAMIC DEVELOPMENTS ON SABA, NETHERLANDS ANTILLES.

The post-Saladoan habitation history and ceramic sequence on Saba were studied during a five-year excavation program. Ceramic analysis concluded that pottery decor has not been a reliable variable for understanding cultural change because decorated sherds are minimally represented and decorative techniques seem to be vestigial. Instead, a detailed classification including general vessel shape and specific variations in morphological, stylistic, and technological attribute classes was developed to distinguish variability among later pottery assemblages and build a relative chronology. The classification will be useful in an inter-island context.

Holland, Thomas e' Michael J O'Brien (Missouri-Columbia) [203] THE LIMITS OF EVOLUTIONARY THEORY AS APPLIED TO ARCHAEOLOGY.

For some 30 years archaeology has struggled to establish itself as the science of humans, albeit with limited success. In part, this is due to a typological mindset that is incompatible with the process of modern science. Evolutionary theory offers some hope of escaping this straightjacket, though there has been far too much trumpeting of selectionist theory without an honest appraisal of the theory's limits. Proponents of the theory must first decide what aspects of the archaeological record are amenable to a selectionist approach before any appreciable progress will be realized.

Holley, George R (Southern Illinois-Edwardsville) [463] LATE PREHISTORIC TOWNS IN THE SOUTHEAST.

An observation for the late prehistoric period in the Southeast is that mega-regional centers (great towns) occurred early (prior to AD 1400), and smaller centers typified the region after this time. This scenario derives from a consideration of site area and volume of mound construction. To go beyond this "evolutionary" sequence, other characteristics of the southeastern centers are examined. Commonalities evident throughout the sequence are used to provide a skeletal model for these centers. With this foundation, changes in the use of integrative mechanisms, resident population, and social differentiation are employed to derive a dynamic characterization of late prehistoric regional centers.


Excavations continued at XUS-131, a multi-component site dating to three broad time periods (ca 500 BC, ca 2500 BC, and from ca 9500 BC to 8500 BC). Specific goals included: [a] identification and
Holstein, Harry O, Keith Little, Curtis Hill & Caleb Curren

finer separation of the several distinct habitation episodes found in the deepest strata; b) more precise dating of the various components; c) collection of data for reconstructing the past environment; and d) increasing sample size in all data categories. Additional testing was done at the Mud Site (XBD-071) to better understand the complexity and extent of the late Pleistocene deposits. This survey also was conducted to test the hypothesis that landscapes with specific CaCO3 rich deposits would preserve ancient fauna in archaeological context.

Holstein, Harry O (Jacksonville State), Keith Little (Penacola Archaeological Lab), Curtis Hill (Jacksonville State) & Caleb Curren

[310] IN SEARCH OF DELUNA’S COOSA

Excavations at the Terrapin Creek Site, 1CE-289, resulted in defining the temporal chronology of the Late Ceramic phase and reevaluating archaeo-botanical data obtained from several West Phase villages previously investigated in the 1980s. This information coupled with geographical descriptions obtained from the Deluna’s documents indicate the 16th-century principal town visited by the DeLuna expedition lies at the confluence of the Chattooga and Coosa rivers, Cherokee County, Alabama.

Homburg, Jeffrey A (see Cioleak-Torrelo, Richard S) [701]

Hoogland, Menno J P (see Hofman, Corinne) [503]

Hosler, Dorothy (MIT)

[301] RECREATING THE PAST IN POTTERY AND MYTH

Las Animas is a community of potbellied and potters in northern South America who make copies of ceramic archaeological artifacts. The results of my 15-month ethnographic-technological research show that community members are constructing an “ethno” history at the same time that they are recreating the artifacts that are their material correlates. Animo Hokey accounts for the technological acumen of the prehistoric potters, the characteristics of the archaeological sites community members “excavate,” and it links potters to their prehistoric predecessors.

Houston, Stephen D (Vanderbilt) & James Brady (Petexbatun Archaeological Project)

[610] STAMPED POTTERY OF THE CLASSIC MAYA: CLUES TO CERAMIC PRODUCTION AND INTERSITE CONTACT IN PETEXBATUN, GUATEMALA

Recent excavations in the Classic Maya sites and caves of Petexbatun, Guatemala, have recovered an abundant corpus of ceramics with stamped impressions. Study of several hundred impressions and of the vessels they embellish confirms the existence of a limited and highly idiosyncratic set of stamps, permitting inferences regarding ceramic exchange and chronology through a backdrop of dynastic interaction during the Late Classic period. This investigation, the first such in the Maya region, focuses less on normative design categories than on a variety of unique impressions.

Howell, Todd L (Arizona State)

[304] THE DECISION-MAKING STRUCTURE OF PROTOHISTORIC ZUNI SOCIETY

The decision-making structure of any society ultimately depends on the number and distribution of decision-makers among different social groups. Mortuary data, encompassing 1000 individuals in spatially discrete cemeteries at the protohistoric site of Hawikku, are used to examine the decision-making structure of Zuni society. Mortuary correlates of leadership in corporate group membership are used to identify potential leaders and corporate groups. The distribution of leaders among corporate groups is used to reveal the nature of decision-making (achieved vs ascribed), the degree of political centralization, and the range of decision-making roles in pre- and post-contact Zuni society.

Huckell, Bruce B (Arizona State Museum)

[604] MID-LATE HOLOCENE STREAM BEHAVIOR AND THE TRANSITION TO AGRICULTURE IN SOUTHEASTERN ARIZONA

As part of research into the beginnings of agriculture in southeastern Arizona, recent study has focused on the discovery, stratigraphic mapping, flotation sampling, and radiometric dating of prehistoric sites buried in floodplain alluvium. The stratigraphic contexts and chronometrics of 15 Late Archaic sites with burials are summarized, and regional, mid-late Holocene trends in stream behavior and climate are identified. The appearance and proliferation of Late Archaic agricultural sites is shown to be closely related to a shift from stream abandonment to rapid deposition and floodplain aggradation. The significance of such a change for the transition to agriculture is explored.

Hughes, Susan S (Washington/BLM)

[515] THE POINT OF THE SHAFT: EVOLUTIONARY CHANGE IN PREHISTORIC WEAPONRY

Projectile point form varies through time. Most explanations of diachronic variation focus on stylistic attributes, alluding to movements of people or ideas. A point, however, is a functional element of a weapon, designed to enhance penetration. Functional engineering of points and weapon delivery systems (e.g., bow and arrow, atlatl) are examined to define those point attributes that enhance the success of weapon systems. These attributes are used to examine a 9000 year sequence of projectile points recovered from northwestern Wyoming. Explanations for the resulting time/space patterns in projectile point form are discussed.

Hughey, Michael (see Michlovic, Michael) [301]

Hunt, Terry L (Hawaii)

[794] DYNAMIC SOCIAL BOUNDARIES IN THE YASAWA ISLANDS OF FIJI

The archaeological record of the Fiji Islands is dominated by fortified settlements, yet there exists contemporaneous evidence for widespread exchange among communities. This seemingly paradoxical concurrence of intergroup hostility and interaction is explored in the Yasawa Group of northwestern Fij. This research project provides data from 143 sites on seven islands, including fortified and open occupations. Patterns of interaction among communities are deduced from the distribution of ceramic styles along with analyses of variability in ceramic composition and technology. The Yasawa results offer a glimpse of complex relations that form dynamic social boundaries.

Hunt, Terry L (see Gordon, Elizabeth A) [307]

Iannone, Gyles J (Trent)

[290] AN INQUIRY INTO THE ORIGINS OF MAYA ECCENTRIC LITHICS

"Eccentric" lithic artifacts form part of a much larger Maya lithic industry which until recently had been the subject of only limited investigation. To date three competing hypotheses have been proposed regarding the origins of Maya eccentrics. These hypotheses argue for either Central Mexican, Guatemalan Highland, or in situ Mayan Lowland origins. Through an exploration of the available evidence it is concluded that it is likely that Lowland development is the most viable of these hypotheses.

Iceland, Harry (US Information Agency) [Workshop]

[291] THE FULLBRIGHT PROGRAM.

Imhof, Christopher James (see Murphy, Tracy) [210]

Ingbar, Eric

[494] LITHIC MATERIAL SELECTION AND TECHNOLOGICAL ORGANIZATION.

Raw material is often used to infer mobility patterns of prehistoric groups. This paper presents (1) a model of raw material use and resulting assemblage patterns, and (2) a consideration of raw material utilization in Polynesian assemblages and (3) a discussion of how source identification can most fruitfully be employed in studies of prehistoric organization.

Isaac, Barbara (Harvard-Peabody)

[202] THE PEABODY MUSEUM, HARVARD: REALIZING REPATRIATION.

The North American collection at the Peabody Museum totals around one million pieces, many of extraordinary interest, yet underdocumented in number of which will have to be considered for repatriation. The director and the staff followed closely the course of the legislation and, once the law had been signed, began to plan accordingly. Factors affecting planning and its formalization are described, subsequent successes and difficulties in implementation are discussed.

Jackson, Jack Edwin & Susan L Scott (Southern Mississippi)

[508] BONE ASSEMBLAGES, MEAT CONSUMPTION PATTERNS, AND SOCIAL RANKING: A VIEW FROM THE SOUTHEASTERN US.

Examples from zoological studies of southeastern chiroptera are used to explore faunal correlates of elite rank. While some "elite" patterns can be identified archaeologically, other factors may obscure clear rank-related patterning. For instance, because social ranking evolves within a context of intensified public ritual that includes ceremonial feasting, interpreting faunal refuse in elite archaeological contexts to be representative only of elite diets may be spurious: recognition of dietary differences related to elite membership requires that the refuse of elite domestic contexts be distinguished from that derived from ritual feasting contexts.

Jackson, Lawrence J (see McKilp, Heather) [610]

Jackson, Martha (Washington)

[412] IDENTIFICATION OF PIGMENTS IN MISSISSIPPIAN CERAMIC SLIPS AND PAINTS.

Polychronic ceramics in eastern North America are typically limited to late Mississippian contexts in the Mississippi Valley and Caddoan areas, where they have been used extensively as chronological markers. Although recent work has addressed the technology of Mississippian ceramic paste, the
Jackson, Thomas J

polychrome additions have not been studied in their own right. Results of energy-dispersive X-ray analysis of slips and paints from several locations in the Central Mississippi Valley are presented and explored in terms of their potential for informing on technology and social interaction.

Jackson, Thomas J (Biosystems) [107] DEFINING SMALL SCALE WORLD-SYSTEMS IN CALIFORNIA PREHISTORY: THEORY AND METHOD

Students of California prehistory have long debated the theoretical implications of significant diversity among prehistoric cultures in the region. Although ethnological models have been the most frequent referent by which to elaborate and explain archaeological findings, a successful model of cultural interaction explaining marked differences in intra-regional relative "wealth," social structural complexity, and economic interaction patterns has not been forthcoming. Theoretical concepts of small-scale world systems allow the integration of a number of models of core/periphery/social-cultural interactions to hypothesize how cultural groups of central California and southern California developed in such diverse fashions in late prehistory.

Jacob, John (Texas A & M) [407] THE MAYA CLAY: LATE CLASSIC SEDIMENTATION IN THE WETLANDS OF NORTHERN BELIZE.

A distinctive buried soil is found in the margins of the wetlands of northern Belize. The buried soil commonly has incised canals and other features suggesting the ancient Mayas used it as a planting surface. Overlying the buried soil are fine-grained sediments we have termed the "Muyan Clay." The Maya Clay has been dated to no earlier than the Late Classic and was most likely derived from accelerated erosion of the adjacent uplands. Several mechanisms for the transport of the Maya Clay are discussed, as well as implications for productivity of the wetlands after deposition of the Maya Clay.

Jacobs, David (see Craig, Douglas B) [701]

Jacobson, LouAnn (BLM) [Workshop 401]

Jacobson, LouAnn (see Gerow, Peggy) [502]

Jameson, John Jr (National Park Service) [Discussant 406]

Janeson, Susan (Trent) [412] ONTOHIC IROQUOIS EVOLUTION: UNDERSTANDING CULTURE PROCESSES IN THE NORTHEAST.

Recent studies have argued that northeastern Iroquoianization can be explained by a west to east time-transgressive Cahokia as periphery-Iroquois as margins model. This paper discusses the issues with reference to archaeological data from Ontario, Canada. Ontario trait distributions indicate that although the model may offer general insight into northern Iroquois development, it does not adequately summarize the complex patterns of Iroquoianization for that area. These are explicated by a less restrictive Mississippian periphery-margins model that interprets northeastern culture processes in light of developments occurring after ca AD 900 throughout the eastern half of the North American continent.

Jansen, Henrik M (Svedborg County Museum) [408] FROM DISCONTINUITY TO CONTINUITY: THE ESTABLISHMENT OF DENMARK.

Villages, already established as a settlement form before the time of Christ, dominated settlement patterns in medieval and later Denmark. In the fifth century AD, the number of settlements declined, then a new expansion occurred between AD 800 and 1300. Between 800 BC and AD 1000 settlements shifted location at intervals of 100 to 200 years. Later, settlements stabilized with the introduction of medieval methods of cultivation and the establishment of new social systems. Seasonal marketplaces of earlier times were replaced by permanent settlements of the Viking period, including cities founded by royal authority.

Jefries, Richard (Kentucky) [310] MISSISSIPPIAN SETTLEMENT ALONG THE UPPER CUMBERLAND RIVER OF SOUTHEASTERN KENTUCKY.

Although archaeological sites dating to the Mississippian period have been individually documented along the Upper Cumberland River in the southeastern Kentucky mountains, no systematic analysis of their spatial, temporal, or social contexts has ever been conducted. Recent literature review and preliminary fieldwork have identified more than 100 sites in the region containing late prehistoric components. This paper investigates the nature and distribution of these sites in the region. Compari-

Jones, Dennis (see Steffen, Anastasia) [310]

sons are made with late prehistoric occupations found in adjacent portions of Kentucky, northeastern Tennessee, and southwestern Virginia.

Jelks, Edward B (see Martin, Terrance D) [612]

Jones, Robert J (Indiana-Purdue-Fort Wayne) [204] SOCIAL RISK AND INTEGRATION: THE UPPER MISSISSIPPIAN SETTLEMENT OF THE SOUTHERN LAKE MICHIGAN REGION.

Northern Illinois and Indiana provide a unique laboratory for examining Upper Mississippian settlement patterns. At least four distinct ceramic traditions are represented in the region during the time period of AD 1100 to 1500. Some of these ceramics have complementary and/or extraordinary geographic distributions. While microenvironmental variation may play a role in these distributions, it is suggested that social risks and rewards are major factors in explaining the apparent maintenance of social boundaries in this region. The development of ethnic boundaries as an economic strategy is discussed and applied to the data from northern Illinois.

Jochim, Michael A (UC-Santa Barbara) [Discussant 305]

Johnson, Eric S (Dorothy Schlotthauer Krass (Massachusetts-Amherst) [106] PRACTICUM: CHALLENGING DOCUMENTS.

What can we learn from archaeologically derived evidence that we can't learn from documentary evidence? How can teachers use material evidence from the past to teach the analytical skills needed for evaluation of all categories of evidence? This practical will present a classroom exercise in which artifacts are used to teach about native people in the historical period in New England, and about the interpretive nature of history.

Johnson, Eric S (see Krass, Dorothy Schlotthauer) [106]

Johnson, Lyn (see Wallace, Henry D) [410]

Johnson, Phillip C (Ohio State) [214] THE USE OF DIGITAL SURVEYING TECHNOLOGIES TO DOCUMENT AND INTERPRET ARCHAEOLOGICAL SITES.

I demonstrate how several developing technologies, in digital data collection and display, can be used to obtain accurate and thorough surveys at remote sites. Specifically, the methodology uses the satellite-based Global Positioning System in digital stereo-video for data collection, position, and orientation of objects in an accurate universal coordinate system. As an example, the results of a survey at Kiva A, Pueblo Bonito (Chaco Canyon, NM) are displayed in a three-dimensional computer model.

Johnson, William C (Michael Baker Jr) [41] THE PROTOHISTORIC MONONGAHELA AND THE CASE FOR AN IROQUOIS CONNECTION.

The evolution of the Monongahela culture in western Pennsylvania is marked by sustained interaction between Middle Ohio Valley societies between AD 1100-1450. During the final decades of the late prehistoric period, changes in ceramic decorative modes suggest a reorientation of the direction of Monongahela contacts toward Iroquoian groups in the Northeast. By the beginning of the protohistoric period, these contacts grew to include societies as far east as Chesapeake Bay. Archaeological and ethnohistoric data indicate the dispersal of the Monongahela by 1635, almost surely at the hands of the Seneca.

Johnson, William C (see Speedy, D Scott) [605]

Johnston, Kevin (Yale) [209] HIDDEN HOUSES OF THE CLASSIC MAYA: NONMOUNDED RESIDENTIAL STRUCTURES AT ITZAN, GUATEMALA.

A traditional emphasis in Maya archaeology on the investigation of conspicuous, moundified architecture has yielded a fragmentary picture of the wide range of socioeconomic and political variation within Maya society as reflected in architectural variation. Recently discovered at Itzan, Guatemala, "hidden" houses (nonmounded Late Classic residential structures that leave no surface remains) generate upwardly revised estimations of the size, density, and composition of the Late Classic Maya population. These estimations have important implications for assertions concerning appropriate levels of Maya agricultural technology, the socioeconomic and political organization of Maya society, and the role of demographic variables in Maya cultural change.

Jones, Dennis (see Steffen, Anastasia) [310]
Kehoe, Alice B

Effort between the disciplines. While archaeologists hold the knowledge, educators are in the best position to know techniques and approaches for conveying the information to the students. This paper describes a program designed to develop teaching modules for South Carolina schools through the University of South Carolina.

Judge, Christopher (see Friedman, Ed) [106]

Julig, Patrick J (Laurentian) o Andrew Stewart (Royal Ontario Museum) [710] ENVIRONMENTAL INSTABILITY AND HUMAN RESPONSE: PALEOLITHIC BEHAVIOR IN THE GREAT LAKES REGION

Organizational strategies for early Paleoindians (EPI) and late Paleoindians (LPI) are compared using data from their lithic technologies, site types and locations, and paleoclimatological data. Environmental instability and rapid change characterized the EPI period (ca. 11,500-10,000 BP), with stabilization during the subsequent LPI period. These differences in environmental stability have implications for differences in human response over the short term. These responses are reflected in changes in the range of site locations, design and use of stone tools, and possibly diet breadth.

Julig, Patrick J (see Hancock, Ronald G V) [309]

Julig, Patrick J (see Pavlish, Laurence A) [309]

Inker, Laura Lee (Vanderbilt) [511] CRAFT SPECIALIZATION AND PRESTIGE GOODS EXCHANGE IN 15TH-16TH CENTURY PHILIPPINE CHIEFDOMS

While archaeological evidence and Chinese historical sources indicate the presence of complex societies in the Philippines by early first millennium AD, recent archaeological research in the Bais region of Negros Island suggests the emergence of more complex chiefdoms in the 15th-16th centuries. Greater sociopolitical complexity is accompanied by increasingly centralized control of ceramic and metal production, as exchange goods in both foreign (Chinese) and inter-poliety prestige goods trade.

This is demonstrated through analyses of morphological standardization in pottery, coupled with archaeological investigation of changing distribution patterns between AD 500-1500 in the Bais region chiefdom.

Kang, Boong (Oregon) [511] A REEXAMINATION OF KOREAN MEgalith TOMB AND SOCIAL ORGANIZATION

The megalithic tomb society of the Korean Peninsula has long been considered to be a chiefdom in terms of socio-evolutionary perspectives. Yet, the stone structures have not revealed much convincing archaeological evidence except for energy expenditure to support the argument. This paper focuses on methodological issues with reference to reinterpretation of existing archaeological data and critical mortuary analyses. On the basis of quantitative and qualitative examination of the available archaeological data from southern Korea, it is suggested that Korean megalithic tomb society is closer to an egalitarian form of social organization than to a chiefdom.

Kardulias, P Nick (see Tommaseo, Michael K) [311]

Kataoka, Osamu (see Ayres, William S) [508]

Keates, Susan (Oxford) [613] THE EVOLUTION OF HOMINID BEHAVIOR IN PLEISTOCENE CHINA

The Early Pleistocene assemblages of Xiaochangliang and Donggou in the Nihewan Basin, northern China, represent the earliest evidence of hominid occupation of a temperate environment. This paper presents new results of lithic analyses and compares hominid activity patterns here to the Late Pleistocene Xujiaoyao site in the neighboring Datong Basin. The relevance of the extensive temporal and spatial distribution of tool classes common to these and other hominid localities is discussed in the context of the paleo-environmental evolution and morphological transition from Homo erectus to H. sapiens in China. This paper also introduces a new system of tool classification.

Kehoe, Alice B (Marquette) [107] LINKING THE PACIFIC AND ATLANTIC SYSTEMS: THE NORTHERN PLAINS

Lewis and Clark followed the Mississippian period routes. Agricultural towns along the Missouri system were market centers and entrepots for expensive items such as marine shells. Summer rendezvous-camps—intermittent towns—were additional market centers. Northern Plains linked into the Great Lakes-St. Lawrence system via Canadian rivers. Knife River flint is a tracer for midcontinent trade (into Ontario). Northern Plains was a low-population density region producing primarily animal products (seemingly?) for the midcontinent, but its highly mobile people maintained...
important trading systems through which the Northeast and Mississippian nations linked into the Pacific Coast-Columbian world.

Kelly, Lucretia & Suzanne Kutterer-Siburt  
[106] CAHOKIA MOUNDS AND THE ST LOUIS PUBLIC SCHOOLS: PARTNERS IN EDUCATION.

Through a unique partnership with the St Louis Public Schools, Cahokia Mounds conducts programs in archaeology and prehistoric Indian culture for scores of pre-college students in the St Louis area. Expanded versions of the site's educational programs are brought into the classroom and target all grade levels. Within this program inner city schools are paired with county schools. In addition to learning about prehistoric Indian culture, students are exposed to one another's cultural backgrounds. This presentation elaborates on this unique program and offers an example of the hands-on activities that are integral to Cahokia's educational programs.

Kelly, Lucretia (see Kutterer-Siburt, Suzanne) [106]  
Kelly, Lucretia (see Kutterer-Siburt, Suzanne) [406]  
Kelly, Robert L (Louisville) [Discussant 305]  
Kelly, Robert L (Louisville) [Discussant 404]  
Kent, Susan (Old Dominion)  
[510] ANEMIA, DIET, DISEASE, AND SEDENTISM: HEMATOLOGY OF NOMADIC AND SEDENTARY MODERN HUNTER-GATHERERS AND IMPLICATIONS FOR ARCHAEOLOGICAL INTERPRETATIONS OF PAST DIETS AND DISEASE.

The prevalence and kind of anemia present among modern Kalahari nomadic and sedentary hunter-gatherers with adequate diets is compared to sedentary farm Kalahari hunter-gatherers with inadequate diets. Sedentism, in contrast to diet, is found to be the cause of high levels of anemia and morbidity at the sedentary communities. The causes of the anemia of chronic disease are discussed in light of past and modern shifts to sedentism and agriculture. It is suggested that dietary interpretations based on skeletal populations exhibiting high frequencies of porotic hyperostosis resulting from anemia need to be rethought.

Kenyon, Dienie M E (SUNY-Binghamton)  
[312] BEYOND THE OBVIOUS: NON-CARIBOU REMAINS FROM AN ESKIMO CARIBOU HUNTING CAMP.

Faunal data are one of several informational sources for the interpretation of archaeological remains. Utilizing the faunal remains from the Lorenz Overlook site (a northeast Alaskan prehistoric Eskimo caribou hunting camp or village), this paper demonstrates the significance of the non-caribou remains in detailing daily living patterns, providing corroboration for the season(s) of occupation, and providing additional evidence for the behavior of provisioning an external group (American whales) that is hypothesized for this group, based on historical and artifact analyses. The non-caribou remains represent approximately 10% of the assemblage, yet provide substantial contextual data otherwise unavailable.

Kerber, Jordan E (Colgate)  
[705] INTEGRATING PUBLIC EDUCATION AND ARCHAEOLOGICAL RESEARCH IN CULTURAL RESOURCE MANAGEMENT: A CASE STUDY.

The crisis of archaeological site destruction by private development is rampant throughout the northeastern United States. This paper presents an approach to combat such a problem. A three-year series of public field school and workshop sessions held at the Lambert Farm site in Rhode Island provides a successful model for cultural resource management of an important yet endangered prehistoric site. This educational program resulted in the recovery of significant information and the heightening of public awareness of both archaeology and the site destruction crisis in a way that can contribute towards the protection of material remains from similarly threatened sites.

Kiev, Karen (Colorado)  
[105] THE ARCHITECTURE OF CEREN.

Excavations at Ceren, El Salvador, have exposed ten buildings preserved in almost pristine condition through burial by volcanic ash. Included are domiciles, storerooms, a kitchen, and other special-purpose structures. Such carthern domestic architecture is relatively unknown. This paper describes and analyzes architectural forms and features (roofs, walls, cornices, benches, etc.), materials (adobe, wood, thatch, stone), construction techniques and procedures, and relational layout at Ceren. It adds to the body of literature on Mesoamerican domestic architecture, augmenting the more common literature on monumental architecture, and may shed some light on the ethnic affiliation of Ceren.

Killick, David (Arizona) o Chaphuruka Kusimbu (Bryan Mayer)  
[708] IMPORTED METALS IN EARLY SWAHILI SITES ON THE KENYAN COAST.

Early Swahili sites on the East African coast date from the 8th through the 15th centuries AD and typically consist of stone- or coral-built elite residences and mosques in a town of hulking mud-walled dwellings. Metallographic study of metal objects from the elite residences suggests that most were made outside Africa, and probably in India or the Arabian Peninsula. These results, together with the evidence of the ceramic and glass assemblages, suggest occupation by a wealthy immigrant trading elite.

Killion, Thomas W (Smithsonian) o Nicholas Dunning (Cincinnati)  
[704] WALLS, WARFARE, AND AGRICULTURE IN THE LATE CLASSIC PETEXBATUN, GUATEMALA.

While the agricultural techniques utilized by the ancient Maya are now coming into focus, our understanding of the intra-community land-holding practices and social boundaries which structure all systems of land use is still very rudimentary. Recent research in the Petexbatun region of Guatemala has revealed a system of well preserved walls and terraces dating to the 8th and 9th centuries, reflecting high levels of community competition and intensive agricultural production. Partitioning of the Petexbatun settlement system is discussed in terms of agricultural intensification and warfare in the Late Classic. A model of state administered agriculture in a conflictive political environment is briefly outlined.

Killion, Thomas W (see Bray, Tamara L) [202]  
Kimball, Larry R, Thomas R Whyte (Appalachian State) o Donna C Boyd (Radford)  
[310] ARCHAEOLOGICAL INVESTIGATION OF LAKE HOLE MORTUARY CAVE.

The excavation of 24 m2 of looter disturbed deposits from a mortuary cave in northeastern Tennessee has yielded abundant human skeletal remains, large and diverse faunal and floral samples, burial artifacts, and torches. This sample represents at least 95% of the original archaeological deposit in this cave. Although the deposits had been disturbed, the large sample size and the excellent organic preservation permit the definition of a previously unknown ceramic ware and use of a cave strictly as a mortuary facility. The results of the faunal, lithic, ceramic, sedimentological, bioarchaeological, and archaeobotanical analyses are presented in this report.

Kimball-Brown, Margaret (see Kutterer-Siburt, Suzanne) [406]  
King, Julia A (Jefferson Patterson Park o Museum)  
[669] THE TRANSIENT NATURE OF ALL THINGS SUBLUNARY: ROMANTICISM, SOCIAL POWER, AND RUINS IN THE 19TH CENTURY CHESAPEAKE.

At any point in time, landscapes consist of both contemporary features and features from earlier periods. This paper examines archaeological ruins in the rural landscape of the 19th century Chesapeake. At least some of these ruins served symbolic functions, not unlike the ruins portrayed in contemporary Romantic literature and painting. Archaeological and documentary evidence indicates that these ruins represented a sort of popular history within local plantation communities. These ruins may have been used to justify a traditional but failing economic system and to reinforce the social power of the few men who controlled land, labor, and politics in this oligarchic society.

King, Ron (Nevada-Reno)  
[208] HUNTER-GATHERER CERAMICS: A VIEW FROM EASTERN NEVADA.

The presence of ceramic industries among Great Basin hunter-gatherers conflicts with current concepts of high mobility. Recent and previous investigations in Ruby Valley, Nevada, have helped document the extent of late prehistoric Shoshone ceramic industries. These data are drawn together in order to explore the complexity of these industries, including vessel and non-vessel forms, ceramic constituents, manufacturing techniques, design elements, use, and temporal placement. This Shoshone assemblage is also compared cross-culturally with other hunter-gatherer ceramic traditions.

King, Ron (see Tips, Julie) [410]  
Kintigh, Keith W (Arizona State)  
[304] POST-CHACOAN ORGANIZATIONAL DEVELOPMENTS AS EVIDENCED AT THE HINKSON SITE.

The century following the collapse of Chaco is often viewed as a time of cultural backsliding. However, organizational foundations of well-known Pueblo IV towns are clearly evidenced in impos
ing, yet under-appreciated sites dating between AD 1150 and 1250. This paper presents the first detailed report on excavations at one such Zuni-area settlement, the Hinkson site. This large community has 25 room blocks and such Chaco-inspired features as a two-story great house, roads, and an enormous, unroofed great kiva. I argue that recognition of this phenomenon requires reformulation of current conceptions of post-Chacoan, Anasazi social integration.

Kintigh, Keith W (Arizona State) [Discussant 103]

Kirkendall, Melissa (see Erkelenz, Conrad) [307]

Kite, Steve (see Brashear, Janet G) [710]

Kleidon, James (see Bradley, Bruce) [514]

Klein, Michael (Virginia) [515]

[515] OF TIME AND THE RIVER: AN "ABSOLUTE SERIATION" APPROACH TO CERAMIC CHRONOMETRY IN THE JAMES RIVER VALLEY OF VIRGINIA.

Precise chronological control is critical for processual archaeological research, regardless of the theoretical framework structuring the research. Brau (1985) argues that a fine-grained, replicable chronology can be constructed by analyzing temporal trends in vessel wall thickness and temper size. Over time, as dependence on starchy seeds, particularly maize, increased, potters created vessels with thinner walls to enhance thermal conductivity. This research tests Braun’s model by analyzing temporal trends in ceramics from the James River Valley of Virginia that span the transition from the broad-spectrum Middle Woodland adaptation to the horticultural societies of the contact period (ca AD 200-1600).

Klein, Terry H (Greiner) [504]

[504] CERAMICS AND THE ARCHAEOLOGY OF 19TH CENTURY AMERICAN URBAN HOUSEHOLDS.

Recent workshops on the status of urban archaeology have revealed a dissatisfaction with the current direction of urban archaeological research. This research seems to take place in a vacuum, with no consideration or understanding of the society that is being examined. Thus, the results of this research are often trivial and uninformative. This is most evident in the analyses of ceramic assemblages from urban sites. If placed within their appropriate cultural context, however, the ceramic assemblages can be used to study change in American households, both in cities and rural areas.

Klugmann, Debora M (see Figueroa, Maria Jose) [212]

Kluesens, Steve (Chicago) [211]

[211] SITE TAPHONOMY FROM ARTIFACT ORIENTATION.

The integrated electronic recording system at Combe Capelle Bas in Dordogne, France, enabled analysis of stone artifact orientations on a scale never before accomplished. Circular distribution statistics, used in the geophysical sciences, are employed to compare orientation tendency and variation among the stratigraphic levels, assuring in the interpretation of the nature of the stone tool assemblages and the resolution of the excavation’s objectives.

Kachel, Heidi (New York) [608]

[608] THE SIGNIFICANCE OF VARIABILITY IN THE PRODUCTION SEQUENCES OF EARLY UPPER PALEOLITHIC ORGANIC PROJECTILE POINTS.

