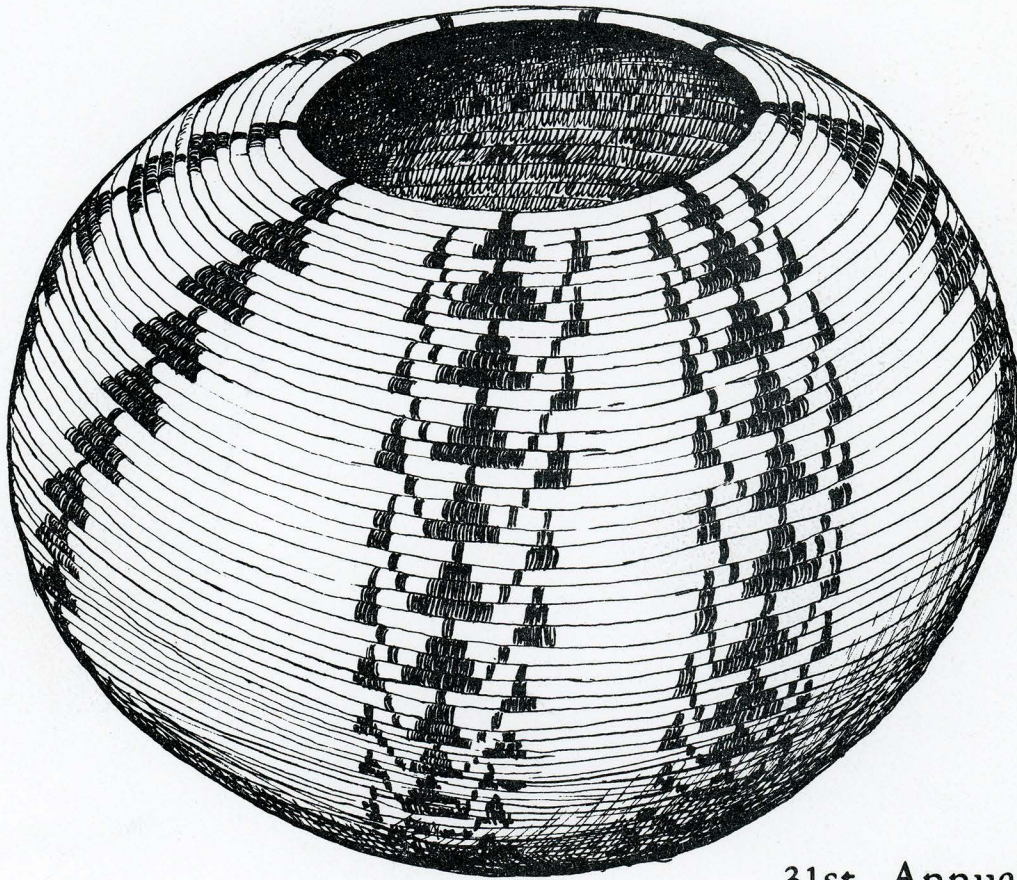


# ABSTRACTS OF PAPERS



31st Annual Meeting

Society for American Archaeology

held with

The Great Basin Anthropological Conference

University of Nevada

Reno

1966

Ce. 20.5.4  
(22)

Abstracts of Papers Appearing in the Program of the 31st Annual Meeting of the Society for American Archaeology, held with the Great Basin Anthropological Conference, May 5, 6, 7, 1966, Reno Nevada.

ROBERT E. ACKERMAN, (Washington State University)  
A New Dimension in North Pacific Coast Prehistory.

The lower level of a site recently discovered in the Icy Strait region of Southeastern Alaska has yielded microblades and micro-cores as well as other chipped stone implements. The upper level of the site contained ground stone tools which have been identified with protohistoric Tlingit occupations.

The discovery of the chipped stone component on the North Pacific coast, at a point midway between the North Pacific Eskimo and the bulk of the Northwest Coast cultural complex, calls for a re-consideration of the routes of cultural diffusion into North America and the occupation of the North Pacific coast.

LARRY D AGENBROAD, (University of Arizona)  
Preliminary Report on a Desert Culture Site: San Pedro River Valley, Arizona.

A Chiricahua Cochise surface site has been located west of the San Pedro River in Southern Arizona. Stone tools, lithic debris, and probable hearths indicate a large or extended occupation.

Analysis of obvious features and artifacts, plus statistically valid sampling of the surface material should yield information on functional areas of the site.

Terrace deposits in the adjacent drainage, plus geologic structure control indicate the possibility of a small Late Pleistocene-Recent lake. The discovery of factors which affected site selection by early populations may lead to the location of similar sites in this and other drainages of the Southwest.

GEORGE AGOGINO and IRWIN ROVNER, (Eastern New Mexico University)  
A Conclusion Concerning the Typological Difference Between Midland and Folsom Points at the Blackwater Draw Site - Eastern New Mexico.

The first accepted discovery of man in association with mammoth occurred at Dent, Colorado, in 1932 when three Clovis points were found in direct association with the remains of a dozen mammoth. Later the same year, similar points were found underlying Folsom and Midland projectiles at the Clovis quarry now known as Blackwater Draw, Locality Number 1.

This site lying midway between the towns of Clovis and Portales is unique in archaeological history. It is the first multi-cultural Paleo-Indian site ever found. The sequence is as follows: the most recent level is a series of Archaic horizons dating back 2,000 to 6,000 years. Beneath this lies a series of Plano horizons dating 8,000 to 10,000 years in age. Underlying the Plano horizons is a

Folsom-Midland strata dating approximately 10,000 to 10,500 years in age and beneath this a Clovis or Llano horizon dating 11,000 to 12,000 years in age.

The fact that the Blackwater Draw site is located within a commercial gravel quarry must be viewed as a mixed blessing. Had it not been for this commercial endeavor, it is doubtful if the site would ever have been uncovered. Yet at the same time it has been largely responsible for the destruction of a great deal of the cultural material found at this location. In the last few years, the state of New Mexico has supported archaeological research at Blackwater Draw and a great deal of additional material has been obtained from this site which would normally have been destroyed through commercial operation.

The Museum of New Mexico, the El Llano Archaeological Society, the Texas Tech Museum, and the newly found Paleo-Indian Institute of Eastern New Mexico University jointly have excavated within the prime site area. In December, 1962, the remains of 4 mammoth were uncovered along with a 150 associated tools of the Clovis people. Since 1964, the Paleo-Indian Institute of Eastern New Mexico University has continued operations at the site. The results of these excavations, particularly in the Folsom and Clovis levels, have given us new and significant information previously not available to the field of archaeology. The present paper will not concern itself with the Clovis culture, but primarily with the Folsom point and its variants.

C. MELVIN AIKENS, (University of Utah)  
Plains Relationships of the Fremont and Promontory Cultures.

Data from recent excavations in central, northern and north-eastern Utah, and in the southwestern Wyoming Basin, have prompted a re-evaluation of current concepts of the ethnic and cultural origins of the Fremont culture centered in Utah, of its relationship to the Promontory culture of northern Utah, and of the relationship of both these cultures to prehistoric late Central Plains cultures.

The long-standing interpretation of the Fremont as a northern "peripheral" variant of the Southwestern Anasazi culture is discarded, and a hypothesis of a Northwestern Plains population partially acculturated to the Anasazi pattern is proposed. Additionally, a historical connection of Fremont with the Promontory culture is postulated, and it is suggested that both cultures drifted back on to the Central Plains under pressure from the 12th century Shoshonean expansion out of the Great Basin. On the Plains, they became the forerunners of the Dismal River Culture, which has been attributed to Plains Apache.

J. RICHARD AMBLER, (University of Texas)  
Caldwell Village and the Fremont Culture

At Caldwell Village, a large Fremont Site in northeastern Utah, excavations revealed 22 pithouses, 9 human burials, 2 dog burials, a prehistoric irrigation ditch, and a large number of portable artifacts. This material is briefly described and compared to data from other sites in Utah and northwestern Colorado, and some generalizations made concerning possible cultural relationships between various Fremont groups.

RICHARD D. AMBRO and RICHARD A. COWAN, (University of California, Berkeley)  
Coprolite Analysis for Lovelock Cave Nevada, With Comparisons from the Archaeological And Ethnographic Data for the Area.

Using E. O. Callen's technique for coprolite analysis the authors have investigated some sixty-odd specimens recovered from Lovelock Cave, in the summer of 1965. These were reconstituted and strained; the gross contents, as well as fine sediments were segregated, described, weighed and, in some instances, samples were mounted on microscope slides for identification and future reference.

The above analysis yielded significant information as to the diet of the prehistoric inhabitants of the Humboldt Sink region. Cowan examines the ethnographic data, as a check of the validity of its application to prehistoric populations. Ambro examines the archaeological evidence for prehistoric diet and discusses contributions to this body of evidence.

DOUGLAS D. ANDERSON, (Brown University)  
Preliminary Report on the Onion Portage Site, Alaska.

Excavations at the deeply stratified site of Onion Portage, North Alaska, begun by the late J.L. Giddings, have in the last two seasons revealed over thirty clearly defined levels within eight broad cultural bands, the earliest of which has been dated to 6,000 B.C. In addition to the significance of finding a stratified site in the interior/Arctic the site is exceptional both in the distinct separation of the tightly clustered levels, reducing to a minimum the possibility of intrusion, and in the abundance of artifacts from each band. The profusion of charcoal from each level has also enabled a large series of radiocarbon dates to be run, and the evidence in certain levels of totally different cultures within fifty to one hundred years of each other substantiates earlier observations that at least 2 different cultural traditions are represented at the site.

KEITH M. ANDERSON, (Navajo National Monument)  
Tsegi Phase Technology.

The technology of several Pueblo III Kayenta villages in Tsegi Canyon, Arizona, offers a unique situation for study of cultural stability and change within a single phase. Intensive tree-ring analysis and a wide range of artifact types allows extensive reconstruction of 13th century Kayenta technology, and analysis of intraphase and intercommunity cultural variation.

GEORGE J. ARMELAGOS and DAVID A. CARLQUIST, (University of Utah)  
Physical Anthropology and the Uto-Aztec Problem.

