Excerpted from:
Ricklis, Robert A.
1994 *Aboriginal Life and Culture on the Upper Texas Coast: Archaeology at the Mitchell Ridge Site, 41GV66, Galveston Island.* Coastal Archaeological Research, Inc., Corpus Christi.

CHAPTER 3

ARCHAEOLOGICAL BACKGROUND

Archaeological Chronology in the Galveston Bay Area

The archaeological chronology of the area around Galveston Bay parallels, in broadest terms, that for surrounding areas of Texas. Very generally, the sequence of recognized archaeological manifestations begins with the Paleo-Indian Stage (ca. 12,000-8,000 B.P.), marked by sporadic finds of time-diagnostic stone dart point forms. The Paleo-Indian is followed by a long period of material culture expression, the Archaic, a broadly conceptualized stage of North American cultural development characterized by non-agricultural, hunting-gathering economies and the absence of ceramic technology (Ritchie 1932; Willey and Phillips 1958; Willey and Sabloff 1980). The Archaic ends at different times in various parts of the continent, depending upon the timing of the introduction of ceramics and also upon just how post-Archaic cultures are defined. In Texas, the Archaic has generally been considered to end with the introduction of either ceramics or the bow and arrow (or both), generally sometime in the first millennium A.D. (e.g. Suhm et al. 1954; Hester 1980a; Prewitt 1985). In the Galveston Bay area, the Archaic or Preceramic has been suggested to have ended ca. A.D. 100 with the introduction of pottery into the material culture assemblage (Aten 1983a). Aten has subdivided the ceramic period, which persists into the era of European colonial intrusion in the eighteenth century, into a number of discrete time periods which are based upon various changes in artifact forms and types. Since virtually all of the materials recovered from the Mitchell Ridge Site pertain to the Ceramic Period, the chronological sequence during this era will receive the most detailed consideration in the following discussion. A general overview of the findings in the area for earlier periods is presented, however, in order to provide a temporal baseline for later developments.

The Paleo-Indian Stage

Generally speaking, the Paleo-Indian Stage in North America represents the earliest, universally accepted human occupation of the continent. Because diagnostic dart points and other lithic tools have sometimes been excavated in direct association with bones of now extinct Pleistocene megafauna, a general consensus is that human subsistence during Paleo-Indian times relied to some degree on hunting of large game (e.g. Wormington 1957; Willey 1965).

The Paleo-Indian is only sporadically represented in the archaeological record of the Galveston Bay area. In the more inclusive region of southeast Texas a variety of dart points have been recovered, many from surface contexts rather than controlled excavations. The greatest concentration of such finds has been at the McFaddin Beach Site, where early-through-late Paleo-Indian point types such as Clovis, San Patrice, Dalton-like and Scottsbluff have been found along the eroding Gulf shoreline (Long 1977; Story 1990:195). Closer to Galveston Bay, Wheat (1953) reported Plainview, Scottsbluff and a possible Clovis point from the Addicks Reservoir area in Harris County. Other surface finds in Harris County include specimens of the Plainview, Golondrina, Meserve, Scottsbluff and Angostura types (Hester 1980b:4; Collins and Kerr 1993). Late Paleo-Indian dart point types have also been found in controlled excavations at the Owen Site (43HR315), also in Harris County; excavations by the Houston Archeological Society at this site yielded one specimen each of the San Patrice, Plainview and Angostura types (Patterson 1980).

Since Paleo-Indian materials have yet to be excavated from discrete site components on the upper Texas coast, there are presently no firm data on Paleo-Indian adaptive patterns for the area. It is possible only to speculate that the hunting-gathering lifeway involved an emphasis on hunting and a relatively high degree of group mobility, as has generally been postulated for Paleo-Indian adaptations. It can be assumed that Paleo-Indian artifacts recovered from present coastal settings (e.g. at McFaddin Beach, and a single Clovis point from Bolivar Peninsula [Huebner 1988]) do not represent occupation of the contemporary shoreline and reliance on a coastal resource base, since late Pleistocene/early Holocene sea level was considerably lower than that of today and the shoreline was some distance seaward of its present location (e.g. Fisher et al. 1972). Paleo-Indian shoreline occupation sites, if they exist, will now lie offshore, and their discovery will depend on corings of bottom sediments on the continental shelf. In fact, recent work reported by Stright (1986, 1990) has found tantalizing evidence for early Holocene shell middens along now-inundated paleochannels of the Sabine River, and future work of this kind may provide firm evidence of Paleo-Indian occupation of the northwest Gulf coast shoreline.

The Archaic or Preceramic Period

Numerous Archaic, or Preceramic, occupation sites have been documented in the Galveston Bay area. Those sites tested or partially excavated along or near the modern shoreline generally consist of shell middens containing, in addition to profusions of *Rangia cuneata* shells, varying quantities of lithic tools and debitage, occasional tools of shell or bone, and faunal assemblages consisting mainly of the bones of fish, mammals and reptiles (e.g. Ambler 1967, 1970, 1973, Aten 1983a). Some components have produced oyster shells, in addition to rangia. Along and near streams, inland from estuarine deltaic zones, faunal assemblages are dominated by terrestrial mammal bones, and lithic artifacts and debitage tend to be more abundant (cf. Ensor 1986; Nash and Rogers 1992), perhaps because sites are closer to inland riverine sources of chert gravels.

