

ABSTRACTS OF PAPERS

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*Department of Anthropology
University of Wisconsin, Milwaukee*

SOCIETY FOR AMERICAN ARCHAEOLOGY: ABSTRACTS

Robert E. Ackerman (Washington State University)

NEAR SPACE AND CULTURAL RELEVANCE: AN ETHNOARCHAEOLOGICAL STUDY
IN THE WORLD OF OBJECTS

Information collected by Cape Newenham archaeological and ethnological expedition (Washington State University) during 1966 and 1967 in Southwestern Alaska will be presented to illustrate some of the research possibilities of archaeologically oriented ethnographic field studies.

Using an object orientation approach to the study of behavioral patterning in a site, I will compare the data from the following units:

1. currently occupied house in a modern Eskimo village
2. recently abandoned seasonal camp
3. log cabin ruin occupied mid 1930's and 40's
4. early historic-late prehistoric house pit (240 + 150 B.P.)

C. Melvin Aikens (University of Oregon)

HOGUP CAVE: ARCHAEOLOGY AND CHRONOLOGY

Excavations during the summers of 1967 and 1968 at Hogup Cave in the eastern Great Basin revealed a sequence of 16 depositional strata, which span in age a period from 6400 B.C. to A.D. 1500. The 14 ft. deep deposit was dry throughout and preservation of abundant floral and faunal remains, and cultural materials, was excellent. A series of 21 radiocarbon dates provides an absolute chronology on the basis of which cultural and ecological changes over time in the vicinity of the cave may be assessed. Four cultural complexes are recognized: 1) the Wendover complex, dated pre 6400 to ca. 2000 B.C.; 2) the Eastgate complex, dated ca. 2000-1000 B.C. to ca A.D. 500; 3) the Fremont complex, dated ca. A.D. 500 to ca. A.D. 1200; and 4) the Shoshoni complex, dated ca. A.D. 1200 to perhaps A.D. 1850 or later (the Shoshoni remain the ethnographic residents of the general region today).

Cultural contrasts between the Wendover and Eastgate complexes are marked; important elements, both stylistic and functional, drop out of the cultural record and are replaced by new ones. The disappearance of waterfowl and some small mammals from the record at this same time suggest that there may be a hiatus in occupation between the Wendover and Eastgate periods, corresponding to the period of ecological change. The transition

from the Eastgate to the Fremont complex involves an addition (rather abruptly) of new elements (including maize and diagnostic Fremont pottery and moccasins) to an existing inventory, rather than a replacement of old elements with new. The changeover to the Shoshoni complex is marked by an impoverishment of the cultural inventory and the appearance of diagnostic Shoshoni pottery.

The relevance of the Hogup data to some current models of western prehistory will be discussed.

Dean E. Arnold (University of Illinois)

POTTERY MAKING, RESIDENCE AND "DESCENT" IN AN EXTENDED FAMILY OF POTTERS IN TICUL, YUCATAN

Genealogical and residence data of five generations of an extended family of potters in Ticul, Yucatan, Mexico are examined. These data reveal that pottery making is learned within the household unit. Both men and women are potters and they learn the skill within their natal households (from either or both parents) or within the respective households into which they marry. A study of the residence data reveals that the households of potters are localized in a relatively small area within the city; the residences of the extended family under consideration also tend to occur together within this area. It appears then, that the learning of pottery making and the post-nuptial residential choices of potters are both influenced by kinship (cognatically and affinally defined in this case), but not determined by any simplistic system of 'descent' such as the four-fold classification of patrilineal, matrilineal, bilateral or double-descent.

Galen R. Baker (Otero Junior College)

RESEARCHES ON GREAT PLAINS PHASE SITES IN SOUTHEASTERN COLORADO 1968-9

Otero Junior College continued its second year of summer field training and research involving undergraduate students. The late prehistoric occupation in this area is well represented along the southern tributaries of the Arkansas River. Current excavations have produced information suggesting that these people were more nomadic and marginal than earlier researches have indicated. Occupation seems to have been short term, widespread and of a hunting-gathering nature. Game animals were probably an important and preferred source of protein yet the more consistent presence of gathering implements would suggest the collection and processing of wild vegetable foods was the main source of survival.

A tentative analysis of the stone tools recovered would suggest that the knives and scrapers were rarely refined (flaked) into distinctive shapes but merely used in the form of unretouched or partially shaped flakes. The total archaeological picture suggests the presence of a marginal existence of small groups (bands?) ranging in size on the average, between five and ten family groups. The widespread presence is obvious in rock shelters, on terraces and defensive bluff positions. The sudden appearance, short term occupation and sudden disappearance presents some interesting possibilities and enigmas regarding ecological and cultural changes in the late prehistoric period.

Tyler Bastian (University of Kansas)

CERAMIC TRADITIONS IN CENTRAL AND WESTERN OKLAHOMA

A review of pottery from the Oklahoma Plains and comparison with published descriptions of specimens from adjacent regions suggest that two major ceramic traditions are represented in central and western Oklahoma. One tradition is characterized by wide-mouthed jars with direct rims. Some of the vessels in the wide-mouthed tradition, particularly those from western Oklahoma, resemble Harlan Cord-roughened ware of western Kansas and Nebraska in having more or less conoidal bases, straight rims which are often slightly out-turned near the lip, and over-all exterior cord-roughening with the cord impressions vertical and parallel. In central Oklahoma the vessels in this tradition often have attributes suggestive of influence from the Caddoan area, such as flat bases and partial or complete obliteration of the cord-roughening. The wide-mouthed tradition is characteristic of the Pruitt site for which there are radiocarbon dates of A.D. 690+ 90 and A.D. 810+ 90. The second ceramic tradition in central and western Oklahoma is characterized by jars with constricted necks and vertical to flaring straight rims. In western Oklahoma the constricted-neck tradition is represented by both cord-roughened and smoothed vessels, the latter sometimes having loop handles, rim tabs, and shoulder nodes. Caddoan influences, such as smoothed surfaces, slightly flattened bases, and certain decorative techniques, increase in frequency toward central Oklahoma and at relatively late sites. The constricted-neck tradition is characteristic of sites assigned to the Washita River focus for which there are several radiocarbon dates ranging from A.D. 1010 + 150 to A.D. 1385 + 50. Pottery from both the wide-mouthed and constricted-neck traditions occur together at some sites, particularly in the Custer focus of western Oklahoma. The traditions appear to merge at the Mouse site for which there is a radiocarbon date of A.D. 950 + 100. It is suggested that in central and western Oklahoma there is a relatively early, wide mouthed ceramic tradition of ca. A.D. 500 to 1100 and a relatively late, constricted-neck tradition of ca. A.D. 900 to 1600.

Robert A. Benfer, Melvin Fowler and Sally Decker (University of Wisconsin-Milwaukee)

PROGRAMMED TYPOLOGY AS PREHISTORIC ETHNOSCIENCE: AN EXAMPLE FROM CAHOKIA BURIALS

Caches of stone projectile points excavated by Fowler from burials at Cahokia Mound appeared by inspection to contain more or less discrete groupings or types (Fowler, 1967). This rare case where the prehistoric Indians were thoughtful enough to arrange specimens in types seemed an ideal test sample for the general algorithm I have suggested (Benfer, 1967) for the solution of archaeological taxonomies.

Specifically, a large number of measurements and observations were taken on each specimen, and the intercorrelations among characteristics were factor analyzed to locate nonredundant dimensions. In this example the culturability, or percentage of cultural determination was not available, so all factors were treated as of equal cultural significance. A hierarchical grouping analysis by nonredundant characteristics was performed and the specimens were arranged into types. Comparisons of these statistically generated types with the actual archaeological or paleoethnographic classification produced very close agreement. Apparently the method of factor analysis is sensitive to slight differences among very similar specimens and typed these points successfully by the criteria established by the prehistoric pallebearers.

Bernardo Berdichewsky (College of William and Mary)

THE PREHISTORY OF THE CHILEAN ARAUCANEAN AREA

We consider the Araucanean area the Central-South part of Chile, more or less equivalent to the Central valley of Chile from Santiago to Puerto Montt. It is divided into three sub-areas; the northern one, or Picunche area, the central or Mapuche and the southern or Huilliche.

We have been established through Estratigraphic excavation, the cultural sequences, especially for the so-called "Picunche" area and partially too, for the Mapuche area. For the Huilliche area is even less clear the picture.

We could show now, through pottery types and other artifacts, similarities that the early ceramic cultures from the Mapuche area, by sure the early agriculturalist in that zone and probably a kind of pre- or proto- Araucanian culture has, coming from or through the Northern areas.

David C. Biernoff (University of New Brunswick)

THE TURKISH POTTER IN SOUTHERN MUGLA VILAYET

This paper summarizes information obtained in preliminary studies in the summer of 1968 with a grant from the Canada Council. Two centers of pottery production in the province of Mugla, Bodrum and Ula, have been investigated. In Bodrum three potteries are in operation while in Ula there are, at present, four potteries. A comparison of data from the two centers indicates that there are many similarities in all aspects of modern pottery production, and it is therefore possible to abstract a model of pottery production representative of southern Mugla Vilayet. The discussion is at this level of abstraction except where otherwise indicated.

The general discussion of the production model describes; the organization of space in the pottery shop, the accumulation of the necessary raw materials, the basic techniques and tools of production, the shapes and types of decoration of pottery, the distribution and marketing of these wares. Factors which seem to effect pottery production are location of the pottery, location of markets, means of transportation, sources of competition, and sources of innovation. Some data is available which makes it possible to discuss the potter's training, his attitudes about his work and products, and the social position of the potter.

There is evidence that innovation occurred in the recent past: in the last thirty years there has been a complete change-over from the use of a hand wheel to the use of a kick wheel; more recently new shapes and decoration have been introduced- all of these apparently on local initiative.

Thus this study provides evidence for variety and change both in pottery production techniques and in the pots produced. This evidence, in so far as it related to the range of variation of pottery shapes and designs produced by a single pottery or potter, the potter's idea of significant variation, and the relationship between means of transportation and the distribution of a potter's wares, may well be of relevance to archaeology.

Sally R. Binford (University of New Mexico)

ANALYTICAL ARCHAEOLOGY: MEASUREMENT FOR WHAT?

David Clarke's recent book "Analytical Archaeology" is used as a taking off point to examine problems of the relationship between measurement of empirical phenomena (including the question of numerical taxonomy), theory and method. It is argued that measurement, however sophisticated, should not be the aid of archaeology but a means toward achieving aims that are defined by theoretical propositions.

Verla Birrell (University of Utah)

ECCENTRIC TRAITS (IN TEXTILES) AND THEIR DIAGNOSTIC POSSIBILITIES

The ancient Peruvians used unusual methods to mend holes in garments. Some mends are in mesh or looping techniques. These eccentric mends, appearing in different excavations (cuts), could possibly be used to indicate contemporaneous periods, establishing correlations between cut levels. (The mends will be illustrated and diagrams of their positions in excavations shown.)

David A. Breternitz Alan Swedlund Duane C. Anderson (University of Colorado)

REANALYSIS AND EVALUATION OF A POSSIBLE PALEO-INDIAN BURIAL FROM THE GORDON CREEK SITE, NORTHERN COLORADO

The Gordon Creek Burial was salvaged in 1963 and a short report was published, by the junior author, in 1966. This flexed, red ochre-coated primary pit burial has been radiocarbon dated at 9700 ± 250 B.P.

The possibly significant age of this burial, the variety of funerary accompaniments, and the excellent state of bone preservation have prompted a recent reanalysis to determine in more detail the physical characteristics of the skeleton and the cultural materials and cultural events associated with the burial. These data are discussed in the light of the significance of the early radiocarbon date.

David S. Brose and Milford H. Wolpoff (Case Western Reserve University)

EARLY LOWER UPPER PALEOLITHIC MAN AND LATE UPPER MIDDLE PALEOLITHIC TOOLS

The appearance of *Homo sapiens* in Europe, the Near East and Africa must represent either an *in situ* evolution of Neandertals or a migration. Those who suggest the latter claim a sudden replacement of Neandertals by *Homo sapiens*. However, the 'evidence' actually cited claims only the sudden replacement of Middle by Upper Paleolithic industries.

We criticize the migration explanation on two grounds.

1. There is no 'sudden replacement' of Middle Paleolithic by Upper Paleolithic industries, but rather a gradual change in the frequencies of already present tools. Numerous sites in these areas exhibit transitional industries.
2. Even if there were a 'sudden' replacement of industries, this would not be relevant to the problem at hand. There is no absolute association between *Homo sapiens* and Upper Paleolithic industries. Rather, the evidence clearly shows that early *Homo sapiens* is a late Middle Paleolithic local phenomena.