Anthropologists have traditionally attempted to establish relationships on the basis of the comparison of morphological and metrical data obtained from skeletal series, and from a comparison of genetic traits. An evaluation of the evidence of Uto-Aztec relationships will be presented in the light of recent research. The inadequacy of conclusions based on the typological and even the genetic approach is quite evident. The physical anthropologist must utilize archeological and linguistic information in attempting to ask meaningful questions. Future work in this area will be suggested.

TYLER BASTIAN, (Museum of the Great Plains)  
An Eighteenth Century Wichita Village in South Central Oklahoma.

Excavations were conducted by the Museum of the Great Plains at the Longest site as part of a multi-institutional, National Science Foundation-supported, investigation of the archaeology and ethnohistory of the Wichita Indians in the Southern Plains. Longest is part of a cluster of contact sites straddling the Red River which were occupied by various Wichita tribes and their allies between the 1750's and 1811. Two circular, semi-subterranean houses and 30 cache pits were excavated. Some details of house construction vary from late nineteenth century descriptions of Wichita houses. Most of the artifacts are of Euro-American origin, primarily French.

LEWIS R. BINFORD, (University of California, Santa Barbara)  
An Analogy: Smudge Pits and Hide-Smoking.

It is argued that one does not justifiably employ analogies to ethnographic observations for the "interpretation" of data. Instead, analogies should be documented and used as the basis for offering postulates as to the relationship between artifacts and their behavioral context in the past. Such a postulate would then serve as the foundation for deductively drawn hypotheses which, on testing, could refute or tend to confirm the postulate offered. Analogy should serve to provide new questions about order in the archaeological record and to prompt more searching investigations.

VERLA BIRRELL, (University of Utah)  
New and Old World Symbols.

Do the earth-and-sky (step and scroll) seed, interlock, fret, guilloch, wave, and certain other symbols found in the New World have any Old World ties other than coincidence? When the presence of a large cluster of similar symbols are to be found in sites very far removed from one another, can we not suspect that this reveals more than an accidental parallel and independent development? Since symbolization and textile structuring are both very persistent, conservative cultural practices which extend over long periods of time, are not such questions pertinent?

J. A. BROWN, (University of Oklahoma)  
New Advances in Research on the Spiro Site.

During the past two-and-a-half years concentrated research on the Spiro site, a famous ceremonial center in eastern Oklahoma, has made possible a much clearer picture of the archaeology of this site. At the same time the cultural contexts responsible for the number, kind, and distribution of artifacts in the mounds can be specified. It is evident that the ceremonial and mortuary activity embodied in the great mortuary of the Craig mound, and formerly referred to as the "hollow chamber" in error, occurred somewhere around the time of 1350 or 1400. The material buried in the mortuary and in the graves sunk in the overlying mounds constitute one of the most voluminous series of artifacts pertaining to the complex called the "Southern Cult" and represents a period of widespread exchange of commodities in the Southeast.

A. L. BRYAN and L.A. BAYROCK, (University of Alberta Edmonton)  
Late Pleistocene of Alberta in Relation to the Problem of Early Man in America.

The archaeological literature dealing with Early Man is encumbered with a great deal of guesswork concerning the so-called "ice-free corridor" east of the Rocky Mountains. The present state of knowledge of Pleistocene geology in the key area of Alberta will be reviewed, as well as the available evidence for Early Man within this strategic region. Implications regarding the problem of Early Man elsewhere in America will be derived from the review.

E. O. CALLEN, (MacDonald College, McGill University)  
 Methods and Results of Analysis of Human Coprolites.

Desiccated coprolites (feces) soaked in trisodium orthophosphate generally fall apart when shaken. Representative fragments are extracted. After shaking with benzene, material floating at the benzene/water interface is also collected. Extracted material is mounted in phenolized glycerine jelly for microscopic examination. Some 18 types of animal hairs, 25 plants, the breakdown products of meat, and various insects have been identified. The diet of the Meso-American incipient agricultural phase (Tehuacan caves) included starchy roots, cactus, maguey, grass seeds and meat. Later a city diet was developed, based on a maize, bean and squash agriculture, but the cave dwelling peasants retained their ancestral diet till the time of the Spanish Conquest.

CARL H. CHAPMAN, (University of Missouri)  
 Archaeological Evidences of Osage Indian Houses from Three Historic Sites in Southwestern Missouri.

During the summers of 1962 and 1963 archaeological investigations were conducted by the University of Missouri on three historic Osage Indian Sites located in the Osage River drainage of southwestern Missouri. The excavations were supported by National Science Foundation grants and National Park Service contracts.

Evidence of houses were found on all three village sites. All were similar in construction and verified historic descriptions. Ceremonial houses apparently conformed to the regular house pattern, but associated features differed in placement and use. The house type was the mat covered, rectangular, prairie lodge.

ROBERT G. CHENHALL, (Arizona State University)  
 The Description of Archaeological Data in Computer Language.

It is suggested that models for processing archaeological data on electronic computers must be: (a) specific, (b) open-ended, and (c) at the same time sufficiently analogous to physical and cultural reality to produce results that are meaningful when the symbolic data is subjected to statistical or mathematical analysis.

The author discusses a model which he has developed and tested that appears to fulfill these requirements. It is based upon the separation of perceptual, inferential, and relational trait categories and the application of componential analysis to each category of data.

JAMES V. CHISM, (University of Manitoba)  
1965 Archaeological Work at Lower Fort Garry.

Excavations, under the auspices of the Historic Sites Division of the Department of Northern Affairs and National Resources of Canada, are being carried out for a period of two years at the Lower Fort Garry National Historic Park, a major nineteenth century Hudson's Bay trading post and government center. The site is thought to have contained more than forty structures including agricultural, industrial and military complexes as well as trading and household buildings. A warehouse, prison palisade, troop canteen-barracks, blacksmith shop and lime kiln were excavated during the first season. Excavations failed to locate a stableman's residence and a boatyard.

GERALD H. CLARK, (University of Oregon)  
Archaeology of Shelikof Strait, Southwest Alaska, II.

Excavations during the summers of 1964 and 1965 on Takli Island, in Shelikof Strait, Southwest Alaska, have yielded evidence of human occupation radiocarbon dated to at least 5700 years ago. There is presently no reason to believe the site was occupied after the beginning of the Christian era.

The main site on the island exhibits four recognizable strata. The artifacts from the upper three strata include large crudely flaked bifaces, small stemmed and shouldered points, and rubbed slate points. The lowest stratum is characterized by a predominance of cryptocrystalline tools, chiefly cores, drills, and points. (See also H. S. Rice.)

CHARLES E. CLELAND, (Michigan State University)  
Focal and Diffuse Subsistence Patterns of the Prehistoric Cultures of the Upper Great Lakes Area.

The recognition of two discrete subsistence patterns, as they were practiced by the prehistoric cultures of the Upper Great Lakes area, has been helpful in interpreting the evolution of prehistoric cultures in the eastern United States. Subsistence patterns, as manifestations of the relationship between culture and the natural environment are important in understanding the rate and direction of cultural change as well as the degree of evolutionary potential of any particular prehistoric society.



C. W. CLEWLOW, (University of California, Berkeley)  
Great Basin Point Types: Spatial and Temporal Implications.

A great body of data is available on projectile point types in the Great Basin. Since a certain degree of chronological significance may be attached to several of these types, a study of spatial, as well as temporal patterns associated with the points might provide a useful guide to the culture history of the Great Basin. Some particular point types with spatial and temporal associations are examined in their cultural context.

✓ JOFFRE L. COE, (University of North Carolina)  
The Cherokee Townhouse at Garden Creek.

This is the second report on the current research program of the University of North Carolina on Cherokee prehistory. At the junction of Garden Creek with the Pigeon River near Canton, North Carolina, there is situated an extensive site that originally contained three mounds. One of these mounds once was pitted by the Valentine Museum of Richmond, Virginia in 1800. A second mound was completely excavated by George Heye of the Museum of the American Indian in 1915. The third mound (Hw01) was the primary subject of our excavations last summer.

These excavations brought to light a rectangular earthen platform built by a series of additions to a small nuclear clay foundation. This first mound was erected over an earlier townhouse which had been built at ground level. These structures were built between A.D. 1500 and A.D. 1700. They illustrate the transition between the Pisgah and the Qualla ceramic periods. It is of interest to note that the earlier Pisgah style is not local in origin but seems to suggest rather specific contact with the Plains area.

SHERBURNE F. COOK, (University of California, Berkeley)  
 Chemical Analysis of Soils of Archaeological Sites.

Stratigraphic soil analysis of habitation sites is not specifically a method for dating. Rather it is useful for securing information concerning the history of an area under investigation, and helpful in answering the questions: was the area inhabited, if so how intensely; over how long a period and approximately when? The method depends upon the fact that elements and substances introduced into the soil at points of habitation are followed by changes in composition and distribution which can be traced by chemical soil analysis. The materials concerned are primarily nitrogen, phosphorus, carbon, and lime.

L. S. CRESSMAN, (University of Oregon)  
 Pumice Deposits as Horizon Markers in Archaeology.

The effective use of pumice deposits as horizon markers in archaeology depends on: 1) the identification of the pumice by attributes and source, 2) whether the deposit is primary or reworked and 3) the determination of a reliable radiocarbon age for the deposit. The interrelation of these factors will be discussed with reference to Pacific Northwest prehistory.

T. PATRICK CULBERT, (University of Arizona)  
 Vessel Shapes in Maya Ceramics.

Early ceramic studies in the Maya area used vessel shape as a primary classificatory device, but more recent research tends to emphasize types based upon decoration and surface finish. Data from Tikal, Guatemala, suggest that shape and type are both important categories, the relative utility of which depends upon the archaeological problem and the nature of the ceramics themselves. A more rigorous system of analysis is necessary for the development of research in vessel shape. The categories of shape class and shape are suggested as a first step toward systematization.