The most detailed chronological work in the area has focused on the ceramic period, and earlier cultural expressions have been assigned to a chronologically undifferentiated Archaic/Preceramic continuum (see Aten 1983a). For the larger surrounding region of Southeast Texas, a rough chronology of stone dart point types is suggested by the presence of types the ages of which are more or less well established in adjacent regions, as well as by very limited data on vertical positions of points from excavated deposits (see Story 1990:222-223). There is some evidence for an expanded stem point horizon during the very early Archaic (Patterson 1980, 1986). A middle Archaic presence is represented at Site 41WH19 in Wharton County, southwest of the Galveston Bay area, by rectangular stem points resembling the Bulverde and Travis types (Patterson et al. 1987).

Late Archaic occupation of the region is much better represented by numerous specimens of dart points of the Yarbrough, Kent and Gary types, among others (e.g., Patterson 1980; Patterson and Hudgins 1989; Nash and Rogers 1992). These late Archaic types occur in fair numbers in shoreline shell middens in the Galveston Bay area, as well as at more inland, riverine locales (Aten 1983a; Mercado-Allinger et al. 1984; Gadus and Howard 1990).

The Ceramic Period in the Galveston Bay Area

Beginning ca. 2,000 B.P., ceramics become a regular part of archaeological material culture in the Galveston Bay area. Because of both general and specific similarities in ceramic attributes with the pre-Mississippian pottery traditions of the Lower Mississippi Valley, it has long been recognized that ceramic technology was probably introduced from that region, or at least was the result of a kind of stimulus diffusion from that direction (Aten 1983a). Consequently, the artifact assemblage on the upper Texas coast took on an "eastern" or "Woodland" cast, which has led some researchers to include the area within the very broad and generalized Woodland pattern of the eastern U.S. (Shafer 1975; Aten 1984). Story (1990:256) has pointed out, however, that there are basic Woodland material culture traits which are not found in the area (e.g. abundant use of cord-marking on pottery), and the ceramic period in the area does not correspond well with the temporal position of Woodland cultures in the east. Instead, she suggests that the material remains on the upper Texas coast, and more broadly in Southeast Texas, are distinctive and merit a separate designation. Story subsumes the ceramic period materials of southeast Texas, therefore, into a general Mossy Grove Tradition which is distinguishable largely on the basis of sandy paste plain and incised pottery (Goose Creek wares) to which are later added plain and incised grog tempered pottery types and lesser quantities of bone tempered pottery (Story 1990:256).

There is discernable geographic variability in the Mossy Grove material, with the assemblage in more inland areas showing affinities to adjoining areas still further inland (e.g. Caddo-like pottery, see Story 1990:258). The materials from the Galveston Bay area, while not markedly different from those of inland areas, show little close affinity to those of non-Mossy Grove inland archaeological cultures (except for general similarities in lithics artifacts) and come from contexts which demonstrably reflect significant use of coastal resources within a non-agricultural, hunter-gatherer adaptation.

The attention of archaeological research on the Ceramic Period has focused mainly on shell middens located near the estuarine waters of Trinity and Galveston Bays and Clear Lake, a secondary bay connected with Galveston Bay (e.g. Shafer 1966, 1968, 1972; Ambler 1967; Dillehay 1975; Gilmore 1974;

Aten 1979, 1983a; Gadus and Howard 1990; Weinstein et al. 1989; Weinstein 1991; Hines 1993). Sites consist of more or less dense accumulations of shell (mainly *Rangia cuneata*) midden containing potsherds, flaked lithics and occasional bone artifacts. Faunal samples invariably contain relatively large quantities of mammal bone, primarily white-tailed deer, and the bones of various estuarine fish species. Data on intra-site spatial patterning is limited, but Aten (1983b) has identified what are probably functionally related hearths and refuse deposits at small, discrete sites in the Trinity River delta area, findings in part replicated by Weinstein (1991) at the Lido Harbor Site on Clear Lake. Gadus and Howard (1990) suggested variable intensity of occupation at sites in the Peggy Lake area near the mouth of the San Jacinto River, based on intersite differences in artifact and faunal assemblages.

Larger-scale patterns of settlement and seasonality of resource use, as recurrent components of prehistoric adaptation, are only partly understood. Numerous seasonality analyses have been conducted using the method developed by Aten (1981) for *Rangia cuneata* clamshells, in which archaeological shells are assigned to seasonal growth categories through examination of external growth rings (see also Carlson 1988). These analyses (e.g. Dillehay 1975; Dering and Ayers 1977; Aten 1979, 1983a, 1983b; Gadus and Howard 1990; Weinstein 1991) virtually always have produced seasonality estimates falling into the spring or summer, apparently indicating occupation of bayshore sites (or at least major reliance on rangia) only during that part of the annual cycle. As a result, it has been suggested that aboriginal inhabitants of the area spent winters elsewhere, either some distance inland (Aten 1983a) or further seaward on the barrier islands (Dering and Ayers 1977).