Karen O. Bruhns (University of Calgary)

AN EXAMINATION INTO THE RELATIONSHIP BETWEEN THE "QUIMBAYA" GOLD STYLE AND CERTAIN CERAMIC STYLES OF THE MIDDLE CAUCA VALLEY, COLOMBIA

Examination and study of museum and private collections of artifacts from the Middle Cauca Valley, from the cultural area generally called Quimbaya, during the summer of 1966, revealed many new facts about the cultures of that area. One of the results of this study was an amplification and clarification of the ceramic style that Wendell Bennett* called the Brownware Incised style. This ware was not only more clearly defined, new categories were added to it and other shapes were discovered to be related. The study of a tomb group belonging to this pottery group and interviews with persons who had seen the tomb or who know the excavators added to the corpus of information available on this very distinctive group of ceramics. Not only was a much amplified and detailed definition of the style possible, but an admittedly tentative area of distribution was drawn up and one of the many tomb types reported from the Middle Cauca was definitely associated with this pottery group. The style of anthropomorphic decoration associated with this pottery style is rather unique in terms of representational art styles of this area and bears certain strong resemblances to the gold ornaments and receptacles of anthropomorphic form and decoration which are commonly called Quimbaya. An examination point for point of stylistic features shows so many points of similarity or identity that the relationship between the ceramic style and the gold style seems certain. Points of difference can be explained by the use of different media and the differing functions of the vessels and ornaments; differences in distribution by the apparent difference in function and by the prevalence of a strong tradition of commerce with other tribes in the Cauca valley.

* Wendell C. Bennett. Archaeological Regions of Colombia: A Ceramic Survey. Yale University Publications in Anthropology 30 p. 76, New Haven

Vaughn M. Bryant, Jr. (University of Texas)

ANALYSIS OF FOSSIL HUMAN COPROLITES FROM SOUTHWEST TEXAS

Fossil human coprolites from archaeological sites in North America have rarely been systematically collected and analyzed in detail. The objective of this paper will be first to describe sequential technique for as complete coprolite analysis as possible, and second to illustrate how the analysis of fossil human coprolites can provide significant clues into the seasonal occupation of some sites and sights into the dietary habits of man. Discussion of this second point will focus primarily upon the pollen, plant macrofossil, plant crystal, and zoological data obtained from fossil human coprolites recovered from Late Middle Archaic through Late Archaic horizons in the Amistad Reservoir area of southwest Texas.

Steve Cassells (Sargent High School)

FAUNAL ANALYSIS OF THE FIVE FINGERS BUFFALO JUMP, OWYHEE COUNTY, IDAHO

The Idaho jump site provided partial remains of Bison bison, with analysis revealing the lack of skeletal material in areas of high meat yield and higher concentrations in less desirable portions. Anthropological interpretation of this information tends to coincide with previous research of Archaic sites.

Charles E. Cleland (Michigan State University)

CERAMIC STYLES AND LATE WOODLAND CULTURAL DYNAMICS IN NORTHWESTERN MICHIGAN

Archaeological survey and excavation in the northwestern portion of Michigan's Lower Peninsula shows that Late Woodland villages of the region are confined to a narrow coastal zone called the Traverse corridor. This corridor is almost ten miles wide but extends approximately 100 miles from Grand Traverse Bay in the south to the Straits of Mackinac in the north.

Radiocarbon dates indicate Late Woodland occupation of the corridor from AD 800 to the time of European contact. Preliminary analysis of ceramic assemblages of five large sites indicate strong cultural influences of northern origin prior to AD 1000. The next few centuries are characterized by locally developed and rather stable ceramic styles which are only slightly influenced from both the south and the north. After AD 1300 northern influences again predominate.

Southward cultural influences into the Traverse Corridor may correspond to periods of climactic deterioration.

Joffre Coe (University of North Carolina)

SHAFT AND CHAMBER BURIALS OF THE 16th CENTURY CHEROKEE

Between 1938 and 1940 a series of shaft and chamber burials were found on sites in the Carolina Piedmont. These sites were identified as those occupied by the Eastern Siouan tribes, Sara and Occaneechi, at the beginning of the 18th century. Recent archaeological work on 16th Century Cherokee sites in Western North Carolina has discovered that this same unique type of burial was also practiced. The origin and distribution of the entrance shaft and sealed chamber type burial is of considerable importance in interpreting this phase of Southeastern archaeology.

Michael D. Coe (Yale University)

ARCHAEOLOGICAL SEQUENCE AT SAN LORENZO TENOCHTITLAN, MEXICO

San Lorenzo Tenochtitlan, a complex of Olmec sites in southern Veracruz, was apparently first settled at about 1500 B.C., in the Ojochi Phase. This is followed by three other Early Preclassic phases, the last of which, San Lorenzo (1150-900 B.C.), sees the height of Olmec civilization in the area and the carving of the great stone monuments for which these sites are noted. Two subsequent occupations are Middle Pre-Classic; after them there is a long hiatus, with a major re-occupation of the zone during the Villa Alta Phase (900-1200 A.D.), at which time Nahua-speakers seem to have moved into southern Veracruz.

T. Patrick Culbert (University of Arizona)

IRRIGATION AND NATURAL RESOURCE CONTROL IN PREHISTORIC MESOAMERICA

In the course of development, many cultures face periods of increasing population during which the subsistence economy is subject to stress. In this situation, a variety of adaptations are possible. Some, such as hydraulic agriculture, involve large scale cooperative labor. Others may involve only small scale measures such as soil conservation, control of fallow periods and emergency cropping. The role of a state level of organization in labor intensive agricultural systems has long been emphasized. This paper suggests, however, that the state may also be adaptively more effective than less cohesive political entities in areas where extensive agricultural systems are subject to stress.

Sue Ann Curtis (Pennsylvania State University)

VENANGO COUNTY AS A MARGINAL AREA IN NORTHWESTERN PENNSYLVANIA CULTURE HISTORY

This paper considers the continuing archaeological surface survey and the results of the excavation of a single select site. Particular attention is paid to the Late Woodland Period which exhibits evidence of demographic and spatial marginality to both the Owasco and Monongahela areas. Temporal marginality is indicated in the persistence of an Archaic lithic technology. Preliminary results are presented and an attempt at cultural historical reconstruction made within an ecological framework.

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Albert A. Dekin, Jr. (University of New York-Potsdam)

PALEO-CLIMATE AND PREHISTORIC CULTURAL INTERACTION IN THE EASTERN ARCTIC

The movement of cultures in the Eastern North American Arctic is seen as the result of fluctuations in climate. Climatic changes effectively limited travel and caused alternate periods of cultural homogeneity and cultural diversity across wide geographic expanses during the prehistoric period. These fluctuations in climate and cultural interaction are discussed.

Hilda S. Delgado (Indiana State University)

POSSIBLE ARCHAEOLOGICAL ANTECEDENTS OF GUATEMALAN INDIAN TEXTILE MOTIFS, FROM MEXICAN AND GUATEMALAN SHERDS AND SEALS

A brief examination of design motifs present in Classic and Postclassic Guatemalan and Mexican sherds and seals which parallel some brocaded figures on indigenous Guatemalan costume. Sherds from the Guatemalan Museo de Etnologia e Arqueologia's collections are the basis for the comparison but late Mexican materials, especially from the Maya area, are also examined.

Roy S. Dickens, Jr. (University of North Carolina)

THE PASGAH CULTURE: A PRELIMINARY STATEMENT ON A LATE PREHISTORIC MANIFESTATION IN THE SOUTHERN APPALACHIANS

A distinctive archaeological culture, termed Pasgah, can be defined for a portion of the southern Appalachian Mountains in the period c. A.D. 1350-1550. It can be demonstrated that this culture was the product of a long sequence of local development, as well as of a complex process of interaction through time between mountain cultures and those of surrounding regions. It also can be shown that this late prehistoric phase contributed significantly to the development of the historically-known Cherokee culture.

Dena F. Dincauze (Harvard University)

THE SUSQUEHANNA TRADITION IN SOUTHEASTERN NEW ENGLAND

The Susquehanna Tradition has been recognized as a discrete entity among the Late Archaic cultures of New England. Three phases have been defined within the tradition, extending through time from 2000 to 1000 B.C. The phases- Atlantic, Watertown, and Coburn- will be briefly described and their characteristic artifacts illustrated. The appearance of the Susquehanna Tradition in the Northeast, its subsequent developments and ultimate assimilation in the Orient phase will be analyzed in terms of cultural, historical and social processes.

Christopher B. Donnan (University of California, Los Angeles)

NEW EVIDENCE ON THE END OF THE MOCHE STYLE

The Moche style, which flourished on the north coast of Peru during the first millennium A.D. was replaced by a Huari-related style originating in the southern sierra. Recent excavation has yielded a fascinating glimpse of the mixture of these two great styles as reflected in ceramics and a large structure with a series of polychrome murals. The mixture of these two styles was to have significant consequences in the formation of the subsequent stylistic tradition of the north coast.

Wakefield Dort, Jr. (University of Kansas)

GEOLOGIC EVIDENCE OF FREQUENT CLIMATIC CHANGES ENDURED BY IDAHO PALEOINDIANS

The three-part subdivision of post-Pleistocene climate and time in Western United States developed by Antevs was suited to then-existing knowledge and served its purpose well. Now, new studies by Bryson and his associates have shown that in many areas there were several shifts of climatic parameters and that these were not necessarily parallel from place to place.

Indication of at least local frequency and magnitude of post-glacial climatic variations is provided by a highly unusual exposure in a collapsed lava tube situated on the Snake River Plain 30 km west of Idaho falls. Excavations by the Upper Snake River Prehistoric Society, directed by Butler, revealed a 3 meter section of laminated silts. The lower layers are deformed by involutions indicative of permafrost activity. Continuity of layers is interrupted by V-shaped intrusions of sediment marking former positions of ice wedges. There are at least six well-defined horizons below which ice wedges developed, each horizon marking a former cave-floor surface.

Each generation of ice wedges probably formed when mean annual air temperature was below -6°C , and Ground temperature of below -15°C for a period of years. Each successive generation of ice wedges melted and sediment casts formed during warmer periods. Overlying sediments were introduced mainly by wind, during a third kind of climatic regime. Radiocarbon dates indicate that three of these tripartate climatic cycles occurred between 7900 and 6600 B.P. Scattered artifacts and a layer of butchered bones show that man was at least occasionally present during this interval.

John T. Dorwin (University of Kentucky)

THE ROLE OF THE FRONTIER IN CULTURAL TRANSMISSION

The frontier zone between two autonomous cultural systems forms an area in which change is much more prevalent than in the hinterlands of either of the systems. When such a zone extends over a long distance, it

becomes a corridor along which new ideas may spread rapidly and sporadically due to the greater receptivity to change. Such zones might help to explain peculiarities of distribution which frequently trouble archaeologists. Ultimately the zones result from a combination of ecological and cultural factors. An example is drawn from Mississippian-Late Woodland relationships in the eastern United States.

Don E. Dumond (University of Oregon)

TOWARD A PREHISTORY OF THE NA-DENE

Arguing chiefly from the occurrence of microblades, Borden has hypothesized that ancestral speakers of Na-Dene, present in Alaska in the terminal Pleistocene, spread through the corridor between the Rockies and the Coast Mountains of British Columbia into the Pacific Northwest, where they arrived by 5000 B.C.

Based upon the distribution of Na-Dene languages and the occurrence of side-notched projectile points in northwestern North America, two additional hypotheses are added to that of Borden:

1. Once they occupied territory from Alaska through British Columbia, Na-Dene people provided the means for the spread of side-notched projectile blades from the continental United States to Alaska before 4000 B.C., and a northward population shift by them during the Hypsithermal accounts for the relative geographic positions of Haida, Tlingit, and Eyak.

2. After the Hypsithermal, a further dispersal south and east from Alaska served to spread the specifically Athapaskan languages.

Stephen D. Durrant and Kimball T. Harper

FAUNAL AND FLORAL REMAINS AS INDICATORS OF NEOTHERMAL CLIMATES AT HOGUP CAVE

In 1948, Antevs proposed the name Neothermal for that period of warming temperatures following the Pleistocene glaciations. Based largely upon phenomena from the Great Basin of North America, he divided the Neothermal into three major ages, Anathermal, 7,000-5,000 B.C.; Altithermal 5,000-2,500 B.C., and the Medithermal, 2,500 B.C. to present.

The 16 layers excavated from Hogup Cave had been dated by carbon 14. As concerns time, layers 1-3, 4-8 and 9-16 closely parallel the Anathermal, Altithermal and Medithermal ages respectively. Faunal and floral remains from each of these layers have been carefully studied with reference to extent of occurrence and varying amounts of the different kinds.

The faunal and floral remains from Hogup cave do not lend themselves

well in support of Antevs' thesis. At best, they appear only to depict certain trends in numbers and occurrences of the several kinds. Twenty eight species of plants were recorded from the 16 layers. With some minor exceptions, all are still present or not far removed from the immediate area.