E. L. DAVIS, (University of California, Los Angeles)  
A Stratified Lake Mohave Site in Panamint Valley, California.

A major obstacle in dating Lake Mohave stage sites in the California deserts has been lack of stratified sites. Two such sites have now been found in Panamint Valley. Artifacts are such diagnostic types as crescents and Lake Mohave points and camps are in a typical lakeside position, close to the present playa.

In 1965, a National Science Foundation grant supported surveys, test excavations and bulldozer work in the valley at playa-edge campsites. Dates of over 10,000 years B.P. were obtained on reeds; pollen samples showed the climate to have been moister than at present; artifacts were found in complex strata of the fan aprons around the playa. More work is needed to test association of artifacts and lake.

E. MOTT DAVIS, (University of Texas)  
A Problem in Radiocarbon Dating.

When a number of radiocarbon dates have been obtained from different but similar archaeological contexts, how can they best be utilized to gain valid information beyond what can be learned from one or two dates? This question is examined in the light of a number of dating projects in the literature and the author's experience.

JEFFREY S. DEAN, (University of Arizona)  
The Pueblo Abandonment of Tsegi Canyon, Northeastern Arizona.

The abandonment around A.D. 1300 of the Tsegi Canyon by the Kayenta Anasazi was one aspect of the general Pueblo withdrawal from the San Juan country. Although many theories have been advanced in explanation of the general exodus, it is more profitable to focus on a restricted geographical area in order to isolate specific factors which might have caused the emigration from that particular region. It is suggested that a complex of interacting environmental, cultural, and historical factors best explains the abandonment of the Tsegi. These factors are examined in detail and their possible implications for the broader problem are discussed.

DAVID S. DIBBLE, (University of Texas)  
Excavations at Arenosa Shelter.

Recent salvage operations by the Texas Archeological Salvage Project included excavation of a deep, well stratified shelter situated near the mouth of the Pecos River. Layers of occupational debris were well defined and separated -- primarily because of intervening deposits laid down during times of river flooding. Use of the site appears to have occurred throughout all currently recognized phases of the Archaic Period. Additionally, the younger deposits contained materials attributed to post-Archaic, or Neo-American, occupancy.

KEITH A. DIXON, (California State College, Long Beach)  
Terminal Late Preclassic Ceremonial Architecture at Temesco,  
Valley of Mexico.

Excavations at Temesco, a site in the Texcoco Plains which probably dates from the first century B.C. were conducted in 1965 in order to analyze the architecture. The most important results were: 1) at least four stages of extensive temple enlargement and modification despite a presumably short site occupancy and 2) what seems to be a new technique of fill facing. The implications for the development of the succeeding Teotihuacan architectural style are discussed.

DON W. DRAGOO, (Carnegie Museum)  
An Early Lithic Site in Stewart County, Tennessee.

Since 1963 Carnegie Museum has conducted investigations at a large Early Lithic site in Stewart County, Tennessee. Several components within the Early Lithic Period are present upon the site. Fluted points of the Clovis type represent the earliest datable horizon, but a variety of heavy, large chopping and planing tools may denote an earlier culture. Several late Early Lithic projectile point types and a sizable component of the Plano tradition of Early Archaic are also present.

DON E. DUMOND, (University of Oregon)  
Pottery Sequence in Southwestern Alaska.

Two temporally-significant classes of ceramic wares may be distinguished in the area between Seward Peninsula and Kodiak Island. The earlier is characterized by the predominance of fiber temper, and occurs from Seward Peninsula to the Alaska Peninsula. Its earliest known representative is dated about 500 B.C.; its latest securely-dated occurrence is about A.D. 1000. The younger class is marked by the predominance of inorganic temper, and is distributed from Seward Peninsula to Kodiak Island. It includes ware from St. Lawrence Island dating from early in the Christian era, pottery which appears on the Alaska Peninsula at A.D. 1000-1100, and the pottery of Kodiak Island, which first appears early in the second millennium A.D. It includes pottery types of the contact period.

BERTHA P. DUTTON, (Museum of Navajo Ceremonial Art)  
Results of Computer Analyses of Las Madres Ceramics.

It was found that macroscopic and even microscopic studies of the decorated pottery recovered from excavations at the ruin named Las Madres in the Galisteo basin southeast of Santa Fe, New Mexico, did not provide definitive information. Consequently, re-studies were undertaken, primarily with view to determining the diagnostics of Galisteo Black-on-white and related types and the Glaze I types occurring at this site. Curt Schaafsma was given the chore of determining and coding the ceramic data most useful; these were transferred to key cards and run through computer machines, producing the facts which are set forth in this paper. Susan T. Adams carried forward pertinent studies until work was resumed by Mr. Schaafsma, early in February, 1966. What we have ascertained about this problem is herewith presented. (See also Schaafsma, et al.)

WILLIAM E. EDWARDS, (University of South Carolina)  
Methods of Testing Pleistocene Extinction Hypotheses.

The two most important needs for proper interpretations of megafaunal extinction in the Postglacial are first the formulation of general hypotheses -- the three most likely of which are that extinction resulted from changes in the physical, biotic, or sociocultural environment -- and precise mechanisms for the process of extinction, and second the testing of these hypotheses' expectable concomitants against relevant principles and especially data.

Some concomitants previously employed as supposed corroboration are actually expectable to varying degree by all three hypotheses: the selective removal of the largest animals, the survival of identical or closely related isolated species in both hemispheres,

and a much lower frequency of extinctions for marine mammals. Criteria tending to distinguish between all three postulates include the degree of intercontinental and interregional variation in the time of extinction, the areal sequence of extinctions, the environments where survivals have occurred, correlations between extinction frequency and type of defense against predators, and relative times of carnivore extinctions. Criteria corroborating two hypotheses include solitary versus gregarious extinction frequency and the breadth of environmental tolerance of surviving versus extinct forms. Finally, specific tests of the climate, disease, and culture postulates are considered.

FLORENCE HAWLEY ELLIS, (University of New Mexico)  
Utaztecan Ethnology

The search for parallels leading to possible identification of traits basic to Utaztecan-speaking peoples as a whole is made exceedingly difficult by three problems. 1) The tribes are so very widespread that geographic limitations and influence from neighbors are major factors to be subtracted from the picture of their cultures as given by ethnographers of the historic period. Such sifting must be followed by another to shake out traits the Utaztecs have borrowed from each other after some groups had made considerable cultural advances. 2) A great many of the tribes never have caught the eagle-eyed attention of any ethnographer. 3) If ancestors of these tribes, now so far flung, and of cultures so assorted in degree of development, once comprised a single large people, it must have been a great while ago. Looking for the cultural foundation which one feels must have existed for those ancestors is doing a new Kroeber-like search for basic traits common not only to the Southwest, California, and the Great Basin, but also to the deserts and mountains of northern Mexico and the plateaus and highlands farther south. Archaeological and linguistic studies which could provide time depth and pattern of earlier cultural stages, tribe by tribe, seem requisite to any really tenable conclusions.

My guess is that the Utaztecs drifted southward in the distant centuries B.C., probably carrying the Desert culture, which some continued as a way of life into the historic period, while others, through historical accident or act of God built upon their foundations until they had such cultures as those of mid-Mexico, from which they spread influences in all directions. But what is not archaeological in this hypothesis is guesswork -- and neither my assignment.

Conclusion: This is a subject more appropriately assigned to my grandchildren or my students' grandchildren than to me. They, possibly, might find enough data available to cover charts of convincing square footage.

Still, there are a few leads today ---.

ROBERT ELSTON, (University of Nevada)

Identification of the Historic-Protohistoric Phase of the Washo of the Central Sierra Nevada.

During the summer of 1965, three sites were excavated along an east-west transect of the central Sierra Nevada from Lake Tahoe to the Virginia Range, and a general survey of the area was also made. The three sites produced assemblages which are culturally homogeneous, and which appear to correlate well with the assemblage obtained by Elsasser from Do-12. These assemblages seem to fall within the historic-protohistoric phase of Washo history, and appear to be archaeological components of that phase.

JEREMIAH F. EPSTEIN, (University of Texas)

An Archaeological View of Uto-Aztekan Time Perspective.

Attempts to give archaeological time perspective to Uto-Aztekan have utilized various approaches. These include:

- A. The identification of archaeological sites with specific historic Uto-Aztekan populations, followed by the demonstration of culture continuity back to a particular time period.
- B. The relating of archaeological culture areas with linguistic areas at the historic level and through the correlation of archaeological with chronological dates, prehistoric levels.

Each of these approaches involves assumptions about the nature of archaeological data, the significance of archaeological continuity, and the relationship between archaeological culture and linguistic groupings. These assumptions are examined, and the success of the various approaches are evaluated. Other avenues of possibly fruitful research are suggested.

DAVID A. FREDRICKSON, (University of California, Davis) and

JOEL GROSSMAN, (University of California, Berkeley)

Radiocarbon Dating of an Early Site at Buena Vista Lake, California.

A buried cultural deposit at Buena Vista Lake, southern San Joaquin Valley, California, stratigraphically deeper than the early complex described by Wedel in 1941, yielded a radiocarbon date of 7600  $\pm$  200. Artifacts were scarce but included chipped stone crescents and an atlatl engaging spur, types known from the region but without cultural or temporal provenience. The present stratigraphic context of these artifacts allows the hypothesis that the culture represented was established in southern San Joaquin Valley at an early date. Relationships are hypothesized with early complexes to the south, such as San Dieguito, and to the north, such as Borax Lake.

THOMAS R. GARTH, (Orange State College)

The Plateau Whipping Complex and its Relationship to Plateau-Southwest Contacts.

Correctional whipping as a governmental measure was present in the Plateau before White entry of the area (before 1800). Other Spanish-type or Pueblid traits also occur and may well be equally old. Shoshone-Comanche slave raiding was carried on between 1700 and 1800 on a grand scale. The tribes raided --- the Nez Perce and Spokane, Atsugewi, Cree, and many others --- not yet having horses, could offer little resistance to the mounted Shoshone-Comanche. Slaves in great numbers were taken south and sold to the Spanish. Here they were often treated well by the Franciscans, although they were frequently abused on the ranchos and in the mines of Spanish civilians. Several historic accounts occur of slaves who escaped and returned to their people, having a considerable knowledge of the missions and the Spanish customs and language.