Analysis of the operational sequences of Early Upper Paleolithic bone and antler projectile points indicates a high degree of temporal variability in both design and production techniques. The raw material used, the method of manufacture, and the morphology of the resultant projectile point, while standardized at any given time, changed throughout the Aurignacian and Gravettian. The various technological approaches are indicative of the societal context in which the objects were constructed as well as that in which they were put to use.

Keebone, Ronald R (see Arnold, Philip) [313]

Kudranto, Rathna (National Park Service) [413]

[413] CULTURAL RESOURCE MANAGEMENT IN THE 1990’S.

Cultural resources are an important factor in the human environment, and must be managed in the context of all other elements of the environment. Good environmental stewardship requires an affirmative management of our tangible and intangible cultural resources. There is increased public awareness of the value of cultural resources, and their protection involves the collaboration of resource specialists, decision-making land managers, and the living community with ties to the heritage resources. This involves each individual’s learning about others’ values, special language, and operating constraints and opportunities, and about the overall public benefits and costs of management decisions.

Kudranto, Rathna (see Calabrese, F A) [702]

Kodack, Marc (UC-Santa Barbara) [305]

[305] ALTITUINAL VARIABILITY AND THE ORGANIZATION OF FREMONT SOCIETY IN EASTERN NEVADA.

Altitudinal variability in the distribution and composition of resources is critical to understanding the organization of prehistoric populations in eastern Nevada. These local altitudinal changes mirror global latitudinal variability in hunter-gatherer organization previously described by Binford and Kelly. A model of the Fremont occupation of the southern Snake Range (AD 500 to 1350) is presented using two models of settlement behavior adapted from Simms [1986]—verticality, and raw material acquisition and use.

Koelke, Todd A (Indiana-Pennsylvania) [103]

[103] INTRASITES SPATIAL STRUCTURE IN THE EUROPEAN UPPER PALEOLITHIC.

Over the past 20 years many western European Upper Paleolithic sites have been examined for internal spatial patterning. These analyses suggest three basic modes of internal organization: Heath focused sites are often large, complex sites with many features and distinctive local patterning. Areal focused sites are often scattered of artifacts, and/or occur with severe natural constraints. Structure focused sites frequently show no clear indications of hearths and are free of natural constraints. They are frequently highly patterned around architectural structures, however.

Koelke, Todd A (see Versaggi, Nina M) [509]

Kohl, Charles C (National Endowment for the Humanities) [411]

[411] TALES OF TEOTIHUACAN: THE STATUS OF CERAMIC TECHNOLOGICAL ANALYSES ON CLASSIC PERIOD WARES, II.

During the past 40 years, pastes and aplastics of domestic and imported wares and ceramic artifacts associated with the Classic Teotihuacan period (AD 50-750) in Central Mexico have been analyzed by binocular and petrographic microscopy, in the main, to discern locales of production. Technological studies (Shepard, Sobotomayor, Abascal, Kohl, etc.) normally were reported individually and independently in the literature. In this paper, the results of completed [Alpha and Beta “Thin Orange,” Granular, Copiap, and San Martin Orange] and ongoing investigations (Polished Monochrome, Burnished Monochrome, Red-on-Buff, Coarse Matte, and Fine Matte) are standardized to better compare and contrast these ceramics and more finitely discern potential areas of manufacture.

Koldehoff, Brad (Louis Berger Co Associates) [509]

BIFACIAL TECHNOLOGY AND THE EMERGENCE OF CRAFT SPECIALIZATION.

Various aspects of craft specialization have been addressed by archaeologists, but few have focused their attention on the factors that led to its emergence. This paper examines the role that access to raw material sources may have played in the rise of lithic production specialists. Replication studies suggest that access to large quantities of a suitable raw material was essential to the acquisition and maintenance of a technical skill like the production of large bifaces. The validity of this hypothesis is evaluated by reviewing prehistoric biface production in the Central Mississippi Valley.

Koldehoff, Brad (see Lothrop, Jonathan) [404]

Kornzeit, N L (see Soffer, Olga) [211]

Kowalewski, Stephen A (Georgia) [206]

[206] CLOUT, CORN, COPPER, CORE-PERIPHERY, CULTURE AREA.

Were the aboriginal North American "culture areas" of the Southeast, Southwest, and Northwest Coast also "world-systems"? The paper uses ethnoarchaeological and archaeological data and follows suggestions by Chase-Dunn and Hall [1991] to explore variation within and between macroregions. In these cases core-periphery differentiation (not typically hierarchical) was common. Macrorregional boundaries were diffuse. Major transformations, but not necessarily internal regional growth and collapse, were temporally coordinated, which in the absence of exogenous forces implies a limited
degree of systematic interdependence. Prestige-goods economies were present, but other interaction, including warfare, must be implicated as shaping these macroregional systems.

Kowalewski, Stephen A (Georgia) [Discussant 107]

Kozaruk, Sue Ellen (Gray & Paper) [302] DEMONSTRATING SEDENTISM IN THE ARCHAEOLOGICAL RECORD: A HOPEWELLIAN HOMESTEAD IN SOUTHEASTERN INDIANA.
The Jenison Guard site (12D295) is a Hopewellian habitation situated on the Ohio River floodplain in southeastern Indiana. Preliminary analyses of the floral and faunal remains suggested the site was occupied on a year-round basis. The research presented here focuses on the evidence for organization and maintenance of life space at the site. By comparing this evidence with expectations for the use and maintenance of space among groups that are 1) highly mobile, 2) seasonally migratory, and 3) sedentary, it is demonstrated that this site was occupied for a relatively long, uninterrupted period by a residentially sedentary group.

Kramer, Carol (Arizona) [Discussant 609]

Krass, Dorothy Schlothauer & Eric S Johnson (Massachusetts-Amherst) [106] CHALLENGING DOCUMENTS: UNDERSTANDING THE NATIVE AMERICAN EXPERIENCE IN NEW ENGLAND.
If we want to include archaeology in school lessons, we have to convince teachers that archaeology will help them reach the goals they have already set for teaching, otherwise archaeology will be just another subject added to their already overloaded schedules. A Five-College/Public School Partnership summer institute for teachers provides a vehicle for demonstrating how archaeology can be used to enhance the teaching of critical thinking and historical analysis.

Krass, Dorothy Schlothauer (see Johnson, Eric S) [106]

Kristiansen, Kristian (Ministry of the Environment) [206] THE EMERGENCE OF THE EUROPEAN WORLD-SYSTEM IN THE BRONZE AGE, 2nd AND 1ST MILLENNIA BC.
It is proposed that from the 2nd millennium onwards there emerged a European world-system based upon international exchange in metal between the Mediterranean and the bronze-producing societies in central and western Europe. It was characterized by several cycles of expansion and collapse, but the system remained intact until the expansion of the Roman empire. The basic structural components and their interaction are described and explained with reference to a world-system model of social and economic dependency.

Kristiansen, Kristian (see Hedeager, Lotte) [603]

Kuhn, Steven L (New Mexico) & Lewis B Binford (Southern Methodist) [163] PUTTING THE SITES BACK IN SITE STRUCTURE: CAVE MORPHOLOGY AND SPATIAL STRUCTURE AT COMBE GREEN.
The form of a cave or rockshelter greatly influences the ways people use space within it. At the French Mousterian site of Combe Grenal, long-term changes in the use of the sheltered site area had marked effects on the distributions of stone tools and the nature and location of hearths and ash lenses. Studies of variation in site structure associated with different “configurations” of the cave provide a means of differentiating patterns directly attributable to the character of the place itself from those reflecting other influences on prehistoric behavior.

Kuhnholm, Peter I (Cornell) [609] DENDROCHRONOLOGY AT GORDON, 2000 YEARS BEFORE BETATAKIN.
Dendrochronological investigations at Gordon and environs enable us to redate eastward to the Levant and westward to Italy. Fifteen structures on the Gordon city mound and in nearby tombs can be dated in relation to the Midas Mound Tumulus chamber, as can four more distant Iron Age sites and seven Bronze Age sites. A 1503-year long tree ring sequence (ca.2259-757 BC) wiggled matched by 18 radiocarbon dates, links Middle Bronze Age (Assyrian Colony period), Late Bronze Age (Hitite), and Iron Age (Phrygian) monuments in a single chronological chain.

Kusimba, Chaphuruka (see Killick, David) [709]

Kutterer-Siburt, Suzanne, Margaret Kimball-Brown & Lucretia Kelly (Cahokia Mounds State Historic)

ARCHAEOLOGICAL EDUCATION VS. RAIDERS OF THE LOST ARK AND THE WANNABIES.
Increasingly, programs in archaeology and Indian culture are being offered by a variety of institutions including children’s museums, science centers, natural history museums, and archaeological sites. A
Landon, David (Michigan Tech)

[612] ZOARCHEOLOGICAL EVIDENCE FOR FOOD SUPPLY AND DISTRIBUTION SYSTEMS IN COMPLEX SOCIETIES: AN EXAMPLE FROM COLONIAL MASSACHUSETTS.

This paper is a comparative analysis of over 11,000 bones from two urban and two rural historical sites in eastern Massachusetts. Explicit hypotheses are evaluated about how the urban environment and particular characteristics of food supply and exchange: systems might affect specific aspects of faunal assemblage patterning. Taxonomic representation, body part representation, butchery patterns, and age and seasonal slaughtering patterns are all interpreted. The results of the analysis suggest that urban food supply and distribution systems followed traditional rural patterns.

Larick, Roy (Bement School)

[608] SPATIAL SCALE IN PALEOLITHIC STONE TECHNOLOGY: THE LATE SOUTHRAN PERIGORD.

Concepts for operational sequence in stone technologies must encompass spatial scale. Regional movements for chert packages (from raw blocks to finished implements) reflect complex socioeconomic dynamics in local sequences. By chance, the geological structure of the Perigord (France) distributes chert sources into two geographic zones. A central zone holds most sources for common cherts (and most Paleolithic sites). A peripheral zone holds fewer but better sources (and fewer but more specialized production sites). Representation of chert types for exhausted late Solutrean (ca 18 kyr) isolate points at central and peripheral sites suggests patterns of circulation for chert packages between zones.

Larson, Mary Lou (Wyoming)

[404] TOWARD A HOLISTIC ANALYSIS OF CHIPPED STONE ASSEMBLAGES.

A holistic approach to the analysis of chipped stone assemblages that integrates separate analyses of tools and debitage allows a much more in-depth consideration of prehistoric technological organization than conventional studies that use tools or debitage alone. The technique of minimum nodules analysis allows a consideration of chipped stone production, use, and discard activities, and provides one measure of the flow of matter, energy, and information across the archaeological landscape. Comparison of results from the minimum nodules analyses of two high altitude archaeological sites in the Central Rocky Mountains provides an example of this approach.

Lattoud, William R (see Doering, William) [410]

Leach, Elizabeth K (Michigan)

[615] ZOARCHEOLOGICAL SIMULATION OF WESTERN KENTUCKY MIDDLE AND LATE ARCHAIC SETTLEMENT PATTERNS.

A simulated archaeological record is created to examine the interplay among geologic, botanical, and anthropological factors controlling settlement patterns in western Kentucky's Middle and Late Archaic. The simulation results are compared to the results of archaeological survey by the Lower Cumberland Archeological Project. The comparison suggests that apparent differences in settlement patterns between the periods are a result of responses by a single settlement system to changing botanical and hydrologic conditions from the Middle to Late Holocene.

Lebo, Cathy J (Indiana)

[210] SUN, RAIN, SEED, AND PERHAPS HARVEST: AGROCLIMATIC VARIABILITY IN THE PREHISTORIC AMERICAN SOUTHWEST.

Recent archaeological investigations in the American Southwest challenge traditional notions of when corn agriculture was adopted, why it was adopted, and how important it was in prehistoric diets. The adoption and persistence of corn agriculture, however, cannot be understood apart from the climatic conditions favorable to corn growth and development. A method is presented for agroclimatic reconstruction from tree-ring width indices that demonstrates the level of variability in corn yields over time in the northern Southwest. It also provides a much needed standard, crop shortfalls from normal harvests, making preliminary regional comparisons possible.

Lee, Carla e Rebecca Stoney (Houston)

[602] BIOARCHEOLOGICAL AND HUMAN ADAPTATION AT AN ELITE COMPOUND.

The bioarchaeological study of human skeletons is addressing a wide variety of aspects of the human adaptation to the Copan Valley that can be best answered by skeletal analysis. After discussing the overall research goals of the bioarchaeological study, we concentrate on two types of analysis that provide evidence on how well the human population was thriving in its society and environment—the age distribution of deaths and paleopathological indicators of stress during childhood. The implica-

Letts, Kelly A & Jeanne Moe

[106] PRACTICUM: INTRIGUE OF THE PAST, A SECONDARY EDUCATION PROJECT.

Intrigue of the Past sketches many Utah core curriculum objectives through the use of archaeological concepts and problems as the theme. The use of archaeology and the scientific method are used to/tions of the evidence from these analyses based on an elite sample for the population's adaptation to the valley are discussed.

Lehner, Mark (Chicago)

[308] THE ARCHAEOLOGY OF THE GIZA PLATEAU.

How were the people who built the great pyramids at Giza organized? Where were they housed? What were they fed? Detailed mapping and selective excavation at Giza since 1977 have begun to expose glimpses into the daily life on the Giza Plateau before, during, and at the height of monumental building projects in the fourth dynasty. This paper reviews the current state of research into the organization of the plateau and the sequence of occupations.

Lekson, Stephen H (Museum of New Mexico)

[400] HOW GREAT WERE SOUTHWESTERN "GREAT TOWNS"?

The spectacular settlement architecture of the American Southwest shapes the theoretical understandings derived from that archaeological base. Appealing visual qualities of southwestern building may obscure more relevant dimensions—size, duration, complexity, and density. This paper examines these characteristics in a wide sample of southwestern sites, and evaluates them on cross-cultural scales.

Lekson, Stephen H (Museum of New Mexico) [Discussion 502]

Lennstrom, Heidi (Minnesota)

[111] SPATIAL EXPRESSIONS OF NATURAL AND SOCIAL ENVIRONMENTS: AN ANALYSIS OF INTERNAL SITE STRUCTURE OF PANCAN, PERU.

This paper concerns the relationship between people and plants during the occupation of a prehistoric village in the central Andes. A contextual approach explores the environmental adaptation of the Sausa people, the indigenous perception of the landscape, and the effects of social structure on the use and discard of plant materials. I suggest that the relationship between the people and their environment is interactive. Attitudes towards the outside world, and wild and domesticated plants are seen to change through time, in concert with changes in the use and discard of animal bones and household objects.

Lentz, David (Mississippi-Jackson)


The analysis and interpretation of botanical macroremains from Mesoamerican archaeological deposits can provide essential data concerning both ancient subsistence practices and paleoenvironments as well. Carbonized plant domesticates furnish evidence regarding crop production, trade, interactions, consumption, and food processing, while the remains of wild plants offer insights into dietary supplementation, medicinal and ceremonial practices, seasonality, plant communities targeted for exploitation, and the nature of the communities themselves. Archaeological charcoal has great potential as a data source for paleoenvironmental reconstruction. Although macrobotanical analysis offers a wealth of interpretive information derived directly from artifacts buried in the ground, these data are best utilized when synthesized with data from other avenues of investigation.

Leonard, Robert D (see Jones, George T) [203]

Leonard, Robert D (see Abbott, Alyssa L) [304]

Leonard, Robert D (see Reed, Heidi J) [304]

Lévi-Strauss, Jean-Marc (see Strauss, Lawrence) [211]

Lepke, Bradley T (see Otto, Martha) [406]

LeTourneau, Philippe (New Mexico)

[710] FOLSOM RAW MATERIAL USE ON THE SOUTHERN HIGH PLAINS.

I test three specific hypotheses concerning the use of Alibates Agate, Edwards Plateau Chert, and Tecovas Jasper for Folsom technology on the southern High Plains. I test the commonly held notion that the amount of raw material will vary inversely with distance from source. I test this first for whole assemblages and for specific artifact classes (channel flakes and Folsom points). Finally, I test that there is a relationship between raw material type and the same two artifact classes. I argue that different relationships for each material type reflect different mobility patterns and/or technological requirements.

Letts, Kelly A (Windrose Consulting) e Jeanne Moe (BLM)

[106] PRACTICUM: INTRIGUE OF THE PAST, A SECONDARY EDUCATION PROJECT.

Intrigue of the Past sketches many Utah core curriculum objectives through the use of archaeological concepts and problems as the theme. The use of archaeology and the scientific method are used to...
solve problems through the hands-on approach to learning. This session is a hands-on exploration of a portion of the Intrigue of the Past curriculum.

Lett's, Kelly A (see Moe, Jeanno) [106]

Leverelle, Alan D (Public Archaeology Lab) [709]
TERMINAL ARCHAIC TO WOODLAND SOCIAL SYSTEMS ALONG COASTAL SOUTHEAST NEW ENGLAND: A VIEW FROM THE JOYNER SITE.

The social systems and ideologies of prehistoric inhabitants of coastal southeastern New England are considered through an examination of the archaeological record of the Narragansett Bay region. Discussion focuses on the contributions of recent excavations at the Hoskin's Park, South Wind, and Joyner sites.

Levy, Janet E (North Carolina-Charlotte) [708]
STYLE AND TECHNOLOGY OF DANISH BRONZE AGE METALLURGY.

The metal objects from the Danish Bronze Age were made from imported raw materials; many were decorated with engraved anthropomorphic, zoomorphic, and geometric designs which appear to express symbolic information. Many are found in contexts suggesting ritual activity. The interconnections between technical requirements of manufacture and stylistic requirements of ritual communication in the prehistoric case are analyzed in a sample of bronze ornaments worn by women. Following the work of Heather Lechman and Mary Helms on style in technology, the manipulation of metallurgy to express status and gender is discussed.

Lewarch, Dennis E (LAAS) [208]
LATE POSTCLASSIC OBSIDIAN ARTIFACT PRODUCTION AND EXCHANGE IN THE COATLAN DEL RIO VALLEY, MORELOS, MEXICO.

Surface collections from eight Late Postclassic sites in the Coatlan del Rio Valley, western Morelos, provide an assemblage of over 5000 obsidian artifacts to analyze production and exchange patterns. Primary manufacturing of green obsidian cobbles is concentrated at site CD27, which is comprised of dispersed house-patio complexes with associated workshops. Analysis of valley-wide obsidian distribution patterns by house complex demonstrates exchange patterns partially conditioned by household size and location. Extant models of Late Postclassic obsidian artifact production and exchange in Central Mexico are compared to the Coatlan data set and evaluated.

Lewenstein, Suzanne, Angeles Alonso o/o Raquel Peña (Universidad de las Americas-Puebla) [510]
CERAMICS PAST AND PRESENT IN SIERRA TARAHUMARA: A CASE STUDY IN ETHNOARCHAEOLOGY.

The interpretation of architectural materials from twenty southwestern Chihuahuan sites located during a 1991 survey by the Proyecto Arqueológico-Etnoarqueológico Sierra Tarahumara is complicated by recent or ongoing occupation at most of the sites, by Tarahumara families and their herds. A study of 90 modern ceramic vessels from four different Tarahumara communities, in both the high sierra and the canyon country, attempts to establish criteria for distinguishing between archaeological and recent pottery, and for identifying ceramic forms, functions, and regional variability from sherd.

Lewis, Brandon (UCLA) [209]
LATE CLASSIC MAYA ECONOMIC INTEGRATION: PERSPECTIVES FROM THE LITHIC PRODUCTION SYSTEM AT RIO AZUL, GUATEMALA.

The nature of Maya economic integration has been the focus of much recent debate. Central to this debate is the degree to which the Maya exhibited centralized administrative control over production and/or exchange activities. Current excavations at Rio Azul, Guatemala, provide data to address these issues. This paper examines Maya economic integration as suggested by the organization of its lithic production system. Variations in stone tool production/use at the household level, along with data from the local lithic deposits [workshops/dumps], provide the basis for this analysis.

Lewis-Johnson, Lucy (Vassar) [608]
ALETIAN MARITIME HUNTING STRATEGIES.

Peter Bleed has drawn a distinction between reliable and maintainable technologies, which to some extent parallels Lewis-Williams' distinctions between collecting and foraging strategies. While both of these formulations are useful, they have shortcomings when applied to maritime hunter-gatherers, particularly those of the high latitudes. The constraints of the environment—hunting over the sea, very limited industrial resources, high seasonality—require a unique mix of strategies for successful exploitation. In examining the mix developed by the prehistoric Aleuts, the ways that human decision-making is constrained by the ecological conditions people face can be better appreciated.

Lewis-Williams, James David (Witwatersrand) [Discussant 303]

Lipe, William D (Washington State) [Discussant 205]

Leyden, Barbara (South Florida) o/ Mark Brenner (Florida) [407]
REFORESTATION OF LOWLAND GUATEMALA AFTER EUROPEAN CONTACT.

Fossil, charcoal, and geochemical data are presented for three savanna lakes from the Peten district, Guatemala. Shallow aguidas filled after ca 300 BP (calibrated age AD 1430-1660), concurrent with regional reforestation. This timing correlates with indigenous depopulation following European contact and the climatic events of the "Little Ice Age" rather than the Classic Maya collapse. Postclassic population pressures and prevailing climatic conditions were sufficient to suppress reforestation. Conversely, deforestation of the Peten ca 3200 BP may have coincided with increased regional aridity. Thus, Maya events may be more closely linked with climatic factors than previously assumed.

Leyden, Barbara (see Dahlin, Bruce H) [407]

Lieberman, Daniel E (Harvard) [506]
WERE THE NATUFIANS "SEDENTARY"?

This paper examines diversity in mobility strategies during the late Epipaleolithic of the southern Levant. Evidence for reduced mobility from various kinds of faunal data, including seasonally deposited incremental tissues in gazelle teeth, are examined from a wide array of Natufian, Geometric Kebaran, and Kebaran sites in the southern Levant. While mobility patterns during the Natufian appear to be less residentially mobile than those of previous cultural complexes, it is argued that the Natufians cannot necessarily be classified as "sedentary." It is argued that hunter-gatherer mobility strategies are rarely static, and that from a heuristic perspective, sedentism is an elusive if not tenous concept.

Limp, Fred (Arkansas Archaeological Survey) [413]
GEOGRAPHIC INFORMATION SYSTEMS (GIS) IN HISTORIC PRESERVATION.

GIS systems are an important emerging technology for the historic preservation community as they permit improved research, inventory, and management. This paper considers a number of specific examples of the use of GIS, including: (1) improved identification (survey) methods as a result of improved multi-variate patterning in site characteristics, and (3) improved capabilities to provide distributional information through interactive map queries and automated distribution mapping. It summarizes how GIS fits into the suite of related methodologies and examines institutional and organizational requirements for successful applications to archaeology.

Lincoln, Thomas R (see Zaplicki, Jon S) [702]

Lindauer, Owen (Arizona State) [701]
A CONSIDERATION OF MOUNDS AND MOUND COMMUNITIES IN THE TONTO BASIN AS EVIDENCE OF SOPHISTICATED DEVELOPMENT.

Platforms mounds and their associated communities are the tangible representations of coordinated labor and management functions associated with social complexity. Arizona State University's investigation of three mound communities in Arizona's Tonto Basin provide examples of how sociopolitical development can be documented. Documentation for sociopolitical development consists of variation in mound size, location, and function. Information from residential communities surrounding mounds complements evidence for labor coordination found at mounds. Schoolhouse mound and its surrounding communities serve as a case study. Comparisons of this and other mounds outside the basin link local developments to a larger pattern of complexity in southern Arizona.

Lindly, John (Arizona State) [211]
THE ORGANIZATION OF LITHIC TECHNOLOGY IN THE ZAGROS MOUSTERIAN OF SOUTHWEST ASIA.

For decades the lithic industry of the Zagros Mousterian has been characterized as a group of homogeneous assemblages dominated by heavily retouched scrapers. This view is changing as data become available from previously unanalyzed sites and as the research emphasis shifts from retouched tools to analyses of entire assemblages. Utilizing such an approach to lithic data that emphasizes both technology and typology provides insights about these industries that lead to a better understanding of the Middle Paleolithic of the Zagros region and clarifies relationships with nearby regional Mousterian industries.

Lipe, William D (Washington State) [Discussant 205]

Lipe, William D (Washington State) [Workshop 401]

Lipe, William D (Washington State) [Discussant 702]
CULTURAL CONFLICT AND THE REBURIAL ISSUE: AN ANALYSIS BY A NATIVE AMERICAN ARCHAEOLOGIST.

This paper examines different facets of the reburial issue and attempts to show why many reasonable-sounding solutions are actually unworkable. The author attempts to provide personal insights into the emotional aspects of the issue. This problem must not be reduced to a "Science vs Religion" dispute because such a quarrel cannot easily be resolved. Instead, archaeology should work harder at understanding the feelings of Native Americans toward the profession. Instead of merely working at getting more Native Americans into archaeology, perhaps we should try to get more archaeologists involved in Native American culture.

GENDER, SPACE, AND VISIONS OF FREEDOM.

The use of space is a traditional archaeological concern; the explicit consideration of gender is relatively new. This paper considers recent literature on gender and space in interpreting the changing built environment at the Port Tobacco Carmel in southern Maryland. The Carmelite cloister was established in 1790, removed in 1831, and recently reestablished. Occupied solely by women religious and the slaves they employed to run the cloister plantation, the site provides a complicated historical setting in which to examine interrelated material culture of patriarchy, gender, slavery, Catholicism, and the regional dynamics of southern Maryland in the early 19th century.

THE USE OF TRADITIONAL ARCHAEOLOGY IN ROCK ART RESEARCH.

Traditional archaeological methods can be useful in studying rock art. Excavation at the base of rock art panels has produced the tools used in making the paintings, and the analysis of pollen samples from rock art sites suggests an array of plants were used at them, including the mix of herbs often found in a shaman's medicine bundle.

AZTEC DEDICATION AND TERMINATION CACHES.

Between 1978-1989, the Templo Mayor Project/INAH discovered 110 buried offerings in the heart of Mexico City. Archaeologists have recorded compositional and spatial distribution patterns of the artifacts within the offering receptacles, and of the buried offerings related to the buildings and sculptural monuments. This patterned distribution obeys to a code of religious expression linked to specific ritual behaviors. After a numerical taxonomy, and comparison of the archaeological data with historic, iconographic, and ethnographic information was done, we were able to define some groups of offerings buried in dedication and termination ceremonies.

SYNCRETISM IN THE MAYA NORTHWESTERN LOWLANDS: A CASE STUDY THROUGH THE CERAMIC ANALYSIS OF POMONA, TAB.

The excavated buildings at Pomona revealed a particular ceramic assemblage which is related to the Teotihuacan withdrawal of the Maya area. At the same time this indicates the presence of mixed groups into the northwestern lowlands, giving a defined identity to this region during the Late and Terminal Classic, due to its increasing political and economic power.

A COMPARISON OF TWO-TIERED MISSISSIPPIAN SETTLEMENT SYSTEMS WITH THE LARGER THREE-TIERED SYSTEMS IN SOUTHEASTERN NORTH AMERICA.

Results from a settlement pattern survey as well as from excavation at selected late prehistoric Mississippi period sites in the Big Black Valley of Mississippi are described, and comparisons are made with southeastern settlement systems at a similar two-tiered hierarchical scale. A preliminary model is presented for the operation of such small-scale societies with respect to patterns of settlement, subsistence, sociopolitical organization, and long distance exchange. This model is then compared to the existing model of the three-tiered complex Mississippian chieftoms in order to support the argument that the late prehistoric Southeast did not consist of a homogeneous group of complex chieftom level societies, but also included the less complex big man type societies, which coexisted side by side with the complex groups.

TECHNOLOGICAL ORGANIZATION AND SETTLEMENT MOBILITY: A CRITICAL EVALUATION.

Recently, a model of prehistoric technological organization for North America that correlates decreased residential mobility with a shift from bilateral to expedient core technology has gained currency. This paper critically evaluates aspects of this model. It is argued that, for certain periods of prehistory, the model is inaccurate and overly simplistic in its characterization of technological organization. Further, it is suggested that other variables besides mobility must be considered in explaining changes through time in the organization of prehistoric technologies.

MARGINAL ENVIRONMENTS VARY significantly in their effects upon horticultural systems. The application of social, spatial, and economic models derived from optimal economic contexts to marginal regions poses problems of preconceived systemic structure. This paper evaluates the fit of alternative spatial, settlement, and population centralization models to the horticultural transformation of the Saginaw Valley Late Woodland. The primary issue addressed is the relative value of centralization to economic risk management in this marginal environment. It is argued that marginal environments allow for a range of alternative settlement strategies to be employed in maize horticultural systems.

SURF AND TURF: LATE WOODLAND USES OF THE BOSTON HARBOR ISLANDS.

Late Woodland people used the numerous small islands in Boston Harbor primarily for fishing and hunting camps, although farming and the manufacture of stone tools, bone tools, and pottery also took place. This paper deals with the food remains found at these sites. Although a wide range of species has been recovered, Late Woodland people appear to have focused especially on a limited number of resources. Possible reasons for these choices are explored.

SOUTHERN CERAMIC AGE OCCUPATION IN THE NORTHERN VIRGINIA.

Among the eight major islands comprising this group, there are great disparities in amount of archaeological information. Surveys on three islands, however, indicate an increase in settlements from Salado to post-Salado times. Available data from site excavations include examples of dated stratigraphic assemblages, burials, and house patterns. Although late Ceramic Age pottery generally conforms to the Salado or Espirituano Osteolitic subclasses present on Puerto Rico, the northern Virginians lack large ceremonial or settlement centers and the quantities of elaborate goods found on Puerto Rico. This is consistent with participation in an extractive and hierarchical social system.

THE ZOOARCHAEOLOGICAL RESOLUTION OF ANIMAL BODY PART TRANSPORT: LESSONS FROM THE HADZA OF EAST AFRICA.

Observations of animal body part transport decisions by modern East African Hadza hunters were made for a variety of prey taxa. These observations are compared to the skeletal part frequencies from five bone assemblages produced by the Hadza. The results show that the observed body part transport patterns are best reflected in single carcass, small bone assemblages and are obscure in large bone assemblages created when several carcasses are butchered. The zooarchaeological implications of this study are discussed.

ON CERAMIC FRAGMENTATION AND ARCHAEOLOGICAL LANDSCAPE FORMATION.

Ethnoarchaeological and experimental studies have demonstrated that the size of an artifact plays a primary role in its discard, deposition, and incorporation into archaeological deposits. Both geomorphological and cultural formation processes act on items in relation to their size, shape, and mass. One result of these processes is continuous postdepositional sherd comminution. Ceramic fragmentations provide a means of assessing redundancy in the use and reuse of locations on archaeological landscapes formed through multiple, overlapping patterns of deposition. This paper examines spatial variability in the size and weight of ceramics collected from the Galisteo Basin, New Mexico, to evaluate measures of ceramic fragmentation and their application to the study of land use systems.

A COMPARISON OF TWO-TIERED MISSISSIPPIAN SETTLEMENT SYSTEMS WITH THE LARGER THREE-TIERED SYSTEMS IN SOUTHEASTERN NORTH AMERICA.

Results from a settlement pattern survey as well as from excavation at selected late prehistoric Mississippi period sites in the Big Black Valley of Mississippi are described, and comparisons are made with southeastern settlement systems at a similar two-tiered hierarchical scale. A preliminary model is presented for the operation of such small-scale societies with respect to patterns of settlement, subsistence, sociopolitical organization, and long distance exchange. This model is then compared to the existing model of the three-tiered complex Mississippian chieftoms in order to support the argument that the late prehistoric Southeast did not consist of a homogeneous group of complex chieftom level societies, but also included the less complex big man type societies, which coexisted side by side with the complex groups.
Lynch, Thomas F & Christopher M Stevenson

[305] OBVIOUS HYDRATION DATING AND TEMPERATURE CONTROLS IN THE PUNTA NEGRA REGION, CHILE.

