The Texas Archaic: A Symposium

Edited by
Thomas R. Hester

Center for Archaeological Research
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Thomas R. Hester, Director

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PREFACE

The papers published in this volume were presented at a symposium entitled "The Texas Archaic", held in San Antonio on November 2, 1975, during the annual meeting of the Texas Archeological Society. Of those papers delivered during this symposium, only one, "Archaic Diets and Food Economies" (by V. M. Bryant, Jr.), is not presently available for publication.

The present format has been utilized to insure rapid and economical publication of the symposium papers. The papers are primarily status reports, describing the current state of regional knowledge of the Archaic or dealing with specific aspects of the Archaic lifeway. As such, they are primarily designed to stimulate discussion and future research. They provide professional archaeologists interested in Texas archaeology with data and interpretations more recent than those contained in the *Introductory Handbook of Texas Archeology* (Suhm, Krieger and Jelks 1954) and the subsequent review of Texas archaeology published as volume 29 of the *Bulletin of the Texas Archeological Society* (1958). It is also hoped that these papers will help to introduce the growing number of amateur archaeologists in Texas to the many problems of the State's prehistory still remaining to be solved. It will take the concerted and collaborative efforts of both professionals and amateurs to come up with the solutions.

Thomas R. Hester
Director
Center for Archaeological Research

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DEFINING THE ARCHAIC:

AN EXAMPLE FROM THE LOWER PECOS AREA OF TEXAS

Harry J. Shafer

The objective of this symposium is to examine the various Archaic adaptations in many parts of Texas. Before we begin discussing the Archaic in any area of the state, we should first examine the Archaic concept, see how it has been used and consider its usefulness in light of contemporary approaches and aims.

PREVIOUS USES

The earliest application of the concept of archaeological materials in America was made in 1913 by H. J. Spinden in his study of Maya monuments and sculptures (Willey and Sabloff 1974: 124). Spinden elaborated on his use of the concept in 1928, giving it both chronological and developmental implications. To Spinden, the "Archaic" was the American village farming base that gave rise to the Teotihuacan, Maya, Zapotec, and other civilizations. Subsequent work in the valley of Mexico, however, showed that Spinden's "Archaic" was much later in time and more complex than he thought.

The first use of the term in an archaeological sense north of Mexico has been attributed to William Ritchie (1932) when he applied it to the Lamoka assemblage of New York. Later Ritchie (1944) formulated the Archaic as a culture level in an historical sense (Jennings 1974: 128). The application of the concept to shell midden sites in Alabama, Kentucky, and elsewhere (Webb and DeJarnette 1942; Webb 1946; Fairbanks 1942; Hagg 1942) firmly placed it in a developmental context in Eastern United States prehistory.

From 1915 to 1940 various attempts were made by American archaeologists to develop area chronologies (for a discussion of the historical trends in American archaeology, see Willey and Sabloff 1974). As a consequence of this chronology building, theoretical emphasis shifted in the 1940's and 50's to the time and space ordering of archaeological assemblages. Both regional and continental-wide historical developmental schemes emerged. These were born out of attempts both to describe regional culture histories and to synthesize archaeological assemblages at a higher order. As Willey and Phillips (1958: 5) have emphasized, the historical-developmental schemes were serving needs at the descriptive level (cultural historical integration) of archaeological study. They (*ibid*) define this level as:

> .....almost everything the archaeologist does in the way of organizaing his primary data: typology, taxonomy, formulation of archaeological units, investigation of their relationships in the contexts of function and natural environment, and determination of their internal dimensions and external relationships in space and time.

Willey and Phillips (1958) went on to define an historical developmental scheme for American archaeological assemblages consisting of five "stages," Lithic, Archaic, Formative, Classic, and Postclassic. They used Krieger's (1953) definition of a "stage" as "a segment of a historical sequence in a given area, characterized by a dominating pattern of economic existence." The classification of an assemblage in any stage was based on what they chose to be the common denominator for that stage.

In their definition of the Lithic Stage for example (Willey and Phillips 1958: 80) they assumed:

> . . . that the predominant economic activity was hunting, with major emphasis on large herbivores, including extinct Pleistocene forms, and the general pattern of life, like that of the animals on which it depended, was migratory in the full sense of the word.

Contrasting with this lifestyle, the Archaic was defined as:

> . . . the stage of migratory hunting and gathering cultures continuing into environmental conditions approximating those of the present (*ibid*: 107).

The handbook of Texas archaeology (Suhm, Krieger, and Jelks 1954) was a product of the theoretical climate and emphasized cultural historical integration. This "handbook" achieved a major goal in that it provided an ordering for the archaeological assemblages in Texas. In this ordering, two concepts, the historical descriptive "stage" and the Midwestern Taxonomic System were employed to serve temporal and spatial needs.

Four "stages" were defined for Texas prehistory, Paleo-American, Archaic, Neo-American and Historic. These stages, according to the authors (*ibid*: 16) "served to indicate principal differences in age of most archaeological remains." In their application, the stages assumed not only temporal purposes, but they also assumed to some extent, typological and functional roles as well. Although no evolutionary development was claimed, the implications for such a scheme were strong.

Suhm, Krieger, and Jelks (1954: 16, 17) define the "Paleo-American" stage as:

> . . . those unknown people who arrived in the New World by way of northeastern Siberia at some remote but unknown time during the latest phases of the Pleistocene, lived as nomadic hunters of big game, and survived about as long as the last of the Pleistocene animal species which eventually became extinct.

while the Archaic Stage (*ibid*: 18):

> . . . bridges the time between Paleo-American nomadic hunting people on the one hand, and the settled agricultural, pottery-making Indians on the other. Hunting, gathering of wild plant foods and shellfish, and fishing were all pursued.

The Archaic concept assumed a major part of the historical developmental schemes in American archaeology in the late 1950's and early 1960's, undoubtedly influenced by the Willey and Phillips volume. Following Ritchie (1944), archaeologists began to apply the term Archaic to almost any post-Pleistocene, prehorticultural assemblage. Several criteria (or denominators) have been used to classify archaeological assemblages into the various stages. Most typical is the practice of assigning an assemblage to a particular stage on the basis of artifact types and technologies such as certain lanceolate point forms (Paleo-Indian), presence of polished stone artifacts (Archaic), and presence of pottery (Neo-American). Assumptions regarding the dominating pattern of economic existence were often too quickly drawn merely on the basis of diagnostic artifact styles. But the inferred dominant economic pattern was the most widely used criteria for assigning an assemblage to a particular stage. Ford and Willey (1941) for example, in classifying certain assemblages in Eastern North America assigned the preceramic, non-farming cultures to the Archaic Stage. Jennings (1974: 128) described the Archaic as a foraging pattern of existence following his own definition of the Desert culture (Jennings and Norbeck 1955). Jennings (*ibid*: 129) further states:

> . . . the Archaic can probably best be understood as a fundamental lifeway, not geared to any one ecosystem. Through this approach, regional differences are reduced in importance, with the historical implications dominant.

Swanson (1964) has suggested the use of the term the "American Archaic" and to disregard the areal terms often used to describe the Archaic of North America such as Eastern Archaic, Desert Archaic, etc. The idea is that the Archaic implies adaptive efficiency which allowed the populations to maintain a density below the critical carrying capacity of the land. Caldwell's (1964) notion of "primary forest efficiency" provided much food for thought regarding the success of the post-Pleistocene, pre-agricultural adaptations. His thesis was that by 4000 B.P., the populations in the Eastern Woodlands had developed a lifeway that made efficient use of forest resources through technological inventions and innovations. The idea of Archaic efficiency in the midwest has recently been supported by Asch *et al* (1972) but they extend the time of development back to 7000 B.P. To them, efficiency is taking a narrow spectrum of *selected* foods that are abundant, nutritious, and near at hand (*ibid*: 27).

Adaptive efficiency alone does not adequately characterize the Archaic cultures because the Big Game Hunters were surely efficient in their exploitation of their habitats as attested by the persistence of that lifeway and the geographic extent of its range in the Plains. Likewise, the early farmers were equally efficient in their adaptations. The notable characteristic of the Archaic adaptations is in their persistence for thousands of years and the cultural-ecological diversity rather than restricted specialization that is assumed to be characteristic of the Big Game Hunters as well as the farming groups of the Southeast, Plains and Southwest.

Despite the fact that the Archaic concept had achieved wide popularity in American archaeology, some archaeoligists began to shy away from applying the concept in the stage sense and began to use it as a temporal period in cultural-historical frameworks (Parsons 1965; Nunley, Duffield and Jelks 1965; Story 1965). Others began to view the Archaic as a continuum or "tradition" (Willey 1966: 60), thus avoiding the stage concept altogether. Johnson (1964: 92) in his Devil's Mouth Site report notes the unfortunate consequences of using the term "stage" regarding the Paleo-Indian and Archaic.

> It seems more realistic to think of these as cultural 'types' for it is all too clear that the Archaic probably did not develop, historically, from a general Paleo-Indian evolutionary stage, as was earlier thought.

In summary, the Archaic concept was first used to designate a level or stage of development in the prehistoric cultures of North America. It filled the gap between the Pleistocene big game hunters and the early horticulturalists. The Archaic was epitomized by the hunting and gathering adaptations of the Eastern United States but the concept was extended to the Desert Southwest, and other areas. In the early developmental schemes, the Archaic was seen as the base from which grew the agricultural cultures in the Eastern and Southwestern United States and Mesoamerica.

The Archaic concept was especially useful in organizing and imposing a level of mutual understanding upon the archaeological data. It served to order and, to some degree, describe the general characteristics of certain archaeological assemblages. Confusion in the meaning of the concept developed in some areas, particularly in the Great Basin with regard to the Desert Culture due to various levels of generality at which the concept was being used (Aikens 1970: 200-202). A similar multi-level application of the terms exists in Texas.

CURRENT APPLICATION

In light of the past uses of the Archaic concept, the question can properly be asked: Is the concept still useful? Are we still trying to build chronologies and describe historical development or, perhaps

more appropriately, sequences of adaptations? Or are we more sophisticated now to the extent that culture history is passe and we must study cultural processes and seek explanations for the observed phenomena? The answer to all three of these questions is a qualified yes. We are still trying to build chronologies in certain areas because the state has not been uniformly sampled and there are yet areas where we need much tighter time control for the archaeological data. Granted, chronology building is but one of several basic research objectives which should be included in the research designs. And yes, we have grown much more sophisticated in our research aims. I am personally bothered by the claims of many so-called processual studies, though, because it is often all too obvious that the archaeologists do not know what they are looking for. But attempts should be made to explain what is observed in the archaeological record provided that the tools--particularly the time and space controls--are available. Regardless of what level of integration the archaeologist is working in, words are needed to symbolize broad concepts. The word Archaic has served that purpose and will undoubtedly continue to do so as long as the specific application of the concept is made clear. Following the lead of Aikens (1970: 200-202), a redefinition of the concept in light of contemporary objectives is in order.

The Archaic concept symbolizes a foraging or hunting and gathering adaptation. Willey (1966: 60-61) refers to it as a Tradition in the Eastern Archaic which, by definition, means it was persistent and, hence, efficient. It is in this sense that I am using the Archaic in the lower Pecos area. Across the state, regional cultural-ecological adaptations can be identified and similar phenomena are referred to by Aikens in the Great Basin Area (1970: 200-202) as "regional systems of cultural ecology."

Prehistoric adaptations to the desert-like environment where the Devil's and Pecos Rivers, join the Rio Grande began approximately 9000 years ago. Once adapted, the lifeways changed very little until the Historic times. Newcomb's (in Kirkland and Newcomb 1967: 40) description of the Lower Pecos Archaic is most precise:

> However described terminologically, it was a self-contained, inward-looking tradition, anciently adapted and committed to a relatively static existence in an unchanging world. Introduction of the bow and arrow sometime between A.D. 600-1000, presaged a quickening of culture changes, possibly population movements and end of the old tradition as such. But many of the essentials of this way of life persisted into historic times among Coahuiltecan and related peoples.

Two important factors should be pointed out about the Lower Pecos Archaic. First, it was geographically restricted as evidenced by the distribution of certain elements of the material culture.

Second, although stylistic changes can be documented through time for the point styles, it was surprisingly homogeneous in other respects, particularly in the exploitation of at least five basic food components virtually from beginning to end--lechuguilla, sotol, prickly pear, rabbit and deer. Fluctuations in the exploitation of these resources can be expected if one assumes the validity of the general systems model (cf. Flannery 1968; Alexander 1970).

Newcomb (Kirkland and Newcomb 1967: 64) hypothesized that the basic social unit was a patrilocal extended family, and that cooperate relations with other bands were determined by kinship affinities. Band size probably varied according to cyclical abundance of resources and to the nature of the economic activities. Considering the amount of available floor space in the various rockshelter sites, and assuming that their occupants composed a basic economic unit, individual bands probably averaged no more than about two dozen persons.

The distribution pattern of the extended family units over the landscape in the lower Pecos area is problematical. We can advance a model of population distribution based on studies in primate ethology and ethnographies of hunters and gatherers and horticulturalists.

The movement of related bands was probably loosely confined to vague territorial ranges and the movement of bands within a given territory would predictably be even more restricted to "home ranges." "Home ranges" may have been anchored around one or more crucial resource locales such as waterholes or a canyon system, but were inclusive enough to provide a cross-section of the economically important plants and animals. It has been hypothesized that the distribution of the Pecos River-style rock art sites may represent a territorial map of the Lower Pecos Archaic bands and the location of the rock art sites could be an indicator of crucial "resource locales" (Shafer 1976). Here again, we are in the process of examining this model through several lines of investigation.

In short, the Lower Pecos Archaic is a term used to designate an extractive technological continuum in the Lower Pecos region of Texas. I am hypothesizing that the subsistence was based on the exploitation of a narrow range of resources which were relatively abundant, easily procured and sufficiently nutritional. This notion, drawn from Asch, *et al* (1972: 27) is currently being tested.

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TOOL KITS AND TECHNOLOGY IN THE TEXAS ARCHAIC

Joel L. Shiner

There may be other definitions of stone technology, but I shall go along with the idea of the making and using of stone tools. Production of tools alone is not enough because it tends to limit the study to descriptive work and to avoid searching out human behavior.

A definition of a tool kit is a bit more complex, partially because of Lewis Binford's (cf. Binford and Binford 1966) ill-fated venture into factor analysis of Mousterian assemblages. I would tend to think in terms of something like a projectile point maker's kit, a hide worker's kit, a wood carver's kit, a clothing repairer's kit, etc. It is necessary to avoid including an entire tool assemblage as well as thinking in terms of one tool -- one activity.

The state of the art in Texas Archaic technological studies is very encouraging. I have been lobbying for this branch of archaeology long enough to judge. Almost everyone now treats all of the flaked stone in their reports. Especially praiseworthy has been the progress of Shafer, Hester, and Skinner in technology. All of the papers read at the 1975 Texas Archaeological Society meeting showed an advance in the use of universal terminology (cf. Bordes 1961). There remains, however, a considerable amount of study, experimentation, and interpretation to be accomplished in the area of functional typology. There are publications, but too many are only speculative and editorial.

Tool kits are another matter. Struever (1971) sees the key to research strategy as the kind, number, and distribution of material elements because they permit the definition of tool kits, activity sets, and activity areas. I regret that this is not always true because it must depend on the social organization of the resident society. The more sedentary and advanced groups will leave highly patterned clusters; hunter-gatherer groups are less likely to make it easy for us.

The Archaic is an intriguing period in which to work, because the behavior was much more complicated than most archaeologists are willing to admit. The late Archaic in Texas is the immediate forerunner of groups on their way up toward "civilization" (Caddoans), but also of groups who seemed to slide backward toward a very degraded form of living (the cave dwellers of Taylor 1966).

The keys to successful studies of Archaic behavior include:

a. Intensive examination of ethnographies of hunters and gatherers.

b. Use of separate typologies for separate questions of who, when, and what.

c. Abandonment of the "hocus-focus."

d. Use of true sampling techniques for collecting data.

e. Use of statistical analysis to determine the significance of similarities and differences among samples.

f. Equating certain distributions of tools, debris, and debitage to certain work groups and certain forms of social organization.

g. Development of the study of wear patterns by experimentation rather than editorializing.

h. Testing of the historic types of points to demonstrate which are useful types and which are not.

Taking these desiderata one at a time: (a) Ethographic analogy permits the archaeologist to select a very narrow range of socio-political and socio-religious models for testing. After all, hunters and gatherers are rarely urban and theocratic. (b) Morphological typology (cf. Shiner 1974) established the degree of likeness or differences among sites or parts of sites. Secondary and tertiary typologies may explain the ethnic and temporal reasons for these likes and unlikes. (c) The Midwest Taxonomic method is based on outmoded socio-political-economic hypotheses that any freshman knows to be false. (d) Only non-random sampling techniques can be used because sites are not random. The normative approach leads only around a circle of tautology. (e) Statistics replace emotion. Proper mathematical evaluation of ratios and relative frequencies measures true significance and replaces hunches. I do not disregard hunches because they are the initial step in any scientific process, but they must not be a final step. (f) Certain distributions of artifacts are equated to specific social groups. Specialists are easily mapped as are self-sufficient nuclear families. On the other hand we are only reasonably sure of men's and women's activities in regard to projectile points VS grinding, or flaking VS scraping. (g) Wear pattern studies are widely pursued but what is needed is extra clear photography to disseminate the findings. (h) Certain projectile points are usable types at least for gross temporal assessments, but small samples can be misleading. Green and Hester (1975) have suggested that the Perdiz type can be linked with the Tonkawa Indians (Toyah Phase) in some areas, while Sorrow, Shafer, and Ross (1967) have verified a clear sequence in the Temple-Belton Area. Some "types" are absurd. The Almagre is nothing but a preform. Catan, Tortugas, Matamoros, and Abasolo are, to the author, all size and shape variations of a single entity. Why can't we clean up the type situation and make it useful?

We have seen a general shift to a standard terminology for stone technology. Published material on flaking habits is still largely descriptive and must remain so until enough sites are available to permit broad statements about the meanings of different techniques of tool handling.

Technology is the study of tool production and use. It is in the area of tool production that we have made the most progress. During

the last five years we have made many changes, but 10 years ago we were nowhere at all. Terminology has been standardized; all but the die-hards are saving chipping debris and ordinary flakes. The latter are just as important as projectile points in interpreting human behavior.

CONCLUSIONS

We have the scientific skill with which to discover socio-economic groups along with their tool kits. At the present time results of such work have yet to be published. Specific activities of individuals and groups can be detected and these can be related to the social organization. It is a gross mistake to look for causes and effects only in the natural environment and in the economic subsistence. We are at the threshold of a very exciting era in Texas archaeology. The Archaic is a difficult era since it has no ceramics, few perishables, and no oral traditions. But, it is beginning to give up its secrets to the scientific method.

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BLADE TECHNOLOGY IN THE TEXAS ARCHAIC

L. W. Patterson

Prismatic blade technologies have been considered important to archaeological studies for some time in both the Old and New Worlds, as far back as the Middle Paleolithic period in Europe (Bordes 1972), and assuming even greater importance in the Eurasian Upper Paleolithic (Coles and Higgs 1969). Blade technologies are important for technological studies of tool making, and for cross-cultural comparisons. For example, Smith (1974) has recently summarized the possibilities of post-Pleistocene Asiatic and North American links related to microblade technologies. Borden (1969), Sanger (1968) and Patterson (1973) have shown the possibility of following the diffusion of post-Pleistocene small blade technologies to southern North America from the far north. Morse (1974: 15) and Irwin-Williams and Irwin (1966: 55) have commented on the general widespread distribution of prismatic blades in North America.

The widespread distribution of prismatic blade technologies in Texas has only recently been recognized. This may simply be due to past lack of interest in detailed lithic analysis. However, it is more likely that prismatic blade technologies were not recognized earlier because of lack of good samples, and the variability of the technologies. A number of manufacturing techniques are involved in various time periods, resulting in a variety of prismatic blade sizes and a large number of blade core types. Microblade technologies are noted for wide variability in core types (Smith 1974: 351). As will be discussed, Texas blade technologies have highly variable attributes, especially when comparing Pleistocene and post-Pleistocene technological traditions.