It seems most probable that such slaves carried various governmental procedures of Spanish type to the Plateau along with many other culture traits.

R. W. GIDDINGS, (Brown University)

Pottery Sequence in Northwest Alaska's Coastal and Related River Sites.

Pottery types already defined for this area will be pictured and discussed. Particular emphasis will be given to a description of unpublished discoveries available to me for the area from Cape Denbigh to Pt. Barrow; particularly materials found by J. L. Giddings, showing sequences including Yukon, Barrow, and Norton components at two sites near Wales, at Choris Peninsula (the type site for the as yet undescribed Choris pottery), and at other beach-ridge-dated sites; Cape Espenberg and Cape Krusenstern. The pottery finds from the top layers of Onion Portage Site will also be described. Discussions of the dates for the sequences will close the report.

A. A. GORDUS, (University of Michigan)

Application of Neutron Activation Analysis to Archaeology: II.

Neutron activation analysis has almost limitless possibilities as a technique for analysis of elements in archaeological artifacts. The samples used for irradiation, which could be as small as one milligram or less, could be removed unobtrusively from even the most valuable museum specimens.

An extensive research program using this method is in progress at the University of Michigan. Preliminary data will be presented for Hopewell pottery, Mexican thin-orange pottery, and Hopewell and natural-site obsidian.

Methods of analysis, instrumentation required, and automatic methods being devised to permit analysis of 10-20,000 samples per year will be discussed. (See also F. H. Stross)



JAMES A. GOSS (University of California, Los Angeles)  
Culture-Historical Inference from Utaztecan Linguistic Evidence.

During recent years, there have been advanced several alternative theories concerning the nature of prehistoric relationships of Utaztecan speaking peoples to the Great Basin Area. It is the purpose of this paper to survey past research concerning Utaztecan prehistory and to evaluate the alternative theories.

One hundred years of progress in Utaztecan classification are briefly summarized. The geographical distribution and internal relationships of Utaztecan languages are discussed. The possibility of reconstruction of the nature and location of the ancestral Utaztecan culture, from linguistic evidence, is discussed.

Alternative theories of Utaztecan prehistory are evaluated and suggestions are made for a re-orientation which will render future investigation more fruitful.

As a methodological demonstration, a micro-study with special reference to the "Southern Numic" languages of the southern Great Basin is outlined. The areas of peripheral contributions of linguistic data to Utaztecan prehistory are also indicated.

JOHN A. GRAHAM, (University of California, Berkeley)  
Non-Classic Inscriptions and Sculptures at Seibal.

Recent investigations at the Maya ruin of Seibal in Southwestern Peten, Guatemala, have disclosed a significant body of monumental sculpture and hieroglyphic texts which are not compatible with the Maya Classic tradition. Occurring within a context of military conflict at the end of the Classic Period, these monuments provide important implications for the collapse of the Classic order in the Maya lowlands of Peten.

G. F. GRABERT, (University of Washington)  
The Okanogan Valley: Boundary or Transition Zone?

Three season's excavation in the Wells Reservoir in the Upper Columbia and Lower Okanogan valley have resulted in a preliminary interpretation indicating that this area is a boundary or transition between the Columbia Plateau and the Canadian Plateau. Certain traits are distributed from the Lower Columbia to the Middle Fraser, with diminished frequencies and stylistic variations in the Okanogan region. A hypothesis that the physiographic boundary forms a zone of cultural transition with considerable time depth is proposed. The transition may have been more pronounced in the Developmental and early part of the Late Periods.

DEE F. GREEN and WILLIAM J. COFFMAN, (University of Missouri)  
Sexing and Ageing Skeletons With a Whole-Body Counter:  
A New Archaeological Technique.

A study by Ernest C. Anderson at Los Alamos showed that living males and females have different average amounts of potassium isotopes (K40) in their bone and body tissues. The same study also showed that the amount of K40 retained by the body decreases with age.

This paper chronicles a recent attempt by the authors to develop a technique for estimating the age and sex of human skeletal material based on the relative amounts of K40 present in bone. The population consists of about 100 skeletons from the Campbell Site in Southeastern Missouri. The study was conducted at the University of Missouri's Low-Level Radiation Laboratory using a Whole-Body liquid Scintillation Counter to detect the gamma rays. Results of the study are discussed along with an enumeration of some of the problems encountered and a look-at future research.

RUTH GRUHN, (University of Alberta, Edmonton)  
Two Early Radiocarbon Dates From the Lower Levels of Wilson  
Butte Cave, Idaho: Provenience and Significance

The University of Michigan-Memorial Phoenix Project Radiocarbon Laboratory has recently determined two additional radiocarbon dates on samples of bone from Wilson Butte Cave: Stratum E., basal yellow/brown clay, 15,000  $\pm$  800 B.P.; and lower zone of Stratum C, grey/brown sand, 14,500  $\pm$  500 B.P. The provenience of the dated bone samples and associated artifacts is documented, and the significance of the new dates assessed.

JAMES B. GRIFFIN, (University of Michigan)  
Asian Sources of American Arctic Pottery.

Pottery of the Ethnographic period has been known in the Eskimo area for many years. Its presence in substantially earlier periods was the result of archaeological work by many individuals and speculation on its significance has been offered by an even larger number of archaeologists.

The earliest Arctic pottery known to me is that of the Choris-Norton tradition which is found in the Seward peninsula area by ca. 1000 B.C. This complex with plain linear stamp and check stamp surfaces with a flat circular bottom and straight sides seems to have its most likely antecedents in the lower Lena valley. Once introduced the complex spread from the northwest Yukon and to southeast Alaska. This tradition continued in Alaska with modifications and apparent degeneration until the development of variant surface treatment in the Birnirk period produced a significant new complex. This is best viewed as a western American Arctic development.

The late ceramic complex of situla shaped pottery from southwestern Alaska may have been an introduction from the Okhotsk pottery but this would seem to be the only significant ceramic influence to have reached Alaska along the northeast Asian coast.

western Alaska may have been an introduction from the late Okhotsk pottery but this would seem to be the only significant ceramic influence to have reached Alaska along the northeast Asian coast.

C. VANCE HAYNES, JR., (University of Arizona)  
Early Man and the Alluvial Chronology.

The alluvial chronology of the Southwest and Plains has been revised on the basis of over 100 carbon-14 dates related to stratigraphy at 40 localities mostly along tributary drainages. Throughout the area 5 successive alluvial units are correlatable on the bases of stratigraphy (sediments, soils, and contacts), archaeology, megafauna, and pollen analysis. Sediments and soils are interpreted in terms of climatic change.

The carbon-14 dating of early man sites indicates at the most a sparse human occupation of the area before 11,500 years ago. Successive alluvial units after 11,500 years ago show increasing human population and cultural diversity. The paucity of early man sites in alluvium older than 9,500 B.C. may be due to geologic causes as well as absence or smallness of human population. (See also P. J. Mehringer)

R. F. HEIZER, (University of California, Berkeley)  
X-Ray Fluorescence Analysis of Obsidian.

Analysis of trace elements in obsidian through x-ray fluorescence permits samples of this mineral, so widely used by prehistoric peoples to be characterized in precise terms of trace element composition. Experiments carried out by F. Stross and J. Weaver, of the Shell Development Company, indicate that obsidians from different sources can be individually distinguished, and that obsidian implements in archaeological sites can be matched, through their trace element compositions, with the sources from which they were derived. Results of analyses of Californian and Mesoamerican obsidians are summarized, and certain culture-historical conclusions are arrived at.

JAMES N. HILL, (University of California, Los Angeles)  
Fossil Pollen in Archaeology: Two New Uses.

Archaeologists have frequently used palynological data in studying past physical environments and prehistoric diets; more recently, there have been attempts to use such data in inter-site dating. The recent interest in structural-functional studies of prehistoric communities has stimulated two further uses of fossil pollen. It may be helpful in intra-site dating and in the determination of functionally specific areas within (and between) sites. These uses are suggested by an analysis of fossil pollen at Broken K Pueblo, east-central Arizona.

MICHAEL P. HOFFMAN, (University of Arkansas)  
Ceramic Pipe Style Chronology Along the Red River Drainage in  
Southwestern Arkansas.

In southwestern Arkansas ceramic pipe styles are sensitive chronological indicators. From a Fourche Maline culture stemmed pipe with a barrel-shaped bowl through local phases of Coles Creek and Early Caddoan culture the typical long-stemmed pipe, or as it has been called, the Red River pipe, is seen as typologically developing by a series of minute style changes. Stratigraphic support for this development is present in several burial mounds and tight context is assured by grave lots. In Late Caddoan times there is an apparent typological development of the stemmed pipe into several varieties of elbow pipes.

HAROLD A. HUSCHER, (Smithsonian Institution)  
Age-Area Principles in Practical Applications.

The classic North Plains Sun Dance demonstration of the age-area principle has alternate interpretations: Kiowa may have retained an older basic Upper Missouri form. Distribution of surviving Athapaskan bands is not necessarily evidence of absolute age; segmentation then clustering from very recent band continuums would give the same effect. Acculturation does not proceed regularly outward from centers in spectrum bands of cultural intensity, but linearly and differentially along geographically determined lines. Bipolar acculturation may occur at opposite ends of contact routes, with limited intervening evidence. The cultural mixtures resultant cannot be reduced to single common origins.

JOHN C. IVES, (Arizona State University)  
Four Early Hohokam Burials.

Recent excavations by the Department of Anthropology, Arizona State University have recovered four early Hohokam burials. Two are flexed and date from the Vahki period. The other two date from the Snaketown period and were prone with knees raised. One from each period was covered by a rock cairn which included milling stones. Both kinds of cairn burials are considered modal for the early Mogollon in the San Simon valley, Southeastern Arizona by Sayles. In contrast to the burials, extensive excavation and survey has failed thus far to indicate any definite practice of cremation prior to Santa Cruz times.

CYNTHIA IRWIN-WILLIAMS (See Page 40)

ALFRED E. JOHNSON, (University of Kansas)  
 Turkey Creek Pueblo and the Origins of Western Pueblo Culture.