Effective hydration temperature (EHT) is essential for the computation of obsidian hydration dates. In the Atacama Desert, the scarcity of air temperature records combines with extremes of elevation and temperature to require the use of buried thermal cells to record on-site mean annual temperatures. Compositional analysis (sourcing) and hydration rate development are also necessary, especially where other dating methods are unavailable to confirm the hydration rate. Paleoenvironmental or Early Archaic through modern obsidian dates support a human settlement pattern history derived from archaeological/geomorphological studies of climato-geological and hydrological change.

Lynn, Mark (National Park Service)

[509] THE EVIDENCE FOR EMERGENT MISSISSIPPIAN OCCUPATION IN THE EASTERN OZARKS.

Recent research in the eastern Ozarks has produced evidence of widespread Emergent Mississippian occupation beginning about AD 700. Emergent Mississippian development is manifested in the appearance of shell-tempered ceramics, arrow points, and rectangular wall trench houses. Despite these cultural innovations, settlement and subsistence patterns reflect continuity with well-established practices in this region. High inter-site variability during the Emergent Mississippian substage is interpreted as evidence of local autonomy. About AD 1300, there is evidence that Emergent Mississippian people abandoned the eastern Ozarks, probably to participate more fully in the newly forming chiefdoms of southeast Missouri.

Madsen, Mark (Washington)

[302] DEFINING CONTEMPORANEITY IN THE ARCHAEOLOGICAL ANALYSIS OF SETTLEMENT PATTERNS: AN EXAMPLE FROM THE OHIO HOPEWELL.

When analyzing settlement patterns or community organization, archaeologists must either demonstrate or assume that deposits being compared are synchronous. Typically, contemporaneity is often assumed or poorly demonstrated, because the concept is underanalyzed in archaeology. Contemporaneity is defined, and techniques for assessing it are discussed, including appropriate dating methods. Finally, the techniques outlined are demonstrated using data from a dispersed Hopewell community in the Ohio valley. These evidence dates from domestic locations form the basis for determining the occupational history of one community and permitting analysis of organizational change.

Magnus-Gardiner, Bonnie (Bryn Mawr)

[507] TAXATION AND THE SMALL STATE IN BRONZE AGE SYRIA.

The organization of tax collection is one way of looking at distinctions between small states and large states. The textual evidence for taxation at Mari, a large mid-2nd millennium BC state on the Euphrates River, and Alalah, a small state near modern Aleppo, reveals patterns that differ in both magnitude and complexity. The political and archaeological implications of these patterns are discussed.

Mainen, Clark (Wesleyan) e/ Shila Bando (Brown)

[408] MONASTIC SETTLEMENT IN THE DIOCESES OF LAON AND SOISSONS, FRANCE, AD 1050-1200.

Monasteries constituted an enduring component of medieval settlement. This paper examines the relationship between monastic sites (including their dependent holdings) and previous occupation history. It considers disruptions in climate, advances in agricultural techniques, and shifts in landholding patterns as factors in settlement change. Between 1050 and 1200, the dioceses of Laon and Soissons absorbed three new monastic houses that settled old and new lands in different ways. Some sought a rural settlement, while others settled near towns. All three orders vied for property in the former rural deserts newly discovered to be suitable for viticulture. This paper, we not only trace the spatial distribution of monastic sites, we lay the framework for evaluating continuities and discontinuities in high medieval settlement.

Malnowski, Lynn M (see Haley, Shawn) [210]

Malpass, Michael (ithaca)

[610] ARCHAEOLOGICAL RECONNAISSANCE IN THE UPPER CAMANA VALLEY, PERU.

Archaeological reconnaissance in the upper Camana River Valley resulted in the discovery of several new sites. The most significant were three large sites: one was a Wari center with a later Inka occupation, the second was a substantial Inka site, and the third was a large architectural and uncertain cultural attribution. Only five other sites were recorded; three had architecture and late prehistoric ceramics, while the other two had structures but no architectural remains on the surface.

Mander, Rolfe (Nebraska-Omaha)

[710] GEOARCHAEOLOGY OF A DEEPLY STRATIFIED PALEINDIAN THROUGH LATE PREHISTORIC SITE 41BX831 IN THE MEDINA RIVER VALLEY, SOUTH TEXAS.

Excavation of a 15-m deep trench across a broad alluvial terrace of the Lower Medina River in south Texas exposed well-preserved, deeply stratified cultural deposits (Site 41BX831) representing all of the major cultural periods of the Holocene and terminal Pleistocene. The cultural horizons were associated with four buried soils developed in fine grained flood deposits. An assembly of more than 30 radiocarbon dates determined on charcoal and soil humates places the cultural materials into a well defined chronosтратigraphy. This paper summarizes the soil stratigraphic record at 41BX831 and considers site formation processes.

Mandryk, Carole (Alberta)

[208] HUMAN VIABILITY OF THE LATE- AND POST-Glacial ICE-FREE CORRIDOR OF WEST CENTRAL ALBERTA.

The human viability of the late- and post-glacial ice-free corridor is tested. A regional vegetation record extending back to 18,000 BP is reconstructed for the upper North Saskatchewan drainage basin. These data, integrated with reconstructed landscape characteristics, provide a context for the evaluation of human cultural systems. Calculations of harvestable primary production, prey biomass, and optimum yield available to humans are shown to be below the minimum nutritional needs of a socially viable population in the long-term constrained environment of the corridor from 18,000 to 13,000 BP. Therefore, the ice-free corridor was not a viable human environment prior to approximately 12,000 BP.

Manson, Joni L

[311] HEATING EFFECTIVENESS OF NEOBITIC POTTERY.

It has been suggested that as a population's reliance on cuisines increases, pottery vessels will be modified to be better suited to cooking. Thus, changes in ceramic attributes related to heating efficiency of domesticated plant foods. The food consumption, hearth size, and other attributes which influence thermal diffusivity and thermal shock resistance are particularly important in studying the heating effectiveness of ceramics. Sherds from Neolithic (Starevo) sites in Yugoslavia were analyzed in terms of their thermal-performance characteristics. Methods and results of the analyses are described, and implications for settlement and subsistence practices in Neolithic Yugoslavia are discussed.

Manzanares, Linda (Instituto de Investigaciones Antropológicas, UNAM)

[585] SOCIOECONOMIC VARIATIONS IN APARTMENT COMPOUNDS AT TEOTIHUACAN: A RECONSIDERATION.

Current detailed research at one apartment compound in the northwestern fringe of the Classic city of Teotihuacan sheds new light on the patterning of activities of individual families residing within the compound. Special attention is given to the question of inter- and intra-family craft specialization, as well as the differential access to geological, botanical, and faunal resources. These unique data serve as the basis for a reconsideration of the patterning of socioeconomic activities within other excavated apartment compounds in ancient Teotihuacan.

Markman, Charles (Missouri-St Louis)

[707] MAJOR PERSPECTIVES ON THE WOODLAND PERIOD: RECENT RESEARCH RESULTS FROM THE UPPER MISSISSIPPI DRAINAGE.

Our perspective on the Woodland period in eastern North America has vastly changed in response to new data and analytical approaches, particularly in the area of prehistoric subsistence, the relationship between subsistence, technology, and cultural elaboration, the role of environmental adaptation in shaping culture, and the role of trade and exchange within an overall adaptive strategy. This paper reviews recent research focusing on the period 500 BC and AD 1000 in light of an evolving long term river basin research program sponsored by the Corps of Engineers.

Marks, Anthony (Southern Methodist) [Workshop]

[201] THE GENERAL GRANT WRITING PROCESS.

Marquardt, William H (Florida)

[102] THE EMERGENCE AND DEMISE OF THE CALUSA STATE.

In 1566 Pedro Menéndez met Carlos, king of the Calusa. With Carlos rested the prerogative of life or death over thousands, and the right to receive tribute from towns across south Florida. His people...
Marquet, Pablo

built earthworks, temples, and waterways. Commoners provided for the nobles and the military. Remarkably, the sedentary, hierarchical, tributary Calusa were not farmers but fisher-folk. Some argue that the Calusa attained their complexity by AD 800. However, it is also possible that changes in Calusa social and political organization occurred rapidly in the early 1500s, as they were drawn inexorably into the European dominated mercantile/imperial economy.

Marquet, Pablo (see Santoro, Calogerop) [305]

Martin, Debra L (see Nelson, Ben A) [210]


Investigations in 1991 at the Kankakee River State Park in northeastern Illinois disclosed the presence of a late 18th/early 19th century habitation site. Test excavations at the Windrose site [11Kas18A] revealed both Euroamerican and Native American materials associated with a large assemblage of animal remains. Although artifacts do not allow for a more specific temporal placement, documents clearly indicate the presence of Potawatomi habitation sites in the area. Beyond demonstrating exploitation of local wild animal resources, the faunal assemblage provides insights into acculturation and the local fur trade.

Martinez, Valentina (Southern Methodist) [710] TOWARD THE RESOLUTION OF THE FOLSOM-MIDLAND PROBLEM.

Since the discovery in 1953 of the first Midland Paleoindian assemblage, there have been questions of their temporal, technological, and typological affinities with better known Folsom materials. Folsom and Midland assemblages are similar, yet in some significant ways, they are quite different. Using stratigraphic and lithic data from eight Folsom-Midland sites, this paper addresses the relationships between these two Paleoindian assemblages on the Southern High Plains. By conducting field excavation and statistical analysis, new information has been obtained that will help us address a problem that has stubbornly defied resolution for nearly 40 years.

Masson, Marilyn (see Heath, Orr (Texas-Austin)) [706] BUILDING DEDICATION, NAHUAL TRANSFORMATION, AND CAPTIVE SACRIFICE AT MONTE ALBAN: POLITICORELIGIOUS STRATEGIES OF ANCIENT ZAPOTEC LEADERSHIP.

A comparison of structural attributes of carved monuments throughout Oaxaca reveals that patterns of ruler legitimation were displayed in public ritual. Analogues drawn to recent interpretations from Maya (Schele and Freidel 1990) and Olmec (Reilly 1989; 1991) iconography identify Zapotec participation in an inter-regional Mesoamerican system of ideas and symbols. Zapotec affinities with this system are expressed in rituals of religion and warfare which include capture-taking, sacrifice, and shaman-like animal transformation. Inter-regional comparisons of recent work breathe new significance into formal patterns of Zapotec politico-religious iconography, examined here in the archaeological context of building dedication.

Matson, R G (British Columbia) [205] ANOMALOUS BASKETMAKER II SITES ON CEDAR MESA: NOT SO ANOMALOUS AFTER ALL.

In 1991 I investigated a series of Basketmaker II (BM II) sites on Cedar Mesa that were not clearly BM II, in unusual places, or in environmental locations that were similar to reported late Archaic sites. Limited excavation showed that some were good BM II habitation sites complete with pithouses, albeit in unique settings. Others, interpreted as BM II "campsites" during the regional sampling and surface collection oriented Cedar Mesa project of the 1970s, were found to be associated with diagnostic BM II sandstone slab-lined cists, confirming their initial identification. Finally, one habitation site appears to be the first Anasazi defensive "cliff dwelling."

Matson, R G (see Chisholm, Brian S) [205]

Mauldin, Raymond (New Mexico) [604] LATE ARCHAIC AND EARLY CERAMIC ADAPTATIONS IN THE NORTHERN CHIHUAHUADE DESERT.

Recent research has demonstrated substantial Late Archaic and Early Ceramic occupations in the Chihuahuan desert. This paper uses over 100 recently acquired radiocarbon dates from sites in west Texas to document a fluctuating pattern of land use. These dates demonstrate extensive reuse of areas, with high levels of occupation during both time periods. Many of these sites represent short term use by small, highly mobile groups. Floral, faunal, architectural, and artifactual data from

McConnell, Brian & Bruce W Bevan

extensive excavations conducted at several sites are compared to better define the subsistence/settlement systems represented by these periods, and to assess explanations for changes between periods.

Mauricio, Rufino (see Ayres, William S) [508]

Maxwell, Timothy D (Museum of New Mexico) [203] THE USE OF TEMPORARILY RESTRICTED DATA IN EVOLUTIONARY STUDIES.

Archaeologists are often faced with temporally restricted data bases that have a regional distribution. When confronted with a lack of time depth, how can archaeologists examine adaptation when such studies require at least some examination of diachronic frequency changes in selected traits? How might we distinguish neutral traits from those subjected to selective processes? Or, how can we evaluate the possible selective processes that may have affected the temporally isolated traits under study? Some potential approaches are examined using data from the North American Southwest. These approaches include ecological studies and engineering analyses that focus on function.

Maynon, Jeffrey H (see Cobb, Charles R) [403]

McAnany, Patricia A (Boston) [704] ANCESTOR WORSHIP AS AN ORGANIZATIONAL FULCRUM OF LAND TENURE IN THE MAYA LOWLANDS.

Systems of land tenure generally involve the intergenerational transfer of use rights or proprietary control of resources. Linkages with the dead, who are actively and continually expressed ritualistically, serve to organize and maintain the channels of land transfer. Ancestor worship is one potential indicator of the entrenchment of these channels. The genesis of the practice of "living with the dead" in the Maya lowlands is discussed in the light of recent findings at the Formative site of K'axob. It is suggested that the emergence of social inequality may be linked inextricably to these exclusionary social and economic practices.

McBride, Kevin A (Connecticut) [709] COASTAL ADAPTATIONS IN EASTERN LONG ISLAND SOUND.

The development and variability of coastal adaptations in eastern Long Island Sound are examined from a temporal and geographic perspective. Archaeological evidence indicates a shift in settlement and subsistence patterns to coastal areas and resources beginning around 600 BC. This phenomenon appears to be associated with the decline in the rate of marine transgression and the development of tidal marshes in the region. Archaeological evidence also suggests a considerable degree of variability among coastal groups with respect to settlement/subsistence patterns and the importance of marine resources in the diet.

McCafferty, Geoffrey G (SUNY-Binghamton) [208] THE CERAMICS OF POSTCLASSIC CHOLULA, MEXICO.

The ceramic complex of Postclassic Cholula has been among the most influential and controversial in pre-Columbian Mesoamerica. This presentation introduces a revised classification for both decorated and undecorated types that provides an improved means for distinguishing culturally significant variation. Furthermore, seriation analysis of pottery from the UA-1 excavation provides a basis for the critical evaluation of existing ceramic sequences, and a new Postclassic chronology is suggested.

McCafferty, Geoffrey G (see McCafferty, Sharisse D) [313]

McCafferty, Sharisse D (Green Central School) & Geoffrey G McCafferty (SUNY-Binghamton) [313] ENGENDERING TOMB 7 AT MONTE ALBRAN, OAXACA: RESPINNING AN OLD YARN.

A contextual analysis of material culture recovered from Tomb 7 suggests a startling reinterpretation of the gender identification of the tomb's principal individual. Spinning and weaving implements found with the burial, previously interpreted as male, indicate the strong possibility that the individual was female. Finally, the total assemblage, including skeletal remains and costume elements, is considered in reference to the religious and gender ideologies of pre-Columbian Mesoamerica.

McConnell, Brian (Tufts/Brown) & Bruce W Bevan (Geogist) [108] LA MUCULUFA: THE SPATIAL ANALYSIS OF AN EARLY BRONZE AGE VILLAGE IN SICILY.

La Muculufa is a type-site of Sicily's Castelluccian culture (ca.2000-1500 BC) consisting of a village, a necropolis, and an open air sanctuary set in carefully defined areas along a striking rocky crest. Current research is directed toward the spatial analysis of the village where prior excavation had revealed the existence of 10-m-wide terraces and wattle-and-daub structures. A survey of magnetic and electrical anomalies in the soil across the central area of the village in 1990 was tested through
excavation in 1991 confirming the survey's indications. Continuing fieldwork is directed toward investigating how the planning and design of the village may have emerged from the adaptation of the natural landscape.

McCorriston, Joy (Smithsonian) [213] ACON EATING AND AGRICULTURAL ORIGINS: ETHNOGRAPHIES AND MYTHS.

Modern hunter-gatherer groups furnish significant examples of dependence on nuts as critical resources. One of the most important examples is the use of the ethnographic record from California to model Natufian subsistence prior to the emergence of agriculture in the Near East. Late 19th and early 20th century ethnographers left a detailed record of California Indian subsistence, yet this record reflects two hundred years of European and American settlement and land use. By exploring implications of uncritical use of these ethnographies, this paper raises the potential contribution of another body of theory, Evolutionary Convergence, to modeling Near Eastern prehistory.

McCall, Tom (Advisory Council on Historic Preservation) [101] ‘AREA OF POTENTIAL EFFECTS’ IN THEORY AND PRACTICE.

The determination of the “area of potential effects” is one of the most critical decisions made under Section 106 of the National Historic Preservation Act. It has a significant bearing on the cost and comprehensiveness of all steps carried out in archaeological data recovery, from where to look for sites to decisions about where and how much to dig. This paper examines the potential and feasibility of potential guidelines and standards for determining the APE of a project, in contrast to the present case-by-case manner for making decisions about project impact areas.

McCutcheon, Patrick (Washington) [309] AN ARCHAEOLOGIST OF LITHIC RAW MATERIAL VARIABILITY IN THE WOODLAND AND MISSISSIPPIAN PERIODS, SOUTHEAST MISSOURI.

Archaeologists have begun to realize that complex secondary deposits, rather than bedrock deposits, are frequently the source of lithic raw materials. The use of such complex deposits in prehistory, however, is poorly understood. Physical analysis of chert properties is used to document changes in the selection criteria employed by prehistoric artisans in exploiting a complex gravel source in southeast Missouri. These criteria are related to changes in the lithic technology.

McEwan, Colin (Art Institute of Chicago) [301] FOCUSING PRIDE IN THE PAST: ARCHAEOLOGY AND COMMUNITY ON THE COAST OF ECUADOR.

This paper describes the creation of a new village cultural and museum and the Comua Agua Blanca on Ecuador's Pacific Coast. The center is a tangible expression of this community's participation in the research, protection, and maintenance of a nearby prehistoric archaeological site. Agua Blanca's rediscovery of its past emphasizes the importance of placing knowledge of, and responsibility for, cultural heritage in the hands of the people who are closest to it.

McEwan, Michael o' William Dowling (LaRannie Soils Service) [710] DEFINING SITE-SPECIFIC ARCHAEOLOGICAL POTENTIALS: AN EVALUATION OF A GEOARCHAEOLOGIC APPROACH.

Ranking georarchaeologic potentials is a cost effective method to evaluate sites and locales having the capability to yield significant archaeological and environmental data. Site/locus ranking employs terrain analysis procedures to group similar landforms and a classification of both site specific surface and subsurface geomorphic and pedologic characteristics. Hierarchical ranking is based upon various attributes that include geomorphic positions (erosional vs depositional), degree of preservation of the soil/sediment record, and availability of resources. Testing of the model within various terrains/ environments traversed by an 80-km right of way in north central New Mexico suggests that these quantitative procedures are helpful in designating sites/locales for intensive examination.


Immanuel Wallenstein originally proposed world systems theory as a theory to account for a unique event in world history, the rise of capitalism. It has, however, become a localization theory that attempts to account for the course of human history in all times and places. The theory does not work well in the prehistoric Southwest, and the problems here may be generalized to other prehistoric cases. I propose that archaeologists alternatively ask about processes of uneven development, at various scales in specific historical sequences to arrive at understandings of how long range interactions and local developments interrelate in prehistory.

McGuire, Randall D (SUNY-Binghamton) [Discussant 107] McGuire, Randall D (see Cobb, Charles R) [403] MIDDLE TENNESSEE PLANTATIONS: ON THE PERIPHERY OR AT THE CORE?

This paper examines antebellum-period plantation life in middle Tennessee, and argues that the region was a distinctive core within the southern US. Questions of how the region's characteristics affected the archaeological record are addressed, with an emphasis on diet, architecture, and plantation layout. Beyond the particular, the goal here is to encourage a research framework placing more weight on regional structures and experience. Such an approach would force a reconsideration of the common archaeological viewpoint on plantation slavery as a more or less monolithic institution, varying from place to place and from time to time.

McKelvey, Henry S (Tennessee) [304] SLAVE AND MASTER IN THE UPLAND SOUTH OF EAST TENNESSEE: ARCHAEOLOGY, HISTORICAL, AND DEMOGRAPHIC INVESTIGATIONS AT THE MARBY PLANTATION.

Archaeological investigations at the Marby site (40KN846), a 19th-century plantation located in Knox County, Tennessee, have recovered material from two slave quarters and several features associated with the master's residence. The Marby site is located in the Upland South, where historians have suggested unique relationships existed between master and slave. Slave and master relations at the Marby site are explored through material culture. Primary emphasis is placed upon the ceramics in slave and master contexts, which are analyzed using a diversity and taxon indices. The Marby site is the first opportunity in east Tennessee to study slave-master relations.

McKillop, Heather (Louisiana State) o' Lawrence Jackson (Northeastern Archaeological Associates) [610] THE INTEGRATION OF LONG DISTANCE AND LOCAL TRADE AMONG THE MAYA OF SOUTH-COASTAL BELIZE.

Several perspectives on the nature of long distance trade among ancient complex societies are evaluated with reference to the Classic and Postclassic Maya. Specifically, the "port of trade" model is considered in contrast to other trade systems. On the basis of regional survey and excavations in south-coastal Belize revealed some 25 sites, including the major trading port of Wild Cane Cay. The presence of trade goods at some of these sites indicates more integration of long distance and local economies than expected.


A variety of actions are needed to implement the Native American Graves Protection and Repatriation Act of 1990. These range from the bureaucratic establishment of a Review Committee mandated by the law, to the development of regulations, to providing training in various aspects of compliance, and administering a grants program. This paper reports the status of these actions and discusses issues related to them.

McManamon, Francis P (National Park Service) [785] SITE DISCOVERY AND ESTIMATION: RETROSPECT AND PROSPECT.

In order to preserve America's archaeological heritage effectively there must be improvement in the effectiveness with which unknown sites can be located and the frequency and locations of such resources estimated based upon samples of known sites. This is especially difficult in environments in which sites are not easily seen. In some cases probability sampling can help in estimating...
McMannan, Francis P (National Park Service) [Workshop 401]

MCCANN, Jean (UC-Berkeley)

[208] LOUGHCREW: DIMENSIONS OF AN IRISH MEgalithIC LANDSCAPE.

This poster presents some results of an investigation of spatial patterning at Loughcrew, a group of megalithic chambered cairns in County Meath, north-central Ireland. The monuments may have been in use from c. 5000 BC to c. AD 100. An analysis of ground plans of the cairns and site suggests at least two simultaneous organizing principles. To compare the results of this analysis with themes in ancient Irish history, literature, and folklore is to discover some provocative, if not controversial, contrasts and resonances.

McPherson, Shannon (Pennsylvania)

[613] ACHUELAN BIface AND ASSEMBLAGE VARIABILITY: AN EXAMINATION OF NEW DATA FROM NORTHERN FRANCE.

Analysis of new data from excavations at the sites of Gouzeaucourt and Longavesnes and from the reexcavation of the classic Somme Valley sites of Cagny l'Epinette and Cagny La Garenne is changing our traditional notions of chronological change and industrial variability during the Acheulean and early Middle Paleolithic. Neither the frequency of bifaces nor their forms are reliable indicators of an assemblage's age or its affinities with either the Acheulean or the Mousterian. A technological analysis of intact Acheulean assemblages is, however, helping explain variability within the Lower Paleolithic of northern France.

Meadow, Richard H (Harvard) o' Anna Curnow (Yale)


Analysis of faunal remains from the 1989 excavations in the Lower Town of Tell Leilan has provided a first picture of animal exploitation by an urban population during the mid-third millennium BC in North Mesopotamia. The assemblages are dominated by bones of young domestic pigs, although sheep, goat, cattle, dog, gazelle, and equid also are represented. This spectrum of animals and other zooarchaeological data in the context of domestic habitation suggests that animal products were available to the population independent of state control over their distribution. Pigs in particular are well suited to husbandry in an urban setting.

Mehler, Mark (Northern Illinois)

[412] A BURIED ARCHAIC COMPONENT AT THE CRAWFORD LAKE SITE IN WESTERN KENTUCKY.

Recent investigations in western Kentucky have focused on Archaic sites near the Ohio River west of Paducah. One important site is the large multicomponent Crawford Lake site that extends for over a mile along a terrace edge on the banks of a backwater lake. Components include Late Archaic, Middle Woodland, Late Woodland, and Mississippian. In one portion of the site, test excavations revealed an intact layer of Late Archaic midden disturbed only by an overlain layer of Mississippian features and midden. Archaic features, debris, and a flexed burial were found. Analysis indicates ties to the Helton phase in Illinois.

Melendez Maiz, Marisol (see Hayward, Michele) [208]

Mendoza, Raube G (Colorado-Denver)


Recent investigations into the development of Epiclassic-era circum-Basin regionalism indicate that the ancient metropolis of Cholollan, Puebla, was at the heart of a pan-Mesoamerican exchange network. This network, which rivaled that centered on ancient Teotihuacan, aligns with that posited for Robert Zelinsky's (1982) obsidian-based Isthmian exchange model. Gulf Coast-Central Highland exchange patterns, iconographic and architectural conventions, and mortuary data are taken to support Cholollan's proposed role. Preliminary observations indicate that Cholollan's interactions with the Mexican Gulf Coast, circum-Basin Mesoamerica, and further afield, the southern Maya highlands, were sufficient to have eclipsed Teotihuacan's interactions with the corresponding areas.

Mengato Guadalupe, Guillermo (Conicet)

[610] ECONOMIC ANATOMY AND UTILITY INDICES OF THE LLAMA.

Utility indices and available meat percentages were calculated for different body parts of the llama and compared with those of the other South American camelid forms, both wild and domesticated.

Miller, C Dan

A discussion on the importance of the llama as a meat producer follows, as regards to the process of domestication.

Mosskill, Frances (Texas-San Antonio)

[411] A PRECLASSIC UPDATE: RE-EXAMINING THE ARCHAEOLOGICAL RECORD.

New information, including the documentation of a functionally complete Floral Park complex, is reported, and existing data are re-evaluated in this update of the Maya Protoclassic. Based on the reexamination, the Floral Park phenomenon is viewed from a fresh perspective, reversing earlier theories for abrupt population increase in the Belize River Valley. Within this revised context, a Floral Park connection to evolving social complexity is again posited.

Metcalfe, Mary P (Virginia)

[116] PATTERNS OF ARCHITECTURAL CHANGE IN THE NORTHERN SOUTHWEST AD 1000-1300.

Ethnographic and archaeological studies in the northern Southwest have linked architectural patterning with social organization. This study analyzes shifting relations of domestic and public space in order to examine patterns of change and stability in socio-political relations. The research quantifies space within pueblos devoted to different purposes. Kiva to room ratios, volume of space used domestically versus public, and the ease of access to public spaces are compared and contrasted between buildings and episodes of individual pueblos and between pueblos. Data from the Chaco Canyon and Mesa Verde regions between AD 1000 and 1300 are used.

Michals, Lauren M (UC-Santa Barbara)

[508] THE NATURE OF FAUNAL EXPLOITATION DURING THE MOUNDVILLE PHASE.

Past research on faunal material from Mississippian sites has shown there is some degree of status-related differential access to specific portions of deer and to specific species of animals. Analysis of material from the Moundville phase in Alabama suggests that this differential access occurred after Moundville became a complex chiefdom that incorporated the surrounding river valley under its control. The nature of differential access to faunal resources during the Moundville phase, whether this is a form of symbolic tribute or provisioning the elite with a needed subsistence resource, is discussed.

Michlovic, Michael e Michael Hughey (Moorhead State)


One enduring and popular version of the past in the American Midwest centers on the Kensington Runestone. The debate surrounding this artifact illustrates the gap between the lay public and the scientific community, and it provides a vehicle for understanding two opposing world views. One of these is rooted in the context of academia and the ideology of science, the other in the emotional and ideological needs of broad segments of the lay public.

Middleton, William D (Wisconsin-Madison)

[501] EXTRACTION OF PHYTOLITHS FROM PREHISTORIC AND CONTEMPORARY CAMELID DENTAL CALCULUS.

Phytoliths can be extracted from dental calculus deposits on herbivore teeth and identified. These phytolith assemblages are in reconstruction of herbivore diet, and consequently in the reconstruction of livestock management patterns. Phytolith assemblages extracted from a collection of prehistoric camelid teeth from Pirincay, Ecuador, reveal that a series of vertically stratified microenvironments within the valley were exploited by early camelid herders. Comparison with phytolith assemblages from a collection of contemporary camelid teeth from a known environment suggest that this method gives an accurate indication of diet.

Milanch, Jerald T (Florida) [Discussant 106]

Milanch, Jerald T (Florida) [Introduction 601]

Miller, C Dan (US Geological Survey)

[105] VOLCANIC DEPOSITS AT CEREN, EL SALVADOR: THEIR ORIGIN, STRATIGRAPHY, AND EFFECTS ON STRUCTURES.

Excavations at Ceren exposed a series of alternating airfall and pyroclastic-surge (ash/hurricane) deposits more than 5 m thick. The deposits were produced by fluctuating phreatomagmatic eruptions caused by interaction of hot magma and water from one or more vents within 1.5 km of the site. Falls of hot tephra (ash and coarser material) blanketed the site and ignited organic materials, including roofing thatch. Hot lava bombs penetrated structures causing widespread damage and started fires.
Moe, Jeanne

mountain township in the Arkansas Ozarks. Census data and tax records are used to differentiate the location of slaveholders and non-slaveholders. Status as evidenced by taxable goods is examined as a criterion of slaveholding. The results of this study suggest that political and economic factors did not necessarily dictate the ownership of slaves, but moral issues often played an integral part in determining the ownership of slaves.

Mitchell, Douglas (Soil Systems)

[210] BURIAL PATTERNS, AGGREGATION, AND POPULATION STRESS: A VIEW FROM THE DESERT SOUTHWEST.

A large mortuary assemblage from the Hobokam Classic period village of Pueblo Grande yielded 35 cases of multiple burials. Representing 5% of the burial population, these features occur throughout the village cemetery and contain grave assemblages similar to the remainder of the population. It is argued that the presence of these features represents a response to increased aggregation and population stress during the late prehistoric era. A model is proposed for a high correlation between inheritance rules, land tenure practices, and changing burial practices as a result of overall stress. Ethnographic examples of multiple burials are presented in support of the model.

Mitchell, Douglas (see Peterson, Jane) [210]

Mitchell, Jeffrey M (Arkansas Archaeological Survey)

[310] LATE MISSISSIPPIAN/PROTOHISTORIC RESEARCH AT PARKIN ARCHAEOLOGICAL STATE PARK, ARKANSAS.

Excavations since 1990 at Parkin Archaeological State Park have been concentrated in four parts of the site. One is a series of superimposed structure floors outside the moat surrounding the 17-acre village. Radiocarbon dates of AD 1300-1375 for the uppermost floor provide a terminus post quem for most construction. A trench across the moat reveals a wide, shallow ditch around the original town. The third area is an undisturbed section where a house was located until recently. Excavations here have revealed aboriginal features and burials. The fourth section is a former mound location, yielding house floors and burials.

Mobley-Tanaka, Jeannette L (Colorado Museum)

[210] BONE AWLS FROM YELLOW JACKET COLORADO: THEIR USE AND RELATIONSHIP TO PERISHABLE INDUSTRIES.

Use wear analysis of a large collection of bone awls from Yellow Jacket, Colorado (SMITS) indicates that the tools were used in several distinctly different ways, and in the manufacture of perishable items. Use wear characterized by chipping, such as baskeths, are seldom recovered from open sites, they are frequently overlooked as important industries. The analysis of the prehistoric assemblage is combined with use wear replication studies to better understand the use of bone awls, and some thoughts are offered on reconstructing perishable industries at sites where they are not preserved.

Mock, Shirley (Texas-Austin)

[704] ARCHAEOLOGICAL EVIDENCE OF DECAPITATION SACRIFICE IN MESOAMERICA: A PRELUDE TO REBIRTH.