PRISMATIC BLADE DISTRIBUTION IN TEXAS

Patterson (1974a) has published a summary of prismatic blade distribution in Texas. Since publication, more examples are being found, such as by Prewitt (1974: 78-81) on the upper Navasota. At the present time, there are 46 counties in Texas with various types of prismatic blade technologies reported. Specific examples will be given in this paper for a few counties, but this does not imply that prismatic blade occurrences have a higher concentration in these locations.

In the past, all occurrences of prismatic blades in the New World have tended to be grouped under a general classification (Mayer-Oakes 1972: 56). In the writer's opinion, Pleistocene and post-Pleistocene prismatic blade technologies are distinct traditions, with several different technological attributes and manufacturing techniques involved. There appears to be some overlap in time of these traditions in Texas. Large, wide Paleo-Indian prismatic blades generally group above 20 mm in width (Hammatt 1969; Kraft 1973; Green 1963; Converse 1973; Dragoo 1973). Replicate experiments

(Sollberger and Patterson ms) suggest that large Paleo-Indian blades were made exclusively by direct percussion. These large blades generally have thicknesses of 6 to 15 mm. In contrast, prismatic blades found on middle to late Archaic sites in Harris and Bandera counties group well below 20 mm in widths (most between 8 and 16 mm widths) and have thicknesses of 2 to 5 mm. Replicate experiments (Sollberger and Patterson ms) suggest that on middle to late Archaic sites there may have been some use of direct percussion to manufacture blades, but that indirect percussion and pressure techniques were also very important, and seem to be post-Pleistocene introductions.

In time periods following the Archaic, upper Texas coast prismatic blades tend to become slightly narrower in average width, although microblades (less than 11 mm wide) are important in the middle to late Archaic. This simply means that fewer blades with widths above 15 mm were being manufactured after the Archaic period. This tendency is most pronounced after the Woodland period in late prehistoric time on the upper Texas coast. This tendency may not be uniform throughout Texas, as Green and Hester (1973: Fig. 6) illustrate some large blades in San Saba County, Texas in apparent association with late prehistoric arrow points.

TEXAS BLADE EXAMPLES

There are no firm radiocarbon dates for prismatic blades on specific archaeological sites in Texas, and dating discussed here is confined to association with artifact types. A significant quantity of data is available, however, to be fairly confident of the general time periods involved.

Several sites have been found in Medina County with large Paleo-Indian type blade technology. A good example is site 41 ME 3 (Patterson 1975a), which has now yielded 57 large true prismatic blades and 8 blade cores. Blade cores match the massive nature of the blades. Associated lithic technology is limited to a heavy tool industry, including bifacial handaxes, assorted other bifaces, choppers, and large thick flake tools that include denticulates, notches, and beaks. The large lithic sample from this site resembles Borden's (1969: 6-9) definition of the Protowestern tradition, proposed as a forerunner to the Paleo fluted point tradition. A few leaf-shaped projectile points have been found. There is no evidence of pressure flaking on this site, even on projectile points. All tool manufacture and retouch seems to be either by use wear or direct percussion. Samples of small lithic debris confirm this. This site seems to be in the Paleo lithic tradition, and could be from the Pleistocene or early Archaic.

Large blade cores from Medina County sites have rather standardized morphology, being either conical or semi-conical. Many striking

platforms appear to have been formed by removal of the end of a flint nodule with a single blow. In northeast Asia, this type of core is called "Epi-Levallois" (Powers 1973: 31).

Middle to late Archaic sites in Bandera and Harris counties with prismatic blade technologies are completely different in nature from the heavy tool industry of Medina County, even though Medina County is close to Bandera County in the Texas hill country. Sites 41 BN 8 (Patterson 1974b) and 41 BN 11 have yielded small prismatic blades in association with Frio and other Archaic-type dart points. These are both large burnt rock midden sites. Site 41 BN 8 does have a small non-ceramic late prehistoric component, indicated by a few Scallorn arrow points. Several blade cores have now been found on site 41 BN 8, with highly variable morphology. Two of these cores are illustrated in Figure 1. Other lithic tools from this site are made on thin flakes generally 2 to 5 mm thick, and seem to be typical of later Archaic assemblages of both the Texas hill country and Gulf coast.

Practically every Archaic and later site in Harris County surveyed by the writer (approximately 50) has yielded significant quantities of small prismatic blades. A summary of some of this information has been published (Patterson 1973). A good example of a completely preceramic Archaic association for prismatic blade technology is site 41 HR 250 (Patterson 1975b). Several different shaped microblade cores have been found to date. Projectile point types include Ellis, Williams, Refugio, Trinity and large Gary. The Trinity point has a ground base and ground side notches which could indicate association with the middle Archaic (Smith 1969). All Archaic sites in Harris County have yielded microblades, but also have significant quantities of wider small blades, mostly in the range of 11 to 18 mm wide. Sites 41 HR 184 and 41 HR 206 have especially large collections of small prismatic blades, and the principal components of these sites are middle to late Archaic, with many typical dart points. Harris County microblade cores from Archaic sites are extremely variable, including conical, semi-conical, edge-faceted wedge-shaped, cylindrical, and amorphous shapes. A technique that seems to have come in with the mid-Archaic and later small blade technologies is core striking platform edge preparation by grinding. The presumably earlier large blade cores from Medina County have some striking platform edge battering to remove overhang from previous blade removals, but no edge grinding.

Green (1971) has published some information on large Archaic blades in San Saba County. Morse (1974: 15) has shown early Archaic large blade technology (Dalton) in nearby Arkansas. Hester (1971) has published Archaic and later blades in Uvalde County.

Prismatic blades from various time periods can be somewhat characterized by width distributions, as shown in Table 1. This type of comparative data is almost entirely absent in the Texas literature.

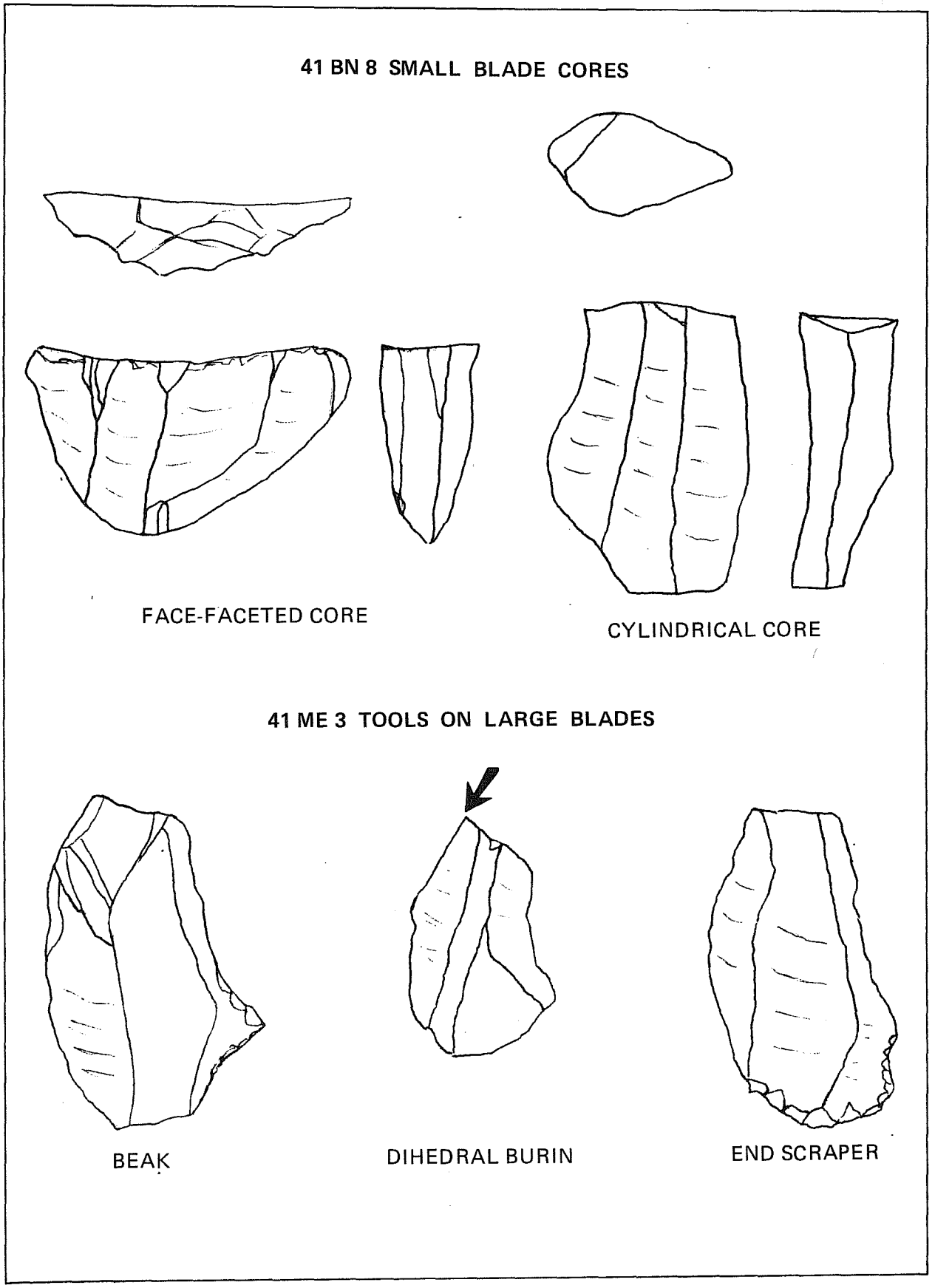

Figure 1. *Examples of Blade Materials from Sites 41 BN 8 and 41 ME 3.*

For example, it is not only important that Paleo tradition blades are large, but also important that there are few microblades. As previously pointed out by the writer (Patterson 1973), microblades seem to start in Texas in the middle Archaic and may be the result of diffusion from the far north, with early post-Pleistocene Asiatic origin.

Large prismatic blades from Medina County have retouch patterns on lateral edges indicating scraping, cutting, and possibly wood planing functions. Most blades found have lateral edge retouch. End scrapers are fairly common, with 25% of blades having steep distal end retouch. Some large blades could have served as blanks for projectile point manufacture. Some of these large blades have distal spurs or beaks. J. F. Epstein (personal communication) has identified a dihedral burin on the proximal end of a distal segment of one of these large blades, shown in Figure 1.

Small blades from Bandera and Harris counties were used for a variety of functions, including: end scrapers, side scrapers, and cutting tools. Some of these small blades may have been hafted. A number of these blades have graver points on the distal ends. Many retouched and unretouched small blade segments may have had use as side and end blades for compound arrow points (Patterson 1973; Patterson and Sollberger 1974). In late prehistoric time, bifacial arrow points were made from prismatic blades, as well as from irregular flint flakes.

POSSIBLE SOURCES OF BLADE TECHNOLOGIES

It appears to the writer that the large Paleo-Indian type prismatic blade technology found on some Texas sites, including the Archaic period, may have an Asiatic origin from the penultimate movement across the Bering land bridge at approximately 25000 B.C. Borden (1969) has given a good summary of this possibility for southern North America, using a postulated intermontane route southward through British Columbia. Small blade technologies may have followed a similar route from Asia in early post-Pleistocene time. One reason for the spread of small blade technologies may have been the introduction of the bow and arrow. Larsen (1968: 54) shows the early use of compound arrow points with microblade inserts at the Trail Creek site in Alaska, at perhaps 8000 B.C. Borden (1969) then shows the possibility of microblade diffusion southward, with progressively later dates to the south as far as the state of Washington. Other evidence (Patterson 1973) is available for extending small blade diffusion farther south to Texas in the Archaic period. The Texas Archaic therefore has the possibility of receiving distinct prismatic blade technologies from both the Paleo-Indian tradition and later post-Pleistocene introductions. Ford (1969: 47-48) proposed evolution of Mesoamerican and southern North American small blade technologies from earlier Paleo blade technology in Mesoamerica. There has yet to be found supporting evidence for this. On the

TABLE I.

BLADE WIDTH DISTRIBUTIONS

SITE	SITE TYPE	BLADE WIDTHS, % OF SAMPLE								SAMPLE SIZE
		5-10 mm	10-15 mm	15-20 mm	20-25 mm	25-30 mm	30-35 mm	35-40 mm	40-45 mm	
41 ME 3	Paleo or Early Archaic				31.6	35.0	24.6	5.3	3.5	57
41 BN 8	Middle to Late Archaic	16.8	54.3	23.8	5.1					59
41 HR 184	Middle to Late Archaic	40.1	51.3	8.4	0.2					441
41 HR 206	Middle to Late Archaic	25.8	50.3	21.9	2.0					384
41 HR 244	Woodland	41.3	51.2	7.5						80
41 HR 248	Woodland/Late Prehistoric	9.1	77.3	13.6						22
41 HR 6	Woodland/Late Prehistoric	56.8	30.9	12.3						81

contrary, MacNeish's work in the Sierra de Tamaulipas (1958) and the Tehuacan Valley (MacNeish, *et al* 1967: 17-29) show start of small blade technologies in the middle Archaic, which is a good match for the writer's proposed diffusion from the far north. In summary, evidence is now available to demonstrate use of prismatic blade technologies in the Texas Archaic, but it is possible that more than one lithic tradition is involved.

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WESTERN TRANS-PECOS ARCHAIC CHRONOLOGY:

FACT OR FICTION

Gary L. Moore

Perhaps there is as much confusion regarding the geographic limits of the Texas Trans-Pecos as there is in discussing the archaeology of that rather vague region. The generally accepted boundaries are defined in the north and east by the Pecos River, and in the south by the Rio Grande River. The western limits are considerably more nebulous. The Texas Trans-Pecos is said to extend westward from the Pecos until it terminates somewhere in the general area of the New Mexico state line. Whereas this geographer's nightmare might be acceptable to the West Texas Chamber of Commerce, it creates difficult problems for those engaged in regional studies.

Such is the case in the consideration of the archaeological record of the Texas Trans-Pecos. To those not familar with the land-mass included in the aforementioned boundaries, it is prudent to point out that the area under discussion is equal in size to the combined states of Connecticut, Delaware, Massachusetts, New Hampshire, and New Jersey.

Is it possible that the contiguous land-mass of over 32,000 square miles would contain an archaeological record which is uniform and applicable in all areas of the Texas Trans-Pecos? Can we compare the data drawn from excavations in the Amistad area with that of the Guadalupe Mountains? Realizing the enormity of the Texas Trans-Pecos, I will, therefore, confine my remarks to the area commonly known as the Big Bend. It is within that general region that the main thrust of archaeological effort has been directed.

In the early 1900's Charles Peabody (1909) noted an abundance of archaeological materials in the Big Bend area, but it was not until the 1920's that scientific work was undertaken. For the next 25 years, archaeologists descended upon the Big Bend, and in the process managed to extract a wealth of data regarding the lifeways of the prehistoric inhabitants.

Unfortunately, much of the archaeological terminology which grew out of that early period is difficult to interpret by today's standards. In an archaeological assessment of the Big Bend National Park, Bousman and Rohrt (1974) defined the Archaic Stage as continuing from 6000 B.C. to A.D. 900. Included within this stage are three major periods: The Maravillas Complex, the Santiago Complex, and the Big Bend Aspect.

The Maravillas Complex is characterized by an artifact association of dart points, scrapers, knives, blades, and grinding implements. Based upon a geologic study conducted by Albritton and Bryan (1939), the stratigraphic position of the Maravillas Complex (Post-Neville Erosion)

indicates that it could be the earliest known Archaic occupation in the Big Bend region. However, it should be recognized that the Maravillas Complex is defined by the recovery from a single site on Calamity Creek. And, there is some question as to the validity of the geological chronology (Dwight Deal, personal communication).

The Santiago Complex, which reportedly occurred during the Calamity Deposition, is said to overlap during its later period with the early stages of the Big Bend Aspect (Bousman and Rohrt 1974: 22). Dart points, scrapers, knives, blades and grinding stones are presented as the cultural remains recovered from Santiago Complex sites.

The last of the Archaic periods has been termed the Big Bend Aspect. Although, the Big Bend Aspect has been compared to the Basketmaker of the Southwest, this similarity lies only in the occurrence of woven materials. Weaving and twining techniques of the Big Bend show marked differences from those associated with the Basketmakers (Smith 1940).

The Big Bend Aspect has been sub-divided into two foci: the Pecos River Focus and the Chisos Focus. However, it is my opinion that the Chisos Focus may be sufficiently late, to be placed within the Late Prehistoric period.

The Pecos River Focus has been defined through excavations at Fate Bell Shelter, Murrah Cave, Shumla Caves, Eagle Cave, Bee Canyon Cave and Alpine 2:7. Stratigraphic occurrence suggests the occupation was during the last portion of the Calamity Creek Deposition. This would appear to be an overlap with the Santiago Complex. While most of the known sites of the Pecos River Focus are rockshelter sites, open campsites are also noted. Within the thick midden deposits of these sites, a wide range of cultural debris has been recovered. Dart points (especially Langtry and Shumla), hand-axes, large, stemmed drills, end scrapers, ovoid and lanceolate knives, grinding stones, bedrock mortars, beads of snail shell, bone gorgets, pendants, bone awls, spatulas, needles, flaking tools, animal skin, atlatls, dart shafts, clubs, cradles, pipes, coiled basketry, sandals of yucca, lechuguilla, and sotol, netting, matting, cordage, fishhooks, hammerstones, pecked and scratched pebbles, and petroglyphs and pictographs have been recorded from excavation. Burials, most often in a flexed position and wrapped in matting, animal skins, or woven bags with associated grave goods have been reported; cremations occur less frequently. The recovery of Almagre, Abasolo, Tortugas, Kinney, Lerma and Refugio points suggest associations with Coastal and Southwest Texas, and Tamaulipas in northeastern Mexico. The Langtry and Shumla points are common in the Edwards Plateau Aspect in Central Texas (Suhm *et al* 1954: 56).

The subsistence economy suggested from the cultural remains and the site distribution indicates a long period of plant gathering, hunting, and fishing. In fact, recent studies have demonstrated that while hunting and fishing were an important part of the aboriginal economy, the mainstay of the prehistoric diet was a product of a scheduled

plant gathering process (Moore 1975).

Given the chronology which has been historically applied to the Big Bend, we must ask ourselves certain questions. Are there technological and stylistic changes apparent within the artifact collections? Do these changes correlate with the three periods of the Big Bend Archaic? Has there been sufficient investigation in the Big Bend region to justify an attempt at a chronologic sequence? Can materials recovered from Amistad Reservoir and in the Guadalupe Mountains be directly applied to the problem of the Big Bend Archaic? The answer to all of the above is an unqualified no.

What then is the solution to the question of the chronology of the Big Bend Archaic? The Maravillas Complex, a tenuous period at best, and the Santiago Complex show few if any technological and stylistic changes, and are in fact defined by an inadequate site sample.

Notwithstanding their diligent efforts, the early archaeologists in the Big Bend have done little to solve the problem. Unlike the archaeological records of Central and East Texas, the Big Bend is in the infant stage of prehistoric research.

There appear to be two directions which may be followed by the Big Bend prehistorian. If future research shows that there was not a recognizable chronology of artifact types and changes, this will have to be explained by methods other than artifact recovery. If there is an indication of a changing cultural sequence, then a more intensive investigation will be required.

How might we approach the possibility of temporal stability in the composition of lithic artifact collections? Leroy Johnson, in his "Statistical Overview of the Archaic Cultures of Central and Southwestern Texas" (1967: 73-81), has provided a possible avenue of investigation. He has presented three hypotheses which might explain this lack of change.

Hypothesis I. One possible explanation is that a simple but efficient economic adjustment to the harsh southwestern desert was achieved at an early date. Because of the limited resources of the area, there would be little possibility for economic change so long as the economy was based on hunting and gathering. Thus, if a successful adaptation were made which involved a utilization of the major food sources, changes in the economy would not be anticipated. This stability would be mirrored in the temporal uniformity of the artifact collections if the variation in artifact forms were a reflection of their different functions.

Hypothesis II. The temporal changes in artifact collections may not reflect functional changes in the lithic artifacts as suggested above, but rather stylistic changes caused by influences from other

areas or by actual immigrations. Marked differences in the composition of collections from different periods could result from outside contacts, while a lack of such differences would indicate a minimum of outside influences. It can be postulated that southwestern Texas was less susceptible to outside contacts than central Texas because of its more stringent environment. The restricted water and food supply would be less likely to attract immigrants or to encourage outside influences than the more abundant resources of central Texas. Hence, the greater temporal stability of artifact collections in the southwestern part of Texas might reflect this lack of regional intercourse.