Recently, however, some researchers have questioned the reliability of the rangia seasonality method. Weinstein and Whelan (in Weinstein et al. 1988) suggest that the consistent spring-summer seasonality readings in themselves are suspect, since they feel that prehistoric people likely would not have restricted clam gathering to the spring-summer. They also point to a generally inadequate understanding of the biological relation between clam growth and shell formation in questioning the reliability of seasonal estimates based on the rings on the exterior of rangia shells. Patterson and Gardner (1993) note that three samples of rangia, gathered live from the Trinity River estuary, produced seasonality readings which in two cases did not correspond to the actual dates of procurement; they suggest that the method may be flawed and unreliable for archaeological interpretation.

On the other hand, this writer has gathered four rangia samples from the Aransas River north of Corpus Christi and found remarkably close fits between seasonality readings and actual dates of gathering (Ricklis 1990). Also of interest from the central coast area are several fall-winter seasonality readings on archaeological rangia samples (Ricklis 1990), suggesting that the lack of seasonal variability cited by Weinstein and Whelan may be an artifact of sampling; the central coast fall-winter samples were found at the inland margin of the coastal Rockport Phase at sites with non-coastal ceramics, suggesting a seasonal complementarity in the use of rangia beds by coastal and non-coastal peoples. The possibility that rangia were quite consistently harvested during the spring-summer by coastal peoples cannot yet be ruled out. As to the basic reliability of the analytical method, further studies of live clam samples of known harvest dates are clearly necessary to resolve this critical issue in Texas coast archaeological methodology.

Aside from the question of seasonality, it is reasonable to infer that the coastal hunter-gatherers in the Galveston Bay area were not completely reliant on estuarine food resources, and that they probably did not spend the entire annual subsistence round on the shoreline. The faunal samples from investigated sites clearly indicate that deer and other game were procured, and sites situated in riverine/coastal prairie environmental zones immediately inland from the Galveston Bay area (e.g. Wheat 1953; Ensor 1986; McReynolds et al. 1988; Nash and Rogers 1992) presumably represent use of these areas by coastal folk.

Aten (1983a) notes an apparent increase in the number of archaeological site components during the Ceramic Period, and suggests that this reflects a growing population in the Galveston Bay area, a trend which may have been initiated by increased technological efficiency in food procurement and processing strategies (i.e, the introduction of ceramics, the bow and arrow and, perhaps, fish weirs). Aten further presents a model in which long-term population growth resulted in fissioning of sociocultural groups, which would not have possessed the requisite adaptive mechanisms for sustaining integrated socioeconomic groups larger than several hundred people. Thus, once a band reached a population of around 400 individuals, it would have split into two smaller groups, which in turn would fission once their population reached the critical size threshold beyond which existing cultural institutions and mechanisms were inadequate to maintain social cohesion. Such groups would correspond to the several Akokisa bands noted in the ethnohistoric record for the eighteenth century, each of which was comprised of several hundred persons and each of which was represented and/or advised by a recognized leader or headman. These large bands were in turn comprised of smaller bands, and the annual round would have involved shifts between seasonal aggregation of the larger band and dispersal of population into the constituent smaller groups; Aten suggests that coalescence of the larger group tended to take place during the winter months.

The Existing Ceramic Period Chronology for the Galveston Bay Area

As a result of his work in the Addicks Basin in Harris County, Wheat suggested, as long ago as 1953, a fundamentally bipartite chronology in which a preceramic period of undetermined duration was followed by the introduction of ceramics (Wheat 1953). This gross chronology of material culture change was later corroborated by excavations during the 1960s and early 1970s in the Wallisville Reservoir area of the lower Trinity River basin (Ambler 1967, 1970, 1973; Dillehay 1975). The doctoral research of Aten (1979, 1983a) pulled together the extant stratigraphic and radiocarbon data in a synthesis which subdivided the ceramic period into several discrete temporal periods, each lasting two or three centuries; Aten's chronology has come to be widely employed by subsequent researchers. The material traits and temporal intervals which define Aten's periods are as follows:

The *Clear Lake Period*, ca. A.D. 100-425, marks the initial appearance of pottery vessel technology in the Galveston Bay area. The ceramics are varied, and include sandy paste Goose Creek wares along with plain and rockerstamped Tchefuncte vessels linked with the early ceramics of the Lower Mississippi Valley area. Other types, representing a degree of variability in ceramic paste, are O'Neal Plain, variety *Conway*, Goose Creek Stamped and Mandeville Plain. The dart and atlatl continues from the Preceramic Period as the main weapon, and the Gary point is the predominant stone dart point type of the period. Also considered diagnostic are socketed bone projectile points.

The *Mayes Island Period*, ca. A.D. 425-650, is ceramically dominated by Goose Creek Plain pottery, with uncommon specimens of Goose Creek Incised and Goose Creek Red-Filmed. Data are scant concerning projectile point types, but stone and socketed bone dart points apparently continued to be made and used.

The *Turtle Bay Period*, ca. A. D. 650-1000, saw the introduction of the bow and arrow, as represented by small, thin, flaked stone arrowpoints. Goose Creek types continue to dominate the ceramic assemblage, and there is an apparent increase in the percentage of vessels of the Goose Creek Red-Filmed type.

