

BULLETIN  
OF THE  
**Texas Archeological  
Society**

(Formerly Texas Archeological and Paleontological Society)

VOLUME TWENTY-SIX

1955

Published by  
the Society at  
Austin, Texas

Office of the State Archeologist

EAST TEXAS ARCHEOLOGICAL SOCIETY

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**PRINTED IN THE UNITED STATES OF AMERICA**  
**BY**  
**ABILENE PRINTING & STATIONERY COMPANY**  
**ABILENE, TEXAS**

BULLETIN  
OF THE  
**Texas Archeological Society**

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TABLE OF CONTENTS

1. Excavations at the Collins Site, Travis County By Dee Ann Suhm .....	7
2. Little Sunday: An Archaic Site in the Texas Panhandle By Jack T. Hughes .....	55
3. Scottsbluff Points in the Obshner Site near Dallas, Texas By Wilson W. Crook, Jr. and R. K. Harris .....	75
4. Stone-Lined Basin with Charcoal in Lower Clear Fork Silt By Cyrus N. Ray .....	101
5. Peculiar Manos from Lower Pease River Valley By John Henry Ray .....	109
6. Anthropological Theory and Plains Archeology By Rudolph C. Troike .....	113
7. Evidence of Early Man in Torrance County New Mexico By C. V. Haynes, Jr. ....	144
8. Preliminary Report on the Bloom Mound, Chaves County, New Mexico By Jane Holden .....	165
9. Excavations near Gran Quivira, New Mexico By Earl Green .....	182
10. An Historic Burial from Yellowhouse Canyon, Lubbock County By W. W. Newcomb, Jr. ....	186
11. An Historic Indian Cache in Pecos County By N. Ethie Eagleton .....	200
12. A Preliminary Report on the Albert George Site in Fort Bend County By Raymond Walley .....	218

13. Research in East Texas Projectile-Point Types By E. W. Hayner .....	235
14. Another Puebloan Trade Sherd in East Texas By E. W. Hayner .....	244
15. Surface Points from the Badlands of the Upper Western Cross Timbers of Texas By Adolph Henry Witte .....	249
16. An Historic Indian Cache in Clay County By Delevan Worsham Ozee .....	256
17. Comments Concerning the East Texas Section of "An Introductory Handbook of Texas Archeology" By Clarence H. Webb .....	259
18. Comments Concerning Some Type Names in "An Introductory Handbook of Texas Archeology" By Cyrus N. Ray .....	274
19. News Notes .....	279
20. Revised Constitution .....	285
21. Report of the Secretary-Treasurer .....	288
22. Book Review .....	289
23. Col. M. L. Crimmins (obituary) .....	292
24. Membership List .....	295

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Volume 26, 1955 — Price \$5.00

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### IMPORTANT NOTICE

At the 1955 annual meeting of the Society in November, several new policies were adopted, as listed on pages 281-284. Among them are:

1. All earlier volumes of this Bulletin will now cost \$5.00 each, except Volume 25, which will cost \$7.50. Prices include postage. Volumes 1 to 21 had previously sold for \$3.00 each and Volume 25 for \$5.00 to new members who joined during 1955.
2. Any member who obtains three new members in one year will receive, as a gift, a volume of the Bulletin which is to be chosen by the Secretary-Treasurer. Another volume will be given for every additional three new members.
3. In addition to Active Memberships (which includes library subscriptions), the Society now offers Contributing Annual Memberships at \$25.00 and Life Memberships at \$100.00.

## Foreword

The society was organized and chartered in pursuit of a literary and scientific undertaking; for the study of the history, pre-history and the major artifacts of man and the fossils representing the past floras and faunas of Texas; for the encouragement of the proper collection and preservation of such artifacts and fossils in museums and their study and classification and the publication of the results of the researches incident thereto.

The BULLETIN is published annually for distribution to members of the society. Opinions expressed herein are those of the writers, and do not necessarily represent views of the society or the editorial staff.

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## FELLOWS

Cyrus N. Ray

Col. M. L. Crimmins\*

\*deceased, February 5, 1955

# EXCAVATIONS AT THE COLLINS SITE, TRAVIS COUNTY, TEXAS

DEE ANN SUHM

## INTRODUCTION

The Collins Site is situated on the south bank of Onion Creek, approximately six miles south of Austin. It was located early in the fall of 1953 by students from the Department of Anthropology, The University of Texas. Evidence of occupation was easily recognized in several deep gullies eroded into the site, exposing artifacts, hearthstones, flint chips and bone fragments. A test pit confirmed these indications and made it apparent that controlled excavation would produce useful data concerning aboriginal habitation of the area.

Excavation of the Collins Site was undertaken as a student project, under the supervision of students who had had previous field experience. In order to fit academic schedules, digging was limited to Sundays, from October 1953 to May 1954, with a crew of six to ten members. By such an undertaking the students were able to obtain significant archeological information and, at the same time, acquaint themselves with archeological field techniques.

The writer would like to acknowledge the cooperation of Walter Collins, the land owner, and A. Lawson Boothe, owner of the adjacent property; to credit the enthusiasm shown by all the students comprising the crew: Joan Ablon, Nelda Cade, Dale Exley, Ann Pescor Leonard, Jerry Reeves, William E. Stanton, Rudy Troike, Nancy Patterson Troike, and Edwin Williams; and to thank the Department of Anthropology for providing equipment for excavation and laboratory facilities for analysis of the artifacts. The opportunity to examine and to photograph artifacts collected from the site by William E. Stanton is also appreciated. Finally, the encouragement and helpful advice so freely given by Edward B. Jelks of the National Park Service, and T. N. Campbell and Alex D. Krieger of The University of Texas, Department of Anthropology, have done much to make this report possible.



## GEOLOGY AND NATURAL SETTING

The site is buried in the third terrace (second terrace above the floodplain) of Onion Creek, about ten miles above the confluence of the creek and the Colorado River. In that vicinity the creek is deeply entrenched into a Cretaceous limestone formation, exposing vertical bluffs on both sides of the valley. The subsequent stream deposition and erosion cycles are represented by the terraces.

The third terrace (T-3) is approximately 46 feet above the present creek channel. It is about 200 feet across the northern edge of T-3 to the base of the limestone bluff. The second terrace (T-2) is considerably smaller, only 15 to 20 feet across, and is 16 to 18 feet above the creek bed. Smallest and most recent of the terraces (T-1) is the very narrow floodplain bordering the edge of Onion Creek; it is only several feet above the stream.

The deep gullies cutting into the terraces have exposed a cross-section of the valley fill. Resting on top of the limestone bedrock is a greenish material of igneous origin. Although a large portion of this deposit has eroded away, it outcrops at various points along the banks of Onion Creek. This material, loosely referred to as serpentine, is a volcanic ash composed largely of montmorillonite clay (Weiss and Clabaugh, 1955, pp. 136-48). It emanated from a series of sea-floor eruptions which occurred during late Cretaceous times (*ibid.*, pp. 136-7). The hard basaltic core of one of these volcanoes, located several miles southeast of the site, is known as Pilot Knob.

After the eruption, the volcanic ash was buried by further accumulations of limestone. Subsequent erosion by Onion Creek has cut through the upper limestone deposit and much of the igneous material. In places the stream is flowing across limestone underlying the volcanic debris.

A tightly consolidated gravel, several feet in thickness, lies above the igneous deposit. The remainder of the valley fill consists of calcareous silts which can be divided into two strata. The uppermost stratum (II), 4 to 5 feet in

thickness, is a black, clay soil containing a great deal of decayed organic matter. The lower constituent (Stratum I) is of a very similar composition, but it is buff in color and has very little humus.<sup>1</sup> Cultural material extended well into Stratum I, but greatly decreased in frequency at about 6 feet below the surface. There was no clear demarcation between these two strata.

The upland area was a rolling grassland less than a century ago and probably supported fairly large herds of grazing animals. Today mesquite, scrub oak and prickly pear grow along the rim of the valley, while hackberry, oak, cottonwood and cypress border the creek. No charred vegetable remains were recovered during excavation, though the durable hackberry seed was found extending to a depth of about 5 feet. Present-day fauna consists largely of small mammals, particularly rabbit, armadillo, skunk, squirrel and opossum. Other animals identified as historically present include deer, bison, raccoon, fox, beaver and coyote. Deer and bison were the most important of the animals hunted, judging by the bone fragments recovered.

About 200 yards east of the site is a large spring which has continued to flow in spite of low rainfall in recent years. The abundance of water coupled with a food supply which could readily have been obtained from game animals, turtles, fresh-water mussels, fishes, and various wild plant products must have been enticing features to aboriginal groups. In addition, innumerable flint nodules can be found in the stream bed and above the bluffs, and the shallow rock shelters which occur in the limestone bluffs would have afforded protection during bad weather. One of these shelters, the Smith Site, about a quarter of a mile upstream from the Collins Site was excavated by University of Texas students in 1954-5 (Anonymous, 1954; Suhm, 1955).

---

1. Soil samples were analyzed by the Bureau of Economic Geology, The University of Texas.

## METHOD OF CONTROL AND EXCAVATION

A grid system consisting of 5 foot squares was laid out on approximately the central portion of the site (Fig. 1). Coordinates going north-south were designated by capital letters (A, B, etc.), while those running east-west were labeled by numbers (1, 2, etc.). Any 5 foot square excavated outside the grid was called a "test pit." The test pits were differentiated by the use of capital letters, such as Test Pit A, Test Pit B, etc. When test pits were adjacent to one another they were designated with Roman numerals, such as Test Pit C I, C II, etc.

A datum point 42 inches above the ground level was established on a small oak tree near the grid. Measurements were taken from the projected datum plane to the point where the datum stake (i. e., the stake from which the levels were measured) intersected the ground surface. However, since there was relatively little variation in the surface contour, all depth measurements in the field notes and those presented herein were made from the surface of the highest corner of the square (the datum stake).

Since it was not feasible to excavate the site in cultural or geological zones, each square was dug by arbitrary 6 inch levels. All material was sifted through a quarter-inch mesh screen and the artifacts and identifiable bone fragments collected from each 6 inch level were placed in a paper bag and later catalogued. Snail shells, charred bone and charcoal suitable for radiocarbon dating were also collected from many levels.

A total of 30 squares was excavated; nine of these were dug to a depth of 12 inches, four to 18 inches, seven to 24 inches, one to 30 inches, four to 36 inches, one to 42, 54, 60, 66 and 88 inches respectively. The areal extent of occupation, outlined in Figure 1, was approximately 480 feet long and 99 feet wide. Only the central portion of this area seemed to have been intensively occupied. The greatest depth of occupation is not known as excavations did not exceed 88 inches. So few artifacts were found in the three

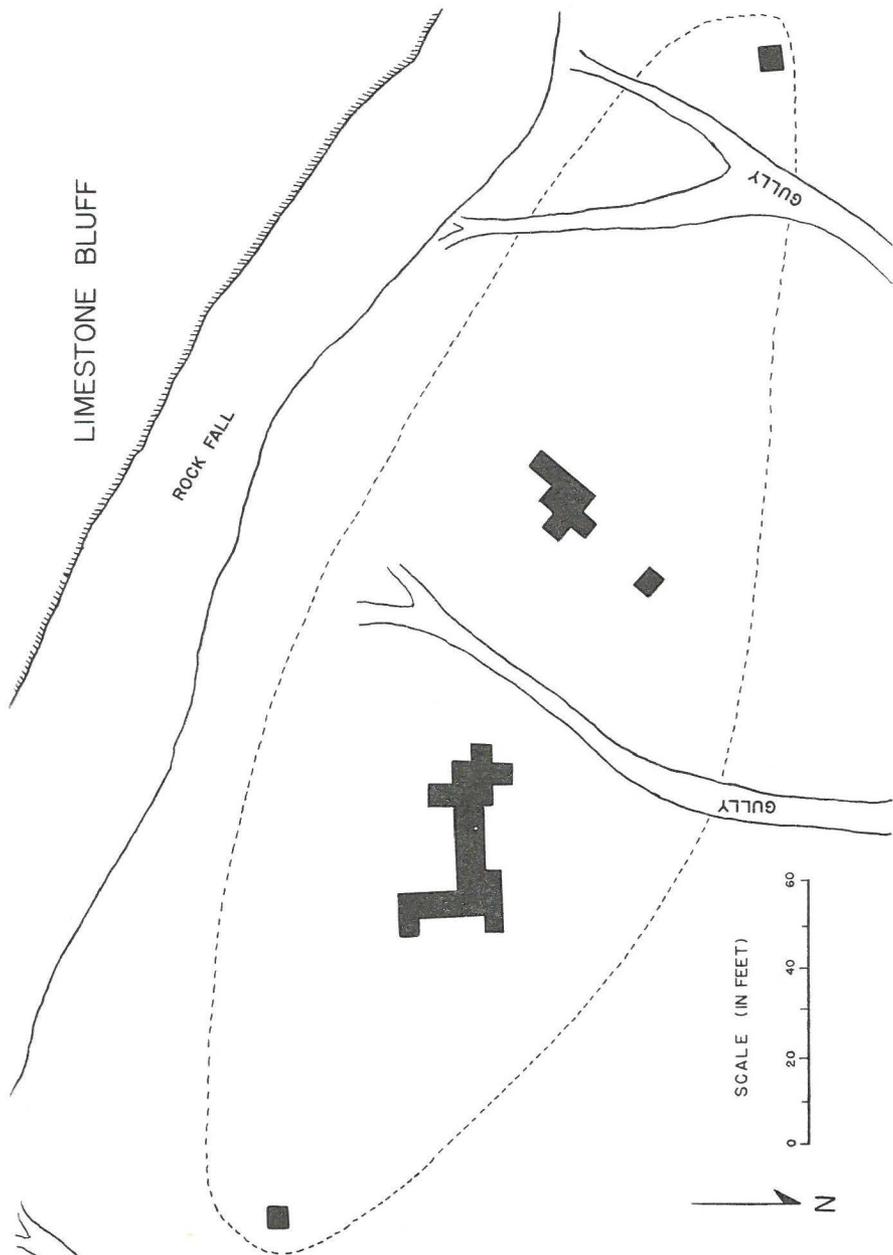


Fig. 1. Extent of excavation at the Collins Site indicated by darkened areas. Dashed lines outline approximate extent of occupation. Onion Creek is 140 feet north of the site.

lowest levels that it was deemed more practical to concentrate on the upper 5 feet. However, a careful examination of the deep gullies seemed to indicate that occupation did not extend much beyond 8 or 9 feet.

Hearths consisting of fire-cracked limestone and charcoal were very common. These fire areas occurred at all levels, but were more frequent in depth below 12 inches. For the most part, the hearthstones were scattered and there was no consistent arrangement. Aside from the hearths no features were recorded. Pits, postholes, etc., would have been very difficult to detect because of the lack of variation in most of the alluvium. No burials were found, but the proximal end of a human femur occurred in Test Pit D. Careful searching in that vicinity failed to uncover other human bones.

#### ANALYSIS OF ARTIFACTS

Shortly after excavations had begun it was apparent that two components were present at the site. The upper one was represented by the Central Texas Aspect and was recognized primarily by small, thin arrow points and pottery. The lower cultural member was the Edwards Plateau Aspect, identified by many dart point types and other lithic implements. Unfortunately for analysis, the two were not separated in the *upper 18 inches* of the site. In some cases, it was difficult to associate artifacts with one or the other aspect. However, arrow points and pottery did not extend below a depth of 18 inches; this, combined with data from other sites where the distinctions are clearer, forms the basis for recognition of the two cultural units.

Pottery and projectile points were grouped according to types presented in "An Introductory Handbook of Texas Archeology" (Suhm, Krieger, and Jelks, 1954). For definition of other classes of artifacts described below, see the glossary in that volume.

#### CERAMICS

The 849 potsherds were among the most unanticipated

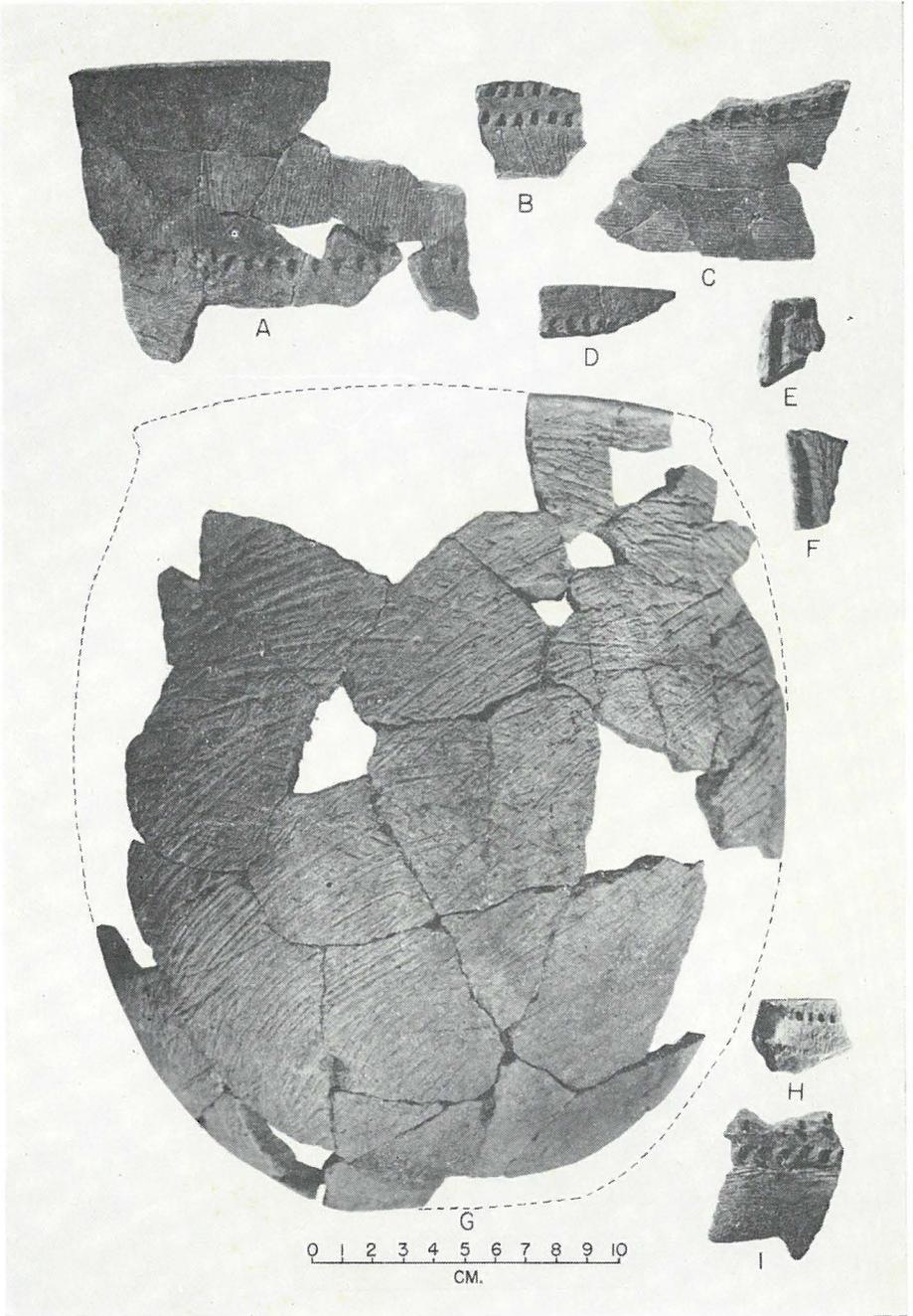


PLATE 1

Pottery of type Boothe Brushed.



finds made at the Collins Site. All sherds were from the three upper 6 inch zones. Pottery consistently occurs in the Central Texas Aspect, although usually in small quantities. It is typically plain, varying considerably in color and, to a much lesser extent, in texture. The few decorated sherds reported (Jackson, 1938, pp. 108-112; Krieger 1946 p. 166; Miller and Jelks, 1952, p. 185; Jelks, 1953, pp. 205-6) have been identified as trade items from Caddoan groups in east Texas.

Two hundred and thirty-four sherds from the Collins Site are classified as *Leon Plain* (Krieger, 1946, p. 166; Suhm, Krieger and Jelks, 1954, pp. 286-8, Plate 74, A-E). These pottery fragments represent an estimated three to five vessels; however all sherds are small and very little can be determined of vessel shapes. The majority are thin, 2 to 4 mm. in thickness, hard and compact in texture, and tempered with finely pulverized bone. Ten sherds (Plate 2, MM) are notably thicker, 6 to 10 mm., and somewhat coarser in texture, but are included in *Leon Plain*. Interior surfaces of all sherds are well-smoothed; the exterior surfaces are polished, sometimes having a glossy finish. Sherds grade in color from reddish, buff, gray-brown, to black; cores are consistently dark. There are no indications of a red wash or slip and all variations in color are attributable to firing conditions. Two vessels have appendages consisting of a loop handle (Plate 2, HH) and a small node (Plate 2, KK). Both appendages are just below the rim and presumably there were two handles on the one vessel, while the other had two or more nodes.

Decorated sherds number 615, representing at least eight vessels. Two small sherds, probably from one vessel, have incised designs (Plate 2, LL); otherwise they closely resemble *Leon Plain*. These fragments are so small that it is difficult to determine the exact placement of the decoration. Presumably most of the body was plain and undoubtedly a portion of this vessel was tabulated with *Leon Plain*. Judging from what little was recovered, the design consists of short, hachured lines, combined—perhaps enclosed—by a



horizontal line. The horizontal line below (?) the hachuring indents to form a small square. Although based on extremely scanty data, the incising is reminiscent of designs on coastal pottery (see *Rockport Incised* and *Goose Creek Incised* in Suhm, Krieger, and Jelks, 1954, pp. 380, 385 and Plate 72).

The majority of the potsherds, estimated to belong to seven vessels, had brushed decoration, often combined with rows of punctates made around some parts of the rim. These vessels could not be identified as any established type, but it is believed that they are distinctive enough to designate as a provisional new type — *Boothe Brushed* (Plates 1, A-I and 2, II, JJ). The following definition is based entirely on pottery found at the Collins Site and is expected to be modified as larger samples are studied. The most complete vessel (Plate 1, G) differed from the others in temper, absence of punctates and having more random and deeper striations; however it is tentatively included in this type.

#### PASTE

Method of manufacture: Probably coiled.

Temper: Pulverized bone; one vessel (Plate 1, G) has no visible tempering agent.

Texture: Fine to fairly coarse, but in all instances hard and does not crumble.

Color: Interior and exterior surfaces gray, grayish-buff, almost black, and yellowish-red. Considerable mottling, sometimes producing striking variation in color on a single vessel. Cores uniformly gray.

Surface finish: Exterior covered with brushing, usually combined with punctates; inside very well-smoothed, rarely polished.

#### FORM

Wall thickness: 3 to 7 mm.; most are thin, 4 to 5 mm.

Lip: Straight and flat (Plate 2, II); one convex and turned outward (Plate 2, JJ).

Base: Only one definite base could be reconstructed, a thick flat disk to which the wall was attached (Plate 1, G). The failure to recognize other basal sherds suggests

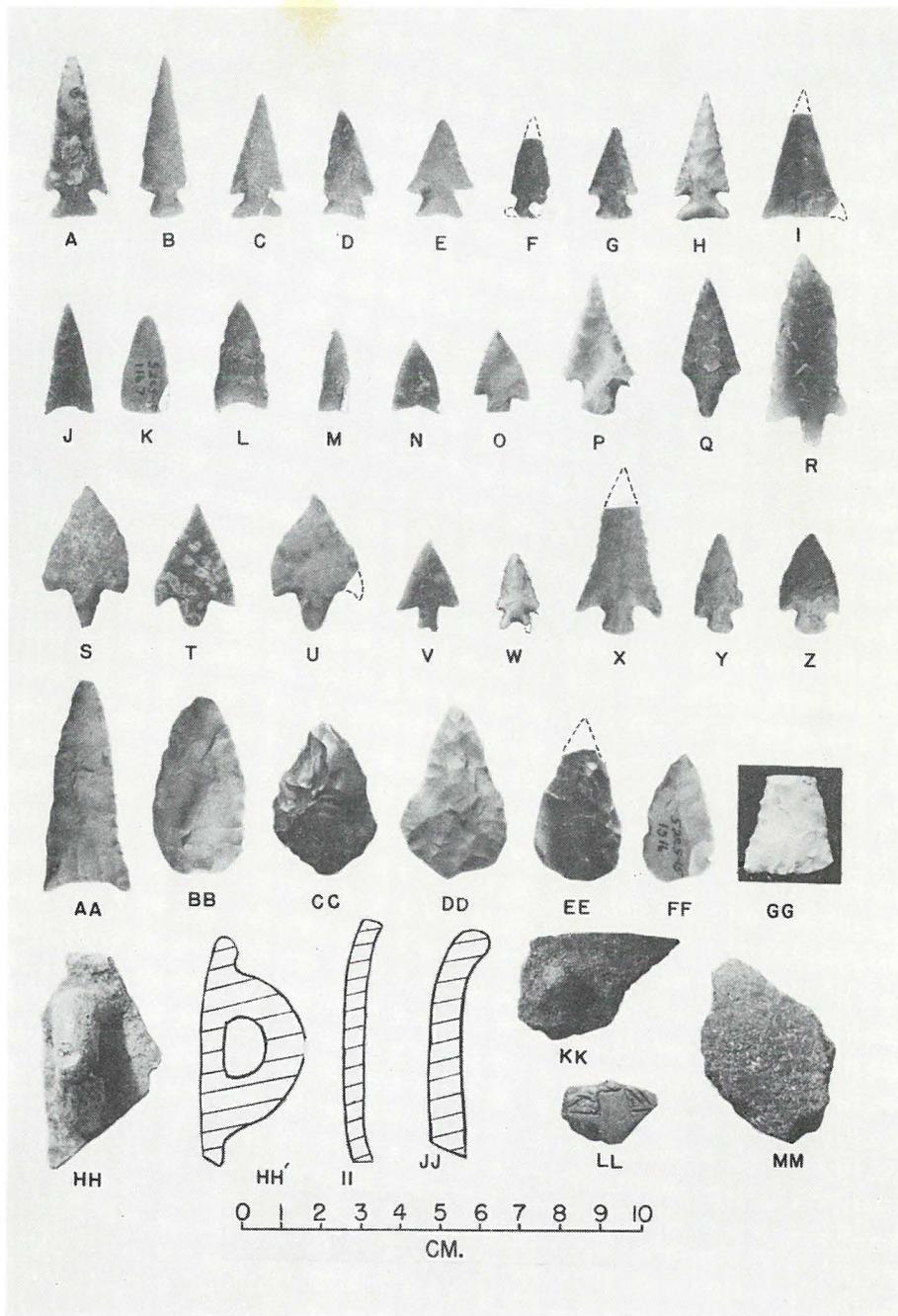


PLATE 2

A-H, Scallorn points. I, Starr point. J-N, Fresno points. O-P, Alba points. Q-U, Perdiz points. V, Cuney point. W-AA, unclassified. BB-GG, Young points. HH, KK, MM, sherds of Leon Plain. II, JJ, rim profiles of Boothe Brushed (exterior to right). LL, incised sherd.



that some may have been gently convex and not much thicker than the vessel walls. They may have been classified as body sherds.

Vessel shape and size: All appear to have been jars, probably about 18 to 25 cm. in height with oral diameter 14 to 18 cm. High rims flare gently outward and meet the body at a slight angle (Plate 1, A, C). Jars have no clear demarcation between the rim and body (Plate 1, G); their bodies usually bulge slightly below the rim or toward the lower portion.

### DECORATION

Treatment: Brushing, punctating and, less often, applique.

Design: Bodies covered with horizontal, vertical, or, less frequently, random striations; usually they are neat and closely spaced (Plate 1, A, C). Rims are usually brushed vertically or horizontally. All but one vessel (Plate 1, G) combine punctates with brushing. At least three have one to two rows of punctates at the juncture of body and rim (Plate 1, A-C, E, I); several have a row of punctates just below the rim (Plate 1, D, H). Punctates appear to have been made with blunt tools. Occasionally vertical fillets appear on the vessel bodies, just below neck punctates (Plate 1, E, F); rarely there are small nodes (number uncertain) just below the lip (Plate 1, H).

### CULTURAL AFFILIATIONS

At present known only as a minor type of the Central Texas Aspect. Similarity in paste suggests that it is linked with *Leon Plain*.

Brushed decoration sometimes combined with punctates and applique is a common feature of Fulton Aspect utility pottery in east Texas. Closest similarities are with *Bullard Brushed* of the Frankston and Titus Foci (Krieger, 1946; Suhm, Krieger, and Jelks, 1954, pp. 252-3, Plate 9), but *Boothe Brushed* differs considerably in paste and somewhat in vessel shape, size, and mode of brushing. It is not Caddoan trade ware and probably was made at the Collins Site.

### DISTRIBUTION

Definitely present only at Collins Site so far as known. A vessel from Kincaid Site, Uvalde County, is similar to the large jar in Plate 1, G (T. N. Campbell, personal communication). Some brushed sherds from the Belton Reservoir sites (Miller and Jelks, 1952, Tables 1 to 4)

were examined by the writer. A few resemble *Boothe Brushed* but the majority are more like the brushed Caddoan trade sherds found in Central Texas, like *Bullard Brushed*.

#### REFERENCES

Not previously described.

### CHIPPED STONE IMPLEMENTS

#### *Arrow Points*

Arrow points, totaling 70 specimens, were found on the surface and to a depth of 18 inches. For a detailed stratigraphic distribution see chart below; for illustrations of various types see Plate 2, AA-GG.

*Scallorn* is the most common type, being represented by 21 points. It occurred most frequently in the six to twelve inch zone; however over half of all the arrow points from the site were from this depth and the concentration of *Scallorn* in this zone does not seem significant. The majority of the points are corner-notched with prominent, often barbed shoulders and strongly expanding stems. Bases vary from straight, gently concave, to convex. Only one point (Plate 2, F) is definitely side-notched. As a group the *Scallorn* points are well-made, with fine marginal chipping which often produced tiny serrations.

Most numerous of the triangular arrow points is *Fresno*, which consists of eight specimens. Seven have concave bases; the eighth has a gently convex base. Several are very small, 1 to 1.5 cm. in length, while the largest is 3 cm. long. The blade of one point (Plate 2, L) is serrated.

One triangular point is classified as *Starr* because of its three concave edges. It was the only projectile point found in Test Pit D, at the western extremity of the site. Another triangular arrow-point type, *Young*, is represented by six specimens. These range in workmanship from poorly-made, simply trimmed flakes, to fairly well-chipped points. They are distinguished from *Fresno* points by their larger size, shape and somewhat poorer chipping. Two *Young* points (Plate 2, CC, DD) have faint suggestions of a stem, but

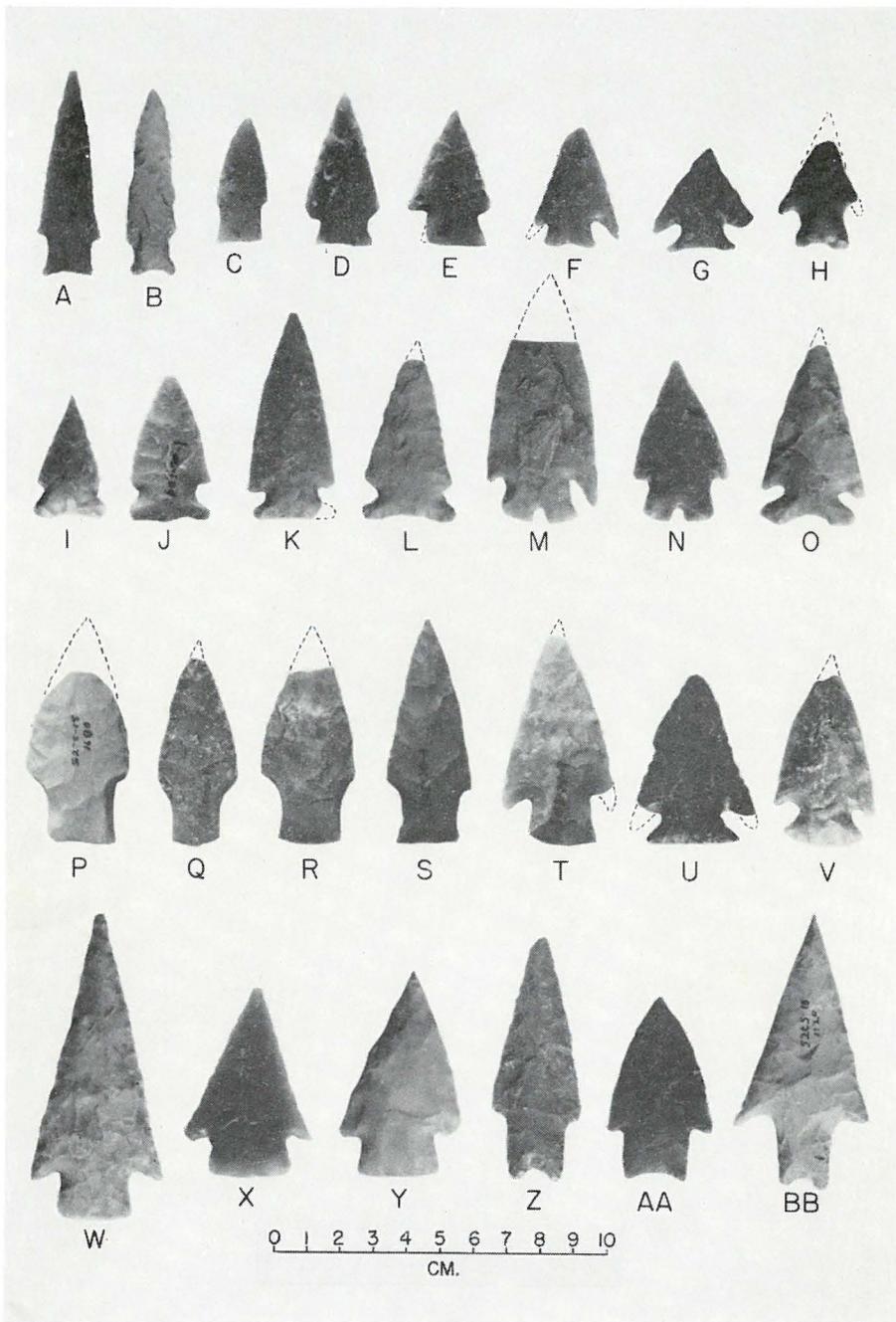


PLATE 3

A-C, Darl points. D, E, Ellis points. F, G, Edgewood points. H, Uvalde point. I-L, Ensor points. M, N, Montell points. O, Frio point. P-R, Nolan points. S, T, Lange points. U, V, Marcos points. W-Y, Castroville points. Z-BB, Pedernales points.



they are not definite enough to be classified as *Cliffton* points.

Most of the eight *Perdiz* points are thin, crudely-chipped flakes. It is important to note—in view of the two recent reports of the superposition of *Perdiz* over *Scallorn* (Jelks, 1953; Anonymous, 1954)—that there was no stratigraphic separation of *Perdiz* and *Scallorn* points here. In several squares they were found within the same six-inch level. However, the difference in frequency (21 *Scallorn* as opposed to 8 *Perdiz*) possibly has chronological implications. Perhaps *Perdiz* points were just being introduced into the area and had not become a popular style. It is also possible that the association of *Perdiz* points with *Scallorn* points is due to a slow rate of alluvial deposition combined with mechanical disturbances that occurred during occupation of the site by aboriginal groups. There may be some significance in the absence of *Cliffton* points which consistently occur at sites where *Perdiz* is well represented.

A small point having a triangular blade and slender rectangular stem with shallow V-shaped basal notch is identified as *Cuney* (Plate 2, V). *Cuney* is more common in central-east Texas, where it appears primarily in historic context.

*Alba*, represented by two specimens, is the only other arrow-point type recognized. Both have rectangular stems and straight blade edges. Concave blade edges are more typical of east Texas *Alba* points, whereas this feature is rare or absent in central Texas.

The remaining arrow points consist of 18 fragments too incomplete for identification and five points which could not be classified. Three of the unclassified points (Plate 2, X-Z) have slightly expanding stems with convex bases and blade edges that vary from straight, to convex, and concave. In some respects they are reminiscent of both *Scallorn* and *Alba*, but to include them with either of these types would obscure their distinctiveness. Their recognition as a



separate type or extreme variant of *Scallorn* or *Alba* should depend upon additional distributional data.

One of the remaining untyped specimens is a small point with a slightly expanding, deeply bifurcated stem (Plate 2, W). A similar specimen is illustrated by Huskey (1935, Plate 15, second from the right). Though somewhat similar to *Cuney*, it differs enough to make identification with that type uncertain. The fifth unclassified point (Plate 2, AA), a slender triangular specimen, is notably longer than the other arrow points, but it is light and does not fit into the dart-point category. The base is slightly concave, somewhat reminiscent—probably fortuitously—of *Maud* points in east Texas.

Table I  
DISTRIBUTION OF ARROW POINT TYPES

	SURFACE				TOTAL	PLATE
	0" - 6"	6" - 12"	12" - 18"			
Scallorn	1	4	13	3	21	2, A-H
Fresno		2	5	1	8	2, J-N
Perdiz	3	2	2	1	8	2, Q-U
Young		1	4	1	6	2, BB-GG
Alba			2		2	2, O and P
Starr			1		1	2, I
Cuney			1		1	2, V
Unclassified		4	1		5	2, WX-AA
Indeterminate fragments			12	6	18	
TOTAL	4	13	41	12	70	

#### Dart Points

A total of 287 dart points was recovered; of these 60 are too fragmentary for classification and seven cannot be assigned to any recognized type. The remaining 220 are identified as belonging to 24 types.

As stated previously, typological groupings follow those presented in *An Introductory Handbook of Texas Arche-*

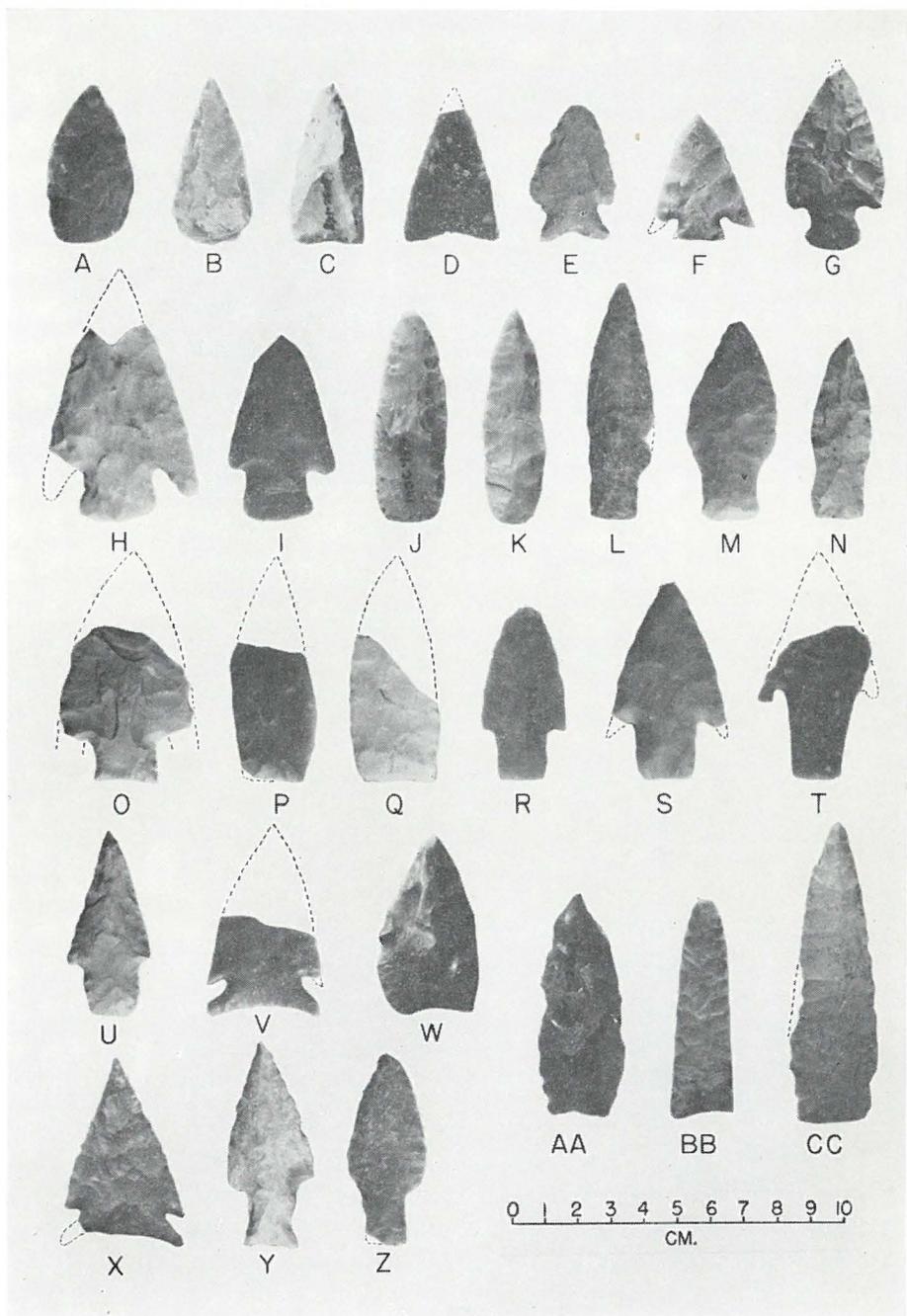


PLATE 4

A, B, Abasolo points. C, D, Tortugas points. E, Martindale point. F, V, X, Y, Z, BB, unclassified. G, Palmillas point. H, I, Williams points. J, K, Refugio points. L-N, Travis points. O, Marshall point. P, Q, Pandora point. R-U, Bulverde points. W, AA, Kinney points. CC, possible Scottsbluff point.



ology. Although the range of variation is discussed and illustrated in that publication, there are several projectile point features and type groupings which should be elaborated before considering the distributional data.