Archaeological investigations at Turkey Creek Pueblo in the Point of Pines area of east-central Arizona suggest that Reed's definition of Western Pueblo culture should be extended to include the period between A.D. 1000 and 1300. Anasazi Pueblo influence on the Point of Pines Mogollon variant began about A.D. 700. This influence increased significantly after A.D. 1000 resulting in a marked change in the local Mogollon pattern and the development of a different complex. The different complex, exemplified by Turkey Creek pueblo, corresponds to Reed's definition of Western Pueblo culture.

JERALD JAY JOHNSON, (University of California, Davis)  
 Recent Investigations into the Temporal Relationships of the Central Sierra Nevada Foothill Archaeological Sites to the Lower Sacramento and San Joaquin Valley Sites.

In the past three years several archaeological sites have been excavated in the Central Sierra Nevada Foothills. Included are cave, rockshelter, and open village sites. The temporal placement of the burial caves and one component at Site Calaveras 237 have been equated to the Central Valley Middle Horizon. Recent excavations at Site Amador 56, in the foothills, yielded data that has further delimited the temporal position of these sites.

DAVID H. KELLEY, (University of Nebraska)  
 New Data on the Maya Correlation Problem.

Certain glyphs and certain intervals emphasized on Mayan monuments and in the Mayan codices suggest that the Mayas recorded equinoxes and solstices, particularly when they coincided with other important features of the Mayan calendar system. The coincidence of these with our calendar will recur once a year. However, the dates found do not agree with those in any correlation based on the later Mesoamerican calendar data, nor with any correlation previously proposed on astronomical grounds. If the emphasized dates are, as suggested, positions of the solar year, then a new correlation must be developed based on other classes of astronomical evidence or on historical evidence.

J. CHARLES KELLEY, (Southern Illinois University)  
Sipapu and Plaza Too?

Accumulated data from Archaeological work in northern Mexico and recent work in the American Southwest suggest that the influence of peripheral Mesoamerican cultures on those of the Southwest may have been much greater than formerly believed. Clearly, hypotheses for the local development of many Southwestern traits and elements must be re-examined in the light of the new data. Among the architectural and ceremonial features whose independent origin in the Southwest must now be suspect are the inward-facing Mogollon-Anasazi plaza, the Anasazi sipapu -- and perhaps the kiva ceremonial structure itself -- and very possibly the Anasazi Great Kiva as well.

ROGER E. KELLY, (Arizona State College) and S. ALAN SKINNER,  
(Museum of Northern Arizona)  
Ceremonialism and Kivas in Sinagua Prehistory.

Identification of ceremonial structures in Sinagua culture sites of the San Francisco Peaks area rest on the correlation of floor features, subterraneanity, form, and location within sites. These criteria in combination are often used by workers in Anasazi regions but specifics differ in Sinagua sites. Recent excavations in the Flagstaff, Arizona area have uncovered structures which date from Elden, Turkey Hill, and Clear Creek phases and which are identifiable as kivas. Present knowledge allows a sketch of kiva development in this region. Data relative to prehistoric kiva ceremonialism based on historic Hopi kiva use are discussed.

MAKOTO KOWTA, (University of California, Riverside)  
The Sayles' Site: A Late Milling Stone Assemblage from  
Cajon Pass, California.

Excavation at a large, open-air site in the Cajon Pass area of the San Bernardino Mountains, in part a salvage operation supported by the Southern California Gas Company, has resulted in the recovery of an assemblage characterized by large quantities of milling stones and scraper planes in association with relatively small, unnotched projectile points. The total configuration recalls Milling Stone Horizon components of the Southern California coast, but projectile point attributes suggest desert ties and more recent temporal placement, leading to problems of ecological interpretations.

LEIF C. W. LANDBERG, (University of California Davis)  
 Historical Perspectives on the Aboriginal Fisheries of the  
 Santa Barbara Region, California.

Climatological and faunal evidence indicate ocean surface temperatures were warmer in southern California during the late eighteenth and nineteenth centuries and that a warmer-water fish fauna was then found in the Santa Barbara region. Ecological conditions of this warmer period probably sustained a more abundant inshore fishery than is now found in the region. Possible drastic changes since the end of the nineteenth century in the ecology of some pelagic fish species, such as tunas, which were caught by the Indians, are considered in relation to inferences about aboriginal ocean fishing.

EDWARD MCM. LARRABEE, (Churchville, Pa.)  
 Historic Site Archaeology in Relation to Other Archaeology.

Seven approaches to archaeology in general are postulated and explained. Historic Site Archaeology is examined and found to possess all seven aspects, but with certain characteristic emphases. It is uniquely complicated and rewarding in its close relationship with historical research.

THOMAS N. LAYTON, (University of California, Davis)  
 The Archaeology of Smokey Creek Cave.

This paper is a descriptive report of the archaeology of Smokey Creek Cave, a wet cave, located in Humboldt County, Nevada, 33 miles north of Gerlach. The cave was excavated in August, 1965 by a field party from the University of California, Davis. The lithic assemblage is similar to that collected at the Karlo Site. Obsidian hydration measurement has been used to help establish the chronology of point types.

JOY LELAND and CATHERINE S. FOWLER, (University of Nevada)  
 Northern Paiute Ethnobotany: A Preliminary Report.

The investigators have gathered native texts on the uses of plants by the Northern Paiute. Some principles for classifying the plant world, as expressed by native speakers, have been noted. The principles, a tentative classification, and some ecological implications will be presented and discussed.

SHIRLEY W. LEE, (Stanford University)  
 A Survey of Acculturation in the Intermontane Area of  
 The United States.

Within the Intermontane area, there was a wide range of social organization, including patricentered, matricentered, and bicentered, with varying degrees of integratedness. We thus have an opportunity to consider responses by quite differently organized social groups to a rather sudden need for adjustment to a totally new life situation. Using subsequent population growth or decline as a measure of success or failure, the paper considers resultant patterns of population and settlement, taking into account variation in ecological and historical conditions.

ROBERT H. LISTER, (University of Colorado)  
 A Note Upon Two Types of Kivas Previously Unknown in  
 Mesa Verde National Park, Colorado.

Excavations conducted by the University of Colorado in Mesa Verde National Park have uncovered two types of kivas, Pueblo ceremonial chambers, heretofore unreported in the Park. One is a small kiva possessing features not unusual in the Mesa Verde but instead of being subterranean, as is normally the case, it is completely above ground. The other structure is the first example of a classic Great Kiva in a Mesa Verde open site. Typical Great Kivas are known from localities adjacent to Mesa Verde but up to the present the only structures possessing features identified with Great Kivas are in cliff dwellings.

WILLIAM A. LONGACRE and JAMES E. AYRES, (University of Arizona)  
 Archaeological Theory: Some Lessons from an Apache Wickiup.

A recently abandoned Apache Wickiup in eastern Arizona was investigated by the University of Arizona to add to the ethnography of the White Mountain Apache, and to contribute to archaeological methods and theory. It was treated as an excavated living area. On the basis of the distribution of artifacts and features, functionally specific areas were inferred. Inferences were made concerning the nature of activities carried out at these locations. An Apache informant was consulted to test the accuracy of these inferences. This experiment supports the suggestion that the patterned distribution of artifacts and features reflects the behavioral structure of the people utilizing a site.



GARETH W. LOWE, (New World Archaeological Foundation)  
Prehispanic Trade Routes and Culture Patterns Suggested By  
Salvage Archaeology in the Mal Paso Dam Basin, Chiapas, Mexico.

Archaeological explorations throughout the Middle Grijalva and Lower Rio La Venta basins being flooded by the Mal Paso (Netzahualcoyotl) reservoir in westernmost Chiapas reveal a heavy density of small ceremonial centers and a long culture history extending back through the Middle Preclassic with a Late Classic climax. A few unusually large centers demonstrating unique architectural traits suggest commercial towns at the head of riverine transportation, linking probably Mixe-Zoque Gulf Coast tribes with those in central Chiapas. A conservative ecologically determined intermediary role is envisaged for this extremely wet region, beginning with the Olmec and surviving through the Spanish Colonial into recent historical eras.

R. S. MACNEISH, (University of Alberta, Calgary)  
Pottery Sequence in Northwestern Canada.

In the excavations at Engigstciak on the Firth River in the Northwest Yukon, a wide variety of Pottery types were found in excavation. For the most part the Pottery complexes occurred in isolated points and not in stratigraphic position. It has, however, been possible by seriation and some limited stratigraphy to arrange these ceramic materials in a tentative chronological order. The early Pottery is of two types called Firth River cordmarked and Firth River impressed. No comparable pottery seems to have been found in the New World as yet although this material has obvious similarities to some in East Siberia and Eastern Woodlands. It is guessed that it may be as old as 1500 B.C. Following this type is a single type called Buckland Hills dentate. On this horizon there are a few sherds like Choris linear stamped; the next horizon sees a dominance of Choris linear stamped and a little Norton-checked stamped; the next horizon, probably at about 200 or 300 B.C., sees a dominance of Norton-checked stamped. There then seems to be a gap in the sequence and in the final stages there are a few sherds of Barrow Curvilinear in rather crude recent Eskimo Pottery.

The implications of this Pottery will be further discussed verbally.

R. BRUCE MCMILLAN, (University of Missouri)  
Some Comments on the Rodgers Shelter:  
A Stratified Archaeological Chronicle on the Ozark Highland-Plains  
Border.

A rock shelter in Benton County, Missouri with 25 feet of stratified cultural deposit has yielded a chronicle of continuous habitation from the Paleo-Indian period through 2 major Archaic horizons and up through the Late Woodland period. The site has 4 major strata separated by sterile soil layers or distinct soil changes which correspond to the 4 major cultural manifestations. The shelter promises to be one of the most important sites in the Midwest for establishing an unbroken cultural and environmental

sequence from sometime during the latter phases of the Pleistocene period until around A.D. 1000. The site is of regional significance and should greatly aid the chronological ordering of a number of Archaic traditions in that area.

ALAN MCPHERRON, (University of Pittsburgh)  
Recent Computer Experiments in the Study of Stylistic Variation in Ceramics.