Hypothesis III. A third theory can be drawn up to explain differences in stability between southwestern and central Texas. The southwestern area of the state was probably not on the route of diffusion between areas of higher culture, whereas there is pretty good evidence that central Texas may have been. This idea is similar to Hypothesis II, but maintains that southwestern Texas had few outside contacts and was conservative not necessarily because of its uninviting environment, but because it was far removed from major highways of diffusion. There are only few data which directly support this idea, but they are suggestive.

These are by no means the only possibilities for explaining the apparent lack of artifact changes, but are offered as a starting point for additional research.

If we accept the possibility of a recognizable artifact sequence, a choice to which I subscribe more strongly, how do we approach this problem? First, I suggest we increase our sample size. However, this cannot be accomplished by random site investigation and excavation. Before we can define the Archaic of the western Trans-Pecos, we must first define the problem. A comprehensive research design must be constructed to include all the variables which might be encountered. A better understanding of the geologic and biologic record will be required. All types of sites should be investigated, not just those which provide rich artifact recoveries. Extra-regional studies must be undertaken to provide data regarding the possibility of outside influence upon the Big Bend region. Private and museum collections will have to be analyzed where they may contribute to specific phases of the Archaic period. And, most of all, time must be allowed to synthesize the information into a presentable form.

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THE PANHANDLE ARCHAIC

Jack T. Hughes

Although archaeological investigations in the Texas Panhandle began more than a century ago with Whipple's (1865) recording of Indian paintings and carvings on a cliff at Rocky Dell, the Archaic stage in this area remains very little known. Research has concentrated on Paleo-Indian mammoth- and bison-kill sites and on Neo-Indian slab-house ruins almost to the exclusion of the intervening Meso-Indian or Archaic remains.

Enduring from about 5000 B.C. to about the time of Christ, the Archaic stage lasted as long as the Paleo-Indian stage and much longer than the Neo-Indian stage, and probably is manifested at more sites than the other stages combined. The Archaic sites have been slighted, however, largely because they have neither the antiquity of the earlier sites nor the productivity of the later ones.

THE PANHANDLE AREA

Land. The Texas Panhandle is an area about 150 miles square containing 26 counties (Fig. 1). Except for the southeastern corner, it includes a portion of the High Plains, divided by the wide breaks of the South Canadian River into what are locally called the "North Plains" and the "South Plains" (the Llano Estacado or Stockaded Plains or Staked Plains). Toward the southeastern corner the formations composing the High Plains have been stripped away by the upper Red River drainage to form the much lower Rolling Plains or Osage Plains. The vast flat surface of the High Plains is interrupted only by occasional stream valleys and frequent lake basins or "playas." The break between the High Plains and the Rolling Plains is gentle except toward the south, where Palo Duro Canyon and the Eastern Caprock Escarpment along the Prairie Dog Town Fork of Red River have a relief of about 800 feet. Elevation ranges from about 1600 feet at the southeastern corner of the Panhandle to about 4700 feet at the northwestern corner.

The entire Panhandle is underlain by Permian redbeds, which are exposed throughout the Rolling Plains and along the middle part of the Canadian breaks. The Permian redbeds are overlain in the southwestern Panhandle by Triassic redbeds, which are exposed along the Eastern Caprock Escarpment and along the western part of the Canadian breaks. The High Plains are composed of a thick blanket of the Pliocene Ogallala Formation overlain by a thin spread of Quaternary loess.

Weather. The Panhandle is semi-arid, and overcast days are rare. Precipitation averages about two feet per year, and evaporation about six feet. The low humidity ameliorates both summer heat and winter cold. Summer heat is also ameliorated by the constant winds, usually from the southwest, but winter cold is intensified by occasional northers. The region is afflicted with frequent and violent spring

storms and--fortunately rare--winter blizzards.

Life. Short grasses cover the High Plains summit. The breaks of the Canadian and Red River drainages are dominated by tall grasses, cactus, yucca, sage, mesquite, juniper, and oak. Stream channels are bordered by cottonwoods, willows, hackberries, plums, and grapes. Although bison no longer roam the region, pronghorns are still hunted on the uplands and deer in the breaks.

THE ARCHAIC STAGE

Reviews. Archaeological work in the Panhandle, or in the Llano Estacado portion of it, has been reviewed at intervals through the years by various writers, including Krieger (1946), Suhm *et al* (1954), Kelley (1964), Hughes (1968), Collins (1971), and Hughes and Willey (in press). These reviews have been able to record very little progress for investigations of the Archaic, since what little work has been done remains largely unpublished.

Surveys. During more than half a century, beginning after his work as a student with Eyerly (1907) at the Wolf Creek Ruins, the late Floyd V. Studer (1931a, 1931b, 1955) recorded scores of sites in the Panhandle, including dozens of Archaic sites. In his archaeological survey of Texas, Sayles (1935) recorded a number of sites in the Panhandle, including some Archaic sites. The survey initiated by Studer was continued beginning in 1952 by Hughes for the Panhandle-Plains Historical Museum, and beginning in 1968 by Harrison for the Museum and by Hughes for West Texas State University. More than 1,000 sites have been recorded, including hundreds of Archaic sites.

During the last two decades, scores of Archaic sites have been revealed by an increasing number of reservoir and other special surveys, as reported by Hughes (1959), Davis (1962), Moore (1966), Sharp (1969), Malone (1970), Hughes (1973a), Hughes and Willey (in press), Marmaduke (in preparation), Hughes *et al* (1974), Guffee and Hughes (1974), Hughes and Hood (1975), Katz and Katz (in press), and Willey and Hughes (1975).

These surveys indicate that Archaic campsites occur mainly on the rims and terraces of playas, valleys, and canyons, especially the latter, and that some of the deepest and richest sites occur at water sources near canyon heads. Many more sites have been recorded in the canyons and breaks of the Red River drainage, and in the Canadian breaks, than along the valleys and around the playas on the High Plains. The campsites are usually marked by quantities of hearth stones and boiling pebbles, and often possess rock hearths of various kinds. Bedrock mortar holes are sometimes associated with the sites, especially in the Palo Duro and tributary canyons and in the Canadian breaks. Sites that appear to be later are characterized mainly by corner-indented and corner-notched dart points, ovate to trianguloid knives, thick end scrapers, small manos, and thin grinding slabs. Although influences from various directions are discernable, affiliations

may lie mainly northward. Seemingly earlier sites are characterized by limited numbers of variable dart points, and an abundance of Clear Fork gouges, choppers, and hammers. The gouges are much more common in the Red River breaks than elsewhere in the Panhandle.

Open Camps. Several open campsites with Archaic components have been investigated by Hughes (1955), Green (1967, Thompson (in preparation), Hughes (in preparation, b), Pearson (1974, in preparation), Wedel (1975), and Hughes and Willey (in press). Except for Green's site, which is on the Canadian, all of the sites are in Palo Duro and tributary canyons. All of the Archaic components appear to be late or transitional into Neo-Indian, although the sites of Thompson, Pearson (in prepartion), and Wedel are deeply stratified. On the basis of a site on Little Sunday Canyon, Hughes (1955) proposed a Little Sunday complex. Until more of the reports are completed and published, little else can be said about these sites.

Rock Shelters. A few rock shelters with Archaic components have been explored by Hughes (in preparation, a), Hughes (in press), Harrison (in preparation), and Hughes and Willey (in press). Tests have indicated the presence of Archaic components at several other shelters. As with the open camps, most of the rock shelters are in the Palo Duro Canyon complex, and the Archaic components appear to be late or transitional into Neo-Indian. Most rock shelters in the Panhandle do not appear to be much older geologically than the Neo-Indian stage.

Bison Kills. Investigations at several Archaic bison kills have been reported by Tunnell and Hughes (1955), Collins (1968), and D. Hughes (in preparation). More than a dozen of the kills have been recorded, three have been tested, and one has been excavated. Most of the kills are in the Red River breaks and are very similar in character. The animals appear to have been trapped in large numbers at the heads of arroyos, slain with a distinctive type of broad-bladed, broad-stemmed dart point (Fig. 2), and only partially dismembered. The kills appear to have occurred near the end of the last major episode of arroyo-cutting before the present one, and the points resemble specimens from Bonfire Shelter that have been dated at about 2645 B.P. (Dibble and Lorrain 1968).

Flint Quarries. The famous Alibates quarries, although exploited mainly during the Neo-Indian stage, were also utilized during the earlier stages. The Alibates material is an agate of Permian age. Although little investigated, these quarries have amassed a substantial literature, including Bryan (1950), Green (1955), Shaffer (1958), Hertner (1963, 1964), Mewhinney (1965), Kendrick (1966), Hughes (1973b and 1974), Bousman (1974), and Hughes and Taylor (1975). Thanks mainly to the efforts of Studer and Hertner, the Alibates quarries and nearby ruins became a national monument in 1966--the only one in Texas, and the only one of its kind in the nation. In Alibates National Monument and the adjoining Lake Meredith Recreation Area, the National Park Service has recorded and is protecting hundreds of sites, including man Archaic sites.

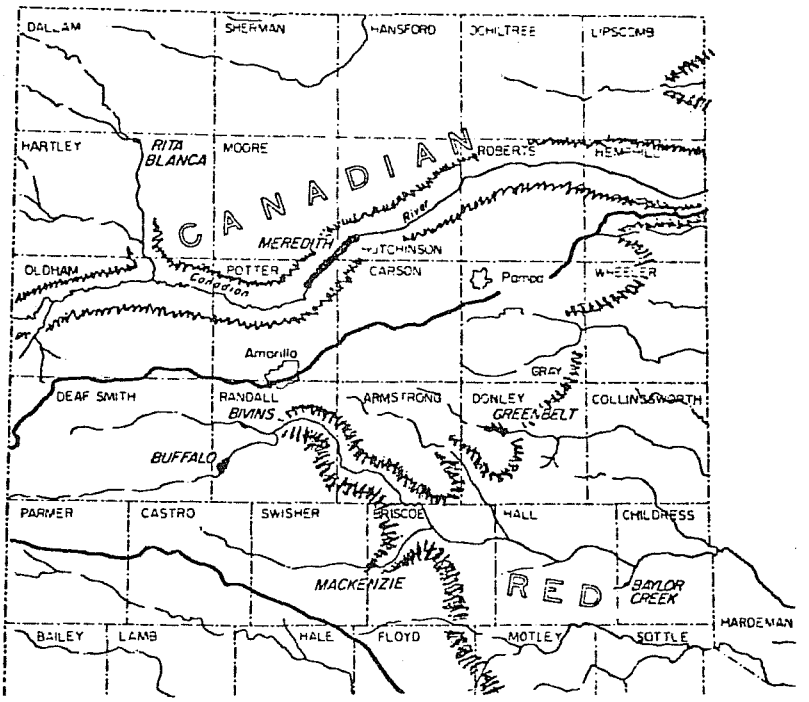

Figure 1. *The Texas Panhandle.*

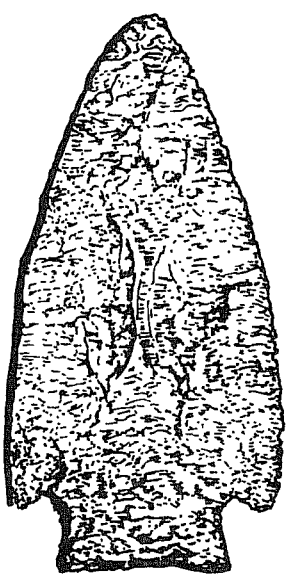

Figure 2. *Dart Point from the Twilla Bison Kill Site.*

The Tecovas quarries, although less well known, were also much exploited, especially during the Archaic stage along the Prairie Dog Town Fork of Red River and its tributaries. The Tecovas material is a jasper of Triassic age. Also little investigated, these quarries--and other flint sources in the Panhandle--have been treated by Hughes (1955), Green and Kelley (1960), and in various subsequent reports by Hughes and others. Fortunately, several of the Tecovas quarries are located in or near Palo Duro Canyon State Park and the new Caprock Canyons (Lake Theo) State Park.

Flint Caches. A good many flint caches, some of which may be Archaic, have been discovered in and around the Panhandle, and a few of these have been reported by Witte (1942) and Green (1955).

Rock Art. Since the pioneer work of Whipple (1865), rock art sites in the Panhandle have been described by Jackson (1938), Kirkland (1942), Kirkland and Newcomb (1967), and Upshaw (1972). Rock art is not common in the Panhandle, and most of it appears to be post-Archaic.

Burials. Possible Archaic burials have been reported by Witte (1947, 1955), Tunnell (1964), and Jokerst (1972). Many burials of probably Archaic age have been investigated but have not been reported. Generally in or near campsites, the skeletons are usually flexed in small shallow oval graves, and are often covered with grinding slabs. Other accompaniments are rare. The skulls are usually long.

Miscellaneous. Local occurrences of various artifacts, some of which may be Archaic, have been reported by Wright (1940), Hesse (1943), Green (1955), Carter (1959), and others. Space-time distributional studies of many types of Archaic artifacts and features are much needed.

CONCLUSIONS

Archaeological research on the Archaic stage in the Texas Panhandle has not yet produced an adequate cultural-chronological foundation on which to construct a towering processual edifice of the kind now fashionable in some areas. What seems to be most needed for now is a lot more old-fashioned writing and digging, probably in that order.

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THE ARCHAIC PERIOD IN NORTH CENTRAL TEXAS

Olin F. McCormick

The north central area of Texas may be divided into four bio-physicographic zones. These are, running from east to west: the Blackland Prairie; a western outlier of the Eastern Cross Timbers; the Grand Prairie; and the Western Cross Timbers. An understanding of the physiographic as well as floral and faunal composition of each of these areas is a prerequisite to the formulation of any hypotheses concerning prehistoric cultural adaptations within this region.

The Blackland Prairie is characterized by a gently rolling topography formed of upper Cretaceous limestones, clays, and marls, and is dissected by broad shallow river valleys with a dendritic drainage pattern. Trees such as hackberry, pecan, elm, and various types of oaks are restricted, except for scattered stands of mesquite and bois-d-arc, to the immediate sandy alluvium of creek floodplains. The sections between the drainages are dominated by short-grass prairie vegetation.

The Eastern Cross Timbers is a narrow 1-13 mile wide extension of the east Texas woodlands which coincides with the upper Cretaceous Woodbine formation, a sandy zone extending from Arkansas along the Red River, turning south in Cooke County and pinching out just north of Waco.

It is characterized by rolling oak-blanketed hills interspersed with small pocket prairies on which little blue stem grass once thrived. Secondary drainages tend to have relatively steep gradients, often cutting into meta-quartzite and chert gravel beds.

The uniqueness of this zone is derived from the fact that it appears between the Blackland and Grand Prairies. In 1772 De Mezier noted that the "Grand Forest" (Cross Timbers) ran from the Brazos north, and the edge was used by the Indians of the area as a guide for getting from one village to another (Bolton 1914: 307-308). In fact, the boundary between the Cross Timbers and the prairie areas was so pronounced it caused early European travelers to speculate it was artificially created by some past Indian group.....probably the same ones built the large mounds in the Mississippi Valley (Dyksterhuis 1948: 327).

Not unpredictably, the Cross Timbers serves as a migratory pathway, and this has resulted in its containing an exceedingly broad floristic assemblage. The upperstory consists mainly of oaks but is replete with elms, mulberry, pecan, ash, cottonwood, hawthorne, willow, mesquite, juniper, and hackberry, to name but a few.

The Grand Prairie beginning on the western edge of the Cross Timbers resembles the Blackland Prairie except that it is slightly flatter and has fewer trees. Such upperstory vegetation as exists is confined to the almost nonexistent sandy floodplains and on the banks of the few deeply incised creeks crossing the area. The soils are lower Cretaceous in origin and tend toward clays heavily loaded with limestone.

The Western Cross Timbers is a less prolific reproduction of the Eastern Cross Timbers, characterized by the Trinity sandy/clay/gravel soils derived from the Commanchean sandstones. Oaks dominate the upperstory which also contains hickory, pecans, and sweetgum, while a typical prairie grass vegetation is in more evidence than in the eastern counterpart.

No less important is the faunal of these areas. The grasslands had a high carrying capacity for gregarious herbivores such as antelope and bison. During the late Fall season, large herds of bison from the southern plains traditionally migrated into the central Texas area by passing through both the Blackland and Grand Prairies.

No less than 32 fur and meat bearing animals, 320 species of birds, including 43 species of migratory waterfowl, inhabited the Cross Timbers. When one adds to this some 44 species of fish, 11 amphibians, 33 reptiles, two types of freshwater mussels and approximately 150+ usable plants, one is easily led to the conclusion that an aboriginal subsistence pattern based on hunting and gathering would be ideally suited to this area.

ARCHAEOLOGY

In 1952, Wilson W. Crook, Jr. and R. K. Harris defined two temporally distinct, but morphologically related manifestations of the Archaic in the north central Texas area. These were the Carrollton and Elam Foci of the Trinity Aspect of the Archaic. Trait lists were prepared on the base of associated attributes at 10 Carrollton and more than 12 Elam sites.

Carrollton traits: The "hallmark" of the Carrollton Focus is the Carrollton axe (Fig. 1). It is usually made of a local ferruginous sandstone and varies from a crude chopper to a grooved axe-type. Several mano and metate fragments of the same material have also been recovered.

Chipped stone tools are primarily of flints and cherts, much of which comes out of central Texas or the Red River area. Local reddish quartzites and petrified wood comprise the remainder of the raw materials.

Several Carrollton Focus sites contain Plainview, Scottsbluff and Meserve projectile points. These, however, usually do not exceed 5-7% of all points. The remainder are made up of types such as: Carrollton, Trinity-notched, Wheeler leaf, Edgewood, Wells, Martindale, and Castroville (Figs. 1 and 2). It is interesting to note almost all of the stemmed projectile points have grinding on their bases and stem sides. This is especially true of the Trinity-notched type point.

Additional tool types found at most Carrollton sites are round-base bifaces; clear-fork type gouges; unifacial, unilateral blades or side scrapers; gravers and burins; drills (many on reworked projectile points);

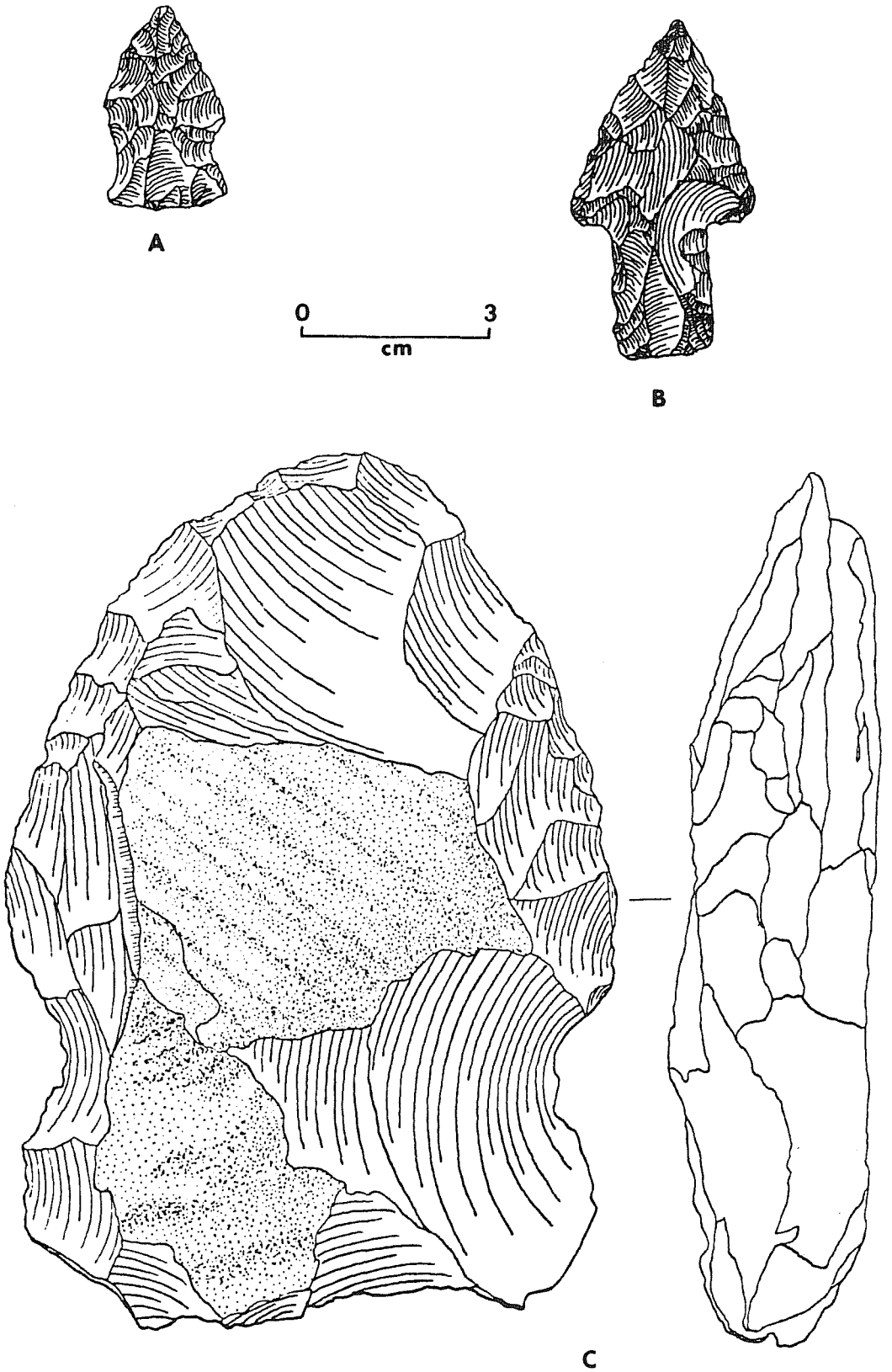

Figure 1. *Artifacts Characteristic of the Carrollton Focus.* A, Trinity point; B, Carrollton point; C, Carrollton axe.