*Ensor*, represented by the largest number of identifiable points (39), includes all side-notched specimens from this site which have lateral edges of the stem approximately in line with the blade edges. About a third of the *Ensor* points have concave bases, a greater frequency than has been noted elsewhere (Miller and Jelks, 1952, p. 172; Suhm, Krieger, and Jelks, 1954, pp. 422-3, Plate 90).

Approximately a third of the 17 *Darl* points have alternately beveled blade edges; only one has the lateral edges of the stem smoothed. Beveling of the blade also occurs on four of the six *Tortugas* points, four of the 39 *Ensor* points, one of the 10 *Lange* points, one of the 14 *Bulverde* points, and one of the nine *Nolan* points.

The five specimens recognized as *Pandora* points (Plate 4, P, Q) overlap with the knives, but are narrower and lighter than knives. The same possibility may apply to the six *Kinney* points (Plate 4, W, AA) and two *Refugio* points (Plate 4, J, K). There are resemblances between the five *Edgewood* points (Plate 3, F, G) and the single *Uvalde* point (Plate 3, H), but *Uvalde* has a deeper basal notch, the stem is less expanding, and it is larger (the illustrated point appears to have been reworked). The point illustrated in Plate 3, AA is identified as *Pedernales* despite the shallow base notch. All but one of the other 32 *Pedernales* points have deep basal notches (Plate 3, Z, BB). The *Palmillas* point (Plate 4, G) is distinguished from the four *Williams* points (Plate 4, H, I) principally by its smaller size. One of the 14 points identified as *Bulverde* (Plate 4, T) has an exceptionally long stem, but is probably a variant of that type.

A point found in one of the gullies has a number of the characteristics of the *Scottsbluff* type — parallel flaking, thick cross-section, slightly off-set stem, and faint smoothing

along lateral edges of the stem. However, several of these features are not pronounced enough to make the identification certain. If this is an early type point, it is the only one found at the site (Plate 4, CC).

The seven unclassified points include two specimens (Plate 4, V, X) which are short and broad with strongly expanding stems and deeply concave bases. They came from the surface, 6 to 12 and 18 to 24 inch levels. The remaining untyped specimens are two points (Plate 4, Y, Z) which have long and narrow stems, triangular blades, and weak shoulders (from 18-24 and 30-36 inch levels respectively); one long and narrow triangular point (Plate 4, BB) from the 18-24 inch levels has slight smoothing along the lateral edges; and one small corner-notched point (Plate 4, F) has long barbs and expanded, straight-based stem (from 12 to 18 inch level).

In examining the above frequencies and stratigraphic data, it should be recalled that only five of the 30 squares were excavated to a depth exceeding thirty-six inches. This will account, in part, for the greater number of points in the upper six zones. However, it was apparent in the field that as digging proceeded into the deeper levels there was a notable decrease in cultural material. As another word of caution, it should be emphasized that the six-inch levels are arbitrary and that within these zones the position of a point was not recorded. And, finally, as many types are sparsely represented, *any conclusions are very tentative.*

All types listed here have been noted elsewhere (Suhm, Krieger, and Jelks, 1954, p. 108) as occurring in the Edwards Plateau Aspect. The frequency tabulation is about what one would expect, with the possible exception of *Williams, Marshall,* and *Uvalde* which are not common.

Table II

## DISTRIBUTION OF DART POINT TYPES

	UPPER		MIDDLE				LOWER					TOTAL	PLATE	
	0" - 6"	6" - 12"	12" - 18"	18" - 24"	24" - 30"	30" - 36"	36" - 42"	42" - 48"	48" - 54"	54" - 60"	60" - 66"			
Ensor	6	3	4	9	5	9	3						39	3, I-L
Pedernales	6		3	4	4	2	10	2	1	1			33	3, Z-BB
Darl			8	5	2	2							17	3, A-C
Castroville	2	1	2		2	2	5	1			1		16	3, W-Y
Bulverde	1	1		3	2	1	2	2	1	1			14	4, R-U
Travis			3	1		3	3		1				13	4, L-N
Lange	2		1		1	4	1			1			10	3, S-T
Montell	1		1	2	1	2	2			1			10	3, M-N
Nolan	2			2	1		1		1		2		9	3, P-R
Ellis	1		2	1		1	1	1	1				8	3, D-E
Kinney		2		2	2								6	4, W-AA
Tortugas	2	1	2	1					1				6	4, C-D
Pandora		1	1	1	1	1							5	4, P-Q
Marshall			1		4								5	4, O
Abasolo	1		1	1	2								5	4, A-B
Marcos		1			1	1	2						5	3, U-V
Edgewood					1	2	1						5	3, F-G
Williams	1				2	1							4	4, H-I
Frio			1	1	1								3	3, O
Martindale			1	1									2	4, E
Refugio	1				1								2	4, J-K
Uvalde						1							1	3, H
Palmillas	1												1	4, G
Scottsbluff?	1												1	4, CC
Untyped	1		1	1	3		1						7	4, V, BB
*Fragments	5	3	14	14	5	7	6	1	1	2	1	1	60	
TOTAL													287	

\*May include knife fragments

This stratigraphic position of *Darl* and *Ensor* confirms earlier suspicions (Miller and Jelks, 1952, p. 172) of late Edwards Plateau and early Central Texas Aspect affiliations. This may not apply to *Ellis* nor *Edgewood* as has been suggested (Suhm, Krieger, and Jelks, 1954, p. 108).

In even a cursory examination of the chart it is apparent that the greatest range of dart styles occur within the upper twenty-four inches. Some forms such as *Pandora*, *Abasolo*, *Frio*, and *Kinney* may not have spread into the Austin vicinity until late Edwards Plateau Aspect time, being found more often in sites to the west and southwest of this area. Gradual accretions to the dart-point styles, coupled with a lingering on of other forms such as *Pedernales*, *Bulverde*, and *Nolan* would certainly augment the variety of forms. An alternative speculation is that the site, in the later phases of its occupation, was frequented more often by different groups. This latter explanation, however, assumes vague and flexible or frequently changing territorial boundaries—somewhat contrary to the situation usually noted for hunting and gathering peoples on the ethnological level.

It is possible to distinguish three levels based upon the distribution of dart-point types. The lowest levels are those below 36 inches, represented primarily by *Pedernales*, *Bulverde*, and *Nolan* points. The middle level, 18 to 36 inches, marks the appearance of a number of new types at the site, including *Ensor*, *Darl*, *Marcos*, *Williams*, *Marshall*, *Edgewood*, and several others. The uppermost level, surface to 18 inches, is the zone of mixture of dart points, arrow points, and pottery. This last zone may indicate a survival of most dart-point types into the early phases of the Central Texas Aspect. Again, it cannot be emphasized too strongly that the above zoning is based upon a small number of specimens. At best, the distributions offer some suggestions as to the relative chronology of dart-point types.

Other attempts to divide the Edwards Plateau Aspect into levels or smaller cultural units (phases or foci) include the schemes of Pearce (1932, p. 49), Sayles (1935), Huskey (1935,

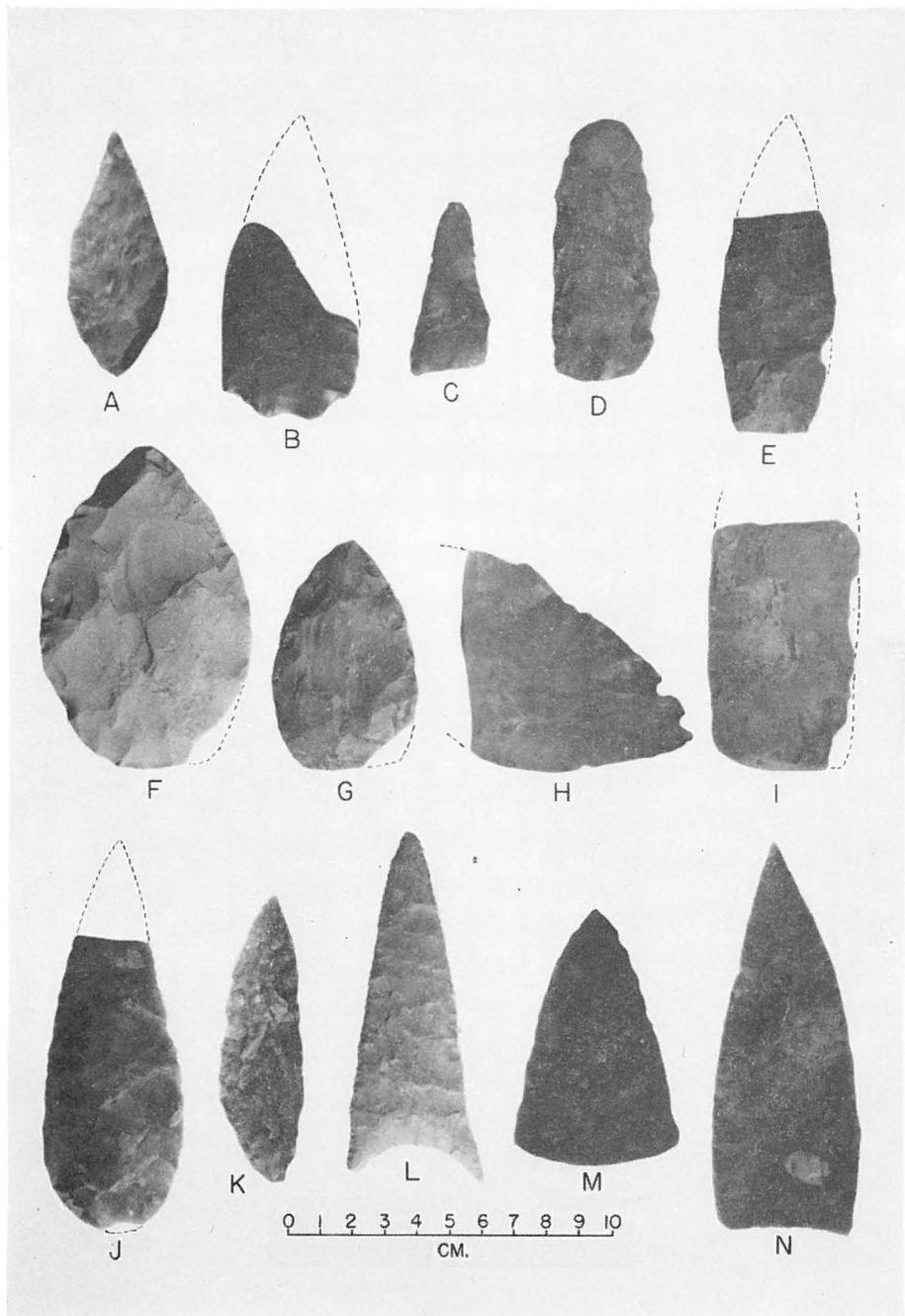


PLATE 5

A, diamond-shaped, double-beveled knife. B, stemmed knife. C, N, asymmetrical knives. D, I, parallel-edged knives. E, J, lanceolate knife. F, G, oval knives. H, corner-tanged knife. K, double-pointed knife. L, M, triangular knives.





p. 108), and Kelley (1947a, 1947b). These breakdowns, like the one presented above, are based almost entirely upon stratigraphic and/or areal distributions of dart-point types. The data at the Collins Site correspond most closely with Pearce's bottom, middle and upper zones; whereas there was relatively little evidence to support the other three classifications.

### *Knives*

The 186 knives are represented principally by tip and medial fragments too incomplete for classification. However, 71 can be grouped according to shape.

Oval-shaped knives (Plate 5, F, G, J), ranging in length from 6.5 to 12 cm. and 3.5 to 6.5 cm. in width, constitute the largest category (27 specimens). Bases are slightly to strongly convex. Nineteen knives have roughly parallel blade edges with bases straight, concave, or convex (Plate 5, D, I). They measure 7.5 to 12 cm. in length and 3.5 to 5 cm. in width. Triangular forms (Plate 5, L, M) consist of 13 specimens and are the third most frequent group. Bases are concave or convex, but not straight. One specimen (Plate 5, L), of exceptional workmanship, has serrations along the blade edges and the base. It is the only knife that may be associated exclusively with the Central Texas Aspect.

Minor forms include five lanceolate knives (Plate 5, E), a diamond-shaped knife having alternate bevels at one end (Plate 5, A), two double-pointed knives (Plate 5, K), one corner-tang knife (Plate 5, H), three asymmetrical forms (Plate 5, C, N), and two stemmed knives (Plate 5, B). Both stemmed knives bear some resemblance to *Pedernales* points, but the stems are notably shorter and the overall dimensions, much larger. The corner-tang knife, found on the surface, appears to be a reworked specimen, possibly made from a larger knife.

With the exception mentioned above, all knife forms found in place occurred in the lower levels in Edwards Plateau

Aspect context. In addition, most continued into the upper zones (e. g., above 18 inches) with little change in frequency. The mixture of Edwards Plateau and Central Texas Aspects in the upper levels makes it difficult to determine the affiliations of the knives from these zones. Probably most continued to be used by people of the Central Texas Aspect, but this can be answered better by data from less mixed sites.

### *Scrapers*

Sixty-six plano-convex implements are classified as scrapers. These are further grouped into snub-nosed, large end and/or side scrapers, concave scrapers, and turtle-backed, depending upon the size, position of the scraping edge and cross-section.

The 21 snub-nosed scrapers were made from relatively thin, sometimes curved flakes and have blunt, well-made bits. With one exception, chipping is confined to the bits and lateral edges, and in all instances the bit is convex. Marginal retouching occurs on the lateral edges of all specimens and evidently was to form cutting or scraping edges, rather than to shape the body of the scraper.

On the basis of size the snub-nosed scrapers fall into two well-defined categories. One group (Plate 6, F, G) consists of 14 scrapers which are small, ranging from 4.5 to 5.5 cm. in length, .5 to 1.5 cm. in thickness (at the bit end), and 3 to 5 cm. in width. The remaining five (Plate 6, M, N) measure 7 to 10 cm. in length, 1 to 1.5 cm. in thickness (at bit end), and 4.5 to 6 cm. in width. There was no significant difference in the distribution of these two groups.

All but two of the snub-nosed scrapers were found with pottery and thus appear to belong primarily to the Central Texas Aspect occupation. However, a small and a large one occurred below the pottery and arrow-point zone, in association with Edwards Plateau artifacts. There were no indications of any mixture and all evidence suggests that snub-nosed scrapers appeared in Central Texas before pottery

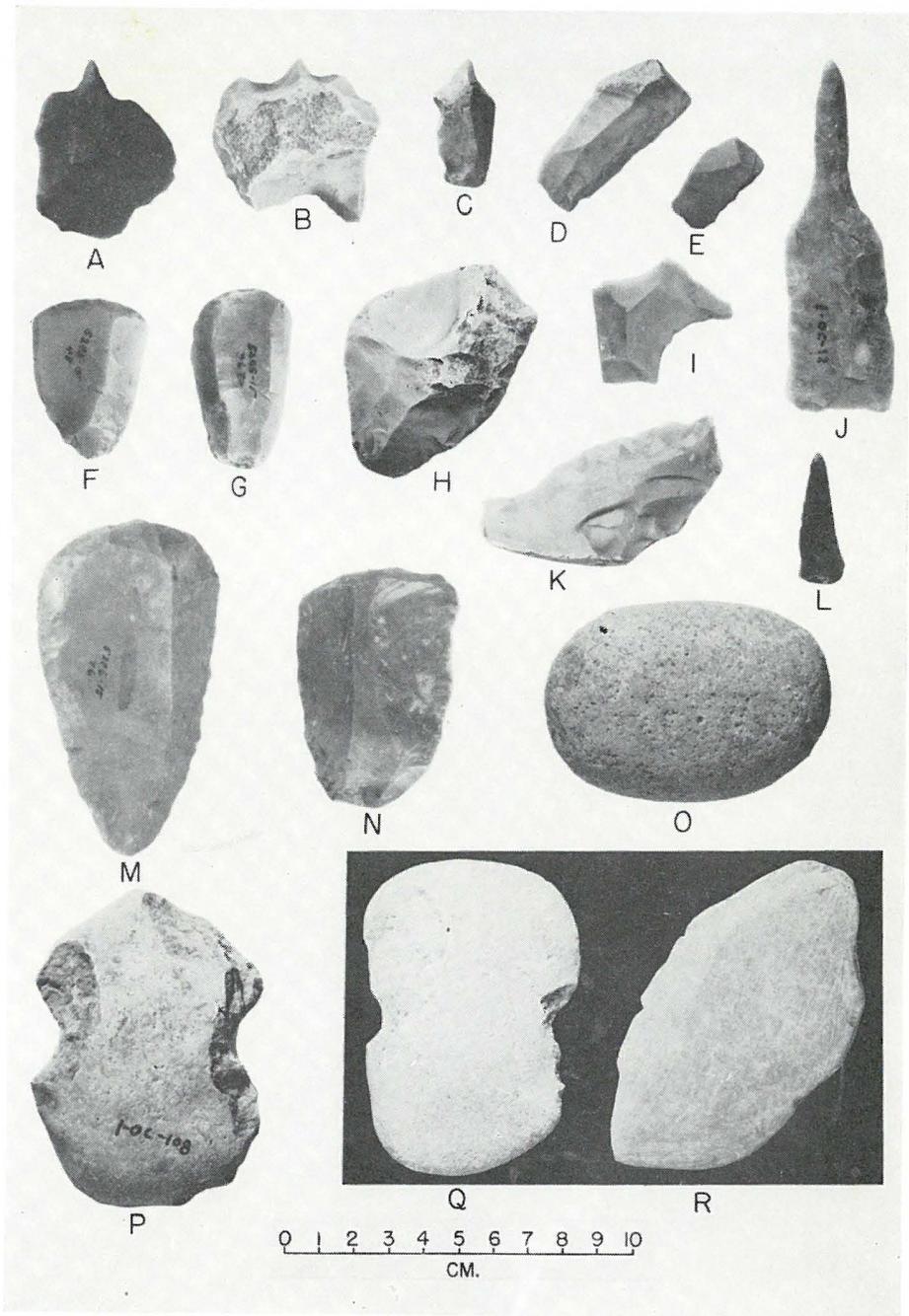


PLATE 6

A-C, graters. D, E, H, utilized flakes. F, G, M, N, snub-nosed scrapers. I, concave scraper (spokeshave). J, L, drills. K, flake chopper. O, mano. P, Q, side-notched pebbles. R, scored slate.



and arrow points, attaining greatest popularity in the Central Texas Aspect.

Forty-one of the scrapers can be characterized as large and poorly made with unifacial chipping along one or more edges (Plate 7, H, I, O). Outline shapes vary from disc to oval and to rectangular. Scraping edges in a few instances are quite sinuous and in almost all cases a portion of the crusted surface of the flint nodule is visible. Positions of the scraping edges are variable: 15 are on the end; four combine end and one lateral edge; five are chipped along one end and both sides; seven have scraping edges along both sides; and 10 are chipped along one side. These large scrapers were more common in the deeper levels, particularly between 24 and 36 inches, but continued into the upper zones.

Only three concave scrapers or spokeshaves (Plate 6, B, I), one from the surface and the other two from Edwards Plateau Aspect context, were found at the Collins Site. One had a small graver point on the edge opposite the concavity (Plate 6, B).

Two scrapers are classified as "turtle-backed" because of a high medial ridge which tapers toward the proximal end. Both are well-made and roughly oval in outline. The bluntness of the distal ends suggests that they may be merely well-made end scrapers, but they stand out in workmanship and in shape. The distal ends and both lateral edges show some evidence of use. Both are from the upper levels, associated with pottery.

### *Gouges*

This class of chipped-stone implements numbering 15 specimens, overlaps the end scrapers, but is set apart primarily because of specialized bits which possibly indicate uses different from end scrapers.

Ten of the gouges fall within the range of the Clear Fork type, first described by Ray (1929, 1938). Four of these are unifacially chipped and triangular to almost rectangular in

shape, with straight to slightly convex bits (Plate 7, A-C). Three are bifacially chipped, triangular in shape and have concave bits (Plate 7, D-E). One of the triangular plano-convex gouges is considerably narrower than the others, but it has all the other characteristics of the Clear Fork gouge (Plate 7, B). The remaining three gouges consist of proximal fragments. Considerable variation is allowed in the Clear Fork gouge, as finer divisions are difficult to make without more descriptive and distributional data than are available at present.

Stratigraphic positions of the Clear Fork gouges were variable: two of the plano-convex ones occurred in the 54 to 66 inch zone and were among the most deeply buried artifacts excavated. The other gouges were found within and below the pottery and arrow-point level. However, the Clear Fork gouges appear to be associated primarily with the Edwards Plateau Aspect.

The other five gouges, all found between 18 and 36 inches, differ considerably from the Clear Fork series. They are oblong to almost rectangular in shape (5.5 to 10 cm. long, 3 to 6 cm. at the mid-section, and 1.5 to 3.4 cm. in maximum thickness), bi-convex, and have bits which are transverse to the blade at a slight angle (Plate 7, F-G). In longitudinal section they resemble an irregularly-shaped lens which has been severed diagonally across one end. The bits, which are the most distinctive feature, appear to have been well adapted for hollowing or scooping. Only one of these gouges has a bit at both ends.

Although based on a small sample, the latter five gouges were found only in the upper Edwards Plateau levels, below pottery. The Clear Fork type, however, was found in the deeper zones, continuing with a slight decrease in number into the upper zones. These data suggest that the Clear Fork gouge is the earlier of the two, at least in the Austin vicinity, but this should be checked further at sites where both are present in larger numbers.

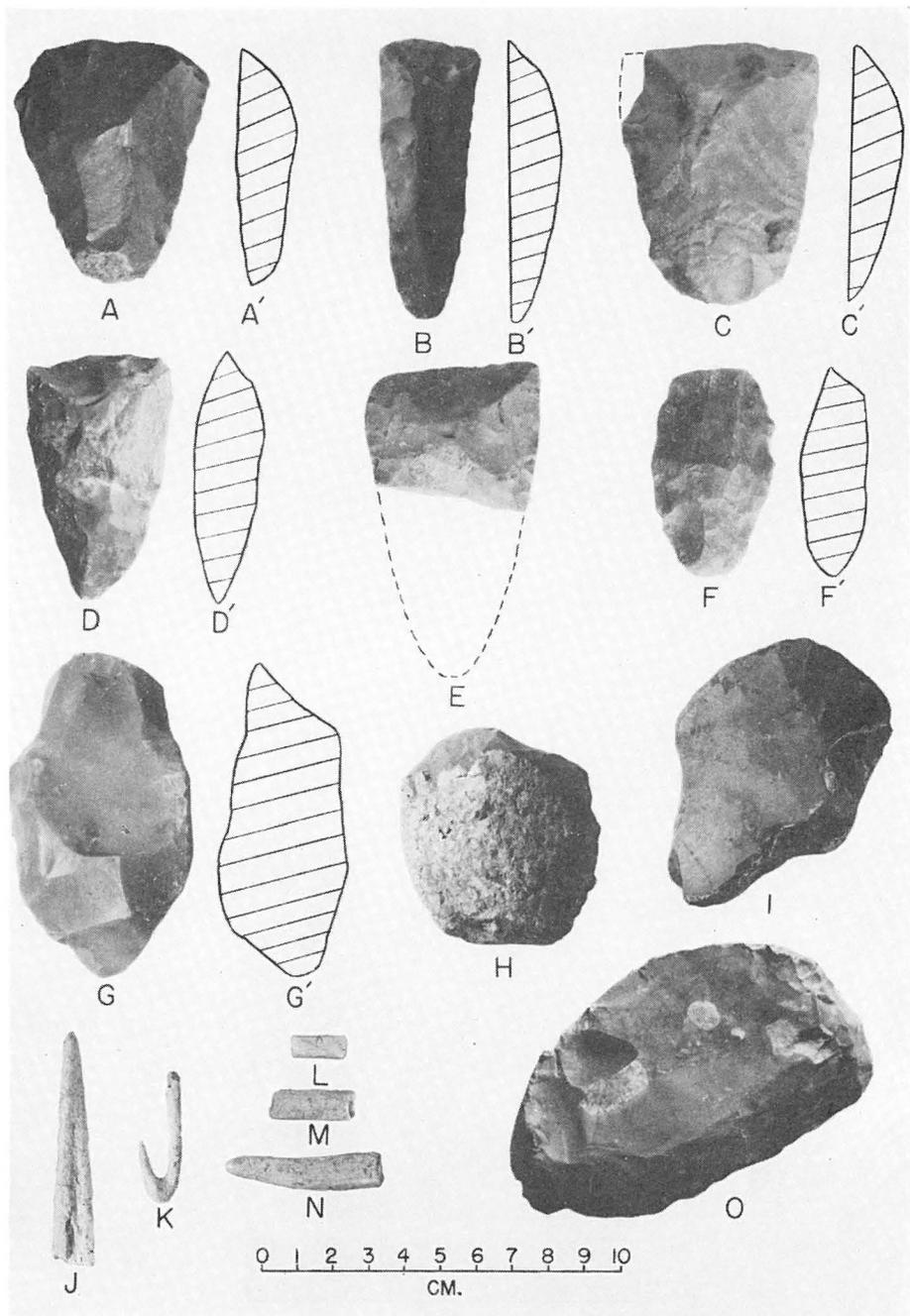


PLATE 7

A-E, Clear Fork gouges. F, G, bi-convex gouges. H, I, heavy end scrapers. J, bone awl. K, bone fishhook. L, M, bone beads. N., antler-tip flaking tool (?). O, heavy side scraper.





### *Gravers*

Chipped-stone implements with short, beak-like projections are classified as gravers (Plate 6, A-C). The 21 from the Collins Site were made from large to small irregularly-shaped flakes, with a minimum amount of marginal retouching to shape the graver point. Frequently a graver and scraper were combined on one specimen (Plate 6, B). Only one has two graver points.

Most of the projections are too short for boring purposes, but are well suited for cutting or incising material such as bone, shell, or pottery. Gravers occurred from the surface to a depth of 60 inches with no particular concentration in any zone.

### *Utilized Flakes*

Irregularly-shaped flakes with marginal retouching along one or more edges have been referred to variously as flake scrapers, utilized flakes, and retouched flakes. They are common in many archeological sites and probably constitute one of the simplest and most useful stone tools. The retouched edges are serviceable for many cutting and scraping purposes. At the Collins Site 111 utilized flakes were found (Plate 6, D, E), represented with about equal frequency in all levels.

### *Drills*

The only complete drill was a large specimen, 10 cm. long, possibly rechipped from a slender, lanceolate-shaped knife (Plate 6, J). The other drills consist of five shaft fragments, two of which are alternately beveled. None was found below a depth of 24 inches. One of these fragments (Plate 6, L), from the top 6 inch level, appeared to be a portion of a small flake drill, characteristic of the Central Texas Aspect.

### *Heavy Blades*

Of the 96 bifacially-chipped blades from the site, 31 are fragments. Those complete or nearly so vary mainly in shape, being grouped into: oval (32), rectangular or parallel-

sided (22), circular (5), triangular (4 specimens—3 with convex bases, the other concave), and irregular (2). Otherwise, the blades are similar in being crudely chipped, often retaining a portion of the flint nodule crust, thick and relatively large. They range in length from 6 to 16 cm., in width from 4 to 11 cm., and in thickness from 1.5 to 5 cm. Blades of all shapes occurred in all layers, although approximately 60 per cent of them were from unmixed Edwards Plateau Aspect levels.

These tools are sometimes referred to as axes, as they are suitable for chopping. Although the edges of many are badly battered as one would expect of an axe, a number evidence very little wear. Some probably served as heavy knives, but the blade edges are not usually sharp. A few no doubt are merely cores, the residue from which flakes for projectile points, etc., were removed. Most must have been hafted as they are awkward to hold in the hand.

The 96 blades, particularly when combined with other heavy chipped-stone implements (choppers, heavy scrapers, etc.), constitute a rather high percentage of the artifacts from this site. A similar frequency prevails in many sites in central Texas. This may be due, in part, to the "catch-all" nature of this category. On the other hand, they must have been simply-made tools and judging from their appearance little time was spent in manufacturing them. It seems plausible that semi-nomadic groups, such as are suggested for the Edwards Plateau and Central Texas Aspects, would be reluctant to burden themselves with such implements when moving from one campsite to another, especially in an area such as central Texas where flint is so abundant. In short, the striking occurrence of heavy flint artifacts (including choppers, heavy scrapers and blades) might be attributed to availability of raw material, coupled with periodic moving of camp.

### *Choppers*

The choppers consist of heavy flint nodules with a blade along one edge. All have a portion of the nodule crust on

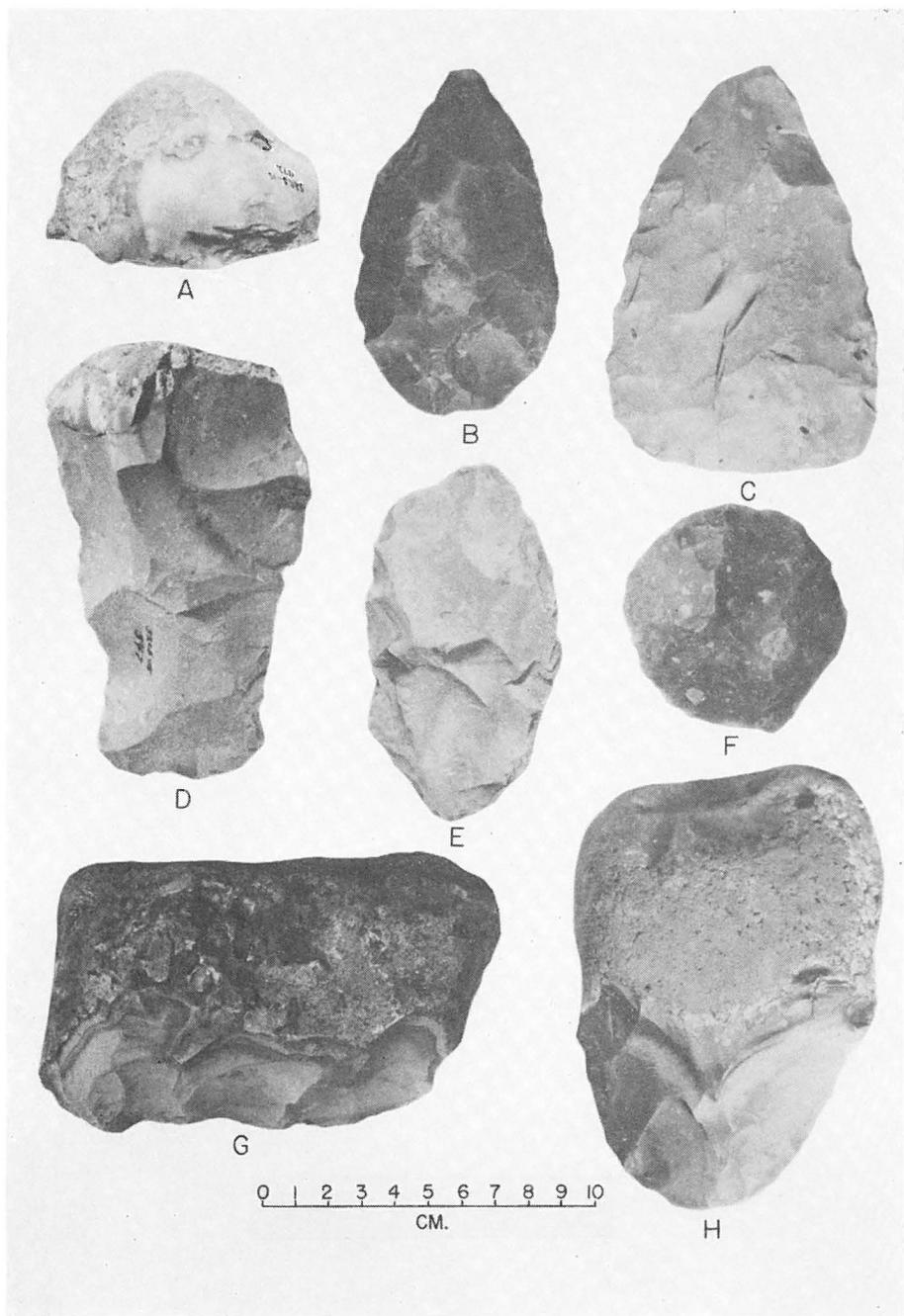


PLATE 8

A, hammerstone. B, C, E, F, heavy bifacial blades. D, "pick".  
G, chopper. H, hand-axe.



the edge opposite the blade. This proximal end conveniently fits the palm and is smooth so that it would not cut the user.

Twenty-two of the 30 choppers are very crudely made and have broad, sinuous cutting edges (Plate 8, G). Although almost every blade gives evidence of usage, four are extremely battered. Probably these four were re-utilized as hammerstones (Plate 8, A). If so, they constitute the only hammerstones recognized at the site.

Three specimens have narrower blades than the above. One, from the uppermost 6-inch zone, is well-made, with a carefully chipped convex blade (Plate 8, H). This type is sometimes referred to as a "hand-axe." The other two specimens (such as Plate 8, D) are more like picks, although the cutting edges are blunt rather than pointed. In workmanship they more closely resemble the other choppers than the hand-axe. The two "picks" were from the surface and the 60-to 66-inch zone.

Seven of the choppers were found at depths below 18 inches, and an additional 11 were from the surface. The remainder were excavated in the upper 18 inches.

#### *Flake Choppers*

This term is suggested for six chipped-stone implements which closely resemble the choppers, except that they are made from large flakes rather than cores (a small one is illustrated in Plate 6, K). Like the choppers, they have a portion of the flint nodule cortex opposite the blade edge. The blade edge of each specimen shows evidence of use, perhaps as a heavy knife. The five flake choppers found in place were from the upper 18 inches, suggesting that they may be associated primarily with the Central Texas Aspect. They range from 7.5 to 12 cm. in length and 4 to 6.5 cm. in width.

#### *Ground-Stone Artifacts*

Milling slabs and manos are the only ground-stone artifacts found at the site. Only one of the five milling slabs

is complete. It has a very small basin-shaped depression and weighs about 25 pounds. Rotary motion, indicated by the basin-shaped depression, is characteristic of all milling slabs. Three are limestone, one is montmorillonite clay, and one is a granite-like material. Only one is worn on both faces. They came from both Edwards Plateau and Central Texas Aspect levels.

Only four manos were recovered, a rather small number compared to most sites in central Texas. Two manos are quartzite, one quartz, and one granite. One mano found on the surface is almost wedge-shaped in cross-section; another is quite small, worn on all edges, but lacks a definite flat surface (Plate 6, O). This latter specimen was found in the small depression of the complete milling stone, at a depth of about 18 inches below the surface. The remaining two manos, both from the surface, are oval in shape and worn flat on both surfaces. One of these latter has a shallow longitudinal depression across the center of both faces. These depressions are smooth, but are not narrow and deep enough to suggest use as a shaft smoother; their purpose is unknown.<sup>2</sup>

#### *Miscellaneous Stone Artifacts*

Three flat, limestone pebbles (Plate 6, P, Q) have deep notches chipped in the lateral edges. All are stream worn and are oval to rectangular in shape, ranging from 7.5 to 9 cm. in length, 4.5 to 6 cm. in width across notches, and 1.5 to 2.2 cm. in thickness. None are battered at the ends, although the edges are sometimes battered, probably a result of chipping the notches (Plate 6, P). These side-notched pebbles are sometimes referred to as "sinkers", as they may have been fastened to fish nets as weights. Although none was found in place, they probably belong to the Edwards Plateau Aspect occupation (Jackson, 1938, p. 78; Watt, 1938, p. 31).

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2. The reader is referred to the article in this Bulletin by John Henry Ray, "Peculiar Manos from Lower Pease River Valley," for other examples of such manos (Editor).

A roughly elliptical piece of thin slate (Plate 6, R) is lightly scored on both faces. A portion of the edge is worn to a thin, flat facet. The slate measures 10.4 cm. long, 5.5 cm. across the center, and is .7 cm. in thickness. A considerably larger piece of limestone also has numerous longitudinal striations across one face. While both of these may have been used as hones, the striations are short and very shallow. An alternative and perhaps more plausible explanation is that they served as anvils in the cutting of hides, fibers, etc. The scores could be compared to the marks on a breadboard. Both were found in Edwards Plateau levels.

A number of well-worn pebbles, of a variety of materials, was found in various levels. These are far too large to have been deposited by the creek. They must have been carried in by human agency, although none show any definite indications of use.

#### *Artifacts of Bone and Antler*

Neither bone nor antler artifacts are common, presumably due mainly to conditions of preservation. Of particular interest are two bone fishhooks, shaped much like modern metal ones. One is nearly complete (Plate 7, K) and measures 4 cm. in length and 1.2 cm. across the lower end. The other is a distal fragment. Both came from the 12 to 18 inch layer, a zone of mixture of Edwards Plateau and Central Texas Aspects. Although of very rare occurrence in central Texas, one has been reported from a Central Texas component (Gatewood Site, Travis County, University of Texas files). It seems likely that the fishhooks from the Collins Site are also associated with the Central Texas Aspect.

It is difficult to determine how the fishhooks were made, but they must have been fashioned from the hard outer layer of a relatively thick bone, possibly deer or bison. A method of manufacturing a similarly shaped fishhook from a deer toe bone is described in the *Tennessee Archeologist* (Anonymous, 1953, p. 240) and perhaps those from the Collins Site were made in a like manner.



Fragments of four splinter awls or pins constitute the most common type of bone artifact. Three of these are from definite Edwards Plateau Aspect context (below 30 inches); the other was found in a mixed zone so that its cultural affiliation is hard to ascertain. All four appear to have been cut from leg bones (deer?), then further shaped by smoothing. However, none is complete so that the total form cannot be determined. There is no evidence of any decoration on the awls. Discontinuous striations, visible on all specimens, may represent scars from manufacture or incurred through use. The tip of the most nearly complete awl (Plate 7, J) tapers to a somewhat rounded point and shows signs of wear. Such an implement would be useful as a punch in weaving and sewing.

Although not complete, there are two deer ulnae which may have been utilized as tools. Their edges are slightly worn and they have vertical striations which appear to be the result of usage; however the critical distal ends are missing. Deer ulnae with cut and rounded distal ends are believed to have been used as flaking tools. The unaltered proximal end neatly fits into the hand and enables one to secure a firm grip on the tool. The ulnae were excavated within the upper 18 inches and may belong to either or both aspects.

Two cylindrical, undecorated bone beads (Plate 7, L, M), 2 and 1.2 cm. long respectively, were found in the 6 to 12 and 18 to 24 inch layers. They are apparently associated with both the Central Texas and Edwards Plateau Aspects. Similar bone beads have been found in Central Texas Aspect sites, but their occurrence in the Edwards Plateau Aspect is very rare.

None of the four fragmentary antler artifacts is complete enough for positive identification and one can only speculate on what they might have been. A fragment from near a deer skull has little evidence of having been altered, except that one end has been cut and smoothed. It appears to have been cylindrical in shape, possibly similar to the drill (?) handle described for the Edwards Plateau Aspect

(Suhm, Krieger, and Jelks, 1954, p. 110). It came from the 6 to 12 inch level. The other three are tips of antlers, possibly the distal ends of flaking tools (Plate 7, N). One is from the 6 to 12 inch zone, the other two from 18 to 24 inches.

### *Summary and Conclusions*

Occupation of the Collins Site can be attributed to the Edwards Plateau and Central Texas Aspects. Deeper zones contained unmixed Edwards Plateau Aspect material, whereas evidence of both aspects was found in the upper 18 inches. A Central Texas Aspect component was recognized primarily on the basis of the limited distribution—within the first 18 inches—of arrow points and pottery. It is these two traits which contrast most sharply with the Edwards Plateau Aspect. With several exceptions, the remaining artifacts were distributed throughout the site, though often varying considerably in frequency.

These two aspects are customarily analyzed as separate cultural units, with emphasis placed on the differences between them. This approach is certainly not without good foundation, but perhaps not enough attention has been directed to the similarities that exist between them. Correspondingly, the problem of their relationship has only been briefly mentioned (Kelley, 1947a, 1947b; Stephenson, 1951). The situation at the Collins Site calls attention to this problem and may contribute to the solving of it.

Undoubtedly some, or perhaps all, of the Edwards Plateau Aspect artifacts are accidental intrusions into the upper zones (i. e., picked up and possibly re-used and/or mixed as a result of the activities of subsequent occupation, such as would occur in the digging of pits, etc.) The Collins Site is not unique in this respect as similar overlaps have been reported elsewhere (Jackson, 1938; 1939; Kelley, 1947b; Miller and Jelks, 1952). However, it may be questioned that such incidents can account for all of the mixture. It is possible, as has been suggested by Kelley (1947a, p. 107; 1947b, p. 121), that the Edwards Plateau and Central Texas As-

pects were contemporaneous for a small part of their total existence and that the Indians of each aspect frequented the site at different intervals. An alternative possibility is that the upper zones represent, at least in part, the transitional period between the Edwards Plateau and Central Texas Aspects—a time when several new traits were being accepted, but had not entirely replaced older ones.

Despite the absence of empirical data to the contrary, it is highly improbable that the bow and pottery are local inventions. The concepts, if not actual specimens, of these items probably spread into central Texas from an adjacent region (or regions?), though the source has not been identified to date. However, this does not necessarily mean that these traits were accompanied by a change in the population of central Texas.<sup>3</sup> Unfortunately there is no information on skeletal remains available for comparative studies, to determine whether or not different populations are represented.