This paper examines the multivalent role of sacrifice by decapitation in structuring the archaeological record of Mesoamerica. Attention is focused on the site of Colita in Belize, where 30 individuals were decapitated and flayed, with their skulls deposited near a stairway of an elite structure in a single termination event. Evidence from ethnohistorical and iconographic sources is presented to support the argument that this event, dated to around AD 850, was a revitalization attempt related to the metaphoric processes of death and rebirth central to the Popul Vuh, the sacred book of the Quiche Maya.

Moe, Jeanne (BLM) & Kelly A Letts (Windrose Consulting)

[104] INTRIGUE OF THE PAST: INVESTIGATING ARCHAEOLOGY, A SECONDARY EDUCATION PROJECT.

The secondary education project contains two major components: development of usable materials and delivery to teachers who will use them. Prime developmental considerations were the culture of secondary education and teachers’ needs. The lessons target many Utah Core Curriculum objectives required in traditional subjects such as Utah studies, history, geography, and science. The guide contains recent research, hands-on activities for school settings, and application of the scientific method to archaeological problems. Archaeological concepts and problems are used as themes. In-service workshops are used. Workshops are instructed by teachers and archaeologists, thus forming a link between the two professions.

Moe, Jeanne (see Letts, Kelly A) [106]
Monaghan, John D

[36] HIGHLAND-COASTAL INTERACTION IN THE MIXTECA.

This paper discusses the highland-coastal interaction during the Postclassic period in terms of the marketing systems developed in the Mixteca to exchange products between kingdoms occupying complementary ecospaces. It suggests that these markets were not situated in the ceremonial centers of these often competing polities, but along their boundaries, in neutral areas, where they were frequently associated with pilgrimage sites and other ritual events.

Montet-White, Anta o’ Jeff T Williams (Kansas)

[10] A REMINDER HUNTERS’ WINTER CAMP DURING THE LAST GLACIAL MAXIMUM.

The site of Grubgraben, Lower Austria, was occupied repeatedly between 19,000 and 16,000 BP. The paper focuses on the topmost layer (AL1), which includes the remains of a series of occupations by small groups of Epigravettian reindeer hunters adapted to the severe environmental conditions of the last major glacial advance. Statistical analyses are used to investigate the formation and arrangement of features and spatial distribution of artifacts and faunal remains. An interpretation of the site’s organization is proposed.

Moore, Andrew M T (Yale) o’ Gordon C Hillman (London)

[23] THE YOUNGER DRYAS AND THE TRANSITION FROM FARMING TO FARMING IN SOUTHWEST ASIA.

We present new evidence suggesting that the Younger Dryas (c 11,000-10,000 BP) represented a significant impact on climate, vegetation, and human economies in Southwest Asia. A new pollen core extracted from Lake Huleh and plant remains from the early village of Abu Hureyra indicate that forest gave way to steppe contemporarily with the Younger Dryas. This deterioration in climate and vegetation led to significant disruptions in culture and settlement over a wide area. We argue that the stresses induced by these events were a contributory factor in the subsequent development of agriculture in Southwest Asia.

Moore, Elizabeth P (Nevada-Reno)

[28] ANALYSIS OF VERTEBRATE REMAINS FROM WARNER VALLEY, OREGON.

In Warner Valley, Oregon, the University of Nevada at Reno (cooperating with the BLM) excavated 15 sites on lakeshores, in dunes, and in upland locations over five field seasons. More than 18,000 bones of vertebrates have been recovered from sites dating from terminal Pleistocene to late Holocene. Analyses of the bones have identified at least 13 taxa. The sites show variability in seasonality and hunting strategies by the prehistoric occupants. The analyses also allow models to be constructed of changes in paleoenvironments and paleoecography.

Moore, Katherine M (Bentley)

[50] MEASURES OF MOBILITY AND OCCUPATIONAL INTENSITY IN A SEVERE BUT LESS-
-SEASONAL ENVIRONMENT IN PERU.

Preclassic (9000-3800 BP) and Formative (1800-1500 BP) occupations on the Junin Plateau of Peru are local adaptations to severe daily climate changes but only minor seasonal variation. Attention has been directed toward whether this pattern led to a relatively non-seasonal or possibly sedentary prehistoric occupation. Fragmentation and alteration of animal bone was used to measure variation in occupational intensity at Panaulaca, a deeply stratified cave site. Two distinct patterns emerged—an early period of moderate occupational intensity followed by a period of heightened occupational intensity. Qualitative indicators of seasonality from bones in the same layers confirm this interpretation.

Moreau, Jean-François (Quebec-Chicoutimi)

[65] FROM IDIOELECTRICS TO SYMBOLS: ETHNIC IDENTITY AND ETHNICITY OF
ALGONQUIAN AND IROQUOIAN GROUPS IN THE CENTRAL EASTERN SUBARCTIC.

The descriptive/normative concept of ethnic identity derived from sociocultural anthropology, applied to ethnohistorical remains from the central Eastern Subarctic, tends to emphasize mobile hunter-gatherer Algonquian and Iroquoian adaptive traits over sedentary food-producer Iroquoian patterns. An alternative concept of ethnicity as a social process clarifies cultural developments that led to the presence of both Algonquian and Iroquoian patterns in the central Eastern Subarctic. The propensity of archaeologists to adopt definitions of ethnic identity and ethnicity from sociocultural anthropology may produce inaccurate theoretical bases for understanding the northern Iroquoian and Algonquian communities that were likely linked by fluid social ties.

Morey, Darcy (Tennessee)

[32] ECONOMIC USE OF DOMESTIC DOGS IN THE ARCTIC: A ZOOARCHAEOLOGICAL
VIEW FROM GREENLAND.

An analysis of archaeological site remains of domestic dogs from Greenland was initiated to explore the economic use of the animal among peoples in the eastern arctic. Dogs were present from earliest Paleoeskimo times, and presence of cutting/skinning marks on bones attests to use of the animals for economic purposes beyond traction. Neoeskimo dog remains are abundant, and in some cases contextual and osteological evidence highlights use of dogs as an emergency food resource. Deliberately induced bone pathologies provide insights into management of the animals. Disciplinary techniques responsible for these pathologies can be inferred.

Morse, Selma (California State-Long Beach)

[100] INTRA-SITE SPATIAL DATA INTEGRATION: GEOGRAPHIC INFORMATION SYSTEMS
ON MICRO-SCALE.

Archaeologists commonly employ database systems to retrieve and manipulate datasets generated by excavation. Geographic information systems (GIS) are particularly well suited to handle spatially referenced data. The ability of GIS to rapidly analyze databases, create new information, and display results in cartographic representations offers an unrealized potential in archaeology. This paper links architecture and GIS to provide a visual analysis of research data collected from an Anasazi site in southwestern Utah. Specifically, path architecture is integrated with artifact distributions, microtopography, and geophysical data enabling the systematic exploration of spatial relationships among themes. Analysis reveals correlations between attributes.

Morris, Elizabeth A (Arizona State Museum) [Discussant 205]

Morrison, Kathleen D (UC-Berkeley)

[31] CHARTING THE PATH OF CHANGE: INTENSIFICATION AND EXPANSION IN INDIAN AGRICULTURE.

Much ink has been spilled in discussions of the causes of productive intensification, but relatively little attention paid to the variable courses intensification may take. This paper outlines the path of agricultural intensification in the hinterland of a pre-Colonial South Indian city, Vijayanagara. In this area, diversification of production accompanies more recognizable forms of agricultural intensification. In part, this concurrent expansion and intensification stems from the institutional structure of irrigation and highland agriculture. Evidence for the sources of agricultural change in the Vijayanagara region is discussed, incorporating pollen, archaeological, and epigraphic data.

Mowen, Toby (Wisconsin-Madison)

[42] REFITTING AND ARCHAEOLOGICAL INTERPRETATION: SOME OBSERVATIONS FROM THE TWIN DITCH SITE, GREENE COUNTY, ILLINOIS.

The refitting of stone tools and debris is a powerful technique for investigating intrasite spatial structure. However, all refits are not created equal. The types and origins of fractures resulting in refittable fragments strongly pattern both the frequency and spatial array of conjoinable pieces. This paper explores the contexts of refittable lithic artifacts recovered from Horizon 2 of the Twin Ditch site, a well preserved, buried Early Archaic habitation surface in the lower Illinois River Valley. Several tentative explanations are suggested for the patterns observed.

Moyer, Jonathan (Texas-Austin)

[108] A “SOCIAL” STRUCTURE AND “SOCIAL” STRUCTURE: RECENT NEOLITHIC
ARCHITECTURAL FINDS FROM CALABRIA.

Excavations at the Middle Neolithic site of Capo Alifiere have revealed several structural components. These include elements of what seems to be an incipient monumental architecture. Similar structures of the same period also have come to light recently on Sicily. This paper examines the implications of these structures for understanding the societies involved, within the context of the trajectory of Neolithic settlement.

Moseley, Michael E (Florida) o’ James B Richardson III (Carnegie Museum of Natural History)

[109] FLOOD EVENTS, EL NIÑO EVENTS, AND TECTONIC EVENTS.

Along the coastal geoaarchaeological record of Paleo-flood events exhibits episodes of exceptionally severe erosion and deposition that greatly exceed those produced by the 1925-26 and 1982-83 El Niños. Were the erosion and deposition strictly dependent on the amount of precipitation, then serious landscape modification should indicate extreme ENSO conditions or ancient “mega-niño” phenomena. However, when these very strong ENSO events are preceded by major tectonic activity, the synergetic consequences seem to lead to “radical environmental alteration cycles” (REAEC), which exacerbate both erosion and deposition. Investigations have been conducted in the Ilo region and at the Santa River mouth in an effort to find correlations in the geoarchaeological record for the synergetic consequences of prehistoric and historic flood, El Niño, and tectonic events that might represent pan-Andean horizon markers along the entire and coast.
Mrozowski, Stephen A

Mrozowski, Stephen A (Massachusetts-Boston)

[769] LATE PREHISTORIC/EARLY HISTORIC NATIVE AMERICAN HORTICULTURAL PRACTICES ON CAPE COD.

This paper presents the preliminary results from a Late Prehistoric/Early Historic Native American site discovered on Cape Cod that contains the remains of a Native American field. The field is comprised of over 40 intact “cornhills” that appear to date to the late 16th/early 17th century. The site may represent a refugue site associated with the 1622 pacification program of Plymouth Plantation designed to ensure hegemony over Cape Cod. The primary focus of the paper is the results of preliminary archaeobotanical and geochemical analysis of the “cornhills” and what it tells us about late prehistoric horticultural practices among the native groups of coastal New England.

Muller, Jon (Southern Illinois-Carbondale)

[457] MACRO-REGIONAL INTERACTION IN THE SOUTHEAST.

Southeastern politics interacted at different levels at different times. Communities rarely were integrated much beyond their local tribal level. Even so, quantities of sumptuary and other goods were exchanged. Several more-or-less explicit models of these exchange systems have been proposed. Early models for macro-regional exchange often emphasized political and religious integration of larger areas. Other models suggest elite-to-elite exchange as part of a “prestige economy.” Relatively simple down-the-line exchange models [some even paralleling the Kula Ring] also have been proposed. Macro-regional southeastern exchange are evaluated in terms of what we may learn about macro-regional integration in the Southeast.

Mulhun, Paul R (Massachusetts-Amherst)

[406] FORMING FORMS OF CAPITAL: THE ARCHAEOLOGY OF EXCHANGE RELATIONSHIPS.

This paper examines the archaeology of competing forms of capitalism and the socioeconomic relationships promoted by these oppositional formations. Competing perceptions of “profit,” “social status,” and “exchange” are examined in the archaeology of agrarian production and consumption networks, urban craft trade, and mercantilism using archaeological examples from the colonial Chesapeake, Annapolis, Maryland, and the postbellum Shenandoah Valley.

Murowchick Robert (Harvard)

[708] WRITTEN IN METAL: INTERPRETING THE RITUAL BRONZES OF SOUTHWESTERN CHINA.

The bronze industry of the Dian chieftain in Yunnan Province was among the most sophisticated in ancient China. Among the vast quantities of bronze artifacts recovered from the tombs of the Dian elite, the skill of the Dian metallurgists is best shown in the highly detailed two- and three-dimensional scenes of ritual activity that adorn many of the bronzes. A careful reading of these scenes, when combined with ethnohistorical observations in a number of ancient texts from south and southwest China, provides an intimate look at the role of ritual in Dian society in the late first millennium BC.

Murphy, Tracy E & Christopher James Imhof (Colorado-Boulder)

[210] PREHISTORIC MANUFACTURING PROCESSES: REPLICA TION OF PENDANTS, SAVS, AND DRILLS, YELLOW JACKET, COLORADO.

An inordinate number of pendants and pendant fragments from Yellow Jacket, Colorado, raise the question of pendant manufacturing techniques in the prehistoric Southwest. A replication study was undertaken to address the question. Local materials are used to replicate pendants and the tools necessary for pendant manufacture. The process of manufacture and use wear on the tools is reported. The results of this experiment are compared to the prehistoric collection from 5MT3, Yellow Jacket, Colorado. Use wear on tools and patterns of pendant breakage are compared. Implications for craft specialization are considered.

Murray, Matthew J (Harvard)

[408] LATE BRONZE AGE LANDSCAPE TO IRON AGE URBANSCAPE: A STUDY OF SETTLEMENT DISCONTINUITIES AT KELHEIM AN DER DONAU, BAVARIA.

The late, defended sites of the European Late Iron Age oppida have generally been treated as singular phenomenon, uniform in function and enigmatic in origin. Little work has been attempted on the study of the hinterlands of these sites, and on the cultural landscapes in which they emerged. A current program of field and archival work characterizes changes in the cultural landscape surrounding the oppidum of Kelheim during the final millennium BC. The results of this study suggest that discontinuities in the structuring of the landscape require the rethinking of Late Iron Age oppida as uniform "urban" economic and social nodes.

Mutchka, John S (see Neusius, Sarah) [215]

Neeley, Michael

Myers, J Emlen, M James Blackman e Jaqueline S Olia (Smithsonian)

[369] ARCHAEOLOGICAL IMPLICATIONS OF DEPOSITIONAL ALTERATION IN THE ELEMENTAL COMPOSITION OF CALCARCEOUS CERAMICS.

Leaching of soluble calcium compounds from ceramics buried at wet, acidic archaeological sites has a pronounced effect on concentrations of elements used in ceramic compositional studies. The effect is documented for majolica tableware excavated at 17th century sites in southwestern Spain and the southeastern US and Caribbean. Concentrations of trace elements and iron are systematically enriched by as much as 20%, such that the compositions of "leached" and "unleached" artifacts from the same production source are significantly different. The problem is resolved by modified sampling techniques or, for existing data, by the use of elemental ratios rather than the concentrations.

Nagaoaka, Lisa (Washington)

[367] SCREEN SIZE EFFECTS ON FISH REMAINS FROM MOTURAKAU ROCKSHELTER, AITUATARI, SOUTHERN COOK ISLANDS.

The effects of screen size on faunal remains has been documented by numerous researchers in Europe and North America. However, similar research is lacking for Pacific Island faunal assemblages. The fish assemblages from a Cook Islands rockshelter were analyzed to determine the effects of screen size on the distribution and frequency of taxa. The analyses shows no significant difference in the rank ordering of fish taxa recovered from 1/4" versus 1/8" screens. The apparent similarity in recovery between these two screen sizes is probably caused by the large sample size, family level identifications, and limited reference collection.

Nansei, Blane (Wisconsin-Milwaukee)

[607] HOPEWELLIAN INTERACTION IN THE CENTRAL AND UPPER MISSISSIPPI RIVER VALLEY: A VIEW FROM GAST FARM.

Controlled surface collections and test excavations at the Gast Farm site [13LA12], southeastern Iowa, reveal a localized blade core technology based on Warsaw Tabular and Burlington cherts which may have been used in regional exchange. Coded chert blades, Knife River flint, sheet mica, copper axes, platform pipes, and Hopewell ware indicate full participation in the Hopewell Interaction Sphere. In addition, Black sand ceramics and sherds sharing Black Sand and Havana attributes may indicate a transitional occupation and have implications for the development of regional chronology between the Illinois River Valley, the Quad-state region, and the Prairie phase of Wisconsin.

Nass, John P Jr (California-Pennsylvania) & Flora Church (Archaeological Services Consultants)

[204] CENTRAL OHIO DURING THE LATE PREHISTORIC: SUBSISTENCE/SETTLEMENT SYSTEMS AND RISK.

Subsistence/settlement system change in central Ohio during the Late Prehistoric (ca AD 900-1400) has been explained as a result of the influx of Middle Mississippian populations. Recent research indicates that Late Prehistoric populations in the region were the product of local developments. The role of climatic change and environmental risk as well as shifts in regional population densities and social risk as explanatory factors in these developments are explored in this paper.

Nass, John P Jr (see Frye, Lori A) [409]

Nassaney, Michael (Massachusetts-Amherst)

[310] THE ROLE OF CHIPPED LITICHS IN THE POLITICAL ECONOMY OF SOCIAL RANKING.

Chipped lithics can figure prominently in the transformation of social relationships. For instance, incipient elites may try to aggrandize themselves by controlling access to resources or the production process. I examine three aspects of stone tool technology—acquisition, labor allocation, and intensification—to explore how lithics were implicated in the integration and disintegration of the Plim Bayou culture in central Arkansas (ca AD 600-1400). The analyses expose longitudinal changes in the organization of technology which suggest rudimentary attempts at control and/or intensification. Despite these efforts, socially ranked individuals apparently failed to monopolize raw materials or production.

Neeley, Michael (Arizona State)

[311] TYPOLOGICAL AND TECHNOLOGICAL DISCORDANCE: AN ANALYSIS OF TWO LEVANTE NEOHITIC ASSEMBLAGES.

Archaeologists have typically expected typology and technology to covary. This assumption has been called into question with Marks' (1983) work in the Negev. Building upon the notion that typology and technology can exhibit variation independent of one another, two samples from Levantine NeoHitic assemblages are examined. Both have been 'dated' typologically to the Pottery Neolithic (ca 8000-7000 BP) but exhibit notable technological variation. Focusing on the debitage and using a
number of exploratory techniques, explanations for the technological variability are offered suggesting that these assemblages represent different temporal phases within the Neolithic.

Neely, James A (Texas-Austin) [210] MOGOLLON WATER-CONTROL AND IRRIGATION: A RECONSIDERATION BASED ON RECENT FINDINGS FROM WEST-CENTRAL NEW MEXICO.

The recent discovery of two water-control/irrigation systems associated with agricultural fields near Reserve, New Mexico, has augmented our knowledge as to the range of diversity and sophistication of Mogollon agricultural pursuits during the Reserve Phase (ca AD 1000-1150). The two systems are briefly described, and their functional characteristics are discussed. The relationship of these systems as parallels to the regionally settlement pattern/system is investigated, and the implied level of sociopolitical organization is examined relative to data obtained through regional site survey and the test excavations of associated habitation sites.

Neef, Hector (Missouri-Research Reactor) [203] THE ROLE OF “SOURCING” IN EVOLUTIONARY ARCHAEOLOGY.

To understand how evolution created the material remains of past human activity, the archaeologi- cal record must be described in a way that permits recognition of diversification within historically continuous traditions of tool manufacture and use. From this perspective, compositional analysis of artifacts (or “sourcing”) makes two crucial contributions to evolutionary archaeology: 1) it helps demonstrate historical continuity by tying artifacts to localized raw materials, and 2) it reveals how raw material procurement and preparation within particular traditions diversified over time. Recent studies of Guatemalan pottery, discussed briefly in this paper, exemplify the application of compositional analysis within an evolutionary framework.

Neiman, Fraser (Yale) [203] STYLISTIC VARIATION IN EVOLUTIONARY PERSPECTIVE.

This paper describes several simple evolutionary models for understanding how archeologists have traditionally called “stylistic” variation. It is argued that stylistic variation in behavioral phenotypes is the result of the intersection of 1) sampling error in the transmission of cultural information, and 2) learning rules, fixed by natural selection, that determine how energy is allocated in learning and performance. The models offer expectations for the dynamics of drift as monitored archaeologically and suggest answers to several outstanding questions in archaeological method.

Neitzel, Jill (Drew) [403] EXPLAINING CHANGE IN THE SOUTHWEST: EVALUATING EVOLUTIONARY MODELS FROM THE MULTISCALAR PERSPECTIVE.

Southwestern archeologists have made significant substantive and methodological contributions in monitoring cultural change within sites, localities, and regions. However, their efforts to explain these changes have been less successful for a number of reasons. This paper considers how well we can presently explain the process of sociopolitical evolution in the Southwest. Key variables for constructing a general explanatory model are identified along with the empirical requirements for testing such a model. In addition, the value of taking a multiscalar perspective for explaining change is considered.

Nelson, Ben A (SUNY-Buffalo), Debra L Martin, (Hampshire), Alan C Swedlund (Massachusetts-Amherst), Paul R Fish (Arizona State Museum) e George J Armelagos (Florida) [210] STUDIES IN DISRUPTION: DEMOGRAPHY AND HEALTH IN THE PREHISTORIC AMERICAN SOUTHWEST.

Mortality curves and pathological profiles are developed for five strategic cases and used to evaluate several hypotheses about the conditions surrounding demographic disturbances and physiological disruption. The patterning appears best explained by an interaction between population density and political economy, little support is found for interpreting these phenomena as a function of aggregation, environmental marginality, or length of occupation. The apparent association between political structure and biological disruption is relevant to the ongoing debate about social inequality in the American Southwest.

Nelson, Margaret C (SUNY-Buffalo) [404] EXPEDITED AND OPPORTUNISTIC STRATEGIES OF TECHNOLOGICAL BEHAVIOR.

The concept of technological expedient has been broadly applied to interpretation of the role of all untouched tool forms. In this paper, I re-examine the utility of this approach with two results. First, I criticize the application of concepts that describe technological strategies as classificatory labels for classes of tool form. Second, I propose a distinction between expedient and opportunistic strategies of flake manufacture and use. These concepts are applied to analysis of subsidence tool patterns in a region of the Middle-Mogollon, southwestern New Mexico.


Recent literature suggests that a shift to more sedentary settlement strategy is likely to be accompa-
nied by shifts in the organization of lithic technology. These include a decline in standardized core reduction and formal tool production and an increase in unstandardized core reduction and expedient flake tool production. To determine whether this trend occurred on Cedar Mesa, southeastern Utah, technological characteristics of late Basketmaker II assemblages are compared with those of Basketmaker III and Pueblo II-III assemblages. Lithic technological indicators of Basketmaker II mobility patterns are evaluated in relation to other lines of evidence.

Netting, Robert M (Arizona) [Discussant] 704.

Neussius, Sarah (Indiana-Pennsylvania) e John S Matchka [215] A LOW POWER ASSESSMENT OF METAL VERSUS CHERN CUTMARKS ON BONE.

Archaeozoologists have grown increasingly sophisticated in recognizing natural and cultural modi-
fications to bone surfaces. One area of interest is whether or not the raw material used to produce a cut can be identified on the basis of cutmark attributes. In this research study, cutmarks produced by iron, copper, and chert edges were evaluated using low power microscopy (20-140X). Our results suggest that it may be possible to differentiate between raw materials even without the use of more sensitive microscopy. This finding deserves further evaluation because of the potential for identifying the early introduction of metal implements into various cultural contexts.

Newbert, Margo (see Whelan, Mary K) [607]

Newby, Paige e Thompson Webb III (Brown) [614] POLLEN AND SEDIMENT RECORDS FROM 500 BOYLSTON STREET: CORRELATIONS WITH ARCHAEOLOGICAL DATA.

The radiocarbon-dated pollen and stratigraphic record from a 5-m sediment column from 500 Boylston Street, Boston, MA, provides a regional and local record of vegetation changes from the mid-Holocene transgression to the historic back-filling of the Back Bay area about 100 years ago. Correlation of this stratigraphy with archaeological data collected from the site provides information that can be used to aid the interpretation of the timing, operation, and function of the Boylston Fishweir structure. These sources of evidence together provide insights into human adaptations to coastal settings during the late Archaic in New England.

Newsom, Lee (Florida) [506] MACROBOTANICAL SEASONAL INDICATORS FROM SUBTROPICAL AND TROPICAL CLIMATES.

Timing of fruit production for macrobotanical remains and growth-ring analysis of wood samples have been applied at Florida Archaic period sites to examine season of occupation and the issue of sedentarism. Plant measures were examined relative to complementary faunal measures to clarify site use. Subtropical Florida is subject less to annual fluctuations in temperature than to variations in moisture availability. Phenologies of native trees coincide, as in much of the seasonally dry tropics, with the rainfall regime. Sensitive plant measures of seasonal site use are available for sites in southern Florida and the Caribbean, as in temperate regions.

Nials, Fred L (see Durand, Stephen R) [514]

Nicholas, Linda M, Gary M Feinman (Wisconsin-Madison) e Steadman Upham (Oregon) [107] NEW PERSPECTIVES ON THE SOUTHWEST AND HIGHLAND MESOAMERICA: A MACROREGIONAL APPROACH.

The formation of macroregional political and economic systems in the Southwest and highland Mesoamerica during the late periods of prehistory is explored. Aspects of world systems theory (WST) are applied to the case studies, and suggestions are made for broadening WST for use with precapitalist, non-Western political and economic systems.

Nicholas, Linda M (see Feinman, Gary M) [306]

Nichols, Deborah L (Dartmouth) [505] IRRIGATION AND THE TEOTIHUACAN STATE.

The growth of Teotihuacan led to major changes in the agricultural landscape of its hinterland that included the development of irrigation. Economic models often assume maximization of production,
however, Jeffrey Parsons has recently argued that exerting direct control over agricultural production was often more important to the Teotihuacan state than productive efficiency. Archaeological excavations and survey data indicate a complex state strategy of manipulating irrigated land and water resources, in some cases, to intensify agricultural production, but, in other cases, valuable irrigable land was actually taken out of production to facilitate the nucleation of population at Teotihuacan.

Nickens, Paul & Roger Saucier (Corps of Engineers)
[707] ENGINEERING SOLUTIONS FOR HERITAGE PRESERVATION: THE ROLE OF THE CORPS IN ARCHAEOLOGICAL SITE PROTECTION AND PRESERVATION RESEARCH.

During the past 20 years North American archaeology has witnessed an increased recognition of the need for a conservation approach for the remaining vestiges of the archaeological record. Federal agencies likewise have achieved greater understanding of the need to effectively manage and preserve resources under their jurisdiction. Over the past seven years the Corps of Engineers has assumed a position of leadership among agencies producing research leading to meaningful in situ archaeological site protection and preservation. This paper discusses the factors that led to the initiation of this research effort, the objectives, the substantive results that have been produced, and directions for the future.

Nielsen, Axel E & Amy Tucker (Arizona)
[389] MICROARTIFACT ANALYSIS: A CASE STUDY FROM HOMOL'OVII II.

The reconstruction of activity areas and room function is a necessary condition for undertaking studies of prehistoric social organization at the household and community levels. The lack of primary refuse in southwestern pueblos often represents a major obstacle for this kind of research. Over the last decade, microarchaeological analysis has gained increasing popularity as a method for reconstructing past activities in areas where various formation processes have resulted in the removal of floor assemblages. This paper evaluates the potential of microartifact analysis for activity area reconstruction using data from two rooms and one extramural area at the Pueblo IV site of Homol'ovii II.

Nielsen, Axel E, James M Skibo & William H Walker (Arizona)
[703] THIS IS NOT ANOTHER PAPER ON FORMATION PROCESSES.

Behavioral Archaeology was introduced in the mid-1970s as both a methodological and theoretical program that emphasized behavior as a central unit of analysis. Most accomplishments of the program, however, have been confined to the realm of behavioral reconstruction. Post-processual Archaeology on the other hand, has raised a number of relevant theoretical issues without offering an acceptable methodology to address them. This paper emphasizes the need to develop adequate methodologies for current theoretical questions. This point is illustrated by the consideration of relevant behaviors that need to be reliably measured to study religion, gender and technology, and political economy in prehistory.

O'Brien, Helen L (see Stephen, David V M) [410]
O'Brien, Michael J (Missouri-Columbia)
[703] THE FIT BETWEEN BEHAVIORAL ARCHAEOLOGY AND A DARWINIAN-BASED EVOLUTIONARY ARCHAEOLOGY.

In the early 1970s Reid, Schiffer, and Rathje espoused an archaeology design to examine various relations between human behavior and material culture, regardless of time or place. One strategy of this archaeology was a search for laws useful in describing and explaining human behavior. At first glance behavioral archaeology appears to have little in common with a Darwinian-based evolutionary archaeology, given that under the latter approach the only important law is that of contingency. But in fact, the fit is closer than it appears, since both perspectives focus on material items and the behaviors that create those items.

O'Brien, Michael I (see Holland, Thomas) [203]
O'Brien, Patricia J (Kansas State)
[707] THE ROUTES AND SUBSYSTEMS OF CAHOKIA'S WORLD-SYSTEM.

Cahokia was the center of a vast exchange network at AD 1100. The obvious routes of the system were the Mississippi and Missouri rivers and major tributaries, but land trails also existed, connecting Cahokia to its peripheral sub-systems like Aztalan in Wisconsin, the Apple River sites in northern Illinois, Mill Creek in northwestern Iowa, and Steed Kisker west in Kansas City. A major east-west trail moved across Illinois and Missouri, joining the Pawnee Trail in Kansas. The Pawnee Trail was ultimately linked to the Southwest. This paper reconstructs that trail system and documents the movement of specific goods along it.

O'Shea, John M (Michigan)
[603] THE CHARACTERIZATION OF SOCIAL COMPLEXITY AND ITS ARCHAEOLOGICAL RECOGNITION.

Implicit in any discussion of 'emergent' complexity is the assumption that complex societal organization can be detected and correctly identified in the archaeological record. Yet, many of the attributes that archaeologists frequently associate with complex organization and state societies are relatively rare and, at best, rarely distinguishing characteristics. This paper considers the archaeological evaluation of social complexity in a series of ethnographic and archaeological cases, with particular emphasis on the methods for the identification of these. Other regions are marked for the lack of models, thematic identification, and spatial and organizational examples.

Odevall, George H (Tulsa)
[609] TESTING MOBILITY ORGANIZATION: DID BINFORD HAVE IT RIGHT?

Lithic data from ten components of five sites in the Illinois Valley dating from 6500 BC to AD 1000 were analyzed to test propositions of changing hunter-gatherer mobility strategies through prehistory. Since intensive use-wear analyses had been conducted, functional information could be added to the suite of compositional data for technological and typological variables. Making this paper the most comprehensive study of archaeological lithic use, this paper has addressed these questions. Most of the results concern the changes in organization and the magnitude proposed by Binford and others.

Olin, Jacqueline S (see Myers, James) [309]
Olson, Sandra (Carnegie Museum of Natural History)
[211] CHAOS IN PREHISTORY: THE COMPLEXITIES OF RECONSTRUCTING PALEOLITHIC HUNTING AND FORAGING STRATEGIES.

The reconstruction of Paleolithic hunting/gathering strategies is daunting since it depends on a vast array of both identifiable and indeterminate variables. The less discernable factors affecting subsistence behavior include daily temperature and precipitation, prey population fluctuations, the individual's abilities, and the level of perishable technology, among others. Chaos theory, the concept that simple processes in nature can produce unexpectedly complex results and that order emerges in this complexity, has taken hold in such diverse disciplines as astronomy, ecology, and economics. Application of chaos to Paleolithic subsistence patterns demonstrates the important role it can play in interpreting the archaeological record.

Orr, Heather (see Masson, Marilyn A) [706]
Orr, Charles E (Illinois State) [Discussant] [104]

Osborn, Alan J & Ralph J Hartley (National Park Service)
[702] THEORY AND METHOD IN PUBLIC PROJECT ARCHAEOLOGY: ISLAND-IN-THE-SKY PROJECT, CANYONLANDS NATIONAL PARK, UTAH.