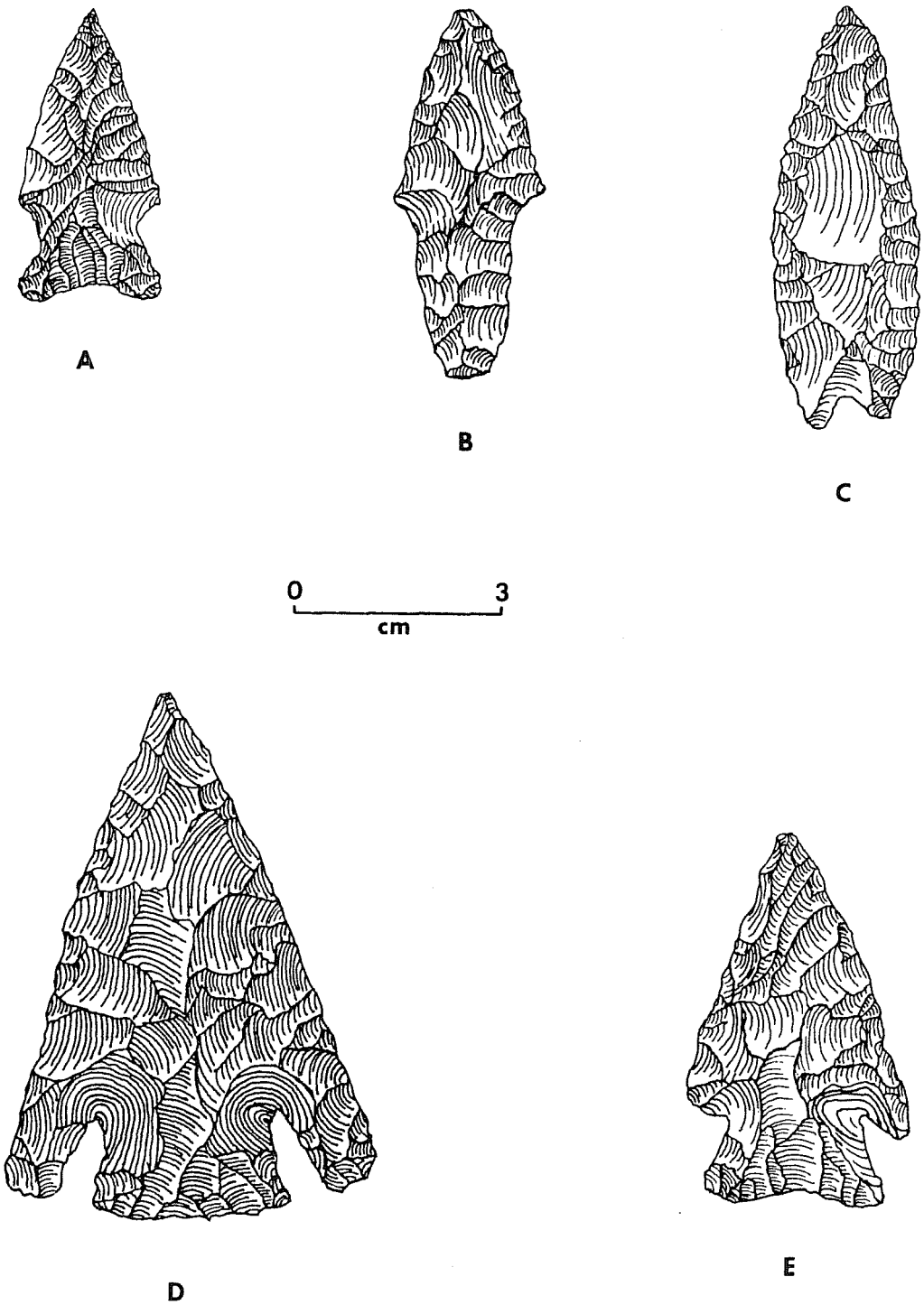

Figure 2. *Projectile Points Characteristic of the Carrollton Focus.* A, Edgewood; B, Wells; C, Wheeler; D, Castroville; E, Martindale.

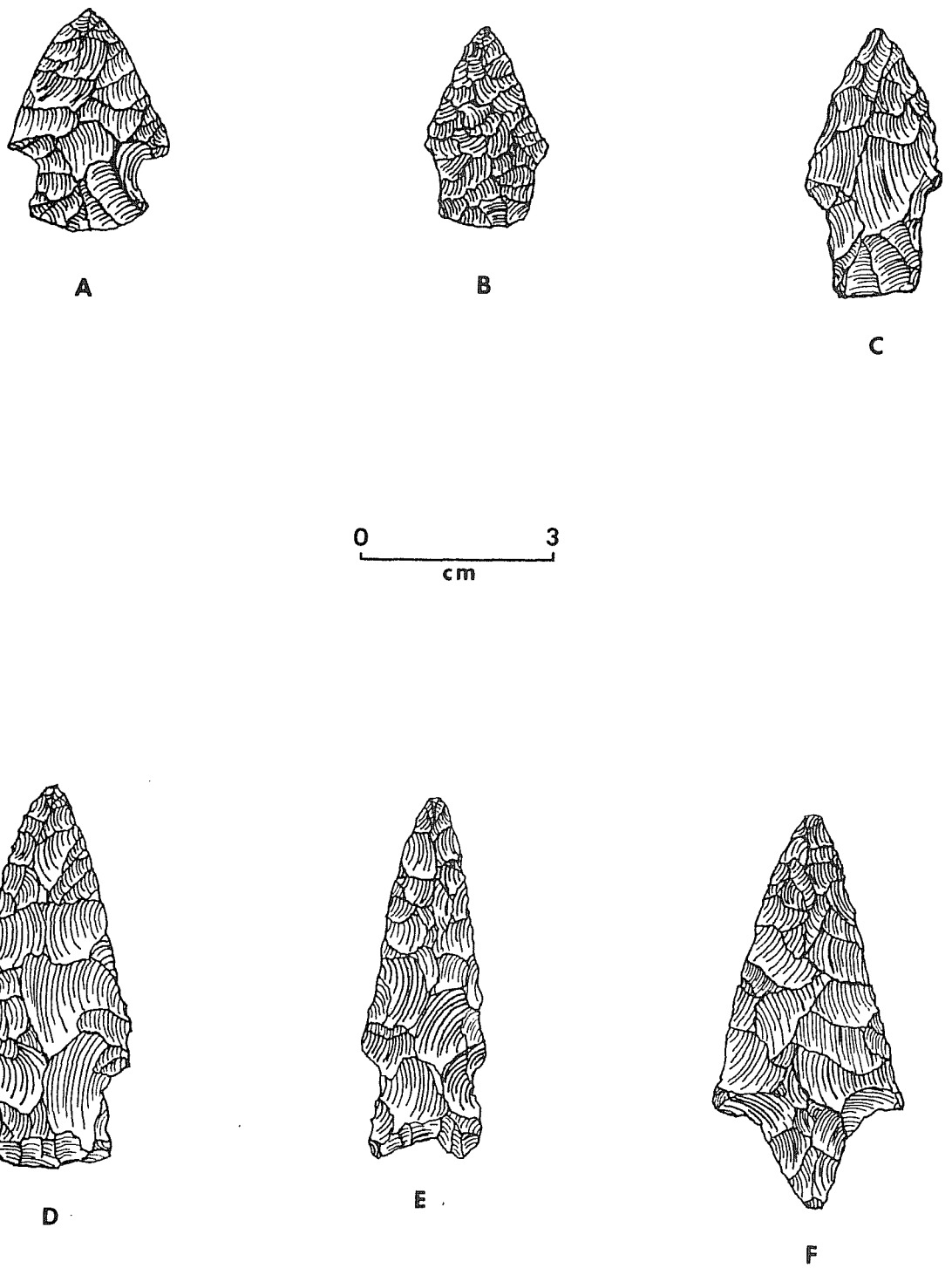

Figure 3. *Projectile Points Characteristic of the Elam Focus.* A, Ellis; B, Elam; C, Dallas; D, Yarbrough; E, Darl; F, Gary.

and "Waco" net-sinkers.

Sites are of two distinguishable types: seasonal campsites and activity specific sites. The seasonal or more permanent sites are located on the first terrace of a major creek or river at its junction with a secondary drainage which may or may not be permanent. These sites are often buried and/or overlain by subsequent Neo-American occupations. Evidence of permanent structures is lacking except in the Collin County area where several semi-subterranean pit houses have been found. Generally the only internal features noted are roughly circular hearths. Recent excavations north of Denton, Texas have also produced two burials which may be from this period. The bodies were flexed with no particular orientation and covered with fire-cracked rock and typical midden-type debris. No evidence of a pit was discernable and it is hypothesized that the individuals were simply buried under a pile of rocks, which was later, though fairly rapidly, covered by flood deposits.

Activity-specific sites consist of hunting and fishing camps, manufacturing stations, and simple transitory campsites. These are usually located on drainages well into the Cross Timbers or adjacent to watercourses out in the prairie areas. The occupations are ephemeral and usually deflated in nature, and when exposed on the surface are easily destroyed by even minor disturbances.

Carbon-14 dates for the Carrollton Focus indicate its termination sometime around 6,000 years ago.

Elam traits: The Elam focus appears to be a continuation of the Carrollton with minor, though recognizable, changes, dating between 6,000 and 4,000 years ago. In general, the artifacts become smaller and most of the chipped stone tools are now of a local quartzite. There is an increase in grinding stones, and a loss of the classic Carrollton axe, Waco net-sinkers, large Paleo-Indian-like projectiles, as well as basal grinding on projectile points.

Many of the same types of projectile points found in the Carrollton sites are noted here, but in addition, we now find types such as: Elam, Ellis, Darl, Gary, Dallas, and Yarbrough (Fig. 3). Bifaces are almost exclusively of quartzite and have a characteristic bevelling to their edges. Drills are present but are no longer made on old projectile points.

The sites are located almost identically to those of the Carrollton, which makes the isolation of a single component site difficult.

MODEL

From what is now known concerning the Archaic cultures in the north central Texas area, it appears that the people were migratory hunters and gatherers, perhaps moving south from the southern plains area with the bison in the Fall and then back to the north again in the early

Spring. The line of movement was along the Prairies/Cross Timbers ecotone, as reflected in the more permanent settlements in these areas. From these camps, the specific resources of both the Cross Timbers and the prairie areas could be exploited without ever really leaving a permanent water supply. It is exactly this maximization of resource potential by the location of an exploitation base in the middle of all resource zones which would have allowed transitory peoples relatively unfamiliar with an area to function well while moving through it. The lack of *in situ* Paleo-Indian sites makes it pure speculation whether this pattern began during that period; but we may say that it was well developed during the early Archaic and continued through Neo-American times.

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THE ARCHAIC OF EAST TEXAS

Dee Ann Story

In 1954, in a synthesis of Texas archaeology, Suhm, Krieger, and Jelks introduced the Archaic of east Texas with the remark (p. 148): "Nothing on this Stage of East Texas has ever been published." This paper attempts to summarize what we have learned during the approximately 20 years that have elapsed since that statement was made. The discussion includes a brief history of investigations, a review of current approaches and some comments on major problems. While the emphasis is on data from Texas, it must be recognized that a more logical unit of study is an environmental zone, specifically the north-south tending fringe of the southeastern woodlands. In addition to east Texas, this zone encompasses northwestern Louisiana, southwestern Arkansas, and southeastern Oklahoma.

A SUMMARY OF INVESTIGATIONS AND INTERPRETATIONS, 1954-1969

Interest in the Archaic occupations of east Texas has been, and continues to be, quite limited. When the Handbook (Suhm *et al* 1954) was written, no Archaic site had been systematically investigated and analyzed. There were only brief and scattered references in the literature (e.g. Stephenson 1948; Moorman and Jelks 1952) to surface collections from small, nonpottery campsites which were thought to represent the Archaic. The Caddoan cemeteries and settlements with their richer inventories of artifacts had clearly been the focus of attention during the 1930's and 1940's.

It should not be surprising then that the 1954 definition of the Archaic, what Suhm, Krieger, and Jelks designated as the "East Texas Aspect," was skimpy and generalized. The primary criteria for recognizing sites of this aspect were the occurrence of dart points of various styles and the absence of pottery. Among the other provisional traits listed were arrow points, especially the Alba type, several forms of scrapers (end, stemmed, and Albany), full-grooved axes, pitted stones, and milling implements. These remains were estimated to date from between 3000 B.C. and A.D. 500 or 1000. They were presumed to represent hunters and gatherers who were organized into small social groups and who "roamed over a small area around a more or less stationary village site" (*ibid.*: 148). Close similarities with Archaic materials in Louisiana, Arkansas, and Oklahoma were acknowledged. The relationships with the much better known Archaic of the Eastern U.S. was suggested as being more distant, largely because of the scarcity of polished stone artifacts in Texas sites. A sharp boundary was seen as separating the Archaic of central Texas from that of east Texas.

The next notable statement appeared in 1960, in Clarence H. Webb's summary of the archaeology of northeastern Texas. Webb basically reiterated the definition presented in the Handbook but proposed the designation "Red River Aspect" as more appropriate than "East Texas Aspect." In addition, he pointed out that the Archaic probably over-

lapped in time with the terminal Paleo-Indian period because of the apparent co-variation of dart point types such as Meserve and San Patrice. The notion that arrow points, but not pottery, were introduced into the Late Archaic was continued in Webb's statement. However, he, like the authors of the Handbook, recognized the poor control on the information pertaining to the Archaic and the likelihood that excavations would reveal a far more complex picture.

Very shortly after Webb's review, there was what seems to be a flurry of publications dealing with Archaic sites in east Texas. In each case, these reports stemmed from excavations conducted under the auspices of the river basin salvage program at The University of Texas at Austin. The reservoir projects were, from north to south, Cooper on the Sulphur River, Ferrell's Bridge on Cypress Creek, Iron Bridge on the Sabine River, and McGee Bend on the Angelina River. These yielded geographically extensive, though spotty, site samples which provided the initial basis for serious definition of regional and temporal variations in the Archaic of east Texas.

The Jake Martin Site, which was reported on by W. A. Davis and E. M. Davis (1960), was the first of this group to be investigated and published. Located in the northeastern corner of Upshur County, it was dug during the summer of 1958 as part of the Ferrell's Bridge Reservoir program. Jake Martin was identified as a campsite intermittently occupied by small groups of hunters and gatherers, perhaps no more than two or three families at any one time. Comparative analysis suggested that the site was attributable to a locally distinctive, Late Archaic complex within the Red River Aspect. The possibility that the wide range of point styles (Yarbrough, Gary, Meserve, San Patrice, Wells, Catan, Kent, Elam, Carrollton, Travis, Castroville, and others) might indicate temporary use of the site over a very long period of time was noted but rejected. Jake Martin is historically significant as the first Archaic site in east Texas to be systematically excavated and analyzed. Perhaps equally as important, the authors articulated certain problems which still plague the study of Archaic remains in this region. Specifically, they stated (1960: 13):

> "There was an almost total absence of structural features at the Martin site, and no significant clustering of artifacts or other materials were noted which might provide concrete evidence as to the distribution or nature of specific activities carried on by the people who used the site. There was no carbon-stained occupation zone, no charcoal either in flecks or in concentrations, and no burned earth. The finds consisted only of stone artifacts, flakes, and random stone pieces lying in the sand."

Similar difficulties confronted the subsequent researchers analyzing Archaic materials from excavations in the McGee Bend (Tunnell 1961; Duffield 1963; Jelks 1965), Iron Bridge (Duffield 1961), and Cooper

(Johnson 1962) reservoir areas. They recognized that the concept of the Archaic as an undifferentiated, almost amorphous assemblage was very inadequate and, at the same time, that the absence of good stratigraphic and associational contexts was hampering the efforts to define subdivisions. Hence, the less direct approaches of horizontal separation (so-called "horizontal stratigraphy") and relative artifact frequency distributions, combined with refined typologies, were used to isolate different norms within the east Texas Archaic.

The most inclusive and definitive of these attempts to structure the Archaic materials of east Texas is LeRoy Johnson's 1962 paper on the LaHarpe Aspect. His comparative analysis of sites extending from near Houston in the south to east-central Oklahoma in the north revealed what appeared to be a distinctive and reasonably uniform sequence of artifact changes. The name LaHarpe was assigned because "East Texas Aspect" was too geographically restrictive and because "Red River Aspect" duplicated a name that had been previously applied to an archaeological complex in Minnesota.

Three main developments were singled out by Johnson (1962: 268-269) as defining the LaHarpe Aspect: (1) the early dominance of expanded stem dart points, especially the Yarbrough type, followed by (2) the growth in popularity of contracting stem dart points (most notably, the Gary type), which slightly preceded (3) the appearance of plain, often rather crudely-made ceramics. The LaHarpe Aspect was said to come to an end with the introduction of the bow and arrow and abundant decorated pottery. These were presumed to have been accompanied by maize agriculture and a more sedentary settlement pattern. San Patrice points which some earlier researchers (Webb 1946; Davis and Davis 1960) had considered to be Archaic were regarded by Johnson as being stylistically and temporally closer to Paleo-Indian. A similar position has been maintained by subsequent researchers (Duffield 1963; Webb 1971).