There is evidence suggesting that Central Texas Aspect is by and large a development out of the Edwards Plateau Aspect, with distinctive accretions. The total distribution in Texas of the two complexes is approximately the same, and components of both aspects are commonly represented at a single site. In addition, many artifacts appear to be shared, and the tool inventory is essentially the same. More importantly, certain cultural traditions, so far as can be reconstructed from archeological data, remained basically unchanged. Hunting, supplemented by food-collecting, continued to be the principal means of livelihood. Because of the presence of trade pottery obtained from agricultural Caddoan groups to the east, it is probable that people of the Central Texas Aspect were at least aware of plant domestication. However, with some possible exceptions in regions nearest the Caddo, there is no good evidence that

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3. It is not clear whether or not Kelley (1947a, 1947b) regards the people of the Central Texas Aspect as ethnically distinct from those of the Edwards Plateau Aspect.

agriculture was ever actually practiced in central Texas. Its failure to spread here may lie primarily in the deeply-rooted non-agricultural economy of central Texas, based on an abundance of natural food products, rather than any climatic or physiographic factors.

All known habitation areas of both aspects are campsites of a more or less temporary nature, as opposed to the village sites of sedentary groups. Admittedly, Edwards Plateau Aspect sites are usually larger and thicker, presumably because they were occupied for a longer time than those of the Central Texas Aspect. It can be inferred that these sites represent favored camping spots of hunting and gathering groups, to which they returned repeatedly. One might speculate further that the prevailing type of social organization of both aspects was that of a band, which in turn probably consisted of a variable number of families, such as has been described for the historic Coahuiltecan (Ruecking, 1954) and to some extent for the Tonkawa (Sjoberg, 1953, pp. 289-90). These bands might have been further grouped into a loose tribal organization, bound by a common language and culture.

If the above assumptions are valid, which is by no means certain, it seems likely that there was a transitional period between the two aspects. Identification of this hypothetical period is difficult, but there are some indications. Excavations at Blum Rockshelter in Hill County (Jelks, 1953) and at Smith Rockshelter (Anonymous, 1954; Suhm, 1955) recovered occupations in the lowest levels which were not typical of either the Edwards Plateau or the Central Texas Aspect. The lowest zone at Smith Rockshelter can be tied in with the nearby Collins Site largely through the common presence of *Darl* points.<sup>4</sup> How much (if any) of the upper 18 inches at the Collins Site can be attributed to this hypothetical phase is uncertain.

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4. In the Blum Rockshelter, *Yarbrough* rather than *Darl* points occurred in the lowest levels. The two types are quite similar and were probably contemporaneous.

The Edwards Plateau Aspect has been divided into three foci (Round Rock, Clear Fork, and Uvalde) on the basis of a single dominant type of dart point for each (Kelley, 1947a, 1947b). The Central Texas Aspect has been divided into the two foci (Toyah and Austin) on the basis of a single dominant type of arrow point for each (*Idem*). At the Collins Site, as well as many other sites in Central Texas, the projectile-point types for all of these foci occur. The writer has therefore preferred to discuss this site only in terms of the Edwards Plateau and Central Texas Aspects.

Dating the Collins Site occupation is difficult and at present can only be stated in general terms. A large number of charcoal and snail-shell samples was collected for radiocarbon dating, but none have been analyzed as yet. From the absence of European objects in association with Indian material, it is assumed the site was abandoned not later than about 1600 A. D. The beginning of occupation cannot be determined but quite probably preceded the Christian era by a considerable time. A geological analysis of the terrace deposits which accumulated along with human occupation has not been attempted here, but should provide some age estimates when done.

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## LITTLE SUNDAY: AN ARCHAIC SITE IN THE TEXAS PANHANDLE

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As recently pointed out by Suhm, Krieger and Jelks in their *Introductory Handbook of Texas Archeology* (1954, p. 63), practically nothing is known about the Archaic Stage in the Texas Panhandle, and "The definition of cultural remains in this gap is an important future problem for Texas archeology." Their statement that "no sites have yet been located where a definite complex can be defined" (p. 66) is not strictly accurate, for the archeological survey conducted by the Panhandle-Plains Historical Museum since 1952 has revealed a great many Archaic sites in the Panhandle. However, it is true that no reports had been published on these sites up to that time. The purpose of this article is to help remedy this situation (see also: Tunnell and Hughes, 1955).

Although none of the Archaic sites located by the Museum has been excavated, and few of them have been tested, surface examinations at several have produced significant results. Considering this fact, and the urgent need for data on the Archaic Stage in the Panhandle, it seems worthwhile to report initial work at one of these sites, pending future excavation. For this purpose one of the richest and purest localities so far discovered, the Little Sunday site (designated A160 in the Panhandle-Plains Historical Museum records), has been chosen.

Archaic sites in the Panhandle are of several different kinds, and have produced a wide variety of remains. This diversity is readily understood when it is realized that the Archaic Stage was several thousand years long—enough time for much cultural change even at the slow rate of simple cultures. It should be kept in mind, therefore, that the Little Sunday site is not necessarily typical of all sites throughout the Panhandle during the entire Archaic Stage. The complex represented at the Little Sunday site is yet to be fully defined culturally, geographically, and chronologically; there are other Archaic complexes in the Pan-



handle whose definition has not yet begun; and probably there are others whose existence is not yet even suspected.

### *The Region*

The Little Sunday site is on the Edd Reynolds ranch in eastern Randall County, Texas. It is on the northwest rim of Little Sunday Canyon, which drains northeastward into Palo Duro Canyon. Palo Duro Canyon, which drains southeastward, has been cut into the eastern Caprock Escarpment of the Staked Plains by the Prairie Dog Town Fork of Red River. Little Sunday Creek joins the Prairie Dog Town Fork within the boundaries of Palo Duro State Park, and on the southeast side of Little Sunday Canyon, the Lighthouse, a prominent erosional feature familiar to many park visitors, is visible to the east from the Little Sunday site.

The Staked Plains are a high piedmont sloping eastward from the Rockies, bounded on the north by the breaks of the South Canadian River, on the east by a tall jagged escarpment eroded by the headwaters of the Red, Brazos, and Colorado rivers, and on the west by the valley of the Pecos River. To the south the Staked Plains merge with the Edwards Plateau. In the vicinity of the Little Sunday site the Caprock Escarpment has an elevation of about 3400 feet, and the Prairie Dog Town Fork and its tributaries have cut through several hundred feet of the nearly horizontal sedimentary formations which underlie the present surface of the Staked Plains: Pleistocene loesses at the top; light-colored caliches and sands of the Ogallala formation (Pliocene); massive Trujillo sandstones and colorful Tecovas shales of the Dockum series (Upper Triassic); and red beds of the Quartermaster formation (Uppermost Permian) at the bottom.

Climatically, this is a land of extremes, with a temperature that rises and falls rapidly over a wide diurnal and annual range. Both heat and cold, however, are greatly ameliorated by the aridity, so that the weather is pleasant most of the time. Winds blow continually during most of

the year, prevailingly from the southwest. Cold "northers" strike suddenly in winter, but do not last long.

The Staked Plains are a broad, level expanse of grassland interrupted occasionally by narrow, winding strips of woodland reaching westward up the rare stream courses. Near the Little Sunday site mesquites border the canyons, and prominent among the profusion of trees and other vegetation within the canyons are junipers and cottonwoods. Until recently, bison and antelope on the plains and deer in the breaks were the principal game animals of the region. Migratory waterfowl are important among the game birds of the Staked Plains, since the region with its countless playa lakes is a major flyway.

#### *The Site*

The Little Sunday site was discovered on October 5, 1954, by University of California vertebrate paleontologist Dr. Don E. Savage and a party of students prospecting for fossils. Dr. Savage took me to the site on the afternoon of its discovery and I returned to it later that afternoon with another student group. A few days later, on October 10, I visited the site again with my family. Considering the abundance of artifacts on the surface around the site, its inconspicuous position, and its inaccessibility, I doubt that it had been searched before its discovery by Dr. Savage.

The site lies near the bottom of an eroded slope which stretches down from a flat interfluvial divide on the north to the sharp rim of Little Sunday Canyon on the south. It is a relatively small, roughly triangular patch of soil stabilized by sod, an erosional island surrounded by washes and sloping eastward, contrary to the general southward drainage around it. The cultural remains are buried in the soil, which lies on an erosional surface of similar eastward slope. It is evident that local topography has undergone considerable change since this surface was formed. That some of this change has taken place since the site was established on this surface, and is still taking place, is shown by the thickness of the cultural zone exposed at the heads of

the steep washes along the high west and south sides of the erosional island, and by the amount of camp debris in the washes—signs that much of the site has been removed along these sides and is still being removed.

The features that made this particular place attractive as a camp site are not readily apparent. The nearest water today consists of springs in the canyon below and playas on the flat above, although it is possible that some more convenient supply existed at the time the site was occupied.

The washes which surround the site reveal that what is left of the occupational zone rests on the fairly even, eastward sloping, erosional surface of a compact, highly calcareous, reddish sand which outcrops as bedrock at this level along the slope above the canyon rim. The cultural materials are contained in a relatively soft, humus darkened, brownish sand which reaches a thickness of more than 2 feet along the steeply washed south and west edges of the erosional island, and pinches out to the east. This deposit is covered with grass, in contrast with the denuded slopes around it.

Along the west and south edges of this deposit, where it is well exposed, flint chips, fire-darkened hearth rocks, and heat-cracked pebbles (probably used for "stone boiling" cooking) are visible from top to bottom of its outcrop, and are especially numerous in the lower part. The adjoining washes are littered with similar remains. Rock hearths of undetermined size and shape, accompanied by pieces of charcoal and bison bone, are being uncovered by erosion at a few places in the deposit. Future excavation of these features promises to add much to present knowledge of the cultural content of the archeological complex responsible for the site, and to provide materials for radiocarbon dating.

It remains to be determined to what extent the deposit enclosing the camp debris consists of reworked local sand washed onto the site from its formerly higher surroundings, or of wind-blown sand like that found at places on the interfluvial divide above the site.

### *The Artifacts*

Surface collecting to date has produced 160 artifacts. Although some of these were taken out of the occupational level, most were picked up in the surrounding washes. Except for two specimens of shell, all artifacts are of stone.

Of the 158 stone artifacts, 146 are chipped implements and 12 are grinding tools.

Most (107) of the 146 chipped stone artifacts are composed of local materials, 35 are from more distant sources, and four are of uncertain origin. The local materials are Tecovas jasper (73 specimens), a bright-colored, ledge-forming rock in Triassic outcrops of the eastern Caprock Escarpment; Ogallala chert (32), a drab, grainy stone occurring in basal gravels of local Pliocene beds; and silicified wood (2), obtainable from nearby sources. The foreign materials are the well-known Alibates flint (20), a silicified dolomite of Permian age from quarries in the Canadian River valley north of Amarillo; the fine gray flint from Cretaceous formations in Central Texas (12), which will be referred to here as Edwards flint; and Dakota quartzite (3), a pastel-colored metamorphosed sandstone of Cretaceous age outcropping along the western Caprock Escarpment in New Mexico. Although the materials of a few specimens may have been mistakenly identified, I believe the identifications are essentially correct. If they are reliable, they indicate a group of people depending mainly on local sources, hence probably residents of the area rather than travelers through it, but having some direct or indirect connections to the north, southeast, and west, in that order of importance. A more thorough study of flint sources in this and adjoining areas would yield valuable information.

Seventy-nine of the chipped stone artifacts are unifacially flaked, 67 are bifacially flaked.

The 79 unifaces are of three main kinds: 72 scrapers, five graters, and two gouges. Thirty-nine are Tecovas jasper, 17 Alibates flint, 14 Ogallala chert, seven Edwards flint, one Dakota quartzite, and one moss agate.

The 72 scrapers are of six kinds: 30 end scrapers, 19 side scrapers, eight flake scrapers, seven concave scrapers, five disc scrapers, and three core scrapers. Thirty-six are Tecovas jasper, 15 Alibates flint, 12 Ogallala chert, seven Edwards flint, one Dakota quartzite, and one moss agate.

*End scrapers* (30; Pl. 9, a-e). These are flakes with the dorsal face retouched across one end to form a rounded bit. Sixteen are complete, seven are bit fragments, and seven are butt fragments. The bit normally is at the opposite end of the flake from the striking platform. Rather thin, slightly elongated flakes usually were selected, but no particular form was preferred, and shaping was confined to the bit, although a few specimens have some retouching along one or both edges. As a result, most of the end scrapers are irregular in outline; only a few have the triangular outline often shown by such artifacts. The few triangular specimens tend to have steeper bits than the others, most of which have unusually low-angle bits. Thick-bitted and keel-backed forms are not present. Signs of hafting, such as constricted or smoothed edges, are lacking. The bits of a few specimens show slight wear. The end scrapers range in size from 29 x 24 x 27 to 64 x 42 x 10 mm.; most fall near the middle of this range. Twelve are Tecovas jasper, nine Alibates flint, six Edwards flint, and three Ogallala chert. Avoidance of coarse-textured stone for end scrapers is notable, and this may help explain the unusually high proportions of Alibates and Edwards flint in this artifact class.

*Side scrapers* (19; Pl. 9, f, g). These are flakes with the dorsal face retouched along one side to form a scraping edge. They are even less formalized and more variable than the end scrapers. A few specimens are incomplete. As a rule, the side scrapers are smaller and thicker than normal for this type of artifact, with a steeper bit. A few are thin, long, and narrow, but most are thick, short, and broad. Outline is irregular; any shaping is confined to the scraping edge, which is usually convex but may be straight or rounded. The scraping edges of a few specimens are slightly worn. Size is from 37 x 28 x 8 to 73 x 63 x 17 mm.

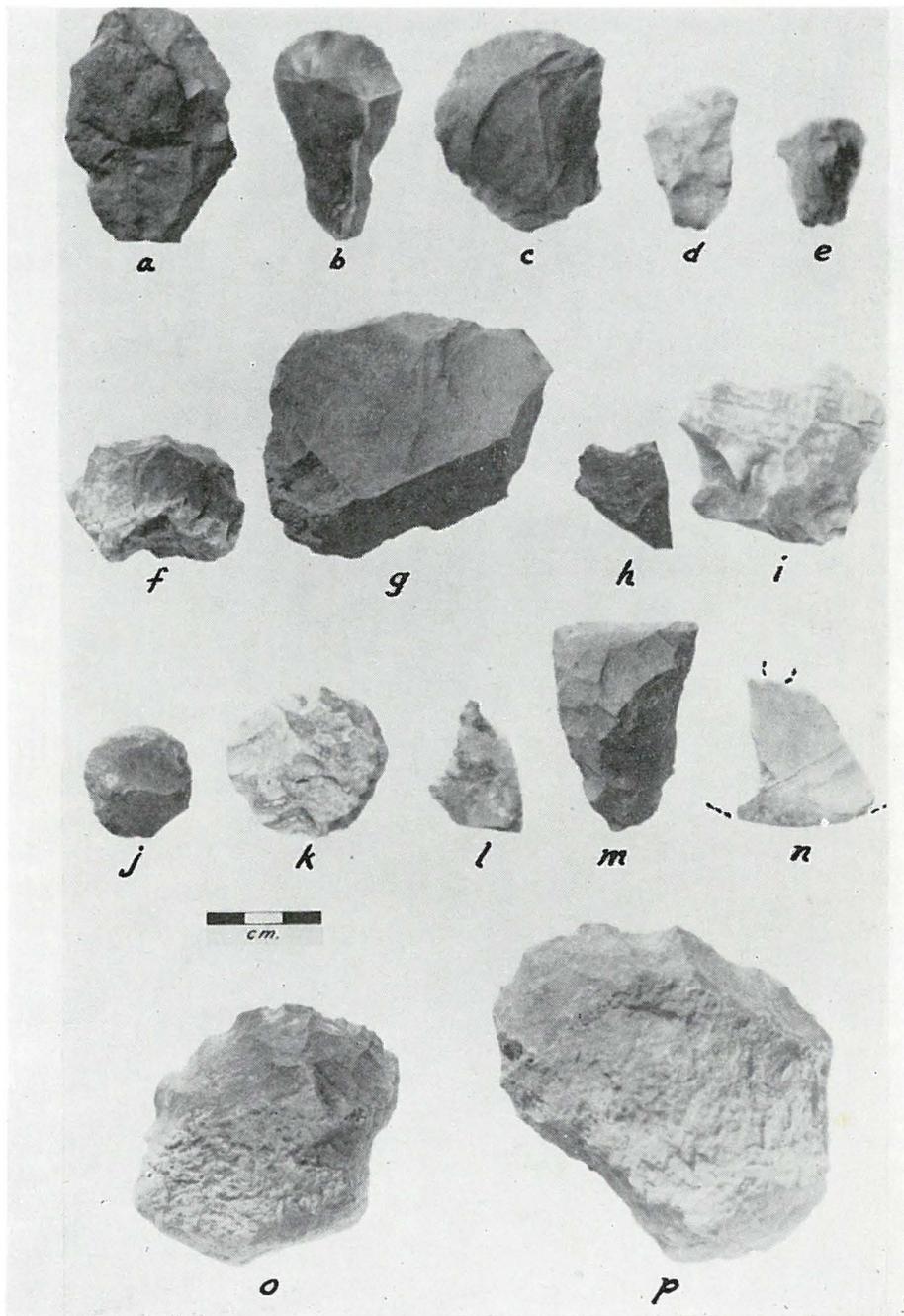


PLATE 9

Artifacts from the Little Sunday site: a-e, end scrapers; f, g, side scrapers, h, j, concave scrapers; j, k, disc scrapers; l, graver; m, gouge; n, shell pendant fragment; o, p, core scrapers.



Eleven are Tecovas jasper, five Ogallala chert, one Alibates flint, one Edwards flint, and one moss agate. Dominance of local materials for these comparatively amorphous side scrapers is notable.

*Flake scrapers* (8). These are small, unshaped flakes with one edge partly retouched. Some may be fragments of end or side scrapers. The retouching of a few may have resulted from use. Six are Tecovas jasper, one Ogallala chert, and one Alibates flint.

*Concave scrapers* (7; Pl. 9, h, i). These are small, unshaped flakes with a retouched concavity on one edge. The widths and depths of the concavities show considerable variation. Four are Tecovas jasper, two Alibates flint, and one Dakota quartzite.

*Disc scrapers* (5; Pl. 9, j, k). These are circular to oval in outline and plano-convex in cross section, shaped all or most of the way around by chipping of the dorsal face. Size range is limited: the smallest is 30 mm. across and 6 mm. thick; the largest 42 x 12 mm. Three are Tecovas jasper, two Alibates flint.

*Core scrapers* (3; Pl. 9, o, p). These are fist-sized pebbles with a flat face used as a striking platform for producing a rounded scraping edge by percussion flaking. The flat face is a natural fracture surface on two specimens, artificial on one. Size ranges from 77 x 63 x 30 to 98 x 70 x 47 mm. All are Ogallala chert.

*Gravers* (5; Pl. 9, l). These are small, thin, irregular flakes with a more or less prominent, beak-like point produced by various degrees of retouching along one or both edges. In most cases the points bear tiny flake scars possibly resulting from use. The gravers are much alike in size; a typical specimen measures 41 x 24 x 8 mm. Three are Tecovas jasper, two Alibates flint.

*Gouges* (2; Pl. 9, m). These are examples of the well-known "Clear Fork gouge." With their flat ventral surface, keeled dorsal surface, beveled bit, sharp corners, and straight



edges, they tend to be trapezoidal in both cross section and outline, and sometimes are referred to appropriately as "trapezoidal scrapers." They may have been used as chisels or adzes as well as scrapers or gouges. Their general form indicates hafting, and this inference is sometimes strengthened by the ground or worn appearance of their lateral edges. The two specimens from the Little Sunday site, however, are not smoothed along the lateral edges, and do not show the use-polish sometimes seen on the bit. They are of similar size, 57 x 36 x 18 and 60 x 44 x 20 mm. Both are Ogallala chert.

The 67 bifaces are of five kinds: 23 projectile points, 21 knives, 10 blades, eight choppers, and five drills. Thirty-four are Tecovas jasper, 18 Ogallala chert, five Edwards flint, three Alibates flint, three unidentified materials, two Dakota quartzite, and two silicified wood. Alibates flint is notably scarcer among the bifaces than among the unifaces.

The 23 projectile points are of six kinds: nine Ellis, seven Refugio, three unidentifiable fragments, two Palmillas, one Lange, and one Folsom point. Fourteen are Tecovas jasper, four Edwards flint, two Alibates flint, one Ogallala chert, one silicified wood, and one is unidentified material. All are heavy enough to be considered dart points. Twelve of the classifiable specimens are stemmed (Ellis, Palmillas, and Lange points), eight are stemless (Refugio and Folsom points). Only the Folsom point has ground edges. Suhm, Krieger, and Jelks estimate the ages of these point types, except Folsom, at 4000 B.C. to 1000 A.D., and assign them to various complexes of the Archaic Stage in Texas. The Folsom type "had given way to other types by approximately 7000 B. C." (Suhm, Krieger, and Jelks, p. 426) and is assigned to the Paleo-American Stage.

*Ellis points* (9; Pl. 10, a-f). Nine projectile points compare more closely with Ellis points than with any other types described by Suhm, Krieger, and Jelks. Although more of them have the slightly concave bases of Lange points (p. 436, Pl. 97) than the convex bases of Ellis points

(pp. 420 and 422, Pl. 89), all of them fall below the size range given for Lange points and within that for Ellis points. All of the specimens are somewhat damaged, two being merely shoulder fragments and one only a stem fragment. The smallest, probably resharpened, is 24 x 20 x 5 mm.; the largest, 44 x 29 x 5 mm. Minimum neck width, possibly indicative of foreshaft diameter, ranges from 12 to 15 mm. Five are Tecovas jasper, three are Edwards flint showing some patination, and one is silicified wood. The cultural affiliations of Ellis points are described as "Widely distributed in Archaic Stage, more or less throughout Texas except for Southwest section and probably the upper Panhandle. Never numerous in any particular area but may be of greatest relative frequency in East Texas Aspect" (Suhm, Krieger, and Jelks, pp. 420, 422). Their age is estimated as "1000 B.C. or earlier to 500 or 1000 A.D."

*Refugio points* (7; Pl. 10, g-m). Seven projectile points fall within the Refugio type as defined by Suhm, Krieger, and Jelks (p. 474, Pl. 117), except that all are below the minimum size. If this situation is found repeatedly in this and adjoining areas, it may become advisable to modify the definition of Refugio points by lowering the minimum size to include smaller specimens, or to establish a separate type for them. Three are complete, two are tipless, and two are basal fragments. Workmanship tends to be somewhat cruder than that of the stemmed points. Some of the Refugio points may be small knives or blanks rather than projectile points, but most are too narrow to be blanks. Size varies little; the smallest measurable specimen is 45 x 18 x 5 mm., the largest 51 x 22 x 8 mm. The former specimen, composed of an unidentified, translucent, speckled, light gray flint, is somewhat aberrant in having slight notches at the basal corners (Pl. 10, m). Of the remaining specimens, five are Tecovas jasper, one Alibates flint. Suhm, Krieger, and Jelks (p. 474) give the cultural affiliations of Refugio points as "A minor type in various Archaic complexes," and the estimated age as "Possibly 2000 B.C. to 1000 A.D."

*Unclassifiable projectile point fragments* (3). These tip fragments are small enough to suggest projectile points rather than knives, and wide enough to suggest one or more of the stemmed types rather than the stemless Refugio type. Two are Tecovas jasper and one is Edwards flint.

*Palmillas points* (2; Pl. 10, n). Two projectile points correspond in all features to Palmillas points as described by Suhm, Krieger, and Jelks (p. 462, Pl. 110). One tipless specimen of Tecovas jasper is 50 x 22 x 8 mm.; a larger, complete specimen of similar material disappeared from the collection before it could be measured or photographed. Cultural affiliations and estimated age of Palmillas points are given (*ibid.*) as "A minor type in most complexes of Archaic Stage in various parts of Texas" and "Probably within the Christian era."

*Lange point* (1; Pl. 10, o). A single badly damaged projectile point of Ogallala chert compares favorably in all respects with Lange points as defined by Suhm, Krieger, and Jelks (p. 436, Pl. 97). Although the original length and width of this specimen cannot be accurately estimated, it is considerably larger than the Ellis points. Cultural affiliations and estimated age of Lange points are given (*ibid.*) as "Primarily Edwards Plateau Aspect, extending into East Texas Aspect, Aransas Focus on coast, and towards plains below Panhandle" and "About 4000 B.C. to 1000 A.D. or greater part thereof."

*Folsom point* (1). The forward half of a Folsom point, made of Alibates flint and fluted on both faces nearly to the tip, was found at the Little Sunday site. Grinding of the lateral edges extends slightly past the break. The fragment is 20 mm. wide and 4 mm. thick; its original length cannot be accurately determined. If Suhm, Krieger, and Jelks are correct in estimating that Folsom points disappeared about 7000 B.C. and that Lange points appeared about 4000 B.C., then these artifacts are separated by a gap in time of about 3000 years, and it must be concluded either that this camp site was known to Paleo-American as well

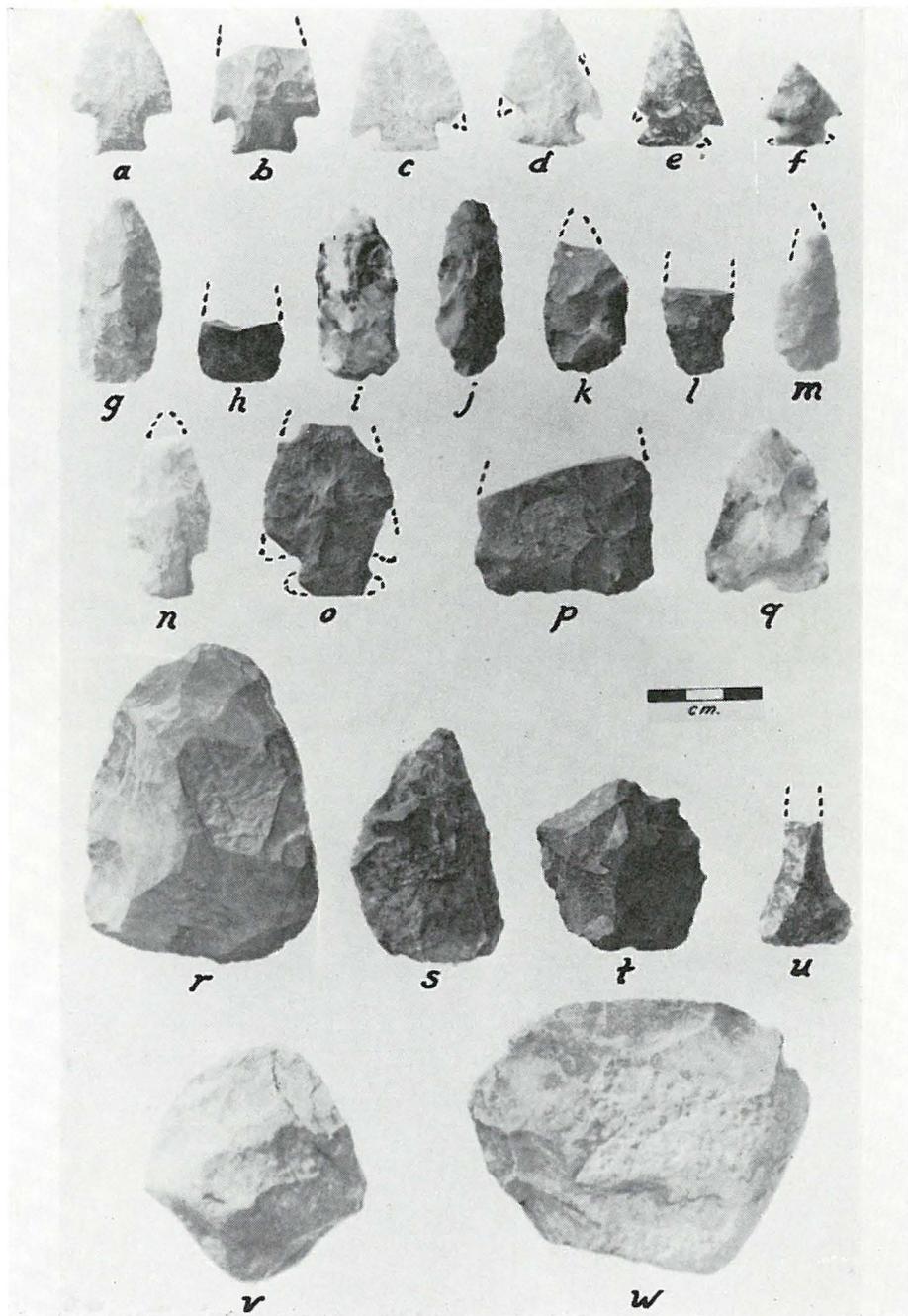


PLATE 10

Artifacts from the Little Sunday site: a-f, Ellis points; g-m, Refugio points; n, Palmillas point; o, Lange point; p, q, triangular knives; r-t, blades; u, key-shaped drill; v, w, choppers.



as Archaic people, or—more probably—that the Folsom point was picked up elsewhere and brought into camp by the makers of the Archaic points. The possibility remains, however, that the age estimates are inaccurate, and that there is an overlap in time between Paleo-American and Archaic points such as the Folsom and Lange types. This possibility receives some support from the frequent association of various Paleo-American and Archaic point types on camp sites of the Panhandle and elsewhere, and poses an important problem to be investigated, as Suhm, Krieger, and Jelks point out on pp. 104-106.

Twenty-one biface artifacts of simple outline, distinguished from stemless projectile points by wideness and greater size, and from blades by thinness and better flaking, are classified as knives. Some of these artifacts may be blanks, especially the small specimens. The knives are of three kinds: 18 unclassifiable fragments, two triangular, and one lanceolate. The high proportion of fragmentary specimens suggests either hard use of finished artifacts for cutting purposes or accidental breakage of unfinished artifacts in the manufacturing process. Nine are Tecovas jasper, seven Ogallala chert, two Dakota quartzite, one Alibates flint, one Edwards flint, and one silicified wood. The high proportion of coarser materials among these larger artifacts is noteworthy.

*Unclassifiable knife fragments* (18). Eight of these are corners, seven are tips, two are midsections, and one is an edge fragment. They suggest a wide size range for the original artifacts. The corner fragments are square to rounded, indicating triangular to oval outlines. Eight are Tecovas jasper, five Ogallala chert, two Dakota quartzite, one Alibates flint, one Edwards flint, and one silicified wood.

*Triangular knives* (2; Pl. 10, p, q). These have straight bases, square corners, and convex edges. The smaller specimen is complete, Tecovas jasper, and 47 x 32 x 9 mm.; the larger is a base fragment, Ogallala chert, and ? x 47 x 7 mm.

*Lanceolate knife* (1). This tipless specimen has roughly parallel edges and a convex base. It is Ogallala chert, ? x 31 x 9 mm.

*Blades* (10; Pl. 10, r-t). These biface artifacts are round to triangular in outline, thick and crudely flaked. Some may be blanks or rejects. Six are complete and four are base, corner, or edge fragments. The smallest measurable specimen is 42 x 42 x 21 mm., the largest 85 x 60 x 22 mm. The less complete specimens indicate original artifacts falling within this size range. Seven are Tecovas jasper, two Ogallala chert, and one (the largest and best made blade, Pl. 10, r) is greenish-gray phyllite or slate of uncertain origin.

*Choppers and hammers* (8; Pl. 10, v, w). These fist-sized pebbles show chipping and battering around part or all of their circumference. All are the tough Ogallala chert, which was readily available in smooth chunks of convenient size and shape for choppers and hammers. The chipping of most was intentional; in a few it may have resulted from use. One or two of the heaviest specimens show extensive battering without significant chipping.

Drills include two key-shaped specimens, two unclassifiable fragments, and one reworked from a knife. All are Tecovas jasper except one of unidentified material.

*Key-shaped drills* (2; Pl. 10, u). These are similar in shape and size, with expanded, rounded bases 24 and 25 mm. wide, respectively. Their original lengths cannot be estimated.

*Unclassifiable drill fragments* (2). A tip fragment of a large drill measures 44 x 14 x 8 mm. A midsection of a still larger drill measures 21 x 15 x 9 mm. The latter specimen is burned so that the material is indeterminate.

*Reworked knife drill* (1). This is a badly broken specimen of what appears to have been a knife reworked into a drill; it is a midsection, with both drill tip and knife base missing. The knife was 34 mm. wide and 7 mm. thick.

Of the 12 fragments of grinding implements, seven represent manos and five represent milling stones. All except one are composed of a micaceous, fine-grained, gray to brown sandstone from nearby outcrops of the Trujillo formation of Triassic age. A few show some lime encrustation.

*Manos* (7). Three of these are halves, two are edge fragments, and two are central fragments. The halves indicate manos of sub-rectangular outline with partly shaped edges. One half fragment has both faces worn and pecked—one flat, the other transversely convex. It is 100 mm. wide and 41 mm. thick, with maximum thickness along one side. A second half fragment has one face worn flat, the other slightly worn and transversely convex. It is 100 mm. wide and 29 mm. thick, again with maximum thickness along one side. A third half fragment has one face worn flat, the other unworked. It is 102 mm. wide and 43 mm. thick,\* this time with maximum thickness down the middle. The uniformity of width among these three mano halves is worth noting. The two edge fragments show shaped edges. One edge fragment 24 mm. thick has one face worn flat and pecked, the other unworked. A second edge fragment 26 mm. thick has one face worn flat, the other unworked. One central fragment is 23 mm. thick with one face worn flat, the other unworked; a second central fragment, hardly more than a chip, is composed of local quartzite and retains part of one worn flat face.

*Milling stones* (5). Three of these are central fragments and two are edge fragments. The largest central fragment, 27 mm. thick, has one worn and pecked slightly concave face; the other is unworked. The other two central fragments are quite thin, evidently as a result of splitting; one has a worn flat face, and the other has a worn slightly concave face. Both of the edge fragments show edges pecked into shape. The larger edge fragment has one worn and pecked concave face, the other unworked. It is large enough to indicate an oval basin some 10 mm. deep and 130 mm. wide. The maximum thickness of 35 mm. occurs near the edge. The milling surface is sooty. The smaller edge frag-



ment has one worn and pecked slightly concave face, the other unworked. It has a maximum thickness, also near the edge, of 30 mm.

*Shell pendant fragments* (2; Pl. 9, n). These pieces of worked conch shell evidently represent a single large pendant, although they do not match. The larger fragment retains part of an inner hole as well as the outer edge. If the pendant had a central perforation and a circular outline, as indicated by approximately parallel arcs of hole and edge, it may have had a diameter of about 90 mm. The smaller fragment retains only part of the outer edge. Both pieces are smooth and plain.

### CONCLUSIONS

Surface examinations of the Little Sunday site have produced sufficient data and artifacts to make possible a start at defining the archeological complex represented at the site. Except for the fact that similar features have been observed and similar artifacts collected at many comparable localities along the eastern Caprock Escarpment, nothing is known as yet about the geographic distribution of the complex. What is now known of the cultural content, cultural affiliations, and chronological position of the complex may be summarized as follows:

The making of open camps on canyon rims, and the use of hearth rocks and pebbles for "stone boiling," are shown by the position of the site and the kinds of features observed. The shapes and sizes of the fireplaces remain to be determined by excavation. Nothing is yet known about structures, if any, or burials. An emphasis on hunting supplemented by gathering is indicated by the abundance of dart points, hide scrapers, and choppers, accompanied by milling stones. The Twilla bison kill in the southeastern part of the Panhandle may represent this or a similar Archaic complex (Tunnell and Hughes, 1955). Among artifact types which, taken together and with the above traits, might be expected to have some diagnostic value in identifying the complex when it is found elsewhere, the following are especially

noteworthy: dominance of Ellis and Refugio points, accompanied by other Archaic point types in minor amounts, and perhaps rarely by Paleo-American point types; plain knives represented by numerous fragments; many crude blades and heavy choppers; some key-shaped drills; abundant end scrapers, usually large, thin, and unworked except across the rounded bit; many side scrapers, usually small, thick, and unworked except along the scraping edge; some concave scrapers; a few disc scrapers and gravers; occasional heavy core scrapers and Clear Fork gouges; a number of milling stones with oval basins and edges shaped by pecking; and manos of sub-rectangular outline.

That the inhabitants of the Little Sunday site were residents of the region is shown by the preponderance of local materials used for these artifacts. Materials of some chipped-stone artifacts imported from the north, southeast, and west, however, indicate some roaming or trading in those directions, and fragments of conch shell indicate some remote, though probably indirect connections with the Gulf coast. Certain of the artifacts, such as dart-point types and Clear Fork gouges, suggest southeasterly connections, although in a general way the complex also resembles the few others of comparable age that have been defined in the Plains to the north and the Rockies to the west.

The indications of age provided by the physical features of the site are supported by the general character of its cultural remains, in particular by the dart-point types and the Clear Fork gouges, whose antiquity has been recognized. Ages of the two dominant point forms have been estimated from 2000 B.C. to 1000 A.D., and it may be assumed that the age of the site falls somewhere within this range, until excavation has provided evidence for more precise dating. These dates and the character of the complex serve to place the component within the time-culture unit referred to by Suhm, Krieger, and Jelks (1954) as the Archaic Stage, which appears to be equivalent to the period that has been

known in the Plains as Intermediate or Middle Prehistoric.<sup>1</sup> Although it would be unreliable by itself, negative evidence—the absence of traits generally late in this region, such as pottery, arrowpoints, double-pointed alternate-beveled knives, and obsidian—also indicates the antiquity of the Little Sunday site.

Excavation of this site and further investigation of many similar sites in the Panhandle promise full cultural, temporal, and spatial definition, eventually, of the Little Sunday and other Archaic complexes of this region. Aside from assembling of evidence, the main problem will be that of dividing into meaningful units a history of long, slow culture change recorded only in features and artifacts of few types and unspecialized forms. This problem is one in which analyses of frequencies and associations of types will be of far more value than mere presence-absence determinations; hence the emphasis on quantification in this report.

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Panhandle-Plains Historical Museum  
Canyon, Texas

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1. The term "Meso-Indian" also would be a good one for this time-culture unit, consistent with the well-established term "Paleo-Indian" for the preceding unit (the "Paleo-American Stage" of Suhm, Krieger, and Jelks) and with the term "Neo-Indian" for the following unit (the "Ceramic" or "Late Prehistoric" period of the Plains and the "Neo-American Stage" of the Texas authors).

## SCOTTSBLUFF POINTS IN THE OBSSHNER SITE NEAR DALLAS, TEXAS

WILSON W. CROOK, JR., AND R. K. HARRIS

The presence of certain projectile-point types, normally considered as distinctive of Early Man sites on the High Plains, in association with cultures of the non-pottery Archaic stage has become increasingly more common as the study of these "intermediate" groups has progressed in recent years in North America. (Many authorities object to the term "Archaic," but until a better name is applied it will be used in this paper).

These projectile points, whatever the cause of their occurrence in such associations, are most commonly of certain specific types in a given area. For example, in Central Texas, many Edwards Plateau Aspect associations seem to carry a sprinkling of Angostura points, Plainview points, and other types which appear related to "pure" Early Man complexes elsewhere. In Northeast Texas, the Plainview and Plainview-like points abound in Trinity Aspect Archaic sites along the Upper Trinity River; Meserve points occur sparsely along the Upper Trinity but heavily along the Red River, especially in Lamar County, Texas; and a form of Clovis point is often to be found in East Texas, particularly along the upper reaches of the Sabine and Sulphur Rivers, nearly always with Archaic material.

Scottsbluff projectile points are rare enough in Texas anywhere, including the High Plains region where so many Early Man sites occur, and there has been archeological curiosity concerning the sporadic finding of Scottsbluff points in some numbers in Northwest Louisiana and the adjacent border counties of Northeast Texas. Since such specimens inevitably occurred in private collections with no source recorded, or were found as seemingly unconnected individual occurrences, nothing has been known of their geologic or archeologic provenience in this region.

Therefore, the discovery of two *bona fide* Scottsbluff points, one in place and the other essentially so for all prac-

tical purposes, in unquestionable association with a Carrollton focus complex in a site near Seagoville, Dallas, County, Texas, has been of considerable interest. The recording of this find is the purpose of this article. That a reworked Clovis (?) point also occurred *in place*, and a Meserve-like point apparently reworked from a large Plainview was found essentially in place, heightens interest in the locality.

### THE LOUIS OBSHNER SITE

Just south of Seagoville, Texas (Figs. 2, 3), the Louis Obshner site (27A6-13) lies in the Union Terminal-Carrollton (T-1) terrace at an elevation of some 40 feet above the present-day flood-plain (T-O terrace). The site is a buried one. No artifacts are observed upon the surface, and all cultural debris is exposed by extensive gully erosion and digging.

Without question, the site is a Carrollton focus component, as at least one specimen of every known Carrollton focus trait has been recovered to date, with the sole exception of drills made from repointed broken dart points. Only one object not commonly associated with the Carrollton focus has been found here (a single quartz crystal to be discussed later), and there is no evidence whatsoever of any other cultural component being present at the site. Until recently, the site was not distinguished by any particular abnormality other than extensive cultural debris eroded from the sides of the gully system, the fact that it appeared to be an early-phase Carrollton site occurring exclusively in the Albritton clay formation, and that its surface was on the contact line with the overlying Pattillo sand.

In May, 1954, the Dallas Archeological Society conducted its annual group dig at the site, sinking some 16 test pits in an effort to explore what seemed to be an important Carrollton focus Archaic site. This test-pitting was a remarkable stroke of good fortune in light of the subsequent discovery and excavation of a Scottsbluff point in place nearly adjacent to two of the recorded test pits from the dig, both of which yielded artifacts in undisturbed cultural



Fig. 2. Location of Dallas County.