Public resource management projects can be well suited for conducting relevant, productive archaeological research. National parks, monuments, and recreation areas provide invaluable opportunities for investigating a range of archaeological problems and for contributing to cultural resource conservation and interpretation. Archaeological resources in many western parks consist primarily of "low visibility" remains, e.g., isolated artifacts and artifact scatters. One component of the research program for the Islands-in-the-Sky project in Canyonlands National Park, Utah, focused on data recovery, analysis, and interpretation of numerous artifact scatters. This paper discusses the dynamic interrelationships between archaeological resource management and current developments in archaeological theory and methodology.

Osborn, Alan J (see Breton, Barrett) [210]
Osborne, Philip (see Rolinson, Martha A) [406]
Otto, Marcel (see Straus, Lawrence) [211]
Otto, Martha & Bradley T Lepper (Ohio Historical Society)

Founded in 1885 as the Ohio State Archaeological and Historical Society, OHS grew rapidly into one of the premier institutions for the preservation and interpretation of archaeological sites in eastern North America. The archaeological parks and museums operated by OHS include four sites preserved without active interpretation: six sites with museums and/or other interpretive programs, and three sites that serve as regional centers for public education. These efforts to preserve and interpret for a
wide audience Ohio's rich prehistoric and early historic legacy are a promising beginning, but greater exertions will be necessary to insure the future of Ohio's past.

Owen, Bruce (UCLA) [405] COASTAL COLONIES AND THE COLLAPSE OF TIWANAKU: THE COASTAL OSMORE VALLEY, PERU.

Significant Tiwanaku settlement in the Osmore drainage on the western slopes of the Andes extended to the middle elevation Moquegua area, but did not reach the coast until the Tiwanaku state disintegrated. New radiocarbon dates and detailed analysis of midden, domestic architecture, ceramics, and tomb contents suggest that small groups of settlers from the Moquegua area brought new subsistence and craft technology in variants of the Tiwanaku tradition to the coastal Osmore Valley, and were closely linked to the development of the lower and middle elevation Chiribaya chieftdoms of the early Late Intermediate period.

Pacheco, Paul J (Ohio State) [302] OHIO MIDDLE WOODLAND INTRACOMMUNITY SETTLEMENT VARIABILITY: A CASE STUDY FROM THE LICKING VALLEY.

Pruter's hamlet model has theoretical implications for interpreting Ohio Middle Woodland settlement variability. In this paper, working hypotheses derived from the Pruter model are applied to the results of a siteless survey conducted on 21 ha of glacial outwash terrace located 2.5 km west of the Newark Earthworks. A cluster of Middle Woodland hamlets was identified based upon these hypotheses. Other Middle Woodland locations also were identified occupying inter-hamlet space. Middle Woodland intracommunity settlement variability is explored by examining such topics as surface assemblage composition, cluster size and structure, dispersion, and contemporaneity.

Pacheco, Paul J (see Danczy, William S) [302]

Paine, Richard R (Penn State) & Ann Corinne Freter (Ohio) [209] LATE CLASSIC ENVIRONMENTAL DEGRADATION IN THE COPAN VALLEY: IMPACT ON HOUSEHOLD SURVIVAL.

This paper examines the effects of overpopulation and declining land productivity on Late Classic household survival, using hazards techniques and a sample of ninety dated household groups from the Copan Valley. Group survival is represented by obsidian hydration date spans, with changes in ecological setting included as an explanatory variable. Analyses show proximity to non-degraded agricultural land is a primary factor in household survival [p. 01], supporting Sanders' ecological model of the Classic Copan collapse.

Palmer, Carol (Sheffield) [213] ETHNOBOTANICAL INVESTIGATIONS OF TRADITIONAL DRY-FARMING IN NORTHWEST JORDAN.

The long-term aim of this project is to establish botanical criteria for identifying past crop husbandry practices on the basis of arable weeds found in archaeological charred grain assemblages. An integral part of this study is the examination of factors which affect the farming strategies of small-scale contemporary cultivators working in a semi-arid Mediterranean environment. Arable weeds have been systematically sampled from plots with known management backgrounds, namely different crop rotation and fallow systems. Statistical analysis of the data is currently in progress. Ultimately, comparison of modern weed ecology with the weeds accompanying ancient crop samples should facilitate the identification of past crop husbandry practices.

Pappalardo, A Michael (SUNY-Binghamton) [214] APPLICATION OF GROUND-PENETRATING RADAR TECHNOLOGY TO URBAN ARCHAEOLOGY.

Recent advances in ground-penetrating radar technology facilitate the more efficient detection of sub-surface archaeological features. Field testing has been conducted to ascertain how well this technology can locate historic features such as house foundations, privies, and wells. The Binghamton Mall site provides a controlled environment in which to test this device in an urban context against data derived through extensive excavations and historic maps.

Parry, William J (Hunter) [404] ARCHAEOLOGICAL CORRELATES OF PRISMATIC BLADE TECHNOLOGIES IN NORTH AMERICA.

In a previous paper (Parry and Kelly 1987) it was argued that formalized lithic industries, based on biface technology, correlate with relatively mobile adaptations in North America, while sedentary populations typically used nonstandardized flake tools. However, this generalization is not true for normalized industries based on prismatic blade technology. Seven different blade technologies, each temporally and spatially restricted and independent, are documented in North and Central America. I examine some archaeological correlates of blade industries, including mobility and settlement pattern, economy, social organization, and craft specialization, to suggest possible organizational bases for blade technologies.

Paxton, Esther (Columbia) [503] BODY PARTS: SOCIAL AND RELIGIOUS IDEOLOGY AT TEOTIHUACAN.

This paper analyzes the social and religious implications of the isolated representations of body parts in Teotihuacan art. Heats, eyes, mouths, hands, claws, and footprints represent humans and supernatural associations with other signs. The artistic structure of such fragmentation and dismemberment is interpreted as a reflection of Teotihuacan social practice and as the active agent in the creation of Teotihuacan civic identity.

Pavlish, Laurence A (Toronto), Patrick J Julig (Laurentian) & Ronald G V Hancock (Toronto) [309] DISTINGUISHING EUROPEAN TRADE COPPER AND NORTHEASTERN NORTH AMERICAN NATIVE COPPER.

Instrumental neutron activation analysis ([NAA], accelerator mass spectrometry ([AMS], Carbon-14 and REE), and lead isotope analysis are employed to examine the problem of chemically distinguishing between 16th and 17th century European copper and northeastern North American native copper samples which were recovered from archaeological contexts. Samples from geological and archaeological contexts are analyzed. Three chemically distinct groups of native copper are established. The geologically and archaeologically provenanced native copper samples are shown to separate from European copper with concentration differences of up to three orders of magnitude in the elements Au, Sh, and As.

Pavlish, Laurence A (see Hancock, Ronald G V) [309]

Pearce, Robert J (Western Ontario) [406] RECONSTRUCTION AND PUBLIC EDUCATION AT THE LAWSON PREHISTORIC NEUTRAL-IRQUOIAN VILLAGE SITE, LONDON, ONTARIO.

The Lawson site is a partially undisturbed Iroquoian village [5 acres in size] occupied by the prehistoric Neutral circa 1500 AD, in London, Ontario, Canada. Since 1978, the Museum of Archaeology [an affiliate of the University of Western Ontario] has carried out excavation, reconstruction, and a variety of public educational and interpretive programs here. The creation and maintenance of reconstructed longhouses and palisades are discussed, as are the success and failure of various educational programs for school children and other groups.

Pearsall, Deborah M (Missouri-Columbia), Elizabeth H Dinan (Illinois) & Marcelle Umlauf (Northern Arizona) [501] IDENTIFYING RICE (ORYZA SATIVA), POACEAE, THROUGH PHYTOLITH ANALYSIS.

Multiple specimens of domesticated rice (Oryza sativa) and rice relatives in the Oryzaeae tribe and Bambusaceae subfamily were analyzed to find characteristic and potentially diagnostic phytoliths. Several phytolith forms were documented which appear to be produced only in the genus Oryza, one form observed in the inflorescence may be diagnostic to the domesticated species, while the other may be limited to the tribe. The potential and limitations of identifying rice using phytolith analysis are discussed, both in reference to our on-going research and in reference to identification using bulliform cells, a method commonly used in Japan.

Pearsall, Deborah M (see Veintimilla, Cesar) [501]

Peele, David W (see Whalen, Norman) [613]

Pedrick, Kathy (Bureau of Reclamation) & Richard S Corleak-Torrello (Statistical Research) [701] SLICING THE PIE: THE ROOSEVELT RESEARCH PROGRAM.

This introductory paper discusses the history of archaeological research in the Tonto Basin. We trace the initial discovery of significant archaeological remains, the identification of the Salado as a distinctive cultural complex of pan-southwestern importance and the Tonto Basin as its heartland, and the development of theories to account for the Salado phenomenon. Reclamation's modification of Roosevelt Dam has made possible the first program of intensive scientific investigation of the Salado "heartland." The remainder of the paper describes how this program involves a number of archaeological teams and innovative approaches to studying the major issues of Salado prehistory.

Peña, Raquel (see Lewenstein, Suzanne) [510]
Pendergast, David M

[706] INTERCENSION WITH THE GODS: CACHES AND THEIR SIGNIFICANCE AT ALTUN-HA AND LAMANAI, BELIZE.
Extensive stratigraphic excavation of elite and middle-class residences as well as communal structures at Altun Ha and Lamanai produced a large body of information on the composition and depositional patterning of caches. Both of these aspects of the dedicatory material suggest the general and specific intentions behind the activity, as do ethnohistoric and historic-period parallels within and beyond the Maya area. The data from the two sites serve as a basis for exploration of the significance of dedicatory activity in the context of lowland Maya political and religious life.

Pendergast, David M (Royal Ontario Museum) [Workshop]

[201] GRANTS FOR FOREIGN STUDENTS.

Perger, Peter (Jamaica)

[206] THE MISSISSIPPIAN WORLD-SYSTEM.
Mississippian chiefdoms are characterized by social stratification, a reliance on maize horticulture, population concentration at large riverine centers, and extensive inter-regional trade in exotic goods. I argue that these can all be seen as products of an indigenous world-system, based on inter-regional trade in prestigious ornaments. I describe this world-system and relate Mississippian evolution to the processes of competition and differentiation fostered by it.

Person, Donald A Jr o Randall J Widner (Houston)

[602] SOIL CHEMISTRY AND ARCHAEOLOGICAL PRESERVATION AT COPAN.
The traditional archaeological view is that preservation of organic remains in tropical environments is poor. However, these generalizations about such conditions need to be tested. A spatial analysis of the pH values from the Classic period, Pati H, 9N-8, in the Sepulturas area of Copan, shows the values are culturally modified through the use of lime plaster and that these values are differentially distributed near buildings. The carbonate in the plaster buffers the acidity and creates an environment favoring the preservation of faunal bone and skeletal material. These conditions are not uniformly distributed in residences throughout the Copan Valley.

Petersen, James B (Maine-Farmington)

[605] "IROQUOIAN" CERAMICS IN NEW ENGLAND: A RECONSIDERATION OF ETHNICITY, EVOLUTION, AND INTERACTION.
Ceramic attributes have long been considered diagnostic of Iroquoian populations in northeastern North America during the late prehistoric period. However, recently studied collections from New England and adjacent areas suggest that many of the Iroquoian diagnostic ceramic attributes were more widely employed by non-Iroquoian populations. Differentiation of diagnostic and nondiagnostic attributes for Iroquoian populations and the variable scales at which they operated is therefore critical.

Petersen, James B (see Watters, David R) [503]
Petersen, James B (see Baker, Thomas R) [614]
Petersen, James B (see Richardson, James B III) [709]
Petersen, Jane, Douglas R Mitchell (Soil Systems) o M Steven Shackley (UC-Berkeley)

[210] MODELLING PATTERNS OF LITHIC PROCUREMENT AND PRODUCTION: REGIONAL AND INTRASITE APPLICATIONS OF OBSIDIAN X-RAY FLUORESCENCE DATA FROM PUEBLA GRANDE, ARIZONA.
A large set of X-ray fluorescence data from a Hohokam site in the Salt River Valley offers a unique opportunity to chart the organization of obsidian networks. At an intrasite scale, many discrete habitation and burial contexts are associated with a limited subset of obsidian types. These associations are used in conjunction with other site information to map the spatial analogs for some level of group affiliation. A regional perspective, incorporating past sourcing projects, allows tracking of the variability in procurement strategies across time and space. Current models of trade/procurement networks are reevaluated in light of the Pueblo Grande assembling.

Petraglia, Michael D (Smithsonian)

[103] INTRASITE SPATIAL PATTERNS AND SITE FORMATION PROCESSES AT THE ABRI DUFAYEUR.
The Paleolithic record consists of a complex interplay between topographic conditions, human activity, depositional processes, and post-depositional agents. Cultural and non-cultural material residues are arranged in a three dimensional matrix described in terms of its composition and spatial attributes. From this record, we attempt to understand the link between past behavior and intrasite patterns. Expectations under which rockshelter and slope sites form are modelled, and inferences concerning the cultural and non-cultural processes responsible for site formation are advanced.

Pollock, Anne (Vassar)

[309] DEVELOPING A CONTROL SAMPLE FOR ARCHAEOLOGY OF DENTAL ANNULI AND CROWN HEIGHTS IN RANGER TARANTUS.
Dental annuli analysis and crown height measurements are two potentially powerful techniques for investigating prehistoric settlement and subsistence systems. However, modern control samples are pre-requisite for any study concerned with the seasonality and demography of archaeological faunas. Initial findings from research recording both annuli and metric data from the teeth of nearly 1000 thoroughly documented reindeer/caribou individuals are presented. This unique database allows for rigorous testing of the limits of, and assumptions behind, methods and techniques of seasonality and age determination that are being increasingly employed by zooarchaeologists.

Pinjar, Elizabeth (Southern Methodist)

[810] TOOL-KITS AND RAW MATERIAL USE: ARCHAIC HUNTERS OF THE PUNA.
Quebrada Seco 3 rockshelter in the Argentine Puna has a nearly continuous record of camelpid hunter occupations spanning the Early to Late Archaic (6600-4500 BP). Yet over that period, there were changes, some slight, other major, in the environment. The degree to which these changes affected the hunting strategies are evident in changes in site function, permanence, and mobility as tracked by variability in stone-tool class diversity, breakage patterns, retouching of projectile points, and raw material use.

Piperino, Dolores R (Smithsonian)

[501] PHYTOLITHS IN THE REPRODUCTIVE STRUCTURES OF TEOSINTE AND MAIZE: IMPLICATIONS FOR STUDY OF MAIZE EVOLUTION.
Analysis of phytoliths from the reproductive structures of teosinte and maize shows that teosinte produces silicified bodies that may identify its presence in archaeological soils. Maize cobs are also highly silicified, yielding some phytoliths that, however, are not present in all races examined. Comparison of silicification loci and phytolith morphology in teosinte fruitcases, maize cobs, and tassels may provide a means by which to evaluate the major, competing hypotheses of maize evolution.

Pippin, Lonnie C o Colleen Beck (Desert Research Institute)

[702] THE PAHUTE/RAINER MEAS LONG-RANGE STUDY PLAN: A MODEL APPROACH FOR MITIGATING ADVERSE EFFECTS FROM LARGE CONSTRUCTION PROJECTS.
Pahute and Rainier mesas on the Department of Energy (DOE) Nevada Test Site are used for nuclear weapons testing amidst dense archaeological resources. DOE has initiated a long-range (10 year) plan for the mitigation of these effects through a comprehensive data recovery program directed toward a geographically representative 11% sample of all archaeological resources on Pahute and Rainier mesas. This approach avoids certain important constraints common to many resource management projects since it is based on the scientific sampling of geographic space rather than case by case mitigation in zones of direct disturbance.

Pohl, John M D (see Byland, Bruce E) [306]
Pohl, Mary (Florida State) o Kevin Pope (GEO ECO ARC Research)

[407] PREDISTRICT ENVIRONMENTAL CHANGE AND MAYA AGRICULTURE IN NORTHERN BELIZE.
Mayanists have debated whether environmental change occurred and the relative importance of wetland and upland or swidden agriculture. We describe data from cores and excavations in the floodplains and depressions of northern Belize and assess evidence for change. The data reveal a similar stratigraphy through the Holocene, and environmental change were a prime agricultural resource in the Maya Preclassic period. Natural and human-induced changes in the Late Classic period necessitated a change in subsistence strategies and a different balance of cultivation techniques. The implications for cultural development are discussed.

Pohl, Mary (see Bloom, Paul R) [407]
Poirier, David A (see Bellantoni, Nicholas P) [705]
Pouillette, Christopher (Goodwin o Associates)

[108] THE TRANSFORMATION OF OBSIDIAN PRODUCTION AND EXCHANGE IN SOUTHERN ITALY DURING THE NEOLITHIC.
The period from the Early to the Late Neolithic (ca 5000-3000 BC) in southern Italy is marked by a dramatic transformation in lithic technology. This transformation is seen most clearly in the
production and use of obsidian, which is the focus of both the local lithic extractive industry, as well as a long-range exchange network. This paper focuses on the evidence for this transformation in the lithic industry, and it presents a series of interpretive frameworks for understanding concurrent social change.

Pope, Cynthia L (Texas-Austin) & John G Jones (Texas A & M)
[205] ENVIRONMENTAL IMPLICATIONS FROM AN ARCHAC Site IN SOUTHWESTERN CHIAPAS: THE PHYTOLITH EVIDENCE.
Archaeological sites from southern Chiapas are uncommon and usually occur in a coastal setting. A well stratified site was encountered in a survey of the curtecks along a small stream, about 10 km inland from the coast. Abundant and well preserved phytoliths document that the environment of the site area during Archaic times was heavily covered with lowland tropical forest elements. Later Classic postclassic components of the site, however, document that the area had suffered from widespread deforestation. The phytolith assemblages from these upper site components were dominated by grasses and palms, representing an environment not unlike the cleared areas of this region today.

Pope, Kevin (see Pohl, Mary) [407]

Papaper, Virginia (Michigan)
[411] THE EXPANSION AND INTENSIFICATION OF CHINAMPA AGRICULTURE IN THE BASIN OF MEXICO.
The great productivity of chinampa agriculture in the Basin of Mexico was a vital food source for the Aztec urban center, Tenochtitlan. This paper examines archaeological evidence from an Early Aztec community to suggest the nature of chinampa agriculture before its Late Aztec expansion. Excellently preserved plant remains evidence the richness and complexity of plant use and agriculture in the Basin. This paper then addresses how the chinampa system altered, given changes in population, and social, political, and economic conditions from the Early to Late Aztec periods.

Poter, Daniel (Harvard/Texas-San Antonio)
[760] STRAT 55 AND THE EVOLUTION OF LOWLAND MAYA BLOOD-RITUAL.
This paper describes the archaeological context of a Late Preclassic blood-letting cache excavated at the site of Colha, northern Belize. A reconstruction of ritual events which produced the cache is offered. Comparison of this cache to other lowland blood-ritual data has furnished a systemic model, in which blood-ritual is viewed as adaptable and evolutionary, rather than as a monolithic institution.

Poter, Stephen R (National Park Service) & Gregory A Wasek (South Alabama)
[606] SEVENTEENTH-CENTURY ANGLO AND ALGOQUIN SETTLEMENT PATTERNS ON THE CHESAPEAKE FRONTIER.
A widely accepted historical tenet holds that the early European invaders of eastern North America frequently settled on or near areas of earlier or extant Indian habitation. Yet few studies present substantive archaeological or documentary evidence to support this contention. Toward that end, we examine the settlement pattern and land use practices of the first English colonists to settle Virginia's Northern Neck and compare them with those of local Algonquians. English adaptation to their new environment, which had been occupied for centuries by the Algonquians, led to a convergence in the settlement patterns of the two societies.

Powl, Shirley (Northern Arizona)
[283] VARIATION IN EVOLUTIONARY ARCHAEOLOGY.
Evolution has been a common theme in archaeological research since the beginnings of a disciplin ary archaeology in the late 1800s. Archaeologists look at things over comparatively long time spans, and these things change; this change is then characterized as "evolutionary." A major focus of archaeological research has been to identify the mechanisms that cause the observed change. Prime mover models, systems theory, and processual archaeology are all such attempts. However, in doing so, techniques often focus on central tendencies (and how they vary over time), rather than on synchronic variation within a population (and how the structure of that variation changes over time). This focus hinders our understanding of how things change. In this paper recent evolutionary studies are examined to illustrate this point, and alternative approaches are suggested.

Pozorski, Shelia & Thomas Pozorski (Texas-Pan American)
[111] A BALLCOURT IN PERUVIAN MID-SIZED ARCHITECTURE AT THE INITIAL PERIOD SITE OF PAMPA DE LAS LLAMAS-MOKEKE.
Recent excavations at Pampa de las Llamas-Mokeke uncovered an L-shaped court with sloping sides that shows superficial architectural similarities to ballcourt forms in Mesoamerica. Its location 2000 km to the south and a date that is 1500 years too early makes this structure an architectural enigma.

Price, T Douglas, James Burton & Joseph Ezio
[210] RESIDENTIAL MOBILITY IN THE PREHISTORIC SOUTHWEST: AN ARCHAEOGRAPHIC APPROACH.
Residential mobility at Grasshopper Pueblo, an 800 year old community, is examined using strontium isotope ratios in bone and teeth as a signature of the geology of the area where individuals from these sites grew up and where they died. Comparison of values in bone with local bedrock and faunal remains documents the strontium isotope signatures for the region. Non-local strontium isotope ratios in teeth indicate emigrants to the site. There are measurable and meaningful differences between bones and teeth from the same individuals, among individuals from the same site, and between communities in the study area. This method provides an opportunity to assess directly the movement of prehistoric peoples in the Southwest.
Pyburn, K Anne (Indiana)


No sane archaeologist would argue against the importance of ethnographic analogy in the reconstruction of extinct lifeways. However, a curious theoretical divergence is appearing between theory and practice in the discipline. Those archaeologists most concerned with the political implications of archaeological endeavor are also those most likely to give first weight to the direct historic approach in ethnographic analogy. The political implications of the resulting imputations of “timelessness” and implied “inherent ethnicity” are discussed.

Ralley, Jimmy (Washington-St Louis)

[509] SETTLEMENT CYCLES AND SOCIOPOLITICAL NONCHANGE IN THE CENTRAL OHIO VALLEY.

Understanding sociopolitical evolution may be furthered by examining control cases in which large-scale polities did not form or did not endure. In the Woodland and Fort Ancient traditions (ca 800 BC-AD 1700) in the central Ohio River Valley, recurring settlement cycles involving aggregation and dispersal suggest a persistent lack of complex polity formation and institutionalized systems of inequality. Based upon the same political foundations, long-term sociopolitical nonchange in small-scale societies presents an alternative outcome to the better-known scenarios wherein increasingly complex polities emerge out of presumably linked processes.

Raich, Carol B (US Forest Service) [Workshop 401]

Ramensky, Ann F (see Teltser, Patrice A) [203]

Ramos, Elizabeth (see Dirkanaot, Dennis) [509]

Ramos Velez, Marlene (see Hayward, Michele) [208]

Ramsden, Peter (McMaster)

[665] RECONCILING ANTHROPOLOGY, HISTORY, AND ARCHEOLOGY: THE CASE OF HURON ETHNICITY.

Ethnohistorians have used anthropological theory to interpret historical documents relating to the 17th century Hurons, and to construct a purported ‘ethnographic’ picture of Huron society. Archaeologists have used both ethnohistory and anthropology to interpret historic and prehistoric Huron archaeological material. This paper suggests a re-examination of the ethnic and linguistic nature of the Hurons, based on an attempt to reconcile archaeological data from south central Ontario with the ethnohistorical interpretation and its anthropological underpinnings.

Rasmussen, Tom (see Barker, Graeme) [108]

Rathje, William L & Barbara A Tesa (Arizona)

[703] SURROGATES ARE PALE REFLECTIONS AT BEST.

Everyone’s world is comprised of two realities: mental and material. Sadly, one reality cannot be used as a surrogate for the other. Actual foods eaten lead to disease and actual wastes contaminate groundwater. The problem for researchers who study contemporary issues is that what people report they did, or will do in the future, and their attitudes, does not effectively predict their behavior. Behavioral archaeology provides critical baseline data on human existence. Mental and material realities are best approached independently, and attention should be focused on the way each affects the other.

Rattray, Evelyn C (Instituto de Investigaciones Antropológicas, UNAM)

[411] BARRIO ORGANIZATION AT THE TEOTIHUACAN METROPOLIS.

During the 5th and 6th centuries, the Merchants’ Barrio at Teotihuacan established and maintained contacts with Puebla, the Gulf Coast, and the Maya, importing ceramics, pigments, cotton, and cacao. The architecture of the barrio, consisting of round houses and storage facilities arranged around plazas with shrines, differs from other areas of the city. Similar structural forms do exist, however, in the Great Rectangle north of the Ciudadela, surrounded by craft working areas. Evidence is presented that this large open plaza may have served as an outlet and redistribution center tied to the powerful groups residing in the Ciudadela palaces.

Rautman, Allison E (Central Michigan)

[110] SOCIAL STORAGE AND SOCIAL NETWORKS: BALANCED RECIPROCITY AND ASYMMETRICAL EXCHANGE.

The exchange of food, objects, and information within a social network is considered to involve dyadic relationships characterized by balanced reciprocity. In such cases, asymmetrical exchanges create, in Sahlin’s terms, a “shadow of indebtedness” that contributes to network continuity. To the extent that networks function to reduce risk of resource stress, however, continued or marked asymmetry of exchange may destabilize the network, as social costs of maintaining contact with spatially disparate groups outweigh expected benefits. Possible sources and effects of asymmetry in social interactions are evaluated for early agriculturalists (AD 900-1200) in central New Mexico.

Ravesloth, John C (Arizona State) & Clarence M Chiago (Gila River Indian Community)

[202] WORKING TOGETHER TO UNDERSTAND THE PREHISTORY AND HISTORY OF THE GILA RIVER PIMA, ARIZONA.

Members of the Gila River Indian Community have a sincere belief that material remains relating to their past should be protected and left undisturbed. The need for economic development on community lands, however, often necessitates the disturbance of their ancestors’ final resting places. The Tribal Council has had many difficult issues to confront with respect to land ownership, economic development, traditional values, and knowledge of their past. This paper chronicles one such case in which an agreement was reached between the Gila River Indian Community and archaeologists that allowed the excavation and study of a prehistoric Hohokam village and historic Piman cemetery.

Ravesloth, John C (see Rice, Glen E) [701]

Raymond, Anan W (see Creger, C Cliff) [410]

Redding, Richard (Michigan)

[388] OLD KINGDOM PATTERNS OF ANIMAL USE AND THE VALUE OF FAUNAL DATA IN MODELING SOCIOECONOMIC SYSTEMS.

Analysis of faunal remains from the Nile Delta site of Kom el-Hisn has yielded a model of Old Kingdom rural animal production tactics. Kom el-Hisn was a locus of specialized, centrally controlled cattle and sheep herding with pigs and goats reared for local consumption. This analysis generates predictions of the structure of a faunal sample from a site provisioned by a central authority. These predictions are tested with the faunal sample from the workers’ village at the Giza pyramid complex. A positive test result has important implications for the potential of faunal data in elucidating socioeconomic structure in food producing societies.

Redmond, Brian G (Indiana-Glenn A Black Lab) & Robert G McCullough (Southern Illinois-Carbondale)

[204] FORT ANCIENT ADAPTATION ON THE WESTERN FRONTIER: A REINTERPRETATION OF THE OLIVER PHASE.

Renewed archaeological investigation of Oliver phase culture in southern Indiana has documented an intensive, riverine-oriented adaptation by sedentary village horticulturists dating after AD 1000. Analyses of material culture, settlement-subistence patterns, and chronology have revealed previously unrecognized affinities with some Fort Ancient tradition complexes in the Middle Ohio Valley. The results of these studies are discussed, and a preliminary model of Oliver phase cultural adaptations is presented.

Redmond, Eliza M (see Spencer, Charles S) [610]

Reed, David (Penn State)

[209] ANCIENT COPAN DIET THROUGH STABLE CARBON AND NITROGEN ISOTOPIC ANALYSIS.

Stable carbon and nitrogen isotope ratios have been obtained from over 100 human and animal bone specimens recovered during the past decade of excavations in the Copan Valley by the Penn State Copan Archaeological Project. Diet, as defined by the isotopic measurements, is shown to concord with indirect measures of diet and models of agricultural potential and demographic change. The sample demonstrates, among other things, that corn was the dominant staple, contributing 90% of the food during the polity’s peak (Carbonic phase, AD 700-1100).

Reed, Heidi E, Susan K Stratton & Robert D Leonard (New Mexico)

[384] EXPLAINING SETTLEMENT AGGREGATION: PRELIMINARY RESULTS FROM BADGER SPRINGS, NEW MEXICO.

Using settlement and paleoclimatic data from the Zuni area, we evaluate a model constructed to explain settlement aggregation. Significant variables considered are labor organization and the availability of land and water within the context of specialized agricultural production. We evaluate this model using information recently recorded by the Badger Springs Project on a series of sites which date from AD 600 to 1350 and represent a variety of settlement configurations. We interpret one cluster of sites as settlement aggregation during a critical period of decreased moisture. We argue that this aggregation reflects a change in labor organization necessary to maintain agricultural production levels.
Reed, Judith [National Park Service]
[413] TECHNOLOGIES TO THwart LOOTING AND VANDALISM.

Although a variety of technologies are available to warn potential vandals and to indicate intrusion on an archaeological site, most are expensive and unsuitable for isolated archaeological sites. This paper describes recent advances in adapting technologies to cultural resource protection needs and summarizes several especially effective methods for reducing looting and vandalism. It also discusses the balance law enforcement personnel must reach between the protection of individual rights and protection of cultural resources.

Reid, J Jefferson [Arizona]
[703] FOUR STRATEGIES AFTER TWENTY YEARS: A CRITICAL REAPPRAISAL AND ADJUSTMENT.

The model of four research strategies of behavioral archaeology and the definition of archaeology inherent in this model are evaluated in light of the claims and criticisms of the past twenty years. Essential adjustments to the original formulation express the dynamic character of the model that makes it relevant to contemporary research directions.

Rice, Don [Southern Illinois-Cardonale]
[407] MODERN AGRICULTURAL ECOLOGY IN THE MAYA LOWLANDS.

Projections of the potential support capability of prehispanic agricultural systems in the central Maya lowlands are often based on productivity figures from modern milpa farmers in the region. Similarly, the potentially long-term destructive effects of Maya agriculture are frequently modeled upon observations of current slash-and-burn agricultural practices. Unfortunately, however, available aronomic, ethnographic, and historic data for modern agriculture in the Maya lowlands are highly variable. This paper reviews these data, together with limnological evidence for the environmental impact of modern farming and settlement, and critiques their use in reconstructions of ancient Maya subsistence ecology.

Rice, Glen E, John C Ravesloot & Christy G Turner II [Arizona State]
[701] ETHNIC IDENTITY AND SOCIAL COMPLEXITY: THE BIOCULTURAL APPROACH.

The ethnic identity and social complexity of the Salado continues to be the subject of considerable debate. One major obstacle that has prevented the critical assessment of alternative models is the lack of large and representative samples of Salado burials. Some have suggested that the Salado in the Tonopah Basin represent a Hohokam population that evolved from a tribal to a chiefdom level of social organization. An independent comparative study of Salado skeletons has not found the Salado to be closely related to the Mogollon, rather they seem to be more closely related to the Hohokam. This paper presents the preliminary findings of our biocultural research.

[799] PALEOINDIAN AND ARCHAIC ADAPTATIONS ON MARTHA'S VINEYARD.

There is a strong Paleoindian occupation on Martha's Vineyard, but an almost complete absence of the Early Archaic on the 100-sq. mile island. The first major population presence is during the Middle Archaic, and by the late Archaic Martha's Vineyard had a substantial population. The changing patterns of settlement and subsistence are correlated with the environmental and geological changes of the late Pleistocene to the mid-Holocene.