Revision of the data deck of pottery attributes for Juntunen site pottery permitted the use of some recently-developed programs of considerably greater power than those reported by the author in previous communications. The outcome of the experiments includes: (1) classification of provenience units by attributes rather than by types, and (2) comparison of pottery wares for over-all contained variation.

PETER J. MEHRINGER, JR., (University of Arizona)  
Pollen Analysis and the Alluvial Chronology.

The alluvial sequence of the Southwest and Plains has been used as a framework for the dating and climatic interpretation of archaeological sites. Combined stratigraphic and pollen studies have added to our understanding of the possible magnitude of climatic change inferred from the alluvial record. With a few exceptions there is striking similarity in the general environmental trends indicated by the palynological and geological evidence. These include a trend to warm and dryer conditions from about 12,000 to 7500 B.P., with several important climatic fluctuations during this time, and a moist interval beginning about 4500 B.P. This paper will be given in conjunction with C. V. Haynes', which reveals the C14 dating and stratigraphic evidence for the alluvial chronology.

JOSEPH W. MICHELS, (Pennsylvania State University)  
Testing Stratigraphy and Artifact Re-use through Obsidian Hydration Dating.

Dating a moderately large sample of obsidian artifacts from a site can contribute highly accurate knowledge about three basic unknowns for site deposits: 1) the presence or absence of a statistically significant tendency towards superposition in the deposit; 2) the nature and degree of disturbance inhibiting the full expression of the superpositional tendency; and 3) the directionally bias associated with the disturbance.

Deposits of the following three sites will be analyzed: Mammoth Junction Site, California; La Victoria Site, Guatemala and the Chorrera R-B-1 Site, Ecuador. A test for artifact re-use will be described, and applied to the three sites.

DONALD S. MILLER, (University of California, Los Angeles),  
 JAY W. RUBY, (University of California, Davis) and  
 LINDA LEVINE, (University of California, Los Angeles)  
 A Hole in the Roof.

The authors present a graphically illustrated University of California research project which has brought to light three Chumash sweat lodges and an extensive body of data concerning related types of aboriginal architecture from Central and Southern California.

The Presentation concerns the merging of descriptive archaeological information with historic and ethnographic data on the construction, function, and destruction of these structures among the Chumash of the Santa Barbara Coast, California.

LAWRENCE MILLS, (Central College)  
 Mississippian Hunchback Effigy Jars and their Kinship to the Old God of Central Mexico.

Clustered primarily along the west bank of the Mississippi River in southeast Missouri and northeast Arkansas, a distinct style of effigy figure incorporates a pronounced kyphosis or hunchback. The abrupt angle in the back resembles a condition caused by tuberculosis of the spine and is remarkably similar to figures of Huehuetotl or "The Old God" of central Mexico. Hunchback effigies occur in Ecuador, Santo Domingo, and northward in Aztec, Huastec, and Casas Grandes sculpture. So far none of this style is known north of the Rio Grande except in the Arkansas-Missouri area. A route of transmission of this style is suggested.

BURTON J. MOYER, JR., (University of California, Berkeley)  
 Representational Sculpture from the Humboldt Sink, Nevada.

The paper presents a brief discussion of representational art ascribed to the prehistoric inhabitants of the Lovelock region. With the exception of one piece, these are all pecked and polished stone. Their first appearance in the literature seems to occur in Loud and Harrington's Lovelock Cave, and since then, several more specimens in the hands of private collectors have come to light. A few are in the possession of the Museum of Anthropology at Berkeley.

A description is presented of a carved wooden grasshopper, recently found in Lovelock Cave by a private collector in Lovelock, and brought to the attention of Prof. Heizer by Mrs. Ethel Hesterlee (Lovelock). Although several dry caves in the vicinity of the Humboldt Sink have been excavated, this is the first occurrence of this style in wood. Spectrographic examination of the pigment used to color part of this object lends credence to the belief that it is a product of the prehistoric artistic tradition of this area.

A discussion of the possible relationship of the Lovelock tradition to other centers of prehistoric representational art in western North America, specifically, the Pacific North West and the South West is included.

ROGER NANCE, (University of Texas)  
La Calsada, A Stratified Site in the Sierra Madre Oriental,  
Neuvo Leon, Mexico.

This is a preliminary report of excavation of a rock shelter at an elevation of more than 6,000 feet in the Sierra Madre. The deposits consisted of five stratigraphic units. The earliest stratigraphic unit probably dates from the early to middle archaic; a new-American component occurs in the upper-most unit.

Culture change through the five units is indicated by changes in projectile point forms; by a shift from the presence of unifaces and bifaces to an almost exclusive occurrence of bifacial stone artifacts in the later units; and by the presence of grinding stones in the later units, only.

JAMES F. O'CONNELL, (University of California, Berkeley)  
Examples of Projectile Points as Time Markers in the Great Basin.

At the present time, the store of information on projectile points in the Great Basin is accumulating rapidly. Sufficient data has been published to allow for a meaningful survey of type distributions. The results of such a survey indicate the presence of at least two projectile point types as time markers during the period 2000 - 1000 B.C.

W. H. OLSEN, (California State Division of Beaches and Parks) and  
W. E. PRITCHARD, (Sacramento State College)  
The Martis Complex: An Application of the Obsidian Hydration Method.

Over the past 10 to 15 years, a number of investigations, along the central Sierra Nevada, have revealed the existence of a distinctive basalt industry now known as the Martis Complex. It is suggested that this industry precedes the proto-historic and historic Washo occupation archaeologically known as the Kings Beach Complex. This period is guess dated at post 1,000 A.D. On typological grounds the Martis Complex is guess dated at ca. 500 A.D. to 1,000 B.C. Recent work by Elsasser (1960) suggests that two or more temporal phases of this complex may be involved.

The Obsidian Hydration method has been applied in a further attempt to provide a meaningful temporal framework for the Sierra Nevada region. Hopefully, this method will provide an obsidian hydration rate for the area as well as providing data on various projectile point styles and possible cultured phases within the Martis Complex.

DAN J. OPFENRING, (Arizona State University)  
The Hohokam as Gatherers.

Recent evidence has come to light that strongly suggests a great deal of Hohokam economy was derived from the extensive exploitation of their natural environment. Several Hohokam sites have been located where farming would not only have been impractical but almost impossible. These small gathering sites seem to have had strong affiliation with large riverine sites. These sites seem to have been maintained for food gathering, hunting, quarrying, or other specialized purposes.

THOMAS C. PATTERSON, (Harvard University)  
The Oracle and the Inca: The Role of Pachacamac in Andean Culture History.

Pachacamac was not only a large urban center on the central Peruvian coast but also the site of a famous oracle which wielded considerable influence throughout the Andean area at the time of the European invasion. The oracle probably had its origins in the appearance of Huari influence on the coast during the Middle Horizon and exerted some influence along the coast at this time; the prestige of the oracle apparently diminished slightly during the Late Intermediate Period. After the priests of Pachacamac submitted peacefully to the Incas, the prestige of the oracle increased substantially, and its influence, which was exerted through branch oracles, spread to the farthest border of the empire.

CAROLE POTTER, (New World Archaeological Foundation)  
Pottery from the Site of Izapa in Chiapas, Mexico.

This paper will deal basically with a study that is presently under way on the pottery excavated from the archaeological site of Izapa near the town of Tapachula in the state of Chiapas in Mexico.

The study covers the time span from Late Pre-Classic through Late-Classic and the vessels are whole vessels from specialized caches such as burials or ceremonial features.

The study does not pretend to give a complete or representative picture of the pottery from the site as a whole. It will and does deal with a great deal of trade ware and can give a picture, in part, of trade routes during those periods and some cultural interpretation.

A great deal of Plumbate, Middle-American trade ware, is present in one of the later Mound groups and it is felt this collection will contribute a great deal to the knowledge of this well established type.

From the collection as a whole studies of design and design elements, techniques of manufacturing and decorating, paste analysis (thin sections) and an eventual typology will evolve. The eventual outcome of the pottery study, other than the typology, will be a cultural interpretation as far as the pottery and associated material will allow.

JOHN A. PRICE, (University of California, Los Angeles)  
Reservation and City, Research on Contemporary Indians  
in Southern California.

In the summer of 1965, the UCLA ethnographic field school focused on the contemporary reservation life of the Luiseno with brief visits to Cahuilla and Diegueno reservations. This study revealed a large (completed Luiseno tribal rolls will include about 1100 persons), viable, complexly divided, sub-culture. However, only about one-third (434 Luiseno) of the total Indian population native to Southern California live on or near Southern Californian reservations. The other two-thirds live primarily in the towns and cities of the region, but they tend to keep in touch with their home reservation.

The respective features of reservation life (low income, but "home" with friends, relatives, and majority status) and city life (high income, minority status, etc.) promote a high rate of movement between the reservation and city. The reservations seem to function as relatively secure and socially accepting islands to retreat to from the stresses of minority status and other features of urban life. To test this problem and related theoretical questions, the 1966 ethnographic field school will look at the movements to and from reservations as part of a general study of the adaptation of Indians to life in the city of Los Angeles.

DONALD A. PROULX, (University of Massachusetts)  
Cultural Relationships Between the Ica and Nasca Valleys,  
Peru, During the Early Intermediate Period.

Comparison of Nasca style pottery of known valley provenience provides the best clue concerning the cultural relationships of the Ica and Nasca Valleys in the Early Intermediate Period. The greatest similarities in pottery shape and design features are found in Epoch 3 ( of a 10 Epoch sequence) indicating a strong prestige relationship at this time. This hypothesis is strengthened by the presence of a large ceremonial center in Nasca at this time. In Epoch 3 the bulk of the influences flowed from Nasca to Ica. A loss in the prestige of the Nasca Valley occurred in Epoch 4, initiating a cultural disunification.

FRANK E. RACKERBY, (Southern Illinois University)  
The Craig Site: A Western Sierra Foothill Martis Complex Manifestation.