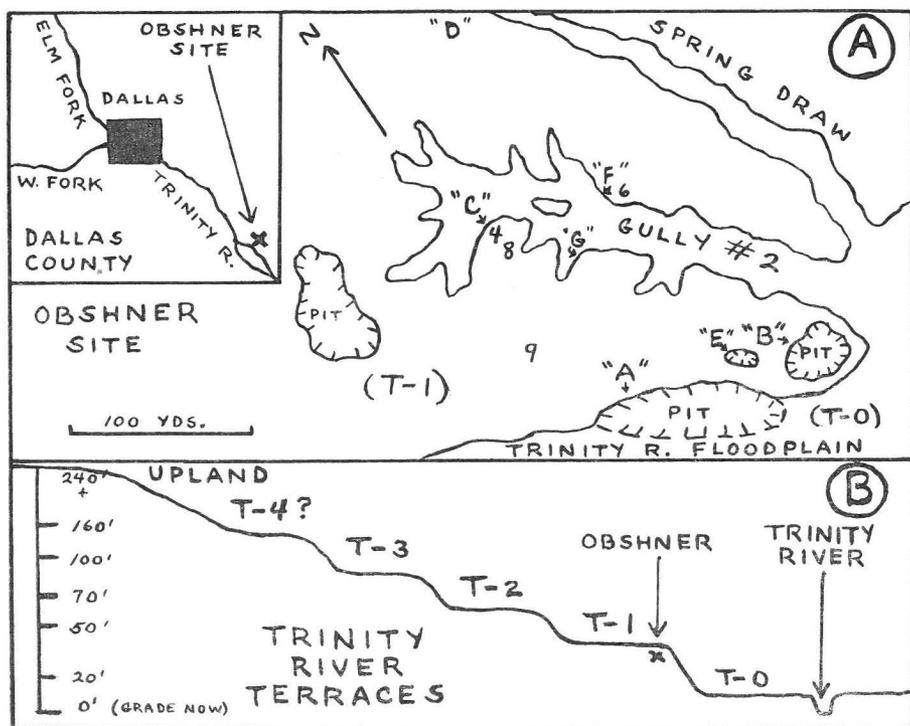


Fig. 3. A, Obshner Site locality. B, schematic cross-section of Trinity River terraces.

zones of identical depth and provenience. A large reworked Plainview point, with ground base and basal edges, which is considered as having been essentially in place, also was adjacent to the same two pits. A Scottsbluff point not in place, but likewise considered essentially so, was immediately adjacent to another test pit which—while it yielded no artifacts—definitely located the cultural zone in the area by the number of flakes and debris encountered at specific levels, and their total absence in the overlying Pattillo formation at this spot. A reworked fluted Clovis point found in place was not near any of the test pits, but occurred at a comparable depth in the same geologic formation from which the test pits produced cultural material. Both of the Scottsbluff points and the reworked Clovis and Plainview points were exposed by the continuing erosion of gully walls, and the test pit material confirms the apparent provenience of these specimens.

A good percentage of all artifacts from the Obsner site have been found *in situ* in the gully walls, and these plus the materials excavated in the test pits have given a clear picture of the occurrence of the cultural level. Without exception, no artifact has been found to occur above the Albritton-Pattillo contact line. Artifacts; flint and quartzite chips, flakes, and broken cores and cobbles; hearth stones; clay "blobs"; and flecks of charcoal, occur in the topmost two-thirds of the red sandy Albritton formation clay. These evidences seem to reach their culmination at the surface of the Albritton clay, but do not seem present whatsoever in the succeeding Pattillo sand formation. In this respect the site appears comparable with the Bachman's Dam site of Carrollton focus affiliation which yielded such an excellent basal half of a Plainview point, and a questionable Eden stem fragment.

Only where natural erosion processes or artificial digging (by archeological test pits and nearby gravel operations) have exposed the Albritton clay, do artifacts and debris occur. Thus it is rather safe to observe that human occupation of the site began sometime after the commence-

ment of the Albritton formation deposition, increased in intensity as the formation continued to be built up, until it reached a climax upon the final surface of the Albritton—only to be abandoned before the succeeding Pattillo formation deposition began.

#### ARTIFACT ASSEMBLAGES<sup>1</sup>

In all, 63 dart points, three projectile-point blanks, eight Clear Fork gouges, two finely-chipped graters, four flake scrapers, two crude "Waco net-sinkers," four Carrollton axes of the single-bitted type (Crook and Harris, 1954b), 10 large side-scrapers, 12 large knife blades, a number of clay "blobs," a part of a large "eared" projectile point, and a single quartz crystal have come from the site. These duplicate almost precisely in classes, proportions, and techniques, all of the trait items defined for the Carrollton focus, with the exception of the absence as yet of drills made from repointed broken dart points, and the presence of the one exotic quartz crystal. Even the percentages of flint-quartzite-petrified wood in the projectile points almost exactly match those of the Wheeler and Lake Dallas type sites for Carrollton focus (Crook and Harris, 1952, 1954a, 1954b; Crook 1952). Likewise, the percentages of occurrence of early-projectile point forms, points with ground edges on the bases and stems, and those with beveled or "twisted" blades, seem almost identical.

Of the total assemblage, fortunately, 11 projectile points, five gouges, one net-sinker, four blades, one flake scraper, and one side scraper have been recovered *in situ* either in the gully walls or in test pits. In addition, a large number of flakes, cobbles and cores, hearth stones, and charcoal flecks have likewise been observed *in situ*. Two more projectile

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1. Although many other artifacts, all perfectly at home in the Carrollton focus trait list, have been found at the Obshner site, only those found *in situ* have been illustrated in Plates 12 to 14.



points can almost be classed as being *in place* due to the nature of their finding.

At Location "A", in the sheer wall of the main gravel pit (Fig. 3), the mid-section of a broken dart point of a Carrollton focus type (Plate 13, No. 1) was literally hacked out of the tough Albritton clay at a depth of 24 inches below the Albritton-Pattillo contact line. The Albritton formation here is some 36 inches in thickness.

A hearth of burned stones occurred at a depth of 24 inches in the Albritton formation at Location "B", exposed in the eroded wall of a small gravel pit (Fig. 3). Firmly imbedded in the tough red Albritton clay, amongst the actual hearth stones at this location, was another broken projectile point of a Carrollton focus type with ground stem edges (Plate 13, No. 2). Just south of the hearth, at a depth of 9½ inches below the Albritton surface, was a broken blade *in situ*; and a few feet north of the hearth, a broken projectile point at a depth of 9 inches below the Albritton surface (Plate 13, No. 3). Here, too, the Albritton formation is about 36 inches in total thickness.

Location "C" (Fig. 3) has been the most prolific producer of artifacts *in situ*. Here, in the deep side-arm of the main gully system, four complete Carrollton focus dart points, two of which have ground stems, have been removed from the gully walls (Plate 13, Nos. 4-7) at depths of 14, 12, 12, and 12 inches respectively, in the Albritton clay. Addition-

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#### PLATE 11

A, Mr. Crook pointing to Scottsbluff point found *in situ* at Location C in T-1 terrace. Handkerchiefs on stakes at upper right mark test pits 8 and 4, respectively. Erosion gullies visible in foreground and at left; valley of Trinity River in far background. This artifact shown in Plate 12, No. 1-1A. B, Closeup view of same Scottsbluff point *in situ* with associated scraper and cobble; note black specks of charcoal throughout exposure. C, Closeup view of same Scottsbluff point *in situ*, scraper and cobble to left, knife above and behind. D, Section of gully wall at Location G with reworked fluted point *in situ* just below arrow (specimen shown in Plate 13, No. 11). E, Clear Fork gouge *in situ* in gully wall at Location C (specimen shown in Plate 14, No. 4). F, Closeup view of reworked fluted point shown in (D).



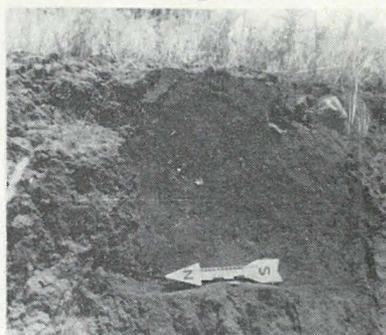
A



B



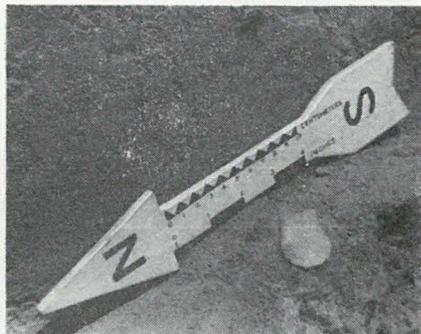
C



D



E



F



ally, one gouge was found in place at a depth of 11 inches in the Albritton clay at this location, and a broken one 15 inches deep; a third gouge occurred one inch deep in the Albritton, just below the Pattillo contact. A broken two-thirds of a knife blade was again literally hacked from the tough Albritton clay at a depth of 27 inches (Plate 14, Nos. 1, 4, 5, 6). Unpictured is a crude net-sinker from 11 inches deep. The Albritton exhibits a 30 inch thickness at this location.

Innumerable cobbles, broken cores, and flakes . . . to say nothing of charcoal specks . . . have been observed in place in the gully walls at Location "C", at depths varying from practically at the surface of the Albritton formation to as deep as 20 inches within it.

This extremely prolific Location "C" also has a large amount of slope-wash debris of chips, flakes, cores, etc., where erosion has removed the Albritton clay. This "rich spot" has been especially watched on nearly every weekend collecting trip for several years. It had been carefully searched by the authors on one weekend in 1953. Heavy local rains then fell, and on the following weekend a projectile point (Plate 13, No. 12) was discovered freshly washed out of the Albritton clay slope. This appears to have been originally either a Clovis point or a large variant of the Plainview type which was broken and subsequently given a new tip. It was unquestionably derived from the Albritton formation, as—at the position of discovery—no remnant of the Pattillo formation remains today on the gully lip above, and the probable original position of the find had been carefully scrutinized the preceding week before the rains. Hence this specimen is also treated as essentially *in situ*. Based upon its discovery position, it must have come from the uppermost 12 inches of the Albritton formation.

The knowledge of this "rich spot" prompted its selection as the site of the annual group dig of the Dallas Archeological Society in May, 1954. While the chain of test pits was

designed to transect the terrace surface from the river side across the gully system, two pits (Fig. 3, Nos. 4 and 8) were located on the promontory between the gully arms at Location "C". In Test Pit 4, a gouge was excavated at a depth of 8 inches in the Albritton, a flake-scraper also at 8 inches, and a large side-scraper at a depth of 11 inches; these were in addition to numerous flakes, cores, and charcoal flecks down to 17 inches in the Albritton (Plate 13, Nos. 9 and 10; Plate 14, No. 2). In Test Pit 8, two knife blades were excavated at respective depths of 7 and 10 inches in the Albritton. At both test pit locations, the Pattillo sand formation remained only as a sloped-off thickness of some three inches above the Albritton contact line, totally disappearing in a few more feet at the present edges of the gullies.

Somewhat higher on the terrace surface, in Test Pit 9, a gouge (Plate 14, No. 3) was found beneath a 6-inch covering of Pattillo sand, resting directly upon the underlying Albritton surface. No chips or flakes, even, occurred in the covering Pattillo layer.

In June, 1955, another Carrollton focus dart point was discovered in place in the wall of a small gravel test at Location "E" (Fig. 2). This point (Plate 13, No. 8) was exposed 11 inches below the Albritton surface in the exposed wall of the pit; the surface Pattillo sands exhibit an 8-inch thickness in this pit, while the underlying Albritton clays are some 30 inches in depth.

Also in June of 1955, the second Scottsbluff point was found at Location "F" (Fig. 2), lying in a small erosion gully. This point had been apparently weathered out by heavy rains occurring two days previous to the find, and was not exposed the preceding week when the authors specifically searched this spot due to the large numbers of flakes and other debris beginning to show at this point of fresh erosion. Cattle grazing on the site had been using this new, incipient gully as a trail; their footprints were freshly preserved in the gully at the time the Scottsbluff point was found, as though having been made after the pre-

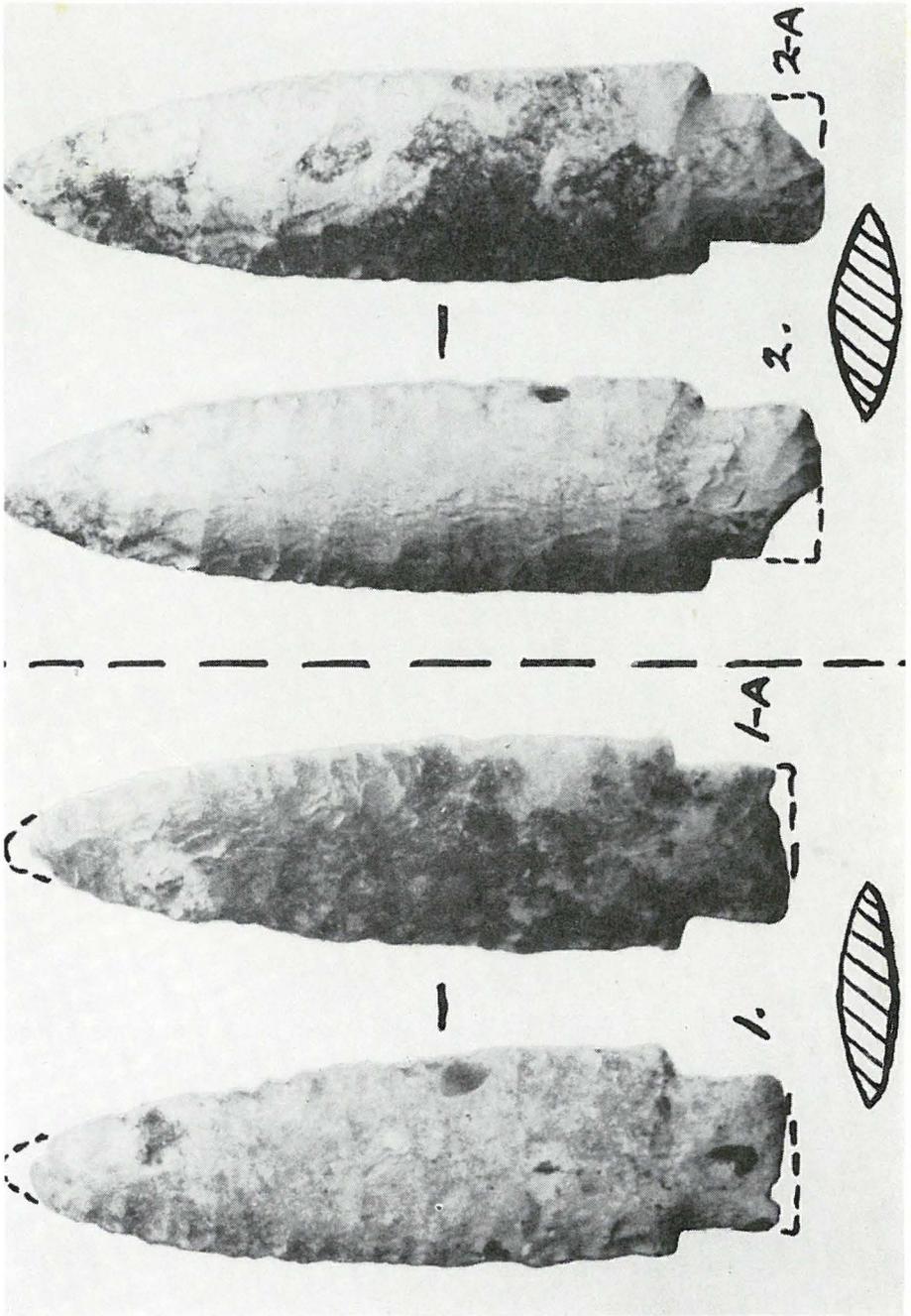


PLATE 12

1, 1A, both faces of Scottsbluff point found *in situ* at Location C (Plate 11, A, B, C). Note pronounced patination on No. 1, the upper side as excavated. 2, 2A, both faces of Scottsbluff point found essentially *in situ* at Location F; again note difference in patination on the two faces. Actual size.



viously-mentioned heavy rains which rendered the gully materials soft. The point when found was freshly broken in two parts which fit together perfectly (Plate 12, Nos. 2, 2a). The flint surface had been heavily patinated in a sharply contrasting color to the exposed interior of the fresh breaks. There seems little question that the point eroded out during the heavy rains five days after the authors had searched the spot, and that a cow stepped upon the exposed point, breaking it, shortly after the rains in the two days before the discovery.

Adjacent to this particular gully, Test Pit 6 was dug on the occasion of the Dallas Society's group dig. As revealed by the records of this pit, the surface Pattillo sand is present as a 6-inch layer, underlain by 30 inches of Albritton red clays. No chips or materials of human origin whatsoever were encountered in Test Pit 6 in the Pattillo, yet a number were found in the Albritton to depths of 12 inches below its surface. Since the Scottsbluff point's position as found was but 20 inches below the top of the Albritton in the gully, it seems rather conclusive that this particular specimen was derived from a former position in the upper 12 inches of the Albritton in this gully. Thus it is also treated as "essentially" *in situ* for the purposes of association.

At Location "G" (Fig. 3), in July of 1955, the bare edge of a projectile point was found protruding from the sharp gully bank at a depth of 14½ inches below the Albritton surface, following more heavy rains. Upon excavation (Plate 11, D, F), this point proved to be of the Clovis fluted type, with a blunt, seemingly re-chipped tip. The basal fluting is an inch long on each side and the edges are ground for a comparable length (Plate 13, No. 11). At this location the surface Pattillo sand is some four inches thick and well-marked; the underlying Albritton clay is approximately 30 inches thick.

### THE SCOTTSBLUFF POINTS

So far, only the second Scottsbluff point has been discussed. The first one was found as follows: On Wednesday,



January 5, 1955, Harris celebrated a day off from work by visiting the "rich spot" at the Obshner site. There, freshly exposed in the gully wall at Location "C", he observed a few millimeters of a flint projectile-point base protruding at a depth of some 8 inches below the Albritton formation surface. After careful, partial excavation with a hand-trowel, he exposed enough of the stem and shoulder to arouse his suspicions that the point was a Scottsbluff, at which time he left and telephoned Crook to "come quick" with camera and equipment to verify what might be a momentous find.

Together, the authors completed the exposure of the projectile point, finding it to be truly a Scottsbluff point (Plate 12, Nos. 1, 1-A). The find was a particularly happy event in that it occurred unmistakably *in situ*. Over 80 per cent of its total length projected inward into the gully wall, itself a sheer erosional face of very dense clay. It was within a very few inches of the previous occurrence of some four projectile points of Carrollton focus types and two gouges in the gully face, apparently sandwiched horizontally between these and the edge of Test Pit 4. The test pit had approached the same gully wall within 24 inches. The stakes in Plate 11, A mark the location of Test Pits 4 and 8, showing their proximity to the Scottsbluff find.

Not only did the gully wall, when excavated to remove the Scottsbluff point, reveal a knife blade at the same level and chips, flakes, cores, and charcoal flecks both above and below (Plate 11, B, C), but all these objects were between the Albritton surface and a maximum depth of 20 inches into this formation. The records of previous finds *in situ* in the same gully wall and closely adjacent test pits showed artifact occurrence at the same levels and deeper, yet all unquestionably of Carrollton focus derivation. No question could thus remain about the association of the first Scottsbluff point and the accompanying Carrollton focus material.

The Scottsbluff point lay flat, with the upper surface rather well patinated (Plate 12, No. 1), while the under side mainly retained its original honey color (Plate 12,

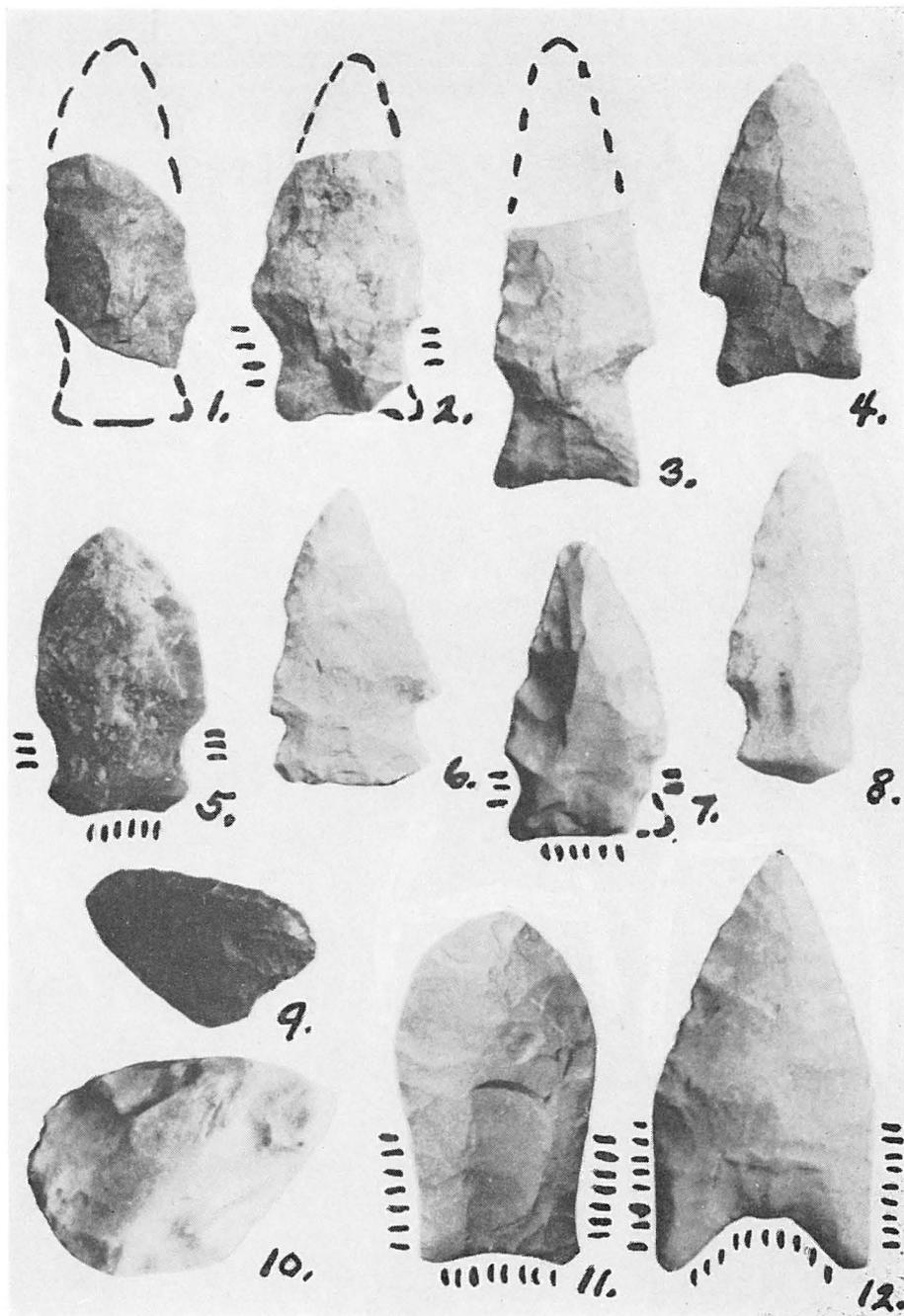


PLATE 13

Artifacts found *in situ* at Obsbner as follows: 1, Location A; 2, 3, Location B; 4-7, Location C; 8, Location E; 9, 10, Test Pit 4; 11, Location G; 12, Location C, essentially *in situ*. Short lines indicate extent of smoothing of edges and bases. Actual size.



No. 1A). This strongly suggests that the point actually became patinated in place, suggesting some antiquity for the discovery position. Admittedly, had the point patinated elsewhere and later been acquired and dropped at the finding location, the odds are 50-50 as to its fall upon the then-surface, but a later find of a white flint blade, which when broken, showed a heavily-patinated surface on *both* sides, with "honey" flint in the center, somewhat supports the theory of patination - in - place. True, this particular "honey" flint is known to patinate "quickly", but to have done so *prior* to the completion of the Albritton deposition—to say nothing of its subsequent and permanent burial until today by the overlying Patillo formation—suggests a considerable lapse of time.

The second Scottsbluff point (Plate 12, Nos. 2, 2A), considered as essentially in place, is more heavily patinated, even, than the first. This is excellently demonstrated in the fresh break attributed to a cow stepping upon it wherein the interior displays the original color of the flint—almost blue-black in striking contrast to the dull creamy tan of the surface. One side is again more altered than the other, but in this specimen both sides are quite well patinated. As we do not know the position in which it lay prior to eroding out, no inferences may be drawn.

The excavated Scottsbluff point is 98 mm. long, 25 mm. wide at its widest part, and 7 mm. thick at its thickest section. The second Scottsbluff point is 104 mm. long, 27 mm. wide, and 9 mm. thick. Their shape and apparent degree of patination compare most favorably with the specimens shown in Moss (1951, Plate I, Nos. 4 and 5 from left in upper panel), and with Type B in the lower panel of the same publication, reprinted from Howard and Hack (1943). The two Obshner specimens fall in the range of the Scottsbluff type recovered from the Finley site at Eden, Wyoming, and would be indistinguishable if placed among the larger specimens from this famous locality.

Neither the seemingly reworked Clovis point nor the

reworked Plainview point shows any detectable patina, due possibly to their being light-colored flints which may not patinate readily or show it to the eye. Most of the Carrollton focus points from the site are also of light-colored flint or quartzite (which seemingly does not patinate) and do not show any alteration, although one (Plate 13, No. 5) appears to carry a light film of patina, especially on both sides of the proximal blade end.

#### GEOLOGY OF THE OBSHNER SITE

The section of the Union Terminal-Carrollton (T-1) terrace at the Obschner site is perfectly typical of the Upper Trinity system—a basal Hill gravel; next, the Lower Shuler laminated yellow sands; then the Upper Shuler yellow sandy clay with included caliche nodules; a strong erosional break; the Albritton red sandy clay; and finally the Pattillo grey sands at the surface.

The only remarkable feature is the evidence of a gully-erosion sequence at the Obschner archeological site which can best be explained by a theoretical sequence of springs and their consequent secondary erosion and deposition.

At present, the archeological site is concentrated along a marked gully system which lies somewhat back from the T-1 terrace drop-off relief above the Floodplain. This is in general contrast to the known common occurrence of Trinity Aspect sites being located on terrace T-1 near where a tributary stream (either present or extinct) cuts through it to reach the present valley. Site materials do sparsely occur on the eroded and exposed slopes of terrace T-1, but are mainly concentrated along the gullies which are cut into these slopes.

Today the artifact-bearing gully is a dry wash. Immediately to the north, and joining the dry wash before its entrance into the valley below, is a present-day minor channel which has its origin in a spring-seep considerably upgrade from the site.

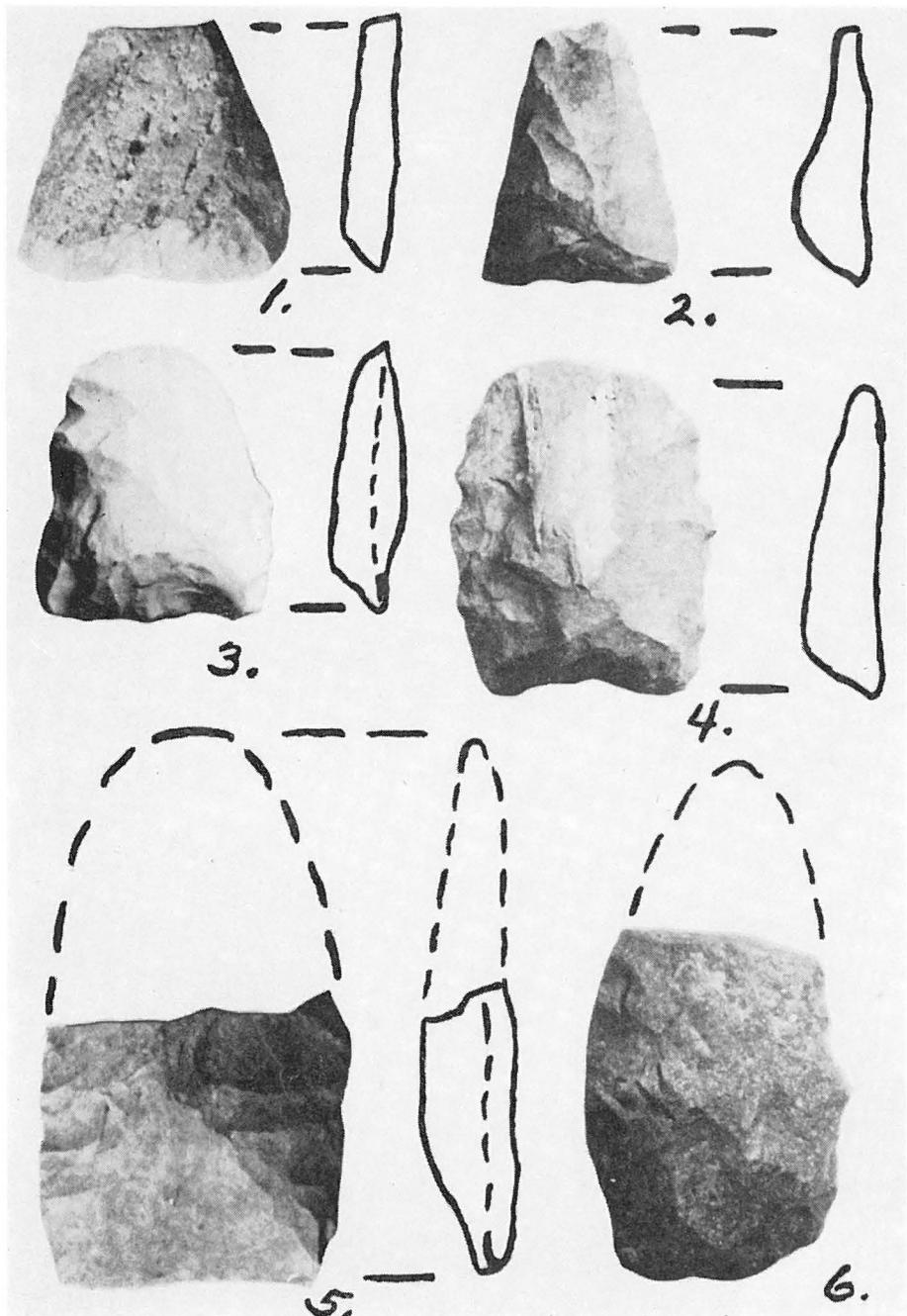


PLATE 14

Artifacts *in situ* at Obshner Site, continued: 1, Location C; 2, Test Pit 4; 3, Test Pit 9; 4-6, Location C. Actual size.



It is obvious from an examination of the site's gully walls that the present dry wash—along which the site is concentrated—is a result of relatively recent erosion which has re-cut the soft, secondary fill of a former gully. Thus, for convenience, we shall refer to the older one as gully No. 1 and the present one as gully No. 2.

In recapitulation of the geological chronology of the site, the Trinity River cut deeply into its valley to establish terrace T-2; then the successive depositions of Hill gravels, Lower Shuler laminated yellow sands, and Upper Shuler yellow clays with caliche—each separated from the other by a minor erosional surface—built up a floodplain which is essentially the basis for the present T-1. Then, a major erosion occurred, during which the Trinity retrenched its valley, established the T-1 relief, and created gully No. 1 . . . apparently a somewhat shallow, wide “draw” which may well have been the result of seepage springs at this formerly-high ground-water level. Certain evidences, such as the development of a thin ironstone crust over a seeming erosional surface as exposed today in the gully just above the site, suggest such a condition at the close of Upper Shuler times, corresponding to the first gully erosion to be observed.

Deposition of the red sandy Albritton clays then began, eventually almost choking gully No. 1. During this period the occupation of the Obshner site began along the gully sides, perhaps along the edges of a spring branch, near where its head was then. This Albritton deposition almost filled gully No. 1, and the human occupation culminated upon its surface, still adjacent to what must have been a spring-branch. This is the most logical explanation of the development of a “draw” of such length, though actual terrace-erosion gullies of shorter length and deeper penetration might have occurred on the actual terrace slopes.

A period of stabilization or halt then ensued, during which the Albritton formation was slightly sloped-off and the human occupation ceased.



Again renewed deposition by the Trinity River laid down, at this particular locality, a thin covering of Pattillo sand over the slopes of the T-1 terrace and the nearly-filled "draw", covering the former human occupation surface and almost totally eliminating the gradient of the "draw".

Since this time the remaining relief of T-1 has been cut, the Carter formation deposited in the floodplain, and today's Trinity channel developed. Up on the terrace at the Obshner site, gully No. 2 has been cut, stabilized, and a very recent renewed gully-cutting initiated.

From the archeological evidence afforded above, it is obvious that the human occupation began relatively early in the filling of gully No. 1 by the Albritton formation. This occupation continued with increasing concentration until the completion of the deposition of the Albritton clay, and for an undetermined time thereafter, upon its surface. However, before the deposition of Pattillo sands further obliterated gully No. 1, the occupation had apparently ceased.

Should the authors' current theory concerning sea-level-affected Gulf Coast stream systems be valid, then the several depositions of the Trinity (and other nearby streams physically removed from the direct influence of the continental and alpine glaciers) represent waning-retreat periods of the Wisconsin-Recent glaciations. Hence the Albritton formation possibly represents the deposition connected with the waning-retreat of the W/4 or Mankato, certainly in any case the early Post-Glacial period. Invoking the reasoning based upon available radiocarbon dates, deposition of the Albritton formation must have taken place some time later than 7,500 B. C.

It is indeed unfortunate that the red sandy clays of the Albritton formation have apparently been so unfriendly to the preservation of bone material everywhere along the Trinity, allowing absolutely no paleontological check upon possible geologic assignments. To date no fragments of bone larger than one's thumbnail have been recovered in the formation, hence identifications have been impossible.

Absolutely nothing is known of the fauna present in the area during this period, yet from the numbers of projectile points and scrapers recovered in place, hunting of some fashion must have been important. At the Milton site, between Obshner and Dallas, the much-battered distal end of what seems to be a proboscidean leg bone was recovered in place in the basal 6 inches of the Albritton; its uniqueness to date and very location at the base of the Albritton renders this specimen highly suspect as a wash-in from the underlying Upper Shuler which has yielded semi-articulated skeletons of *Elephas columbi*.

The overlying Pattillo grey sands have been little better in providing faunal identifications with archeological sites. Two partial human skulls of a long-headed, keel-vaulted type, plus fragmentary human leg bones, several bison teeth, a possible horse tooth, and fragments of antler complete the meager list of finds. The human remains are not as yet distinctive of geologic periods; the bison teeth while as large as specimens collected from *B. taylori* horizons at Clovis, Lubbock, and Plainview, and larger than those found in recent pottery-bearing sites of the region, are not considered definitive of species by expert paleontologists; the horse tooth is a single occurrence, not worthy of large-scale deductions and assignments; and the antler fragments are not identifiable as to species.

Pursuing this geologic supposition, however, logic dictates that the Obshner site was occupied by the Carrollton focus from late in the early Post-Glacial to approximately middle Post-Glacial times. If this is tenable, the Scottsbluff point and reworked Clovis point found in place would date from about 5,500 B. C., entirely in accord with the known radiocarbon dates for Scottsbluff and mixed Eden-Scottsbluff sites on the High Plains.

While it is a truism that an archeological site is dated by the *latest* object present, in this particular problem as yet no radio-carbon date has been produced to demonstrate how late the beginning of Carrollton focus actually was, nor, for

that matter, the beginning date for any other Archaic complex in Texas. In addition, no one has yet ventured a real explanation of the *in situ* mixture of Scottsbluff, Clovis, Folsom, and Archaic-type projectile points with extinct fauna at the Berclair Terrace site in Bee County, Texas.

### CONCLUSIONS AND COMPARISONS

An explanation for the presence of Scottsbluff points at the Obshner site is patently demanded (as well as for the Scottsbluff specimens found in Northwest Louisiana and East Texas), and several conclusions can be reached. (A) The points were "pick-ups" from an earlier site in the vicinity, though no such site has been discovered yet in this region; or (B) the points were a result of trade contact and/or cultural overlap at a later date in the area when both cultures were present.

The latter explanation seems most feasible in light of the possible geologic interpretations, the remarkable "coincidence" of the *continuing* finds of "Early" points in association with Archaic sites, and the as-yet-unexplained occurrence of considerable numbers of Scottsbluff points in Northwest Louisiana and adjacent East Texas on upland sites with undetermined provenience (Suhm, Krieger, and Jelks, 1954, pp. 146-147).

Northwest Louisiana and adjacent East Texas also have yielded a number of occurrences of Clovis and Clovis-like points. Their apparent presence at Obshner, along with Scottsbluff points, plus the unmistakable Clovis point from the Carrollton focus site at Melaun in Dallas County, does not therefore seem an archeological peculiarity. Explanations of the occurrences present a very definite difficulty, though perhaps magnified by the established associations on the High Plains.

While not necessarily relevant to the problem at Obshner, stemmed projectile points of essentially Archaic types have been found in the lowest levels of a rock shelter in Southern Illinois, dated by radio-carbon as early as 8,800 B. C.

Stemmed "Archaic" points have also been found in Missouri and Indiana, possibly associated with remains of *Mastodon americanus* (Gross, 1951). Since certain High Plains "Yuma" sites have been dated by radiocarbon as late as 4,800 B. C., possible overlap with the Archaic stage is not entirely out of the question. More datings are needed!

At any rate, knowing that an early version of the Archaic stage once existed over East Texas—witness certain sites in Van Zandt County, Gregg County, Hopkins County, Titus County, etc.—it is not without logic to suspect that the Scottsbluff points found in Northwest Louisiana and adjacent East Texas were provided by an Archaic culture in some way related to the period of the Carrollton focus on the Upper Trinity River. In the later Archaic manifestations, complete with large numbers of Gary points, polished stone, etc., which submerged these earlier cultures in the area, such remnant traits almost totally disappeared.

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3208 Caruth, Dallas, Texas

9024 San Fernando Way, Dallas, Texas

## STONE-LINED BASIN WITH CHARCOAL IN LOWER CLEAR FORK SILT

CYRUS N. RAY

When the writer discovered the deeply buried Gibson Site midden deposit in January 1930, there then was an 8 inch layer of gravel and red silt at a depth of 24 feet below the soil surface, which contained considerable charcoal and ashes throughout its exposure of 125 feet, and several straight hearths of the usual forms and sizes, composed of flat stones 8 to 10 inches across.

These hearths all contained much charcoal, and throughout the gravel layer were flint chips of the kind produced by nothing else but man's flint-knapping efforts. During the intervening more than twenty-five years, the writer has visited the site after rains, and has found a number of different kinds of artifacts, including a mano stone and a pocket of more than three hundred small thin flint flakes, at a depth of 27 feet beneath the soil surface, almost at low water level.

At the line between the gravel layer at the base of Upper Clear Fork Silt, and the upper edge of the Lower Clear Fork Silt, the writer has found several thick percussion-fractured leaf-shaped blades on the base of which one larger flake had been taken off of one face to thin the larger end for hafting. In 1930 with the inadequate knowledge then extant on the subject of American primitive man we assumed that it was an early attempt to produce a pre-Folsom point, and accordingly named it the Abilene Point. Later research proved that there also were artifacts of differing forms buried there at least four feet below the gravel layer. Also several Clear Fork Darts of types 1 and 2 were found at the same level as the Abilene Points, and the Abilene Points first found there may have been only some percussion-shaped knives made by Clear Fork men. These expert flint knappers used not only finely made knives and dart heads but also many roughly fractured, thick, almond-shaped knives, and heavy hand axes, spoke shaves and burins were made by the percussion method. One type of

Clear Fork Culture percussion-fractured knife later found frequently, closely resembles the original Abilene Points. These later were found in the Gibson Site buried at the same 24-foot level, but these usually are much larger than the original Abilene Points found at the same level.

The Gibson Site is situated at a place where Elm Creek turns from a north and south course in a bend to the east, and it is mostly exposed on an east facing bank, but it also extends for a distance around the bend to the east. Near the end of this bank on the east the formation shows that the whole bank there down nearly to water level has been removed by erosion, and replaced by amorphous silt from the top level in Nugent Silt 5 times, so that its top is level with that of the seven ancient Nugent and Clear Fork Silts, showing in regular banded formations south and west of it. On Dr. Kirk Bryan's visit to this site in 1946 I pointed out this replacement to Dr. Bryan and he agreed with me as to what had happened, and then wanted to give it a name as a separate and different silt formation. I then told him that I had already named it the Ft. Griffin Silt, and had found a lot of it near Ft. Griffin, and had seen it also in the South Bend site and elsewhere. In these sites most if not all of the original series of ancient banded silts have been removed in comparatively recent time, usually at the level of the bottom of Nugent Silt 5, and then the bank was replaced from top to bottom with an amorphous and unbanded sandy refill which may contain elements of anything earlier the floods washed away farther upstream. Some of these sand bar deposits may have existed long enough for Indians to have built villages on them as they refilled. The W.P.A. dug in such a recent river refill of Ft. Griffin Silt at the Hodges Site, when the whole series of ancient banded silts lay in regular sequence just south of it.