Richardson, James B III [see Mosley, Michael B] [109]
Rife, Joseph L [Kanoe]
[311] POPULATION DIVERSITY AND THE HELLENISTIC TO BYZANTINE OCCUPATION OF ISTHMIA, GREECE.

Since 1967 excavation at the classical site of Isthmia has produced 63 individuals from the West Cemetery and 37 from the Byzantine Fortress. Ceramic chronology suggests that these two populations date from, respectively, the Hellenistic and the Late Roman to Byzantine periods. A comparative stratigraphic and statistical analysis of these two groups addresses the problem of historic continuity from classical to medieval times. The objective is to determine the degree to which biological distinctions between the populations correlate with artifactual and historic distinctions. Such analysis can elucidate the effect of migration, core-periphery political organization, and/or microevolution on site inhabitants.

Riggs, Brett H [see Schroeder, Gerald] [310]
Righter, Elizabeth C [see Lundberg, Emily R] [503]

Riley, Thomas R [Illinois-Urbana-Champaign]

While all New-World archaeologists are aware of the relationship of Mormonism and the archaeological monuments of Mesoamerica, few know that Joseph Smith conducted an early excavation of an aboriginal mound group in Illinois during the spring of 1834. The incident is recorded in a variety of texts by Mormons, Apostates, and Gentiles. In addition to the physical remains Smith experienced a revelation regarding the nature of the remains. In this paper the revelation that accompanied the excavation is explored, and an attempt is made to identify the site and place the remains from it in an archaeological context with meaning for non-Mormons. The religious dimension of the archaeological landscape for both Mormons and others is explored within the metaphor presented by Smith's excavation and interpretation of the site. The notion of aboriginal America in the 19th-century contested landscape is explored.

Riley, Thomas R [Illinois-Urbana-Champaign] [Discussant 701]
Rinaldi, Milegro [see Spencer, Charles S] [610]

Ritter, Eric [BLM]
[503] SCRATCHED ROCK ART COMPLEXES IN THE DESERT WEST: SYMBOLS FOR SOCIORELIGIOUS COMMUNICATION.

Throughout much of the Desert West occurs the little-known scratched petroglyph tradition. This rock art tradition includes about 12 motifs, mostly geometric, and it occurs in a variety of cultural and environmental settings. The rock art crosses time and space, and frequently occurs with pecked motifs. By examining in detail the scratched symbolism and cultural and environmental contexts at a number of sites, and in looking at the ethnographic record, the tradition is hypothesized to have primarily served as a communicative bridge between the socioeconomic and spiritual worlds among various groups, acting as a mechanism for social stability and maintenance.

Rivera, Mario [Discussant 405]
Rivera, Virginia [see Rodriguez, Miguel] [503]
Robb, John E [Michigan]
[108] GENDER, MORAL DYNAMICS, AND EARLY INEQUALITY IN THE ITALIAN NEOLITHIC AND BRONZE AGE.

Gender ideology and the symbolic constitution of individuals has long been overlooked in environment and social structure oriented archaeology; specific ideologies themselves can be potent forces shaping social change. In this paper one such example, Late Neolithic early Bronze Age gender ideology, is reconstructed from prehistoric rock and cave art, stelae, and burial customs. This reconstruction then provides a generative model both for social practices [patterns of authority, economic intensification, the creation of stigma, and intergroup relations], for the diverse genres of archaeological evidence resulting from them, and for the system's late Bronze Age/iron Age transformation.

Robertson, Robin [see Walker, Debra S] [706]
Robinson, Paul A [Rhode Island Historical Preservation Commission]
[705] ARCHAEOLOGY, HISTORY, AND CULTURAL RESOURCE MANAGEMENT: PRESERVING THE RICHNESS OF THE PAST.

Cultural resource management is a process used to determine which sites are protected, studied, and what research questions are asked. This process imposes order on the past, rendering it manageable for the present. Attempts to manage the past, however, often diminish its richness and distinctiveness and separate us from others (anthropologists, historians, Indian tribes) who have an interest in preserving and studying the past. Creating an Indian history that embraces the richness of the past will make it more recognizable and important to these other groups and enable us to better contribute to the study of humanity.

Robles Garcia, Nelly [see Corbett, Jack] [313]
Rocek, Thomas R [Delaware]
[506] SHIFTING PATTERNS OF SEDENTISM AND SEASONALITY AS SEEN IN THE SOUTHWESTERN PITHOUSE TO PUEBLO TRANSITION.

Recent research in the southwestern US challenges the traditional assumption of full sedentary settlement prior to the Pithouse to Pueblo transition. Current approaches include attempts to define the season of occupation for particular sites, or more generally, to identify levels of mobility on sites.
This paper uses the latter approach to suggest seasonal mobility at the Dunlap-Salazar site, a Pithouse period Jornada Mogollon village, in contrast to nearby Pueblo sites. This contrast exists despite a lack of evidence for a corresponding shift in agricultural dependence, which is commonly assumed to accompany increased sedentarism.

Rodriguez, Miguel (Institute of Puerto Rican Culture) & Virginia Rivera (SHPO-Ballaja Project) [54] LITHIC DIVERSITY IN EASTERN PUERTO RICO.

The current status of archaeological research in the eastern half of Puerto Rico is reviewed, with particular attention given to the Late Ceramic Age cultures: the pre-Tainan (Elenoid or Elenan Ostionoid) and Tainan (Chichon or Chicoan Ostioniod). The C-14 chronology, ceramic styles and series, settlement patterns, subsistence adaptations, and ceremonialism of both cultural groups are compared. Also, possible relationships between eastern Puerto Rico and other regions, such as Vieques and the Virgin Islands, western Puerto Rico, and eastern Hispaniola, are explored.

Rogers, Anne & Jane L. Brown (Western Carolina) & Michael Barber (Jefferson National Forest) [412] LITHIC REDUCTION STRATEGIES AT THE PINE RIDGE SITE (44SC95).

The Pine Ridge site (44SC95) is a lithic reduction station located near an outcrop containing small chert nodule. The site appears to have been most extensively utilized during the Faler-Early Archaic transition. Analysis of lithic materials recovered has provided evidence of reduction techniques as well as of preferred use of raw materials. No indication of either long or short term habitation was recovered, suggesting that the site was used primarily for lithic reduction rather than having this occur as an adjunct to subsistence procurement or other activities.

Rogers, Jerry L (National Park Service) [Discussant 702]

Roler, Kathy & Barbara L Stark (Arizona State) [313] RECONCILING POOR HOUSEHOLD IN THE ARCHAEOLOGICAL RECORD: A CASE STUDY FROM SOUTHERN VERACRUZ, MEXICO.

Archaeological surveys in lowland Mesoamerica often rely on mounds to locate households and on decorated surface ceramics to date occupations. Recently, test excavations at some Maya sites have uncovered households where no mound was present, raising the possibility that traditional survey and excavation techniques are missing poorer households. A search of the ethnographic literature reveals that relationships between wealth, mobility, and household size may mask the presence of the poorest households archaeologically. An analysis of surface sherd (both decorated ceramics and plainware) from a regional survey in southern Veracruz, Mexico, supports the contention that the poorest households are the most vulnerable to analytical invisibility due to the artifact inventories they leave behind.

Rolett, Barry (Hawaii-Honolulu) [511] ARCHAEOLOGICAL INTERPRETATION OF ANIMAL HUSBANDRY PRACTICES BASED ON AGE PROFILES OF PREHISTORIC HAWAIIAN PIG AND DOG POPULATIONS.

Control and distribution of surplus food was a central factor in the ability of competing chiefs to achieve and maintain political power in late prehistoric Hawaii. Intensification of agricultural production was linked closely with breeding of domestic pigs and dogs. This study is the first to use archaeozoological analyses of pig and dog bone assemblages for interpreting prehistoric Polynesian cultural practices concerning the management and use of these domestic animals. The faunal remains investigated derive from areal excavation of a coastal habitation site in Waimanalo, O'ahu, occupied during the 17th and early 18th centuries. Age profiles of the pig and dog assemblages are constructed by tooth crown height measurements.

Rolingson, Martha A (Arkansas Archaeological Survey) & Philip Osborne (Toltec Mounds State Park) [406] DAILY INTERACTION WITH PARK VISITORS: THE TOLTEC MOUNDS EXAMPLE.

Toltec Mounds Archeological State Park in central Arkansas is managed cooperatively by the Arkansas Department of Parks and Tourism and by the Arkansas Archeological Survey. The staff has an active interpretation program for the public. A variety of approaches are used but an emphasis is placed on personal interaction with park visitors. All visitors who come to the visitor center are greeted and provided information informally and through formal programs, including daily guided tours and numerous special events held on Saturdays. School classes and organized groups are offered a range of programs to meet their preferences.

Rollins, H. (Pittsburgh) & Uwe Brand (Brock) [109] ANCIENT ENSO EVENTS INFERRED BY BIVALVE SHELL GEOCHEMISTRY: A CRITICAL REVIEW.

Geochemical signatures of ENSO events have commonly utilized 818O in corals and bivalves. The 818C values, the occurrence of trace Cd in skeletal carbonate, and the Sr/Na ratio may afford additional opportunity for retrodiction of mega-ENSO events by assessment, respectively, of rainfall, oceanic productivity, and salinity. Geochemical analyses should be supplemented by evaluation of growth interruption. However, such utilization of bivalve shells is constrained by the generally poor temporal resolution of geochemical proxies, and by limited knowledge of interspecific and interhabitat variation in shell geochemistry and of the effects of diagenetic overprinting.

Rosado-May, Francisco (Centro de Investigaciones de Quintana Roo) [407] THE MAYA FACTOR IN THE AGRICULTURAL LANDSCAPE: AN IN SITU COMPARISON OF MAYA VS OTHER CULTURES IN QUINTANA ROO, MEXICO.

The Mexican government has carried out an aggressive colonization program since the late 1960s, bringing farmers from completely different ecosystems and backgrounds to Quintana Roo. As a result, a number of agroecosystems are observed. When comparing foreign to local farmers, there are significant differences in farm size, species diversity, non-crop useful species, and input/output ratio. Native farmers have a much broader ecological basis in both their perception of nature and the management of their agroecosystems. Implications for sustainable development are discussed.

Ross, Martin R (see Durand, Stephen R) [514]

Roth, Barbara J (Pima Community) [404] LAND USE IN THE LATE ARCHAIC OF THE NORTHERN TUCSON BASIN: A VIEW FROM THE UPPER BAJADA.

Interpretations of the Late Archaic occupation of the Tucson Basin have focused on agricultural villages along the river floodplain. However, a regional approach is essential before the role of these agricultural villages can be addressed. Excavations of three Late Archaic sites in the upper bajada (foothills) of the northern Tucson Basin provide information on the occupation of this environmental zone and aid in determining their relationship to floodplain agricultural villages. The results of these excavations are presented, and their implications for reconstructing Late Archaic land use within the Tucson Basin are discussed.

Rothchild, Nan A (see Dublin, Susan) [304]

Rouse, Irving (Yale) [501] THE WEST INDIAN CHRONOLOGICAL SYSTEM AND ITS APPLICATION TO ANTIGUA IN THE LEeward ISLANDS.

This paper presents a discussion of the nature of the chronological system used in the Greater Antilles and the extension of the system to the Leeward Islands. It explains the two main procedures used to study the Ceramic Age—formulation of ceramic periods and classification of the cultures of those periods into series and subseries. The system is illustrated by applying it to the post-Salado period of Indian Creek and Freeman's Bay on Antigua Island. Pertinent radiocarbon dates also are considered.

Royer, Irwin (Binary Analytical)

Ryloth, Biblical Problems in Transdanubian Archaeology.

Rich phytolith assemblages occur in archaeological contexts throughout the Danube region of Hungary. Archeological soils and herbivore teeth, dating variously to Neolithic, Bronze Age, Iron Age, Roman, and Medieval sites, yield evidence of climate, diet, agriculture, livestock management, etc. However, particular problems, such as the overwhelming dominance of lusitocrids grains in both wild and cultivated taxa, create difficulties in taxonomic differentiation and identification.

Rowe, Marvin (Texas A & M) [303] RADIOCARBON DATING OF PICTOGRAMS.

A progress report is presented on our new mass-chemical technique, which permits us to extract the organic material from pictographs and subject it to direct radiocarbon dating. We have obtained dated on pictographs, and all are in accord with the archeological context. Carbon dioxide from a charcoal sample previously dated by Beta Analytic, Inc, was extracted by our technique and radiocarbon dated. The ages differed by only 10 years. Limestone decomposition, mass fractionation, and atmospheric contamination have been examined and found to present no problem to our method.

Rowlands, Michael J (University College-London) [Discussant 603]

Rowe, David (3D Environmental Services) [502] PALYNOCOLOGICAL STUDIES IN THE COPAN VALLEY.

Evidence of agricultural origins, intensification, and end of cultivation were obtained from two cores collected in western Honduras in 1984. Pollen data from Lake Yojoa indicate the presence of slash and burn agriculture by at least as early as 2000 BC by preceramic people. For the collapse,
long standing traditional view was a rapid and complete depopulation of rural areas as well as urban areas soon after AD 900. Pollen data from Petapilla bog near Copan show that forest clearance did not occur until after AD 1250. Also indicated by the bog's pollen sequence is complete deforestation in Copan's valley bottom and foothills at the end of the Classic period.

Rusczake, Samantha (Arizona State)

[410] REFUSE DISPOSAL PATTERNS IN HOHOKAM STRUCTURES

Many Hohokam structures were filled with trash once they were abandoned. The amount and type of ceramic refuse that accumulates in these structures may help identify roughly contemporaneous households and/or differentiates seasonal from permanent occupation. Measures of sherd size and density are used to quantify refuse disposal behavior in pithouses and flathouses from AZ-U:6:213, a Hohokam site in the Lower Verde Valley, Arizona.

Russo, Michael (Florida)

[506] MEASURING SEDENTISM WITH FAUNA: A CASE STUDY FROM THE HARRIS ISLAND ARCHAIC, FLORIDA.

In evolutionist models, sedentism often is correlated with cultural complexity. Sedentism can be measured in the absence of traditional markers of complex culture through the development of quantitative measures of seasonality. Faunal assemblages from coastal middens yield statistical tools that can be used to determine seasonality often lacking at terrestrial sites—large numbers of a wide variety of species which vary seasonally in terms of growth phases or demographics. The application of new seasonality measures on these species from a coastal preceramic Archaic site in southwest Florida demonstrates that sedentism occurred at least 3000 years before current models predict.

Ruswell, Mary Elisabeth (National Anthropological Archives)

[615] KEEPING THE ARCHAEOLOGICAL RECORD.

The records documenting WPA archaeology are a good example of more general problems with archaeological records. Many of the important records have been scattered among various archival and public and private institutions, and many others have disappeared. The records that have been kept are not always easily accessible, usually because of poor storage or because the finding aids are not geared to archaeological applications. Examples will be drawn from various archival experiences and some solutions, particularly those proposed by the Committee for the History of Archaeology, are discussed.

Saltzer, Matthew (Eastern New Mexico)

[514] VARIATIONS IN MOGOLLON BROWNWARES.

Excavations at three temporally distinct sites in the Sierra Blanca region of New Mexico provided the opportunity to investigate variation in the morphology and technology of plain brownware ceramics. Using digital image processing and other quantitative techniques, I attempt to demonstrate that certain aspects of shape and production technology are sensitive to temporal variability. Within the region, plain brownware types usually represent the vast majority of ceramics recovered. The use of these utility wares to increase chronological control helps in understanding the role of the Mogollon in southwestern prehistory.

Samford, Patricia M & Marley R Brown III (Colonial Williamsburg)

[606] CURRENT ARCHAEOLOGICAL PERSPECTIVES ON THE GROWTH AND DEVELOPMENT OF WILLIAMSBURG.

Recent archaeological exploration of Williamsburg has emphasized a series of interrelated problems concerning its physical and social development. An excavation strategy that permits the recovery of controlled environmental and spatial data has identified effects of urbanization on the landscape in Williamsburg during the 18th century. The town's physical growth is examined in view of archaeological evidence of changes in land-use patterns and the organization of domestic and commercial space. These changes can be linked to increasing economic specialization and social differentiation of Williamsburg's population, trends that may also be observed in the analysis of selected artifacts and faunal assemblages from these sites.

Sanders, Helen & Harold L Dibble (Pennsylvania)

[211] MORPHOLOGICAL PATTERNING IN MIDDLE PALEOLITHIC TOOLS: EVIDENCE FOR DELIBERATE TYPES?

The question of whether Middle Paleolithic tools were manufactured according to deliberate, discrete types has recently become a source of controversy. One of the principal typological classes, consisting of notches and denticulates, has been under-emphasized in this debate. This paper addresses these issues by measuring patterning in the manufacture of these tools using newly excavated samples from Combe Capelle bas, France.
Schuldenrein, Joseph

Schmitt, Dave N (Dames & Moore) & Charles D Zierer (Resource Concepts)

Grantville Zooarchaeology: Faunal Quantity, Variety, and Quality in an Isolated Historic Mining Community.
Archaeological excavations in the historic townsite of Grantville, Nebraska, were conducted in a variety of contexts including dugouts, houses, and a blacksmith shop. Investigations at 12 features recovered an abundant yet spatially variable assemblage of food bones, largely represented by domestic taxa. The resultant collections offer the potential to explore systemic and consumer related relationships affecting intra-feature assemblage variability through the comparative analysis of faunal quantity, variety, and quality. Mid- to late-19th century foodways also are reviewed to derive implications for archaeological assemblages. This information then is employed to interpret variation observed among the features at Grantville, including differences in household composition and economic means.

Schneider, Fred (North Dakota)

Prehistoric Horticulture in the Northeastern Plains: Evidence and Interpretation.
Recognition of prehistoric horticulture in the northeastern Plains has been hindered by comparison of the region's archaeological sites to Plains Village sites of the Missouri River Valley, the stereotype of the region's native peoples as bison hunters, suggestions that the climate was not conducive to horticulture, the lack of experimental work, and the lack of appropriate techniques for the recovery of archaeological plant remains. Recent investigations indicate that forager-farmers were practicing horticulture in the region by AD 1200 and into the early historic period.

Schroeder, Sissel & George R Milner (Penn State)

Modeling Mississippian Sociopolitical Landscapes: Scale, Organization, and Stability.
Alternative models of Mississippian sociopolitical organization have proliferated over the past few decades. New perspectives have evolved in tandem with the rapid accumulation of information on regional site distributions, internal site organizations, artifact assemblages, and cultural sequences. Various ideas about the geographical scale, political and economic structure, interregional interaction, and the long term stability of Mississippian societies are compared. The largest of these systems, from material culture and subsistence remains reveals significant variation in production and exchange. Nevertheless, the polities shared a reliance on subsistence strategies capable of producing surpluses that could be used in political and social arenas.

Schroeder, Gerald & Brett R Riggs (Tennessee)

Cherokee Village Patterning at the Chattooga Site (380C18).
Surface collections, test pits, magnetometer survey, and excavations have been used during three field seasons to identify village patterning at the Cherokee lower town of Chattooga. A 74-meter-square excavation of the council house revealed a portion of the exterior wall, post supports, and central hearth. These features indicate at least three superimposed buildings at this location, the most recent predates 1740. It is possible to identify discrete artifact patterns associated with the last building because the floor was preserved when the structure burned. The structure is comparable in plan to mid-18th century Overhill Cherokee townhouses.

Schuldenrein, Joseph (Geoarchaeology Research Associates)

The relationships between prehistoric sites and floodplain landscapes have been explored by Pennsylvania archaeologists for over 100 years. In the past decade CRM and other research projects have demonstrated correlations between floodplain histories and discrete prehistoric components along the larger drainages. The state's key river and tributary systems—the Delaware, Susquehanna, and
Ohio—have been widely sampled and provide dated sequences and reconstructed floodplain histories. It is possible to identify Holocene alluviation, soil formation, and erosional phases and index them against prehistoric occupation records. Limited attempts can be directed towards inter-basin geochronological syntheses across the state. These may help to guide state-wide research designs and cultural resource management plans.

Scott, Barbara G (Minnesota)

[040] THE VIKING MOVE WEST: TRANSPLANTATION OR INNOVATION? The Norse settlement of the North Atlantic in the Viking and Medieval periods has usually been thought to exhibit great continuity with the contemporary settlement pattern and social structure in Norway, particularly western Norway. Recent fieldwork in these areas and a reassessment of older data, especially house sites, are contributing to a more complicated picture of Viking/Norse society at home and in the new settlements. This paper explores some of the new data and their implications for the question of continuity and change in western Norse society.

Scott, Susan L (see Jackson, H Edwin) [058]

Seifert, Donna J (see Cheek, Charles D) [066]

Senior, Louise (Arizona)

[207] MEASUREMENTS OF CERAMIC INPUT AND OUTPUT: CORRELATIONS WITH SOCIOPOLITICAL CHANGE AT TELL LEILAN. Diachronic change in ceramic craft specialist inputs (labor and resources) and ceramic outputs are well correlated with independently documented sociopolitical developments (urbanization and state formation) at Tell Leilin in the mid-third millennium. The tempo and mode of technological change in ceramics at Tell Leilin suggest that there is considerable lag in ceramic change and that different aspects of archaeological assemblages “evolve” at different rates during periods of sociopolitical change.

Senior, Louise (Arizona)

[703] THE ESTIMATING OF PREHISTORIC VALUES: CRACKED POT IDEAS IN ARCHAEOLOGY. Understanding the emic value of prehistoric goods is important to many models of social evolution of complex societies. This paper utilizes a behavioral approach to explore the value of pottery in its technological, sociological, and ideological aspects. Emic value is operationalized through an analysis of pottery mending holes and mending technology. Illustrative examples include historic pots collected from the Raramuri of Chihuahua, Mexico, as well as prehistoric pottery assemblages from the Grasshopper and Homol’ovi III pueblos of the US Southwest.

Shackel, Paul A (Harpers Ferry)

[606] THE MATERIAL REIFICATION OF FACTORY DISCIPLINE AND RESISTANCE IN EARLY INDUSTRIAL SOCIETY. The Harpers Ferry Armory was established at the conjunction of the Shenandoah and Potomac Rivers in 1798. Factory discipline was not readily accepted at Harpers Ferry. Unlike many northeastern industrial towns, southern rural Harpers Ferry’s manufacturing, domestic life, and cultural landscape was unplanned, undisciplined, and organized according to different priorities and cultural constraints. A material culture analysis demonstrates that material surroundings created and reinforced resistance to an industrial discipline that often was accepted in the Northeast.

Shackley, M Steven (UC-Berkeley)

[604] RANGE AND MOBILITY IN THE EARLY HUNTER-GATHERER SOUTHWEST. One of the most important factors in the reconstruction of hunter-gatherer settlement mobility is an understanding of the potential range and habitat exploited in a year or series of years. In the Southwest, virtually no research effort has been expended to investigate the character and extent of hunter-gatherer procurement ranges. The source provenience of obsidian artifacts recovered from a number of Middle and Late Archaic sites in Arizona coupled with an examination of ethnographic hunter-gatherer data in the same region are used to reconstruct the probable ranges used during these periods. The strong upland/lowland composition of these relatively large ranges appears rather typical of hunter-gatherer organization in and environments worldwide.

Shackley, M Steven (see Peterson, Jane) [210]

Shaffer, Gary (Maryland Historical Trust)

[108] ETHNOGRAPHIC TOORIES OF ARCHITECTURAL STABILITY AND CHANGE FROM SOUTHERN ITALY. Neolithic wattle-and-daub buildings from Calabria, Italy, evidence several forms of constructional variability. Despite this prehistoric architectural dynamism, and later prehistoric and historic intro-
Shimada, Izumi

Each of these principles had a social, political, and ritual dimension. The queque system, a set of radial sightlines emanating from the center of Cuzco, divided the valley into sectors that mapped sacred places and the rights of social groupings to irrigation systems. Small Inca villages used similar organizational principles, but the capital city demonstrates its most complex manifestation.

Shimada, Izumi (Harvard-Peabody) [111] SICAN SHAFT TOMBS AND THEIR BROADER IMPLICATIONS.

For decades numerous Middle Sicán (ca 1000-1100) tombs in Batan Grande, north Peru, have been located for sumptuary offerings. Recent excavations at the site of Sicán, the interceded capital, document for the first time the magnitude and complexity of the Sicán elite shaft tombs that reached depths of ca 15 m. Overall variability in Sicán tomb construction and contents is impressive and is examined in regard to social and economic organization and external trade.

Siegol, Peter E (Centro de Investigaciones Indígenas de Puerto Rico) [415] LOWLAND COSMOLOGY AS AN INTERPRETIVE FRAMEWORK FOR PREHISTORIC COMMUNITY ORGANIZATION: THE MAISABEL SITE, PUERTO RICO.

Archaeologists working in lowland South America and the West Indies recognize the importance of cosmology in their interpretations of prehistoric societies. Site structure is an important manifestation of ancient cosmology. A methodological challenge is to excavate sites for reliable information on community organization. I present the results of such study. Maisabel (Puerto Rico) is a large early ceramic-age settlement intensively occupied for 12 centuries. Site structural data and ethnohistoric analogies show that lowland communities were used to develop a model for the cosmological organization of Maisabel. Cosmology was a major component in the integration of settlement organization, spatially and temporally.

Siegol, Peter E (Centro de Investigaciones Indígenas de Puerto Rico) [Discussant 503]

Silverman, Helaine (Illinois-Urbana-Champaign) [301] THE NAZCA LINES AS CULT ARCHAEOLOGY, ECONOMICS, AND POLITICS.

The Nazca Lines, a large system of lines and geoglyphs, have been the focus of archaeological research for many years. The lines are thought to have been created for ceremonial purposes, possibly related to religious or political activities. The lines are often seen as symbols or representations of cultural and political entities.

Simen, Jan F (Tennessee) [103] SITE STRUCTURE VARIABILITY IN THE UPPER PALEOLITHIC AT LE FLAGEOLET 1 (DORDOGNE, FRANCE).

Six Upper Paleolithic levels from the rockshelter Le Flageolet I are analyzed using k-means based clustering algorithm. Similarities and differences in spatial structure of artifacts are noted and related to interior site topography, cultural chronology, and site function. Basic differences in site use based on topographic features are observed between the two Early Upper Paleolithic traditions represented in the shelter, the Perigordian and Aurignacian.

Simen, Jan F (Tennessee) [Discussant 404]

Simmons, Alan (Desert Research Institute) [213] ‘AIN GHAZAL, JORDAN, IN REGIONAL AND ECOLOGICAL PERSPECTIVE.

‘Ain Ghazal, a huge Neolithic village in central Jordan, was probably a self-sufficient settlement, but it is unlikely that it functioned in a vacuum. This paper examines the greater ‘Ain Ghazal community and possible interactions with other large Neolithic manifestations, addressing two aspects: 1) the implications of the ‘Ain Ghazal survey, which located only a few small Neolithic sites, and 2) the relationship of ‘Ain Ghazal to large Neolithic settlements such as Jericho and Wadi Shu’erib. The adaptive implications for late Neolithic settlement and land use patterns are then addressed from an ecological perspective.

Simen, Arley W (Arizona State) [701] THE ORGANIZATION OF CERAMIC PRODUCTION AND DISTRIBUTION.

Determining the degree of integration among central communities and surrounding villages is essential to the study of sociopolitical development. The Salado ceramic wares represented in the archaeological record of the Tonto Basin of central Arizona (including Gila polychromes, corrugated, and utility ceramics dating from ca AD 1100-1400) are used to identify site-specific production and spheres of distribution. Vessel morphology and chemical sourcing evidence are used to examine models of production and distribution within an integrated, systemic framework.

Simon, Brona G (Massachusetts Historical Commission) [Discussant 101]

Sinclair, Rolf M (National Science Foundation) [410] ARCHITECTURE AND ENGINEERING AS TOKENS OF THE SPREAD OF TECHNIQUES AND CONCEPTS IN THE PREHISTORIC SOUTHWEST.

Recent studies show that accurate, thorough surveys are necessary to understand the full complexity of the architectural and engineering information present in a number of prehistoric constructions in the US Southwest. Many contain features that required additional investments of time and effort (beyond that needed to achieve utilitarian goals) that can be taken as a quantitative measure of the importance of certain cultural practices. The presence of such features forced the use of maps to spread the corresponding architectural/engineering concepts. Examples from the Southwest and elsewhere are presented.

Singleton, Therese (Smithsonian) [Discussant 104]

Skibo, James M (see Nielsen, Axel B) [703]

Small, David B (Lehigh) [507] INCOMPLETE FORMATIONS: A COMPARISON OF THE CLASSICAL GREEK AND MAYA.

Preexisting elite networks affect the ability of small states to fully develop regional economic, political, or military institutions. The ancient Greek and Classic lowland Maya cultures share features of multiple contemporaneous small state development, strong interstate elite connections, and truncated state institutions. This paper compares the effects that elite networks had on state formation in these two cultures. It isolates aspects of the archaeological record that show how this type of state formation may be archaeologically analyzed.

Smiley, Francis E (Southern Illinois-Carbondale) [205] THE AGRICULTURAL TRANSITION IN THE NORTHERN SOUTHWEST: SIMULATION APPROACHES AND CHRONOMETRIC DATA.

Anthropologists use innovation, diffusion, and migration models from a broad range of disciplines to formulate data-gathering and interpretable efforts. The transition to agriculture, that is, the spread of the materials and technology of food production across broad regional space, constitutes an important, general case. The agricultural transition across the American Southwest prior to 3000 BC may have occurred in a rapid diffusion pulse apparently followed by a millennium or more of relative demographic and technological stability. Computer simulations provide perspective and insight into the mechanics, enabling, and constraining factors in the development of the earliest Anasazi.

Smith, Bruce D (Smithsonian) [402] THE INITIAL DOMESTICATION OF PLANTS IN EASTERN NORTH AMERICA: ISSUES OF GENDER AND INTENTIONALITY.

First presented by the author in 1986, a detailed theory accounting for the domestication of seed plants in eastern North America has recently been the target of gender-specific gloss-critiques by the archaeologists Watson and Kennedy, and the philosopher Wylie. These critical analyses highlight a number of important and interesting aspects of alternative frameworks of explanation that can be constructed around this complex developmental process. In a gender-neutral response, this paper employs a parallel model of analysis and interpretive tone to consider and correct mischaracterizations and errors of logic and fact in these gloss-critiques, and in the process to further address a number of the broader issues that they raise.

Smith, Bruce D (Smithsonian) [Discussant 302]

Smith, Bruce D (Smithsonian) [Discussant 506]

Smith, Marvin T (South Alabama) [102] THE RISE AND FALL OF COOSA, AD 1350-1700.

Following the collapse of the Etowah polity, the Coosa valley of northern Georgia gradually became the focal point of political power in the Southern Ridge and Valley physiographic environment. Population growth apparently fueled the consolidation of political power, leading to a paramount chiefdom controlling an area from east-central Tennessee to central Alabama by the time of the Hernando De Soto entrada in 1540. In the wake of De Soto, the system collapsed—severe depopulation brought about by European disease and subsequent political collapse dramatically changed the nature of political power...
Smith, Marvin T

[102] PREEHISPANIC MAYA COMMUNITY ORGANIZATION: A LARGE SITE BEHAVIORAL APPROACH

Traditional models describing Prehispanic Maya community organization have been based upon vague ethnohistories and the morphology of architectural elaboration. Large-scale surface collections at the Terminal Classic Maya center of Sayil are beginning to provide independent behavioral data related to site activities necessary for interpreting those components that characterize Maya communality. Interpretations of the community such as sociopolitical differentiations are examined by comparing broad-scale surface collections and architectural elaboration across the site of Sayil. These data imply that a behavioral perspective is essential for interpreting site-scale settlement patterns related to the organization of past Maya communities.