The *Round Lake Period*, ca. A.D. 1000-1350, saw the introduction of grog tempered pottery. Undecorated grog tempered vessels are classed as Baytown Plain, and those with incised decoration are classed as San Jacinto Incised. The sandy paste Goose Creek wares are still abundant, but the grog tempered wares become dominant by the end of the period. Small flaked stone drills or perforators appear as part of the artifact assemblage at this time, though this may only reflect the limited nature of lithic samples for earlier periods.

The *Old River Period*, ca. A.D. 1350-1700, saw little fundamental change. From a peak in popularity at the beginning of the period, grog tempered pottery declines and there is a corresponding increase in the representation of the sandy paste Goose Creek types. Bone tempered pottery becomes a minor element in the ceramic assemblage during this period.

The *Orcoquisac Period*, ca. A.D. 1700-1810 is poorly represented in the archaeological record, but is suggested to represent the period of Early Historic Indian-European contact in the Galveston Bay area. Rare occurrences of glass trade beads of European origin are considered diagnostic of the period. Aboriginal ceramics are suggested to have become simplified, with all types except Goose Creek Plain almost entirely dropping out of the assemblage.

An Alternative Chronology

Problems in the Existing Chronology for the Galveston Bay Area

Though often used as a framework into which site-specific findings can be temporally situated, and though pertaining to the time span of occupation of the Mitchell Ridge Site, Aten's chronology is not employed in the present report. While Aten's research clearly provided a very important synthesis of upper coast archaeological data as of the late 1970s, his chronological construct stands more as a relative measure of long-term culture change than as an absolute chronology. The broad and varied data bases from the Mitchell Ridge Site permit the presentation of an alternative, site-specific chronological framework believed to be better-suited to explicating diachronic developments during some 1500 years of recurrent occupation at the site. The conceptual bases of the alternative chronology will be explicated shortly. First, however, certain ambiguities in Aten's existing chronology must be examined.

Aten's chronology is based essentially on seriation of changes in ceramics, and is actually not particularly well supported by the hard radiocarbon data. The framework is actually largely a relative chronology, since it is based on quantitative and/or qualitative changes in the areal artifact assemblage through time. The diachronic assemblage variability to which Aten (1983a) devoted the most attention involved long-term shifts in the proportional representation of pottery types. The disappearance or appearance of other tool types (e.g. dart points, arrow points, socketed bone points) also were ascribed temporal placements which were deemed sufficiently significant to mark the ends or beginnings of named periods.

Aten's ceramic chronology is presented as a classic frequency seriation, in which archaeological sites are placed within a *relative* chronological order on the assumption of gradualistic change in the proportional representation of different pottery types. The seriation relies on ceramic samples from more or less discrete shell midden strata. The oldest (stratigraphically lowest) produced sherds of Tchefuncte ware, Mandeville Plain and other early types, and these form the basis for the early end of the ceramic seriation. The remainder of the ceramic samples came from stratigraphically discrete site components which produced varying proportions of sandy paste (Goose Creek) and grog tempered (Baytown and San Jacinto) sherds, and these were arranged in sequential order under the working assumption that changing proportions reflect gradual change through time in the ceramic assemblage. These proportional changes were approximately keyed to stratigraphic positions at sites with multiple, superimposed strata.

To the extent that Aten's ceramic samples come from ordered stratigraphic sequences, and that the early end of the seriation sequence is in fact related to demonstrably early types such as the Tchefuncte wares, the seriation is useful as the basis for a relative chronology. However, examination of the radiocarbon data indicate that it falls short as an *absolute* chronological framework for the development of discrete, named periods, each of which only spans two or three centuries. Of the 71 site components producing ceramic samples used in the seriation, only nine (12.6%) have actually been radiocarbon dated (this does not include three site components at 41HR56, 41HR50 and 41CH24, which are dated but for which level/stratum correlations with those listed in the seriation do not clearly match). In other words, of the 64 radiocarbon dates from the area listed by Aten (Aten 1983a, Table 14.1, Figure 14.2), only 18 clearly represent site strata/components included in the ceramic seriation; the other 46 dates are not associated with pottery, or come from ceramic-bearing contexts for which sherd samples are not used in the seriation. This larger group of radiocarbon determinations merely shows when sites were occupied, since the dates cannot be related to specific kinds of time-diagnostic material culture remains.

This might not be a serious problem if the radiocarbon determinations from the nine dated components supported the placement of individual components within the relative seriation chronology. However, most of them do not. Only three components (41CH36, L. 3-4, 41CH46, L. 1, and 41CH16, bottom) actually correspond to the chronological position of the site component in the ceramic seriation. The others diverge from the chronological placement of the pertinent site component in the seriation chronology by at least several hundred years. Thus, of the 71 pottery-bearing components in the ceramic seriation, only three, or 4%, have radiocarbon dates which fit with their relative temporal positions in the ceramic seriation. These discrepancies are presented graphically in Figure 3.1, which compares the positions of the nine components in the ceramic seriation for which there are stratigraphically associated radiocarbon dates with the actual corrected radiocarbon age obtained on assayed shell or charcoal.