No extensive digging has ever been done in these strata and what has been done is only shallow digging into the bank after artifacts have been found in place. The Gibson Site has been watched closely since 1930 and it has caved off a number of feet back into the bank, but the hearths

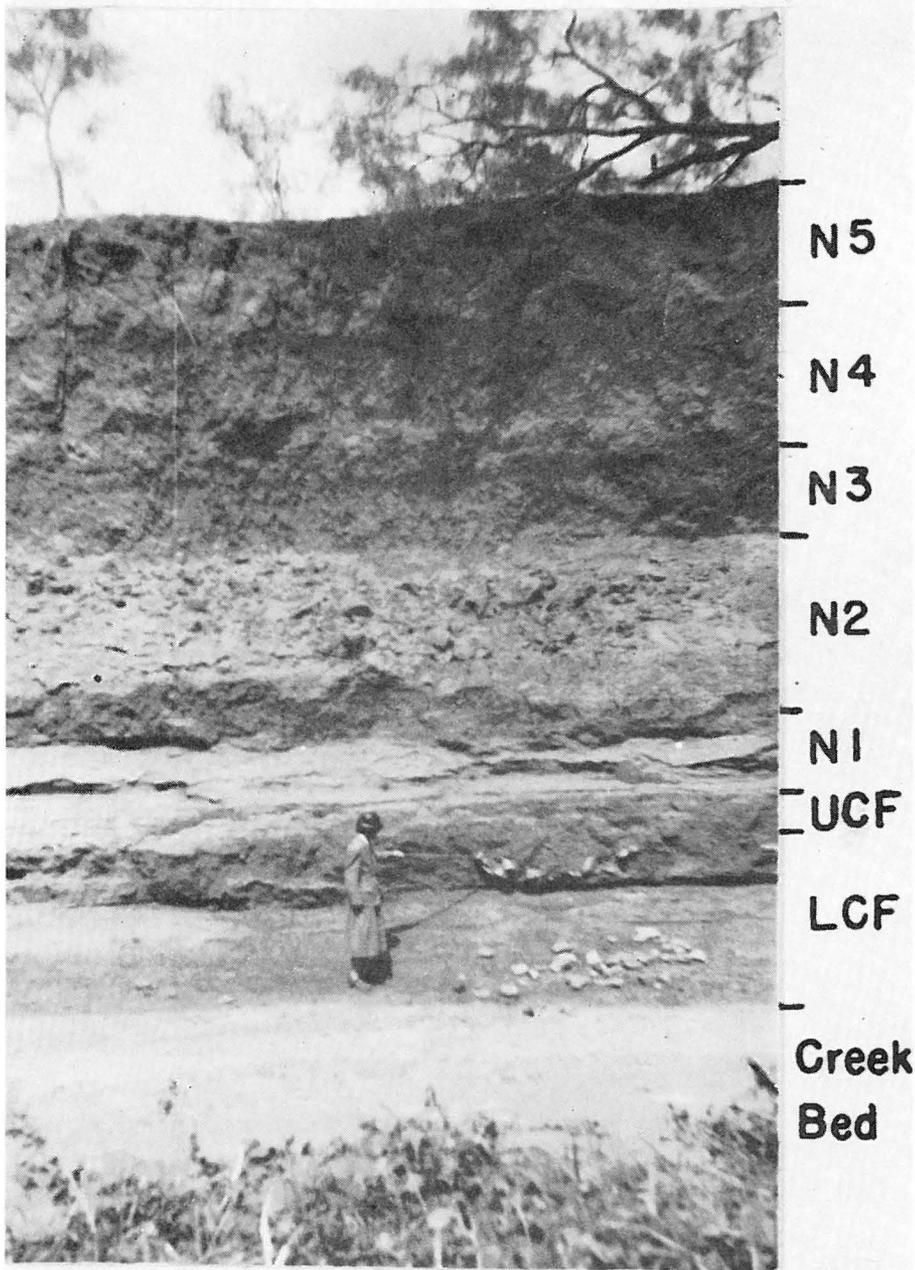


PLATE 15

Mrs. Ray pointing to basin-shaped rock-lined hearth near base of Elm Creek bank, Gibson Site. The five Nugent Silts are identified at right by symbols N 1 to N 5; UCF denotes the Upper Clear Fork Silt, and LCF the Lower Clear Fork Silt. Below the hearth are more stones loosened from it by erosion.





and artifacts and charcoal strata still keep the same relative positions that they occupied over 25 years ago.

On September 10, 1955, after some heavy rains, my wife and I visited the Gibson Site and found that considerable blocks of silt had caved off, most of it having been washed away. Located past the eastward bend of the creek, but a considerable distance west of the Ft. Griffin replacement area, and in the intact ancient banded deposits of Nugent and Clear Fork Silts, we found the stones of a rock-lined, basin-shaped pit projecting from the lowest silt deposit in the bank, the stratum of Lower Clear Fork Silt. This basin was rounded in shape like an old type wash basin. The top edges of the rock basin were 62 inches across, and the center 13 inches below the upper edges. The cross-section so outlined contained 15 visible stones, which were firmly embedded in the hard, dark red silt (Plates 15, 16). The rains had washed out 39 stones, which lay on the creek bed slope just below the hearth. Measurement of the loose rocks below the hearth showed that most of them varied from 7 to 9 inches in length, 4 to 6 inches in width, and 2 to 3 inches in thickness. There are no rocks larger than gravel size in this whole bank, from bottom to top at this site, except where hearth accumulations containing much charcoal have washed out, and there is no question that the hearth rocks were brought from elsewhere and placed there by man.

The writer dropped an old iron tied to a cord over the vertical bank above the hearth, while Mrs. Ray held the iron inside the bottom of the basin. This carefully measured vertical distance from the soil surface to the basin bottom was 26 feet 3 inches. The inside depth of the basin being 13 inches, this leaves 25 feet as the distance from the upper rim of the basin to the soil surface. The rock lining of course adds to the thickness, and a horizontal layer of charcoal two inches thick below the bottom adds still more, which would make the total measurement from the soil surface to the base of the charcoal layer close to 27 feet.

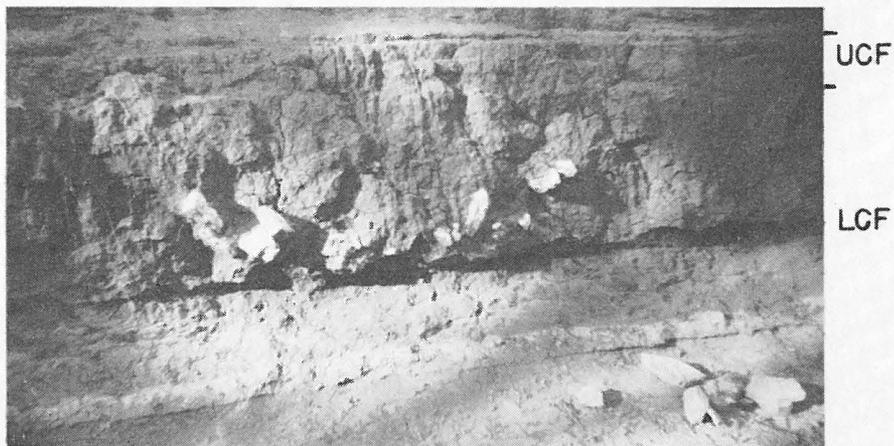
The charcoal layer was immediately under the stone basin and had a horizontal length of 43 inches. There was another hearth of the usual straight line of stones and charcoal situated 47 inches east of the basin. The thickness of charcoal in it was also about two inches and it was likewise below the top of the Lower Clear Fork Silt, at the same depth.

Evidently the makers of these two hearths arrived on the scene after most of the Lower Clear Fork Silts had been deposited, dug a basin in the silt down to a probable depth of 19 inches, burned a quantity of wood in it creating a bed of coals, and then lined the pit above the charcoal with flat rocks. Later depositions of Lower Clear Fork Silt then filled the inside of the basin and covered the whole structure about a foot deep before the next silt formed above. The Upper Clear Fork Silt then formed, and so on up to the present surface with the overburden consisting of the Lower and Upper Clear Fork Silts and the five Nugent Silts (Plate 15).

609 Orange St.  
Abilene, Texas



A



B

PLATE 16

A, Dr. Ray pointing to hearth stones in place, whitened with chalk. B, closer view of same hearth. Symbols at right are same as those in Plate 15.



## PECULIAR MANOS FROM LOWER PEASE RIVER VALLEY

JOHN HENRY RAY

Manos are very numerous on surface sites in the Lower Pease and Red River valleys in Wilbarger County. Many of these have a shallow concave basin on one side, the purpose of which is unknown. Krieger has illustrated one in "Culture Complexes and Chronology in Northern Texas," p. 306 and Plate 13, A-A' (University of Texas Publication 4640, 1946).

The grinding stones in this area are both of the concave basin type in which an oval mano was used with rotary motion, and the flat metate on which a wedge-shaped mano was used with back-and-forth motion. The peculiar depressions occur on manos which go with both types of grinding stones, on both one-hand and two-hand manos, and on one of three heavy pestles used in mortars. They thus appear to be a common trait among the peoples of this area.

The shape of these depressions varies from circular to oval with an average length of  $3\frac{1}{2}$  inches and width of 2 inches, the size varying with the size of the mano itself. The depth is seldom as much as  $\frac{1}{4}$  inch. Nearly uniform depth is maintained in the direction of the long axis of the depression, but this axis is sometimes at an angle with the long axis of the mano. The surface finish within the depression is the same as on the surrounding surface of the same face. These are well-finished manos with both sides showing use, but the side with the depression shows less use than the other and may be termed the back side. There can be little doubt that the depressions were intentionally made in the same way as the rest of the mano; that is, by pecking and grinding.

One apparent uniformity which is noted is that in nearly every case, the outer lip on one side of the depression extends downward toward the edge of the mano at its lowest or thinnest edge. In Plate 17, A the white chalk lines on 20 manos outline the rim of the depression and show where

it opens out on one side. An experiment was made, placing a small marble in the center of each depression; on each of the 20 manos tested, the marble promptly rolled out through the low gap.

Also shown (Plate 17, B) are three well-shaped manos, each having a saucer-shaped depression about  $2\frac{1}{2}$  inches across and  $\frac{1}{8}$  inch deep, but no outlet along the rim. In these cases, the marble comes to rest in the very center of the depression.

All the manos so fashioned are sandstone except for three which are red granite (not shown).

2130 Fannin St.

Vernon, Texas

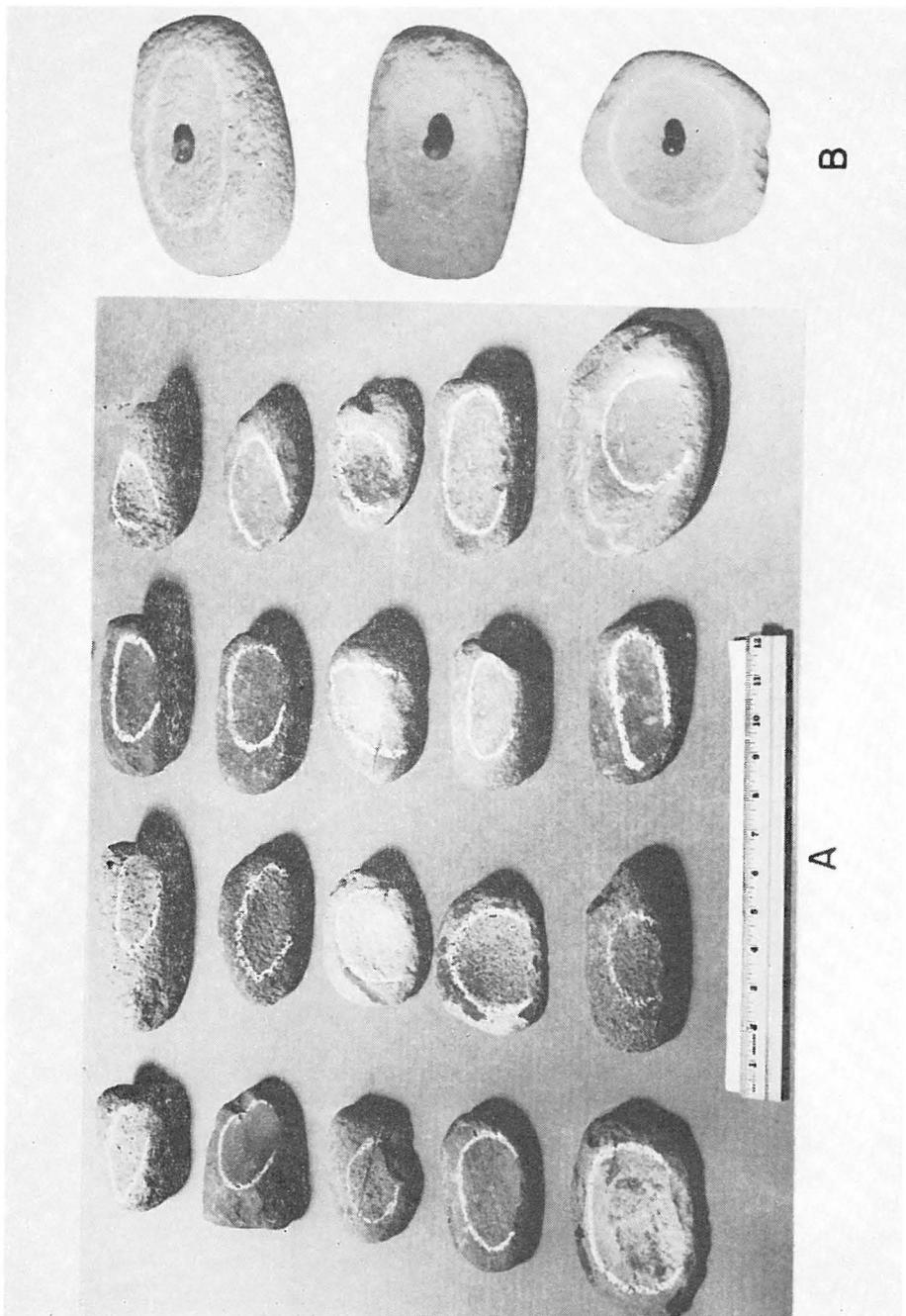


PLATE 17

A, 20 manos with gap in rim of depression. B, three manos with saucer-shaped depression, no gap in rim, marble resting in center of each. Lower Pease and Red River valleys, Wilbarger County.





# ANTHROPOLOGICAL THEORY AND PLAINS ARCHEOLOGY<sup>1</sup>

RUDOLPH C. TROIKE

The use of ethnological concepts in archeology is certainly not new. Diffusion and the taxonomic approach were well developed by cultural anthropologists before being taken over into archeology. However, more abstract conceptual tools have not been adopted so readily. When such concepts have been employed, it is often without a clear idea of their nature. To make them more available for use, it is necessary first that they be understood.

One such concept is acculturation. It has been very profitable in the study of modern culture contacts. Only a few workers have applied it to the study of archeological remains, yet there is an unrivalled opportunity in archeology to study acculturation as it has occurred between non-Western cultures in the past. Even these occasional studies reflect the increasing awareness among archeologists of the responsibility they bear to the rest of anthropology.

The neglect of the important concept of acculturation can be laid to two factors. Many have tended to confuse it with diffusion, and not see it as a useful independent tool. Also, to study acculturation from material remains, it is first necessary to apply the "conjunctive approach" and express archeological information in ethnological terms. These difficulties must be bridged to encourage wider use of the acculturation concept.

In order to establish the value of acculturation as a tool of archeological research, it will be necessary to clarify the distinctions and relations between diffusion and acculturation. When this has been done, it then remains to demonstrate these differences through an analysis of some problem, emphasizing first diffusion, then acculturation.

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1. Appreciation is due Dr. George W. Brainerd, Dr. Alex D. Krieger, my wife, Nancy P. Troike, and Dee Ann Suhm for critical reading and suggestions; also to my wife for her patient work in preparing the manuscript.

This procedure is significant, since the test of a concept lies in its application. The problem chosen for examination here concerns the effects of culture contacts on a series of Central Plains groups which moved south into Texas and Oklahoma approximately during the 12th and 13th centuries.

Diffusion and acculturation are properly parts of a larger subject, culture change. Before they can be profitably discussed, some basic working definitions must be formulated. "Diffusion" summarizes a whole set of statements about observed phenomena and their results. Ethnologists have described the transfer of artifacts from one area to another through a series of individual exchanges. A set of such activities, taken together, is said to constitute a *process of diffusion*. A concept, on the other hand, organizes observed phenomena in a meaningful way. An archeologist discovering two similar artifact types some distance apart must infer the whole sequence of interactions which together account for the observed distribution. *Diffusion*, therefore, conceptualizes the distribution of culture elements in space and time as the end product of cultural transmission between groups in contact (either directly or indirectly).

The concept of acculturation derives from the view that cultures are structured wholes whose contents are organized or related through patterns or systems integrated to form cultural universes. When foreign elements or patterns are introduced as a result of contact, an imbalance may be produced in the existing system. This initiates a process of change in the structures or their functional links; this is the *process of acculturation*. Therefore, *acculturation* formalizes the concept of change in sociocultural systems as a process resulting from contact between culturally differentiated groups.

There is evident in the literature a considerable measure of disagreement over where and how to draw a dividing line between diffusion and acculturation. Willey (1952) suggests the compound "diffusion-acculturation" to com-

promise the conflicting statements of theorists. Among these, Herskovits (1938) has called diffusion "accomplished acculturation," while Linton (1940: 470, 479) has described diffusion as an "aspect of acculturation." Thus the first considers acculturation to be a process leading to diffusion, while the second regards diffusion as a process producing acculturation. This apparent paradox can be resolved only by an understanding of the relative significance of the two concepts.

The statements of both Herskovits and Linton seem to assume that a fixed relationship between the two processes has been established by their very definitions. Such an assumption does not hold good. Quite the contrary, no fixed and invariable status can be assigned to either, but rather a statement of their relations is needed. Treated separately, each concept is independent and coordinate with the other. However, when either diffusion or acculturation becomes the focal point in the course of a study on culture change, the other is reduced to a subordinate process. The crucial thing, then, is where the focus of interest lies.

There remain certain prevalent ideas about the differences in diffusion and acculturation which should be dealt with. These ideas are largely responsible for the confused question: "Is this an instance of diffusion or acculturation?" This is evoked by frequent attempts to establish some quantitative distinction between the two processes, such as length and number of contacts, or extent of modification in borrowed traits. It is often said that the adoption of several traits constitutes diffusion, but a large number of borrowed traits makes acculturation. It could be pointed out that the steel axe alone produced extensive acculturation in some cultures, while a study of diffusion might well take in the whole Mississippian Culture Pattern. Moreover, no maximum or minimum scale exists to separate diffusion and acculturation, nor has any objective weighting of traits been established.

Quimby and Spoehr (1953) have used "acculturation" to mean modification either in form or use of an artifact in a new cultural context. Since material objects are not properly part of culture, this usage seems legitimate only if the artifacts are taken as reflecting acculturative changes in the culture patterns to which the objects have been introduced.

A second important consideration is the purpose of the investigation. This will determine which process is to be primary and which subordinate. A diffusion study is historically oriented, and is concerned with the spread of traits or complexes from culture to culture through space and time. The history of the bow in North America is an example; the numerous cases of acculturation are only background to the larger historical picture of diffusion. However, an acculturation study is concerned with structural-functional integration of borrowed traits, either from the view of the trait and its new cultural context, or from the view of the cultural alterations set in motion by the adoption of the new trait. A documentation of the trait's diffusion is only a historical preface to the acculturation study. The following may serve to illustrate the preceding discussion:

Aim of Study:	<i>Historical</i>	<i>Functional</i>
Concepts:		
Primary:	Diffusion	Acculturation
Secondary:	Acculturation	Diffusion

Ethnologists and archeologists have a common basic tool in the trait list. It permits extended comparisons to be made as the initial step in the study of either diffusion or acculturation. Depending on what traits and how many are shared by two cultures, it is possible to infer borrowing through contact or common historical origin. In analyzing the problem selected for demonstration of the differences in diffusion and acculturation studies, the first step must therefore be the collection and comparison of trait lists.



Fig. 4. General location of culture complexes discussed in this article.

Donald Lehmer (1954: 139-140) has compiled a list of traits characteristic of what he has termed the "Plains Village Pattern." He states that "these traits, many of them decidedly generalized, appear as the warp of all the village cultures of the Plains. Specific modifications of these traits, occurring in combination with other and distinctive traits, have definitely limited distributions in time and space." Within this largest and most general complex, he has specified three basic variants: the Central Plains, the Middle Missouri, and the Coalescent Traditions. Wesley Hurt (1953: 54) has amended "tradition" to "phase." The principal aspect of the Central Plains Phase is the Upper Republican, for which Krieger (1946: 270) has suggested a date of 1100 A.D. for its "patternization."

*Plains Village Pattern*

(Lehmer 1954: 139-140)

1. Subsistence based about equally on hunting and agriculture.
2. Semi-permanent villages.
3. Villages located adjacent to floodplains of large rivers.
4. Semi-subterranean earth lodges with entryways.
5. Undercut and straight-sided cache pits in and between the houses.
6. Grit-tempered pottery with paddle-marked bodies and cord- or tool-impressed decoration.
7. Small, light projectile points.
8. Chipped end-scrapers.
9. Hoe blades of bison scapulae.
10. Bone hide-dressing tools.

Hurt (1953: 51) adds "plain-surfaced pottery" to this list and suggests that "earth lodges" should be reduced to phase level, since they seem to lack universality. He has compiled the following list from Lehmer (1954).

*Central Plains Phase*

(Hurt 1953: 54)

1. Square houses, rounded corners, four primary posts set in a square around a central firepit, entrance to the east or west.
2. Ossuary burial, occasional individual inhumations.
3. Grit-tempered pots, bodies plain or cord-roughened, flared or collared rims, decoration tool-impressed (cord-impressed in the Sweetwater focus).
4. Villages small, unfortified; houses arranged in no apparent order.
5. Arrowpoints with base notches, multiple side notches.
6. Diamond-shaped beveled knives.
7. Chipped celts.
8. Equal-arm (stone) elbow pipes
9. Bone awls generally made of deer cannon bones.
10. Single-hole arrowshaft wrenches of bone and antler.
11. Figurines of baked clay.

These traits give an outline of the cultures existing in the Great Plains between the 12th and 16th centuries. At the southern borders of the plains, in Texas and Oklahoma, contemporaneous manifestations of similar character have been found. Each one shares some traits with adjacent circum-Plains traditions. A number of cultures on both sides of the southern frontier of Plains expansion have been chosen for comparison with one another and with the culture of the Central Plains hearth. The list used herein (Table II) is based on functional groupings used by Krieger (1946) and the revised versions by V. Watson (1950) and Gallaher (1951). The cultures are arranged in geographical order to give a picture of trait-distributions. Table I summarizes essential data on the cultures compared.



Suhm, Krieger, and Jelks (1954) have recently adjusted age-estimates for the Gibson and Edwards Plateau Aspects (Table I). The terminal dates for these complexes are now set at 1200 and 1000 A.D. respectively. However, this shift has left some disjunctions with certain established datings. Antelope Creek and Upper Republican have been cross-dated by Pueblo trade sherds (Wedel 1947: 153; Krieger 1946: 47, 143-144) and cannot be pushed much earlier than 1200 A.D.; Henrietta Focus has been placed at 1400-1600 A.D. by similar means, even in the latest estimate (Suhm, Krieger, and Jelks 1954: 87). The close of Edwards Plateau Aspect (or the start of Central Texas Aspect) is thus set 200-400 years before the establishment of Henrietta. However, Henrietta shares a number of traits with Edwards Plateau, while Central Texas materials do not appear in that region until much later (Krieger 1946: 97), probably around 1500. Also, Henrietta pottery occurs along with Sanders ware in the Wylie focus, which Stephenson (1951) places at 1300-1600 A.D. Several alternative conclusions are possible. Five hundred years could be allowed for the spread of Central Texas traits to the Brazos River and a span of 1100-1500 credited to Wylie, or Henrietta could be set back to about 800 A.D. As neither of these seems very tenable, it may be suggested that a less drastic downward revision of the Gibson and Central Texas Aspect dates would be desirable.

Matrix form is used in Table III to present numbers and percentages of common traits for each pair of cultures. The percentage figure refers to the number of traits in the list for the culture being matched in that horizontal row. The list of traits was constructed specifically to reveal the reciprocal exchange of traits between Plains groups and the circum-Plains cultures. Where this exchange was most extensive, a higher representation appears on the chart. Hence the large number of traits for Optima and Antelope Creek, which combine features of Upper Republican and Pecos; as against the lower figures for the "Cad-doan area" groups, whose contacts with eastern Plains

TABLE I

Unit	Location	Time	Source	Relations
Upper Republican	Kansas-Nebraska	1250-1500 AD	Wedel 1947:153	Central Plains Phase
Antelope Creek Focus	South Canadian River, Texas Panhandle	1300-1450 AD or earlier initial date	Krieger: 47	Panhandle Aspect
Optima Focus	North Canadian River, Oklahoma Panhandle	1250-1450 AD	V. Watson:44	Panhandle Aspect
Pecos Pueblo	North-central New Mexico	pre-1300-1838 AD	Kidder 1936:610	
Henrietta Focus	Western north-central Texas	pre-1400-1600 AD	Suhm Krieger & Jelks:87	
Edwards Plateau Aspect	Central Texas	4000 BC-1000 AD, perhaps later	Suhm Krieger & Jelks: 112	Archaic Stage
Central Texas Aspect	Central Texas	1200-1500 AD or 800-1500 AD	Suhm Krieger & Jelks: 116	Succeeded Edward Plateau Aspect
Wylie Focus	North-central Texas	1300-1600 AD	Suhm Krieger & Jelks:92	Not assigned
Washita River Focus	South-central Oklahoma	1400-1550 or 1600 AD	Bell & Baerreis: 8	
Custer Focus	West--central Oklahoma, along Washita River	1300 or 1450-1600 AD	Bell & Baerreis: 8	
Sanders Focus	Northeast Texas, Southeast Oklahoma	1300-1450 AD or 800-1200 AD	Krieger:216; Suhm Krieger & Jelks:182	Gibson Aspect
Spiro Focus	Eastern Oklahoma, on Arkansas River	1300-1500 AD or 500-1000 AD	Orr 1946; Suhm Krieger & Jelks:160	Gibson Aspect
Turkey Bluff Focus	Eastern Oklahoma	1400-1600 AD or 1200-1600 AD	Lehmer 1951; Suhm Krieger & Jelks:159	Fulton Aspect
Fort Coffee Focus	Eastern Oklahoma, on Arkansas River	1500-1600 AD or 1200-1600 AD	Orr 1946; Suhm Krieger & Jelks: 159	Succeeded Spiro; Fulton Aspect



cultures produced little effect either way. Many of the similarities they share with Upper Republican simply reflect the common origin of the Mississippian and Plains Village Patterns. The percentages given for these pre-Caddoan cultures therefore express degrees of similarity to other cultures only with respect to this list and not to their total inventories. Some of the comparisons were undoubtedly skewed by the absence of comparable or relevant data. In general, though, if two cultures were historically related, the preponderance of trait agreements will override even important gaps in data. Occasionally, it may be necessary to resort to qualitative assessments of specific features in order to reach a conclusion.

Antelope Creek and Optima show the highest degree of similarity, a fact which justifies their inclusion in a single Panhandle Aspect. It could become necessary to re-interpret the two foci on a temporal rather than a spatial basis, if differences in architecture should prove to be the result of development through time. This is suggested by the presence of Antelope Creek house-forms in the Optima area and the assumption that some unidentified forms must have preceded the development of the Antelope Creek house.

Henrietta has the smallest number of traits common to other Plains cultures; at the same time, it shares over half of its traits with Central Texas and nearly as many with Edwards Plateau. Were it not for the higher correspondence with such intermediate complexes as Washita River and Antelope Creek, it is questionable whether Henrietta would be easily recognized as Plains. It might eventually be desirable to combine Henrietta with Custer, Washita River, and perhaps the Paint Creek Culture of Kansas in a "Southern Plains Aspect."

An examination of Table II shows the characteristic Plains Village bison-scapula hoe to be one of the most widely diffused items. In some areas it competed with hoes of other material, such as slate or mussel shell. These bone hoes have been reported from as far south as the Bonnell

site, a Jornada Mogollon site in New Mexico (Holden 1952: 128), where they occur with Alibates flint, quarried near Antelope Creek, and with other Plains-like bone artifacts. There was also some slab-wall masonry reminiscent of Panhandle foundations.

Cordmarking on pottery appears to decrease toward the south and east. There may be some correlation between the disappearance of this trait in the Plains region and the spread of shell tempering. Orr (1946) traced the evolution of shell temper as it began in Spiro and became institutionalized in Fort Coffee. It occurs only sparingly in Custer, predominates in Washita River, and completely characterizes Henrietta pottery, which is also entirely plain.

Baerreis (1954: 44) has discussed the diffusion of the Fresno point, which he describes as the "typical Middle Mississippi" point. Whatever its origin, its introduction into the southern Plains and "Caddoan" areas seems to be co-extensive with the appearance there of Central Plains manifestations.

The trait lists brought together here contain material for many more such observations. However, enough has been said to illustrate the kind of results to be obtained from a diffusion study, and to provide a basis for the second part of this study—acculturation.

The concept itself has already been discussed, but the procedures for the study of acculturation should be examined briefly. Keur (1941) has set forth these necessary conditions to such a study by an archeologist.

(1) Trace the history of a particular culture, to establish its characteristics and autonomy.

(2) Demonstrate a situation of contact and the cultural differences between the contacting cultures.

(3) Document the history of the contact and consequent changes in either or both cultures.

TABLE II

Key: x      Trait present  
 -          Trait absent  
 Blank      No data

	Upper Republican	Optima	Antelope Creek	Pecos Pueblo	Washita River	Custer	Henrietta	Edwards plateau	Wylie	Sanders	Fort Coffee	Turkey Bluff	Central Texas
<b>ECONOMY:</b>													
Maize agriculture	x	x	x	x	x	x	x	x	x	x	x	x	x
Hunting-gathering	x	x	x	x	x	x	x	x	x	x	x	x	x
Fish use	x				x	x	x	x	x	x			
Squash & beans	x				x								
<b>VILLAGES:</b>													
Defensive positions	-	x	x	x	-	-	-	-	x	-	-	-	x
Stream terrace location	x	x	x	-	x	x	-	x	-	x	x	-	x
Burnt-rock middens	-	-	-	-	-	-	x	x					
<b>HOUSES:</b>													
Semi-subterranean	x	x	x	-									
Rectangular-square	x	x	x	x	x	x							
4 central support posts	x	x	x	-	x	x							
Entryway lateral	x	x	-	-	x								
Roof entrance	-	-	x	x	-								
Plastered floor	-	x	x	x	x								
Central firepit	x	x	x	x	x	x					x	x	x
Flat roof	-	-	x	x	-								
Dome-shaped roof	x	x	-	-	x					x	x	x	
Walls of poles	x	x	-	-		x			x	x	x	x	
Clay-covered poles	-	x	-	-	x	x			x	x	x		
Base slabs: 1 row	-	x	-	-	-	-							
2 rows	-	-	x	-	-	-							
Adobe or block base	-	x	-	x	-	-							
Masonry construction	-	-	x	x	-	-							
Ventilator lateral	-	-	x	x	-	-							

	UR	O	AC	PP	WR	C	H	EP	W	S	FC	TB	CT
Small adjoining rooms	-	x	x	x	-	-			-	-	-	-	
Earth bank in room	-	x	x	-	-	-			-	-	-	-	
Multiple rooms	-	-	x	x					-	-		-	
Single unit dwellings	x	x	x	-	x	x			x	x	x	x	
AGRICULTURAL IMPLEMENTS:													
Dibble points:													
Bison metapodial	-	x	x		-	-	x	-	-	-		-	
Bison tibia		x			x	x	x	-	-	-		-	
Hoes: Bison skull		-			x	-	x	-	-	-		-	
(Bison) scapula	x	x	x	x	x	x	x	-	x	x	x	x	x
Mussel shell	-	-	-	-	x	-	x	x	x	x	x	x	x
FOOD STORAGE:													
Bell-shaped cache pits	x	-	x		x	x	-	-			-	x	
Cists in floors	x	x	x		x	x		-	x		x	x	
Cists outside houses	x	x	x		x	x	x	-			x		
FOOD PREPARATION:													
Milling stones	-	x	x				x	x	x	x		x	x
Metates	-		x	x			x	-	x	-		x	-
Manos	-	x	x	x	x	x	x	x	x	x	x	x	x
Pottery: Temper:													
Grit	x	x	x		x	x	-		x	x	x	-	-
Bone	-	x	x		x	x	-		x	x	-	-	x
Caliche	-	-			-	x	-		-	-	-	-	-
Limestone		-			x	x	-		x	-	-	-	-
Shell		-			x	x	x		x	-	x	x	-
Clay		-			-	x	-		x	x	x	-	-
Pottery: Form:													
Globular	x	x	x		x	x	x			-		x	
Round bottom	x	x	x		x	x	x			-	x	x	x
Flat bottom		-			x	x	-			x	x	x	
Strap handles	-	-	-		x	x	-			x	x	-	
Pottery: Surface Treatment:													
Cord-marked	x	x	x	-	x	x	-			-	-		-
Plain		-			x	x	x			x	x		x
Pottery: Rim:													
Straight	x	x	x		x	x	x			x		-	
Thickened	x	x	-		x	x	-			-		-	
Incised notch	x	x	x		-	-	-			x		-	
Pottery: Lip:													
Incised lines	x	x	x		-	-	-					x	
Cord-marks	x	x	-		-	x	-			-	-	-	





	UR	O	AC	PP	WR	C	H	EP	W	S	FC	TB	CT
CHIPPING IMPLEMENTS:													
Bone & antler flaking tools: rounded ends	x	x	x	x	x	x	x	x	x	x	-	x	x
Antler tapping tools: squared ends	x	x	x	-	x	-	-	-	-	-	-	-	-
Deer ulna, worked tip		-			x	-	x	x	x	x	x	x	x
WEAPONS:													
Projectile points:													
Fresno: small, triangular, sides unnotched, bases straight to concave	x	x	x	x	x	x	x	-	x	-	x	x	x
Harrell: Same, 2 side notches	x	x	x	x	x	x	x	-	x	-	x	-	-
Larger, triangular, unnotched	x	x	-	-	x	-	-	-	-	-	-	x	-
Dart points:	-	x	x	x	x	-	x	x		x	x	x	
Pedernales							x	x					
Castroville							x	x					
Nolan							x	x					
Gary								x	x			x	
Ellis								x	x			x	x
Sandstone shaft smoothers	x	x	x	x	x	x	x	x	x	-	x	x	
Shaft wrenches	x	-	-	x	x	x	-	-	-	-	-	-	
Other arrow points:													
Cliffton								x					x
Young								x					x
Scallorn								x					x
Alba								x		x			x
Bonham								x		x			x
Perdiz								x		x			x
ORNAMENTS:													
Beads: Bone	x	-	x	x	x	x	x	x	x		x	x	x
Olivella shell	-	x	x	x	-	x	x	-	-	x	x	-	-
Shell disc	-	x	-	x	-	-	x	-	x	x	-	-	x
Conch shell gorgets	-	-	-	-	-	-	-	-	x	x		-	
Conch Columnella	x	-	x	-	-	-	-	-	-	x		-	
Pendants: Bone	x	-	-	x	x	-	-	-	-			x	
Mussel perforated-Turquoise,		x	-	x	x	-	x	-	-	-	x	-	x
microcline	-	x	x	x	-	-	-	-	-	-	x	-	-
Clawlike, of shell	x	-	-	-	-	-	-	-	-	x		-	

	UR	O	AC	PP	WR	C	H	EP	W	S	FC	TB	CT
CEREMONIAL OBJECTS:													
Pipes: Stone, elbow, bulging arm	x	x	x	-	x	x	x	-	-	x	x	-	
Clay, tubular	-	-	x	x	x	-	-	-	-	-	-	-	
Rasps: Deer legbone	-	-	x	x	x		x	-	-	-	-	x	x
Bison rib	x	x	x	x		x	x	-	-	-	-	-	x
Bone gaming pieces	x	-	-	x	x		-	-	-	x	-	-	
BURIALS:													
Inhumation primary	-	x	x			x	x	x	x	x	x		x
Graves stone lined	x	-	x				x	x	-	-	-		x
Sub--floor burial	-	x	x	x			-	-	-	-	-	-	
No special grave goods	x	x	x	-		x	x	x	x	-	-		x
MISCELLANEOUS:													
Celts	-	x	-	-	x	-	x	-	-	x	x	x	
Bone fishhooks	x	-	-	-	-	-	x	x	x	x	-	-	x
Obsidian	x	-	x	x	-	-	x	-	-	-	-	-	x
Turtle shell rattle	-	-	x	x	-	-	-	-	-	-	x	-	
Totals: 119	56	69	73	54	67	53	63	30	42	40	39	41	38
Percentages of total traits	47%	58%	61%	45%	56%	44%	53%	25%	35%	34%	33%	34%	31%

TABLE III

	Upper Republican	Optima	Antelope Creek	Pecos Pueblo	Washita River	Custer	Henrietta	Edwards Plateau	Wylie	Sanders	Fort Coffee	Turkey Bluff	Central Texas
Upper Republican	43 77%	42 75%	25 44.7%	43 77%	37 66%	31 55.5%	16 28.6%	24 43%	21 37.6%	22 39.4%	25 44.6%	19 34%	
Optima	43 62.4%	55 80%	35 50.8%	45 65.3%	40 58%	37 53.7%	18 26.2%	27 39.2%	26 37.8%	29 42%	27 39.2%	20 29%	
Antelope Creek	42 57.6%	55 75.5%	44 60.3%	43 59%	37 50.7%	42 57.6%	19 26%	25 34.3%	23 31.6%	18 24.7%	26 35.7%	23 31.5%	
Pecos Pueblo	25 46.4%	35 65%	44 81.5%	34 63%	22 40.8%	31 57.5%	12 22.2%	20 32%	14 26%	18 33.4%	21 39%	16 29.7%	
Washita River	43 64.2%	45 67.3%	43 64.2%	34 50.7%	44 65.8%	18 27%	28 41.8%	27 40.4%	27 49.3%	33 50.8%	34 50.8%	22 33%	
Custer	37 70%	40 75.5%	37 70%	22 41.5%	44 83%	33 62.4%	15 28.3%	28 53%	25 47.2%	28 53%	23 43.5%	18 34%	
Henrietta	31 49.3%	37 58.8%	42 66.6%	31 49.3%	42 66.6%	33 52.5%	27 44.5%	30 47.6%	25 39.7%	25 39.7%	27 44.5%	34 54%	
Edwards Plateau	16 53.3%	18 60%	19 63.4%	12 40%	18 60%	15 50%	27 90%	20 66.6%	14 46.6%	12 40%	18 60%	20 66.6%	
Wylie	24 57.2%	27 64.3%	25 59.5%	20 47.7%	28 66.6%	28 66.6%	30 71.5%	20 47.7%	22 52.5%	20 47.7%	23 54.8%	22 52.5%	
Sanders	21 52.5%	26 65%	23 57.5%	14 35%	27 67.5%	25 62.5%	25 62.5%	14 35%	22 55%	24 60%	20 50%	17 42.5%	
Fort Coffee	22 56.5%	29 74.5%	18 46.2%	18 46.2%	33 82%	28 72%	25 64.2%	12 30.8%	20 51.4%	24 61.5%	24 61.5%	14 36%	
Turkey Bluff	25 61%	27 66%	26 63.5%	21 51.3%	34 83%	23 56.2%	27 66%	18 44%	23 56%	20 48.8%	24 58.5%	17 41.5%	
Central Texas	19 50%	20 52.6%	23 60.5%	16 42%	22 58%	18 57.4%	34 89.5%	20 52.6%	22 58%	17 44.7%	14 37%	17 44.7%	

(4) Draw the inferences necessary to describing the results of the whole process.

(5) Comparisons may be made and recurrent incidences noted.

It is clear from these conditions that an analysis of diffusion must precede a study of acculturation. This is nowhere more obvious than in James Watson's (1952) study of Cayua acculturation. Although announced as a non-historical, "structural" investigation, yet it had to begin with an informal recognition of the diffused elements. His deliberate neglect of the diffusion approach somewhat weakened his material. In the present study of southern Plains Village acculturation, the first three conditions have been substantially met already. The fourth step will be to put meat on the bones of the trait lists.

A fairly clear quantitative presence-and-absence difference separates the Plains colonies from those native cultures they encountered. Changes in specific traits shared reveal more genuinely the actual relationships between these colonies. As differences are generally cumulative with distance, the Panhandles cultures exhibit a continuous gradation of features between Plains and Pueblos.

Krieger (1946: 73) has aptly expressed the implications present here: "One can hardly escape the impression that the peoples of this [Antelope Creek] focus were Plains agriculturalists who pushed southward from one valley to another as far as eastern New Mexico. Here contact was established . . ." Krieger (1949: 98-9) has traced the boundary line which was created by this contact, across northeastern New Mexico, north Texas, and up through eastern Oklahoma, wherever the immigrants found established native cultures.

Who these people were, and where they originated has not been substantiated by archeology or ethnology. However, they had achieved a culture which was economically balanced and well adapted to exploit the environment of the

Plains. Where and when this specialized culture was developed before it appeared full-blown on the Plains is as yet unknown. Once in the Plains, the ecological integration of the culture was remarkably successful and permitted a rapid expansion of the population. The stage was thus set for an early chapter of "manifest destiny," for the Great Plains were almost uninhabited. The climate was favorable, and the vast domain was there for the taking. The absence of any obstacles to the spread of these horticulturist-hunters is evidenced in the lack of defensive organization among their villages.

Within a fairly short time the limits of the Plains environment were reached, and expansion came to an end. Perhaps it was because the areas around the southern end of the Plains were occupied by peoples of differing cultural traditions who had specialized to meet the conditions of their own environments and were uninterested in exploiting the adjacent country. Or perhaps the Plains Villagers were not equipped either offensively or ecologically to subdue these new areas. Whatever the cause, the boundary was established and acculturation began to modify the frontier settlements.