Based upon the osteological remains of 3418 mammals, it is evident that the mammalian fauna of the area throughout the Neothermal was remarkably similar and is the same as that found there today. This indicates that with some fluctuations, there existed a certain similarity in environmental factors throughout these past nine millenia. Interpretations of the data lead us to consider that the climate of the Hogup area during the Neothermal was cooler in early Anathermal, then becoming gradually warmer reaching a moderately high temperature during the Altithermal and then gradually cooling until the present.

These data seem to confirm that if the Altithermal age was a reality, then its appearance in the western segment of the Bonneville Basin was not marked and possibly was of short duration.

William Ellis Edwards (Temple Buell College)

PLEISTOCENE EXTINCTIONS AND THE FIRE-DRIVE

If climate or parasites did not effect megafaunal extinctions, what mechanism did sparse, primitive hunters employ? Perhaps the 200 genera were extinguished by the widespread fire-drive, which was the most efficient (per man hour) technique available, with selective removal of larger, slower prey, less securing of cover. Yet fire-drives, typically feasible only seasonally or irregularly, are highly variable in productivity. Additional fires might compensate, but would largely preclude territoriality and long-term man-land equilibrium. Furthermore, fire drives scarcely account for megafaunal survivals in the American arctic and subarctic, for European temperate and the African and Asian tropics, or for thorough extinctions in American rain forests and swamps. Despite some advantages of forest undergrowth and grassland burning, megafaunal fire-drives are unneeded and inefficiently wasteful of game, with lower human density and resultant selective disadvantage in interareal competition. Also perhaps significant are Plains bison, flourishing despite fire-drives. A postulated rapid wave of exterminating fire-drive hunters, advancing across the Americas, lacks a corroborating abrupt faunal or cultural break.

Apparently, progressively efficient (with likely occasional fire-drives, especially for small mammals) and therefore sparse hunters were in equilibrium with prey, few if any species of which succumbed until a broadening economic base effected extinctions.

Robert C. Euler (Prescott College)

THE USE OF THE HELICOPTER IN ARCHAEOLOGICAL SURVEY

Helicopters are coming into increasingly greater use as archaeological survey vehicles. This paper discusses their advantages and limitations with particular reference to the nature of the reconnaissance, types of terrain traversed, visibility, and aerial photography.

Betty Meggars and Clifford Evans (Smithsonian Institution)

BRAZILIAN ARCHAEOLOGY IN 1968: AN INTERIM REPORT ON THE NATIONAL PROGRAM OF ARCHAEOLOGICAL RESEARCH

Brazil can be divided into two geographical areas: the Coastal Strip and the Amazon Basin. Coordinated systematic survey and testing on the Coastal Strip between 1965-8 shows the Preceramic Period to have lasted until about A.D. 500 except in an enclave on the Bahia Coast, where the Periperi ceramic tradition dates from the 9th century B.C. Although a variety of preceramic complexes has been recognized particularly in the south, primary attention has been placed on the ceramic period. Several regional ceramic traditions have been identified, which appear to be generally contemporary with the area-wide Tupiguarani tradition. The latter is divisible into three subtraditions, the earliest of which emphasizes painted decoration, the second corrugation, and the most recent brushing. Subsequent to European contact, a Neo-Brazilian ceramic tradition developed, in which aboriginal and European traits are amalgamated.

Although the archaeology of the Amazon Basin is more poorly known, none of the existing data shows any evidence of contact with the occupants of the Coastal Strip or vice versa. The strength of the ecological barrier between the two areas is reflected in the affiliation of complexes on the upper Rio Xingu, on the ecological border, with the Amazonian Incised and Punctate tradition and the total lack of any features suggesting contact with cultures of the Coastal Strip.

Lisa Ferree (Southern Illinois University)

SOME ASPECTS OF MAYA CEREMONIAL ACTIVITIES AT TIKAL, GUATEMALA

Evidence of a Maya ceremonial event is occasionally found in the form of residual ritual material, including pottery incense burners, left in situ at the conclusion of the ceremony. Usually, however, the ritual material is no longer to be found in such primary contexts, and the more abundant material in secondary contexts must be made to yield its quantitative and qualitative data to provide a broader picture of ceremonial activity at the site.

An investigation of the on-site distribution of incense burners, their patterns of association with buildings, monuments, and other features, and the nature of the contexts in which they most commonly occur, provides information bearing upon the nature, purpose, and prevalence of certain ceremonial activities at Tikal.

Fred W. Fischer (University of Cincinnati)

EXCAVATIONS AT MIAMI FORT, HAMILTON COUNTY, OHIO

The department of Sociology and Anthropology of the University of Cincinnati conducted archaeological investigations in and around the prehistoric site of Miami Fort during the summers of 1965, 1966 and 1967. Miami Fort is a large ridgetop enclosure in southwestern Hamilton County, Ohio. The primary objectives of these investigations were to learn when the earthworks were constructed, what prehistoric group undertook such an extensive construction project, and, finally, why. Carbonized material from the lower portion of one of the defensive embankments yielded a radio-carbon date of 270 A.D. + 130 (M-1869). Cultural material recovered in the excavation of a habitation area within the eastern portion of the enclosure seems to substantiate this date. Although the artifacts recovered in the habitation area represent a Middle Woodland phase, none of the attributes usually associated with the Hopewell culture are present. An intensive survey of the surrounding area has resulted in the discovery of numerous small Middle Woodland terrace sites. These sites can be assigned to the 'Miami Focus' on the basis of a distinctive projectile point type found within the Miami Fort enclosure. Investigations at Miami Fort would seem to support Olaf Prufer's suggestion that the ridge-top enclosures represent 'general refuge positions, rather than true fortifications' and that the construction of these enclosures was the joint effort of a number of small related hamlets.

James E. Fitting (Case Western Reserve University)

SCHEDULING IN A SHARED ENVIRONMENT: LATE WOODLAND LAND USE IN THE SAGINAW VALLEY, MICHIGAN

During the Late Woodland period, prehistoric Michigan was occupied by groups with three distinctive environmental adaptive patterns. Each pattern was marked by an internal 'scheduling' for the maximum use of available resources. Because of its wide variety of resources and geographical position, the Saginaw Valley of Michigan was incorporated into the scheduling of groups representing all three adaptive patterns. Archaeological and historical evidence suggests that the Valley was shared on a seasonal basis until the Middle Historic period.

W.J. Folan (Canadian National Historic Sites Service)

John T. Dewhurst (Canadian National Historic Sites Service)

YUQUOT, BRITISH COLUMBIA: THE PREHISTORY AND HISTORY OF A NOOTKAN VILLAGE

During the summer of 1966, the National Historic Sites Service of the department of Indian Affairs and Northern Development carried out extensive excavations at the site of the 18th Century Spanish military post of Santa Cruz, located within the confines of the prehistoric, historic and contemporary Nootkan village of Yuquot. A multi-disciplined effort is

being made to analyze the numerous ethnohistorical documents describing the site and its inhabitants during the 18th and 19th Centuries, the 5000 prehistoric and historic artifacts and approximately 100 cubic feet of faunal material recovered during excavation. The results of this study will provide a comprehensive description and analysis of the prehistoric, historic and contemporary inhabitants of Yuquot plus the role of the site in relation to European, American and Canadian economic and political development.

Richard I. Ford (University of Michigan)

NUTS FOR HOPEWELLIANS

It has been suggested that differential environmental productivity and redistribution between residential groups were important economic bases of Hopewellian social organization. This paper examines this proposition by focusing on the productivity of edible nut trees, the methods of preparing nut meats, and their biochemical properties. A model is presented showing how Hopewellians in the lower Illinois River valley employed a mixed strategy for procuring this important food resource.

Margaret Hardin Friedrich (University of Chicago)

STRUCTURAL RELATIONS BETWEEN DESIGN ELEMENTS AS INDICATORS OF INTENSITY OF SOCIAL INTERACTION: SOME ARCHEOLOGICAL IMPLICATIONS OF AN ETHNOGRAPHIC ANALYSIS

Variation in painted pottery style, defined here as the design arrangements used in the village studied, is a sensitive indicator of the degree of communication between painters. An analysis of decorative style as a multi-level phenomenon with hierarchic structure leads to a more precise examination of the manner in which such variation reflects social interaction and facilitates the choice of accurate indicators from variables that might be abstracted from a complex design structure.

The present study is based on observations of the patterning of painters' interaction, diffusion of stylistic elements, and distribution of shared design features made during 14 months of ethnographic fieldwork in a small Tarascan village in Michoacan, Mexico. Interaction between painters followed one of two patterns; 1) most painters worked alone, rarely watching other people paint or discussing design elements with them; but 2) one group, comprised of all the painters in one nuclear family, painted together and exchanged a large amount of information about design. The painters working together as a group used a distinct substyle; intense interaction within this painting group was reflected by the high degree of cohesion exhibited by the substyle. Using the hierarchic organization of design as a framework, the features that distinguish this substyle are discussed. Some implications of the analysis for archaeological studies of decorative styles exhibiting similar structures and variability are discussed.

Gary F. Fry (University of Utah)

PRELIMINARY ANALYSIS OF THE HOGUP CAVE COPROLITES

In a preliminary study of the Hogup Cave coprolites, 27 specimens were examined for contents. The samples are soaked in an aqueous solution of trisodium phosphate and screened through graded sieves. The recovered materials are dried and separated into meal components which are weighed.

The specimens are in 3 temporal groups; group I- prior to 4,000 B.C. (strata 3-5), group II- centered at 2,000 B.C. (strata 8), and group III- post 1,000 B.C. (strata 11-15). The groups are representative of 2 major prehistoric cultural manifestations, the Desert Archaic (groups I and II) and the northern variant of Fremont (group III).

Little dietary change is seen during Desert Archaic times when the major vegetal foods were cactus and chenopod seed; however, significant relationships exist between components which are consistent with Desert Archaic food preparation techniques.

Dietary change is apparent during the Fremont occupation as demonstrated by a marked drop in the utilization of cactus and chenopod seed and an increase in fibrous foods.

Sherwood Gagliano (Louisiana State University)

EVIDENCE OF EARLY MAN IN THE CENTRAL GULF COAST AREA

Several converging lines of evidence indicate pre-projectile point Lithic Stage occupations in areas of south Louisiana, Mississippi, and Alabama. Distributions of Paleo Indian index points suggest that Paleo Indian hunters roamed throughout the area. Recent stratigraphic studies and radiocarbon dating of loess deposits contribute to a better interpretation of the human pelvis found in association with extinct animal bones near Natchez, Mississippi. Radiocarbon dates from undisturbed core samples have now established a probable date of 9,000 to 10,000 years B.C. for the bed at the Salt Mine Valley site on Avery Island, south-central Louisiana, in which bipolar tools and bones of extinct vertebrates have been found. Lithic sites near Dothan, Alabama, have produced copious quantities of chipped artifacts believed to represent pre-projectile point occupations. Archaic assemblages in the terracelands of the study area are based on a long tradition of pebble-tool utilization.

Guy Gibbon (University of Wisconsin)

CULTURAL DYNAMICS AND THE DEVELOPMENT OF THE ONEOTA LIFE-WAY IN WISCONSIN: AN HYPOTHESIS

An evolutionary and ecological approach is used in defining the causes and motivations involved in the process of Oneota development. Particular emphasis is placed on the community as an organization of corporate action and on the ecological system as the primary matrixes of change. The discussion is divided into the following sections: 1) the Effigy Mound Tradition; 2) the Transformation to the Oneota Life-Way: A.D. 900-1100; 3) Oneota Culture in Wisconsin between A.D. 1000-1300; 4) Oneota Factionalization:

A.D. 1300-1650; 5) the Formation of the Winnebago Tribe : A.D. 1650; and, 6) Summary, Discussion and Criticism.

Michael A. Glassow (University of California, Los Angeles)

DIFFUSIONIST VS DEDUCTIVE EXPLANATION OF THE ORIGINS OF AGRICULTURAL SETTLEMENT SYSTEMS IN THE NORTHERN SOUTHWEST

The development of agricultural settlement systems in the northern Southwest, beginning about A.D. 500, has traditionally thought to have been initiated by "diffusion" or "influences" from regions farther south. It is argued that explanation by reference to diffusion is not explanation at all and that we must reorient our research to discover the selective pressures operating on a cultural system which favor such a development. It is proposed that increasing population numbers produced enough pressure on natural resources that more efficient means of subsistence were sought--these means being horticulture coupled with facilities for preservation, storage, and reconstitution of maize.

David M. Gradwohl (Iowa State University)

ARCHAEOLOGY OF THE CENTRAL DES MOINES RIVER VALLEY: A PRELIMINARY SUMMARY

For the past five and one half years, Iowa State University has been engaged in the investigation of archaeological manifestations in the central Des Moines River valley. These investigations have been part of the salvage program in Red Rock and Saylorville Reservoirs undertaken in cooperation with the National Park Service.