As may be seen from a glance at Figure 3.1, most of the radiocarbon dates from the mentioned nine components do roughly parallel the placement of the components within the Aten's ceramic seriation: Generally, the radiocarbon dates are simply several hundred years older than the date assigned to the component on the basis of the seriation. Thus, Aten's chronology of change in proportional representation of pottery types is, as noted, probably valid in a relative sense. For example, stratigraphic positions of ceramic samples suggest that there is a tendency for grog tempered ceramics to occur relatively late the sequence (as was also strongly suggested by data from the lower Sabine River area; see Aten and Bollich 1969).

Nonetheless, the chronology of ceramic change, in terms of absolute radiocarbon dating, for the

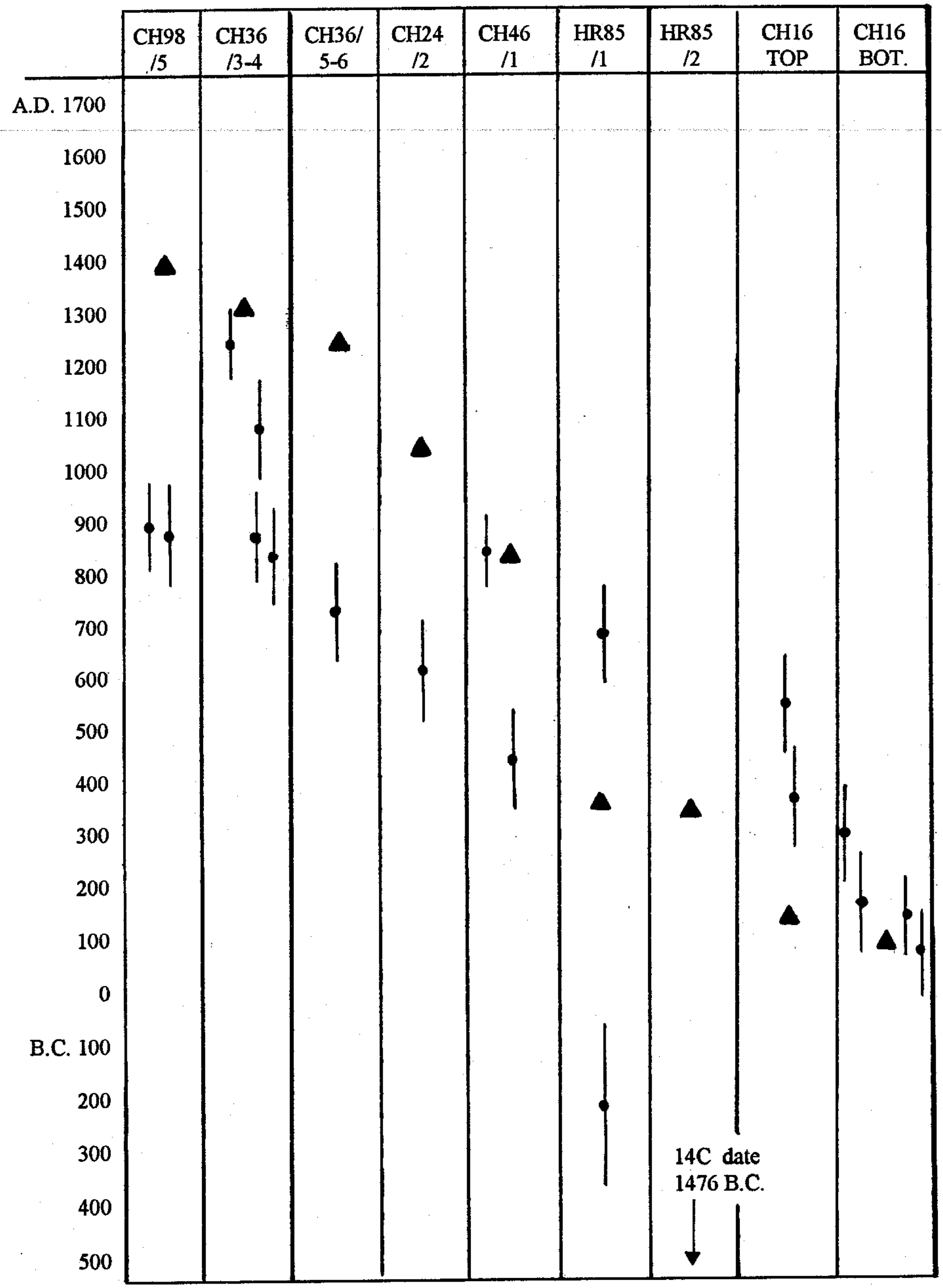

Figure 3.1. Chart showing Aten's placement of site components within Galveston Bay chronology on the basis of ceramic seriation (black triangles), and actual 1-sigma ranges of associated radiocarbon dates for each component.

most part diverges from Aten's calendar year placements by several hundred years, and discrepancies of this magnitude render time periods of *only two or three centuries* of dubious value as absolute measures of the timing and rate of culture change.

It is also worth noting that many of the seriated ceramic components are represented by rather small samples of potsherds; over half of the seriated components produced less than 100 sherds. Since the unit of analysis was the potsherd, it is unknown how many ceramic vessels are actually represented, and it is the vessel which must serve as the basic unit of analysis when making comparisons of the proportional representation of types between site components. A sample of 50 sherds might accurately represent the ceramic types used at a given site during a given time period, if the sherds represented as many pots. Conceivably, however, only one or a few vessels might be represented, obviously too few upon which to reliably define the percentages of vessels of different types in use at a site. Basically, then, we are looking at a chronological framework based on (a) changes in pottery which are only very roughly dated and (b) ceramic samples which in many instances may be inadequate for accurate placement within a diachronic seriation of changing proportions of defined types.