The contact established between the Plains colonists in the Panhandle and those of Pecos Pueblo and nearby related sites had important results for both groups. It is probable that from time to time, hunting parties visited the Pueblo, and it may be that groups from Pecos also travelled east. A valuable item of trade from which "a majority of the Pecos chipped artifacts were fashioned was 'Alibates Flint', a red-banded agatized dolomite which could only be obtained from the quarries north of Amarillo. That many of the objects were actually chipped at Pecos is shown by large numbers of flakes of this material in the upper rubbish" (Krieger 1946: 62). It appears that the Panhandle Plains groups stimulated the Pecos men to take a greater interest in hunting, including bison-hunting. This would explain the greater number and variety of bone

and chipped flint artifacts at Pecos than is found in other pueblos of the Southwest (Krieger 1946: 62-63).

Along with a few pieces of Pueblo trade pottery, the visiting Plains hunters brought back observations and information on Puebloan architecture. The result was that the Antelope Creek villages on the South Canadian River took over the idea of stone masonry and multiroomed structures, reproduced these by their own unique methods, and in the resulting syncretism expressed their essentially different social heritage. Krieger (1946: 43) has devoted considerable discussion to these structures. It is apparent that it was largely a Puebloan idea but not Puebloan techniques which were adopted. Internally, the houses retain most of the features characteristic of the Central Plains house. Externally, the use of adobe and masonry, the presence of multiroomed dwellings oriented to the cardinal directions, the conversion of the entryway into a ventilator, the adoption of the roof hatchway, and possibly the presence of a clay bank "altar" inside the house opposite the ventilator, all point to an attempt to reproduce the Southwestern pueblo.

The evidence that this was a native effort seems to lie in the unique masonry technique employed. Foundations were formed by two parallel rows of upright caliche slabs with rubble fill between them; masonry walls continued on above or another paired row of slabs might be set inside the margins of those below, and so on up the wall. Watson (1950: 60-61) has suggested a possible sequence by which such slab-masonry could have developed from the single-slab rows set around Optima house walls. The slabs functioned in an entirely different way from those in Antelope Creek Focus sites. In the Optima Focus, they are outside the wall, where they supported the wall posts and sealed out rain water. It may be that the practice was suggested by the Upper Republican use of slabs for lining graves, as at Optima the entryway was built and roofed with slabs. Without any stratigraphy or seriation of ruins only speculation is possible.

As a rule, the greater the differences between two cultures in contact, the stronger will be the stimuli to acculturation. This may be responsible for the more extensive acculturation which occurred between Pecos and Antelope Creek than between the latter and Optima. In addition, the conditions surrounding contacts serve to stimulate as well as control the direction of subsequent changes. Krieger (1946: 74) repeats Kelley's suggestion that the marriage of a few Pueblo women into the Panhandle villages could have initiated the architectural changes there; this would explain the absence of Puebloan ceremonial features, because Pueblo women control the houses while men own the ceremonial properties.

According to Kidder (1924: 5), the Pueblo "women built the walls of stone and adobe mud, the men cut and set the roof beams." But structural details at Antelope Creek argue for an indigenous architecture. Women are the potters and corn-grinders among the Puebloans. Again, Krieger (1946: 17-39) nowhere mentions more than a handful of Pueblo sherds at any Panhandle site, no more than might be expected from trade. Finally, even the eastern Pueblos were probably all matrilineal at this time, as most likely the Plains groups were also. Such a situation militates against the removal of a woman from her home to a foreign village where she could claim no residence. A more likely alternative for sources of diffusion through hunting-trading parties has already been mentioned.

The hybrid culture in the Panhandles was short-lived, however. "According to Weakley . . . the period 1439-1468 was one of almost continual drought in the Panhandles region" (V. Watson 1950: 44). The high tide of Plains Village expansion was past. Like the San Juan Anasazi 200 years before, these horticulturists evacuated their frontier and began a retreat. By the time of Coronado's entrada of 1541, only nomadic, non-ceramic bison hunters occupied the area (Krieger 1946: 370). The retraction of the Plains Village boundaries culminated when "the Upper Republican occu-

pation of the Central Plains was terminated by the drought of 1539 to 1564" (Lehmer 1954: 149).

The Custer and Washita River foci show few distinctive modifications from Upper Republican, partly due to the absence of any strong cultural boundary. Most of the changes which took place must therefore be treated as simple diffusion or ecological adaptation.

Farther south, the Plains Village colonies of Henrietta Focus encountered a real cultural frontier when they overran the northern ranges of the Edwards Plateau culture. The invasion was countered sometime later by bands of the developing Central Texas culture to the south. Krieger (1946: 97) has documented a case of contact between these peoples. Two graves at the Harrell site were "multiple interments and all nine arrowpoints found in them suggested the cause of death." These were all Central Texas Scallorn points, of which but 24 occurred in the site. Such evidence at least helps set Henrietta apart from Central Texas, despite close cultural similarities resulting from intensive acculturation. Clifton and Alba points from northeast Texas suggest earlier contacts with groups down the Red or Trinity Rivers, perhaps through Wylie Focus.

The use of shell tempering for pottery probably diffused among the Plains Villagers before they migrated as far south as Texas. The practice was already institutionalized among the Henrietta peoples. They seemingly also acquired the atlatl from local Edwards Plateau natives. Krieger (1946: 95) remarks that "the presence of a number of dart points also distinctive of 'Edwards Plateau Culture' points to a continuum of older central Texas traits into what is otherwise a radically different and later culture in the upper Brazos Valley."

Perhaps even more significant is evidence for the adoption of "burnt-rock middens" in the Henrietta Focus area. These are a characteristic feature of Edwards Plateau-Central Texas sites. They arose from the custom of drawing up slabs of native Cretaceous limestone around campfires,



which caused the stone to crack and required new pieces to be brought in at intervals, the cracked sections being tossed out. In time a favored camping spot might come to possess a low circular mound of stones.

Since house structures are unknown for Henrietta, it is reasonable to assume that these hearths, ringed by some sort of light, temporary buildings which left no remains, served as the occupational sites of the acculturated Plains colonists. The degree of acculturation they experienced amounted to virtual syncretism; a measure of this is given in Table III, which shows Henrietta shares 30 traits with Upper Republican, but 27 with Edwards Plateau and 34 with Central Texas.

Just to the east of Henrietta, the Wylie focus has been recognized (Stephenson 1951). Results of work done there have been inconclusive regarding the assignation of the complex to either the Plains or the Gibson-Fulton Aspects. The present comparisons indicate a possible predominance of Plains traits, with the highest agreement lying between Wylie and Henrietta (30) as against 22 common traits between Wylie and Sanders. However, this difference is insufficient to establish a genetic Plains relation for Wylie, since the list used here does not give complete representation to the traits of the "Caddoan" area complexes. It may be that this was a "border culture" which was the result of a fusion of Gibson and Plains traits, with a certain admixture of elements from the south. If so, this would be a most interesting case of intensive acculturation. However, more definitive work is needed for this and the neighboring foci to place the Wylie sites in their true historical perspective.

Sanders, Fort Coffee, and Turkey Bluff were in a sense all frontier cultures, a position which left them exposed to the effects of contact with immigrant Plains groups. Each differs rather distinctly from the contemporaneous cultures of the same aspect which were not so directly exposed. The earliest of the three, Sanders, came to an end before the Plains colonies had become very numerous

in the southern Plains. Only three typically Plains traits reached Sanders: bison scapula hoes, sandstone hones, and L-shaped stone elbow pipes (Krieger 1946: 157, 218). These were probably trade objects, since there is little evidence for actual acculturation in Sanders. The two later foci, after longer contact, picked up a few additional traits. However, again no substantial acculturation seems to have taken place.

Archeological material can be used to derive what Lowie has called "metaethnological" information. Such broad cultural characteristics as basic orientations, ecological adaptation, or degrees of social integration, when recognized, can add a new dimension to the interpretation of problems of culture history which the archeologist encounters. Here the recognition can increase the understanding of the course which acculturation took in the cultures concerned.

The Edwards Plateau and the succeeding Central Texas cultures were a part of the great "ethnographic sink," as Swanton has described it, which covered northeastern Mexico and southern Texas. Cultures of this area were traditionally rooted to their ancient simple hunting-and-gathering existence. Their extreme conservatism made them almost proof against influence from the various complex cultures surrounding their borders.

The Gibson and Fulton aspects of the "Caddoan area" had a very complex history which has not been fully explored yet. Some time before the Plains Village expansion took place, the great Southern Cult developed in this area, with its great ceremonial center at Spiro. This intense religious ferment, perhaps sparked from Mexico and carried by the evangelistic activities of missionary-priests throughout the Southeast, had a relatively short though brilliant career. In its wake the contours of culture growth continued largely unaffected, leaving villages of fairly stable, quiescent populations. By the time the migrating Plains bands appeared, the religious fervor was gone and the Fulton Aspect groups were indifferent to outside contacts.

Kroeber's characterization of Southwestern culture would partially serve for the "Caddoan area" as well. The Plains culture he mentions is of the later horse-nomads, but his remarks will serve for the Plains Village tribes as well. "The Southwestern culture has been non-expansive; its Pueblo form conspicuously so . . . . In the Plains there are some traits that can presumably be led back to a Southwestern origin, earth-altars, for instance, dice-scoring on a circuit, perhaps the fetish bundle and shields. In the main, however, it is remarkable how little the Plains seem to have taken over from the Southwest. The reciprocal influence seems at least equal . . . . As normally it is the more advanced culture that affects the other most, Southwestern impulses are indicated as unusually self-contained, centripetal, perhaps weak in all respects except tenacity" (Kroeber 1928: 393).

By contrast with all of these cultures, the Plains Village peoples must have appeared active, responsive, aggressive. They showed a greater flexibility in accommodating to local conditions and a readiness to exploit the adaptive techniques found in other cultures. Despite some similarities in the characteristics of the three circum-Plains cultures, various other factors differentially affected the results in each case of acculturation. Most of these factors, such as distance, conditions of contact, and distinctiveness of culture patterns, have already been discussed.

Turning now to Keur's fifth step in the study of acculturation, the results of the analyses made in this investigation can be profitably compared with preceding studies. Willey (1952) examined three archeological cases of "culture colonization," in which a local group was conquered by another of more complex culture. In time a single "fusion culture" developed. Keur (1941) studied archeological evidence for Navajo acculturation developing from Pueblo contacts; only trade and agitation probably were involved. Despite differing degrees of intimacy and social control in the two sets of contacts, both studies reveal similar contours in the acculturation process. Of the examples of Plains accultu-

ration, only the Panhandle groups fit this picture; the variable of distance is probably responsible for any disparity.

- (1) The less advanced group remained culturally subordinate (or peripheral) and distinct from the higher culture.
- (2) The less advanced group borrowed extensively from the more complex culture.
- (3) Final acculturative results were:
  - (a) The more advanced achievements were permanently accepted: architecture, agriculture.
  - (b) Native arts of the simpler culture resurged after quiescence or repression: pottery, ritual, hunting.
  - (c) Specialized arts of the higher culture, temporarily adopted as novelties, were "worn down": elaborate pottery forms, art styles.

Plains Village contacts with proto-Caddoan groups, although resulting in a few cases of diffusion, brought about no traceable acculturation involving an entire category of culture. Krieger (1946: 156-157) remarks on the situation: "We find here a striking and highly significant circumstance in that there is very little in common between the Plains-like Henrietta focus and the cultures of the 'Caddo area' directly to the east . . . . The contrasts are so strong that there can be little doubt that two basically different cultural traditions existed here side by side with practically no interchange of specific traits." The relationships of these cultures constituted a situational type of "cultural pluralism." The only exception might be the Wylie Focus, which perhaps was a true "fusion culture."

Where the Plains Village culture was carried south of the Red River, acculturation followed a perverse path of ecological accommodation. The situation began as one of "cultural colonization" and ended in what might be called "cultural regression." Two explanations are possible: the tradi-

tional conservatism of the Edwards Plateau natives may have outweighed the incentives to cultural advancement, or the lack of reinforcing influences from the cultural hearth, again owing to distance, may have left the Henrietta colony on the cultural defensive. It would be desirable to conduct further research to discover whether these results fit into a separate acculturational type, and if so, what its determinants and parameters are.

### SUMMARY

What contribution can archeology make to ethnology? The additional time depth archeology adds to the ethnographical picture can add greatly to an understanding of culture history. Southwestern ethnologists and archeologists have tended to be as centripetal in their interests as the cultures they study. Consequently there has been scant attention given to the important chapter of foreign relations in Pueblo prehistory. The materials analyzed here, along with certain others, can provide solutions to a multitude of ethnological problems.

It has been twenty years now since archeologists demonstrated the recency of bison-hunting nomadism in the Great Plains. Before that time, ethnographic evidence for Plains culture influence in the Southwest Pueblos was understood to refer to the Plains cultures known in historic times. In 1929, Elsie Clews Parsons explained Pueblo-Pawnee ritual parallels by suggesting a Southwestern origin for the Pawnee. The Caddoan linguistic affiliation of the Pawnee disallows this idea.

However, Wedel (1940) has conclusively demonstrated the identity of proto-historic Pawnee with the Lower Loup Focus, which in turn can be derived from the Upper Republican Aspect of an earlier period. Further, Upper Republican sites have now been recognized in western Kansas and in Colorado. From here it is but a step to the partially contemporaneous Pueblo III occupation of the San Juan Anasazi in southern Colorado and northern Arizona. Contacts between these groups, perhaps reinforced by the later

contacts between Pecos and the Panhandle groups, can probably account for the parallels which so puzzled Parsons. Certainly this phase of Anasazi-Plains Village relations deserves more intensive study, with a combining of archeological and ethnological data to achieve a more comprehensive understanding of culture history in both areas.

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# EVIDENCE OF EARLY MAN IN TORRANCE COUNTY, NEW MEXICO<sup>1</sup>

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For the past three years I have devoted vacations and what spare time I could afford to studying and investigating evidences of Early Man in New Mexico. For a number of reasons, from the beginning I found Torrance County to be one of the most interesting in the state. Local collections, almost without exception, contain spear points that have been attributed to Early Man. Because of drouth in the 1930's and in recent years, subsoils have been exposed in many areas, several of which have yielded ancient artifacts and extinct fauna. The county encompasses the southern half of the Estancia basin and the whole of the Encino and Pinos Wells basins as described by O. E. Meinzer (1911). From all indications, it may be deduced that this area once comprised a lush lake-studded terrain, ideally suited to the hunting of mammoth and bison during the late Pleistocene and early Recent epochs.

The only standing bodies of water now existing in the ancient lake beds are salt flats that contain water only after heavy rains. These depressions do not necessarily correspond to the last remnants of the ancient lakes since they are formed by wind erosion to the ground-water level and are characterized by mounds of eolian sand around the leeward sides. The shore lines of the ancient lakes varied as the water level fluctuated with changing climatic conditions. Antevs (1935) has reviewed the geology and reconstructed the past climatic history of the area, estimating an age of about 15,000 years for the highest stand of Lake Estancia. This stand was at an elevation of about 6,200 feet.

In addition, Torrance County includes part of the Sandia-Manzano area, where a sizable contribution to our knowledge of Early Man has been made (Hibben, 1941). Folsom

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1. A word of appreciation is in order for the expert advice and valuable criticism offered me by Alex D. Krieger, H. M. Wormington, and Fred Wendorf, who reviewed the manuscript.

and "Yuma" finds in this area have previously been mentioned by Hurt (1942).

### DURAN MESA

Duran Mesa lies two and a half miles west of Duran, New Mexico, on the eastern edge of the Pinos Wells Basin. It is a prominent landmark which overlooks the adjacent basins. The basal slopes on the north and east sides of the mesa consist of aeolian sand piled against the steep sides. This sand presumably originated from the basins and was deposited by westerly winds eddying over the mesa. The sand hills at present support a sparse vegetation of grass, cedar, juniper, and an occasional ponderosa pine. Because of the recent dryness, the grass mantle has dwindled sufficiently to allow the wind to scoop out shallow depressions. It was in these eroded patches that Mr. and Mrs. Alonzo Sultemeier of Vaughn, New Mexico began finding artifacts several years ago.

Site 1 (Fig. 5) is on the property of Mr. Neal B. Smith of Duran, at the base of a gully running down the side of the mesa. Mr. Smith states that a spring was active in this gully some 20 years ago and that an Indian trail to it has only recently become obliterated.

The artifacts consist of whole or broken points and scrapers, all of which have come from the surface. Bases of broken points predominate. The abundance of spalls and flint debris indicates that artifacts were fashioned at this site.

From the wide variety of points represented, it is evident that several different peoples visited the locality. Since all of the material obtained thus far is from the surface, it is impossible to state whether the artifacts are contemporaneous or not. Even though a Folsom point and a Plainview point base fragment were found on the same surface as Eden and Portales artifacts, we can assume that at least one time gap is indicated: the latter types, wherever superimposed, have always been found to overlies the former,

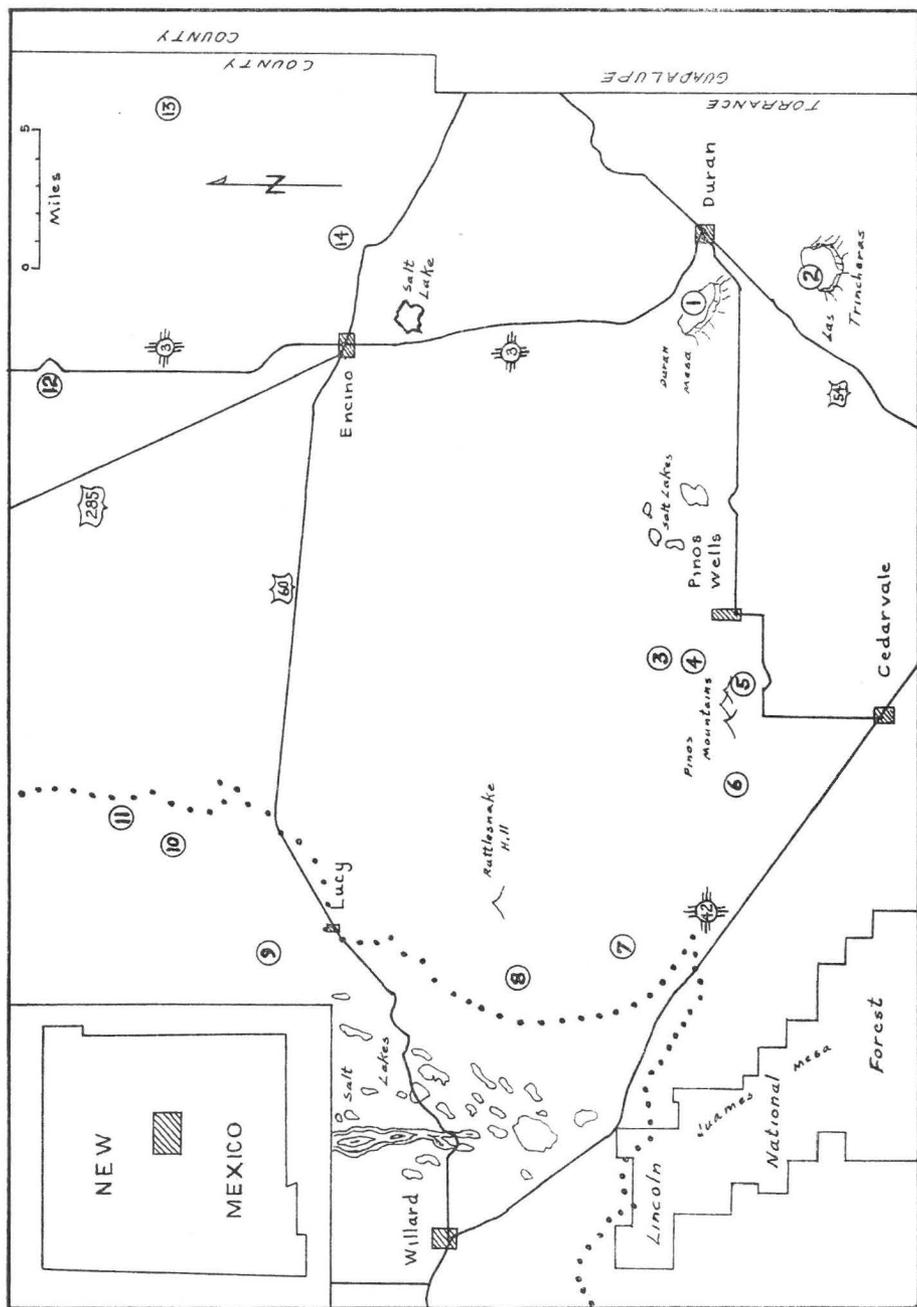


Fig. 5. Map of southwestern Torrance County, New Mexico. Circled numbers are sites referred to in text. Dotted lines represent the upper limit of ancient Lake Estancia, after O. E. Meinzer (1911).

and in some cases are separated by a stratigraphic hiatus (Sellards, 1952).

The only other materials that might date within or even antedate Folsom times are several unclassified points (Plate 18, A-C, G). While such points seem to have a wide distribution in New Mexico and neighboring states, little is known about them. However, that in Plate 18, C compares in some features with one from Sandia Cave, New Mexico (Hibben, 1941, Plate 12, No. 1 B).

The Folsom point (Plate 18, M) previously mentioned lacks both tip and base. Although one channel is askew and a fine marginal retouch is lacking, the basal edges are smooth and it is reasonable to assume that the artifact was once complete. The Plainview point (Plate 19, F) is similar to those found at the type site (Krieger, 1947, Plates 3, 4), even to thinning the base by removal of three narrow, parallel spalls. This base is made of Alibates flint, as are four of those from the original Plainview site (Krieger, 1947, p. 939).

For the most part, the other points from Duran Mesa represent types generally believed to be later than Folsom or to be associated with essentially modern forms of bison. Eden material (Moss, 1951) is represented by a typical stem (Plate 19, A) and a complete example (Plate 18, D). Plate 18, O may be best classified as an Eden stem showing fine parallel flaking. A small Scottsbluff point (Plate 18, K) that closely resembles one from the Portales horizon at Blackwater Draw (Sellards, 1952, Fig. 37, H) was found by the Sultemeiers. Several bases (Plate 18, H, N) can be compared with points of the Hot Springs focus near Angostura, South Dakota (Hughes, 1949, Fig. 68). Plate 18, H has slightly concave edges; however, this might well have resulted from grinding rather than intention.

Two points (Plate 18, E, F) and four bases (Plate 19, B-E) are of interest as they compare favorably with points from the Agate Basin in Wyoming (Roberts, 1951, p. 19). That in Plate 19, E reveals oblique parallel flaking. The point in

Plate 18, L might also be classed with those from Agate Basin, were it not so short; it is also very similar to a specimen from the Portales horizon at Blackwater Draw, New Mexico (Sellards, 1952, Fig. 36, E). In outline the specimen in Plate 18, J is similar to the "Long" point shown by Hughes (1949, Fig. 68, P) from South Dakota. Hughes' "Long type" is now generally known as Angostura (Suhm, Krieger, and Jelks, 1954, p. 402 and Plate 80).

It seems possible that the makers of some points designed them with long bodies so that if the tips snapped off they could be re-pointed and still leave enough material to work with. Several specimens (Plate 18, D, I, J, K, L) from this area could be the objects of such economy. At first glance Plate 18, I might be called a well-made San Jon point (Roberts, 1942), but upon closer examination it appears to have been either a re-shaped Scottsbluff point with the shoulders removed in the process, or a small example of the Milnesand type recently recognized by Sellards (1955, Figs. 98-100).

Other artifacts from Duran Mesa comprise "snub-nosed" scrapers, side scrapers, and portions of flint knives. In the order of prevalence, the materials used in the manufacture of artifacts include Alibates flint, quartzite, chalcedony, blue-gray flint, red pitchstone, and a hard siliceous mudstone. The preponderance of Alibates flint in spalls as well as complete artifacts is of interest because the quarries for this material are over 300 miles away, north of Amarillo, Texas.

### LAS TRINCHERAS

A group of mesas four miles north of Duran on the Hindi ranch is known as the Trincheras (Fig. 5, site 2). Here, in a situation similar to that at Duran Mesa, Nabay Hindi found several interesting point fragments, three of which (Plate 19, G-I) are basal portions, and one other is a mid-section. They all display ground edges, marginal retouch, and a wavy base formed by the nubbin or fluting seat in the basal concavity so prevalent in classic Folsom points such as those found at Lindenmeier, Colorado (Roberts,

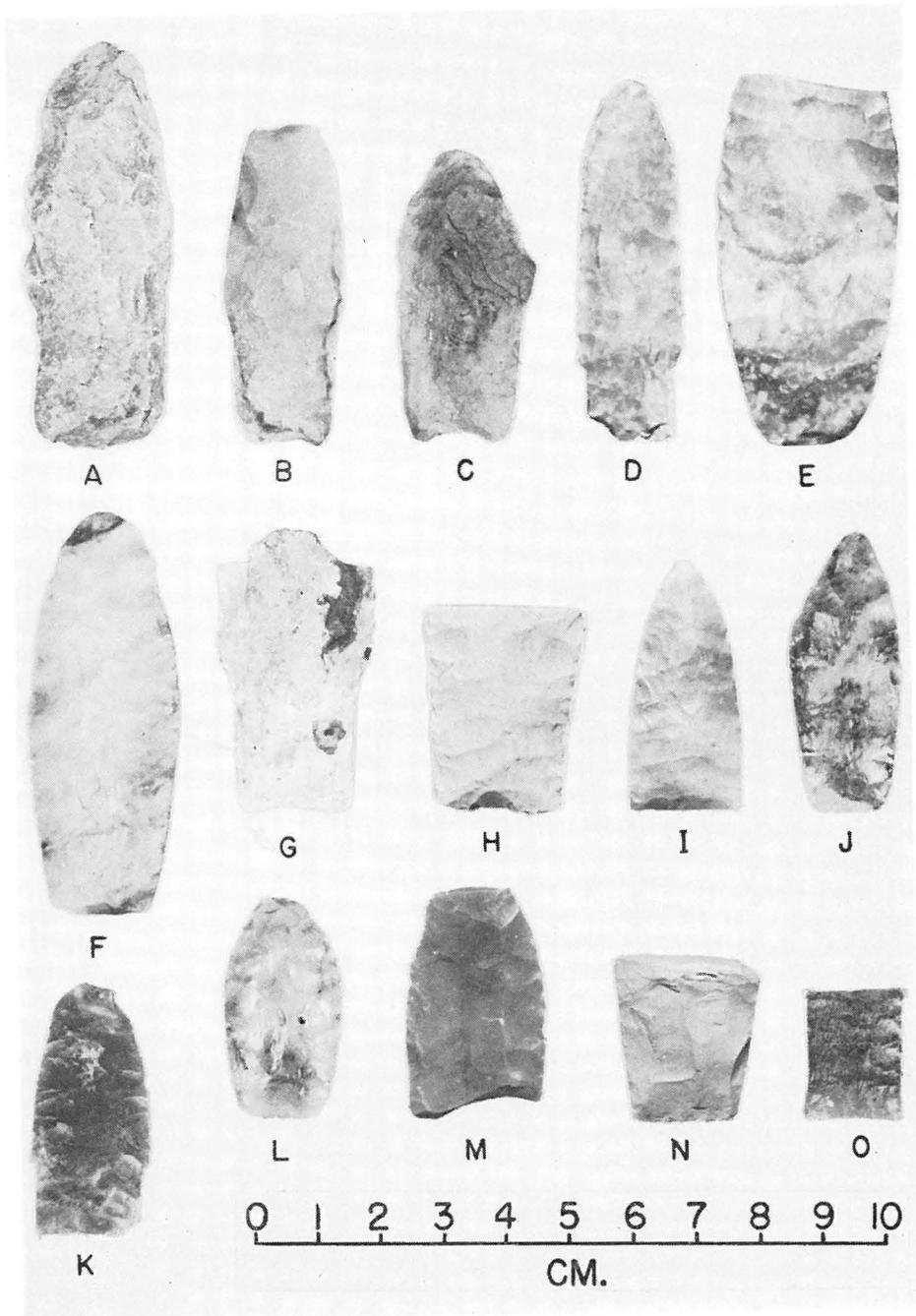


PLATE 18

All specimens from Duran Mesa site, Torrance County, New Mexico.



1935). These points, however, are too thin to have been fluted. One reason for their thinness is that they are flaked horizontally parallel in such a manner that some of the spalls went from one edge to the other without a break, and without curving to any extent. As a result, the cross-section is relatively flat rather than markedly bi-convex. This characteristic is noticeable on the tip of some classic Folsom points where the channel flake did not remove all the horizontal flaking. It is possible that some makers of Folsom-like points preferred to thin them by removing wide, flat horizontal flakes rather than by fluting. A number of "unfluted Folsom points" similarly thin have been described at the Scharbauer ranch site near Midland, Texas (Wendorf, Krieger, Albritton, and Stewart, 1955, pp. 48-49, 57, and Fig. 16, No. 27).

#### PINOS MOUNTAINS

The collections of Alonzo Sultemeier of Vaughn, Lonnie Welch of Pinos Wells, and K. W. Kendall of Willard, all contain ancient spear points found in or about the Pinos Mountains (Fig. 5). These mountains, forming the only prominent elevation between the southern extremity of the Estancia basin and the Pinos Wells basin, lie 14 miles west of Duran Mesa. Attempts to farm the area adjacent to the mountains over the past 30 years have resulted in many denuded fields. These fields and small windswept patches on the slopes have yielded several spear points that can be attributed to Early Man.

Two basal fragments of spear points in the Sultemeier collection came from a sandy area on the southeastern slopes (Fig. 5, site 5). One (Plate 19, J) represents a finely made Eden point with a marked diamond cross-section and has ground edges but no shoulders. The material appears to be black chert now covered with a fine arenaceous encrustation. The other one (Plate 19, K) is unusual in that the edges and base of the stem are deeply concave. This point also was made from a black siliceous material which is now encrusted.



Lonnie Welch and members of his family have been collecting artifacts from the Pinos Mountains for many years. Among these are several worthy of mention in relation to Early Man. A classic Folsom point (Plate 19, M) was found in a wind-blown field (Fig. 5, site 3) three miles north of the mountains. A mile or so south is another field (Fig. 5, site 4) on the north slope of the mountains. It is here that Mrs. Welch found a large fluted point (Plate 19, O) of Alibates flint. It is almost a duplicate of one associated with the Naco mammoth in Arizona (Haury, 1953, Fig. 6-7, H) and can, without question, be classified as a Clovis fluted point. A single channel flake 2 cm. long has been removed from one side, whereas the other side has been thinned by the removal of four converging spalls. As on Clovis fluted points, the edges show smoothing for over a third of the total length of the specimen.

The exact occurrences of the other points (Plate 19, L, N, P, Q) in the Welch collection are not definite. They are for the most part unclassified although Plate 19, N has a remote resemblance to Sandia points. Plate 19, P and Q are interesting in that they have been observed in several collections throughout New Mexico and are similar to some illustrated from Concho, Arizona (Wendorf and Thomas, 1951, Fig. 48, B, C, E, F).

#### KENDALL COLLECTION

Mr. K. W. Kendall of Willard, New Mexico, homesteaded some 30 years ago on property a mile or so west of the Pinos Mountains. During the drouth of the early 1930's one of his fields (Fig. 5, site 6) became scoured to a depth of several feet. While this scouring was taking place, Mr. Kendall picked up many artifacts as they were exposed by the wind and noted several hearths and firepits. He has closely examined this blowout and others in the surrounding country ever since, and has acquired a fine collection of ancient points.

In this collection two points (not illustrated) are similar to that of Plate 18, J, and to the specimen from Blackwater

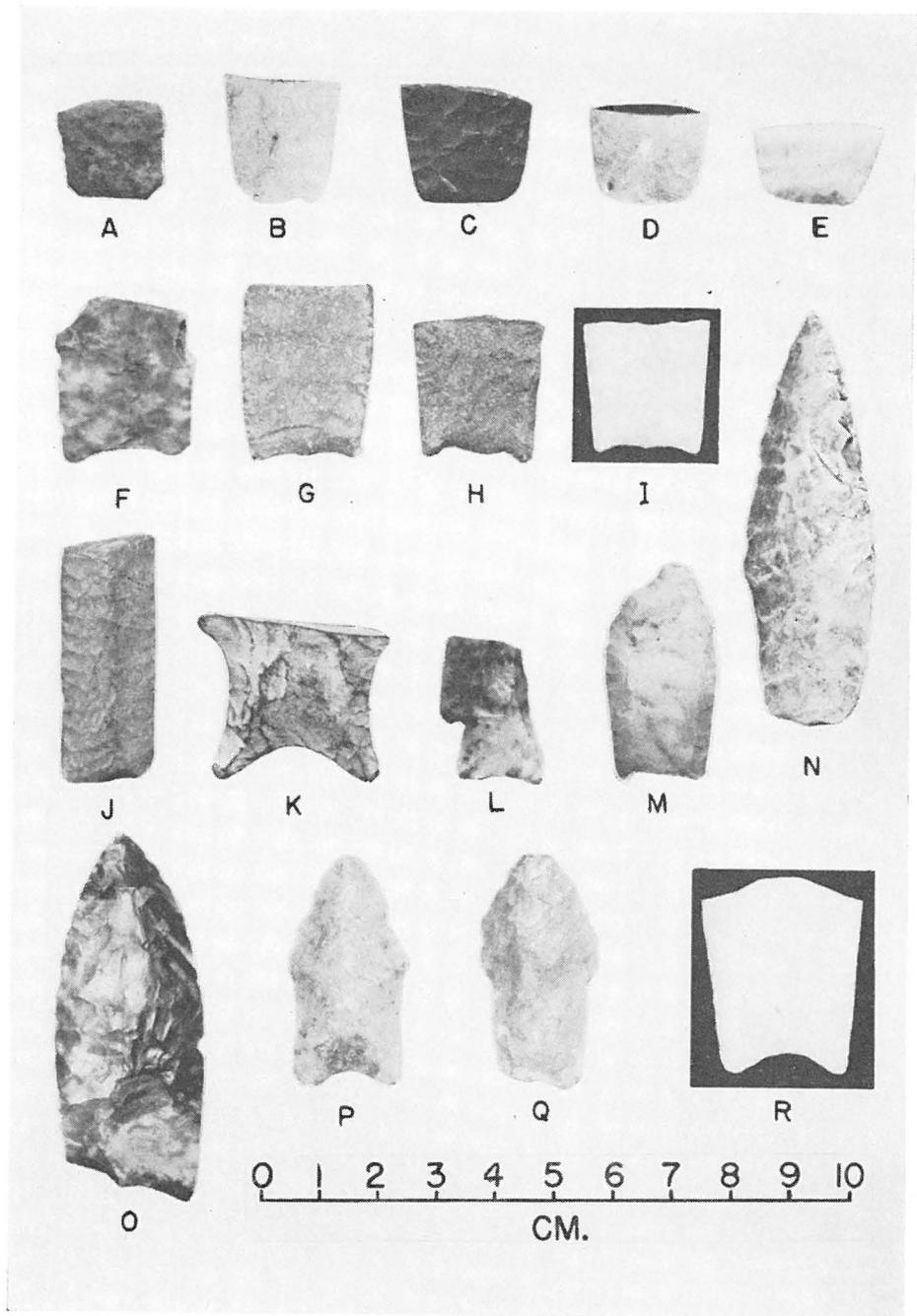


PLATE 19

A-F, Duran Mesa site, continued. G-I, Las Trincheras site. J-R, Pinos Mountains site. Torrance County, New Mexico.



Draw included in the Portales complex (Sellards, 1952, Fig. 36, E). Another is Folsom in outline but is unfluted and crudely made from black andesite. The basal portion of a large well-made fluted point (Plate 19, R) of orange-white Alibates flint can be classed only with Clovis fluted. A crude but interesting point was found protruding from the walls of an arroyo in the Pinos Mountains. Again it is a type about which little is known, although it is assumed to be ancient (Hibben, personal communication). A point from near Concho, Arizona (Wendorf and Thomas, 1951, Fig. 47, A) closely resembles Mr. Kendall's except for the concave base.

Because the drought of the past few years has caused renewed wind erosion, Mr. Kendall was able to make some very interesting finds in 1954. The most significant of these finds was reported to Dr. Hibben of the University of New Mexico, who devoted part of the 1954 field session to excavating mammoth and artifact material from denuded deposits (Fig. 5, site 8) west of Rattlesnake Hill, seven miles south of Lucy, New Mexico. An unusual assemblage of points, including variants of the Sandia types, was found on and below the surface along with skeletal material (Hibben, personal communication).

Another site worthy of special mention is a wind eroded draw (Fig. 5, site 11) approximately 10 miles north and a little east of Lucy on the outer margin of what Meinzer considered the littoral zone of beach materials and alluvium surrounding ancient Lake Estancia. This draw rarely contains water, and what is carried is probably absorbed long before reaching the flats. As a result, the draw is filled with deposits of sand and clay which have been gouged by the wind revealing an unusual number of artifacts in a small area of approximately 2000 square feet. Each of the seven or more points (Plate 20, A is an example) represented are readily comparable to those found at the Agate Basin site in Wyoming (Roberts, 1951, p. 19) except that the complete ones are rather short, possibly from having been re-sharpened. If Plate 20, A were to be re-pointed to

a relatively blunt, somewhat triangular, tip it would approximate some of the other specimens found but not illustrated here. Besides the points, nearly a dozen scrapers and a knife were obtained by Mr. Kendall and members of his family. Additional investigation may warrant a separate report on this site.

Other finds by Mr. Kendall include a large bison skull weathering in a dune area (Fig. 5, site 10) eight miles north and a little east of Lucy. It is less than two miles from the previously mentioned site 11 and, given a little more time and dry weather, this area should reveal additional material of interest. A single find in a blown-out field (Fig. 5, site 9) only two miles north of Lucy is a skillfully worked point nearly identical with one found at Blackwater Draw in the Portales horizon (Sellards, 1952, Fig. 36-36 b). This would now be classified with the Milnesand type (Sellards, 1955).

Artifacts of more recent origin, but of no less import, have appeared in a wind-eroded ravine (Fig. 5, site 7) two and one half miles northeast of the abandoned town of Progresso on the Velasquez ranch. It has revealed pre-pottery material that may be related to the Atrisco sites (Campbell and Ellis, 1952). Many rock-lined hearths, one-hand manos, and sandstone slab metates were observed. Many of the points resemble some of those illustrated by Campbell and Ellis (1952, Figs. 71-72, middle rows). It should be noted that this same type of material has appeared at Duran Mesa, the Pinos Mountains, and in other neighboring areas.

#### BIGBEE SITE

According to Mrs. J. Frank Bigbee, a half section of land (Fig. 5, site 12) on the Bigbee ranch, 10 miles north of Encino, was plowed some 20 years ago. Since that time it has been almost completely denuded by wind which has piled dunes across State Highway 3 to such an extent that the road has had to be re-routed several times around the drifting sands. Even though it may be small compensation for the futile efforts of the farmer, his field has produced

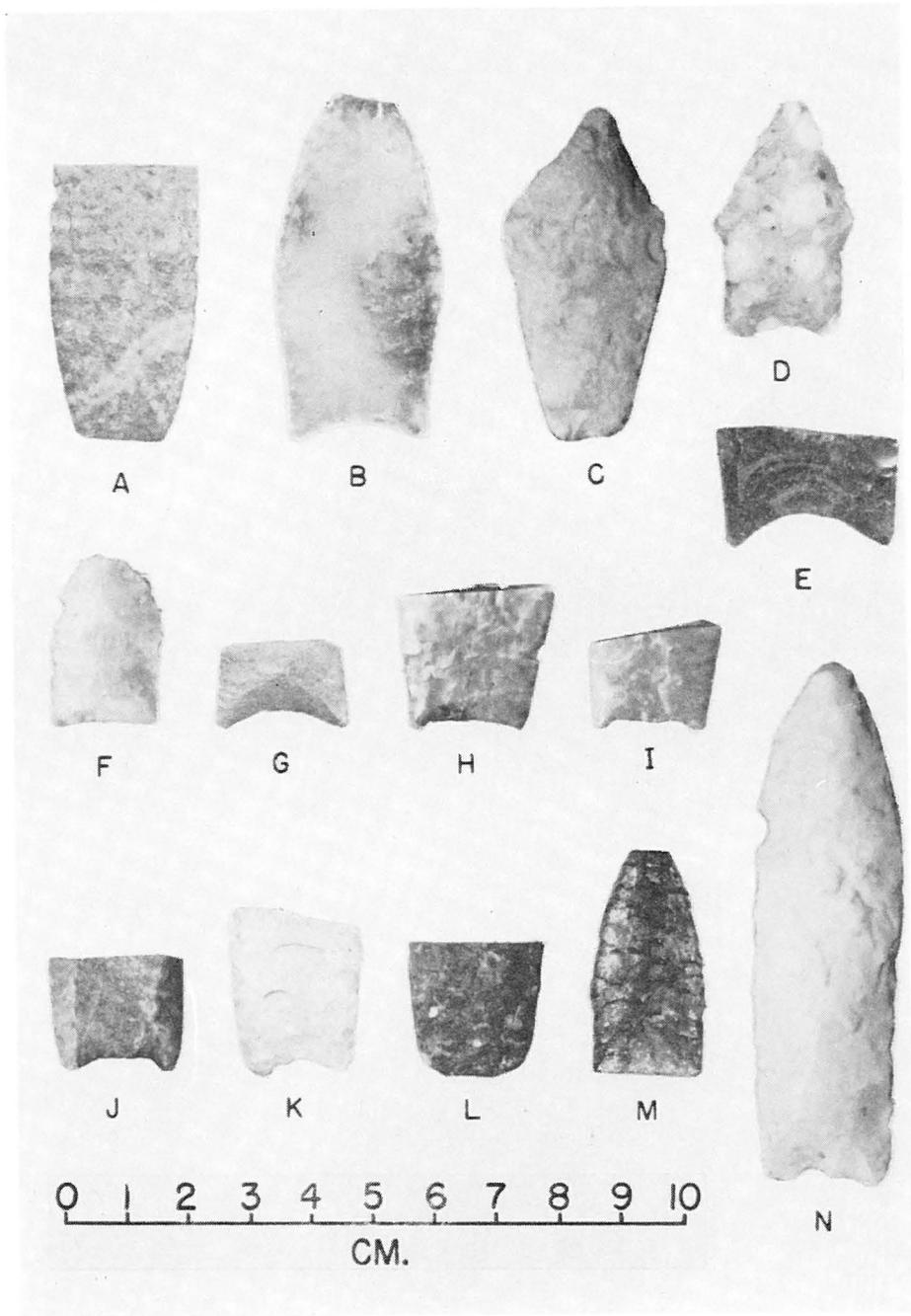


PLATE 20

A, Estancia Basin. B-L, Bigbee site. M, East of Encino. M, Berlier ranch. Torrance County, New Mexico.



an interesting assemblage of material used by the ancient hunters. My attention was focused on this area after reconnoitering revealed the basal portion of what might be termed an unfluted Folsom point (Plate 20, H). On a later visit an additional segment that matched this base was found along with another similar base (Plate 20, I). These segments, which closely resemble those previously mentioned from the Trincheras, are characterized by parallel flaking that crosses the entire face horizontally from one edge to the other, by marginal retouch, and by the remains of a nubbin in the basal concavity. Indisputable Folsom evidence was found in the form of a basal portion of a point (Plate 20, J) of tan quartzite. It is quite similar to the only quartzite point from the original Folsom type site, even to the point of being fluted on only one side (Howard, 1943, Pl. VIII, C).