During an archaeological survey of several construction areas in the Sierra Nevadas of Placer County, California, the Craig Site was recorded. Its proximity to construction activities warranted test excavation. The results yielded a collection of projectile points and other lithic artifacts typologically similar to those of the Martis Complex, an archaeological phenomena previously reported mainly from the High Sierra regions. The relation of this site and others recorded during the survey will be discussed in relation to the defined Complex.

HARVEY S. RICE, (University of Oregon)  
Archaeology of Shelikof Strait, Southwest Alaska, I.

During the summers of 1963, 1964, and 1965, an archaeological survey of a portion of the Pacific shoreline of the Alaska Peninsula was accomplished and excavations were made at several locations by crews from the Department of Anthropology, University of Oregon.

This presentation deals with a site located on Kukak Bay which contains more than eighty housepits. The local sequence of artifact types and aspects of house construction ranging in time from about the beginning of the Christian era to ca. 1500 A.D. will be discussed. (See also G. H. Clark)

WILLIAM A. RITCHIE, (New York State Museum)  
3600 Years of Coastal Adaptation on Martha's Vineyard, Massachusetts.

Excavations conducted by W. A. Ritchie and a small party of graduate students in 1964 and 1965 on three stratified sites on Martha's Vineyard, Mass., have disclosed a cultural succession comprising six complexes, ranging in stage from Late Archaic to Late Woodland. Seven radiocarbon dates extend these complexes over the period from c. 2270 B.C. to A.D. 1380.

Besides providing the first detailed and dated outline for southern New England prehistory, the data demonstrate that during Archaic times and onward, a whole series of different inland cultures reached the coast, where they became progressively more fully adapted in various ways to a marine environment.

JOHN HOWLAND ROWE, (University of California, Berkeley)  
Religion and Empire in Ancient Peru.

Spanish observers were struck by the fact that the Incas conquered in the name of religion and imposed their religion on their subjects. There is archaeological evidence that the Huari Empire in the Middle Horizon had a similar policy. Huari religion resembled Inca religion in its emphasis on sky deities: sun, moon, and stars.

The Chavin expansion in the Early Horizon may also represent conquest associated with religion, though the evidence is less clear. Chavin religion is not directly ancestral to Huari religion, but some indirect relationships can be suggested, through Pucara and the Echenique gold hoard.

CHARLES E. ROZAIRE, (Los Angeles County Museum of Natural History)  
The Chronology of Woven Materials from the Caves at  
Falcon Hill, Washoe County, Nevada.

Twenty-eight radiocarbon dates have been derived from materials recovered in the deposits of seven caves at the northwest end of dry Lake Winnemucca in Washoe County, Nevada. The excavations, carried out by the Nevada State Museum under the direction of Richard Shutler, Jr., yielded a large collection of perishables, including more than 600 fragments of finger woven basketry, bags and matting. Radiocarbon dates from woven specimens give a time span of 9590 to 390 B.P., affording information on the sequential appearance from early to late of the techniques of twining, coiling and plaiting, and providing additional insight into Great Basin chronology.

REYNOLD J. RUPPE', (Arizona State University)  
An Intensive Survey of the Hohokam Sites in the  
Salt River Drainage, Southern Arizona.

A two year intensive survey of the Hohokam remains in the Salt River Valley drainage resulted in the discovery and analysis of three hundred twenty-two sites. Sites representative of every phase in the Hohokam sequence were found. The original sequence established at Snaketown is confirmed by the survey. The data indicate some differences between the Hohokam manifestations in the Salt drainage when compared with those of the Gila drainage. Most phases are represented by some single phase sites as well as sites that demonstrate long sequences. Gladwin's belief that the Pioneer Period is not represented in the Salt River Valley is incorrect.



ARTHUR A. SAXE, (Central Michigan University) and  
HENRY T. WRIGHT, (University of Chicago)  
Terracing in the Maya Mountains of British Honduras:  
A Test Excavation at Cubetas Viejas.

Stone wall terracing in the Maya Mountains of British Honduras, the uplands bordering the southeast Peten, has been reported but not excavated. A test excavation and survey near the chiclero camp of Cubetas Viejas has revealed structural features of the terraces and environmental data such as maximum-minimum temperature readings. The implications of these data for the ecological arguments surrounding Mayan social complexity will be discussed.

CURTIS SCHAAFSMA, (Museum of New Mexico),  
DANIEL WOLFMAN and MARIANNE WOLFMAN, (Adams State College)  
Practical Aspects and Methodological Problems in  
Computer Analysis of Archaeological Materials.

Recent work at Las Madres and Picuris has used computers on archaeological materials. Theoretical approaches from the literature have been tested and practical techniques worked out. Efforts have been directed toward two main goals: attribute analysis of pottery and artifacts and total site analysis. The aim of the paper is to discuss the statistical and theoretical approaches found useful at these two sites, to present standard formats for recording and coding attributes in other studies and to thoroughly air the practical and methodological problems encountered in applying computers to archaeological materials. (See also Dutton)

RICHARD G. SENSE, (University of Arizona)  
Possible Sources of Error in Ceramic Past Analysis.

The increasing complexity and refinement of archaeological methodology has emphasized the importance of, and created a demand for, microscopic analysis of ceramic paste. Archaeologists contemplating such studies should be aware of complex variables existing in geological environments from which ceramic raw materials are derived, and which may invalidate anthropological inferences drawn solely from temper and clay identifications.

This paper discusses temporal and spatial variance in ceramic mineral-temper and clay sources, chances of error in distinguishing natural from altered materials, and suggestions for collecting and submitting additional diagnostic materials for analysis which may help to reduce the possibility of anthropological misinterpretation.

FREDERICK W. SLIGHT, (Palm Springs Desert Museum)  
Archaeological Survey of the Jalisco Area, Mexico.

The region of central Jalisco, Mexico remains a relative unknown archaeological zone.

Working under the joint auspices of the SOCIEDAD de CIENCIAS NATURALES del LAGO de CHAPALA, the INSTITUTO JALISCIENSE de ANTROPOLOGIA e HISTORIA, and the COMISION para la INVESTIGACION de la ZONA ATOTONILCO-ZACOALCO-SAYULA, the author instituted an archaeological site survey and initial testing program in the region of Lago San Marcos, Lago Zacoalco and Lago Sayula, southwest of Guadalajara. This region, contiguous to Kelly's work in the Autlan and Tuxcacuesco region, revealed sites associated with a salt gathering industry, and apparently slightly before, as well as contemporary with, Kelly's sites.

The survey revealed a rich archaeological zone needing extensive investigation and interpretation.

ALLAN H. SMITH, (Washington State University)  
Ethnography as a Guide to Archaeological Research in a Marginal Area:  
Mount Rainier, Washington.

In areas marginally exploited by prehistoric, non-food-producing groups, the location of sites and the definition of their precise economic function are especially difficult. This is particularly true when the area involved is large, remote from aboriginal population centers, and forbiddingly mountainous. In the hope of materially reducing these difficulties in the case of Mt. Rainier National Park, ethnographic and ethnohistorical research was undertaken preliminary to the archaeological investigation. The field and published evidence demonstrates that, despite formidable topography, the mountain flanks were utilized in specific and economically important ways by historic tribes. By relating these exploitative activities to their individual bioenvironments, conclusions are reached which point to the one narrow ecological zone where archaeological reconnaissance should prove most fruitful.

CARLYLE S. SMITH, (University of Kansas)  
Continuity versus Discontinuity in a Stratified Site.

Three seasons were devoted to the excavation of the Talking Crow site in South Dakota between 1950 and 1952. This work constituted a pioneer effort in an area where there had been no previous work of a definitive nature. On the basis of bar graphs showing the relative popularities of pottery types, the initial attempts at interpretation implied a progressive change through time from one culture complex into another. The interpretations changed with each successive field season and changed again after a lapse of ten years. The excavation of several single component sites and studies of

the pottery by the writer and other investigators now indicate that a long period of abandonment intervened between the two principal occupations. This gap is filled by a seriation of single components demonstrating that the seeming progression of gradual change in situ at the Talking Crow site is, in fact, the result of a mixing of sherds and other artifacts in the refuse. Instead of one component gradually changing into a second and a third, it is now evident that only two distinct components were present, exclusive of two minor occupations, one at a much earlier time and another well within historic times.

ANITA SPRING, (San Francisco State College)  
Changing Washo Marriage Patterns.

The purpose of this paper is to present a reconstruction of marriage customs based upon the aboriginal patterns and to examine the transitions and changes in these patterns due to white and legal marriage mores and to the effects of Colony living on the previously segmented population. First, a consideration of the nature of the courtship and wedship situation will be discussed. Second, an attempt to get at native categories of male-female relationships will be presented. And third, the cultural mechanisms for maintaining or dissolving the marital bond will be examined.

With respect to the changing situation of the Washo, in social organization and technology, marriage patterns will be examined in the light of their tenacity and their several stages of popularity. These will be considered in terms of the internal and external pressures upon the Washo individual and community. Additionally, data on the current status of these patterns (in Dresslerville, Nevada) will be presented as illustrative of the contemporary scene.

MICHAEL B. STANISLAWSKI, (Kansas State University)  
The Sinagua, and the Western Pueblo Cultural Pattern.

My hypothesis is that the term Sinagua should be reserved for the description of a geographical area, and not a cultural pattern. Prior to A.D. 1070, the local Flagstaff cultures appear to have been of a Mogollon tradition. Between 1070-1120, large scale immigrations occurred, and there were many groups of Kayenta and Chaco Anasazi, Hohokam, and Mogollon peoples represented. After 1120, some groups left, and several new types of pattern emerged, the most important called "Western Pueblo". This seems to emphasize traits of Hohokam or north Mexican derivation, introduced by the earlier Hohokam or Chaco Anasazi immigrants. There appears to be no long-standing Sinagua continuum in the Flagstaff area.

ROBERT L. STEPHENSON, (Smithsonian Institution, River Basin Surveys)  
Architecture at the Sully Site.