Snead, James (see Head, Genevieve) [110]

Snow, Dean R [SUNY-Albany]

[102] EVOLUTION OF THE MOHAWK IROQUOIS

The Northern Iroquoians intruded into the lower Great lakes region from the unglaciated Appalachian uplands sometime around AD 900. By AD 1450 they were established in small villages throughout the range known for 16th-century Iroquoian nations. After that date the Mohawks emerged as a political entity through processes involving simultaneous nucleation at the regional, village, and household levels. A cluster of large defensible Mohawk villages formed west of modern Albany, and the Mohawks became founding members of the Iroquois confederacy. Epidemics that began in the 1630s caused a steep population decline, but the Mohawks (unlike several other Iroquoian nations) survived beyond AD 1700. They are more numerous today than at any time in the past.

Snow, Dean R [SUNY-Albany] [Discussant 512]

Suau, Susan [UCLA]

[610] CONSTELLATIONS AND COSMOLOGICAL DEVELOPMENT IN THE NEW WORLD TROPICS.

This paper focuses on the role and primary functions of constellations in the cosmologies of the New World tropics, particularly those functions which are shared by various ethnic groups within the region. Any anomalies to these common functions and identifications are also noted. Using ethnohistoric, ethnographic, and archaeological data, this paper discusses possible reasons for these common practices and anomalies, particularly in view of the hypothesis that common environmental features provide models for the development of similar cosmological and social structures in otherwise different ethnic groups.

Sobolik, Kristin D (see Whelan, Mary K) [607]

Soffer, Olga (Illinois-Urbana-Champaign), J McCown (Mercyhurst/SMU) o N L Kornzeit (IGN ANDU)

[211] MAMMOTH BONE DWELLINGS: OPEN DOORS IN PERIGLACIAL TIMES?

Dwellings made of mammoth bones were a ubiquitous feature at East European Upper Paleolithic sites. Although they have been found at 14 sites on the East European Plain, the question of how they were entered remained a matter of conjecture as none yielded unequivocal evidence for doorways. Our 1991 research at Mezhirich in the Ukraine has produced the first direct evidence for how such structures were accessed and revealed that their late Pleistocene occupants entered them through subterranean tunnels much like those recorded for a number of historic (e.g., central Eskimos) and prehistoric groups (e.g., Basketmaker, Thule) in northern latitudes. The discovery calls for a major revision in how these dwellings are reconstructed in our popular literature, textbooks, and museum displays.

Soffer, Olga (see Adovasio, J M) [211]

Speedy, D Scott [Flowerdeus Hundred Foundation] o William C Johnson (Michael Baker Ir)

[605] CORDAGE TWIST DIRECTION AS A TOOL IN DELINEATING TERRITORIAL BOUNDARIES DURING THE LATE WOODLAND AND LATE PREHISTORIC PERIODS IN THE UPPER OHIO RIVER VALLEY.

Cordage twist directions preserved on the surfaces of ceramics are useful for delineating group or tribal territory and for demonstrating population continuity or replacement during the Woodland and early prehistoric periods in the Ohio Valley. Twist direction of cordage implies that several distinct populations are recognizable within late prehistoric Monongahela culture, apparently representing site developments from distinctive Late Woodland bases. Minor variations in the relative frequency of the predominant cordage twist direction, peculiar to geographic/drainage basin subareas, suggest that twist direction may function as population signatures permitting identification of individual or related village removals that may be equatable to tribes.

Sprague, Michael W (Western Ontario)

[509] A COMPARATIVE ANALYSIS OF ETHNIC ENCLAVES.

Like any great city, Teotihuacan had a variety of ethnically distinct residents. At least two such groups, immigrants from the Valley of Oaxaca and the Gulf Coast, lived in separate enclaves and maintained specialized economies for centuries. These, and some of the less clearly identified ethnic groups of Teotihuacan, are compared with one another and with enclaves elsewhere in Mesoamerica and in the Old World. There are a number of features that differentiate enclaves, suggesting variation in their organization, functions, and articulation with the host society.

Spencer, Charles S , Elsa M Reina (American Museum of Natural History) o Milagro Rinaldi [Instituto Venezolano de Investigaciones Cientificas]

[610] PREEHISPANIC DRAINED-FIELD AGRICULTURE IN BARINAS, VENEZUELA: A REGIONAL PERSPECTIVE.

A prehispanic drained-field system in Barinas, Venezuela, is described in terms of its morphology and probable operation, as well as its possible role in a regional settlement system dating to AD 550-1000. Also discussed are the results of a pollen analysis that compared samples from the drained fields and a contemporaneously occupied village site.

Spencer-Wood, Suzanne M (Information Dynamics)

[504] TOWARDS A FEMINIST URBAN ARCHAEOLOGY.

This paper focuses on the implications of feminist theory and research for urban archaeology. My feminist urban research has revealed new types of domestic and ideological meanings of cultural material that were previously unknown. Ordinary as well as innovative material culture was used to symbolize and implement domestic life across the US. These ideological meanings need to be reconsidered in relation to other factors, such as those previously considered in my systems model of consumer choice.

Spezelter, Hartmut A W o David B Tucker [Colorado-Boulder]

[105] GEOPHYSICAL PROSPECTING: THE USE OF ELECTRICAL RESISTIVITY.

The Cerén Project has utilized various methods of remote sensing, including ground penetrating radar, seismic refraction, and electrical resistivity profiling. Of these, the latter has been used most extensively with varying results. Initially, simple interpretation suggested that resistivity was an insensitive means of detecting buried structures, but now that effectiveness is in question. This paper reviews the resistivity data in conjunction with subsequent excavation data. Its effectiveness is more clearly demonstrated, and suggestions for future applications are made. The range of applicability for archaeological prospecting is discussed.

Spronk, Ronald [Vanderbilt]

[306] TUTUTPEC: A POSTCLASSIC MITTEC CONQUEST STATE.

During the 15th and 16th centuries the Pacific coast of Oaxaca was dominated politically by a Mixtec expansionist state that, with its capital at Tututpec. Tututpec successfully resisted incorporation into the Aztec empire and militarily threatened many regions including the Valley of Oaxaca. This paper examines the origins, development, and structure of the Tututpec "empire." A major focus of Tututpec's development from a traditional senorio into a conquest state with administrative and military capabilities sufficient to control a multi-ethnic area of approximately 15,000 km2. Comparisons with other polities and areas also are discussed.

Sprague, Rae o Lori A Frye (Archaeological Services Consultants)

[409] A MULTIVARIATE APPROACH TO EVALUATING THE SOCIO-ECONOMIC STATUS OF RESIDENTIAL LOTS.

In a commercial pottery center such as East Liverpool, where individuals had ample opportunity to acquire locally made ceramics, other non-traditional research methods are necessary to measure socio-economic status. Two late 19th to early 20th century lots were examined using a multivariate approach to measure social status. One lot was owned by a bank and the other by an owner of a glass company. Utilizing archaeological data from these sites, this paper focuses on evidence which indicates social status, including privy data, yard treatment, house size, and exchange networks. These data are compared with temporally similar sites.
Stallings, Richard J

[214] PREDICTIVE MODELING USING A GEOGRAPHIC INFORMATION SYSTEM AND LANDSAT IMAGERY: A FINAL REPORT.

A GIS-based predictive modeling research project for a portion of the Yazoo Basin, Mississippi, recently was completed. Initially, a number of databases ranging from stream order and location to a hydric soils database prepared by the US Army Corps of Engineers were evaluated. The investigation showed that, in areas with exposed soils, less than 50% of the total survey area accounts for over 70% of the sites. The data also show a change in site location characteristics from the Archaic to Woodland periods. It is suspected that this change is more a reflection of geomorphic processes rather than cultural preferences.

Stanfill, Alan (Advisory Council on Historic Preservation)

[101] RESEARCH DESIGNS FOR TREATING ARCHAEOLOGICAL PROPERTIES.

The staff of the Advisory Council on Historic Preservation is in the unique position of reviewing archaeological research designs developed for properties in all fifty states and the US holdings. This board can then encourage designers to recognize patterns in the quality of research designs. The patterns pertain to the good as well as the bad. This paper attempts to identify elements that enhance the quality of research designs, and discuss some of the problems and uncertainties which should be avoided. Finally, suggestions are offered for promoting favorable reviews.

Stanish, Charles (Field Museum of Natural History)

[405] TRACK OF THE PUMA: REGIONAL SETTLEMENT AND STATE EXPANSION NORTH OF LAKE TITICACA.

The expansion of the great Middle Horizon Tiwanaku state (ca AD 600) outside of its core territory remains poorly understood in spite of more than 100 years of research in the region. In a recent intensive, systematic survey in the Jui-Pomata area of the Lake Titicaca region, 39 Tiwanaku sites have been discovered. This paper presents these settlement data and places them in a cultural historical framework. It further assesses their implications for modeling the political and economic processes underlying Tiwanaku state expansion near its core territory.

Stark, Barbara I. (see Roler, Kathy) [313]

Staski, Edward (New Mexico State)

[502] ARCHAEOLOGICAL INVESTIGATIONS AT FORT CUMMINGS, NEW MEXICO.

In cooperation with the BLM, the archaeology field school of New Mexico State University has involved excavations at Fort Cummings, southwest New Mexico, during the past three summers. The fort was a frontier military outpost (1860-1868) principally concerned with the control and ultimate eradication of the Apache. Archaeological research has been focused on the identification of structures and use areas, as well as the investigation of economic and ethnic interactions among military personnel and between the military and surrounding civilian populations. Future fieldwork and research are anticipated.

Steadman, David (New York State Museum), Claudio Cristina (Museo de Isla de Pascua) o/ Patricia Vargas (Universidad de Chile)

[307] A PRELIMINARY FAUNAL SEQUENCE FOR EASTER ISLAND.

A large trench was excavated at the coastal site of Anakena, Easter Island (Rapanui). Six radiocarbon dates are pending. A basal silty clay was overlain by cultural deposits of calcareous sand. Throughout the deposit fish are a more minor component of the vertebrate assemblage than in sites from more tropical parts of Polynesia. Bones of extinct native birds occur in lower strata, while bones of chickens (introduced by Polynesians) increase in upper levels. Rat and porpoise bones occur throughout the sequence. Domesticated species are part of the overall prehistoric environmental degradation of Easter Island.

Stech, Tamara (Bryn Mawr) [Discussant 708]

Steffen, Anastasia (New Mexico) o/ Dennis Jones (Louisiana Geological Survey)

[310] MOUND FORM, LOCATION, AND TIME: A RE-EXAMINATION OF CULTURE HISTORY IN THE LOWER MISSISSIPPI VALLEY.

The consideration of prehistoric earth mound as archaeological attributes or traits has been fundamental to the construction of culture history in the southeastern United States. Traditional formulations have interwoven interpretations about the relationship of form to function with empirical generalizations concerning the spatial and temporal distributions of mounds. Through a simple statistical analysis of mound inventory data from southern Louisiana, these basic associations between mound shape, location on the landscape, and chronological affiliation are reconsidered. The

Stiles, Cynthia M

results obtained challenge longstanding correlations across these dimensions and suggest that even the most entrenched interpretations of the archaeological record are worthy of re-examination.

Stein, Gil (Northwestern)

[213] HERDING STRATEGIES AND GROUP MOBILITY IN THE NEAR EAST: ETHNOGRAPHIC AND ARCHAEOLOGICAL PERSPECTIVES.

Most models of prehistoric Near Eastern herding strategies draw heavily from the ethnographic literature on pastoral nomads. However, the applicability of this analogy is questionable, since it has largely been directed toward modern nomadic and sedentary herders. Economic constraints force most sedentary herders to adopt more risk averse, conservative strategies than those of nomads. Analyses of Neolithic and Bronze Age faunal samples from southeast Turkey suggest that this conservative-sedentary production model has widespread applicability for prehistoric villages.

Stephen, David V M o/ Helen I. O’Brien (Pima Community)

[410] MODERN ARCHAEOLOGICAL MAPPING STRATEGIES.

The latest generation of surveying, video recording, and geophysical equipment has simplified the integration of diverse kinds of field equipment and the data collected in the generation of archaeological maps. Mapping has grown from the production of static hand-drawn drafts to the computerized collection of datasets which can be dynamically portrayed through CAD, cartography, and GIS software. Examples are drawn from projects undertaken in Europe, and North and South America, highlighting the use of such equipment in a range of field settings over the past decade.

Stepanoodles, Vincas P (North Carolina-Chapel Hill) [Discussant 701]

Stepanoodles, Vincas P (see Scarry, C Margaret) [402]

Stevenson, Christopher M (see Lynch, Thomas F) [305]

Stevenson, Joe (Louisiana State)

[310] ZOOARCHAEOLOGY OF THE KLEINFELTER SITE, 16EBS: A PREHISTORIC MOUND COMPLEX IN SOUTHEASTERN LOUISIANA.

I present an overview of the analysis of zooarchaeological remains recovered from a prehistoric mound complex in southeastern Louisiana. Attention is directed to the identification and documentation of entire skeletal remains and faunal assemblages recovered from the site. This report presents a preliminary analysis of the faunal remains from this site.

Stewart, Andrew (see Julig, Patrick I) [710]

Stewart, Richard M (Temple)

[506] COMPARISON OF LATE WOODLAND CULTURES IN THE DELAWARE, SUSQUEHANNA, AND POTOMAC RIVER DRAINAGES, MIDDLE ATLANTIC STATES.

A variety of archaeological cultures, each familiar with maize and other cultivated crops, are identified for the period (Late Woodland) between AD 900 and 1600 in the three major drainage systems of the Middle Atlantic region. Community patterns vary within and across drainage basins and are synchronically and diachronically and include everything from dispersed hamlets to large stockaded villages.

Stewart-Abernathy, Leslie C (Arkansas Archeological Survey)

[161] SEPARATE KITCHENS AND INTIMATE ARCHAEOLOGY: CONSTRUCTING URBAN SLAVERY ON THE ANTEBELLUM COTTON FRONTIER IN WASHINGTON, ARKANSAS.

Historical archaeological investigations of separate kitchen buildings behind houses in the pre-slave society town of Washington, Arkansas, produced interpretive insights on the construction of landscapes of interaction and control. Kitchens provided both quarters and workspace for African Americans who were slave servants to the white families whose commercial and political ventures supported a newly developing region of cotton planters. The intimate and reflective interaction of slaves and owners in household daily life eroded the social and architectural separation between kitchen and main house, and insured ambiguities and syncretism in the habits built on the Cotton Frontier in the two generations after 1820.

Stiles, Cynthia M (Wisconsin DNR)

[460] AZTALAN STATE PARK IN WISCONSIN: AN ANCIENT SITE WITH A NEW LOOK.

Aztalan is one of the most important sites in Wisconsin, representing a unique expression of Middle Mississippian culture. Despite its importance, the park has received token support from the state's
coffers. In 1989, a legislative task force recommended the development of a plan for the park. Since the summer of 1990, work has emphasized sign and display update, a self-guided tour, landscaping, maintenance, and long-range planning. This Phase I development has been done by the Department of Natural Resources in cooperation with several state agencies, members of the legislature, the statewide archaeological community, and the local historical society.

**Stiner, Mary C (New Mexico)**

[208] SMALL ANIMAL EXPLOITATION IN THE “MARITIME” PALEOLITHIC OF ITALY.

Remains of marine shellfish, aquatic tortoises, and small terrestrial mammals abound in three coastal caves in Italy, two representing series of Mousterian occupations (Crottia del Morcinei and G. di S. Agostino at Gaeta) and another representing Mousterian through Mesolithic occupations (Riparo Mochi, Balzi Rossi). As such, the sites provide an unusual opportunity to explore how and to what extent small animals figured in hominid economies from Middle through Upper Paleolithic times on the northern Mediterranean Coast. By examining patterns of damage, this visual presentation addresses [1] how the small animal remains entered the cave deposits, establishing which are truly attributable to hominid activities, and [2] in the case of marine shellfish, possible changes in use as food and the onset and frequency of use as ornaments across the Middle-Upper Paleolithic transition.

**Stone, Connie L (BLM) & Todd Bostwick (Pueblo Grande Museum)**

[604] REGIONAL VARIATION IN ARCHAIC SETTLEMENT SYSTEMS AND THE TRANSITION TO FARMING WITHIN THE ARIZONA DESERT.

During the Late Archaic and Early Formative periods in the Arizona desert, regional variation existed in the use of residential areas over time and in the adoption of farming and a sedentary lifestyle. Archaic base camp areas in western Arizona were apparently abandoned or converted to different functional roles in subsistence-settlement systems, while a range expansion occurred in much of southern Arizona, where agriculture appears to have been adopted earlier. Differences in ground stone assemblages indicate a varying reliance on cultivated foods at Archaic residential sites in different regions. Synchronously, the archaeological record shows stability and social factors that structured subsistence-settlement systems and the transition to farming in three desert regions.

**Stone, Glenn D (Columbia)**

[704] HEDGES, TERRACES, AND WALLS: INTENSIFICATION AND DEMARCATION IN NIGERIA.

Agricultural intensification changes how the farmer relates to the land and to other farmers, cases from throughout Nigeria show how these changes interact with local ecology to affect the demarcation of agricultural land. In some environments intensification requires landscape modifications which are self-demarcating: elsewhere farmers create boundary features whose permanence reflects the degree of intensification. Also shown are landscapes which favor boundary features even where agriculture is not intensive.

**Stone, Tammy (Arizona State)**

[504] THE PROCESS OF AGGREGATION IN THE ZUNI REGION: ITS REASONS AND IMPLICATIONS.

The process of aggregation is a complicated one involving regional shifts in settlement pattern from small dispersed communities to large concentrated settlements. This shift results in a reorganization of the social, political, and economic system at both a regional and community level. Five causal models for the initiation of the aggregation process are presented and evaluated for the Zuni region as a whole using large scale survey and excavation data. Implications of this study for the broader question of aggregation in the Southwest as a whole are also discussed.

**Storey, Glenn (Penn State)**

[311] THE POPULATION OF ANCIENT ROMAN CITIES.

Demographic reconstruction of the ancient Roman cities of Pompeii and Ostia was accomplished by applying hypothetical house-by-house inhabited counts to the existing remains and Auto-CAD reconstructions of unexcavated areas. The counts were based on demographic parameters gleaned from the Roman ethnographic and archaeological records, using cross-cultural preindustrial and modern urban samples as controls. Results suggest typical Roman urban densities between 15,000 and 30,000 persons per square kilometer. The proposed populations of Pompeii and Ostia fall in the lower range of previous estimates, suggesting that the population of Rome was half the one million usually cited.

**Storey, Rebecca (Houston)**

[505] POVERTY AND DEMOGRAPHY AT TEOTIHUACAN.

Lower-class and poor cultural specialists tended to bear the brunt of the poor health and nutritional conditions of Old World preindustrial cities. Skeletons from a compound in a similar socioeconomic position at Teotihuacan have evidence of severe health conditions that affected the ability of the city to maintain population. Paleodemographic modeling at the compound reveals that the situation worsened through time. The evidence for the demographic changes and the probable implications for the economic viability of the Middle Horizon city are presented.

**Storey, Rebecca (see Lee, Carla)**

[602] ARCHAEOLOGY, LINGUISTICS, AND ETHNICITY: A CONJUNCTIVE APPROACH.

Based upon correlations in geographic contiguity, ceramic typologies and chronologies, biological and mortuary patterns, and certain settlement pattern aspects, the Western Basin tradition populations who inhabited the lands surrounding the western end of Lake Erie are believed to represent the protohistoric ancestors of another Huronian population, who until recent times have not been recognized. It is hypothesized that this hitherto unrecognized member of the Iroquois co-tradition was militarily defeated by encroaching Upper Mississippian Algoquian-speaking Sandusky tradition populations during the 14th century AD, resulting in their withdrawal into SW Ontario.

**Stratton, Susan K (see Reed, Heidi E)**

[304] STRANS, Lawrence (New Mexico), Marcel Otte & Jean-Marc Léostard (Liége)

[211] Middle and Early Upper Paleolithic Research in South-Central Belgium.

Tou Magrite cave has a sequence of Mousterian and Aurignacian levels, the uppermost of which is 14C-dated to 27 kybp. The lithic assemblages include both local and extra-local flint and abundant limestone artifacts. The highly fragmented faunal remains, studied by A. Gautier, include cave bear, wolf, lynx, reindeer, ibex, pika, hare, lemming, other rodents and raptorial birds in the Mousterian, and cave bear, wildcat, lynx, a mustelid, hyena, fox, woolly rhino, reindeer, horse, ibex, a bovine, mammot, and hare in the Aurignacian. Gravettian artifacts were uncovered at the base of loess deposits in the open air site of Huccongroe, which, with a 14C date of 23 kybp, had one of the latest human occupations in north Europe before the Last Glacial Maximum. Distinct activity areas were defined at separate debitage and tool scatters, a cluster of bones and stone slabs, and one blade core was refitted. Fauna includes mammoth, horse, hare, bird, and cervid.

**Sned, Jalli (Puerto Rico)**

[316] THE COLUMBUS MYTH: THE CARIBBEAN EXPERIENCE.

**Sugiwana, Saburo (Arizona State)**

[411] WORLDVIEW AND SOCIETY IN TEOTIHUACAN.

The ritual meanings of the principal Teotihuacan pyramids are investigated through contextual interpretations of material culture, using excavations by the author and others at the Quetzalcoatl Pyramid, iconographic studies, and a systematic search for measurement units. These monuments, whose sizes and forms appear to represent the Mexamericans' time-reckoning system, have a powerful and unique time-space symbolism. The associated belief systems may have played important roles in defining the organizational framework and providing specific content meanings for cultural behavior. Discovery of more specific content meanings should lead to more precise understanding of the functional meanings of the city's material culture.

**Sullivan, Alan P (Cincinnati)**

[709] THEORY, METHOD, AND THE INFERENTIAL POTENTIAL OF THE ARCHAEOLOGICAL RECORD.

Behavioral archaeology, as a paradigm for archaeological interpretation, suffers from several epistemological difficulties that constrain its advocates in developing convincing, non-trivial inferences about the past. These difficulties are discussed and the outlines of a revisionist behavioral archaeology are presented. Using new archaeological data from the Grand Canyon area, I argue that a reformulation of fundamental premises regarding archaeology, archaeological theory, and archaeological methods increases the chances that the "inference strategies" will stimulate advances in the conduct of archaeological research and will contribute to new, credible views of the cultural past.

**Sullivan, Laurie A (see Driver, W David)**

[706] SULLIVAN, Lynne (New York State Museum)

[615] THE WPA PAYOFF.

The records and collections from many WPA-era projects are literal gold-mines for archaeological data and represent an important example of the need to ensure that archaeological documents are preserved and accessible for future scholars. In areas such as the Tennessee Valley, WPA projects laid the groundwork for regional research, and the collected information often is the only systematic
Sumner, William M

[609] THE GORDION REGIONAL SURVEY.

The Gordian survey is best described as a full-coverage reconnaissance, designed to explore the complete range of environmental variation in the region and to record all types of archaeological sites. While a more intensive walking survey is needed, some patterns have emerged. Early Bronze Age settlements are small and widely scattered. Regional centers appear in the Middle/Late Bronze Age, but it is not until Phrygian times that an urban population coalesced at Yasshöyük/Gordion, with settled areas spreading around the citadel mound and across the Sakarya River.

Sumner, William M (Chicago) [Discussant 207]

Sandahl, Elaine (see Chase-Dunn, Christopher) [107]

Satton, George (Cheyenne-Arapaho Business Committee) [202] WOWISH-ATA-YA HIYE (REBURIAL).

On a cold morning in November of 1868, General George Custer attacked the village of Black Kettle along the Washita River. Members of the Cheyenne tribe killed at the battle of the Washita (the Black Kettle Massacre) recently were reburied at the Black Kettle National Grassland in Oklahoma. George Sutton of the Cheyenne-Arapaho tribe speaks about his involvement with the reburial of these individuals who until quite recently had been stored in an Oklahoma newspaper office. Mr. Sutton discusses the lessons learned during the reburial process and makes some recommendations for the future.

Swedlund, Alan C (see Nelson, Ben A) [210]

Sweeney, Maria (Hawai‘i-Manoa) [307] EAST POLYNESIAN SUBSISTENCE PATTERNS: A RE-ANALYSIS FROM AN EVOLUTIONARY PERSPECTIVE.

Subsistence patterns offer a perspective on the prehistory of the Marquesas and the Society Islands as Polynesians moved eastward from West Polynesia. Earlier generalizations argue that first occupation of the islands was associated with broad based patterns of exploitation, while subsequent "adaptation" to the particular environment led to patterns of selective exploitation. After a consideration of the problems in previous quantification, a re-analysis of the evidence indicates that former generalizations cannot be sustained. A different view of first occupation emerges which can be incorporated into an evolutionary framework and discussed in the cultural historical context of the two archipelagos.

Swihart, Sharon (Massachusetts-Amherst) [405] DISCONTINUITY IN OWASCO-IROQUOIS CERAMIC SERIATIONS: A CHALLENGE TO IN SITU IROQUOIS DEVELOPMENT.

The in situ model of Iroquois origins is based largely upon ceramic seriations which assume and seemingly demonstrate that the Iroquois developed sequentially from the Owasco. Niemczycki has found these seriations do not work in western New York state; rather, there, Owasco and Iroquois components overlap. Reevaluation of the stratigraphy on sites in the Upper Delaware River Valley similarly indicate such an overlap, 100-200 years later than in western New York. The archaeological evidence, together with linguistic evidence, suggests a west-to-east Iroquois incursion into an Algonquin-Owasco population.

Szuter, Christine (Arizona) o Frank Bayham (California State-Chico) [604] LATE ARCHAIC HUNTERS AND FARMERS IN THE AMERICAN SOUTHWEST.

Hunting during the Late Archaic in south-central Arizona was part of a broad subsistence base reflected in the capture of a wide variety of small and large animals. The introduction of ceramics and the establishment of the Hohokam resulted in similar patterns of animal exploitation which were associated with social organization in both social organization and comparable adaptations to a desert habitat. Both occupations involved smaller populations who had less impact on the environment and animal resources. Changes in animal procurement that occurred later resulted from shifts in social organization developing from a greater commitment to agriculture.

Takac, Paul R (Southern Methodist) [710] SEEING THE FOREST FOR THE TREES? PALEOINDIAN ADAPTATIONS IN AN ECOTONE.

Models of Paleoindian subsistence, mobility, and landscape utilization often have been characterized as either "local" or "diffuse," frequently depending upon the environmental context in which they operated—plains/prairie or forest. During the late Pleistocene central Texas was an ecosystem separating the grasslands and parklands of west Texas from the pine-dominated forests of the east. Paleoindian subsistence strategies in the area may well have exploited both these resource areas, raising issues regarding their adaptations. The model presented can be evaluated using data from Spring Lake where both underwater and dryland excavations have revealed an extensive occupation by Clovis, Folsom, and later Paleoindian groups.

Tampin, Morgan (Trent) o James Britton (Sir Sanford Fleming) [410] AN INTERACTIVE SYSTEM TO MAP SITE DISTRIBUTIONS.

We have developed a system to display distributions of archaeological sites from their location coordinates. Ontario sites yielding bird remains are displayed on a screen or laser-printed. We can show the distribution of any group of sites according to selected spatial, species, and cultural criteria. We discuss the logistical, cartographic, and theoretical issues addressed during the system development and display laser-printed maps to demonstrate the program's capabilities.

Tankersley, Kenneth B (Illinois State Museum) [710] CLOVIS COLONIZATION PATTERNS IN EASTERN NORTH AMERICA.

This paper examines the Clovis colonization process by identifying patterns in the distribution of stylistically distinct artifacts manufactured from specific lithic material. Colonization is suggested by four patterns: (1) a limited distribution of artifacts, (2) exploitation of a limited number of resources, (3) the occurrence of the Clovis in the region, and (4) a unidirectional movement of lithic material from west-to-east and from north-to-south. These patterns are not present on post-Clovis Paleoindian sites, they are more dispersed, and illustrate a broader exploitation of resources, and a bidirectional movement of lithic material over smaller areas.

Tankersley, Kenneth B (see Martin, Terrance J) [612]

Tapia, Jorge E (Pittsburgh) [309] EL NIÑO FLOOD DEPOSITS IN THE LOWER OSMORE DRAINAGE, ILO, PERU.

Records of El Niño events over the past few centuries compared from historical accounts, and recovered from tropical Queccaya ice cap cores, show long term changes in the intensity of intertropical circulation across the Pacific Ocean. In fact, records of El Niño events prior to AD 1500 are poorly documented except in ice cores. Having determined two major and four intermediate flood events related with Paleo-ENSO climatological crisis during archaicological times, my purpose is to characterize the extension of each event and search for better potential datable materials which allow us to subscribe these environmental abnormalities to the archaeological account of the southern Peruvian coast.

Taylor, B E (UC-Riverside) [413] RECENT ADVANCES IN DATING METHODS: HISTORIC PRESERVATION PERSPECTIVE.

The material record of both prehistoric and historic cultures can now be temporally placed using a wide array of analytically based methods developed within the physical and biological sciences. Each method has assumptions and constraints that affect the accuracy and precision of thechronometric data. In addition, the physical or stratigraphic relationship of the sample or object being dated to the cultural expression for which temporal placement is being sought must be explicitly addressed and documented. Using case studies, this paper reviews major advances made over the last decade in developing and improving the capability of various physical dating methods—and particularly the C14 method.

Teitler, Patrice A (Southern Illinois-Carbondale) o Ana F Ramoñofsky (New Mexico) [203] THE MATERIALIST BASIS OF CULTURE HISTORY.

We explore methodological links between construction within an evolutionary archaeology and approaches developed by culture historians through seriation. In both approaches, cultural phylogenies are based on variant frequencies in populations. Time, history, and context are important on an explanatory level. Yet culture history ultimately was grounded in an essentialist metaphor, and units were perceived as empirical, rather than analytic. Consequently, errors were incorporated into the way knowledge was structured. Because sources of these errors are identifiable, they are predictable and avoidable. Understanding the materialist basis of culture history allows discussion of new analytic units within an evolutionary archaeology.

Teso, Barbara A (see Rathje, William L) [703]
Thacker, Paul (Southern Methodist)

[211] UNDERSTANDING UPPER PALEOLITHIC SITE LOCATION IN PORTUGUESE ESTREMADURA.

The Rio Maior drainage in Portuguese Estremadura contains a large number of late Pleistocene hunter-gatherer occupations. Systematic survey results indicate that these sites are not randomly distributed. Explaining the processes that created intersite patterns must rely in geomorphological reconstruction. Site occurrences appear to correlate with topographic features and resource availability. Upper Paleolithic settlement patterns in the valley system appear to differ from models of contemporaneous land use in southwestern France and Cantabrian Spain. This study illustrates the methodological rigor necessary for any credible settlement system model for the Upper Paleolithic.

Thomas, David Hurst (American Museum of Natural History)

[601] THE IMPACT OF EUROPEAN CONTACT ON NATIVE AMERICANS.

This presentation highlights current thinking about the Hispanic-Native American interactions, particularly from perspectives afforded by the ongoing Columbian Quincentenary. Historical and archaeological data strongly suggest that, contrary to views long held by American historians, Indians were never merely passive recipients of whatever new practices the Spanish chose to introduce. Rather, American Indians more creatively adopted and manipulated those traits that proved relevant, and simply ignored many others. Far from being luckless pawns, Native Americans commonly attempted to manipulate the rapidly changing conditions to their own advantage, insular as that was possible. The cultural instability of the times actually provided opportunities for many Indians, both promoters and adversaries of the Spanish regime.

Thomas, David Hurst (American Museum of Natural History) [Discussant 1]

Thomas, David Hurst (American Museum of Natural History) [Discussant 102]

Thoms, Alston (Texas A & M)

[710] LAND USE DIVERSITY ON A SUBTROPICAL RIVERINE LANDSCAPE: TERMINAL PLEISTOCENE AND HOLOCENE ARCHAEOLOGY, LOWER MEDINA RIVER VALLEY, SOUTH TEXAS.