Additional artifacts consist of a greenstone base (Plate 20, L) reminiscent of those from the Agate Basin (Roberts, 1951), the basal portion of a finely made Milnesand (?) point (Plate 20, F), and the base (Plate 20, E) of a large fluted obsidian point, probably Clovis fluted (Cotter, 1937, Pl. 3). A complete point (Plate 20, C) resembles the Long or Angostura type (Hughes, 1949, Fig. 68 P) although it appears to have been re-pointed. Each edge of the tip has been knapped from alternate sides producing a pronounced beveled or twisted effect. A point (Plate 20, D) similar to two from the Pinos Mountains (Plate 19, P, Q) and those from an undescribed site in Bernalillo County, was found by Lieutenant Gerald C. Shelton of Sandia Base, New Mexico. He also found the basal portion of a fluted point (Plate 20, K) which closely resembles those from the Miami site in Texas which are considered to be Clovis fluted points (Sellards, 1952, Figs. 8, 9). A nondescript base (Plate 20, G) is difficult to associate with any clearly defined type. Several scrapers and a small fragment of a fluted point were also found.

What turned out to be the most significant find at the Bigbee site was that portions of mammoth bones were



exposed in a mottled red and gray sandy-clay soil on the south edge of the blown field. During the summer of 1953, I excavated a humerus and dug several test holes. These previous visits failed to disclose any artifact material in association with mammoth. In the late spring of 1954, Lieutenant Shelton, who is a careful observer, inspected the site and again no artifacts appeared in association with the mammoth material. A month later we found more bone fragments had been exposed by the recent wind and I discovered a large point (Plate 20, B) several feet down slope from a small ledge where the skeletal material was originating. About the point were several scattered bone fragments. It is reasonable to assume that the point had been exposed only recently, in fact, within the few days prior to our visit. In addition, a large flint chip occurred with the bone fragments weathering from the surface.

In size, outline, and workmanship the point in Plate 20, B compares with Clovis fluted points and, like the majority of these, the basal edges and concave base are ground quite smooth; however, there is no fluting and the basal edges are notably concave. It is likely that the latter fact is partly due to the high degree of edge grinding. This specimen may be compared with the Plainview type, as it is closely similar in all dimensions to number 725-5 from the Plainview site (Krieger, 1947, Plate 5, No. 1). Dr. Krieger examined the specimen and suggested a Plainview classification; however, he pointed out that Clovis and Plainview points are very similar in shape and dimensions, and that unfluted points may occasionally accompany fluted Clovis points, in which case it would be difficult if not impossible to distinguish them from Plainview points. The association of Plainview points with mammoth in the Great Plains is still an open question (Krieger and Wendorf, personal communications). Although mammoth remains were found in parts of the Plainview site, their association with the deposit containing bison fossils and artifacts was not definitely established (Sellards, Evans, Meade, and Krieger, 1947).

More recent materials have also been found at the Bigbee site. On the north rim several large camp sites are exposed, revealing a large quantity of broken Pedernal quartzite fragments. The remarkably uniform arrow points and potsherds from these camps are of rather recent origin.

#### OTHER LOCALITIES

Two areas south of the Bigbee ranch deserve mention. One is the Berlier ranch (Fig. 5, site 13) about 10 miles northeast of Encino. Several of the points in the collection of Mrs. Theo Berlier are, no doubt, quite old; however, they must await classification and more information on the sites. Plate 20, N resembles a Sandia point in shape and flaking but does not have the pronounced shoulder.

The other site is a deeply blown-out area three and one-half miles east of Encino. In an ancient sand-hill area (Fig. 5, site 14) overlooking a windswept basin, Alonzo Sultemeier of Vaughn found a stubby point (Plate 20, M). It is problematical whether it should be classified as Scottsbluff or Milnesand, for the very slight shoulders may have been formed only by grinding of the edges. If the shoulders were not actually formed intentionally by chipping, it should be classified as Milnesand. The shoulders in this case are even less prominent than those of the specimen in Plate 18, K. This find occurred in a deep blowout in the sand hills only a few inches from a rock-lined fire pit. Several other fire pits can be observed in the blowout, and some containing quantities of charcoal are still in place. However, no inference concerning the association of the above point and the fire pits can be made at this time. Much flint debris lies scattered about the floor of this and neighboring blowouts, and other artifacts found represent more recent forms.

#### SUMMARY

During the late Pleistocene and early Recent epochs the lush land surrounding the ancient lakes and ponds in what is now Torrance County, New Mexico, was inhabited by large mammals of species now extinct. It is no wonder

that man found this an ideal area in which to camp and hunt mammoth and bison. Evidence of these early hunters is being found today as wind and modern drought lay bare the ancient soil levels. The past presence of man is revealed by his stone weapons and the skeletons of his prey scattered about the exposed surfaces that extend inland from the littoral zones of the ancient lakes. There is little doubt that continued investigations in this area will make significant contributions toward the solution of problems of Early Man and his Pleistocene environment.

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# PRELIMINARY REPORT ON THE BLOOM MOUND, CHAVES COUNTY, NEW MEXICO

JANE HOLDEN

One pit house and one adobe-walled room were dug at Bloom Mound during the 1954 field session of the Museum of Texas Technological College. This work was done in cooperation with the Roswell Archeological Society, which had been working in the site for several years. This report covers only the present excavation, as the materials obtained previously were not available for study.

Bloom Mound is located approximately 12 miles west-southwest of Roswell, New Mexico, at the base of the Sacramento Mountains, and on the north bank of Hondo River. The approximate elevation is 3,775 feet (Fig. 6).

The artifacts will be discussed in the section dealing with the room in which they were found. Room designations are those of the Roswell Archeological Society. Pottery types will be dealt with separately.

## ROOM F

This is a large, deep pit house, roughly 20 feet square (Plate 21, A and Fig. 7, A). In the northwest corner, the plastered wall is 7 feet high. This is only a few inches below the surface at the present time; however, a blade was used by the Society to remove overburden, so it is impossible to say how much fill had accumulated over the old surface.

The pit house is at least 7 feet deep, as the plastered wall is that high in the northwest corner. Most of this depth is through silt and gravel, while the last 8 inches is through a soft gypsum. The floor is exceedingly level, and consists throughout of the gypsum.

The roof was undoubtedly supported by large beams spanning the four central posts. Over these were placed smaller poles. A heavy grass matting overlaid these poles. In places, this matting remained 5 inches thick. The grass was tied to the poles with what appears to be a yucca fibre at intervals of about 12 inches. The whole was covered with

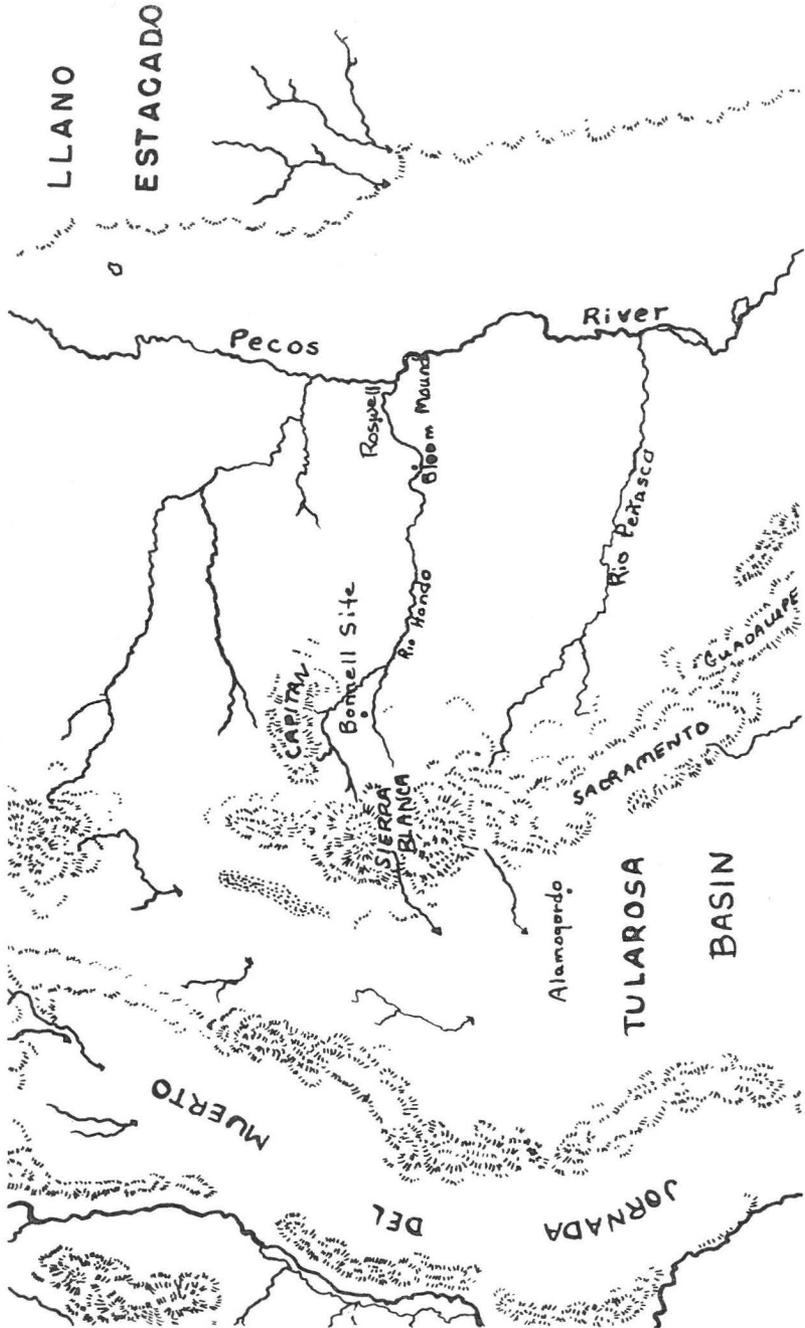


Fig. 6. Map of Chaves County, New Mexico, showing location of Bloom Mound and Bonnell Site.

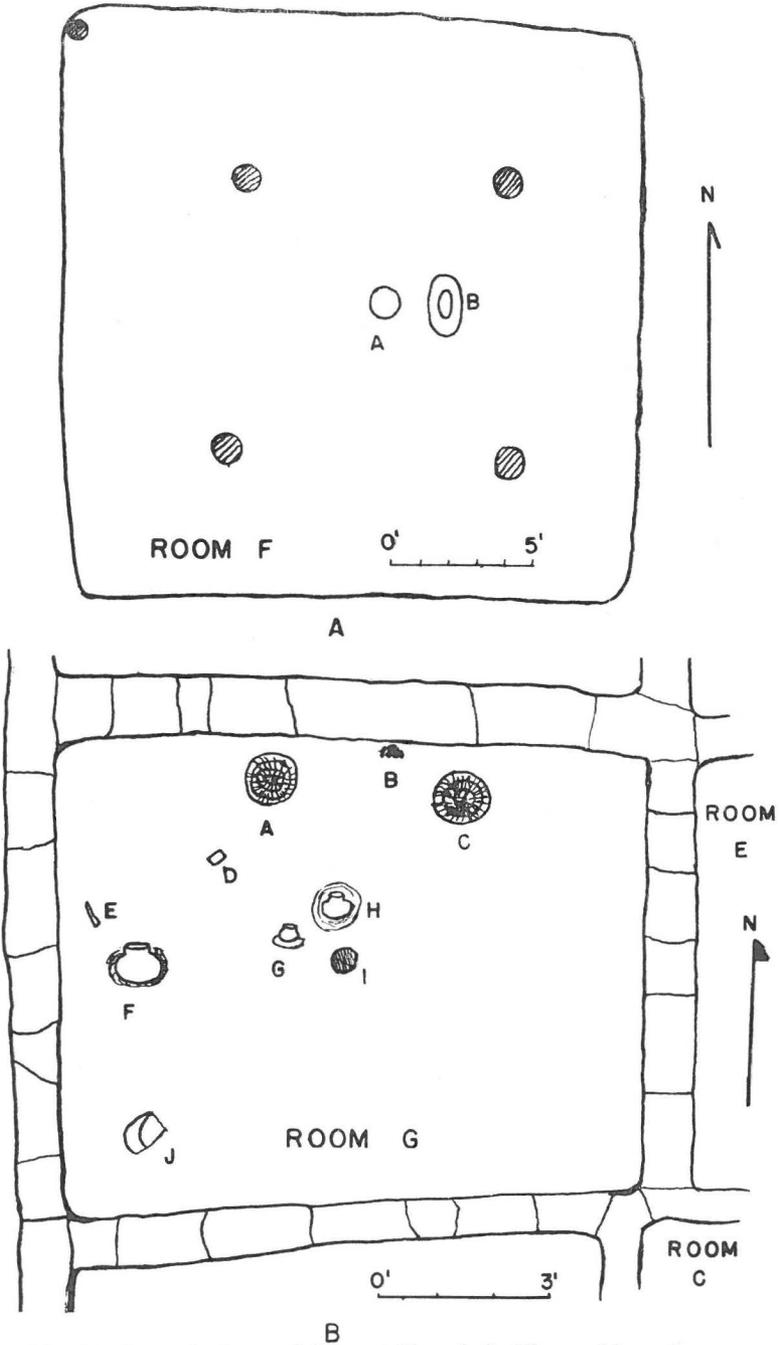


Fig. 7. Ground plans of Rooms F and G, Bloom Mound.



a heavy layer of clay. The roof must have been flat, and almost on the same level as the ground outside, considering the depth of the pit.

Four large central posts supported the roof. Each of these post holes is 11 or 12 inches in diameter, and 14 to 16 inches deep. These were dug into gypsum. Three of these posts had been burned to the floor level; the wood has not been definitely identified, but apparently pine was used for these posts. An auxiliary post is located in the northwest corner; it is not charred, and is standing to a height of 4 feet above the floor.

A fire pit is centrally located. It is a cylindrical pit 12 inches deep and 12 inches in diameter, with a clay rim built up 4 inches above the floor.

Just 12 inches east of the firepit is a pit dug into gypsum, 9 inches in diameter and 14 inches deep. Over this was a perforated metate that had been plastered in place to form the mouth of the pit. The metate is 20 inches long, 11½ inches wide, and the opening is 4½ inches by 5 inches. Both sides of the metate had been well ground; the side that showed the deepest grinding had been placed face down.

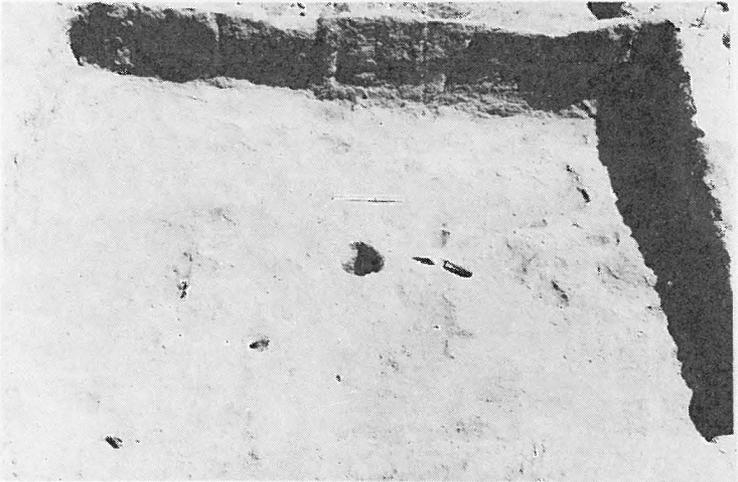
One crudely chipped white chert projectile point was found on the floor. A grey chert knife came from the same location. This knife is oval in shape and shows rather careful chipping on both sides.

A full-grooved maul or hammer came from above the roof debris; it measures 3½ inches long and 2 2/3 inches wide at the base. Three metate fragments were found stacked together on the floor against the north wall. They were of the slab type. A small stone bead, ⅜ inch in diameter, and shaped like a doughnut, was found with four shell beads. The four shell beads are flat discs. One had a diameter of ¼ inch, while the other three measured 3/16 inch in diameter.

Fragments of human bones occurred throughout the fill.



A



B

PLATE 21

A, floor of Room F. B, floor and adobe walls of Room G. Bloom Mound.



For instance, a charred mandible came from the area by the west wall. Fragments of a baby skull came from just above the floor in the southeast corner. A femur was close to the fireplace.

There were two possible burials. Neither was articulated, and both were very fragmentary. Both were in the fill above the roof; they were on the same level, just 3 feet apart. It is possible that this is a secondary disposal of the bodies, judging from their confused positions.

One skeleton from the northeast section of the room tells a tragic story. An adult male was apparently trying to get out of the building while it burned. The upper part of the body was on the top of the roof; the leg bones extended through the roof, and the right foot rested on the floor.

#### ROOM G

This room is bounded by previously excavated rooms on the south and east (Plate 21, B and Fig. 7, B). It is well defined by hard adobe walls that are standing from 11 to 21 inches high. These walls are made of puddled adobe that exhibits vertical cracks. These cracks may be a natural result of drying adobe, or they may show the method used to build the wall; that is, the adobe may have been molded in sections at one time. The roofing clay and poles are close to the surface. There was an unusual amount of charred straw and reeds mixed with the roofing clay. The position and condition of this straw would indicate that it was on the inside of the room. A central post is the only interior roof support. The room lacks a firepit of any sort.

A small Chupadero Black-on-white jug (Plate 22, C) was found on the floor. There was apparently a wooden stopper in the jug, but it was badly decayed. Inside the jug were kernels of corn. Possibly this was corn that had been saved for planting, as the amount is so small that it could hardly have served as the bread of one meal. This small jug was

sitting on a charred bundle of grass that was tied tightly. Possibly this was a broom (Plate 22, A).

A large Chupadero Black-on-white jug was also on the floor. It had been broken by the fall of the roof. Inside this jug was a large knife blade of dark red flint (Plate 22, G).

A small undecorated jar was likewise found on the floor (Plate 22, D). The rim is like that of El Paso Polychrome, as is the paste and wall thickness. This jar was resting on a metate surrounded by charred straw.

A large olla of El Paso ware was near the west wall, resting on a charred mat that is rather reminiscent of a finely woven Mexican petate (See Plate 23, A for a fragment of the mat). It contained the following artifacts:

1. Two worked stones made from a slab of micaceous schist. One is  $4\frac{1}{2}$  inches long and  $1\frac{1}{2}$  inch wide. It is flat and of uniform thickness of about  $\frac{3}{8}$  inch. One edge is ground to form a dull blade. Some red ochre adheres to one surface. The other stone is not as finely ground, and measures 3 inches long and 2 inches wide.

2. A scraper of translucent flint (Plate 23, C).

3. A projectile point of brown flint (Plate 23, I).

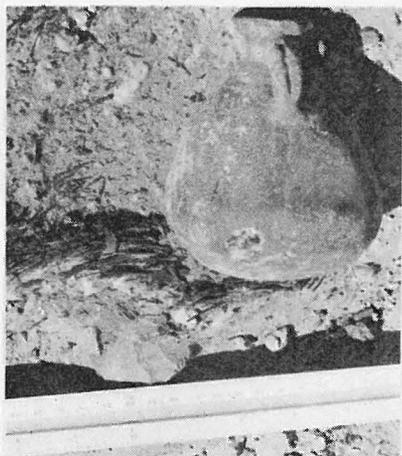
4. Miscellaneous unworked stones, identified as calcite crystal and crystalline quartz; and four small brachiopods which may be from localized microfauna in the San Andres formation. These must have been picked up as curiosities.

5. Shell objects, including one fresh-water mollusk shell, one Olivella bead, and one unfinished shell bead (the hole was not drilled completely through).

6. Two worked bones (Plate 23, M). These were probably bound together with a reed mouthpiece to form a whistle.

7. A bone spatula  $10\frac{1}{2}$  inches long (Plate 22, F).

8. A second bone spatula, perhaps showing signs of working on one edge (Plate 22, E).



A



B



C



D



E



F



G

PLATE 22

A, olla in place on charred bundle of grass. B, fragments of charred basketry in place. C-G, artifacts from Room G. Bloom Mound.



9. A hair ornament that has a carved base (Plate 23, N).

A large, heavily corrugated cooking pot was resting on some basketry, close to the central post. This pot contained no artifacts.

Two charred trays were flattened on the floor (Plate 22, B). Both were made by use of split coils over a fibre bundle. (For a fragment of this type basketry, see Plate 23, B). The size of these baskets cannot be given as they are in the Roswell Museum.

Miscellaneous artifacts found scattered over the floor include two projectile points. One is of black flint, about 1 inch long, side notched, slightly concave base (Plate 23, G). The other is too fragmentary to describe the type (Plate 23, H). The scrapers are made of random flint flakes (Plate 23, D, E). A full-grooved stone axe is 6 inches long and 3½ inches wide. It is made from cherty limestone.

A slab metate 10 inches wide and 22 inches long is from the upper layer of the fill. Two metate fragments were on the floor. One is a trough type, and it was in this metate that the small undecorated jar was sitting. The other metate is too fragmentary to classify.

One small one-hand mano of quartzite was on the floor. Another mano, 7½ inches long, was present in the upper layer.

Considering the abundance of material in this room, and the fact that there is no fireplace, the obvious conclusion is that this was a storage room.

#### POTTERY

The pottery from Bloom shows no clear-cut stratigraphic difference between the deep pit house and the adobe surface structure. Hence, the statistics given here apply to the total sherd count.

	per cent
Jornado Brown .....	46
El Paso Polychrome .....	31



Corrugated .....	6.2
Chupadero Black-on-white .....	5.6
Lincoln Black-on-red .....	4.3
Three Rivers Red-on-terracotta .....	3.1

Sherds that occur in extremely small quantities are:

Mimbres Bold Faced Black-on-white  
 Santa Fe Black-on-white  
 Gila Polychrome  
 Jornada Polychrome  
 St. Johns Polychrome  
 Rio Grande Glaze I

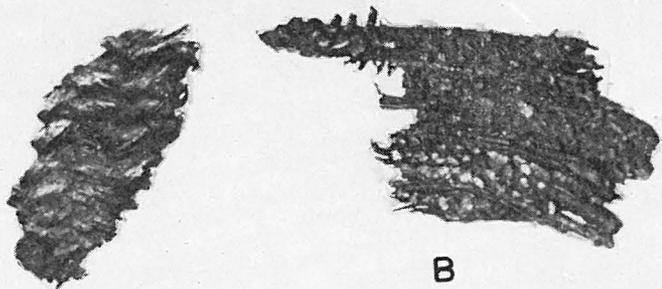
The majority of the pottery belongs to the brownware complex. Jornada Brown is the most numerous, with El Paso Polychrome being second numerically. Only one sherd of Jornada Polychrome occurs, but this is to be expected, as this form occurs in earlier sites.

A type of red-on-brown ware is present that is unfamiliar to the author. The vessel form, rim form, and thickness of the vessel wall are identical to those of El Paso Polychrome. However, the paste is tan and lacks the extremely large tempering particles so characteristic of the latter type. The design consists of broad red bands. Possibly it is simply an aberrant form of El Paso Polychrome, or possibly it is an undescribed pottery. However, further evidence is needed to establish it as a definite type.

Of the intrusive sherds, the Glaze I allows dating of the site at 1350 to 1400 A.D. These sherds undoubtedly originated in the southern part of the Rio Grande Glaze area.

Gila Polychrome falls into the same period and is probably from eastern Arizona. St. Johns Polychrome likewise falls within this time period and came from west-central New Mexico.

Mimbres Black-on-white is found associated with this ceramic complex in other sites in the area. This is thought to be the latest appearance of Bold Faced Mimbres.



A

B



C

D

E



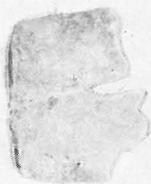
F

G

H

I

J



K

L

M



N

PLATE 23

A-N, artifacts from Bloom Mound.



An unusual intrusive sherd is Santa Fe Black-on-white. This is the first Santa Fe Black-on-white sherd to be identified from the immediate area. As the name indicates, this sherd originated in the vicinity of Santa Fe.

#### FOOD

Animal bones are abundant in the site. In a superficial survey, the following bones were identified: bison, deer, antelope, rabbits, squirrels, and birds of several types.

Corn was abundant at the site. Records of the Roswell Archeological Society list beans and squash as having been identified. In Room G there was a charred pit of what has been tentatively identified as cactus fruit (such as pitahaya or tuna).

#### COPPER BELLS

Three copper bells were found in previous excavations by the Roswell Archeological Society. This is thought to be the easternmost occurrence of such bells.

#### SUMMARY

The eastern boundary of the sedentary dwellers of this particular area of New Mexico seems to be the Pecos River. No permanent villages are known east of the Pecos; instead, the remains from the Pecos into the sand hills of west Texas indicate nomadic camp sites. Judging from the pottery found in these camps (brown wares are the most common, with Chupadero Black-on-white and Glaze I red occurring not infrequently), the hunters originated in this southern area of New Mexico. The presence of Glaze I in many of these camp sites places their occupation in the same time period as Bloom Mound and other sites.

Bloom Mound represents one of the easternmost sedentary villages, as it is located close to the junction of the Hondo

and the Pecos rivers. The beginning date of the site is uncertain, but it is felt that it was slightly before 1300. The presence of Glaze I and the absence of later glazes places the terminal date close to 1450.

This period from 1300 to 1450 was a time of extensive population expansion. There are numerous sites on all the rivers between the Pecos and the mountains immediately to the west that belong to this expansion period. Such a site is the Bonnell Site, about 50 miles west of Bloom Mound, reported by the author in this Bulletin, Vol. 23, pp. 78-132, 1952.

The population increase corresponds in part to a southern movement of Pueblo IV peoples. Large pueblos do not extend as far south as Bloom Mound; rather, the last concentration of square pueblos (many containing up to 120 rooms) seems to be the Gallo and the Macho drainages.

The upper adobe-walled Room G is one of a double line of rooms of a surface structure. The whole house may have contained 12 rooms, of which six have been excavated.

The Pueblo IV peoples must have mixed with the local builders of the deep pit house, as the Pueblo traits become fused with those already existing in the Jornada area. The pottery continues to be predominantly of the brownware tradition, with an increasing number of intrusive sherds, many stemming from the northern Pueblo area.

The deep pit house is thought to be earlier than the upper adobe structure. Evidence to support this theory is the presence of flood-borne gravel and silt that broke through the west wall of the pit house. The adobe structure is built above this flood deposit. Other clear-cut cases of an age distinction between the two house types is lacking. Pottery types remain nearly constant from all levels.

Two almost identical pit houses have been found at the Bonnell Site. They are alike as regards size, floor features, and quality of workmanship. The only unique feature of Bloom Mound House F is the pit to the east of the fireplace covered by a metate.

It is hoped that a full report can be written on this site, using the materials obtained by the Roswell Archeological Society. Because this appears to be a critical site in the study of the Jornada area, it was deemed advisable to publish this brief report. Our sincerest thanks are extended to the Roswell Archeological Society, especially to Col. Sayre, for cooperation in this endeavor.

Texas Tech Museum  
Lubbock, Texas

# EXCAVATIONS NEAR GRAN QUIVIRA, NEW MEXICO

EARL GREEN

Part of the program of the 1954 field school operated by The Museum, Texas Technological College, consisted of general reconnaissance in the east-central New Mexico area. The material considered in this report concerns a single circular pit-house which was dug near the Gran Quivira National Monument.

The site is approximately two miles northwest of the Monument and is near the northern boundary of the Homer Jackson ranch. There are no definite indications of prehistoric dwellings in this locality; however, a single pit-house was discovered in pipe-line trenching operations in 1953 and was excavated under the direction of Dr. Fred Wendorf, who also selected the spot where the pit-house described here was found. In this case, the choice of locating a test trench was based on a concentration of holes made by burrowing animals.

## DESCRIPTION OF PIT-HOUSE

The pit-house is almost perfectly circular and has a diameter of 15 feet with an average depth of 33 inches (Fig. 8). A bench or strath was cleared off around the top of the wall for a distance of 16 to 18 inches but there were no indications of posts other than in the pit itself. The pit was dug down into a thick caliche bed, and rough surfaces on both the wall and floor were smoothed with clay plaster.

There were four large center post holes arranged in a rectangular pattern, but the rectangle was not oriented with the cardinal directions. In addition to the four large center posts, there were several small holes around the edge of the floor and a few holes placed horizontally in the wall. Other than the location of the small holes at the edge of the floor, no definite pattern could be ascertained.

The centrally located fire pit was roughly rectangular in outline and had a built-up rim approximately 2 inches

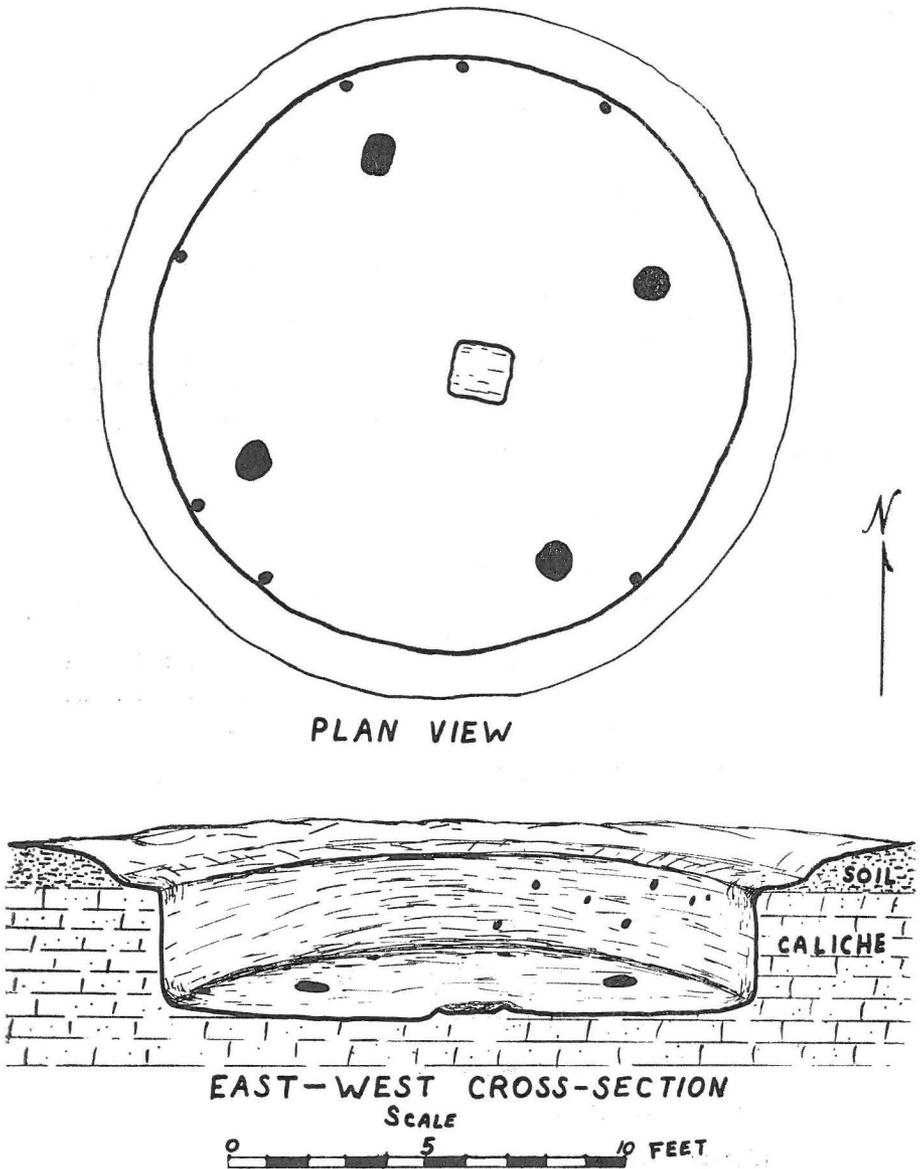


Fig. 8. Ground plan and cross-section of pit house excavated near Gran Quivira National Monument, New Mexico.



above the general level of the floor which slopes centripetally from the wall. There was only a small quantity of ash near and in the fire pit but the clay bottom and rim were baked to a reddish-brown color.

During excavation of the room, potsherds were found from the surface downward, with increasing frequency between the roofing material and the floor. The room had not burned and none of the supporting posts were preserved; in fact, one of the striking features of the fill was the absence of charred wood. Small particles of charcoal did occur throughout the fill and were fairly common near and on the floor. Other indications of fire were two large pieces of burned roofing clay and one mass of charred corn found near the floor.

#### MATERIAL CULTURE

Material culture from the circular pit-house was essentially limited to worked stone and potsherds, and is given in two categories for stratigraphic purposes. The first group includes all of the material from the surface down to the top of the roofing clay, and the second group contains materials from the fill between the roof and the floor.

##### I. Materials above roof.—

###### *Potsherds*

###### Number

- 127 Jornada Brown
- 11 Lino Gray or Kana-a Gray
- 9 Fine-pasted brownware
- 3 Smudged brownware
- 10 Unidentified

###### *Worked stone*

- 6 Cores, 2 quartzite and 4 limestone
- 1 Side scraper, quartzite

- 1 Ground fragment, probably a mano
- 1 Unidentified ground fragment of sandstone
- 7 Chips, limestone and quartzite

II. Materials below roof.—

*Potsherds*

Number

- 51 Jornada Brown
- 4 Lino Gray
- 3 Fine-pasted brownware
- 1 Smudged brownware
- 5 Unidentified, porous

*Worked stone*

- 5 Flint cores
- 4 Small fragments of metates
- 1 Hammerstone
- 1 Limestone fragment with two grooves, may have been used as "needle sharpener"

The date range for Lino and Kana-a Gray pottery is from A. D. 600 to 900, and it is concluded that the pit-house was occupied around A.D. 600 or 700 or 900 at the latest.

Texas Tech Museum  
Lubbock, Texas

## AN HISTORIC BURIAL FROM YELLOWHOUSE CANYON, LUBBOCK COUNTY

W. W. NEWCOMB, JR.

In July, 1951, Betty Jane Dryden of Chickasha, Oklahoma, a Girl Scout counselor, discovered some human bones eroding out of the north wall of Yellowhouse Canyon on the Johnson Ranch below Buffalo Lake, about twelve miles east of Lubbock, Texas (Plate 24, A, B). Her discovery was reported to Dr. Grayson E. Meade, Geologist at Texas Technological College, by Mary Ola Anderson, Field Director of the Lubbock Girl Scout Association. Dr. Meade carefully removed the human remains, the revolver, knife, kettle, and the other cultural material associated with the skeleton. These remains were given to the Texas Memorial Museum and are now on exhibit on the Anthropology floor.

The skeleton is almost complete and is exceptionally well preserved. The individual had been interred in the canyon wall, lying on his back with knees drawn up (Plate 25, A). The right humerus (upper arm bone) and some bones of the right hand and foot were missing. Being on the canyon side of the burial these bones were washed away; other bones were also exposed and led to the discovery. An examination of the skeleton indicated that the individual was male, a young-adult (21-35 years old) and belonged to the Indian (Mongoloid) division of mankind. The Indian character of the skeleton is confirmed by the glass mocassin beads, the tubular bone beads, and other Indian ornaments. The sex, according to the skeletal evidence, tends to be confirmed by the fact that a revolver, knife, and saddle bags were buried with him. It is unlikely that this typically male equipment would be buried with a woman. This individual was about 169.9 cm. tall (or 5'7") and had a cranial index of 75 (mesocephalic).<sup>1</sup> Two views of the skull are shown in Plate 25, B, C.

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1. Stature reconstructed by using E. A. Hooton's *Up From the Ape*, 1946, p. 728, formulae (e) and (f) for males, and averaging the two results. Other measurements are: head length, 176 mm.; head breadth, 132 mm.; auricular height, 104 mm.; face height (menton-nasion) 121 mm.; face breadth, 138 mm.; nose height, 55 mm.; nose breadth, 27 mm.

Found with the skeleton was a Remington-Beals .44 caliber, cap and ball revolver, first manufactured in 1858, and used by the United States Army (Plate 26, A). A metal cap container was also found and fits into a fragmentary leather pouch which was attached to the belt (Plate 26, E). The metal belt buckle was well preserved, and is a General Service Army buckle, ordinarily worn by officers. This buckle was first used in 1852 and until recently was worn on dress uniforms.<sup>2</sup> In a leather scabbard was found a badly rusted and rotted, wooden handled, scalping or butcher knife (Plate 26, F). Apparently a leather saddle bag had been placed over or around the head. In a pouch of this bag was a small lump of cinnabar (mercury ore) a red pigment much favored by Indians for painting the face and body. This pigment was in time deposited on the right temple and caused a red discoloration of the bone which is clearly visible today. On the left temple is a greenish stain caused by contact of the skull with the copper or brass ornaments of the saddle bag. Some coarse, black, typically Mongoloid hair, bound by a cord, was also found adhering to the skull.

At the feet there were many small red, blue, and white glass beads (Plate 25, E), and rusted cone-shaped iron tinklers (Plate 25, G), indicating that moccasins were worn. Over the chest area were 88 nearly identical tubular bone beads, about 2 inches long, which were worn as a breastplate consisting of four vertical rows of beads hung horizontally. Two such rows can be seen in place in Plate 25, A, and 10 beads are seen in place on the remains of the cloth shirt in Plate 26, D. These ornamental bone breastplates were popular with Plains Indians in the 19th century, and were ordinarily made from the small bones of front legs of deer, or from turkey leg bones.

There were two ornaments cut out of sheet copper, like that shown in Plate 27, B. The upper part is shaped somewhat like an inverted bell, while the lower part is a crescent.

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2. Personal communication from M. L. Peterson, United States National Museum, September 28, 1954.

The specimen not illustrated has the two parts joined with a chain-like link. Probably these ornaments were suspended from the bottom of the tubular-bone breastplate mentioned above.

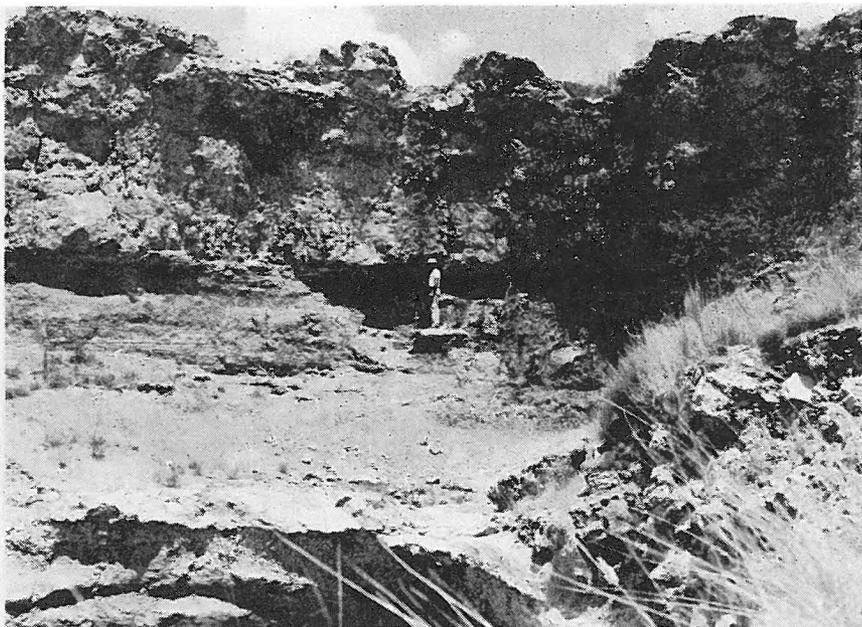
The remnants of a bridle were found, including parts of the leather straps and metal ornaments (Plate 27, E-J), an iron bit (Plate 26, B), and the copper or brass-capped ends of the bridle straps. At the foot of the grave and slightly higher than the other remains was a two-quart Army issue kettle of copper or brass (Plate 25, A). Several large disks of thin sheet copper (Plate 27, A) were probably once fastened to the saddle bag. Small copper bells also were found in the grave.