This is a large, 17th to 18th century village site in the Oahe Reservoir in central South Dakota with two styles of circular earthlodge architecture. The earlier style has short (3-6 feet) entrance passages, wall posts spaced 4 to 6 feet apart, "leaner" posts and deeply excavated floors. The later style has long entrance passages (15-18 feet), wall posts spaced 4 to 6 inches apart, no "leaner" posts, and shallow floors. Distinctions between these two styles of architecture promise to be of major temporal and cultural significance in sorting the late culture groups along the Missouri River.

FRED H. STROSS, (Shell Development Company)  
Application of Neutron Activation to Archaeology, I.

The technical aspects of the technique of neutron activation analysis (NAA) will be discussed in the paper by Gordus. In the present paper we set out to examine the nature of the results we can expect from NAA, in the context of competing techniques capable of furnishing elemental analyses. Two typical instruments, such as those used at Shell Development, Emeryville, will be briefly described, mainly in terms of their individual features such as range of application, analysis time, convenience in handling, maintenance problems, and cost.

Illustrative examples of application of NAA to archaeological problems will be selected from the literature. (See also A.A. Gordus)

B. K. SWARTZ, JR., (Ball State University)  
Excavations at the New Castle Site, Indiana.

In an attempt to begin development of a regional sequence in an unknown region of the midwestern United States, Ball State University initiated its first annual Archaeological Summer Field School at New Castle in east central Indiana during the 1965 season.

A twelve-mound site was selected for excavation. A vertical cut was made in the largest mound, Mound 4, and the materials recovered suggest a transitional Early-Middle Woodland or "peripheral" Middle Woodland site. The bulk of the pottery recovered is Adena Plain and incised, but ceremonial features appear to be a watered-down expression of Hopewell.

DONALD E. THOMPSON, (University of Wisconsin)  
 The Inca Occupation of the North Central Highlands and  
 the North Central Coast of Peru.

In the Department of Huanuco, in the North Central Highlands of Peru, there are many manifestations of Imperial Inca occupation and of a large and active peasantry under Inca rule. In the Department of Ancash, on the North Central Coast, by contrast, there is only meager evidence of Imperial Inca occupation; and the local population, which was large and active immediately following the Middle Horizon and in the Late Intermediate Period, is apparently greatly reduced in size and perhaps little affected by the Inca Conquest.

JOAN B. TOWNSEND, (University of Manitoba)  
 Archaeological Survey in Ecuador.

An archaeological survey in the upper Guayllabamba basin of Highland Ecuador was carried out in 1965 by T. Fiske and W. J. Mayer-Oakes of the University of Manitoba. Surface collections made at 28 sites near the El Inga site were primarily lithic; several sites produced ceramics. Test excavations were made at the San Jose site which is apparently related in technology to El Inga. Approximately 20,000 pieces of obsidian (surface collected at San Jose) are being studied. A theoretical model of the obsidian chipping process has been developed and is here used as the basis for a classification into technological stages.

DONALD R. TUOHY, (Nevada State Museum)  
 An Archaeological Study of the Pyramid Lake Paiute Indian  
 Reservation, Nevada.

In 1965, an archaeological field project of five months duration was conducted on the Pyramid Lake Paiute Indian Reservation in west-central Nevada. The reservation is the largest in Nevada embracing some 475,086 acres. The project involved both an intensive archaeological survey of Lake Lahontan and Recent strand lines on the reservation and numerous excavations designed to gather maximum data on Lovelock-Paviotso cultural relationships. The project was financed by a research grant from the Max C. Fleischmann Foundation to the Nevada State Museum. The project was approved by the Pyramid Lake Paiute Tribal Council on condition that Paiutes were to be employed whenever possible.

This paper will attempt to summarize data gathered from 502 sites recorded by the survey and from 70 excavated sites. At this writing, 8,800 artifacts, of which 96% are excavated specimens, have been catalogued. It is anticipated that the artifact total will reach 10,000 specimens. A final report in progress should make a substantial contribution to knowledge of pre-Lovelock, Lovelock, and Paviotso culture history on the shores of Pyramid Lake, a living remnant of Pleistocene Lake Lahontan.

RONALD L. VANDERWAL, (The Institute of Jamaica)  
Prehistoric Studies in Jamaica, West Indies.

Excavations and surface surveys of sites in the island of Jamaica have revealed a much more complex situation than was previously believed to have existed. There are two major styles of pottery, Ostiones and Meillac, and one sub-style, a derivation from the Meillac, found distributed throughout the island indicating two major migrations, one from Puerto Rico and another from Haiti, and one in situ development of a pottery style. In addition, it appears that there was another direct contact from Puerto Rico late in the prehistory of Jamaica which did not have time to flourish before the Spanish conquest.

WILLIAM W. WASLEY, (University of Arizona)  
Classic Period Hohokam.

In his recent report concerning excavations in Compound A at Casa Grande, Charlie Steen remarked as follows:

"On the basis of the 1963 excavations I wish to suggest that there probably was no invading group and that the trait of constructing massive walls and an occasional multistoried building was something the Hohokam acquired from elsewhere; probably the south."

Additional evidence is presented supporting the idea that the Gila-Salt basin during all of the Classic Period was dominated by Hohokam culture bearers. The Hohokam had prior experience in the techniques of massive adobe-caliche construction, placing structures on flat-topped platforms, and building surfaced courtyards.

WALDO R. WEDEL, (Smithsonian Institution)  
The Council Circles of Central Kansas: Solstice Registers?

At five known Little River focus sites in Rice and McPherson counties, council circles are the most conspicuous surface features. Each consists of a low central mound surrounded by a ditch or a series of 'borrow pits'; no site has more than one circle. At the only one yet excavated (Tobias site), pithouses arranged around a patio formed a structural complex apparently unique in Plains archaeology. From their plan, contents, and orientation, it is suggested that these were special-purpose structures, and that one function may have been to record solstitial sunrise points on the horizon.

DAVID L. WEIDE, (University of California Los Angeles)  
Soil pH as a Guide to Archaeological Investigation.

Recent field work at three sites in the coastal region of central California has shown that measurement and mapping of the hydrogen ion content or pH of surface soils may be of significant value when approximating the boundaries of archaeological sites and for determining points of specific interest within the site. Soils overlying areas of maximum midden depth and buried structures tend to produce anomalously high pH readings when compared with the surrounding shallower midden and the regional sterile soil. When the results of a detailed traverse across the site are plotted on a topographic map, zones of highly basic soil may form a guide to areas of high archaeological priority, especially under conditions of limited time and money.

✓ EDWIN N. WILMSEN, (University of Arizona)  
Description and Analysis of Flaked-Stone Artifacts.

Artifact inventories from several Paleo-Indian sites are utilized; these include the Lindenmeier, Blackwater, Shoop, and Elida collections. Concentration is upon non-projectile artifacts which usually have been thought to possess no analytic value. Motivations for a systematic description and classification of such lithic materials are advanced. A set of methods for quantitatively describing non-projectile flaked-stone artifacts is presented. It is argued that these methods contribute significantly to the analysis of lithic assemblages. It is further suggested that anthropological interpretation of lithic inventories may be thereby enhanced.

J. NED WOODALL, (Southern Methodist University)  
Preliminary Excavations at Spanish Fort, Texas,  
A Prehistoric and Historic Habitation Area.

In the Spanish Fort Bend of Red River in North Central Texas, two sites have been excavated which indicate both historic and prehistoric Indian occupation of the area. French and Spanish trade goods were found associated with bell-shaped cache pits and semi-subterranean houses, both large oval structures and an adjacent smaller circular type. Bison bones are very numerous. Almost no native-made ceramic or lithic artifacts were recovered, and a relative late occupation by historic Wichita people is suggested. A prehistoric site nearby yielded evidence of vertical sided cache pits, flint and bone artifacts, mussel shells, deer and fish bones.

J. V. WRIGHT, (National Museum of Canada)  
Northeastern Boreal Forest Ceramics and the Alaskan Problem.

The Laurel tradition, present in the boreal forests of western Quebec, Northern Ontario, Manitoba, and adjacent Saskatchewan, possesses certain ceramic correspondences with Asia and lithic correspondences with the northwestern Arctic. Despite the positive evidence suggesting relationships with northwestern North America and the negative evidence for southern relationships no ceramics have currently been found in Alaska which relate to the Laurel tradition. This situation is considered in light of the available data and some possible explanations are offered.

The pottery of the Selkirk focus, which represents the most northwesterly distributed ceramics of the Late Woodland period in the boreal forest, is also considered.

G.S. VESCELIUS, (American Museum of Natural History)  
The Cultural Sequence in the Marcará Region (Peru).

Recent work by a Cornell University field party has resulted in the establishment of a long and fairly detailed cultural sequence for the Marcará region of the Callejon de Huaylas, one of the major intermontane basins of the Peruvian highlands. The region's history can be divided into eight major episodes: the Quishqui Puncu (pre-ceramic), Toril (initial ceramic), Capilla (Chavinoid, pre-white/red), Huaylas (white/red, pre-Tiahuanacoid), Honco (Tiahuanacoid), Aquilpo (post-Tiahuanacoid, pre-Incaic), Huaman Huilca (Incaic) and Obraje (Hispanic) eras. In turn, the eras can be divided into stages (19 of which have been distinguished thus far) and the stages into phases (more than 40 of which appear to be represented in the expedition's collections).

The various stages of the Marcará sequence will be described and dated. A dozen radiocarbon dates will be presented and evaluated. Special attention will be devoted to evidence of relationships with other parts of the Central Andes.



CYNTHIA IRWIN-WILLIAMS, (Eastern New Mexico University)  
 Human Ecology and Culture Dynamics in Preceramic Development in the  
 Southwest.

Although still very scantily known, a coherent long range pattern of preceramic human occupation of the Southwestern United States is beginning to emerge. The character and shifting affiliation of the relevant cultures is evidently tied to and reflects rather closely the dynamics of late Pleistocene and Post-Pleistocene climatic change.

The geographic extent and demographic patterning of the principal Southwestern cultures are examined in this context, (e.g. Clovis, Folsom, Agate Basin, Hell Gap, Alberta, Eden-Scottsbluff, Frederick; Lake Mohave and related complexes; the Cochise development; members of the Pecos or Elementary Southwestern Culture). The development of the Southwest as a classic area is discussed.