Surface collections suggest the presence of Paleo-Indian and Archaic complexes in the valley, but excavated samples cannot yet demonstrate this occupation. Woodland manifestations, both camp sites and burial mounds, are present throughout the region. Ceramics are reminiscent of Havana and Weaver wares, and possibly Black Sand.

South of Des Moines are found sites attributable to Oneota. Four excavated components, plus additional test and surface collections, have been tentatively assigned to the Moingona Phase. North of Des Moines, there appear to be no Oneota materials, but rather the presence of Great Oasis manifestations. Two excavated components plus a number of surface collections have been assigned to this complex.

Historic sites, marking the White settlement of the valley between ca. 1840-1890, have also been investigated. Particularly significant are the pottery kilns which are associated with coal mining and other early commercial activities along the Des Moines river.

George J. Gumerman (Prescott College)

ARCHAEOLOGICAL APPLICATIONS OF AIRBORNE INFARED SCANNING IMAGERY AND PHOTOGRAPHY

In the last decade techniques for obtaining thermal maps of terrain have been developed by the aerial use of infrared scanning devices and infrared color photography. The use of these devices at relatively high altitudes in Northern Arizona has resulted in the discovery of prehistoric agricultural plots and habitation sites. Some of these cultural features are invisible on inspection from the surface or on conventional black and white photographs.

The utilization of these thermal maps as a tool for archaeological survey holds great promise. The technical application, advantages, and disadvantages of these scanning and photographic techniques will be discussed.

Robert E. Greengo (University of Washington)

A NEW FIGURINE COMPLEX FROM GUERRERO, MEXICO

A series of crude, hand-modeled pottery figurines were noted from two sites during archaeological survey near Iguala, Guerrero. One form previously reported, appears to represent the human female in a pregnant condition. An unusual feature of this variety is that each has a vertically oriented incision in the thorax portion, which gives rise to the hypothesis that a Caesarean section may be represented. Other varieties, not previously published, appear to represent non-pregnant females, males, or are indeterminable as to sex.

Somewhat similar figurines have been reported in the literature from other localities in Guerrero, and a unique series in the national museum of Mexico may be related to this complex. Preliminary indications from architectural and ceramic associations suggest a post-classic dating for this complex, perhaps as late as the Aztec period.

Terence Grieder (University of Texas)

ARCHITECTURAL AND CERAMIC STYLES AT LAS HALDAS, PERU

Studies and excavations at Las Haldas on the coast of Peru resulted in a map of the site, an architectural sequence based on radiocarbon dates, and a tentative ceramic sequence. The architecture can be related to buildings on the Central Coast and northern Highlands of Peru. The ceramics begin with a style which is similar to Kotosh Waira-jirca, followed by Chavin style pottery. Inferences about the extent of the pre-Chavin and Chavin cultural areas are drawn.

David C. Grove (State University of New York-Binghamton)

NEW OLMEC PAINTINGS FROM GUERRERO: DESCRIPTION AND INFERENCE

Although Olmec art has been archaeologically known since the mid-1800's, a new facet of Olmec art has only recently come to light: paintings. The first discovery of Olmec paintings was in 1966, with the identification of the paintings of Juxtlahuaca cave, Guerrero, as Olmec. In November, 1968, I investigated a cave near Chilapa, Guerrero. This cave contained a large quantity of paintings, the majority of which I have identified as Olmec. The cave, known locally as Oxtotitlan, is about 15 miles south of the Rio Balsas, and 20 miles north of Juxtlahuaca cave. Three different types of paintings occur, black monochrome, red monochrome, and polychrome. The polychrome paintings occur on the cliff face in front of the cave, and are quite large. The best preserved of the two major polychrome murals is placed nearly 30 feet high on the cliff and covers an area of about 35 square feet. This mural depicts an elaborately dressed human figure seated upon a jaguar-monster head. The second polychrome mural, at the base of the cliff, covers nearly 100 square feet, but is in poor condition and therefore difficult to completely interpret. Within the north area of the cave are at least 10 other Olmec paintings, generally black monochrome. These paintings include a standing Olmec human figure beside a semi-standing jaguar, several reptilian creatures which are similar to cipactlis, and several Olmec baby-face heads. A possible date glyph and a speech scroll also occur with these Olmec murals. The paintings in the southern area of the cave are stylistically different; they are painted in red, usually in simple geometric or linear designs. Several traits within the various red paintings indicate that they are probably post-Olmec, possibly even Postclassic. The iconography of the various Olmec murals is primarily suggestive of an interpretation of fertility, water, and rain. Stylistically the paintings appear most closely related to the bas-reliefs from Chalcatzingo and the art of La Venta. The location of Oxtotitlan seems to strengthen the "trade route" theory of Olmec presence in central Mexico. Several pre-Hispanic textile fragments found in the cave during our investigations are probably Postclassic.

James H. Gunnerson (Northern Illinois University)

APACHES OF EL QUARTELEJO

The remains of two houses, which closely resemble the Dismal River Apache houses of western Nebraska, have been excavated in western Kansas and are attributed to the Quartejejo Apaches. These two houses are located about a quarter of a mile from the seven room pueblo of "El Quartejejo"

which is generally thought to have been built by seventeenth century Taos and/or Picuris refugees who fled to the Plains to live among the Quartejejo Apaches. Although excavation in and immediately around the pueblo have been undertaken a number of times since the late nineteenth century, no other structures had previously been found in the vicinity. Interpreting the archaeological data in the light of ethnohistorical information raises various interesting questions.

Carl E. Gustafson (Washington State University)

DISTRIBUTION OF MAMMAL REMAINS FROM ARCHAEOLOGICAL SITES ALONG THE LOWER SNAKE RIVER OF WASHINGTON

Big game mammals, particularly pronghorn antelope and bison, appear to exhibit a predictable geographic pattern of distribution in archaeological sites along the lower Snake River of Washington. Deer, elk, and pronghorn were apparently plentiful throughout prehistoric times. Bison occupied a shorter time range, but were apparently common between 1200 and 2500 years ago.

In extreme eastern Washington, bison remains are present in most sites containing sediments between 1200 and 2500 years old. Bison remains are uncommon in the Columbia Basin except in some pit house sites. Pronghorn exhibit essentially the reverse distributional pattern, being abundant in sites in the Basin and less common in sites to the east. The apparent bison-pronghorn boundary is also reflected by a change in distribution of certain rodent species and by significant differences in vegetation.

Edwin S. Hall, Jr. (Ohio State University)

EXCAVATIONS AT TUKUTO LAKE, NORTHERN ALASKA

Tukuto Lake is located in the Etivluk River drainage, Brooks Range, northern Alaska. Excavations there during the summer of 1968 were supported by the National Science Foundation. The site consists of 120 late prehistoric/early historic Eskimo houses and more than 400 cache pits. The house types represented include deep semi-subterranean "typical" houses, shallow semi-subterranean houses, "half" houses, shallow oval tent floors and circular tent floors. Seven houses and a considerable portion of the deep midden were excavated. A preliminary analysis of the recovered artifacts suggests the major occupation of the site was between A.D. 1800-1900. This was a critical period in terms of culture change in northern Alaska.

Elmer Harp, Jr. (Dartmouth College)

LATE DORSET ESKIMO ART FROM NEWFOUNDLAND

An analysis of art-forms in bone and ivory from the Dorset site known as Port aux Choix-2, in northwestern Newfoundland, dating from the period 100-600 A.D. The carvings include realistic animal sculptures in the round, and highly abstract derived forms. Comparison of material excavated from twenty different house pits indicates the essential relationship of this local genre with ancestral Dorset culture in Foxe Basin and the surrounding region. Newfoundland Dorset art also demonstrates the evolution of provincial style in a context of strong cultural conservatism.

Vance Haynes (Southern Methodist University)

CLOVIS OCCUPATION OF THE SAN PEDRO VALLEY, ARIZONA

Mammoth hunters using Clovis projectile points occupied the San Pedro Valley of Arizona between 9500 and 9000 B.C. Two of the five buried sites have been radiocarbon dated and the other three are believed to be of similar age on the basis of geological correlations.

The Murray Springs Clovis site has yielded new data especially about temporary hunting camps. Similar data can be expected at the Lehner site when excavations are extended away from the banks of the ancient creek.

No occupations earlier than Clovis are known from the valley in spite of extensive investigations of abundant deposits containing numerous fossil localities of RanchoIbreen game animals.

A cultural hiatus exists between the Clovis occupation and sites of the Chiricahua stage of the Cochise culture of approximately 4,000 B.C. Buried sites of the Sulphur Springs stage are not known in the San Pedro Valley, but a surface find indicates the presence of Plano projectile points with Cochise affinities.

The relationship of early man sites to geomorphic surfaces and late Quaternary deposits of the valley is sufficiently well understood to guide prospecting. Geological and archaeological investigations are continuing.

E. Thomas Hemmings (University of Arizona)

ANALYSIS OF A CLOVIS BISON KILL SITE AND PROCESSING AREA AT MURRAY SPRINGS, SAN PEDRO VALLEY, ARIZONA

During 1968 excavations at the Murray Springs site in southern Arizona the concentrated remains of six extinct bison, five young cows and a two year old of indeterminate sex, were encountered on a deeply buried erosional unconformity or occupation surface. Associated with these remains were Clovis projectile points, edged tools, cobble hammers, a

zone of lithic debris, and two hearths. A radiocarbon determination of 11,230 ± 340 years for a charcoal sample collected elsewhere on the site has been geologically correlated with this occupation. Analysis of the materials has proceeded by three stages. First, an assessment was made of the loss, removal or disturbance of cultural debris by natural processes. Next, each item of debris, including bison skeletal elements, tools, lithic waste and other debris, and each feature were studied and probable functions in on-site activities identified. Finally, with precise distributional data from excavations, the spatial relations of all remaining and identifiable evidence, specific inferences were drawn about the nature of localized cultural activities. Conclusions reached through this analysis are important increments to knowledge of Paleo-Indian subsistence ecology in these respects: (1) bison as well as mammoths were efficiently exploited in pre-Folsom times in Arizona, (2) multiple bison kills were achieved with selection of desirable animals, (3) bison processing and associated technology are adduced with some confidence as a result of preservation of context of cultural remains, and (4) a high level of organization of the hunting unit is strongly implied.

Dale R. Henning (University of Nebraska)

DERIVATION OF PREHISTORIC MARRIAGE PATTERNS FROM ARCHAEOLOGICAL EVIDENCE

Archaeological and ethnohistoric data pertinent to the historic Missouri, Ioway and Oto tribal units is utilized in derivation of non-technological cultural practices of these groups. Archaeological sites identifiable as occupation places for the Missouri and Ioway tribes have been isolated and the non-perishable remains are subjected to intensive analysis. As a result of the analyses, some suggestions pertinent to the suggested marriage patterns of these groups can be made with a fair degree of confidence. Suggestions of preferred marriage patterning among Chiwere-speaking peoples are discussed in terms of causal factors and substantiating ethnological data.

James J. Hester (University of Colorado)

ARCHAEOLOGICAL RECONNAISSANCE OF THE BELLA BELLA REGION, BRITISH COLUMBIA

As a result of an initial season's survey, approximately 100 archaeological sites were located in the Bella Bella region of British Columbia. Sites were of five major types: shell middens, rock walls used as salmon traps, petroglyph panels, pictograph panels, and burial caves. Test excavations conducted in two of the middens suggest that cultural materials are similar to those of the San Juan phase in the Puget Sound region. The project is to continue for two additional years with a field school supported by the University of Colorado and research funds provided by the National Science Foundation.

Thomas Roy Hester (University of Texas)

AN INTRODUCTION TO THE ARCHEOLOGY OF SOUTHERN TEXAS

In recent years, detailed studies of surface materials and other archaeological data from most areas of southern Texas have been carried out. Prior to this, the region had received only passing attention from archeologists. Using the recent studies, some general concepts of the area's prehistory can be formulated. It is apparent that an Archaic-style lifeway existed in the region from Late Paleo-Indian times (or earlier) until historic contact. In some areas, however, marked changes in the cultural inventory may reflect some alteration of the subsistence pattern in late prehistoric times. Much of the southern Texas coast has not been adequately studied; however, in at least one region, it seems that nomadic groups from the interior periodically visited the littoral to exploit marine resources.

James N. Hill (University of California, Los Angeles)

PROBLEMS AND DATA: THE RELEVANCE OF OBSERVATIONS

It is often maintained that archaeologists should not allow their research problems to govern the kinds of data they collect; they should instead collect as much data as possible, in the hope that all data relevant to subsequent analyses will be recovered. Otherwise, it is said, valuable information may be overlooked and results will be biased. This view is unrealistic and unworkable; efficient research requires not only the prior formulation of problems, but also the formulation of specific hypotheses or propositions (and a listing of the pertinent data to be collected).