These problems are not alleviated by the use of non-ceramic technologies as markers of discrete time periods, since artifact samples are small and generally not associated with radiocarbon dates within discrete site components. The Turtle Bay Period, for example, is defined primarily by the appearance of the bow and arrow, as represented by small, thin stone projectile points believed to be arrowpoints. However, an examination of the data presented by Aten (1983a, Table 13.1, Table 14.1) shows that *only four arrowpoints from upper Texas coast sites area were from radiocarbon-dated contexts*. Of these, only a single specimen was associated with a radiocarbon date which falls into the Turtle Bay Period (Tx-948 from level 5, 41CH36; see Aten 1983a, Table 13.1). The pertinent specimen is a Cliffton arrowpoint, a type generally assigned to a considerably later time period in Texas (after ca. A.D. 1250/1300, see Prewitt 1981, 1985), suggesting a questionable association with the dated organic material (rangia shells). The Round Lake Period is partly defined on the basis of the appearance of small flaked stone drills or perforators, but these are only of estimated age.

Added to these problems are the facts that many of the radiocarbon dates cited by Aten are derived from assays on *Rangia cuneata* shell, and that his correction factor for rangia shells may merit re-examination. Aten suggested that radiocarbon ages on paired samples of rangia shell and charcoal suggested that rangia in the Galveston Bay area produced uncorrected ages which were about 225 years too old relative to charcoal (Aten 1983a, Appendix A). The "paired" samples consisted of shells and charcoal collected from shell midden strata, mostly from 41CH16 and 41CH32 in the Trinity delta area. Not all rangia samples assayed older than charcoal from the same stratum, but most did, and of those, 225 years represented the approximate average age discrepancy. Aten suggested that the older age on the shell was the result of the absorption of "dead" carbon ions derived from dissolved carbonates in the water in which the rangia clams lived.

However, more recent assays on estuarine shells from the Texas coast indicate that, once the shell samples are corrected for the 13C fraction, the radiocarbon ages are virtually identical to those obtained on associated charcoal. Samples of oyster, whelk, bay scallop and quahog from 41SP120 on Corpus Christi Bay are consistently about 400 years *younger* than charcoal prior to correction for 13C. Once the correction is made, the ages of the shells and associated charcoal samples prove to be statistically identical (see Ricklis and Cox 1991; Ricklis 1993). As is shown further on in the present report, oyster shells and charcoal from discrete features in a Late Prehistoric occupation stratum at the Mitchell Ridge Site produced similar results: The uncorrected age of the oyster samples was 370 years too young and correction for the 13C produced ages which matched those on samples of hearth charcoal.

These results, though not on rangia *per se*, are all on shells from bay estuarine zones, and aquatic environmental conditions should not have differed significantly from those in which rangia lived. In this regard it is worth noting that a series of radiocarbon dates on rangia from discrete features at the Lido Harbor Site (41GV82) on Clear Lake, a secondary Bay connected to Galveston Bay in western Galveston County (Weinstein 1991), appeared to best fit the typological chronology at the site when the samples were only corrected for 13C (the rangia correction factor in the Galveston Bay area has consistently averaged 315 years; see radiocarbon correction data in Gadus and Howard 1990; Weinstein 1991); the application of Aten's correction factor seemed to make the dates to young (see discussion in Weinstein 1991).

If, in fact, uncorrected rangia dates, prior to correction for 13C, are too young relative to charcoal, then the temporal discrepancy between Aten's seriation chronology and the radiocarbon dates on pertinent site components is even greater that indicated in Figure 3.1 (which shows radiocarbon determinations as corrected by Aten). Hypothetically, a date which, using Aten's correction, puts a stratum 400 years older than its placement in the ceramic chronology, might actually correct to over 1,000 years older than the time slot in the seriation (since Aten's correction of 225 year toward the present is eliminated and a 13C correction of 315 years back in time might be required).

These findings do not clearly negate the validity of Aten's inferred correction factor for rangia. They do, however, suggest that it should not be used uncritically, and in fact suggest that the pairing of shell and charcoal on which it was based may have been inexact. Indeed, it is noteworthy that neither the shell or charcoal samples used by Aten came from discrete features, but were collected from within more or less extensive stratigraphic zones, the constituent materials of which may not all have been entirely contemporaneous. This possibility was originally suggested by the excavator of 41CH16 and 41CH31, J. R. Ambler, who noted that the dated bits of charcoal could represent downward displacement of smaller materials into the dated strata of rangia shell (Ambler 1967).