While Johnson's concept of the LaHarpe Aspect lumped a series of sites widely strung out along the western frontier of the eastern woodlands, he did provisionally identify three main areal variants --northern, central and southern. The northern is represented by Fourche Maline sites in the Ouachita region of Oklahoma. These characteristically yield a relatively high incidence of polished stone implements (celts, gorgets and boatstones), double-bitted axes, shell gorgets, bone atlatl hooks, corner-tang knives and, in the late period only, Williams Plain pottery. Sites in the central region, from at least the Red to Sabine Rivers, are distinguished by large numbers of chipped stone gouges, full-grooved axes, numerous pitted stones and grinding slabs, and a scarcity of polished stone artifacts. The southern sector was delineated on the basis of materials from the McGee Bend and Addicks reservoirs. In these areas polished stone artifacts are rare, many tools are fashioned from petrified

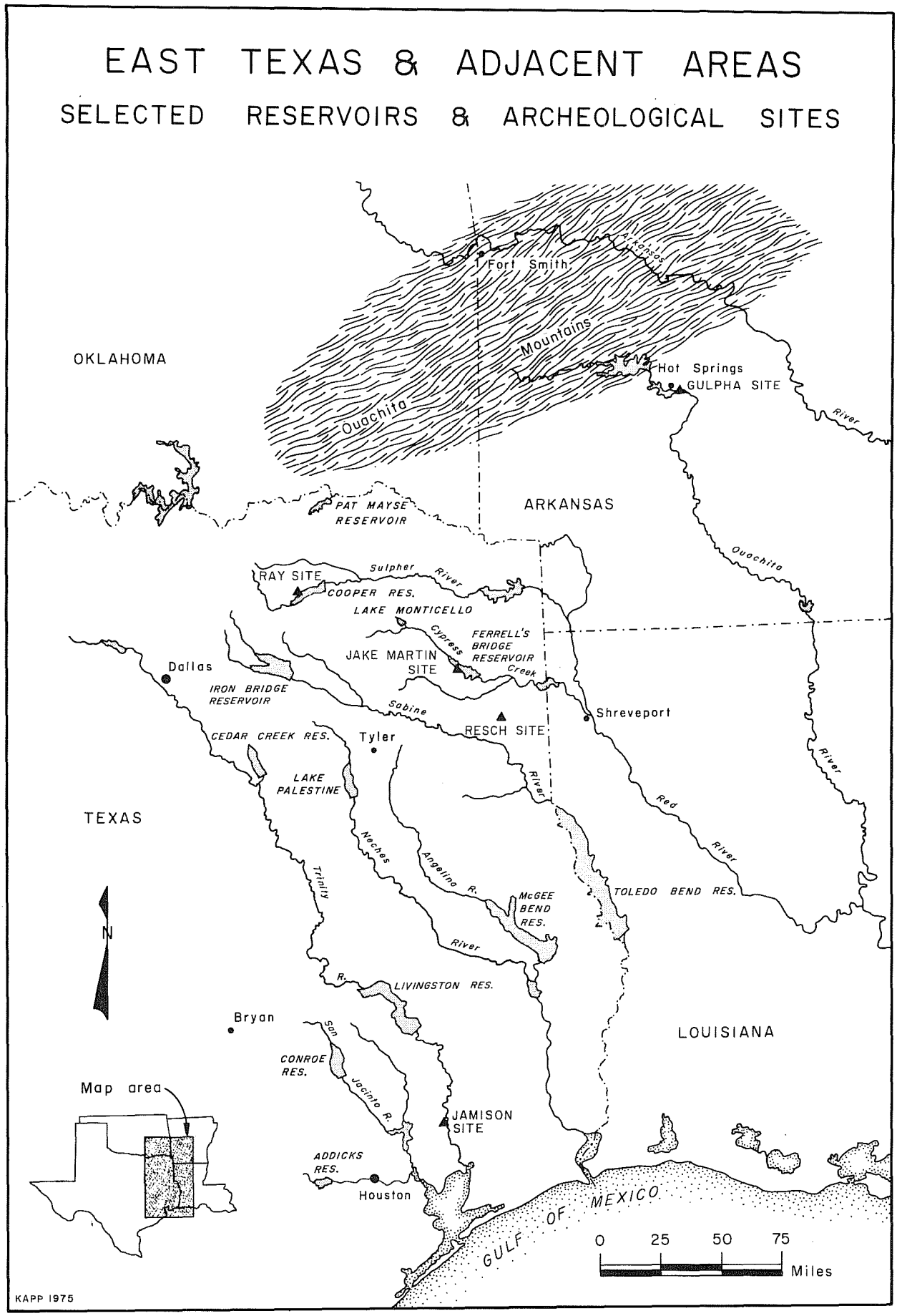

Figure 1. *East Texas and Adjacent Areas.* Map shows locations of Sites and Reservoirs referred to in text.

wood and the early pottery is a plain, sandy paste ware.

Johnson was less clear as to the eastern and western extent of the LaHarpe Aspect. There was no comparative data from excavations in Louisiana and only Harrington's (1920) very general report on the Gulpha Site near Hot Springs was available for southwestern Arkansas. To the west the Archaic in central Texas was seen as markedly different and the problem was whether or not the Trinity Aspect (Crook and Harris 1952) in the Dallas area should be included. This question was left open and the LaHarpe Aspect was offered as only a rudimentary beginning at organizing the Archaic.

During the middle and late 1960's there was additional fieldwork in east Texas and more excavations at sites which contained Archaic components. Three of these, the Ray Site in Delta County (Gilmore and Hoffrichter 1964), the Jamison Site in Liberty County (Aten 1967) and the Resch Site in Harrison County (Webb *et al* 1969) were dug by local groups. The majority, however, were in proposed reservoir areas; namely, Cedar Creek (Story 1965), Toledo Bend (McClurkan *et al* 1966), Pat Mayse (Lorrain and Hoffrichter 1968), Livingston (McClurkan 1968) and Conroe (Shafer 1968). Apart from some questioning of the point sequence outlined by Johnson for the LaHarpe Aspect (Lorrain and Hoffrichter 1968: 152; Shafer 1968: 79), the conclusions drawn from these investigations added relatively little to the general concept of the Archaic. In some cases, such as at the Ray and Resch sites, the Archaic occupation(s?) was apparently limited and difficult to factor out from the residue left by subsequent inhabitants. In others, such as at Cedar Creek, the analysis did not extend sufficiently beyond the descriptive level. Indeed, it seemed as if the notion of the Archaic was about to revert to an undifferentiated assemblage which served little more than to fill a time gap in the prehistoric record of east Texas. The sequence delineated by Johnson was of questionable validity and, even more importantly, the LaHarpe Aspect as an analytical construct was failing to reveal how these cultures functioned and why they changed, or did not change.

CURRENT APPROACHES

The 1970's have witnessed a continued increase in salvage archaeology in east Texas with the predictable corollary that most of the investigations into the Archaic continue to stem from such projects. The approaches, however, are changing. In general terms, there is little interest in explaining an Archaic component as a local expression of some time-space bound cultural unit. Instead, these remains are being viewed as the residue of culturally-conditioned behavior and efforts are being made to explain in more meaningful ways the hows and whys of this behavior. The common strategy is to generate a hypothesis, usually from previously collected archaeological data or enthnographic information, and to test this hypothesis by additional fieldwork and laboratory analysis. Good examples of this type of research are to be found in the recent east Texas surveys and excavations made by

Southern Methodist University; especially, the work in the Lake Palestine (Anderson 1973; Anderson *et al* 1974), Lake Monticello (McCormick 1973; Mahler 1973; McCormick n.d.) and Lake Cooper (Hyatt and Skinner 1971; Hyatt *et al* 1974; Hyatt and Doehner 1975).

A recurring theme in the SMU studies is one which seeks correlations between the natural environment and Archaic (as well as post-Archaic) cultural systems, particularly as these are manifest in subsistence pursuits, intersite and intrasite patterns, and social organizations. The still-in-progress Cooper Reservoir project on the Sulphur River in Delta and Hopkins counties provides a more specific illustration. On the basis of previous archaeological findings in the area (especially Moorman and Jelks 1952; Gilmore and Hoffrichter 1964; Johnson 1962), the survey report (Hyatt and Skinner 1971) presented a tentative model to guide the initial phase of excavation. This model proposed: (1) that the aboriginal occupations in the reservoir area were seasonal camps, mainly to hunt and to collect food, and that the base camps and villages of these peoples were located outside of the reservoir areas; (2) that the specific nature and intrasite patterning of these camps reflected specific subsistence activities within or near the reservoir area--bottomland sites for exploitation of floodplain and riverine resources, upland (or terrace) edge sites for hunting, and upland sites for lithic procurement: (3) that the social groups at the floodplain stations were larger than those at the upland stations; and (4) that the same subsistence-settlement pattern prevailed throughout the span of prehistoric occupation of the reservoir area, perhaps from 2000 B.C. to A.D. 1600. From the information gained by limited excavations in Cooper Reservoir in 1972 (Hyatt *et al* 1974) and in 1973 (Hyatt and Doehner 1975), the model has been modified and a more refined research design is currently testing the implications of the new model.

While these kinds of studies hold promise of significantly altering out interpretations of Archaic occupations in east Texas, it is not yet possible to speak of substantive results. In the Lake Monticello and Lake Palestine areas, Archaic components proved to be rather scant or very difficult to isolate and analyze in terms of a synchronic settlement system. The Cooper Reservoir area, where these materials are more abundant, is still under study. Formulating and testing a truly explanatory model can be tedious and difficult, for as McCormick (n.d.: 1) has succinctly phrased it....."there existed several problems in moving from what was theoretically desirable to what was realistically possible."

SOME PROBLEMS

It is obviously easier to discuss problems concerning the Archaic of east Texas than it is to speak understandingly of the cultures to which we have attached this label. Almost all of the reports cited above have noted the lack of tightly controlled comparative data and have set forth certain questions or hypotheses to be answered

by future investigations. Rather than repeat these, I will call attention to four general problems, largely limitations, which have much complicated explanation of Archaic remains in east Texas.

1) Sites in this part of the state commonly occur on elevations where there has been little, if any, deposition of sediments during and after occupation. Kenneth Brown (n.d.), in a paper given at the 1975 Caddo Conference, made this point convincingly by presenting a statistical model of random disturbance to explain vertical displacement of artifacts from a stable surface. In essence, he maintained that we often underestimate the role played by natural disturbances (soil genesis and biotic activity) and overestimate the amount of post-Pleistocene aggradation.

That some vertical pattern (e.g. Tunnell 1961: Figs. 13 and 14, Johnson 1962: Figs. 33-35) can be observed at sites where there has apparently been no accumulation of sediments is very likely a function of two interacting variables: (a) the differences in elapsed time since certain objects, or classes of objects, were left on a surface, and (b) the differences in relative frequencies of occurrences of certain objects, or classes of objects. For example, 50 dart points of type "Y" left on a surface 2,000 years ago have had more opportunities to be displaced downward than 10 arrow points of type "A" left on the same surface 500 years ago.

Brown's model should be especially applicable to Archaic sites in upland areas, on high alluvial terraces, on terrace remnants in floodplains and on non-aggradating, but low-lying, segments of drainages. Its implications are far-reaching and particularly important to developing sequences, isolating artifact assemblages and appraising variations in intensity of activity at multicomponent sites. It is also important to note that the model is testable. While this has not been done, my experiences in east Texas sites lead me to believe that Brown is correct and that the recognition of this problem will significantly alter our interpretations of certain sites as well as influence our choice of sites for excavation.

2) Organic residue--bone, shell and charcoal--is often poorly preserved, or non-existent, in Archaic sites. This presumably reflects either the high acidity of many soils in east Texas, or the occupational debris having been exposed on stable land surfaces. Regardless of the cause, we are often left with only durable stone objects. Statements on activity profiles and subsistence-settlement systems are hence often inferred, not observed. The basis for such inferences may be more traditional than explicity and critically reasoned. We may, for example, be overappraising the importance of hunting in the Archaic on the basis of the ratio of dart points to milling implements (e.g., in the 1973 excavations in Cooper Reservoir area the ratio was 79:3 in favor of dart points). I can think of four reasons, however, why this may not be a good inference: (a) Archaic

occupations are usually defined on the basis of dart points, not milling implements, (b) there is ethnohistoric evidence for Caddoan use of the wooden mortar and pestle and the archaeological observation that milling implements are not common at Caddoan sites (e.g. at the Davis Site arrow points outnumbered milling implements by 822:61), (c) wild plants, especially hardwood nuts, are a major food potential in east Texas (Keller 1974), and (d) ethnographic studies (e.g., Lee and DeVore 1968) reveal that the majority of non-agriculturalists rely heavily upon wild plant foods. While I may be guilty of setting up a paper tiger, the point is we should be explicit and critical about inferences, recognizing that they are farther removed from reality than are observations.

The limitations imposed by the organic preservation problem extend beyond the realms of subsistence and inference. Probably one of the most serious is the lack of samples for radiocarbon dating. An age of 130±60 B.C. (Tx-1961) on a Late Archaic occupation at the Lawson Site in Cooper Reservoir (Hyatt and Doehner 1975: 79) is apparently the only radiometric determination on Archaic materials in east Texas. It has obviously been impossible to use radiocarbon dates to establish Archaic sequences and to estimate rates of culture change. A tentative chronologic framework recently presented by Shafer and Stearns (1975: 8-10) for southeast Texas and Johnson's LaHarpe sequence, both of which are admittedly generalized, are all we have to gauge where our materials might fit in a span of perhaps at least 4,000 years. As a result, we tend to treat the Archaic as if it was unchanging and hence can be analyzed in toto as a synchronic phenomenon. The establishment of a reliable and detailed chronology for the east Texas Archaic is one of the most urgent of current research needs.

3) With relatively few exceptions, investigations at Archaic sites in east Texas have been conducted as part of mitigation programs. Salvage archaeology can, of course, be problem oriented, but it usually imposes constraints on research.

Most project areas in east Texas encompass fairly small and environmentally limited segments of a landscape. As a unit of archaeological study, such an area may constitute a non-representative part of the universe being sampled and therefore may not be adequate for testing of a hypothesis. The problem comes most clearly into focus when dealing with settlement systems (see particularly useful comments on this by Anderson *et al* 1974: 182; McCormick n.d.: 110-114). If Archaic populations were in fact mobile and following seasonal rounds across different environmental zones, it is probable that the full analytical potential of settlement studies will not be realized as long as research is restricted to the boundaries of reservoirs.

The time available for the formulation and completion of a well-conceived project varies from tight to unrealistic. Quality research

is time-consuming and best accomplished as a balanced combination of inductive and deductive strategies. With some exceptions, such as the Cooper Reservoir project, there is simply not enough time to evaluate an on-going project and to adjust for the ever-present flaws in research design and execution. The rate of turn-over in salvage project personnel impresses me as being high and as hindering the accumulation of experience and knowledge so valuable to area studies.

Like many other archaeologists (e.g. Brown and Houart 175: 111), I am convinced that current research goals commit us to long-term regional programs. The basic problem, then is how can salvage archaeology, with its limited time to investigate limited areas, become an integral part of a regional research program. Part of the solution, I suggest, lies in establishing closer ties between salvage projects and academic programs. The dissertations produced by Woodall (1969) and Gilmore (1973) as spin-offs of the Toledo Bend and Lake Palestine reservoir areas provide excellent examples of what can be accomplished along these lines.

4) Lastly, I am concerned that our investigations at specific Archaic sites are often too limited. A site, or component, is one of the most fundamental units of archaeological study and, if it has not been systematically and adequately sampled, we cannot accurately define intrasite patterns, settlement systems and sequences of culture change. The basic problem is that we have assumed rather than demonstrated, that a representative sample has been extracted from a site. Among the few exceptions to this are the surface-subsurface correlations made at three sites in Cooper Reservoir (Hyatt and Doehner 1975: 73-74). These critically compare several surface sampling techniques as well as evaluate the use of controlled surface collections as guides to excavation. Unfortunately, such studies are infrequent and there are no analogous examples to guide the extent and spacing of excavations. How much of a site should be excavated in order to obtain data which typify the site as a whole? Until this problem is recognized and resolved, we run the risk of using biased samples to explain the Archaic of east Texas.

SUMMARY

As initially defined in 1954, the Archaic of east Texas was a nebulous, largely hypothetical construct. This construct assumed that the occurrence of certain dart point styles represented a long-lived, static tradition which was composed of mobile hunters and gatherers and which was eventually replaced by sedentary, village-dwelling Caddoans. Research carried out since has added disappointingly little to this view, probably not so much because it is correct, but rather because our thinking about the Archaic of east Texas has remained nebulous and static.

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THE CENTRAL TEXAS ARCHAIC RECONSIDERED

Frank A. Weir

Pioneering efforts in the archaeology of central Texas were by Dr. J. E. Pearce (1932) of the University of Texas, Austin. He was primarily interested in the burned rock or "kitchen" middens, archaic manifestations which have generated interest in the area which continues to the present.

J. Charles Kelley (1947a, 1947b, 1959) was the first scholar to attempt to group central Texas archaeological materials into complexes according to the Midwestern Taxonomic System, a system proposed in 1939 (McKern 1939). It was he that termed the archaic materials of central Texas the *Edwards Plateau Aspect*, including foci, based primarily on variations of projectile point types. Since that time, due mainly to the mixed nature of the archaic sites and the shared and seemingly inconsistent traits of his framework, Kelley's *Clear Fork*, *Round Rock*, and *Uvalde* foci have, for the most part, fallen from use.

Kelley (1949a, 1959) regards the *Edwards Plateau Aspect* as one of several manifestations of a larger cultural horizon, the *Balcones Phase*, that apparently has a great deal in common with the archaic complexes of the southeastern United States and the "Desert Cultures" of the Southwest.

Kelley's work is probably one of the better applications of the Midwestern Taxonomic System, even if in a somewhat modified form.

With the publication of the 1954 Bulletin of the Texas Archeological Society, titled *An Introductory Handbook of Texas Archeology* (Suhm *et al* 1954), the various interpretations of Texas archaeology have been brought together in a single volume. This volume recognizes the various archaeological areas of Texas and provides a resumé of each. The authors also have taken the lithic projectile points and the ceramics of the State and arranged them into spectrum of types which are still in use today.

In 1960, Dee Ann Suhm presented a highly comprehensive study of the historical developments of archaeology in central Texas up to that time. The Archaic *Edwards Plateau Aspect* and the Late Prehistoric *Central Texas Aspect* emerged as the most useful cultural units defined for the area. In the Archaic, the *Edwards Plateau Aspect* was thought to embrace preceramic assemblages dating from about 5000+ B.C. to about A.D. 500+. Still attempts at this time to recognize consistent and significant subdivisions within the *Edwards Plateau Aspect* had been unsuccessful (Suhm 1960).

The first major revision of Kelley's framework came in 1962 with the publication of the Canyon Reservoir investigations by Johnson, Suhm, and Tunnell. They distinguished *Early*, *Middle*, *Late*, and *Transitional* Archaic periods within the *Edwards Plateau Aspect*, based primarily upon variations of projectile point types. Although their Early, Middle, and Late had been,

for some time, a part of the archaeologic vernacular, their Transitional Archaic was new and included assemblages that contained dart point types which occur prior to the introduction of the bow and arrow, and probably persist after this introduction. These points are the Darl and Provisional Type III (now called Figueroa) with an early persistence of the Ensor type (Johnson *et al* 1962: 121). The Early Archaic as defined by Johnson and his colleagues is characterized principally by Nolan, Travis, and Bulverde point types; the Middle Archaic is characterized by the abundant Pedernales point type with an early coevality with the Bulverde type; and the Late Archaic is distinguished by the Montell, Marcos, Frio, and Ensor, and possibly by the Castroville, Marshall, and Fairland point types.

Not recognized in the Johnson *et al* periodization is the presence of still another period--that which immediately follows the so-called Paleo-Indian and precedes their Early Archaic.

In 1963, Harry Shafer published results of the Youngsport excavations where he found a type of point he called Gower, stratigraphically below Nolan and Travis--types of Johnson, Suhm, and Tunnell's Early Archaic (*ibid*, 1962).

The next year, Johnson (1964) presented evidence that a variety of Archaic-appearing dart points occurred along with a Plainview variety. Although this occurrence of "early barbed" points is immediately southwest of central Texas, a cursory overview of many collections from the Edwards Plateau reveals a long overlooked occurrence of similar points in extremely Early Archaic context.

In 1938 and 1939, E. H. Sellards found corner-notched points in Late Pleistocene deposits (Sellards 1940). Sellards' sites in Bee County, Texas, although in the Coastal Plain region of Texas, were an early indication that notched points were in fact, occurring with terminal Paleo-Indian point types and fossil fauna. Wormington (1957: 66) suggests secondary deposition for the deposits. Sellards, however, indicated the deposits were primary. Granting Sellards was right, Wormington (1957), therefore postulated a situation that is a transition from Paleo-Indian to Archaic. Still, these notched points have *never* been included in any major taxonomy or chronology.

Wanting to name this Paleo-Indian/Archaic transition, Sollberger and Hester (1972: 339) designated it the "Pre-Archaic," a cumbersome tag which should not be confused with Krieger's Protoarchaic (Krieger 1964: 59-68).