James H. Howard (Oklahoma State University)

USES OF ETHNOHISTORICAL TECHNIQUES IN IDENTIFYING PONCA ARCHEOLOGICAL SITES

During the past few years the speaker has assembled all available materials bearing upon the location and description of known village sites of the Ponca Indians. Five principal sources of information have been utilized: standard published historical accounts; archival materials; the J.O. Dorsey "Omaha" map; oral testimony gathered from Ponca informants in connection with the Omaha land claims case in 1912 and 1914; and information secured by the speaker from Peter Le Claire, the Ponca historian, and other Ponca informants.

Thirty-one separate villages or camps were located in this manner, 21 of which are named in either Degiha (the Indian language) or English. Archaeological work has been done at five of the sites. At two of the sites this work has yielded materials of the Redbird focus, estimated to date between 1600 and 1700 A.D., and materials at two others are not

inconsistent with a Redbird Focus identification. The fact that two Redbird Focus sites have been independently identified as long-standing villages of the Ponca tribe, with associated native names and traditions, together with other data on Ponca village locations and dates, tends to confirm the identification of the Redbird Focus as the archaeological remains of the Ponca Indians. It is suggested that rigorous ethnohistorical research of a similar nature might shed light on the tribal affiliation of other late prehistoric or early historic archaeological manifestations in this and other parts of North America.

Margaret A. Hoyt (University of California, Berkley)

A CHIMU SERIATION

A seriation of ceramics from the North Coast of Peru, from the late Middle Horizon to the Colonial period, taking into account the existence of at least two areas of regional variation within what has previously been known as the "Chimu" style. The seriation is derived from a study of Wendell C. Bennett's North Coast grave lots, some other grave lots from Viru and Huanchaco, and numerous unassociated vessels, with and without provenience, in museums and illustrated in the literature.

Cynthia Irwin-Williams (Eastern New Mexico University)

EXPERIMENTS IN THE THERMAL TREATMENT OF FINE GRAINED SILICEOUS MATERIALS

Experiments in flint knapping and independent analyses of archaeological materials have established that some considerable proportion of prehistoric chipped stone objects were thermally treated prior to manufacture. New evidence concerning this problem is now available through experimentation to determine the nature of the physical-chemical alterations responsible for the observed changes in heated material. The two kinds of experiments conducted involve 1) a determination of weight loss through water loss and concomitant change in absolute hardness; 2) an examination of possible micro-crystalline alteration through X-ray microscopy. The results of these experiments are outlined and the known occurrence of heat treated materials in prehistoric sites in the United States is discussed.

Arthur J. Jelinek and Donald Graybill (University of Arizona)

THE 1967 MIMBRES VALLEY SURVEY: PRELIMINARY RESULTS

From January to May of 1967 a survey was conducted in the Mimbres Valley and adjacent areas of Southwestern New Mexico. Collections were made from about 330 sites, including 20 previously reported in the site file of the New Mexico Laboratory of Anthropology. About 200 of the sites

discovered by the survey yielded samples in excess of 200 sherds and appear to represent relatively permanent campsites or villages.

At least four ceramic phases are represented in the collections, each with particular settlement patterns and distributions. In general, it appears that the highest elevations in the Mimbres area were abandoned earliest and latest settlement was confined to a few consolidated villages in the southernmost reaches of the Mimbres drainage. More detailed results of the analysis of these distributions and the temporal and geographical distribution of ceramic types are presented in this paper.

Alfred E. Johnson (University of Kansas)

CULTURAL CONTINUITY IN EASTERN KANSAS

Data derived from recent archaeological investigations in eastern Kansas suggest a hypothesis to explain certain aspects of the human occupation of this Prairie-Plains border region during the ceramic period. Initial ceramic-bearing cultures, labelled Kansas City Hopewell, seem to represent a western movement from the Illinois River valley, which began about the time of Christ. The Kansas City Hopewell complex apparently coexisted with local Archaic complexes until approximately A.D. 500. Recognizable Kansas City Hopewell occupation ended at about A.D. 500 as a result of a southward movement of Plains Woodland groups, which resulted in a cultural syncretism of Hopewell and Woodland elements. A localized development of the Central Plains tradition, divisible into two periods, developed from the Hopewell-Woodland syncretism.

Donald L. Johnson (University of California, Los Angeles)

LATE QUATERNARY COASTAL EOLIANITES AND PALEOSOLS: AN ARCHAEOLOGICAL AND PALEOENVIRONMENTAL APPRAISAL

Interdisciplinary studies of Late Quaternary coastal eolianites and their contained paleosols often yield valuable archaeological and paleoenvironmental information. Artifactual and other human evidences are common in coastal eolianites which function as natural sedimentary traps.

Reconstruction of past environments is made possible by 1) presence of micro- and macrofossils such as pollen, fossil vegetation and peat, mammalian and other vertebrate remains; and 2) eolian cross-stratification and other sedimentological features. Evidence of sea level changes is shown by eolianites and paleosols submerged below present sea level.

Coastal eolianites and paleosols are concentrated in Australia, South Africa, and the Mediterranean, but also occur along the Persian Gulf and Atlantic Moroccan coast, as well as on such islands as Madagascar, the West Indies, Bermuda, the Hawaiian group, and the insular parts of southern California.

Christopher Jones (State University of New York at Buffalo)

EVIDENCE FOR KATUN WORSHIP AT THE CLASSIC MAYA SITE OF TIKAL, GUATEMALA

In 1963, the author conducted a five-month program of excavation in the "twin-pyramid Groups" in the Classic Maya site of Tikal in Guatemala. There are some suggestions in the form and dating of these groups that they housed ceremonies of worship directed to the gods of the 13 Katuns. A katun is the Maya period of twenty 360-day years. In Tikal, a new twin-pyramid group was built every katun for six consecutive katuns during the Late Classic. At least two of the groups were destroyed or transformed during the Late Classic. Thus it is likely that use of the groups shifted from old to new group every katun, similar to the practice of katun-god worship reported in the 16th Century Yucatan by Bishop Landa. Furthermore, the names of the katuns (the period-ending days) are emphasized in the hieroglyphic inscriptions of the groups. Concerns with the four world directions and with ritual numbers also appear in the twin-pyramid groups and in the later practices. It would appear that katun worship was as important to the cohesiveness and welfare of the community of Tikal as it was to the 16th Century Yucatecans.

J. Charles Kelley (Southern Illinois University)

CERAMICS, CULTS, AND CULTURE CHANGE IN CHALCHIHUITES CULTURE

We now have fairly complete records of ceramic types and the changing decorative styles represented for more than a thousand years of the cultural development known as the Chalchihuites Culture in Zacatecas and Durango, Mexico. Throughout much of this period decorative designs clearly reflect Mesoamerican ceremonial concepts, and hence appear to represent religious cults. A detailed period by period study of shifts in design, decorative technique, vessel form, and apparent cult representations yields a significant insight into the mechanisms of cultural change involved.

Gerald K. Kelso (University of Arizona)

POLLEN ANALYSIS OF HUMAN COPROLITES AND CAVE FILL, HOGUP CAVE, UTAH

Conditions within Hogup Cave were favorable for the preservation of pollen. Coprolites and cave fill samples from the major stratigraphic units were analyzed for pollen. Most were dominated by pollen of Chenopodiaceae. Pollen percentages of other probable economic plants indicate varying use of secondary resources centered around a generally stable subsistence pattern that emphasized the Chenopodiaceae throughout most of the time of cave occupation. The pollen data is in agreement with plant macrofossils from cave fill and coprolites which indicate extensive utilization of pickleweed (*Allenrolfea occidentalis*).

Charles C. Kolb (Pennsylvania State University)

ANARANJADA DELGADA AT TEOTIHUACAN

Anaranjada Delgada (Thin Orange) pottery, a major ceramic ware of the Classic Period found in the highlands of Mesoamerica, has received considerable attention in the literature (Linne 1942; Armillas 1944; Kidder, Jennings and Shook 1946; Tolstoy 1958, etc.) Typological analysis of extensive collections, derived from excavations and surface survey in the Teotihuacan Valley, have resulted in the ability of internally phase the ware in regard to paste, color, form and decoration (methods and motifs). Technological studies have suggested that Thin Orange is not entirely a trade ware from south-central or eastern Puebla, and that much of it was produced locally at Teotihuacan.

Edward P. Lanning (Columbia University)

LITHIC TRADITIONS IN THE PLEISTOCENE OF SOUTH AMERICA

At least seven different technological/typological traditions can be recognized in the Pleistocene lithic assemblages of South America. They have different temporal and spatial distributions and, in all probability, different origins. The four earliest traditions often occur in pure form and probably originated as discrete industries brought into the continent by different groups of migrants. Characterized by their dominant artifacts, they are:

1. Edge-retouched: Peru and Chile; stratigraphically beneath biface tradition in Peru.
2. Burin: Ecuador, Peru and Chile.
3. Biface: Andean, Venezuela to Chile and Argentina; beginning ca. 14,000 B.P. in Venezuela, ending ca. 10,000 B.P. in Peru.
4. Side Scraper: eastern, Venezuela and Patagonia; present before 11,000 B.P.; intrusive into Andean regions in post-Pleistocene times.

Although North American and perhaps Asiatic origins can be suggested for these early traditions, reasonable antecedents are known so far only for the biface tradition, and these are not adequately dated either in North America or in northern China.

The three later traditions are found only in various combinations with each other and with derived elements of the earlier traditions. All of them can be dated to the very end of the Pleistocene, probably after ca. 11,000 B.P. Two of them (again named for their dominant artifacts) have clear cut North American antecedents:

5. Ribbon-flaked projectile point: Venezuela, possibly extending to Ecuador.
6. Fluted point: eastern, Panama, Brazil to Patagonia, with post-Pleistocene intrusions into Andean regions.

The remaining tradition (7, blade) has numerous Old World convergences, but was probably indigenous to northern Chile, whence it spread briefly to Peru and Argentina in terminal Pleistocene times.

Donald W. Lathrap (University of Illinois)

THE TRANSMISSION OF SHIPIBO-CONIBO ART STYLE: STYLISTIC SIMILARITY AND THE STRUCTURE OF HOUSEHOLDS

The extended family is a clearly recognized social unit among the Shipibo-Conibo of the tropical forest of eastern Peru. The make-up of such families is variable, and a number of general principles must be invoked to explain their adhesion, growth, and dissolution. The degree to which the ceramics produced within such extended families are stylistically similar is also highly variable. An examination of the ceramic production of a number of such families suggests that the co-residence of biological sisters may lead to a high degree of stylistic uniformity. It is doubtful if these other factors would have been hypothesized in the absence of detailed ethnographic data. The question is raised whether any archaeological analysis of stylistic variation is a sufficient basis for an adequate model of a defunct society.

Donald J. Lehmer (University of Minnesota)
W. Raymond Wood (University of Missouri)

BUFFALO AND BEANS-CULTURAL ECOLOGY OF THE PLAINS VILLAGE TRIBES

The Mandan and Hidatsa serve to illustrate the fact that the Plains village tribes developed a unique native American ecosystem. These groups were sedentary horticulturalists, and there is reliable evidence that their economy depended heavily on the produce of their gardens. There is equally good evidence that it depended at least as heavily on hunting big game animals, particularly the bison. The dual reliance on cultivated plants and large animals, which was developed as early as A.D. 900, cannot be duplicated anywhere else in aboriginal North America. It is, however, analogous to the agricultural-pastoral economies of the Old World.

The Missouri River trench is an ecological niche which was the primary focus of Mandan and Hidatsa culture. Archaeology and ethnohistory show that the villages themselves were located there. The flood plain was the only zone of cultivation, and the wooded bottom lands were the main source of timber. The river provided water, driftwood, carcasses of drowned bison, fish, and probably some shellfish. Uncleared bottom lands were a source of woodland game animals.

The grasslands, which stretch vast distances from both lips of the Missouri trench, were a heavily exploited hinterland. They provided the bison and antelope which were essential for food and for raw materials such as hides, sinew, and bones which were fashioned into artifacts. Secondary geological deposits outside the trench seem to have provided most of the stone for tool making.

The Mandan-Hidatsa resource base was an extremely rich one in most respects, and the native technology was adequate for exploiting it in both prehistoric and historic times. Archaeo-demographic studies suggest

however, that the total population never approached the apparent carrying capacity of the environment. The explanation for this is still a matter for speculation, but possible causes may include minor changes in a marginal climatic situation, local exhaustion of a crucial resource such as timber, or one of several socio-political factors.