An Alternative Chronological Framework

Given these problems, Aten's commonly employed chronology is here set aside. Although it is recognized that Aten's construct is probably broadly valid in terms of the relative sequence of material culture change in the Galveston Bay Area, it is felt that the empirical evidence remains too imprecise to justify division of the cultural-temporal continuum into short, discrete periods. The approach preferred here is to place the findings at Mitchell Ridge within time periods that are keyed to radiocarbon data from discrete features at the site, and which make sense in light of associated artifacts of known or strongly inferable chronological positions. It is stressed that these time periods *are not meant to be a new, ad hoc regional chronology*. Rather, they are formulated solely for the purpose of providing a temporal context for the findings at Mitchell Ridge, one which is closely linked with the empirical evidence from the site. The chronological framework which is used in the remainder of this report is shown in Figure 3.2, along with Aten's chronology and, for the sake of later discussion in this report, a generalized chronological scheme for the Lower Mississippi Valley (LMV). The conceptual bases for several chronological periods as defined here are as follows:

1. *The Preceramic Period*. Since abundant findings in the Galveston Bay area clearly indicate a long period of human occupation prior to the introduction of ceramics, the existing concept of a Preceramic Period can be retained. This period is represented at Mitchell Ridge only minimally, if at all.

The ending date of the Preceramic Period may or may not actually correspond with Aten's estimate of ca. A.D. 100. It is noteworthy that the Tchefuncte pottery in the area, considered diagnostic of Aten's earliest ceramic period (Clear Lake), dates several centuries earlier in the Lower Mississippi Valley area than in Aten's Clear Lake period (e.g. Neuman 1984; Weinstein 1986). This could be the result of some sort of "lag" effect (though the explanatory mechanism for such is not apparent), or it might indicate that ceramics appear prior to A.D. 100 in the Galveston Bay area, an alternative possibility already suggested by Weinstein (1986). Considering the possibility that, as discussed above, the Galveston Bay chronology may have been based on many radiocarbon assays on rangia which were corrected to be too young, the latter explanation should be tested in future chronological research in the area.

2. *The Early Ceramic Period, ca. A.D. 100(?)-700.* For our present purposes, this period spans the time from the introduction of pottery to the appearance of arrowpoints in the artifact assemblage. Since there are data from Mitchell Ridge which suggest that the arrowpoint chronology parallels that in the larger Texas area, the end of this period is placed very tentatively ca. 700 A.D., the time of the appearance of arrowpoints in most of the state (e.g. Prewitt 1981, 1985; Turner and Hester 1993). This is an admittedly weakly defined period, and it is emphasized that it is formulated only to put a name to a time interval. However, it does seem to begin and end with real changes in technology (introduction of, respectively, pottery and the bow and arrow), and therefore is used with the disclaimer that it is not intended to imply any kind of well-defined cultural period.

3. *The Initial Late Prehistoric Period, ca. A.D. 700-1250.* It is during this time interval that occupation at the Mitchell Ridge Site became sufficiently frequent and/or intensive to leave behind relatively abundant evidence. Arrowpoints were clearly present, and the bow and arrow may have largely or completely replaced the dart and atlatl; limited evidence at Mitchell Ridge indicates that Scallorn type arrowpoints (Suhm and Jelks 1962; Turner and Hester 1993) were in use at this time. Given the actual