In Johnson's *Toward a Statistical Overview of the Archaic Cultures of Central and Southwest Texas* (1967), a study showing the inescapable relationship of the two areas, the "early barbed" assemblages are included in his Period II along with the Early Archaic projectile point types Nolan, Travis, and Bulverde. In this work we are presented with an endeavor directed at correlation and periodization of prehistoric

materials which intended to place less emphasis on type names as such, but more on morphology and gross size of projectile points. However, Johnson distinguished his periods using period markers which were comprised of recognized point types. His Period Marker *A* is the Lerma point; Period Marker *B*, the Plainview-Angostura and Plainview Golondrina; Period Marker *C* is the "early barbed"; Period Marker *D* includes Pandale, Nolan, Travis, and Bulverde; Period Marker *E* includes Shumla, Almagre, and Langtry; Period Marker *F* is Perdernales; Period Marker *G* is Montell; Period Marker *H*, the Ensor and Frio types; Period Marker *I* the Darl, Figueroa, and Godley types; and Period Markers *J* and *K* include the Scallorn, Perdiz, Bonham, and Livermore types.

The first of Johnson's five periods (Period I) is designated by Period Markers A and B. Period II is indicated by C and D. Period III combines Period Markers E, F, and G, and Period IV includes Period Markers H and I. Period V is Neo-Indian or Late Prehistoric.

Periods III and IV, as marked, deviate somewhat from the periods of Johnson, Suhm, and Tunnell by differing the segregation of the period markers. Johnson made a cursory attempt to work other forms of lithic artifacts into the scheme, but for the most part he found them unsuitable. Overall, his periodization has found only limited acceptance.

With *Excavations at Stillhouse Hollow Reservoir* (Sorrow *et al* 1967), a sequence of ten "local phases" is developed based again on projectile point types and their probable temporal placement. As was recognized at the Devil's Mouth site in southwest Texas (Johnson 1964; Sorrow 1968), the Stillhouse Hollow report again demonstrated a possible short-term coevality of basal and corner-notched points ("early barbed") with terminal Paleo-Indian projectile point types. This report, like so many before and after, is still working towards periodizations although they are called local phases.

Although most Texas archaeologists are referring to the Central Texas Archaic in terms of Early, Middle, and Late, it seems as if some are creating periods suited only for particular sites (Word and Douglas 1970). Word developed six periods at Baker Cave while deviating from or discounting those from previous publications (see Johnson 1967).

So far we are faced with several periodizations which may or may not be consistent with each other. The various authors seem to be adding little more than confusion if one were to attempt to utilize the various schemes. Periodizations suffice as long as they are free of chronological interruption, are internally consistent, and are not intended as an end in themselves but are the basis for explaining culture-historical events. Thus far, the periods have been treated as ends in themselves and have not explained the prehistoric cultural events.

Other systems, such as the McKern system, have been applied in central

Texas, but as has been stated previously, this scheme did not totally suit the evidence. Even the term aspect, which has been sustained for so long, seems inappropriate. It is too gross and does not allow one to talk about the people or the events behind the archaeological remains. The scope and variation of the *Central Texas Archaic* exceeds the definition (McKern 1939) of aspect. It is with this in mind that I have chosen to drop the term aspect and divide the Archaic stage in central Texas into five easily recognizable phases. Based in part on C^{14} dates (see Table 1) they are as follows.

The *San Geronimo Phase*, the earliest and longest, begins before 8000 B.P. and terminates about 4700 B.P. This is the time block that is marked by "Early Barbed," Bell, Gower, and Uvalde point types.

The *Clear Fork Phase* would compare to the Johnson *et al* Early Archaic period (of Johnson *et al* 1962) and fall between 5000 and 4000 B.P., a time when burned rock middens begin to accumulate and occupations are marked by Nolan, Travis, and Bulverde dart points.

The *Round Rock Phase* has been generally referred to as the Middle Archaic. The duration for this manifestation is approximately 4200 to 2600 B.P. This seems to be an occasion for coalescence of the Archaic in central Texas with a domination of assemblages by the Perdernales dart point and a proliferation of Round Rock sites.

The *San Marcos Phase*, falling between 2800 and 1800 B.P., sees a decrease in population for the area and a trend towards bison hunting. The substage is marked by a number of point types, namely Marshall, Castroville, Montell, Marcos, Frio, and Ensor.

The last, the *Twin Sisters Phase*, is indicated by the presence of Ensor, Frio, Darl, Godley, and other small dart point forms. This substage, occurring between 2000 and 700 B.P., marks the last of the Archaic manifestations and may in fact overlap the Late Prehistoric by as much as 700 years.

I do not believe that the above approach will be as unyielding as the too simplistic tripartite division of the Edwards Plateau Aspect. Of course, a numbering system could have been applied to the substages as I see them; however, with the possible recognition of additional components within a numbering system, the system would have to be renewed time and again. By assigning names, the system becomes non-restrictive and allows for, if necessary, substitution, addition, or elimination of proposed designations. But more importantly, it allows for interpretation of the archaeological record in terms of human behavior and interaction.

This system for handling the Central Texas Archaic is intended to be simple. If it is acceptable, use it. If not, reject it. It is not intended or desired to be the last word on the subject.

TABLE I.

A Correlation of Indicator Projectile Points & C-14 Dates

POINT TYPE	C-14 DATE B.P.	PROVENIENCE	SITE	PHASE
Frio & Ensor	670±80	Zone 2	Dunlap	Twin Sisters
	780±90	Zone I	Three Dog	
	820±70	" "	" "	
	840±70	" "	" "	
	1150±450		Kincaid	
Ensor	1300±60		Loeve-Fox	
Ensor & Darl	1670±100		" "	
Darl	1480±170		" "	
	1480±80		" "	
	1600±110		" "	
Ensor	1380±60	Stratum 2	Arenosa	
	1400±130	Fiber Layer	Bonfire	
	1690±80	" "	"	
Frio & Ensor	1910±70	Stratum 5	Arenosa	
	1970±110	Stratum 7	"	
Montell	1950±130		Pecan Springs	
Marcos	2070±140	Stratum 9	Arenosa	San Marcos
Montell	2410±140	Stratum 11 (top)	"	
	2440±140	Stratum 11	"	
Montell, Marcos,	2310±210	Bone Bed III	Bonfire	
Castroville & others	2510±100	" " "	"	
exp. stem dart pts.	2780±110	" " "	"	
	2810±110	" " "	"	
Pedernales or	3050±120	Lower II, base	Centipede	
equivalent	3330±110	Zone III	Fate Bell	Round Rock
(Langtry/Val	3570±650	Zone I	Oblate	
Verde)	3220±70	Stratum 21	Arenosa	
	3640±80	Stratum 22	"	
	4080±380	Stratum 23	"	
Pandale or	4100±150	Stratum 23d	Arenosa	Clear Fork
equivalent	4430±80	Stratum 23d & 25	"	
(Travis & Nolan)	4790±150	" " "	"	
	4450±150	Stratum 28	"	
	4670±70	Stratum 30	"	
	4520±120	Stratum II	Eagle Cave	
	4580±110	" "	" "	
	4740±280	" "	" "	
"Early Barbed", Bell,	5360±170	Stratum 32	Arenosa	
Gower, Uvalde, etc.	5550±260	Stratum II	Eagle Cave	San Geronimo
	6060±240	Stratum IV	" "	
	6110±220	Stratum III	" "	
	7240±220	Intermediate Horizon	Bonfire	
	8540±120	Stratum V	Eagle Cave	
	8760±150	" "	" "	

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LATE ARCHAIC OCCUPATIONS AT THE LOEVE-FOX SITE: THE SAN MARCOS AND TWIN SISTERS PHASES

Elton R. Prewitt

This paper will concentrate on a definition of components from the Loeve-Fox Site which are assignable to the San Marcos and Twin Sisters phases of the Archaic stage. The assemblages will be interpreted in light of the associated faunal remains and the geological context of the site. Data retrieved from other sites in the vicinity of the Loeve-Fox Site will be used to support the overall interpretations.

The Loeve-Fox Site is located on the left (north) bank of the San Gabriel River in eastern Williamson County, Texas, near the community of Circleville. The site is within the confines of Granger Lake (under construction) about 40 miles northeast of Austin. Test excavations at the site were conducted from late 1972 until early 1974; the work was done in part by students from the University of Texas at Austin as a weekend dig, other work was done by a University of Texas at Austin archaeological field school, and some work was done by the Texas Archeological Survey under contract with the National Park Service. With the exception of the field school which was supervised by Dee Ann Story, all the work was under the supervision of the author. A detailed report of the excavations through 1973 has been published (Prewitt 1974).

Loeve-Fox is essentially typical of the terrace sites scattered abundantly along the middle reaches of the San Gabriel River. It is deep -- about 20 or 25 feet; the bottom of the site has not been found as yet -- and the alluvial matrix consists primarily of redeposited clays derived from Houston Black Clays; these soils are typical of the Blackland Prairie into which the river is entrenched (Godfrey, McKee, and Oakes 1973; Fenneman 1938: 108). The underlying geologic formations consist of various marls and clays of the Mezozoic age Taylor Group (Sellards, Adkins, and Plummer 1932: 455-479); the modern flora and fauna are representative of the Texan Biotic Province (Blair 1950: 100-102).

An esthetically pleasing -- and economically rewarding -- grove of large native pecan trees covers the Loeve-Fox Site at the present time and dense brush shrouds a recent gully which has eroded through the north end of the site. A series of cold springs emanating from Pliocene or Pleistocene gravel deposits discharges a constant flow of water into the gully. A shallow fossil river channel scar separates the northwest margin of the site from the adjacent upland prairie while open grassland which was formerly cultivated extends to the west and southwest. Another shallow meander scar limits the site on the south side. The modern river channel has begun to erode the eastern flank of the site.

EXCAVATION RESULTS

Test excavations at the Loeve-Fox Site have thus far been concentrated within the upper six feet of the deposits. Minor probes have reached a depth of 10 feet, and cultural debris has been observed eroding from the gully walls at a depth of about 20 feet. The upper one-and-a-half feet to two feet of the deposits contain artifacts, features, and other debris assignable to the Austin and Toyah phases of the Central Texas Aspect -- an analytical construct which embraces the post-Archaic time period. A sharply delimited cemetery used during the Austin phase occupation intrudes into the underlying deposits which contain Late Archaic cultural debris. It is with the set of deposits which contains Late Archaic materials and which extends from about two to six feet below the modern ground surface that the present analysis is concerned.

Time diagnostic artifacts indicate these deposits accumulated during what Frank Weir (1976) proposes to designate as the San Marcos and Twin Sisters phases. These time constructs within the Archaic Stage are not intended as an end in themselves, but as analytical tools to be used in developing explanations of cultural events.

Projectile points are the most stylistically varied of the artifacts encountered in the excavations. Two types, Darl and Ensor, predominate with Ensor generally occurring slightly earlier than Darl. Both styles are characteristic of the Twin Sisters Phase. Three types characteristic of the San Marcos Phase, Marcos, Marshall, and Montell, appear infrequently with the Ensor specimens.

Now that the general time range being dealt with has been established, attention can be focused on the bulk of the cultural debris other than projectile points. A variety of tools, waste material, features, and faunal remains are represented. Chipped stone specimens include several morphological groups of thin bifacially worked pieces which could have served as cutting implements, or in some cases they may represent unfinished tools. Broken specimens were sorted into two basic groups; the first group appears to have been broken or discarded during manufacture and the second appears to have been broken through use (Prewitt 1974: 95, Table VI). The presumed manufacturing failures outnumber the use failures by nearly two to one. No theories explaining this aspect of the material culture is presented as yet.

A few Clear Fork gouges and several Erath bifaces (chipped stone axes) are probably from the Twin Sisters deposits; unfortunately all these specimens were discovered during casual excavations by Clarence Loeve and their provenience is uncertain. Large choppers and partially expended cores occur sporadically. Unifacially chipped items include small and large concave scrapers as well as edge-damaged (or utilized) flakes. Great quantities of waste chipping debris -- nearly 8,000 flint flakes -- occurred. Fragments of apparent flaking tools -- ulna spatulates and modified antlers -- were found along with the chipping debris. A few hammerstones were found by Mr. Loeve, but their

context is uncertain. Most of the grinding slab fragments and the only handstone were also found by Mr. Loeve, but two fragments of grinding slabs were found in Twin Sisters contexts during the controlled excavations.

Features associated with the Twin Sisters and San Marcos Phases include stone-lined hearths, ash pits, an ash lens, burned clay concentrations, and mussel shell concentrations. The dozen stone-lined hearths associated with this occupation are all basin-shaped and range from a little over one foot to about three-and-a-half feet in diameter; they range from one-half foot to one-and-a-half feet in depth. Lump charcoal occurred in several of the excavated hearths; radiocarbon assays from two of these will be discussed later. One of the stone-lined hearths had a small pile of burned rocks nearby. These stones suggest two possibilities: 1) they represent stones from previous hearths and were salvaged for re-use; or 2) they represent stones removed from the hearth while heated and which were used for stone boiling or other indirect heating tasks.

Three of the four ash pits have small piles of burned rocks adjacent to them. These pits range from one-and-a-half to two-and-a-half feet in diameter and from one-half to one-and-a-half feet in depth. They are filled with charcoal and ashes and appear to be cooking pits. A radiocarbon sample from one of the ash pits was assayed and will be discussed later.

The single ash lens was observed in the walls of a backhoe trench and was not fully explored.

The two burned clay concentrations associated with the Twin Sisters and San Marcos Phases appear to be burned tree stumps rather than cultural features. If this proposition is valid, then the stumps burned during prehistoric times since intact cultural features were found to overlie them.

A mussell shell concentration was adjacent to one of the ash pits. The 24 mussel shells (cf. *Lampsilis* sp.) were placed in a pit a little over one-half foot in diameter and one foot deep. The shells were placed on edge around the sides of the pit and then nestled into each other in the interior. It appears the ventral edges of some of the shells have been smoothed. Mr. Loeve reported finding a similar cluster of mussel shells in what seems to be a Twin Sisters or San Marcos Phase context. In both cases, there are 13 left valves and 11 right valves represented. It does not seem likely that food refuse would be carefully placed in small pits; logically, then it can be expected that the shells were used as tools or for ornamentation. Since none seem to be modified for ornamental use, they would have to be considered as raw material collected for future modification. Two finely worked mussel shell ornaments were found by Mr. Loeve, but they were reportedly found in a Central Texas Aspect context. Since no mussel shell ornaments were found in a Twin Sisters or San Marcos Phase context, this leaves only one interpretation -- that the shells were indeed used as tools and that the concentrations are deliberate caches of tools.

Faunal remains suggest a variety of animals were either residents of the site or were collected as food sources. Deer, turtle, snake, gopher, field mouse, squirrel, and rabbit have been identified in the present collections. Deer is surpassed in the number of individuals represented by the combined groups of rodents; but, it would seem that deer was the single most important animal in terms of total food yield. Mussel shells (cf. *Lampsilis* sp.) scattered frequently through the deposits may also represent a minor food source. Shells of various snail species (such as *Rabdotus* and *Polygyra*) are abundant but are interpreted to have accumulated in fortuitous association with the cultural deposits.

CHRONOLOGY

A series of six radiocarbon samples collected from Twin Sisters Phase contexts were assayed from the Loeve-Fox Site. One sample, Tx-1924, was too small for accurate assay and may be disregarded. The remaining five samples, an additional sample from the Dobias-Vitek Site (41 WM 118) located just downstream from Loeve-Fox, and one sample from the Pohl Site (41 CM 27) rounds out the list of apparent reliable published radiocarbon dates for the Twin Sisters Phase.

No samples from the San Marcos Phase have been collected at the Loeve-Fox Site although it is expected that future excavations will yield datable material from discrete features such as hearths. Seven assays from other sites provide what appears to be a reliable chronological range for the San Marcos Phase. These 14 assay results and 39 others from post-Archaic contexts are illustrated in Figure 1. Except for the four most recent dates in the Toyah Phase (which fall within the range of the Seuss effect), the Arizona Dendro-chronologic Correction (Damon and other 1974) has been applied to these assays.

This same group of dates was illustrated in the Loeve-Fox report (Prewitt 1974: Fig. 6) but in uncorrected form. The application of the Arizona Correction has resulted in minor adjustments to the beginning and ending dates of the several analytical constructs from those presented in the Loeve-Fox report. The interpretation favored here is that the San Marcos Phase began about 2600 B.P. and lasted until about 1750 B.P. There is probably a continuum represented in the transition to the Twin Sisters Phase which began about 1750 B.P. and ended around 1250 B.P. There may be a break between the Twin Sisters Phase and the following post-Archaic Austin Phase of the Central Texas Aspect; however, more assay results may erase this seeming break and indicate a smoother overlapping transition similar to that between the Austin Phase and the Toyah Phase. Numerous assays from reliable contexts are needed to support or refute the present interpretation.

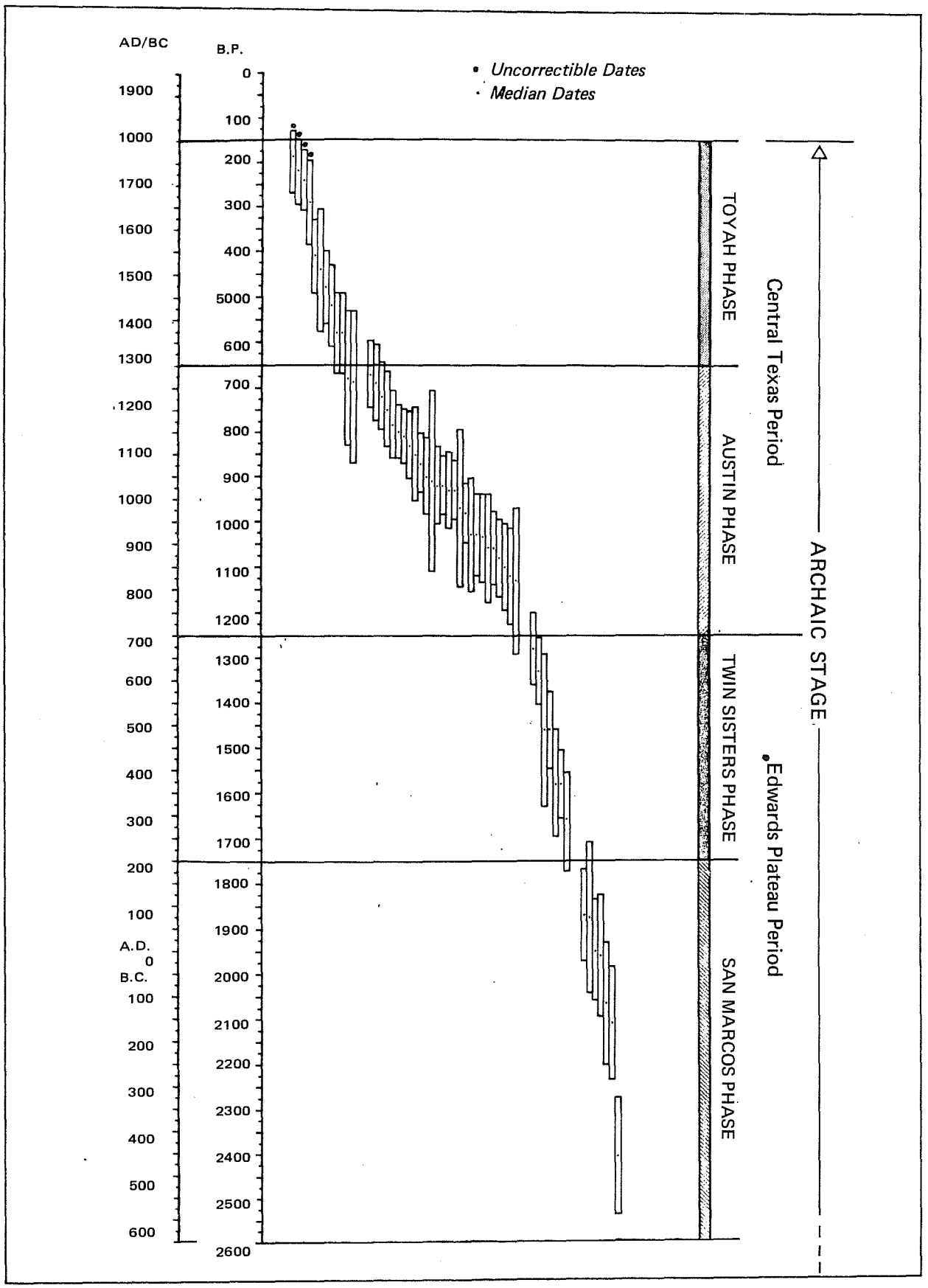

Figure 1. *Central Texas Radiocarbon Chronology.* Modified from Prewitt, 1974.