Frank Leonhardy (Washington State University)

THE CHRONOLOGY AND CONTENT OF A LATE PINEDALE (WISCONSIN) ARTIFACT ASSEMBLAGE FROM THE GRANITE POINT LOCALITY, WASHINGTON

Excavations at the Granite Point Locality (45WT41) produced an assemblage of 412 artifacts which are contemporaneous with the last deposition of gravel on the middle bar of the Snake River bar sequence. The middle period of bar formation is considered to be of Late Pinedale (Wisconsin) age, and is dated approximately between 9,000 and 13,000 years ago. The cultural material is probably no more than 10,000 years old and is conservatively estimated to be about 9,000 years old. Age estimates based on geologic and archaeologic comparisons conflict with a single radiocarbon date of 14,000 ± 1160 B.P. Several lines of evidence suggest that the radiocarbon date is too old.

The artifact assemblage is characterized by a variety of stemmed projectile points, some lanceolate projectile points, large knife-like implements, burins, prismatic blades and abundant utilized flakes. Bone implements are not numerous, but include atlatl spurs. Lithic technology and some artifacts suggest a degree of relationship with the Lind Coulee assemblages. The associated fauna includes only elk and rabbit.

William D. Lipa and Dolores N. Elliott (State University of New York at Binghamton)

EXCAVATIONS AT THE ENGLEBERT SITE, SOUTH CENTRAL NEW YORK

Highway salvage excavations were carried out during the summers of 1967 and 1968 at the Englebert Site, a large, multi-component Archaic and Late Woodland site located on the Upper Susquehanna River near the southern boundary of New York State. The Archaic occupation is referable to the Lamoka culture; the Late Woodland occupation appears to consist of late Owasco, prehistoric Iroquois, and early historic Susquehannock components. The most striking characteristic of the site was the large number of human burials, all of the Late Woodland period. Remains of approximately 140 individuals were recovered. In addition, over 500 Late Woodland pit features were excavated and a predominantly Owasco hillside midden trenched. The skeletal material is being analyzed by Dr. Audrey Sublett of Florida Atlantic University; the cultural materials are under study in the archaeology laboratories of State University of New York at Binghamton.

William A. Longacre (University of Arizona)

EARLY VILLAGE SOCIETY IN THE SOUTHWEST

The nature of the evidence pointing to the beginnings of settled village life in the southwestern United States in the latter portion of the first millenium before the time of Christ is reviewed. Comparison of similarities and differences among the various environmental zones is stressed. Viewing the Southwest as a non-Nuclear Area, 1) the nature of cultural processes characterizing the beginnings of "Village Society" is examined, and 2) comparisons are offered to other parts of non-Nuclear North America and to the Nuclear Areas of Mesoamerica and Mesopotamia.

Ralph A. Leubben (Grinnell College)

Laurance C. Herold (Denver University)

THE WHETTON PUEBLO AND ITS RELATIONSHIP TO TRINCHERAS IN CHIHUAHUA, MEXICO

In 1892, Bandalier first described trincheras in northwest Mexico. These structures are widely distributed over the Sierra Madre Occidental in Chihuahua and Sonora. Excavation of the Whetton Pueblo and two outlying structures was undertaken with the hope of correlating trincheras and the highland culture along the Rio Gavilan, Chihuahua. The culture is affiliated with late phases of the Casas Grandes tradition.

Robert J. McGhee (National Museum of Canada)

SPECULATIONS ON THULE CULTURE AND ENVIRONMENTAL CHANGE

The development of Thule culture in the Canadian Arctic is seen as a series of responses to changing environmental conditions. It is suggested that an ameliorating climate at approximately 1000 A.D. was reflected in changes in the seasonal distribution of sea ice and of sea mammals. Changes in hunting patterns, developed in response to these new conditions, may define the beginning of Thule culture and may have promoted the movement of Thule people eastward from North Alaska. Specialized regional variants of Canadian Thule culture are separated by environmental boundaries. The development of these regional variants of Thule culture into the regional tribes of historic Eskimo is in accord with varied responses to a harsher climatic regime which culminated between the 17th and 19th centuries.

William P. McHugh (University of Wisconsin-Milwaukee)

AMERICAN ARCHAEOLOGY - 1865-1900

During the third of a century following the Civil War, there was a remarkable increase in archaeological activity in the United States. This activity was sponsored by several agencies of the U.S. government, rare private institutions and dozens of historical and scientific societies. This period witnessed the founding of the Bureau of Ethnology, the Peabody Museum of Archaeology and Ethnology, the American Antiquarian and Oriental Journal, the Washington Anthropological Society and its offspring, the American Anthropological Society and its journal.

Although the eastern half of the United States received the overwhelming portion of archaeological research during this period—mainly based on attempts to identify the makers of the widespread earthworks, the 1870's and the 1880's saw the beginnings of archaeological investigation in the Far West and in Alaska. The germinal questions concerning the origins of the American Indians, the identity of the Mound-builders, the age of man in the New World, the New World "paleolithic", prehistoric technology, and socio-cultural implications of prehistoric architecture, settlement and burial patterns were being pursued.

Knowledge of the discoveries of European prehistorians related in such publications as the Annual Report of the Smithsonian Institution and the American Antiquarian stimulated the search for fossil man and his cultures, and other parallels in prehistoric development. Concepts and approaches such as the culture area, ethnographic analogy, cultural ecology, and historical linguistics began to be employed in archaeologically-based reconstructions while at the same time archaeological field techniques remained very primitive.

In spite of the antiquarian and salvage nature of much of American archaeology in the latter one-third of the nineteenth century, it formed the major part of the discipline from which the Golden Age of American Anthropology emerged.

Peter J. Mehringer, Jr. (University of Arizona)

MARSHES ON THE DESERT: POST PLUVIAL HISTORY OF WATER AVAILABILITY, HOGUP CAVE, UTAH

The only known permanent water supply for Hogup Cave is a nearby spring that feeds a small salt marsh. The distribution of salt marsh species reflects water quantity and quality. Pollen and seed analysis of cores from the Hogup Spring salt marsh give a history of species distribution patterns, allowing inferences about the past water availability. The results of these analyses and their relations to human occupation and subsistence patterns and to the post-pluvial climatic history of the Great Salt Lake area will be discussed.

Charles F. Merbs (University of Chicago)

THE SIGNIFICANCE OF AGE, SEX, AND TIME OF BURIAL IN THE INTERPRETATION OF THULE ESKIMO BURIAL PATTERNS

Excavations at five sites in the northwest corner of Hudson Bay, but concentrating upon the two large villages of Silumiut and Kamarvik, produced data on 336 Eskimo burials, the great majority of these representing the Thule culture of Arctic Canada. (The first 105 of these burials were excavated in 1967 and described at the SAA Meeting in 1968). The position of the rising sun on the day of burial was found to play an important role in the orientation of the dead and several features associated with this role were identified. The age and sex of the deceased were also found to affect orientation and regional variations in patterning were noted along more than 250 miles of Roes Welcome Sound coastline.

J.F.V. Millar (University of Calgary)

THE HUGHES AND McLEOD COMPLEXES: TWO EARLY LITHIC ASSEMBLAGES FROM FISHERMAN LAKE, N.W.T.

Situated on the edge of the Eastern Cordillera in the transition zone between the extreme northern interior plains and the MacKenzie lowlands, the Fisherman Lake area has provided a sequence of twelve cultural complexes extending from the late Pleistocene to the present. The earliest two complexes, Hughes and McLeod, are each defined from single excavated components with geological provenience of considerable antiquity. The artifact samples, while relatively small, can be compared with several other reportedly early complexes from northern and western North America.

Joseph R. Moger (University of the Americas)

PLASTER SCULPTURES AT LAMBITYECO, OAXACA

Although modelled clay and plaster had been used as architectural decorations in Oaxaca at least since the times of Monte Alban I, only fragmentary examples had been found. In late 1968 several examples were discovered at Lambityeco that show, in addition to artistic merit, iconographically novel elements. They contribute also to the scanty body of calendric inscriptions in the Monte Alban tradition, and their state of preservation is good to excellent in most cases. In the opinion of Alfonso Caso they constitute an addition of the utmost importance to knowledge of art, architecture, and calendrics in the Monte Alban tradition.

Michael E. Moseley (Harvard University)

EARLY FARMING SYSTEMS ON THE CENTRAL COAST OF PERU

This paper attempts to interpret farming and water-management systems on the basis of late preceramic and early ceramic period evidence from the central Peruvian coast.

Joseph B. Mountjoy (Southern Illinois University)

THE CULTURAL SEQUENCE AT SAN BLAS, NAYARIT (MEXICO)

Field work in the area of San Blas, Nayarit (Mexico) during 1967 and the first five months of 1968 has revealed a sequence of five distinct cultural complexes from approximately 2,000 B.C. to Spanish contact. A study of these complexes shows a shifting utilization of the coastal environment through time as well as varying cultural affiliations for the local inhabitants.

George Morse (University of Wisconsin-Milwaukee)

ASYMMETRY: A MAYAN ARCHITECTURE PLANNED MEMORY DEVICE AT UXMAL

The "Cementerio" section of the Archaeological Zone at Uxmal, Yucatan, Mexico contains a stela-like stone monument with a feature that is unusual and strikingly different from any observed in the Yucatan home of the ancient Maya Indians. Research, and conversations with the chief archaeologist of the zone reveal that, along with its uniqueness, the position it occupies bears a relationship to the positions occupied by the uncovered tzompantli, and round columns. These constructions, so familiar to the Maya, are so oriented about the major and minor axis of the sector as to suggest a deliberate conceptualization of disarrangement by the architect for a telling and lasting purpose.

Jon Muller (Southern Illinois University)

THE STUDY OF STYLE AND THE ARCHAEOLOGY OF THE SOUTHEASTERN UNITED STATES

The study of art styles can yield additional information on problems of change, the nature of social relationships, and cultural organization. Examples of how a generative approach to art styles may be applied to archaeological material are discussed.

Lewis K. Napton (University of California, Berkley)

COPROLITE ANALYSIS IN THE WESTERN GREAT BASIN

Analysis of human coprolites from several western Great Basin archaeological sites provides detailed information of prehistoric dietary practices and subsistence economies from 3,000 B.C. to the Historic Period.

W.C. Noble (McMaster University)

THE ACASTA LAKE SITE, N.W.T., CANADA

Located 80 miles SE of Port Radium, Great Bear Lake, the Acasta Lake site (LiPk-1) has yielded a rich assemblage of early northern Plano artifacts. Early point types from the site have previously been described by Dr. R.G. Forbis (1961). Full-scale excavation of the site this past summer revealed that it had been a major quarry locale as well as a sizeable habitation. Over an area of 850 excavated square feet, 105 buried hearths were recorded. The site is homogenous, yet has been reoccupied by the same group. A carbon date of 5020 B.C. has been obtained from one of the hearths, and marks one of the earliest Indian penetrations into the central sub-arctic region of MacKenzie District.

Patricia J. O'Brien (Kansas State University)

VALLEY FOCUS MORTUARY PRACTICES

Valley Focus is a Plains Woodland manifestation located in Kansas and Nebraska. Taylor Mound, a site overlooking the Missouri River about five miles south of White Cloud, Kansas, is a product of this culture and gives us important data on the burial practices of these people.

The mound was about 80 feet in diameter and located about 10 feet south of the E-W center axis laying on the original ground line was a limestone slab stone cist into which were placed the bundled remains of at least eight individuals. The cist was ca. 3 x 7 feet and was oriented on a N-S axis. The remains consist basically of long bones and skulls. The skulls formed two rows running N-S, on the west side were three and on the east side of the cist were four, but one of that four was deeper and under the NE most skull so that when excavated it looked at first as if there were two rows of three each. Placed between the rows of skulls were three bundles of long bones resulting in a laddered effect of skulls and long bones. On the central long bone bundle was the eighth skull; it was facing north and just in front of it was a greenstone celt (the only grave good).

Ceramics from the fill of the mound indicate this burial complex is Valley Focus in affiliation. There was also some evidence that the top fill of the mound had been used by Nebraska culture people, but much of that data was apparently destroyed by relic hunters over 50 years ago.

Stanley J. Olsen (Florida State University)

ARMOR IN COLONIAL AMERICA

Body armor of various types was in use by explorers to the New World from the landing of Columbus, through the Spanish explorations of the southeastern and southwestern United States. Armor was also brought to this hemisphere by the English colonists who settled the eastern coast. Very little identifiable material has been recovered to date from archaeological sites. This is due, in part, to the types of armor used. The various kinds of armor are illustrated and discussed as well as the archaeological evidence.

John Paddock (University of the Americas)

OAXACA AFTER MONTE ALBAN: SOME NEW DATA

By definition, Monte Alban IV is a period whose nature cannot be defined through work at Monte Alban itself; it is the survival of the Monte Alban tradition elsewhere after the abandonment of the capital. After years of fruitless search, we have found at Lambityeco a site that serves to define plainly what seems to be early Monte Alban IV, and we have 5 radiocarbon dates placing it around A.D. 700. There is close correspondence with other dates from other Oaxaca Valley sites, dated in other laboratories and derived from materials excavated by other workers, but highly similar to the Lambityeco remains. Occurrence of Balancan Fine Orange pottery, as well as greca decorations in architecture, suggests contemporaneity with Puuc Maya; and we are confronted with the same phenomenon observed by Andrews for Dzibilchaltun, Uxmal, Palenque, and the Puuc sections of Chichen Itza; Puuc seems to be 2 or 3 centuries earlier than we thought it was. There are some connections with the Valley of Mexico also, and important implications for the Monte Alban sequence and for the late florescence in Oaxaca that followed (in Monte Alban V) the decadence of Monte Alban IV.