Archaeological assemblage diversity is evident at 41RX831, where five well-dated components spanning the last 10,500 years are buried in 10.5 m of stratiﬁed alluvium. Available data fail to evidence a similar magnitude of local paleoenvironmental diversity. Sample size and preservation conditions do not appear to account for the observed assemblage diversity and inferred changes in local land use. Places where resource availability remained fairly constant are important for the study of non-environmental variables in the process of land use change, such as the role of population dynamics.

Thornberry, Jaquie (see Dirkmaat, Dennis) [509]

Tipps, Julie & Ron King (Nevada-Reno)

[410] TRAMPLING THE ARCHAEOLOGICAL RECORD.

Recent research by the University of Nevada at Reno in eastern Nevada and southern Africa explored the effects of cultural and non-cultural trampling and scufﬁng. Using recent experimental and theoretical evidence from various sources, we offer interpretations of central Great Basin ceramic and lithic features subjected to prehistoric cultural transformations and historic non-cultural trampling by cattle. These results are compared to ceramic assemblages from Zimbabwe subjected to large game trampling.

Tirrell, Peter (Oklahoma Museum of Natural History)

[406] TRAVELING EXHIBITS GIVE NEW INTERPRETATION TO OLD STORIES.

The presentation focuses on the successful use of traveling exhibits at archaeological parks, interpretive centers, and museums to increase visitor awareness, appreciation, understanding, and commitment to archaeological resources. The exhibit "Spyro Mounds: Prehistoric Gateway, Present-Day Enigma" is used as a case study. The exhibit represents a cooperative effort of the Oklahoma Museum of Natural History, the Oklahoma Archaeological Survey, and other local, state, and federal agencies and institutions. Discussion includes sensitivity to Native American issues regarding the design, educational activities at host sites, evaluation, and potential for future use of exhibits and accompanying interpretive materials.

Tisdale, Mary (see Brook, Richard) [112]

Tooker, Elisabeth J (Temple) [Discussant 605]

Turpin, Solveig A

[303] THE WERE-COUGER THEME IN LOWER PECOS ART: OR WHERE PEOPLE WENT AND WHAT THEY THOUGHT ABOUT IN PREHISTORY.

The were-couger theme is but one of the iconographic conventions that points to a shamanic context for the Archaic-age rock art of the lower Pecos River and middle Rio Grande. The extent of
this unified belief system can now be extended 90 miles into Mexico, where rock art sites belonging to this religious tradition demonstrate the movement of people and ideas across the Rio Grande and around or through the mountainous areas of northern Coahuila. The almost archetypal view of myriad lands adaptation in this region must be revised to accommodate exploitation of this montane habitat.

Tykot, Robert (Harvard) [108] REGIONAL INTERACTION IN THE PREHISTORIC CENTRAL MEDITERRANEAN: CHRONOLOGICAL VARIATION AS EVIDENCED BY OBSDIAN EXCHANGE.

Chronological change in the distribution of characteristic ceramics and raw materials such as flint and obsidian emphasize the dynamic nature of regional interaction in the prehistoric central Mediterranean. The “trade” in obsidian, for example, suggests the parallel movement of untraceable or perishable goods (e.g., salt, animal products), and may be a directional indicator for the introduction of domesticated plants and animals in the Neolithic. The distribution patterns themselves infer the use of particular exchange mechanisms, and reflect chronological developments in settlement pattern and social organization.

Ulmau, Marcelle (see Pearshall, Deborah M) [501]
Upah, Steadman (see Nicholas, Linda M) [107]
Urban, Patricia A (see Schortman, Edward) [206]
Valdez, Fred Jr (Texas-Austin)

[706] LATE PRECLASSIC ARCHITECTURE AND RITUAL AT RIO AZUL, PETEN, GUATEMALA.

A Late Preclassic structure at Río Azul is described. Ritual activity associated with the building is presented and interpretations proposed. Comparative information to similar constructions and activities at other Lowland Maya sites is also presented.

Valla, François (CNRS) [506] SEASONALITY IN THE NATUFIAN OF THE LEVANT.

The Natufian culture exhibits a tendency to sedentism ca 12,500 years ago in the most favored areas of the Mediterranean belt in the Levant. In more arid places—the Judean Desert, the Negev, and the like—this way of life is most probably untenable, and smaller sites are indicative of various levels of mobility. A few models have been suggested in the past to explain the relationship between the major sites and the smaller ones. In this view, it is of major importance to trace any indication of seasonality. Unfortunately the data are still scant and equivocal.

Van Tilburg, JoAnne (UCLA) [301] EASTERN ISLAND'S PREHISTORY: IN THE WAKE OF THE KON-TIKI.

The prehistoric landscape of Easter Island is justly famous for its plethora of monolithic sculpture and abundance of archaeological remains. Nearly 100 years of archaeological and anthropological investigations by scholars from several countries, culminating in the systematic archaeological survey of the island, have yielded data describing a rich and varied East Polynesian culture. In spite of this, in the minds of the public, Easter Island remains "mysterious" and "enigmatic." This paper explores the social and economic investment the people of the island have had in prescience, and confronts the issues of responsible public education and communicative scholarship "in the wake of the Kon-Tiki."

Vandiver, Pamela (Smithsonian) [511] A REGIONAL PERSPECTIVE ON THE MESOLITHIC DEVELOPMENT OF POTTERY PRODUCTION IN EAST ASIA.

Recent excavation of pottery fragments at Mesolithic sites in the Soviet Far East, China, and Japan has led to technical study of the methods of construction and raw materials selection. We examine the continuity and change in ceramic production from east Asian Upper Paleolithic sites which are few in number, as well as from the many Mesolithic sites at which similarities in methods and sequences of pottery construction, but not raw materials, have been demonstrated.

Vargas, Patricia (see Steadman, David) [307]
Veintimilla, Cesar o/ Deborah M Pearshall (Missouri-Columbia) [501] A PRELIMINARY ANALYSIS OF PAST VEGETATION IN THE JAMA RIVER VALLEY, MANABI PROVINCE, ECUADOR.

This paper reports on our on-going research in past vegetation patterns in the Jama River Valley of western Ecuador. New diagnostic phytoliths isolated from some tropical dicotyledons native to the dry forest of western Ecuador have been identified. These are described, and their value in identifying

Wailes, Bernard

phytoliths extracted from geological reconstructions in the valley are discussed. The application of the phytolith technique in vegetation reconstruction, as well as change of vegetation through time, are reported using core samples taken from the valley.

Versaggi, Nina M (SUNY-Binghamton) o/ Todd A Koete (Indiana-Pennsylvania) [509] THE JENSEN-BLACK CREEK SITE: INTRA-SITE PATTERNING AT A LAMOKA OCCUPATION.

The late Archaic Jensen-Black Creek site in southwestern New York reveals clear activity-specific intra-site patterning, including K-means clustering, artifact diversity tests, and SURFER maps, distinguished the following three zones: a possible structure with postmolds, functional features (storage and roasting pits), and peripheral artifact scatter. Radiocarbon dates (2200-6100 BC) link the two feature zones but suggest possible multiple occupations of the site. Results contribute important evidence on intra-site patterning for Lamoka sites in the Upper Genesee drainage basin. These data also fine-tune interpretations of hunter-gatherer organization and land use in the northeast.

Versaggi, Nina M (SUNY-Binghamton) [Discussant 705]
Weehey, And H (Rijksuniversiteit Leiden) o/ Samuel M Wilson (Texas-Austin)

[514] ENTER-AND INTRA-SITE SETTLEMENT PATTERNING ON NEVIS, ST KITTS, AND ST. EUSTATIUS.

Along the volcanic arc of the Leeward Islands of the Lesser Antilles, recent archaeological research has provided regional settlement pattern data on more than 50 previously unrecorded prehistoric sites. Large scale horizontal excavations at the Golden Rock and Smoke Alley sites on St. Eustatius have produced detailed information on their organization and internal structure. This paper combines the regional information concerning the number, size, and location of settlements with the unique information on site structure provided by the St Eustatius excavations.

Vetter, John F (USEPA) [702] EPA'S SUPERFUND ARCHAEOLOGY PROGRAM.

The Environmental Protection Agency's Superfund Program has spawned a massive effort of data collection and analysis at specific National Priority List contaminated sites. This effort is designed to restrict the public's contact with hazardous materials and to enable the return of contaminated lands to useful purposes. The agency's NHPA Section 106 compliance activities have required the detailed evaluation of many of these same lands. The results of this work have added significantly to our understanding of past cultural processes at a number of these sites. Additionally, the analysis of the historic vectors of contamination has been useful to the understanding of the contemporary problems of clean up.

Viera, Bradley J (New Mexico)

[511] EVALUATING HUNTING TACTICS VERSUS SUBSISTENCE DIVERSIFICATION EXPLANATIONS FOR LONG-TERM CHANGES IN MESOLITHIC TECHNOLOGY.

This paper evaluates opposing hypotheses which attempt to explain changes in Mesolithic technology. The "hunting tactics" explanation states that the shift from non-specialized to specialized technologies is the result of a switch from the intercept hunting of migratory game to the pursuit hunting of non-migratory game. Whereas, the "subsistence diversification" explanation states that these changes are related to the increasing exploitation of a variety of terrestrial and aquatic resources by specialized task groups. The empirical implications of these hypotheses are reviewed for northern Spain and Portugal.

Voigt, Mary M (William o/ Mary) [509] GORDON EXCAVATIONS 1988-1989: GOALS, STRATIGRAPHY, AND ARCHITECTURE.

Tests provide some fixed points in the history of Gordon, but much information on the nature and duration of archaeologically defined periods and of transitions between them is provided by new stratigraphic data. Stratigraphy coupled with information on architecture and domestic features contribute specifically to our understanding of: 1) events during the "Dark Age" that followed the fall of the Hitite empire; 2) political implications of the rebuilding that followed the 760 BC destruction; and 3) economic consequences of the fall of the Phrygian state to the Persians ca. 500 BC.

Voorties, Barbara (UC-Santa Barbara) [Discussant 306]
Wailes, Bernard (Pennsylvania)

[406] SETTLEMENT IN IRELAND: A STUDY OF CONTRAST.

Settlement data are extremely sparse for Bronze and Iron Age Ireland, but abundant for the early Medieval period. A variety of environmental, economic, sociopolitical, and ideological factors might
be involved in this contrast, so might differential preservation, so might the perceptions of historians and archaeologists. Examination of these variables leads to a proposition that the contrast may be more apparent than real.

Walker, Debra S (Mississippi) & Robin Robertson (Emma Willard) [706] SMASHED POTS AND SHATTERED DREAMS: MATERIAL EVIDENCE FOR AN EARLY CLASSIC SITE TERMINATION AT CERROS, BELIZE.

A remarkable deposit atop Cerros Structure 4 comprises evidence for exceptional ritual activity. Larger in scale than its Late Preclassic antecedents, this deposit of partly reconstructable vessels reflects ritual performance at a grand scale. Dated to the site’s Early Classic collapse, increasing stress from population loss may have prompted its performance. That participants used the same format as their ancestors to reenact ancient power reflects tension inherent in the declining center. Ironically, the ensuing demise of Cerros transformed the site-focused dedication ritual into a site-centered termination ritual.

Walker, William H (Arizona) [703] CEREMONIAL TRASH: A STUDY OF RELIGIOUS ARCHAEOLOGY.

Previous studies of prehistoric religion have minimized the reconstruction of religious behaviors and emphasized the ideological component of prehistoric religion. These studies have been composed of abstract symbolic analyses of motifs and icons and retrospective functional analyses of the integrative power of religion. This paper proposes a behavioral category, ceremonial trash, to understand a significant part of the archaeological record of prehistoric religion. It is argued that behavior provides a useful point of departure for the construction of the prehistory of religions.

Walker, William H (see Nielsen, Axel E) [703]

Wallace, Henry D, James M Heideke & Lyn Johnson (Desert Archaeology) [410] REFUSE CLASSIFICATION AND RECOVERY EFFICIENCY AT LARGE CERAMIC PERIOD OCCUPATIONS IN CENTRAL ARIZONA.

Formation process studies are usually conducted after an excavation’s completion, rather than during its testing phase. We present a sampling method that classifies the integrity and usefulness of archaeological deposits. The procedure incorporates field data with laboratory analyses in a rapid computerized evaluation that is available for structuring subsequent sampling decisions during field work. This allows the efficient allocation of resources and levels of effort relative to the study’s research issues and the realities of the archaeological record. The method is illustrated with data from the large-scale excavations of a series of central Arizona pithouse and pueblo sites.

Wallace, Henry D (see Doelle, William H) [701]

Wandsnider, LuAnn (Nebraska-Lincoln) [Workshop 401]

Warburton, Miranda (Navajo Nation Archaeology) [514] A RE-EVALUATION OF THE PREHISTORY OF THE HOPI BUTTES DISTRICT, ARIZONA.

Hopi Buttes District archaeology has long been underrepresented in discussions of Southwest prehistory. The Hopi Buttes area is intriguing because it is a transitional region between the Little Colorado and Tusayan districts. Two recent powerline surveys, conducted by NNAD-NAU, led to the recording of 50 archaeological sites that provide important insights into Pueblo period settlement in this area. Basketmaker III through early Pueblo IV period sites were recorded, and results of this work are summarized. Of particular interest are a number of PVI-IV transitional sites—a period critical to our understanding of PIIIV aggregations, and about which little is known.

Warner, Mark (Virginia) [606] AFRICAN AMERICANS IN 19TH CENTURY ANNAPOLIS: MATERIAL CONSUMPTION AND THE NEGOTIATION OF IDENTITIES.

For three hundred years African Americans have been a recognized and critical part of the economy of the Chesapeake. Less clear, however, are the social relationships which were negotiated by African Americans. This paper addresses African American social and economic identity in 19th-century Annapolis. Using materials from recent excavations, it is argued that the economic integration of the African American community in Annapolis did not necessarily reflect a similar degree of social integration. Although African Americans were active participants in the local economy, the consumption choices they made served to maintain an identity apart from their white counterparts.

Waselkov, Gregory A (South Alabama) [402] CHANGING STRATEGIES OF INDIAN FIELD LOCATION IN THE EARLY HISTORIC SOUTHEAST.

During the historic period (from the mid-16th to early 19th centuries) in southeastern North America, Indian agricultural methods changed as native societies adapted to new epidemiological, demographic, political, and ethnic conditions. One aspect of agriculture, the strategies employed in selecting field locations, can be studied by recourse to historical and archaeological evidence. A labor-intensive, mixed-habitat strategy that combined large, contiguous fields in floodplain bottomlands with upland fields gradually gave way everywhere (though at different times across the region) to small, isolated fields, primarily on upland soils.

Waselkov, Gregory A (see Potter, Stephen R) [606]

Watson, Patty Jo (Washington-St Louis) [402] THE SHAPING OF MODERN PALEOETHNOBOTANY.

Richard A Yarnell is one of the most productive scholars in contemporary paleoethnobotany, and he is also one of the major founding figures of the subdiscipline. For this presentation, I emphasize his role in the professionalization of archaeobotanical and paleoethnobotanical research, as well as his own broad-based contributions to the paleoethnobotany of North America.

Watson, Patty Jo (Washington-St Louis) [Discusant 304]

Watters, David R (Carnegie Museum of Natural History) & James B Petersen (Maine-Farmington) [503] INTER-ISLAND SETTLEMENT PATTERN VARIABILITY IN POST-SALADOID BARBUDA AND MONTSSERT, NORTHERN LESSER ANTILLES.

Barbuda and Montserrat, carbonate and volcanic islands respectively, provide a basis for comparison, derived from ceramic forms and radiocarbon dates, for the late Ceramic Age settlement patterns. Substantial occupation of Barbuda occurred in the post-Saladoid period after AD 600, whereas Montserrat was inhabited for a longer time, during the Saladoid and post-Saladoid periods. Post-Saladoid sites are greater in number, smaller in area, and occupy a variety of environmental settings. Aspects of subsistence diversification, population pressure, and social evolution, among other factors, were likely responsible for these developments.

Wayman, Michael L (see Ehrenreich, Robert M) [708]

Webb, Thompson III (see Newby, Paige) [614]

Webber, Andrewi (Alberta) [512] POLITICAL SEAL HUNTING ON THE LAKE BAikal: PRELIMINARY REPORT ON THE THIN SECTIONS OF THE SEAL CANINES.

The oldest archaeological evidence of seal hunting on the Baikal Lake, USSR, has been dated to around 8000-7000 BP. As part of a major research program on early Holocene subsistence patterns in the region of the Baikal Lake and Angara River, a total of 30 specimens of seal canines have been brought to Edmonton for thin sectioning. The analysis of annual growth rings provides information on some aspects of seal hunting in the area.

Webster, David (Penn State) [602] SHERDS AND STONE: DATING THE COPAN CERAMIC SEQUENCE.

Ceramic sequences have traditionally been constructed by archaeologists on the basis of stratigraphic relationships, seriation, cross-dating, and when possible, association with dated monuments. Chronometric dates are used to anchor sequences, but are usually too few to provide detailed tests of the accuracy of ceramic phasing. At Copan, Honduras, an abundance of obsidian dates allows us to test the accuracy of an independently constructed ceramic sequence. Ceramic assemblages from eight
element representation, and damage patterning were examined and together provide a baseline model for hominid utilization of these taxa. Comparison is made to the reptilian components of several East African Pleistocene and Holocene archaeological faunal assemblages.

Wetterstrom, Wilma (Harvard)
[287] DIET AND COOKING IN A WORKMEN'S QUARTER IN THE 3RD MILLENNIUM BC AT TELL LEILAN.

The 1989 excavations at Tell Leilan exposed a large area of a workmen's quarter, which allowed us to sample extensively for plant remains in a variety of closely controlled domestic contexts—floors, hearths, ovens, and courtyards. The materials, recovered by flotation, reflected household food processing activities and diet. Cereals—emmer, durum wheat, and barley—apparently were delivered to households cleaned, presumably as rations, as only the final stages of cereal preparation were revealed in the samples. The other staple was lentil, an important rotation crop. Dung fuel apparently was used for cooking as there was little charcoal.

Wetterstrom, Wilma (Harvard)
[308] OLD KINGDOM ECONOMIES AS REFLECTED IN BOTANICAL REMAINS.
The analysis of botanical remains recovered from systematically collected samples at the Old Kingdom sites of Giza and Kom el-Hisn allows the reconstruction of economic pathways between the agriculturally important areas of the Nile Delta and the administrative and mortuary complexes in the core of Old Kingdom Egypt.

Whalen, Michael E (Tusla)
[404] LATE ARCHAIC AND EARLY CERAMIC ADAPTATIONS TO THE DESERT MOGOLLON REGION.
The Desert Mogollon Archaic adaptation is argued to have focused on large winter base camps which were provisioned from small, scattered warm-season procurement sites. Ethnographic data from the Great Basin Shoshoni and Paiute are used to model this adaptation. The same seasonal mobility pattern continued into Early Ceramic times, but new excavation data show that important modifications were made. Among these are longer stays at winter base camps, supported by increasingly elaborate and intensive winter provisioning strategies. This is a logical precursor to the sedentary adaptation used by Late Ceramic (Pueblo) groups in the Desert Mogollon region.

Whalen, Norman (Southwest Texas State) & David W Pease (Southern Methodist)
[413] LOWER AND MIDDLE PLEISTOCENE SITES IN ARABIA.
As a consequence of systematic archaeological surveys during the past several years, the Arabian Peninsula has yielded many sites of Middle Pleistocene and some of Lower Pleistocene age. The oldest of these sites relate to the earliest human migration out of Africa into other continents of the Old World. Recent investigation in Arabia in 1991 has uncovered additional sites that confirm the antiquity of early human radiation into western Asia during the Lower Pleistocene.

Whalen, Mary K, Margo Neverett (Iowa) & Kristin D Sobolik (Southern Illinois-Carbondale)
[407] THE GAST FARM SITE FAUNAL REMAINS: MIDDLE AND LATE WOODLAND SUBSISTENCE PATTERNS IN SOUTHEAST IOWA.
This paper presents the preliminary faunal analysis from the Middle and Late Woodland components at the Gast Farm site. Organic preservation was good throughout the site, but most complete at the Late Woodland locus, with fewer organic remains associated with the Early and Middle Woodland occupations. Over 4000 faunal remains were recovered, primarily from pit features and midden deposits. The Late Woodland locus also yielded carnivore coprolites. The quantity and diversity of the faunal material is indicative of sedentary occupations with intensive exploitation of local food resources, especially fish, turtles, waterfowl, deer, and elk.

Whelan, Mary K (see Baker, Richard G) [607]
White, Joyce (Pennsylvania)
[507] PREHISTORIC ROOTS FOR HETERARCHY IN EARLY SOUTHEAST ASIAN STATES.
The unstable nature and prolonged developmental chronology of Southeast Asian state formation have been considered anomalous when viewed through explanatory models emphasizing stage development of political hierarchies. This paper proposes that the development of early Southeast Asian states represents an outstanding example of hierarchical process and trajectory. Prehistoric archaeology predominantly in Thailand is revealing the roots of a flexible hierarchical structure in craft production and agricultural organization.
Briere, John (New York)


The study of community structure in Tepiopoxon has much to contribute to our understanding of social evolution, when viewed as a means of constructing social identity. A broad view of the operational sequence for body ornaments is mandatory and must take into consideration cosmology, raw materials, production techniques, labor input, and socially variable contexts of procurement, production, use, and loss/abandonment. Ongoing microscopic and experimental research on a large sample of Tepiopoxon body ornaments sheds surprising light on the material construction of social identity near the origins of durable body ornaments.

Whitehouse, Ruth (London)

[108] GENDER CONSTRUCTION AND GENDER ROLES IN A PREHISTORIC SOCIETY: A CASE STUDY FROM SOUTHERN ITALY.

The paper addresses gender construction and gender roles in some South Italian communities of the late Neolithic and Copper Age. The evidence comes from hidden 'underground' ritual sites including both natural caves and crevices, and artificial rock cut tombs and hypogea. They seem to have been used for a range of ritual activities, including burial and other rites of passage, perhaps including initiation rites into a secret cult society. It is argued that membership was restricted to males, who wielded power over women through exclusive control of secret ritual (cosmological) knowledge.

Whitney, David S (W e S Consultants)

[303] ETHNOGRAPHY AND ROCK ART IN THE FAR WEST.

Encouraged by recent dating research, a systematic re-examination of California, Great Basin, and Plateau ethnographies reveals a rich record of information about the art. This supports only two origins for it: puberty initiation rites and shamanistic practices, both of which concerned visions and visions to obtain spirit helpers. The archaeological implications of this evidence are considered in reference to a neuropsychological model of ASC graphic imagery, rock art styles, the use of style to define ethnolinguistic groups, and the management of rock art sites.

Whitridge, Peter (Arizona State)

[312] AN ETHNOARCHAEOLOGICAL STUDY OF SEAL BUTCHERY AND TRANSPORT BY CLYDE RIVER INUIT.

In spite of some forty years' attention to butchery studies, and investigations of the economic anatomy of prey species ranging from kangaroos to penguins, no useful butchery data have been reported for seals. In an effort to define criteria for interpreting the large, well-preserved Pinniped assemblages from Thule Eskimo sites in the central Canadian Arctic, an ethnoarchaeological study was conducted of late winter breathing-hole scaling by Inuit hunters on Baffin Island. In conjunction with experimental ethnoarchaeology, ethnographic and ethnoarchaeological evidence for the existence of seal-sharing partnerships, this avenue of research could lead to the recognition of socially prescribed redistribution in the archaeological record of egalitarian hunter-gatherers.

Whittington, Stephen (Maine)

[602] THE PALEOEPIDEMIOLOGY OF COPAN'S LOW STATUS POPULATION.

A paleoepidemiological approach to analyzing skeletal remains of low socioeconomic status individuals from Copan involved consideration of reconstructions of prehispanic Maya culture, historical accounts of disease in the Maya area, the distribution of pathological changes within each skeleton, and the distribution of disease within the population. Heterogeneity was controlled by dividing the population into subpopulations based on sex, age, phase type, and site location. Application of the statistical techniques of survival analysis and log-linear modeling to subpopulation data revealed where significant differences existed in demography, disease, and evidence of stress. Results contribute to interpretation of Copan's population growth and decline.

Whiteselye, Stephanie M (Statistical Research)

[701] ETHNICITY AND COMPLEXITY: ARCHAEOLOGICAL PERCEPTIONS.

Concepts of ethnicity or cultural affiliation are linked with archaeological perceptions of sociopolitical complexity in the Tonto Basin in incompletely understood ways. The region has been characterized as the 'melting pot,' where indigenous people and immigrant groups resided together, and as a unified expression of a single culture, such as Hohokam. These perspectives influence perceptions of complexity. For example, archaeologists viewing the Tonto Basin as Hohokam from the Gila-Salt Basin perceive complicated sociopolitical development. In this paper, the
assumption under conditions of extensive cultivation. However, as agricultural production intensifies in response to population growth, this assumption becomes untenable. This paper discusses the methodology and results of research carried out in the Copan Valley of Honduras designed to model and evaluate the long-term sustainability of the soil resources and their role in demographic processes at the Late Classic site of Copan.

Winterhalder, Bruce e Carol Goland (North Carolina-Chapel Hill)

[102] FROM SHARING TO SCATTERING: RISK AND THE ORIGINS OF AGRICULTURE.

Empirical studies and simulation models based on the principles of evolutionary ecology show that sharing among hunter-gatherers and field dispersion in pre-modern agriculture are different manifestations of the same risk-minimizing adaptation. A common mathematical model describes each of these situations; to be reliable, subsistence in both cases must be pooled from unsynchronized sources. In this paper we draw on these conclusions to speculate on the role of risk in the evolutionary transformation from food gathering to agricultural food production.

Wolf, Sara J (Textile Museum)

[202] REPARTITION AND THE CONSERVATION ETHIC.

For a conservator to develop an appropriate scheme for treatment of archaeological or ethnographic materials, considerations of current and future use must be taken into account. If the repatriation of objects is at issue, the code of ethics and standards of practice under which conservators work obligate them to consider the use and/or disposition of such objects in their new settings. While the standards of practice permit some limitation on the practical application of intervention treatment, these standards do not address the more exclusive aspects of artifacts, such as the non-physical attributes of sacred objects. The question becomes one of who should define these standards.

Wooley, Christopher (see Haggarty, James C) [702]

Wright, Henry T (Michigan)

[107] SULTANATES OF THE SOUTHWEST INDIAN OCEAN.

Small states developed on the islands and coasts of the southwest Indian Ocean around AD 950.

Traditional explanations for their development—migration, trade, religious movement—are too simple. Comprehensive constructs are proposed.

Wright, Henry T (Michigan) [Discussant 308]

Wright, Henry T (Michigan) [Discussant 603]

Wright, James C (Brya Mason)

[114] SMALL STATES AND URBANIZATION: THE MYCENAEAN CITADELS OF GREECE.

This paper takes up three issues concerning the development of Mycenaean society: (1) the process of state formation and its relation to the chronology of the evolution of complex societies on the mainland of Greece during the Late Bronze Age, (2) an evaluation of the extent to which Mycenaean citadels qualify as urbanized, and (3) an overall evaluation of statehood terms of small interconnected city-states or regional polities. The first two issues are presented on the basis of new evidence and analysis of the archaeological material, while the last is a comparison among small states in the New World, the eastern Mediterranean, and Asia, taking into account models and theories of state evolution.

Wylie, Alison (Western Ontario) e David Hurst Thomas (American Museum of Natural History)

[Penalty session 216]

Wylie, Alison (Western Ontario) [Discussant 703]

Wymer, Dee Anne (Bloomsburg)

[302] PALEOETHNOBOTANY IN THE LICKING RIVER VALLEY, OHIO: IMPLICATIONS FOR UNDERSTANDING OHIO HOPEWELL.

The past decade has seen the establishment of an extensive and intensive paleoethnobotanical record for Hopewell habitation and ceremonial sites in the Ohio Licking River valley. The paper explores the implications these data have for the larger theoretical issues of prime importance for understanding Ohio Hopewell. Thus, the paper addresses the nature of the native gardens and the impact of Hopewell subsistence practices on the local ecology, and how both aspects relate to arguments centered on settlement sizes, population dispersion, degree and type of sedentariness, and explore niche width and diversity.

Yarnell, Richard A (North Carolina-Chapel Hill) [Discussant 402]
Yellen, John (National Science Foundation) [Workshop]
[201] THE NATIONAL SCIENCE FOUNDATION.

Yener, K Aslihan (Smithsonian)
[207] MID-THIRD MILLENNIUM METAL ACQUISITION AND METALLURGY IN NORTH MESOPOTAMIA AND SYRIA.

A sizable number of lead isotope measurements have been carried out on Near Eastern copper, bronze, lead, and silver objects. A survey of major regions of metal production in Turkey is being integrated into a comprehensive data bank including ones from across the Near East. It is now possible to identify metal ore sources and metal exchange patterns. The sourcing of Tell Lielan artifacts is compared to data from other third millennium sites.

Yerkes, Richard W (see Tomazou, Michael K) [311]

Yennser, David (Alaska-Anchorage)
[508] FAUNAL INDICATORS OF SOCIOECONOMIC COMPLEXITY AMONG COASTAL HUNTER-GATHERERS: ALEUTIAN AND FUEGIAN PERSPECTIVES.

The analysis of faunal remains from Aleutian and Fuegian sites illustrates both the difficulties and the potential for distinguishing between coastal societies of varying degrees of socioeconomic complexity. The chief difficulty involves obtaining clear associations between household and faunal deposits, which are easier to obtain at less spatially concentrated sites. In general, the best indicators of socioeconomic complexity are those based on relatively subtle features of the faunal record, such as heterogeneity in discard patterns, site specialization, and impact on regional animal populations.

Yennser, David R (see Holmes, Charles E) [312]

Young, Amy L o' Susan Andrews (Tennessee)
[104] CERAMICS AND THE ORGANIZATION OF SLAVE LABOR ON AN UPPER SOUTH PLANTATION.

Locust Grove is a plantation outside Louisville, Kentucky. The occurrence of identical decorative patterns found on ceramics around the main house and around three slave structures suggests equal access of slaves to masters. This apparent lack of hierarchy in the slave material culture fits well with the model that Upper South plantation slaves were generalized laborers, working in the fields and in the main house as season and occasion dictated. Specialized workers (i.e., domestics or field hands) were economically unfeasible on small slaveholdings like Locust Grove.

Young, D Craig Jr (Nevada-Reno)
[208] LATE ARCHAIC HABITATION FEATURES FROM TWO SITES IN WARNER VALLEY, OREGON.

Recent excavations in two lakeside sites in Warner Valley, Oregon, revealed several depressions containing well preserved habitation features. Excavation exposed four features consisting of collapsed patterns of burned, linear "logs." The logs were dated between 730 F1 80 and 440 F1 80 BP. Sediment and artifact stratigraphy demonstrated that the logs rested on possible house floors. This paper illustrates the excavation, recognition, and interpretation of the habitation features at these two sites. Similar features have been recorded at sites along Lake Albert, Oregon, and in Surprise Valley, California. Comparison of these features allows development of a regional model of lakeside settlement patterns in the northwestern Great Basin.

Zeder, Melinda (see Arter, Susan R) [609]

Zedler, James (Pittsburgh)
[610] THE PIQUIGUA PHASE: A TERMINAL VALDIVIA OCCUPATION IN NORTHERN MANARI (ECUADOR).

Regional archaeological survey and deep stratigraphic excavations in the Juma River drainage of northern Manabi have demonstrated a Valdivia 8 colonization of the humid upland portion of the valley beginning by 1680 BC. This paper provides an overview of the Piquigua phase at San Isidro (M3D2001) and related sites, presenting data on settlement pattern, radiocarbon chronology, agricultural subsistence, ceramic production, mortuary behavior, long-distance interaction, and ceremonialism. Finally, current models of Late Valdivia sociopolitical organization and territorial expansionism in western Ecuador are reviewed, and the Piquigua phase is examined within this broader, macro-regional context.

Zeier, Charles D (see Schmitt, Dave N) [612]

Zeitlin, Judith F (see Joyce, Arthur A) [306]