DEPOSITIONAL CONTEXT

Detailed discussions of the depositional history of the Loeve-Fox Site are included within the excavation report (Prewitt 1974: 16-22) and need not be repeated here. The major feature of the geologic record is that the original encampment at the Loeve-Fox Site may have been on a low levee paralleling a fossil Pleistocene age river channel. There appears to have been a shallow backswamp slough adjacent to the levee and subsequent deposition of sediments has maintained the basic surface topography of channel scar, levee, and shallow slough. The occupational debris is concentrated on the postulated levee and across the slough on an apparent flood plain surface. This situation has led to the deposits on the flood plain being more telescoped than those on the levee and future excavations in that area of the site may yield more discretely separated materials relatable to the Twin Sisters and San Marcos Phases.

The apparent fossil topography may have had other ramifications as well. The Pleistocene channel scar is essentially straight and indicates a heavier runoff load and higher gradient than at the present. As the runoff load decreased and the river valley began to fill, the levee-backswamp slough persisted with enough topographic relief so that the next discernible channel change went around the Loeve-Fox Site. The meander system has continued to develop and change until the present situation where the river is beginning to erode those portions of the site farthest away from the fossil levee.

INTERPRETATIONS

The data collected from a Twin Sisters and San Marcos Phase context at the Loeve-Fox Site thus far are interpreted to indicate that the remains are those of food collectors who inhabited the area about 1250 to 1800 years ago. These people were utilizing a flood plain habitat which provided access to a variety of resources. The nearby river channel not only provided a ready source of potable water; it also provided a source for fish, turtles, some snakes, and freshwater mussels for food. Chert cobbles and mussel shells were available for tools.

Deer and a variety of rodents were collected both from the wooded flood plain and the nearby prairie. The presence of grinding stones indicates that some items -- presumably certain grass seeds -- were milled. Chipped stone axes, gouges, concave unifaces, and probably some of the edge-damaged flakes may indicate that woodworking activities were carried out on or near the site. Knapping tools and profuse chipping debris indicate that chipped stone tools were manufactured on the site. Fire hearths and ash pits attest to the cooking activities of these peoples. Some degree of permanency or repeated occupation of the site is suggested by the presence of mussel shell tool caches and

the cache of serviceable burned rocks which may have been salvaged from previously used hearths.

The picture that emerges is one of a lifeway which was successful for the exploitation of available resources using the tools of a food collecting technology. The known distribution of sites along the central San Gabriel River Valley leads one to believe that these people moved frequently in order to take full advantage of their environment. It is further suggested by this pattern that site locations were consciously chosen and that the resultant accumulation of debris at these specific loci was not fortuitous, but that the site loci were specifically selected in order to facilitate exploitation of a system of natural resources. It has been argued by Frank Eddy (1973, 1974) that these peoples (as well as their predecessors and successors) were "efficiently lazy" as a result of their "locational strategies and resource management." The term "management" implies a conscious manipulation of resources in a manner designed to conserve them rather than to exploit them. That does not seem to be the case -- these people simply went where they knew they could best find the food and other resources they needed.

If "exploitive system" is substituted for "management system," then Eddy's conclusion that sites were located near but not necessarily at the most worthwhile of a set of unequally valued resources is acceptable. However, that conclusion does not explain adequately the system used by the peoples of the San Marcos and Twin Sisters Phases. The model favored here may be compared to the controlled grazing system utilized by modern cattle raisers although it is emphasized that it is doubtful the prehistoric peoples were consciously using management principles as do the modern example.

Drawing both from Eddy's work and the Loeve-Fox data, the following model is proposed to explain the exploitive system for the central San Gabriel River occupations during the San Marcos and Twin Sisters Phases:

1. The proximity of the most desirable of unequally valued resources (predominantly food as opposed to raw materials for tools) partially determined site locations.

   HYPOTHESIS: Prehistoric campsites will be found to reflect a consistently patterned distribution in relation to the proximity of unequally valued resources as determinable from paleoenvironmental data.

2. Site locations were determined in part by their surface topography.

   HYPOTHESIS: Prehistoric campsites will be found

to occur on areas which are consistent in their paleotopography.

3. Knowledge of specific site locations was retained by the peoples inhabiting the area, or alternatively, circumstances determining the choice of site locations were relatively constant through time.

   HYPOTHESIS: Prehistoric campsites will be found to reflect evidence of repeated use consistent with each site's paleotopographic features and proximity to resources.

4. When available resources at a given site were temporarily depleted to a certain point of efficiency in energy expended versus yield, then the people moved to another site with the foreknowledge that a suitable, previously used, site was available.

   HYPOTHESIS: Prehistoric campsites will be found to be relatively numerous and will reflect repeated use.

5. Seasonal variations of available resources may have dictated the need of the people to move from one locality to another.

   HYPOTHESIS: Prehistoric campsites will be found to contain evidence that certain resources which are available only during certain seasons of the year were collected or utilized and that the locus of any site or set of sites will covary with the paleodistribution of those resources.

6. Regardless of whether seasonality or simple temporary resource depletion was responsible for these people moving from one site to another, each site was repeatedly occupied through time.

   HYPOTHESIS: Prehistoric campsites will be found to reflect repeated use through the accumulation of debris in deep stratified contexts.

This model is designed in such a manner that it can be tested by careful scrutiny of the archaeological resources known to exist along the San

Gabriel River. Specifically, it is anticipated that further investigations at the Loeve-Fox Site and several other sites at Granger Lake combined with co-ordinated investigations at North Fork Reservoir will yield information relevant to the material culture assemblage, the fluvial history of the river and its valley, the faunal assemblage, and possibly other aspects of the cultural and natural history of the region.

This information may serve to substantiate, revise, or refute the model proposed above. In any case, the model can be tested and the information used to further our knowledge and understanding of the prehistoric peoples of Central Texas whose remains we have prosaically labelled the San Marcos and Twin Sisters Phases of the Archaic Stage.

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TABLE I

Radiocarbon Assays from the Twin Sisters Phase, the Dobias-Vitek and Loeve-Fox Sites, Granger Lake

Sample No.	Uncorrected B.P. Date	Arizona Correction	Uncorrected B.C./A.D. Date	Arizona Correction
Tx-804	1350±70	1330±70	A.D. 600±70	A.D. 620±70
Tx-1766	1600±110	1580±115	A.D. 350±110	A.D. 370±115
Tx-1767	1480±170	1460±170	A.D. 470±170	A.D. 490±170
Tx-1922	1670±100	1660±105	A.D. 280±100	A.D. 290±105
Tx-1926	1300±60	1280±80	A.D. 650±60	A.D. 670±80
Tx-1927	1480±80	1460±85	A.D. 470±80	A.D. 490±85

Table II

Radiocarbon Assays Illustrated in Figure 1

Sample Number	Uncorrected B.P. Date	Arizona Correction	Site Name and Number	Reference
S-MC C-1	685±165	700±170	Kyle, HI 1	Jelks 1962:97
S-MC C-4	980±170	970±175	Kyle, HI 1	Jelks 1962:97
S-MC C-5	400±130	440±135	Kyle, HI 1	Jelks 1962:97
S-MC C-6	1150±150	1130±160	Kyle, HI 1	Jelks 1962:97
S-MC C-8	670±150	680±150	Kyle, HI 1	Jelks 1962:97
Tx-8	1140±90	1120±105	Punkinseed Shelter, TV 48	Stipp et al. 1962:49
Tx-70	1040±85	1030±90	Penny Winkle, BL 23	Tamers et al. 1964:150
Tx-71	290±95	*	Penny Winkle, BL 23	Tamers et al. 1964:150
Tx-72	1080±110	1060±120	Penny Winkle, BL 23	Tamers et al. 1964:150
Tx-74	1040±120	1030±125	Barton Springs Rd., TV 87	Tamers et al. 1964:143
Tx-75	920±200	910±200	Punkinseed Shelter, TV48	Tamers et al. 1964:151
Tx-98	560±80	580±90	Kyle, HI 1	Tamers et al. 1964:149
Tx-99	560±80	580±90	Kyle, HI 1	Tamers et al. 1964:149
Tx-119	1870±160	1875±165	Pohl, CM 27	Pearson et al. 1965:306
Tx-121	2040±130	2065±135	Pohl, CM 27	Pearson et al. 1965:306
Tx-122	1600±70	1580±75	Pohl, CM 27	Pearson et al. 1965:306

Table II (cont.)

Sample Number	Uncorrected B.P. Date	Arizona Correction	Site Name and Number	Reference
Tx-200	2080±80	2110±125	Britton, ML 37	Pearson et al. 1965:305
Tx-201	2330±80	2405±130	Britton, ML 37	Pearson et al. 1965:305
Tx-233	1865±95	1870±100	Britton, ML 37	Pearson et al. 1966:461
Tx-234	1940±110	1950±115	Britton, ML 37	Pearson et al. 1966:461
Tx-323	1950±130	1960±135	Pecan Springs, EL 11	Valastro et al. 1967:447
Tx-340	1050±90	1035±95	Evoe Terrace, BL 104	Valastro et al. 1967:447
Tx-504	200±70	*	Smith Shelter, TV 42	Valastro & Davis 1970a:271
Tx-505	370±70	410±80	Smith Shelter, TV 42	Valastro & Davis 1970a:271
Tx-506	940±80	930±85	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-507	800±50	800±60	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-508	490±80	520±90	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-509	240±70	*	Smith Shelter, TV 42	Valastro & Davis 1970a:271
Tx-510	220±70	*	Smith Shelter, TV 42	Valastro & Davis 1970a:271
Tx-511	930±80	920±85	Smith Shelter, TV 42	Valastro & Davis 1970a:273
Tx-512	930±60	920±65	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-513	680±80	690±85	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-514	450±70	480±80	Smith Shelter, TV 42	Valastro & Davis 1970a:272

Table II (cont.)

Sample Number	Uncorrected B.P. Date	Arizona Correction	Site Name and Number	Reference
Tx-515	1120±80	1100±95	Smith Shelter, TV 42	Valastro & Davis 1970a:273
Tx-516	740±80	750±85	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-518	830±70	830±75	Smith Shelter, TV 42	Valastro & Davis 1970a:272
Tx-664	710±70	720±75	LaJita, UV 21	Valastro & Davis 1970b:634
Tx-665	910±80	900±85	LaJita, UV 21	Valastro & Davis 1970b:634
Tx-681	990±60	980±65	LaJita, UV 21	Valastro & Davis 1970b:634
Tx-684	810±50	810±60	LaJita, UV 21	Valastro & Davis 1970b:634
Tx-685	1100±70	1080±85	LaJita, UV 21	Valastro & Davis 1970b:635
Tx-687	660±70	670±75	LaJita, UV 21	Valastro & Davis 1970b:634
Tx-804	1350±70	1330±75	Dobias-Vitek, WM 118	Valastro & Davis 1970b:633
Tx-806	770±70	785±75	Dobias-Vitek, WM 118	Valastro & Davis 1970b:633
Tx-1764	1080±60	1060±80	Loeve-Fox, WM 230	Valastro, pers. comm.
Tx-1765	850±100	850±105	Loeve-Fox, WM 230	Valastro et al. 1975:83
Tx-1766	1600±110	1580±115	Loeve-Fox, WM 230	Valastro et al. 1975:83
Tx-1767	1480±170	1460±170	Loeve-Fox, WM 230	Valastro et al. 1975:83
Tx-1922	1670±100	1660±105	Loeve-Fox, WM 230	Valastro, pers. comm.
Tx-1923	940±60	930±65	Loeve-Fox, WM 230	Valastro, pers. comm.

Table II (cont.)

Sample Number	Uncorrected B.P. Date	Arizona Correction	Site Name and Number	Reference
Tx-1925	870±60	870±65	Loeve-Fox, WM 230	Valastro, pers. comm.
Tx-1926	1300±60	1280±80	Loeve-Fox, WM 230	Valastro, pers. comm.
Tx-1927	1480±80	1460±85	Loeve-Fox, WM 230	Valastro, pers. comm.

THE ARCHAIC OF SOUTHERN TEXAS

Thomas R. Hester

The archaeological area known as southern Texas encompasses a broad coastal plain, stretching east to west from the Gulf of Mexico to the Rio Grande, and with the Edwards Plateau and the Guadalupe River drainage constituting the northern and northeastern boundaries. It would take many pages to summarize what we do not know about the prehistory of this region, especially that period of time termed the Archaic. Considerable progress has been made in this regard over the past decade, but a tremendous amount of work still remains to be done. Recent summaries of the regional archaeology include Hester (1969; 1971; 1975a).

Of the past 11,000 years of south Texas prehistory, almost 7,000 years of time reflect occupations by hunting and gathering peoples in an Archaic-style lifeway. While the mode of existence probably differed little from that of the earlier Paleo-Indian period or the subsequent, and very brief, Late Prehistoric, the material culture left behind during the Archaic is quite distinctive. Moreover, sites and artifacts of this period dominate the archaeological inventory of most parts of the region.

In south-central Texas, the post-Pleistocene chronology mirrors that of adjacent central Texas (Sorrow, Shafer, and Ross 1967). However, the internal structure of the Archaic in the rest of southern Texas remains nebulous. Suhm, Krieger, and Jelks (1954) proposed the Falcon and Mier foci, archaeological congeries of essentially Archaic character in the Falcon Reservoir district.* Subsequent research has indicated that there are indeed distinctive archaeological remains in that area, but the foci definitions appear to be too simplistic (cf. Nunley and Hester 1975).

At an even higher level of generalization, Kelley (1959) has proposed the "Monte aspect" as part of the "Balcones phase", a construct subsuming the Archaic horizon over much of Texas. He suggests that there is "remarkable similiarity and simplicity of artifact complexes from site to site" (p. 283) and further proposes that chronological relationships can be established with MacNeish's Repelo focus and his later Abasolo focus (equivalent to Kelley's Monte Aspect). As more recent work has indicated (cf. Hester 1975a), the idea of a homogenous and monotonous south Texas Archaic is now obsolete. Furthermore, it appears to be of little use to attempt to correlate southern Texas materials with those cultural manifestations documented in northeastern Mexico (cf. MacNeish 1958); modern work has shown the areas to be highly different in terms of lithic assemblages and patterns of

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*Suhm, Krieger, and Jelks (1954) report a living floor of the Falcon Focus radiocarbon-dated at 2700 B.C. This remains the only chronometric date for the Archaic in the pre-Christian era.

adaptation.

Along the South Texas coast, the Archaic sequence has been the emphasis of recent studies by Corbin (1974; see also this volume). Near the northeastern periphery of southern Texas, archaeological research in Victoria County has revealed deep sites such as Johnston (41 VT 15) and Willeke (41 VT 16), yielding sequences beginning in the Late Paleo-Indian period and continuing into Late Prehistoric times. Most of the Archaic remains in that area appear to represent the locally-defined Morhiss complex.

CHRONOLOGICAL RESEARCH IN THE INTERIOR OF SOUTHERN TEXAS

Most archaeological research in southern Texas in recent years has been concentrated in the interior, in the area known ecologically as the Rio Grande Plain. In the course of intensive research at Chaparrosa Ranch in Zavala County, fieldwork in 1970, 1974, and 1975 has provided excavated and surface data relating to the Archaic. For example, there is evidence from high stream terraces flanking Turkey Creek (a major tributary of the Nueces River) of occupations during the "Pre-Archaic" period recognized in central and south-central Texas sites (cf. Sollberger and Hester 1972). Other surface sites yield a mixture of central and Trans-Pecos diagnostic point styles indicative of Early and Middle Archaic populations. The only excavated remains of Middle Archaic occupations come from 41 ZV 10, where Shumla-like dart points (cf. Hester and Collins 1974) are found, and are attributed to a possible Middle Archaic niche based on their stratigraphic occurrence in the adjacent lower Pecos area. In sites like 41 ZV 10, the Shumla materials are followed by smaller, notched forms (Ensor, Frio) which, on the basis of correlation with central Texas, be assigned to the "Late Archaic". Radiocarbon dates of A.D. 550 (UCLA-1821b) from 41 ZV 83 and of A.D. 415 (UCLA-1821c) and A.D. 770 (TX-1525) from 41 ZV 11 may be linked with these Late Archaic occupations. A small, stemmed form termed Zavala appears at the end of the Archaic and continues into the Late Prehistoric; these specimens probably functioned as arrow points, and they may be the equivalent of the Figueroa type Johnson (1964) found in a comparable temporal slot in the lower Pecos area.

We presently have little data from the Chaparrosa Ranch study area on the temporal span of associated Archaic tool forms, although there are a variety of unifacial and bifacial implements which fall into this period. Unifacial variants of the Clear Fork tool form may date from at least the middle part of the Archaic, based on a meager number of excavated and surface associations.

Along the Rio Grande to the west of Chaparrosa Ranch, Parker Nunley conducted excavations at the Stockley site (Maverick County) in summer, 1975. This terrace site yielded information on the late part of the Archaic sequence, and the data are currently under analysis.

OTHER RESEARCH IN THE SOUTH TEXAS ARCHAIC

As the preceding comments have indicated, we are still severely hampered by the absence of a solid chronology in southern Texas. Few sites have been dug, and chronological refinements will have to await more extensive excavations. However, other types of archaeological inquiry involving Archaic sites have made considerable progress, even as we continue to piece together the necessary culture-historical framework.

Settlement studies. Investigations of settlement distribution and intrasite patterning have been initiated. Nunley (1971a) and Shiner (1969) have looked at both of these problems at sites along the Rio Grande drainage in Webb County. The study of intrasite patterning has been a part of the Chaparrosa Ranch research program. Horizontal ("open area") excavations and controlled surface collecting have been employed in an effort to discern use-specific areas within archaeological sites. Shafer and Baxter (1975) have published the results of settlement distribution in McMullen County, and similar efforts have been made by Nunley and Hester (1975) in Starr County.

In general, settlement studies have demonstrated that there is a good deal of heterogeneity in distribution of sites during the Archaic. Some of these may represent temporal differences, but in the main they appear to reflect localized adaptational patterns. These differences are so distinct that they may often be recognized from one stream drainage to another. The sites along Turkey Creek on the Chaparrosa Ranch provide one example of settlement distribution. Paleo-Indian and Pre-Archaic sites are found on high terraces rimming the stream valley; later sites, particularly Late Archaic and Late Prehistoric are found near the present channels of the dendritic Turkey Creek drainage. They are often positioned in ecotone situations, making easy the access to a series of microenvironments which could be exploited from the campsite locus.

Functional differences are also observed among the sites on the Turkey Creek drainage (and along the drainage of the parallel Chaparrosa Creek to the west). Large campsites ("base camps") often occur as "occupation zones"--linear accumulations of campsite debris paralleling a stream channel. Satellite foraging and hunting sites are found on the margins of the floodplain and in upland areas. Lithic workshops are confined largely to outcrops of Uvalde gravels present on high terraces and divides.

Intrasite patterning is present in Archaic sites in the region, but specific types of excavation and controlled surface collecting techniques must be used in order to delineate and interpret these patterns. At Chaparrosa Ranch, excavated sites like 41 ZV 10 contain hearth areas, chipping loci, and pits for cooking and for debris disposal. Still larger areas of these "occupation zones" must be exposed to get an overall view of even a single occupational episode.

Lithic studies. Most of the earlier concern with south Texas lithics

involved typology. The amalgam of unstemmed forms that characterize the southern portion of the region do not lend themselves to easy typological analysis. Such typological constructs as Tortugas, Matamoros, Abasolo and Catan are of little utility and almost certainly represent overlapping functional, temporal, and morphological forms. An attempt to deal with the Archaic lithics in that area has been described by Nunley, using what he calls the "ideal typology" (in Nunley and Hester 1975). This scheme of artifact classification has not yet been extensively tested. Additionally, Joel Gunn is working on a computer-aided technique for sorting projectile point forms found on south Texas Archaic sites.