Jeffrey R. Parsons (Museum of Anthropology, University of Michigan)

AN ARCHAEOLOGICAL EVALUATION OF THE CODICE XOLOTL

This paper is an attempt to relate a large body of archaeological settlement pattern data from the Texcoco Region, Mexico to events described in the Codice Xolotl. There are three main objectives: a) to estimate the basic validity and utility of this important ethnohistoric source; b) to elucidate the main cultural processes of the Early Postclassic period (ca 700-1100 A.D.) by means of a synthesis of complementary ethnohistoric and archaeological information; and c) by extrapolation to a more general level, to suggest new perspectives on the type and quality of information that Mesoamerican ethnohistoric sources can most reasonably be expected to provide for students of prehispanic social organization.

Thomas C. Patterson (Yale University)

CULTURAL VARIATION DURING THE LATER PRECERAMIC PERIODS IN CENTRAL PERU

This paper considers the role of local cultural variation in the shift from hunting-gathering to agricultural economies on the coastal plain and lower Andean slopes of central Peru.

G. Richard Peske (University of Wisconsin-Milwaukee)

WINNEBAGO CULTURAL ADAPTATION TO THE FOX RIVER WATERWAY

Lake Winnebago Focus site distributions indicate a primary adaptation to the Fox River Valley in terms of their subsistence economy. A high regional density of waterfowl, fish, deer, and wild rice was critical to the subsistence base of the Winnebago. In addition to the native flora and fauna, corn agriculture flourished in this environmental setting. The application of Mississippian technological innovations to this environment led to a regional cultural dominance in relationship to neighboring Woodland tribes.

In addition to a more productive food technology, the Winnebagos controlled an important transportation route for the flow of regional products between various tribes. They may have benefited economically from trading with adjacent tribes who exploited different environments.

David Sutton Phelps (Florida State University)

SWIFT CREEK AND SANTA ROSA IN NORTHWEST FLORIDA

Three habitational sites assigned by Willey to the "Santa Rosa-Swift Creek Period" in Northwest Florida are discussed in terms of their cultural content and relationships. The sites, all coastal middens, are Refuge Tower (8Wa14), Snow Beach (8Wa52), and Third Gulf Breeze (8Sa8).

Recent excavations in these sites have provided a more comprehensive definition of the material remains of this phase, as well as clarifying the need for a spatial-cultural division of the Santa Rosa and Swift Creek manifestations on the Florida Gulf Coast. The original conception of Santa Rosa-Swift Creek was based on burial mound data which differ significantly from habitation site materials.

Fred T. Plog (University of Chicago, Field Museum of Natural History)

FROM BASKETMAKER TO PUEBLO: A PROCESSUAL ANALYSIS

The transition from Basketmaker to Pueblo culture in the prehistoric Southwest was defined in detail and explained by A.V. Kidder. Kidder's successors have given primary attention to increasing the detail of his definition and to defining the temporal boundaries of his stages. The fundamental explanation for the transition is still Kidder's. Recent works have focused attention on the role of ecological variables in the transition and on its fundamentally economic nature. The paper presents an explanation for the transition in terms of economic and ecological variables. A processual model based upon historic cases of economic growth is shown to account for many generalized aspects of the transition as well as the original trait changes that Kidder detailed.

Dennis E. Puleston (University Museum, University of Pennsylvania)

AN EXPERIMENTAL APPROACH TO THE FUNCTION OF CLASSIC MAYA CHULTUNS

Mayanists have long speculated on the function of subterranean chambers called chultuns, constructed by the Classic Maya. Consideration of the chambered variety, found only in certain parts of the deeply forested portions of the southern Lowlands, has produced a number of alternative hypotheses. Experimentation, as a technique, has proved to be an invaluable supplement to excavation data for hypothesis testing. It has led to the rejection of most of the alternatives, including water storage, and the confirmation of only one-- the storage of the farinaceous seed of the ramon tree.

Robert L. Rands (Southern Illinois University)

THE CERAMIC SEQUENCE AT TRINIDAD, TABASCO

Excavations were conducted at Trinidad, Tabasco, on the lower Usumacinta River near Emiliano Zapata, in the course of a ceramic survey of the Palenque region. Although Trinidad lies only 30 miles from Palenque, ceramic patterns are notably different, usually having stronger affiliations with pottery from the Peten and other more centrally-located portions of the Maya lowlands than with Palenque. A pit over five meters in depth provided major stratigraphic information at Trinidad. Four Preclassic ceramic complexes are recognized, three from the Classic period, and one from the Early Postclassic. These complexes are represented in varying strength in the Trinidad materials, Middle Preclassic and Late Classic pottery being most abundant. The rise of fine-paste cream, black and gray wares, in times equivalent to Tepeu 2, is a particularly notable development. Unlike the situation in the Peten or at sites up the Usumacinta drainage such as Piedras Negras, Altar and Seibal, the fine paste developments are rooted stylistically in the Tepeu polychrome tradition. However, rapid cultural changes toward the close of the Classic period brought about the emergence of localized styles having a basically Western Maya rather than a Peten Maya orientation.

J. Scott Raymond and William H. Isbell (University of Illinois)

CULTURAL REMAINS IN THE PAMPAS VALLEY, SOUTHERN HIGHLANDS, PERU

Survey in the Pampas River Valley of Ayacucho, Peru has revealed evidence of intensive occupation during the Middle Horizon. Vinaque or Epoch 2 ceramics have been identified and earlier material may yet be detected. Tiahuanaco influence is present in the form of a feline effigy incensario.

Substantial architectural remains of Middle Horizon date have been found near the confluence of the Pampas with the Apurimac River.

Collections from the Lower Apurimac fail to reveal definite Huari remains, though a relation with the Chanchamayo Valley is indicated.

Late Intermediate Period occupation sites are fortified along the valley lip. The ceramic tradition cannot be obviously derived from a Huari tradition. No evidence yet indicates the presence of a Huarpa component suggesting the possibility of a long peasant tradition which is presently identified only as Late Intermediate or in some cases Chanca.'

Charles Redman (University of Chicago)

Patty Jo Watson (Washington University)

SYSTEMATIC INTENSIVE SURFACE COLLECTION AS A MEANS OF GENERATING ARCHAEOLOGICAL HYPOTHESES

Archaeologists would agree that the cultural debris lying on the surface of a site in some way reflects what is buried below. However, few attempts have been made to discover just how closely one can predict from detailed knowledge of surface distributions what he will find if he digs.

In October-November, 1968, surface collections based on statistical sampling techniques were made by the Prehistoric Project, Istanbul-Chicago, at two mounds near Diyarbakir, Turkey. The tabulated data were put into the form of contour maps. We found that study of these maps-- singly or in combination as overlays-- immediately suggested numerous hypotheses which could be formulated much more precisely than those derived from the usual intuitive method based on simple inspection of the site surface. Soundings were made to test some of these major hypotheses. The results of the soundings plus subsequent statistical analyses suggest that intensive, systematic surface collection can be an extremely useful technique not only for determining where to dig, but also for generating highly provocative hypotheses relevant to the total interpretation of the site.

James B. Richardson III (The University of Pittsburgh)

THE PRECERAMIC SEQUENCE AND POST-PLEISTOCENE CLIMATIC CHANGE IN THE TALARA REGION OF NORTHWEST PERU

The preceramic sequence of the Talara region from 6,000 B.C. to 1800 B.C. will be discussed in relation to a changing post-Pleistocene environment.

R.E. Ross (Washington State University)

SUB-ASSEMBLAGE ANALYSIS AND CULTURE COMPOSITES

The character and content of cultures vary from area to area. The same situation holds true for archaeological cultures, and within archaeological cultures content configuration will generally vary from site to site.

Explored in this paper is the potential of sub-assembly analysis as a means of examining complex culture composites. Examples are taken from the Norton horizon of western and southwestern Alaska.

Hind Sadek-Kooros (Peabody Museum of Archaeology and Ethnology)

JAGUAR CAVE: A PILOT STUDY IN BONE FRACTURING TECHNIQUES

A brief report on the site of Jaguar Cave, in which faunal and stratigraphic evidence argue for a Late-Glacial occupation of the Beaverheads (E. Idaho) by mountainsheep hunters, will be followed by a pilot study of primitive bone fracturing techniques. Criteria defining human modification of bone, based on experimental fracturing of green bone, will be proposed and tested. The aid of computers to process the archaeological data was enlisted. Rather than attempt to provide definitive answers, the emphasis in this paper will be to propose a method of research.

Alan R. Sawyer (Textile Museum)

A RECONNAISSANCE OF THE CUPISNIQUE QUEBRADA

A survey of a part of the Cupisnique Quebrada was conducted in 1967 in the company of local antiquarian Fritz Smischick. A previously unreported early lithic complex and a small stone structure with associated late Cupisnique sherds was found.

Arthur A. Saxe (Ohio University)

COMPONENTIAL ANALYSIS IN ARCHAEOLOGY

The utility of a componential approach to the analysis of archaeological data has been promoted in recent years, but the language of componential analysis has remained foreign to many archaeological specialists. This paper shall define certain concepts which are relevant to archaeological utilization of componential analysis and present a technique for the mapping of components which offers insights into the social significance of the results.

James Schoenwetter (Arizona State University)

PHYTOGEOGRAPHY AS A SURVEY TECHNIQUE IN WISCONSIN

During the spring and summer of 1966, in the course of implementing a program of archaeological pollen analysis, a body of data was collected regarding plant associations at archaeological sites in north-central Wisconsin. Analysis of the results indicates that the character of the components at a site correlate with the character of the existing vegetation to a remarkable degree. Further survey work in the area may thus be aided by comprehension of the vegetation, with predictions being made about where sites will be found and the probable components to be recovered at sites supporting certain forms of forest growth. Given certain cultural assumptions, it is also possible to use this data to justify paleoecological hypotheses of relevance to culture historical reconstruction. These hypotheses may later be tested by techniques of paleoecological research.

Douglas W. Schwartz (School of American Research)

THE SEQUENTIAL CULTURE TYPE-A CROSS CULTURAL BASE FOR ARCHAEOLOGICAL INFERENCE

A review of the ethnographic migration literature has suggested cross-culturally recurrent consequences of migration that can serve as effective guides to archaeological data collection and inferences. This paper briefly reviews several of these consequences: reasons for movement, total community configuration, economics, technology, social organization, and religion. This material is then examined as a base for the development of an archaeological research design related to cases of prehistoric migration. Finally, problems of regularity in cross-cultural culture types as they relate to archaeological inference are discussed.

Ruth Dee Simpson (San Bernadino County Museum)

PRELIMINARY REPORT: CALICO MOUNTAINS ARCHAEOLOGICAL PROJECT

Since November, 1964, archaeological excavations have been conducted in a Pleistocene alluvial fan extending eastward into Lake Manix Basin from the Calico Mountains in the Mojave Desert of California. These excavations are conducted under sponsorship of the San Bernadino County Museum, and under the direction of Dr. L.S.B. Leakey.

Two major pits have been excavated into the early building period of the fan. Average depths currently are 15' and 25'. From these pits both tools and significant technical flakes have been recovered at depth. That these specimens are man made is accepted by those in charge of the

project and by numerous visiting scientists. However, some scientists still feel unable to accept the specimens as evidence of human activity.

The lithic assemblage is primitive in appearance and character, as would be expected in view of the probable antiquity of the locality. Geologists and geomorphologists agree with Project Geologist Dr. Thomas Clements that the age of the alluvial fan and the specimens it contains is at least 40,000 years old, based on studies carried out to date.

S. Alan Skinner (Southern Methodist University)

THE SAM KAUFMAN SITE AND THE SOUTHERN CULT

A proposed end-date of A.D. 1300 for the Southern Death Cult has been postulated based on past excavation in the Caddoan area. Recent excavation at the Sam Kaufman site which is located on the Red River in Texas uncovered evidence of the hanging on of the Cult until about A.D. 1500 on the northwestern periphery of the Caddoan area. The evidence from the site includes a circular shaft burial pit containing eleven individuals with associated artifacts which form a pattern similar to that previously recorded and attributed to the Southern Cult in adjacent areas. The presence of this late holding on of the Cult will be related to activity in surrounding areas and to the Caddoan way of life.