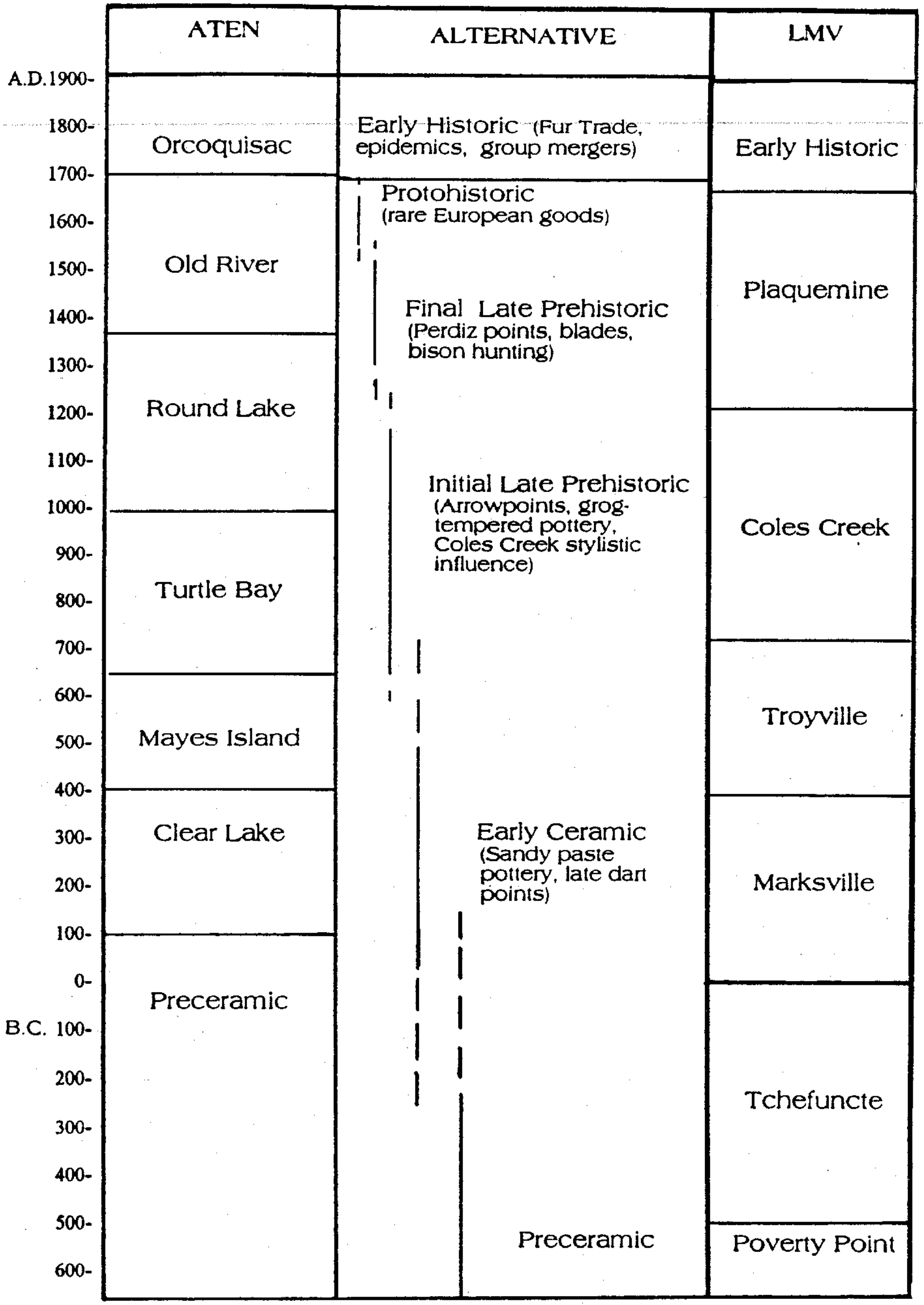

Figure 3.2. Chart showing chronological periods as defined by Aten (1979, 1983a), alternative chronology used in this report, and generalized chronology for the Lower Mississippi Valley (inserted here for later reference relevant to discussion of ceramics).

radiocarbon ages of the nine dated ceramic components in Aten's sequence, grog tempered pottery was probably present at this time (perhaps even appearing in the preceding Early Ceramic Period, considering the radiocarbon ages of the few dated ceramic components in Aten's seriation). Local ceramics show stylistic affinities with the pottery of the Coles Creek tradition in southern Louisiana and the Lower Mississippi Valley (LMV), suggesting some degree of interaction among people living along the Gulf coast at this time, as there must have been in the Early Ceramic Period when Tchefuncte pottery was reaching the Galveston Bay area.

4. *The Final Late Prehistoric Period, ca. A.D. 1250-1500.* Although spanning a relatively short time interval, this period is particularly well represented at Mitchell Ridge, in terms of time-diagnostic artifacts as well as radiocarbon-dated occupation features and burials. The site attracted more intensive occupation than previously, perhaps reflecting overall regional population growth and a systemic interplay between population pressure and expansion of operational areas into new resource zones.

Since this is the best represented of any period of prehistoric occupation at Mitchell Ridge, it is also the best defined. Diagnostic of the period are (a) a lithic assemblage that shares common traits with the contemporaneous assemblages in inland Texas (e.g. Perdiz arrowpoints, prismatic blades, thin bifacial knives, expanded-base chert drills made on flakes or blades), (b) the presence of bison bone in the faunal assemblage, suggesting that upper coast populations were responding to the Late Prehistoric appearance of abundant bison as did contemporaneous inland groups (e.g. Hester 1975; Prewitt 1981; Black 1986; Huebner 1991a; Ricklis 1992a, 1992b, 1993b), and (c) a continuation of ceramic stylistic expression linked to the Coles Creek tradition of southern Louisiana and the Lower Mississippi Valley.

5. *The Protohistoric Period, ca. A.D. 1500-1700.* This period is indicated by ethnohistorical evidence and by radiocarbon dates from a habitation area and from burials at the Mitchell Ridge Site. Historically, the upper coast area is documented by the well-known relation of Cabeza de Vaca, though it is not clear that he or any of his party were ever at the Mitchell Ridge Site (nor is it known with complete certainty that the relation describes Galveston Island). The period draws to a close as French and Spaniards began to colonize the Gulf coastal plain of present Louisiana and Texas at the end of the seventeenth century and native people came into increasingly frequent, direct contact with Europeans. Archaeological materials at Mitchell Ridge suggest that, while there were no sudden or drastic changes in local lifeways during the Protohistoric Period, aboriginal peoples in the Galveston Bay area had limited access, direct or indirect, to European manufactured goods, as indicated by the presence of blue-green glass beads in two burials of the period. There is also some evidence from Mitchell Ridge which suggests changes in stone projectile point assemblages at this time.

6. *The Early Historic Period, ca. 1700-1800.* This period saw direct and increasingly intensive contact with Euroamerican traders, missionaries and military personnel, and was a time of rapid changes in native culture and demography. The findings at Mitchell Ridge, along with documentary evidence of the period, indicate that (a) native groups were suffering major population loss as the result of epidemics of introduced Old World diseases, (b) there was significant social mixing of local populations with nonlocal people, including individuals of apparent European ancestry, (c) the natives of the Galveston Bay area were participating in the French-Indian deer skin trade, from which they acquired an array of European goods, and (d) there may have been significant changes in dietary patterns, possibly involving a partial shift to a horticultural subsistence base in the second quarter of the eighteenth century.