Most progress has been made in the area of lithic manufacturing processes. Shiner (1969) has used lithic debris at Webb County sites to make statements about site utilization and tool manufacture. Hester (1975c) has published a description of lithic industries in the region, with special emphasis on the Chaparrosa Ranch. He has used debris analysis in efforts to establish site function and to discover activity areas within sites (see also Hester and Hill 1973). The work of Fox *et al* (1974) is also significant in regional lithic studies.

Subsistence studies. Very limited faunal samples have been obtained from the small number of excavated Archaic sites in southern Texas. In most areas, it appears that faunal preservation is very poor; this contrasts with particularly good animal bone recovery from most Late Prehistoric sites.

The excavations at 41 ZV 10 on the Chaparrosa have permitted the first glimpse at Archaic faunal preferences. Associated with the Shumla occupations at the site were rat snake, cottonmouth, rattlesnake, bullfrog, turtle, horn toad, unidentified bird, pocket mouse, pack rat, cottontail rabbit, jack rabbit, raccoon, and deer. Bison and antelope, found in Late Prehistoric sites in the area (Hester and Hill 1975), are conspicuous by their absence. Large numbers of land snails and fragments of mussel shell, both representing potential food resources, are also present.

PROBLEMS FOR FUTURE RESEARCH

There are a wide range of problems to be attacked in the study of the south Texas Archaic. Chronology is one of the most obvious. Some progress has been made, and the picture will improve as the sample of excavated and tested sites increases. Adding to the chronological problem is the lack of organic material for chronometric dating. In most of these sites, charcoal is absent from the excavated components.

We have just begun the investigation of the major facets of Archaic lifeway, including the analysis of settlement, subsistence, and technological subsystems. Much can be done in these areas of research with only a sketchy relative chronology available for use; however, as these studies develop it will become even more essential that south Texas archaeologists

have a reliable chronology against which changes in the various subsystems can be evaluated.

Paleoenvironmental data are also sadly lacking. Tentative interpretations of the environment during the Late Prehistoric period have been offered (cf. Hester 1975b), based on archaeological and ethnohistorical data. Little can be said about the climate and environment of southern Texas for earlier periods. Nance (1972) has hypothesized the existence of an Altithermal interval in adjacent lower Pecos Texas and northeastern Mexico between 5500 and 2500 B.C. Attempts at palynological analysis in various parts of the region have ended in failure due to the lack of pollen preservation.

Further, we lack a solid ethnographic model to aid in our investigation of the regional hunting and gathering lifeway. For many years, some workers attempted to apply the generalized "Coahuiltecan" model (cf. Ruecking 1955; Newcomb 1961) to the local archaeological record. However, studies by Nunley (1971b) and more recently by Campbell (1975) have strongly suggested that the Coahuiltecan data are simply too fragmentary, and are derived from sources which are highly disparate in terms of time and geography.

Will it be possible to formulate models for regional research by extrapolating from ethnographic data derived from "arid lands hunters and gatherers" in similar environments around the world? Perhaps this will be of some value. But here I would inject a warning, stemming from the lack of paleoenvironmental information. The data from Late Prehistoric and early post-contact times suggests that the vegetational and faunal patterns of that period were significantly different from those observed over the past 200 or 300 years of the historic period. Was the Late Prehistoric era a "climatic optimum" or did it represent a long-standing environmental situation for much of southern Texas? Has southern Texas undergone cyclical changes in environment or has the climate steadily deteriorated (becoming more arid) since the end of the Pleistocene, with the exception of a period of ameliorated conditions during the Late Prehistoric? None of these questions can be answered in any form at the present. Thus, to apply models generalized from studies of hunter-gatherer groups in environments similar to those in contemporary south Texas is fraught with danger.

In sum, studies of the Archaic in southern Texas are still at a basic, data-gathering level. Many problems have been recognized, many data-oriented papers have been published (see the bibliography provided by Hester 1974), and some beginnings have been made in looking at particular aspects of the Archaic lifeway. Chronological ordering must regain a high priority if further, processual-oriented investigations are to be fruitful. Most of all, a problem-oriented approach should be applied by all archaeologists--professional and amateur--working in the region.

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THE ARCHAIC OF THE TEXAS COAST

James E. Corbin

A discussion of the Archaic period for the Texas Coastal region is hindered by two primary factors: 1) the paucity of archaeological investigations in the area, and 2) the lack of a consistent, relevant, and coherent definition of the term "Archaic." Since this second factor is a concern of other areas of this symposium, it will be considered only briefly here.

It is sufficient to note that, for the most part, culture change on the Texas coast appears to have been centered on an ever-increasing utilization of the littoral. During the prehistoric aboriginal occupation of the coast, a number of changes through time in artifact types have taken place which, although important to the archaeologist in terms of chronologies and distribution, seem to have had little effect on the general nature of the culture adaptation to that particular environment. I see nothing in the archaeological record as yet which indicates that the adoption of the technological clusters concerning ceramics and the bow and arrow (either at the same time or at different times) *necessarily* had any significant impact on the total cultural import of coastal cultures. Therefore, there seems little need now to separate these cultural entities into broad historically-based units such as Archaic and Neo-American, which have traditionally signified greater cultural changes (primarily in general lifestyle and subsistence base) than are indicated by most of the data for large portions of the Texas coast.

Although not particularly appropriate for a discussion of coastal cultures, the term Archaic for our present discussion will concern only those cultures typified by the occurrence of dart points. Even this conceptual convention can be misleading for there are good indications that in portions of the central coast area the descriptive arrowpoint types Fresno and Padre (Campbell 1964) are but diminutive forms of the earlier Matamoros and Catan. In addition, it is probable that some of the tools designated as dart points are not, but we will use the term to symbolize a data set in our discussion.

THE MIDDLE COAST

The primary limitation to a discussion of prehistoric coastal cultures (in addition to the conceptual problems discussed briefly above) is the very limited data base which we are forced to utilize in our formulations. This lack is tied directly to the paucity of controlled archaeological excavations in the entire coastal area. Prior to 1964, our knowledge of coastal archaeology was limited to the Middle Coastal area (from Baffin Bay to the Brazos River), and more specifically to the vicinity of Live Oak Peninsula in the southern half of the Middle Coast. With the survey of Padre Island in 1964 (Campbell 1964), Story's (1968) excavations, and Hester's (1969a) survey of portions of the Baffin Bay area, we essentially doubled our data base, but we still lack sufficient excavated sites to modify our present concepts for this area to any great degree. In essence,

our data for the Middle Coast are limited to the southern portion, i.e., from Baffin to Guadalupe Bay. This author's (Corbin 1974) reevaluation of cultural succession for the Central Coast can be modified only slightly for the Archaic period. That is, the earliest cultural manifestations for which we have any evidence seem to coincide with the formation of the barrier islands (*ca.* 2000 B.C.) which parallel most of the present coastline. Thus, if similarity of artifact types is any guide, cultural entities exploiting the barrier islands appear no different from those on the adjacent mainland coastal margins. Sites on mainland localities appear to have no greater time depth (presumably because earlier "coastal" sites are now under water) than mainland sites. Thus what we know of the Middle Coast Archaic appears to date no earlier than *ca.* 2000 B.C., and no later than *ca.* A.D. 1100-1200 (Story 1968). This is applicable for the present for the southern half of the area only.

Studies of dart point styles (Figs. 1 and 2) show some distinct chronological changes in dart point style popularity and some noticeable areal differences. It is interesting to note that the Catan-Matamoros relationship is essentially the same for northern Padre Island and the south end of Live Oak Peninsula, yet the relationship of Ensor to Catan and Matamoros shifts between the peninsula and the island. This again reflects the shift in popularity of stemmed VS unstemmed styles in the vicinity of Corpus Christi Bay-Nueces River as noted previously (Corbin 1974).

Sites of Archaic cultures of the southern portion (particularly the Live Oak Peninsula-Copano Bay area) of the Middle Coast are typified by sometimes rather extensive shell middens occurring on bay and/or lagoon margins. The primary shellfish represented are oyster, conch, scallop, and sunray clam, indicating that the occupants of the sites were mainly utilizing shore margins near open bays and lagoons, inlet, inlet-influenced areas, and low-salinity oyster reefs (Story 1968: 36-37). Other than mollusks, fish and deer also appear to be essential animal food sources. In addition to utilizing mollusks for food, inhabitants commonly used marine shell for tools and ornaments. An early phase typified by dart point styles Matamoros, Ensor, Palmillas, and Bulverde-Morhiss, incised bone ornaments, and conch gouges, is followed by a later phase expressed archaeologically by dart point styles Catan, Matamoros, and Ensor, and less emphasis on shell artifacts and incised bone work. We have no firm date for the early phase, but a date from a site on the Guadalupe River indicates that the Bulverde-Morhiss form(s) are earlier than *ca.* 250 B.C. (Paul McGuff, personal communication).

Much of the cultural entity (or entities) discussed above has been designated by Campbell (1947, 1952) and Suhm *et al* (1954) as the Aransas Focus. As stated by Story (1968) and Corbin (1974), it is felt that the more recent archaeological data indicate that the designation is much too restrictive, and this author feels it should

probably be dropped in favor of a term which is more inclusive, i.e., Aransas Complex. The Aransas Complex would then include all of that known Archaic archaeological culture (or cultures) along the coastal margin from Corpus Christi Bay to and possibly including Guadalupe Bay from sometime after 2000 B.C. to *ca.* A.D. 1200. In the area south of Corpus Christi Bay, including Baffin Bay and its immediate environs, there seem to be indications of a second complex, similar to the late phase of the Aransas, typified by dart point forms Matamoros, Catan, and other unstemmed styles. Indications are that the southern extreme of the Middle Coast was not heavily exploited by Archaic peoples and may represent a much more seasonal exploitation than occurs in the center of the area.

THE UPPER COAST

Most recent archaeological investigations on the Texas coast have concentrated on the Galveston Bay area, in the central portion of the Upper Coast. Research in the area is an on-going project and the data are still insufficient to make any but the most generalized statements about Archaic cultures.

Shell middens on bay, bayou, and stream margins are typical of Archaic sites in the Galveston Bay area. The earliest middens are composed primarily of *Rangia* shell, contain few artifacts, and apparently represent seasonal occupations. Later sites (after A.D. 100) contain a fairly well-developed ceramic complex and indicate a greater dependence on oyster (up to 50%) and deer (Ambler 1967). Dart points, infrequent in these sites, as are other types of non-ceramic artifacts, occur as late as A.D. 500 (Aten 1970). The earliest shell middens in the Galveston Bay area date to *ca.* 3500 B.C., but the preponderance of pre-ceramic Archaic sites indicates an occupation beginning about 500 B.C.

THE LOWER COAST

Archaeological research along the Lower Coast (from Baffin Bay to the Rio Grande) is essentially non-existent. Surveys and collections in the Brownsville area by Anderson and by Prewitt (1974) constitute the major part of the research. From these surveys, it is apparent that at least on the Texas coast side of the Rio Grande, the traditional Archaic does not appear to be present. Between this area of the Lower Coast and Baffin Bay we have no archaeological data, and therefore, have no knowledge of the Archaic or any other time period.

ARCHAIC COASTAL BURIAL COMPLEXES

Large, prehistoric cemetery areas occur in many areas of the coastal area, particularly the Upper and Middle Coast (Hester 1969b; Hester and Corbin 1975). For the most part, they have not been conclusively tied to other cultural manifestations, although most appear to be Archaic. Continued archaeological research in both burial and habitation

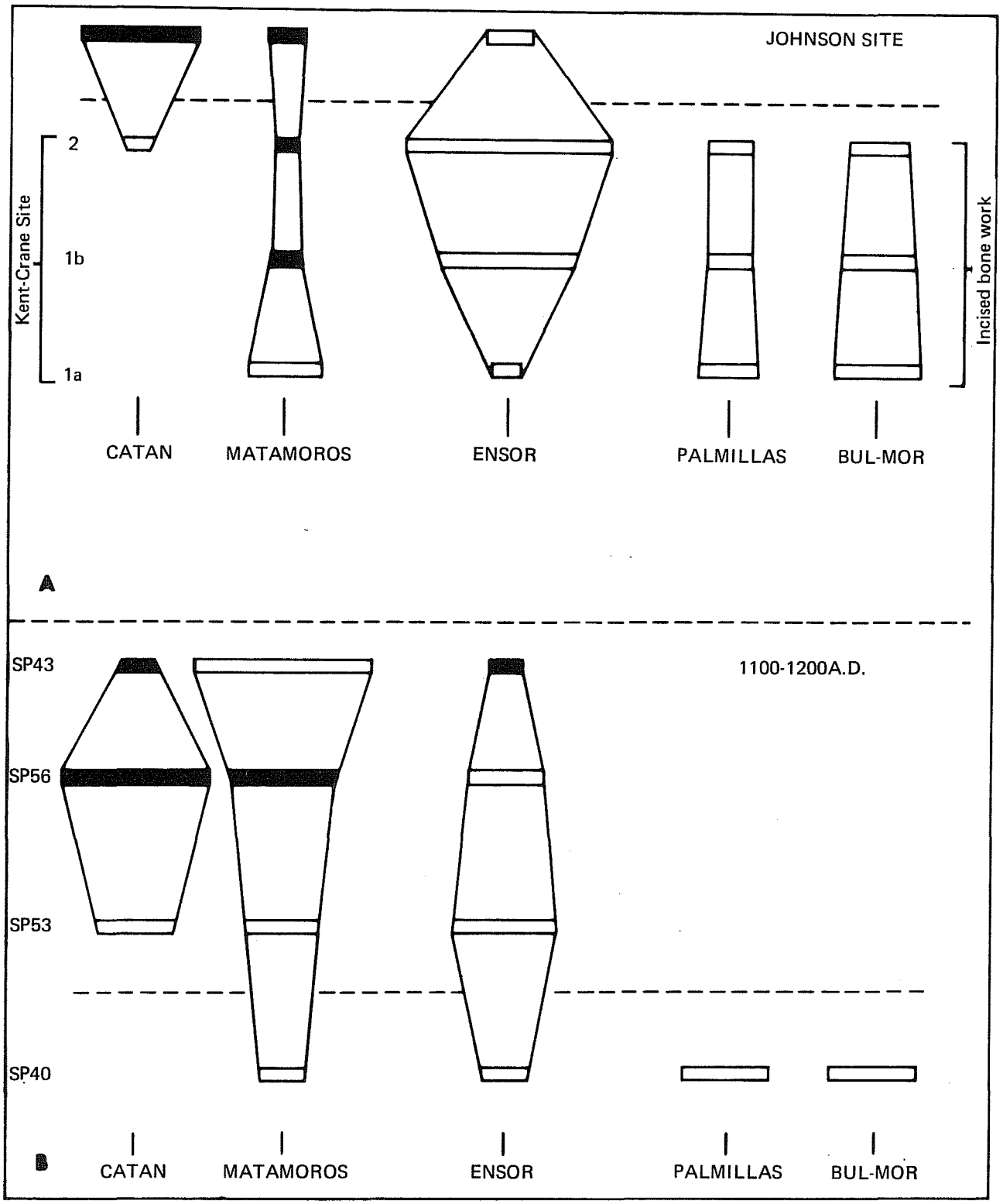

Figure 1. *Dart Point Sequence, Live Oak Peninsula.* A, North; B, South.

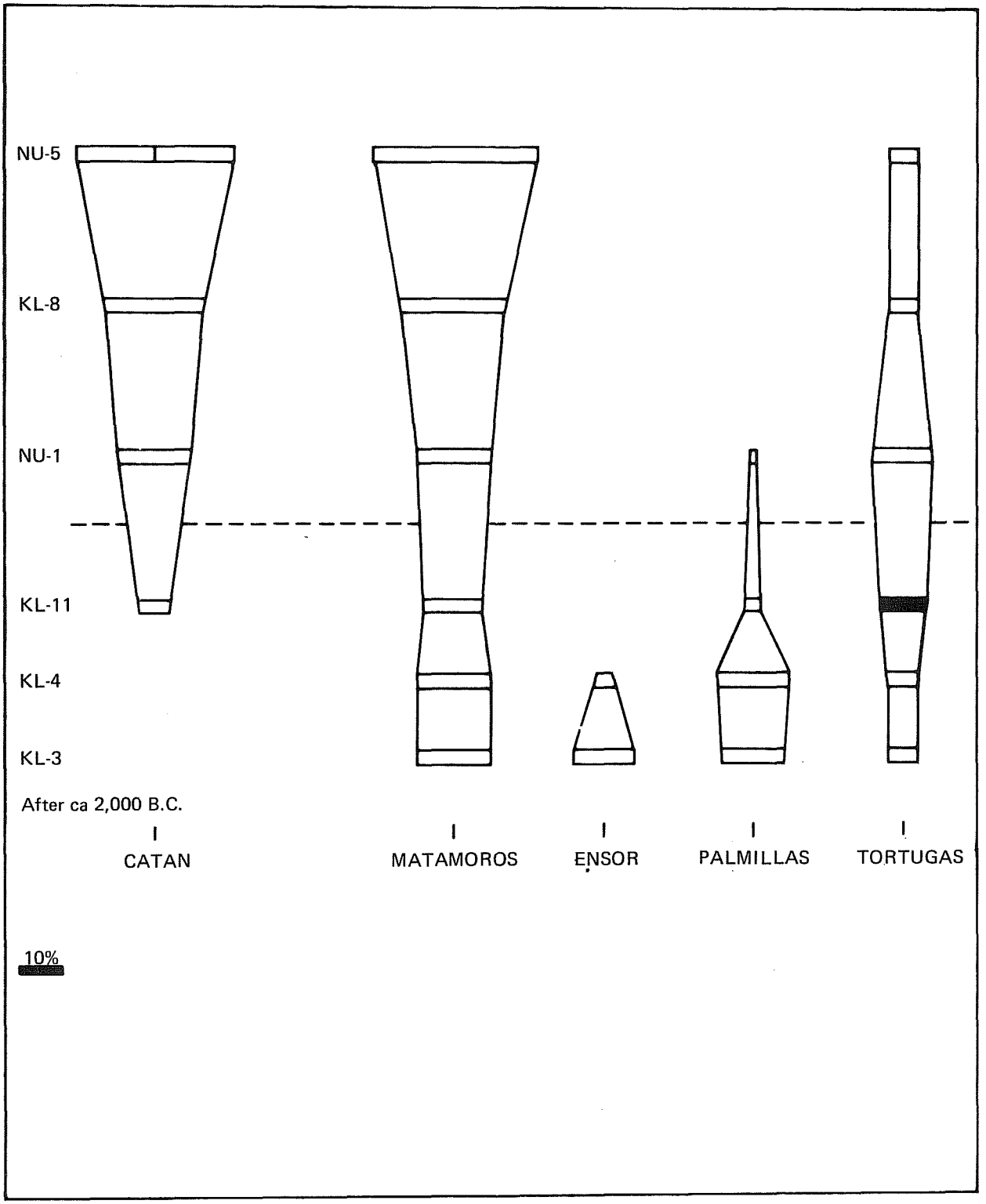

Figure 2. *Dart Point Sequence, Northern Padre Island.*

sites will be necessary before we understand the relationships involved.

CONCLUSIONS AND DISCUSSION

We have discussed briefly what little is known about Archaic cultures on the Texas Coast. For the most part our discussion was limited to two small areas of the coastal region: the area around Galveston Bay and the coastal portions of Aransas, San Patricio, Nueces, and Kleberg counties. We suffered these restrictions because these are the only areas of the coast for which we have any archaeological data.

For the known areas there appears to be no great time depth for cultural entities which either utilized seasonally or permanently inhabited the littoral. This may be due to the fact that sites representing cultures which utilized this environment prior to *ca.* 3000 B.C. have probably been inundated with the post-glacial rise in sea level. It may also be that there were no true coastal adaptations until after this time. The present form of the littoral exhibits a number of extremely varied marine and terrestrial habitats which possibly were not present prior to the formation of the barrier islands and the broad, shallow, protected lagoons and bays behind them. The meager archaeological data tend to indicate increasing local subsistence adaptations for coastal cultures through time and these adaptations may be the result of the increasing availability of a more varied, yet economically stable habitat. Whatever the reason, cultural entities are well-entrenched on most of the Texas Coast from *ca.* 2000 B.C. on. As yet, there has not been enough archaeological work done to delimit discrete units in either time or space, but the future has promise if modern industrial development does not eliminate the problems before we solve them.

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