Edwin D. Slatter (University of California, Los Angeles)

A RECONSIDERATION OF ABANDONMENT IN THE SOUTHWEST

Widespread depopulation and abandonment occurred in the northern Southwest between A.D. 1050 and 1400. Although archaeologists have suggested a number of hypotheses concerning the causes of this event, there is a considerable debate about what is the primary cause. The difficulty seems to be methodological. The hypotheses have also not been tested sufficiently to determine their validity. Several archaeologists have recently proposed a deductive procedure for the testing of alternative hypotheses. Applied to the problem of abandonment, this procedure yields much more positive results than was previously possible. It supports the hypothesis that abandonment was an adaptation to a minor change in physical environment.

Dean R. Snow (University of Maine)

A MIDDLE WOODLAND SITE ON THE COAST OF MAINE

The Grindle Site offered an unusual combination of characteristics for a Maine site. It is not located directly on the coast, but rather on the shore of a salt water pond about one and one half miles from where salt water rushes in and out of the pond with the tides. The site has some of the characteristics of inland Maine sites, and although it is not

a shell midden, a relatively high clamshell content has counteracted a normally high acidity of the soil and has permitted the preservation of ordinarily perishable artifacts. Maine Prehistory is complicated by a number of local micro-environments, particularly along the coast. The prehistoric occupation of the Grindle Site appears to have been influenced by relatively minor sea level fluctuations in addition to changing techniques of economic exploitation. Findings at this site have significance for the interpretation of other sites in northern New England and the Maritimes.

Bernard A. Spencer (Saginaw Valley College)

MISSISSIPPIAN EXPANSION INTO THE SAGINAW VALLEY, MICHIGAN

The presence of shell-temperad ceramics has long been known in the Valley, and in 1952, Quimby writes; "Surface collections from sites in the Saginaw Valley of eastern Michigan have revealed the presence of shell-tempered pottery decorated in several ways... I suspect that this pottery shows relationships with the types found along the Mississippi and west of the Mississippi." Recent excavations, and surface collections, in the Saginaw valley, Michigan have brought to light the presence of a large number of Mississippi related sites.

This paper will deal with several of these sites with respect to size, ceramics, lithic industry, and relationships, both inter and intra-Valley. The most important of the sites discussed will be the Malone Site, Michigan. This site suggests an agricultural village of perhaps 30 to 50 acres in size. There is one C 14 date of A.D. 1410 ± 100 for the Oneota-like component which is well represented at this site.

Dennis J. Stanford (University of New Mexico)

RECENT EXCAVATIONS NEAR POINT BARROW ALASKA AND THEIR SIGNIFICANCE ON ESKIMO PREHISTORY

Archaeological investigations at the site of Walakpa during the summer of 1968 revealed a stratigraphic continuum spanning from Arctic Small Tool Tradition to Modern Eskimo. The earliest known Walakpa level contains an assemblage which may be transitional between Denbigh and Choris cultures. Artifacts and other remains from this level included perishable materials and characteristic burins, microblades, along with other micro-tools. The stratigraphic occurrence of Birnirk-Eastern Thule, Western Thule leads to speculation on the origins of modern Eskimo culture.

Michael B. Stanislawski (University of Oregon)

HOPI TEWA POTTERY MAKING: STYLES OF LEARNING

This paper presents data from a preliminary study of Hopi-Tewa pottery making which attempts to analyze some of the factors of transmission and learning of a pottery style, and their correlation with social organization units of the society. The Hopi and Hopi-Tewa potters interviewed were those who make a white-slipped pottery which is comparatively rare, of relatively recent origin, and easily distinguished from other Hopi wares. Manufacturing techniques are briefly discussed; and also methods of teaching, and choice of pupils.

First season interviews allow us to trace the style from about 1920, at which time whiteware was produced by at least two related Hopi-Tewa women (one of the Bear clan, and one of the Kachina clan), who worked together. Descendants of the Kachina clan woman are now recognized as the outstanding potters of this style, and they are teaching both their consanguinial and affinal relatives, including members of at least three Hopi-Tewa clans, and one or more Hopi clans. Thus one pottery style may be manufactured by Hopi and Hopi-Tewa women of four to five clans, the women living in Keams Canyon, Polacca, and three villages on First Mesa (Hano, Sichomovi, and Walpi). Among the modern Hopi-Tewa, then, a pottery style is not limited to members of a single clan or lineage, nor manufactured in but one village or locality.

Earl H. Swanson (Idaho State University)

THE SHADOW OF MAN

The *Shadow of Man* was produced by the Idaho State University Museum with the assistance of the National Science Foundation and directed by Earl H. Swanson. Supervision and photography are by Norm Holve of the Idaho State University News Bureau with narration by Charles E. Bilyeu of the ISU Department of Speech and Drama.

B.K. Swartz Jr. (Ball State University)

AN EAST CENTRAL INDIANA REGIONAL WOODLAND SEQUENCE

On the basis of materials recovered from 1965 to 1968 by Ball State University from various sites in Henry County, Indiana, and radiocarbon dates recently run at the University of Michigan, a Woodland regional sequence can now be tentatively proposed for east central Indiana.

Phase: VAN NUYS
Sites: Hn-2, Hn-25
Period: Late Woodland
Date: Undated (samples pending)

Phase ? (Intrusive Mound)
Site: Hn-1
Date: post A.D. 230

Phase: WHITE
Site: Hn-10
Period: Middle or Late Adena
Date: A.D. 30-550

Phase: NEW CASTLE
Site: Hn-1
Period: Middle Woodland (Adena
pottery, Hopewell-like
ceremonial complex)
Date: A.D. 10-40

Carmie Lynn Toulouse (Eastern New Mexico University)

A SUGGESTED MODEL OF INTEGRATIVE MECHANISMS WITHIN THE CHACO CULTURE PROVINCE, NEW MEXICO

A conceptual model of the Chaco Culture Province, New Mexico during Pueblo III times will be presented with an emphasis on the social forces which must have been present in order for the urbanization of the area to progress. As suggested a year ago, an organizational continuum may have been present which allowed for a network of inter-related kin and religious ties and obligations to be developed. A brief discussion of some aspects of ceremonialism will also be included.

Gary Vesceilius (CUNY- Queens College)

THE PRECERAMIC CULTURES OF SOUTHWESTERN PERU AND NORTHERNMOST CHILE

Archaeological investigations undertaken in the course of the last 30 years in the Departments of Arequipa, Moquegua, Tacna, in Southwestern Peru and in the adjacent Province of Tarataca in Northernmost Chile, have led to the establishment of a long sequence of preceramic cultures reaching back to the 8th millennium B.C.

Various phases of the sequence have now been dated by the radiocarbon method. The sequence itself will be described and interpreted and the C 14 dates will be presented and evaluated.

Phil C. Weigand (Southern Illinois University)

ARCHAEOLOGICAL SURVEY IN THE SAN MARCOS-ETZATLAN VALLEY, MEXICO

Survey in the San Marcos-Etzatlan valley of Jalisco, Mexico has produced nearly 300 sites of 8 types; Archaic, Formative, Classic, Post-Classic, Early Colonial, Late Colonial, Republic, and Modern. Thirteen major ceremonial centers of the aboriginal periods have been located. Remnant agricultural patterns also have been found. Many sites have been identified by name through archival research as well. An accompanying study of the modern ceramics of this area also has been carried out.

Michael West (University of Virginia)

PREHISTORIC MAHAMAES CULTIVATION IN THE VIRU' VALLEY, PERU

Recent interest has been focused on the initiation and utilization of sunken cultivation plots (pukios or mahamaes) in certain Peruvian coastal valleys during the prehistoric period. Several viewpoints have indicated that technological problems or difficulties arising out of the maximum utilization of available land and water resources were responsible for the adoption of this new technique by the inhabitants of the Viru' Valley. This present analysis suggests that the appearance of mahamaes cultivation during the Middle Horizon in the Viru' Valley can be understood within a framework implied by the concept of the ecosystem and emphasizing certain aspects of social dynamics.

Lorraine M. Willey (The Pennsylvania State University)

FUNCTIONAL ANALYSES OF LATE WOODLAND PERISHABLE ARTIFACTS

Perishable artifact remains in the Northeastern United States are primarily limited, except for rare instances, to bone and antler implements. Since many of the lifeways of prehistoric peoples can be interpreted only through perishable remains, it is critical for ethnohistory that these artifacts be carefully studied to determine their utilization within the total culture pattern. This paper evaluates the methods that can be employed in analysing perishable artifacts, such as cordage, leather, and wood, as well as bone, in order to arrive at a greater understanding of their cultural implications. The methodology hopefully will result in a more complete ethnohistoric reconstruction of prehistoric populations.

Edwin N. Wilmsen (University of Michigan)

PALEOANTHROPOLOGY OF THE LINDENMEIER SITE

Current analyses of collections from the Lindenmeier Site are yielding results which permit statements about the probable nature of Paleo-Indian sociocultural life to be made. Occupation was repeated, probably on a seasonal basis. Stratigraphic separation of components is clear. There appears to have been, in each case, simultaneous occupation by at least two distinct social units. Analysis of the lithic assemblages associated with these social units is discussed. Activity specific areas are delineated and variations in stylistic and functional attributes are examined.

William B. Workman (University of Wisconsin-Madison)

SOUTHWESTERN ALASKAN CROSSTIES WITH THE BERING SEA REGION

Archaeological cultures of three different technological traditions occupied contiguous areas in southwestern Alaska throughout much of the millennium on either side of A.D. 1. Two of these, the Cacheamak tradition of the Gulf of Alaska and a technology characteristic of the western Alaska Peninsula-eastern Aleutians, are indigenous to the ice-free North Pacific Ocean, while the third, represented by material from the Bering Sea shore at the base of the Alaska Peninsula, is related to the Norton culture of more northerly provenience.

A recently completed study of a large number of artifacts from the small North Pacific island of Chirikof documented the presence of a number of distinctive artifact types which occur both north and south of the Alaska Peninsula in several or all of the cultural contexts enumerated above. These types are regarded, insofar as a shaky and emergent chronology permits, as markers indicative of culturally significant connections between these basically different cultural spheres. In this paper I will present evidence for the occurrence of some of the more important and distinctive of these types. Existence of these long-standing connections between cultural provinces, and across ecological barriers are seen as significant for our understanding of the prehistory of southwestern Alaska during the second millennium A.D. when the Bering Sea influences were intensified in the greater Kodiak area.

James V. Wright (The National Museum of Canada)

OJIBWA CULTURE HISTORY ALONG THE NORTH SHORE OF THE UPPER GREAT LAKES

The application of the direct historical approach to some of the Ojibwa bands along the north shore of the Upper Great Lakes has been successful in tracing regional culture histories back as far as the 10th century. In order to give meaning to these archaeological sequences, however, it has been necessary to rely upon inferences concerning social structure, subsistence, and settlement pattern. Although the data are far from adequate, a picture is emerging of small, local, conservative bands gradually developing over a considerable period of time into the historic Algonkian-speakers of the region. Throughout these developments culture change appears to have been very slow despite continuous, although spatially variable influences from outside.

LATE ABSTRACTS:

Pierre Agrinier (BYU NW Archaeological Foundation)

TWO LATE TOMBS AND OTHER RECENT DISCOVERIES AT CHINKULTIC, CHIAPAS, MEXICO

Preliminary excavations at Chinkultic, Chiapas, Mexico, by the BYU New World Archaeological Foundation, cooperating with the Milwaukee Public Museum, have exposed details of an imposing ceremonial complex. One of the major constructions is a so-called temple at the summit of an 180 feet high terraced platform overlooking the 'Blue Cenote' investigated by the Milwaukee Public Museum.

Discoveries to date include two tombs, one belonging to the Late Classic and the other to the Early Postclassic periods. They are thought to represent the ultimate architectural stages of the site. The discovery of Late Preclassic or Protoclassic stelae fragments and abundant early potsherds suggest however that earlier architecture will also be found.

Thomas A. Lee, Jr. (Brigham Young University)

MEDIA LUNA CAVE: A LATE PRECLASSIC SITE IN CHIAPAS, MEXICO

Explorations made during March and May of 1968 in a large dry limestone rockshelter in the Rio La Venta of Chiapas, resulted in a discovery of a small terraced masonry pyramidal platform with a multi-room wattle and daub superstructure.

Offerings were excavated containing whole vessels, folded palm boot pads, copal balls and what is apparently human hair in front of and to one side of the masonry platform. Small palm-boot wrapped offerings associated with three burials contained small copal balls, small lengths of cord, beans, squash and a small quantity of very small spherical seeds.

Several small pieces of textiles, many knotted cords and a few pieces of woven palm mats are only some of the many artifacts of perishable material recovered.

Pottery evidence inside the platform, of Chiapa IV types (450-250 B.C.), is thought to date the construction of this structure, while a large burnt cache of several hundred pottery vessels of Chiapa V-VI types (200 B.C.) stacked against the side of the platform and in front of the burials effectively mark the end of the most intensive occupation of the rockshelter.