Many other bits of metal, leather, and cloth were found, too fragmentary to identify, although it may be supposed that most of them once belonged to the clothing, bridle, and saddle bag (Plates 25, F, H; 26, C; 27, C, D, K, L, N). A copper ring was found in place around a finger bone (Plate 25, D).

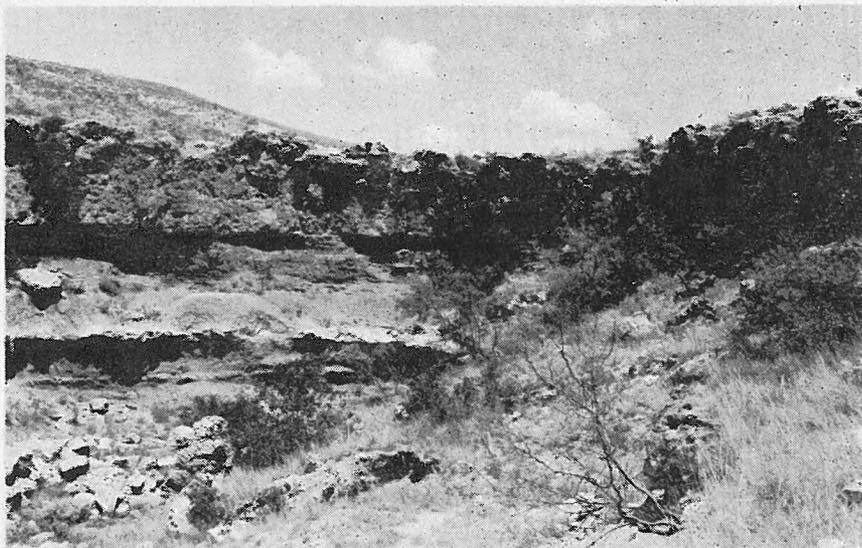
An antler flaking tool (Plate 27, M) is of interest, for it indicates that this person was still making chipped-stone artifacts at this date.

### ANALYSIS

We can say with certainty that this man died after 1858 from the data supplied by the revolver. It is unlikely that he died later than about 1875, since the last of the tribes in this area were pacified by this date. We cannot say what caused death. There are no indications from the bones that death was caused by an enemy missile or by disease. It is of course possible to be killed by a bullet or arrow without having any bone affected. His death seems to have been an honorable one in that burial was careful and apparently unhurried. It seems unlikely that an ignominious death would be rewarded with careful burial, particularly with the inclusion of a fairly valuable, loaded revolver.



A



B

PLATE 24

Location of historic burial in Yellowhouse Canyon, Lubbock County. A, Dr. Meade standing at excavation. B, view of canyon walls.





A



B



C



D



F



E



G



H

PLATE 25

A, burial in Yellowhouse Canyon, exposed. Note bucket-shaped U. S. Army issue kettle at right, two of the four rows of tubular bone beads resting on chest area, and copper disk by left elbow. B, C, side and front views of skull. D, copper ring encircling finger bone. E, tiny white, red, and blue glass beads. F, three decorated copper button faces and plain disk, probably used as ornaments. G, some of the conical iron tinklers; note white beads embedded in rust at upper left corner and lower right. H, two copper fastening pins (?). D-H about  $\frac{3}{4}$  actual size.





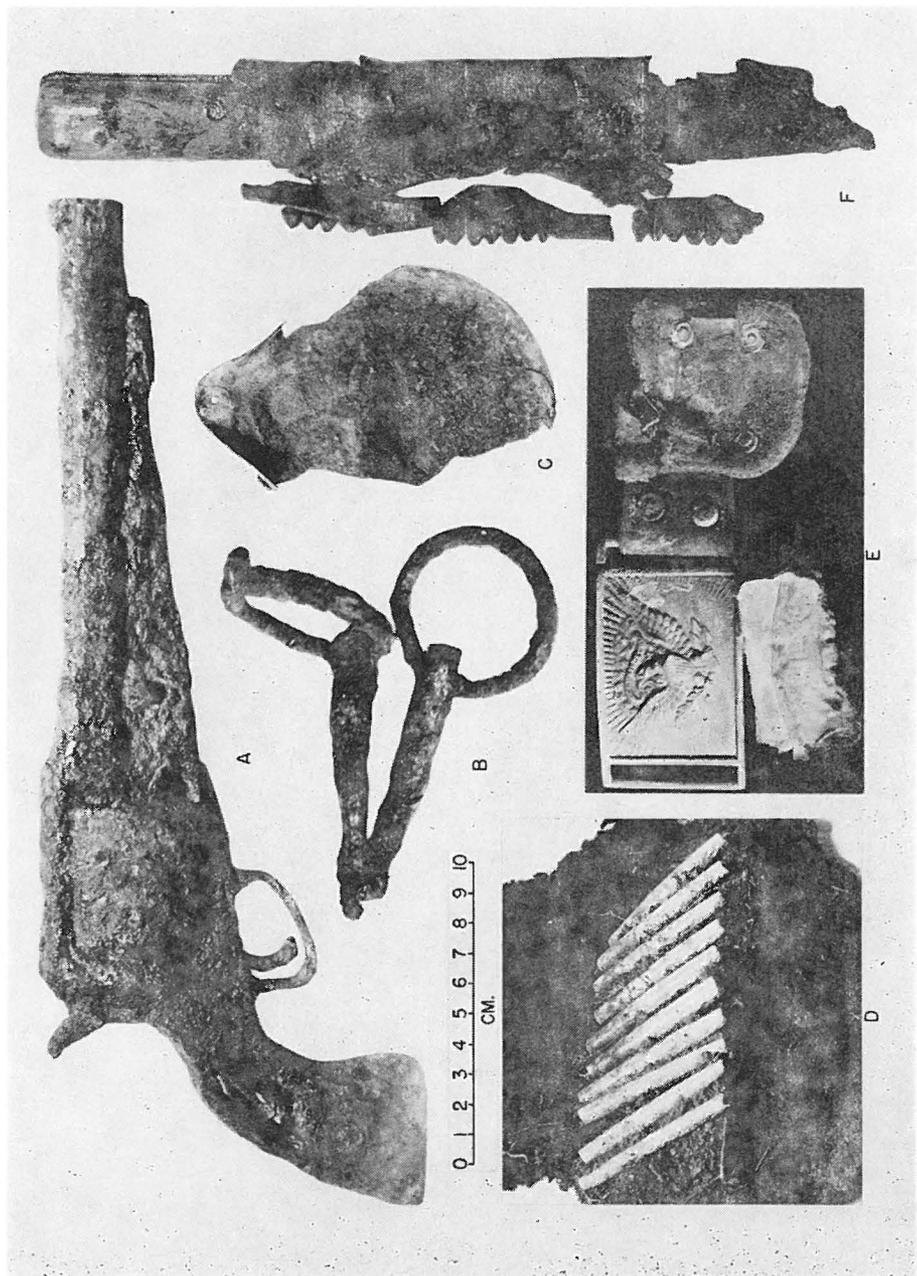


PLATE 26

Artifacts from historic burial in Yellowhouse Canyon. A, Remington-Beals .44 caliber cap and ball revolver. B, iron bit and rings. C, copper sheeting, use unknown. D, ten of the 88 bone breastplate beads, in place on rotted shirt fragment. E, U. S. Army belt buckle with remains of cloth cover turned downward. At right is back side of belt to which metal cap container is bradded; as belt is folded over, container is not visible. F, wooden-handled knife in remains of leather sheath. Notches at left are decorative fringe of original sheath.



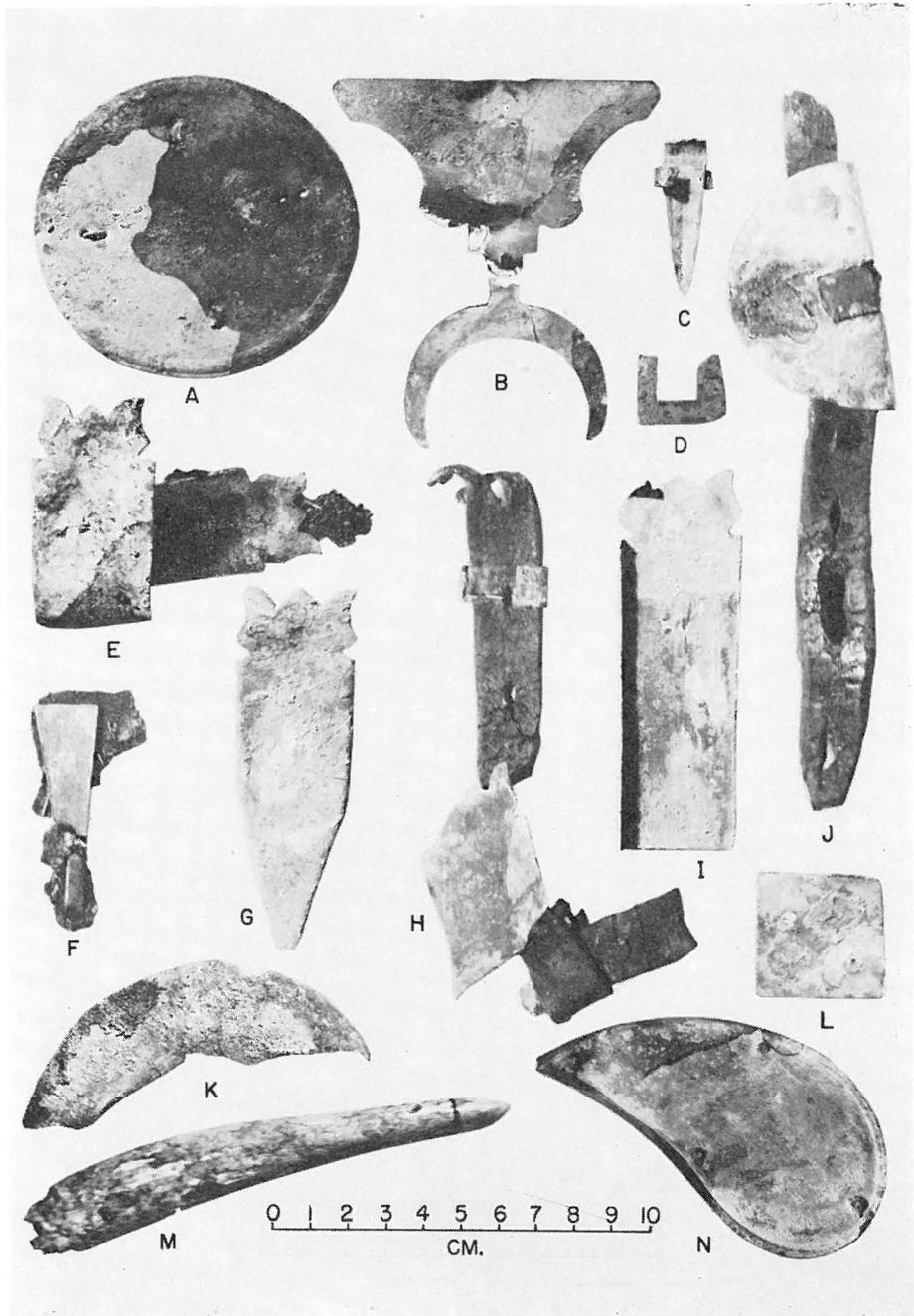


PLATE 27

Artifacts from historic burial in Yellowhouse Canyon. A, C-L, N, a few of many sheet-copper objects, mostly bridle and saddle-bag parts, some still adhering to pieces of leather. B, one of two identical sheet-copper ornaments. M, flaking tool of antler.



Several possibilities are raised by the Army equipment found with the skeleton. First, is that this man was an Indian Scout employed by the Army. The Army throughout the nineteenth century employed friendly Indians as scouts, in exploring the west and dealing with its inhabitants. These scouts were equipped by the Army. Up to and including the Civil War most of these scouts were members of eastern tribes who had been forced onto reservations west of the Mississippi. Shawnees, Delawares, and other tribes originally resident in the east, and Pawnees, were among the most prominent. Another possibility is that this individual was a member of a hostile tribe, perhaps Comanche, Kiowa, or Apache. A warrior from one of these tribes could have taken from a captive, or from the body of a soldier, the revolver, belt-buckle, belt, and bridle, or he could have received these items following a treaty or conference with government agents. Occasionally members of these tribes served as scouts for the Army.

Several other clues suggest that the skeleton of Yellowhouse Canyon was a Comanche or a member of some other southern Plains tribe. First, the nature of the burial suggests this. Wallace and Hoebel say of the Comanches, for example:

The preferred burial place was a natural cave, crevice, or a deep wash among the rocks of the highest accessible peak, or in the head of a canyon preferably to the west of the lodge of the departed<sup>3</sup>.

The Yellowhouse burial conforms to Comanche customs in this respect and also in the habit of placing riding gear and other personal valuables in the grave.<sup>4</sup> Comanches and Kiowas frequently shot the favorite horse of a warrior over or near the grave, but if this occurred with the Yellowhouse burial the bones would probably have been scattered or washed away. Second, the clothing and ornaments, par-

3. *The Comanches, Lords of the South Plains*, 1952, p. 150. University of Oklahoma Press.

4. Yarrow, H. C., 1881, "A Further Contribution to the Study of the Mortuary Customs of the North American Indians," *First Annual Report, Bureau of American Ethnology*, p. 99.

ticularly the bone breastplate, point to a 19th century southern Plains Indian. The area in which the burial was found (just off the *Llano Estacado*) was well within the 19th century range of the southern Plains people, particularly the Comanches. Lastly, the 17 year period during which this individual probably died was a most hectic and destructive one for southern Plains tribes. This span covered the turbulent years of the Civil War and the violent aftermath in which these people were hunted down and the survivors finally confined to reservations. Many southern Plains Indians must have died and been buried in situations similar to the one of Yellowhouse Canyon.

Unfortunately little is known, at least in detail, of the distinguishing physical characteristics of the various southern Plains Indians, so that the tribal affinity of the Yellowhouse burial cannot be determined by a comparison of relevant measurements. The southern Plains Indians also underwent a good deal of racial mixture, particularly the Comanche, so that tribal membership is not often reflected in the skeletal evidence. Goldstein, who made an anthropometric study of the Comanches in the early 1930's, found that only 10 percent of the tribe were "fullbloods."<sup>5</sup> Most of the mixture can be traced to marriage with Mexican captives beginning before the nineteenth century. There were probably few "pure" Comanches left by the second half of the century. Other southern Plains people probably underwent a similar intermixture, although perhaps less extensive than that of the Comanches.

In summary, the burial in Yellowhouse Canyon was that of a young adult, male Indian. He was buried sometime after 1858 and probably before 1875. It seems most likely that this individual was a member of a southern Plains tribe such as the Comanche or Kiowa, who had once worked in some capacity for the Army, or had looted the Army equipment found with him. It is also possible that the skele-

5. Goldstein, M. S., 1934, "Anthropometry of the Comanches," *American Journal of Physical Anthropology*, Vol. 19, p. 290.

ton of Yellowhouse Canyon was a member of some other Plains tribe, or a member of one of the Eastern Apache groups. It seems somewhat less likely that he was a member of one of the emigrant tribes of Indians.

It is rather curious that more historic burials similar to the one of Yellowhouse Canyon have not been found or at least reported. In the present instance it is true that one of the reasons for the excellent state of preservation is the fact that bone, leather, cloth, and hair, which lay beneath the copper and brass ornaments, became impregnated with copper salts and so were preserved. On the other hand, it may be that historic sites or burials are considered to be of little importance and so are ignored. This point of view, if true, is unfortunate, since one of the largest gaps in our knowledge is the association of late prehistoric archaeological complexes with historic tribes. Particularly in Texas the association of historic tribes with their archaeological forerunners is often all too weak. To narrow and close this gap more early historic sites will have to be examined. It is of course often true, as with the Yellowhouse burial, that an historic site or burial does nothing to illuminate the prehistoric or protohistoric knowledge of an area, but archaeological techniques of excavation and general analysis are frequently of immense value in shedding light on the later history and ethnography of an area.

Texas Memorial Museum  
Austin, Texas



## AN HISTORIC INDIAN CACHE IN PECOS COUNTY

N. ETHIE EAGLETON

This article concerns a cache of very interesting material, found in a rockshelter in eastern Pecos County by M. W. Humphreys on August 1, 1954. This rockshelter is in Indian Mesa about 200 yards west of the intersection of State Roads 305 and 1257, approximately 20 miles southeast of McCamey and 10 miles west of Iraan. Indian Mesa itself is several miles across, extending from the highway intersection westward to Tunis Creek, and northward to the Pecos River.

When climbing the eastern side of the Mesa, Mr. Humphreys sat down to rest and observed an iron axe lying near the rock-shelter (Plate 28, C). He then noticed a pile of rock near the axe, and on removing the rock found the other objects to be described, which are now on display in the Mendoza Trail Museum in McCamey.

The objects of bison hide described below were identified by two ranchers, one of whom has run bison on her ranch for 15 years. During World War II, they used bison meat occasionally and dressed the hides. They say that the hides from the cache are exceptionally well dressed. The many pieces of bison hide from the cache, not all of which are illustrated, have been extensively chewed around their edges by rodents, partly accounting for their odd shapes. The various kinds of skin pouches, however, have not been affected much by rodent gnawing.

The photographs accompanying this article were made in August, 1955, by Dr. Alex D. Krieger, archeologist of The University of Texas. The following descriptions will be given in the order in which the pictures are arranged. The objects not photographed will then be briefly mentioned.

1. A fire-drill stick with lower end bluntly rounded and charred (Plate 28, A). Length 24 inches; diameter 1 inch.
2. A leather strap, consisting of three sections sewed together with thongs (Plate 28, B). The central section is

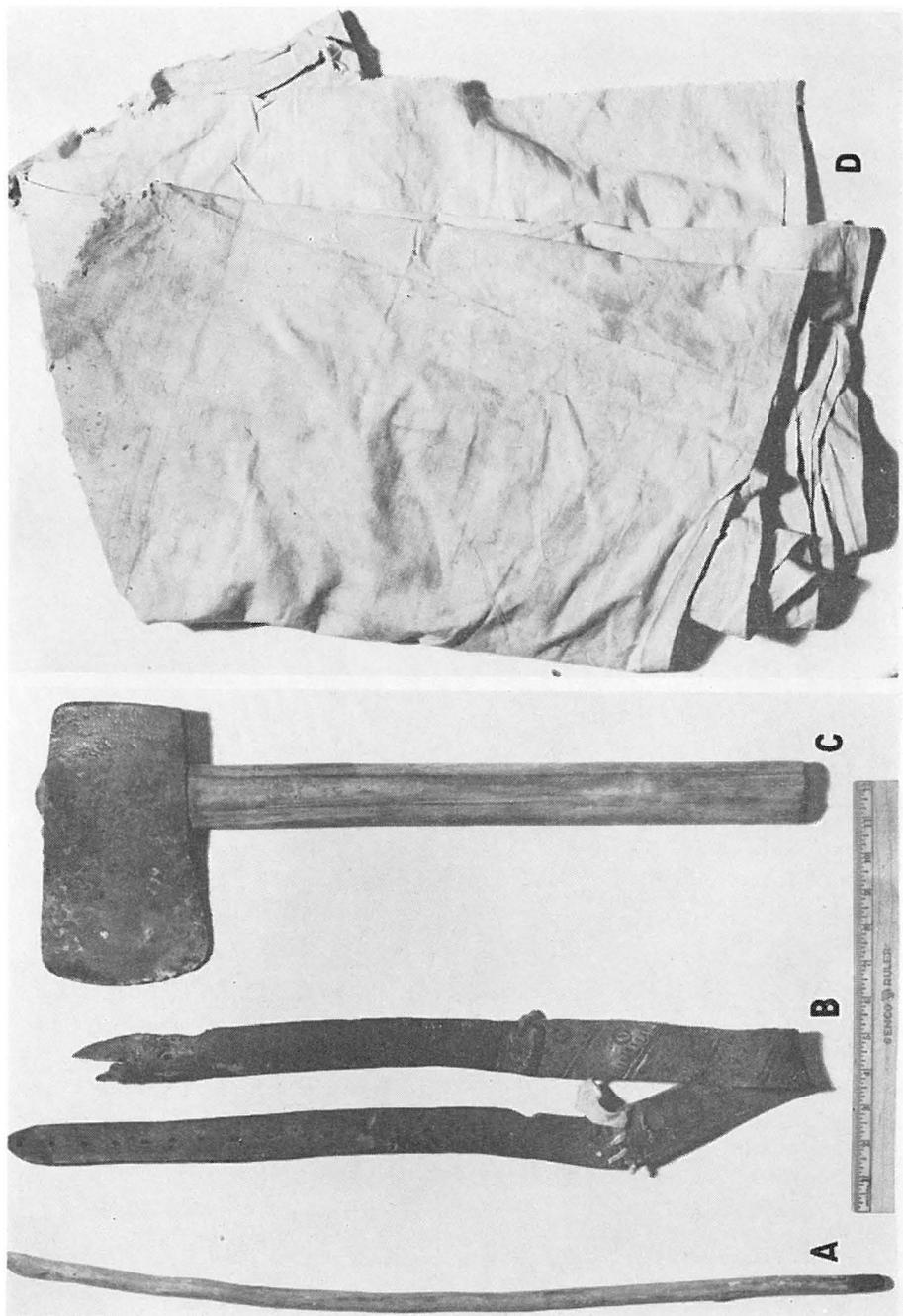


PLATE 28

Objects from cache found at Indian Mesa, Pecos County. See text for descriptions.



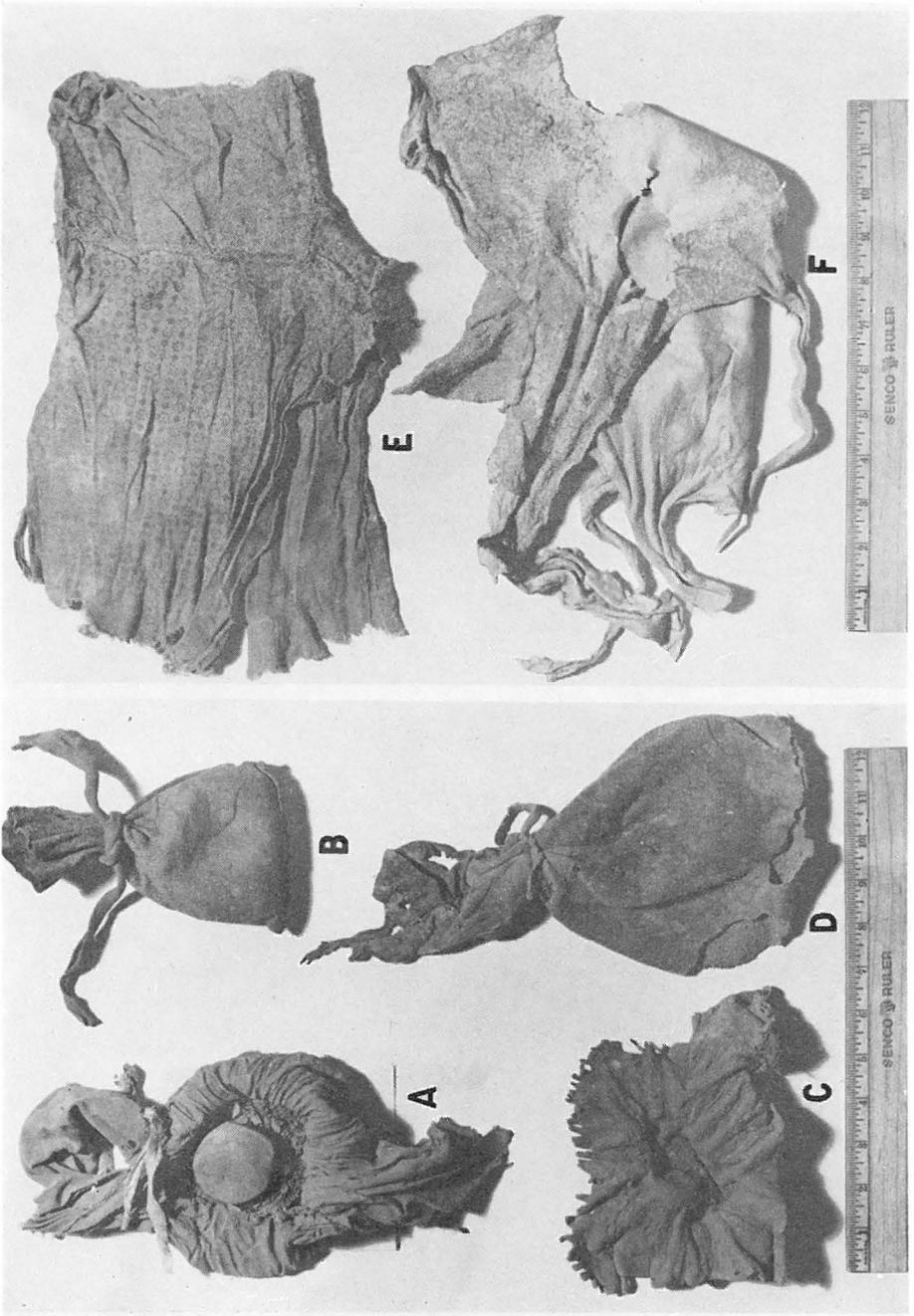


PLATE 29

Objects from cache found at Indian Mesa, Pecos County.



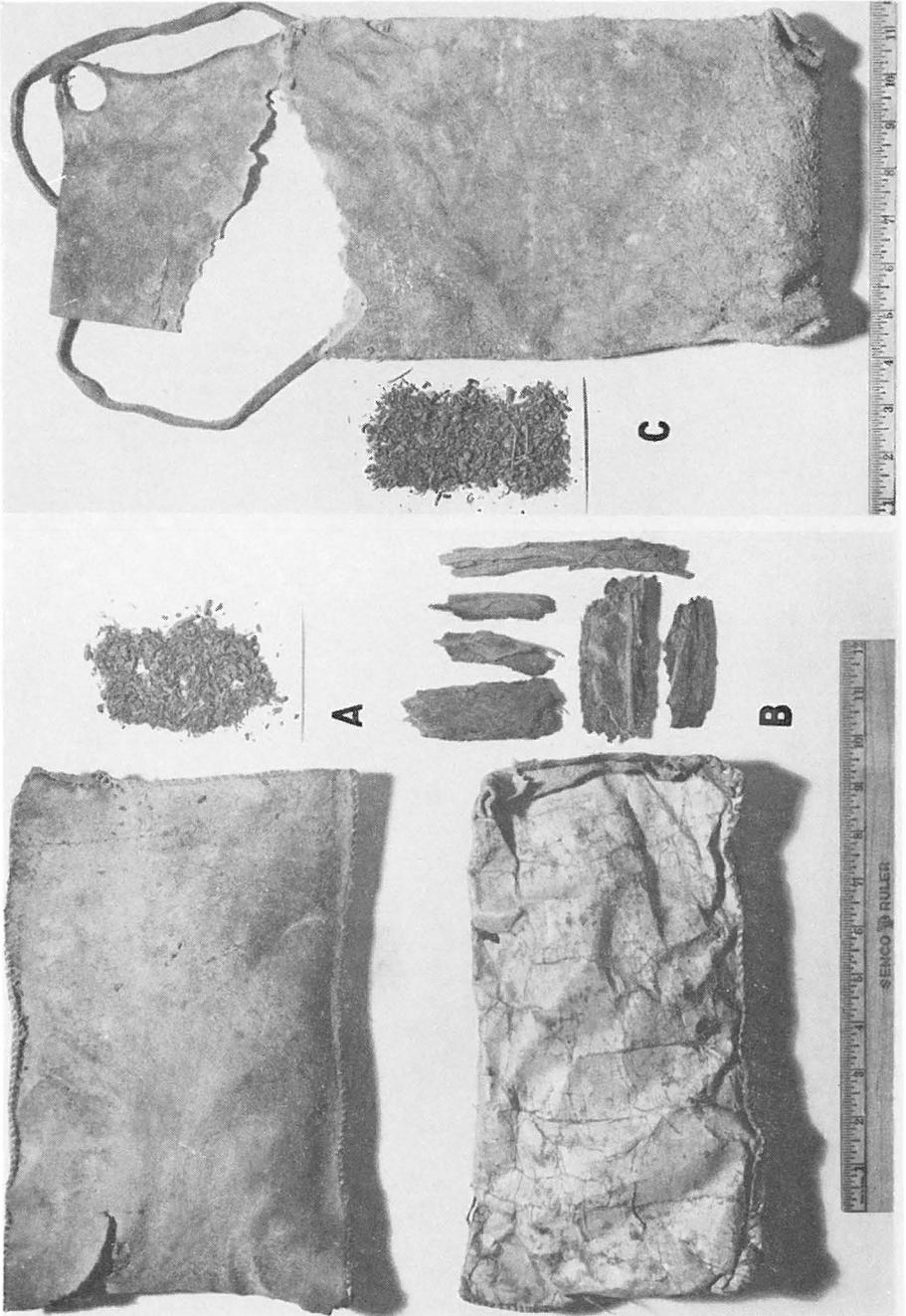


PLATE 30

Objects from cache found at Indian Mesa, Pecos County.



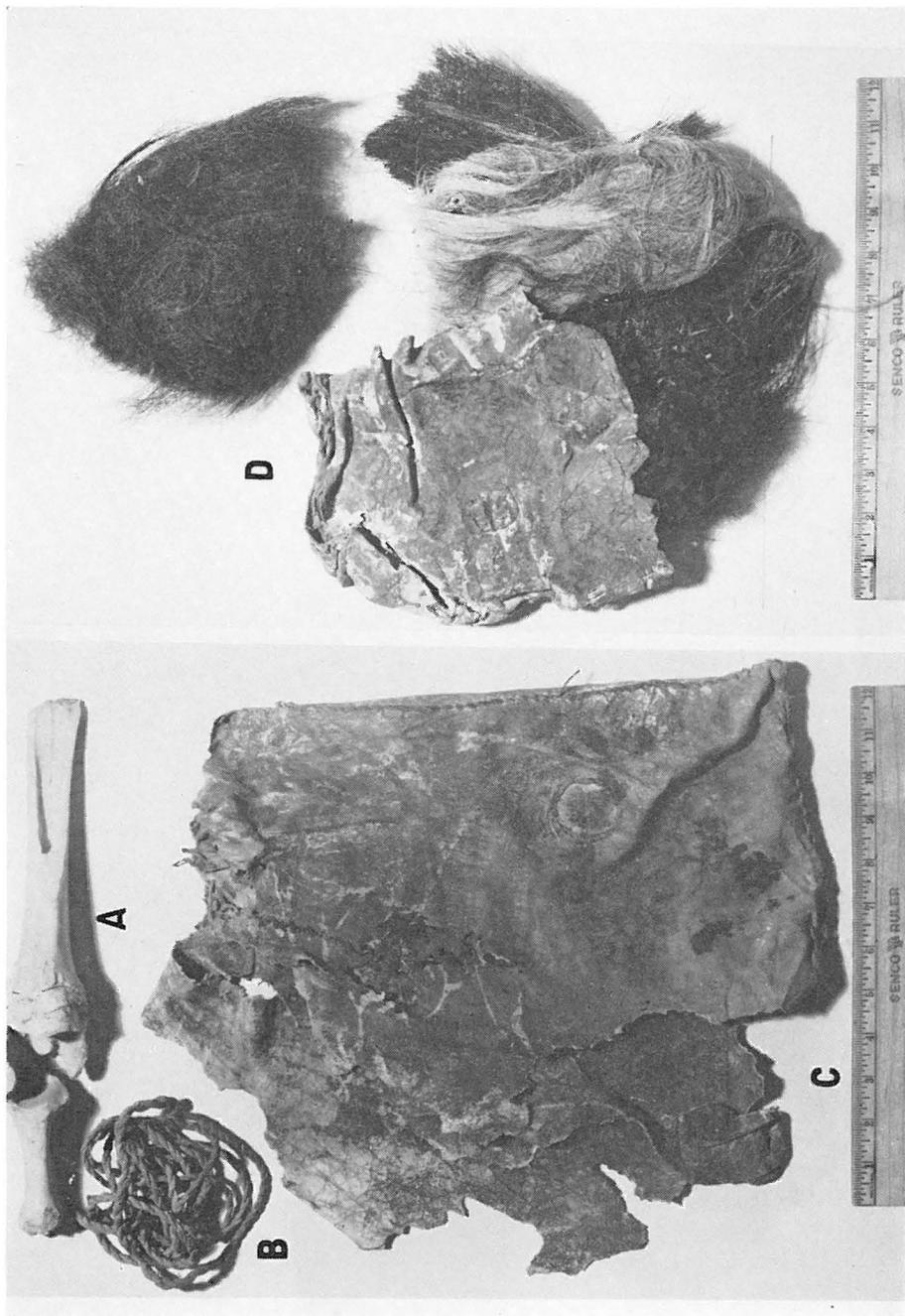


PLATE 31

Objects from cache found at Indian Mesa, Pecos County.





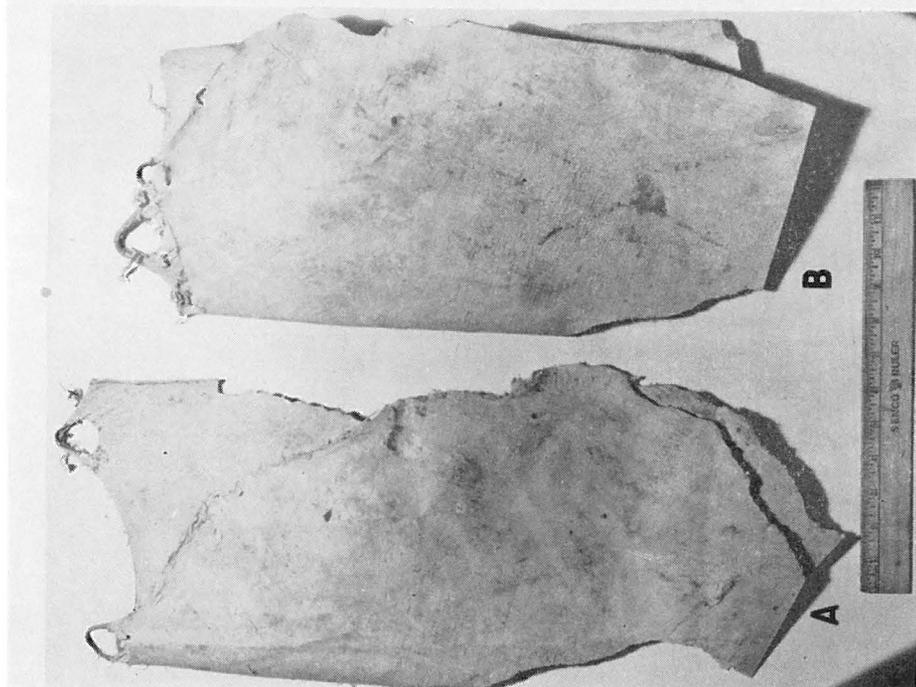
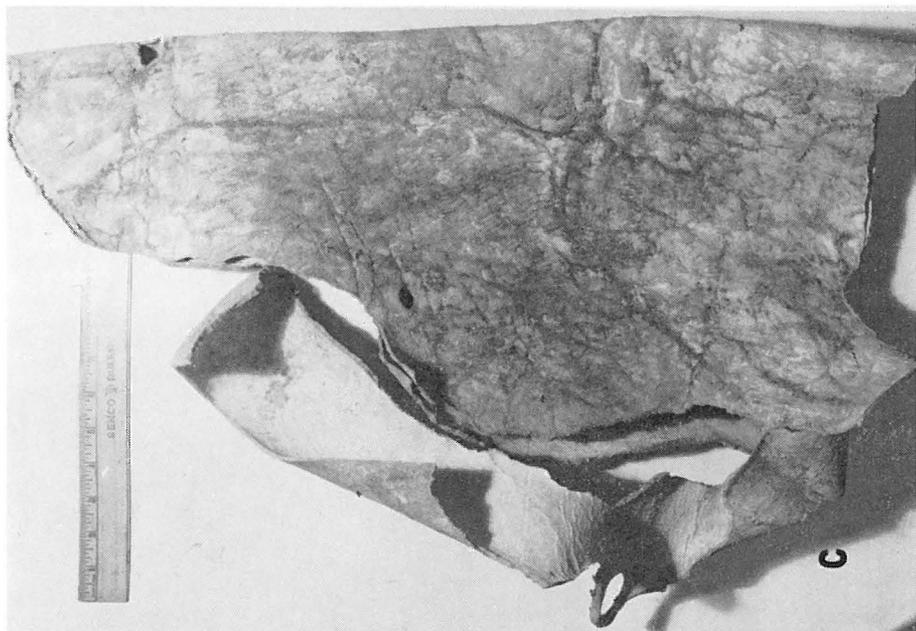


PLATE 32

Objects from cache found at Indian Mesa, Pecos County.



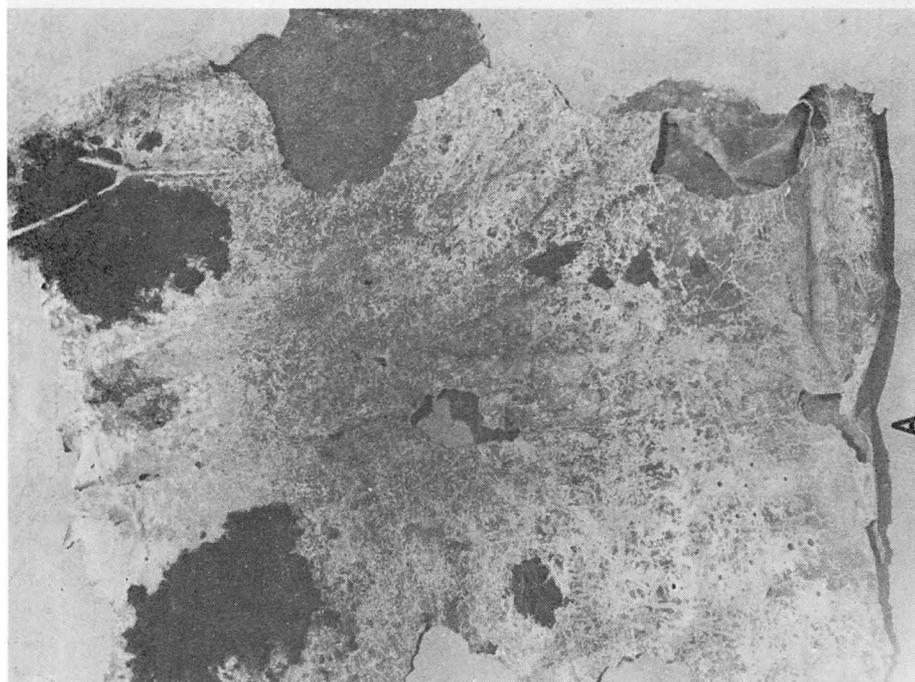
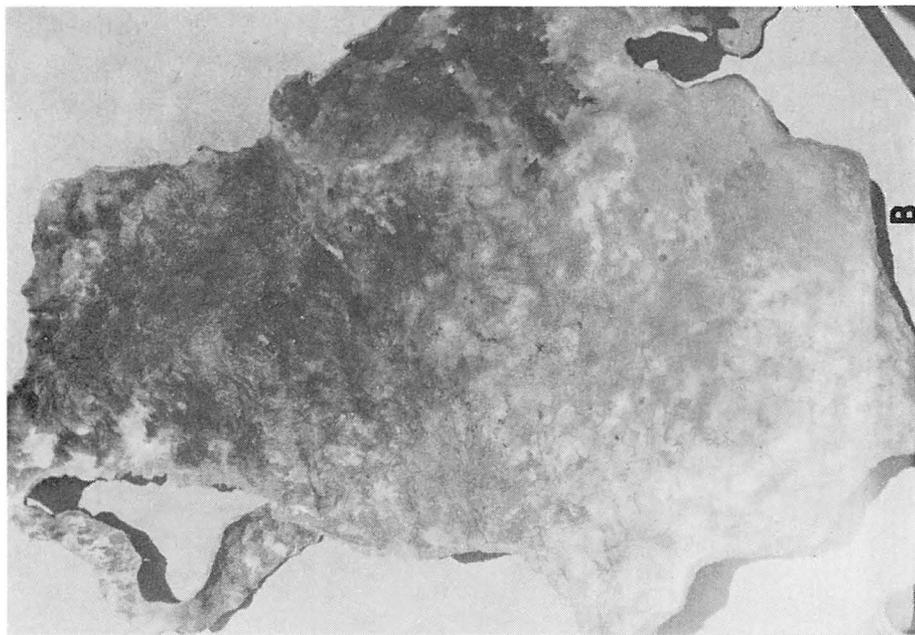


PLATE 33

Objects from cache found at Indian Mesa, Pecos County.



decorated on one side with lines, spurs, and circles, evidently by pounding small screws into the leather, sideways and head-down. Possibly made into a tump band out of scraps of belts. Length 34 inches.

3. An iron axe with oak handle tightly fitted (Plate 28, C). Total length 21 inches; blade 8 inches long.

4. Unbleached white cotton cloth (Plate 28, D). Length 5½ yards; width 33 inches.

5. A paint bag made by cupping a piece of calico cloth and gathering the edges together with a thong (Plate 29, A). The calico is probably from the same dress as the sleeve fragment in Plate 29, E. The bottom holds very finely powdered paint of a bright aquamarine color and a rounded lump of the same material.<sup>1</sup>

6. A paint bag of soft, finely dressed deerskin, sewed with ocotillo fiber and bound around the neck with a thong of the same material (Plate 29, B). This was filled with bright red, finely powdered ochre.

7. A paint bag made by cupping a piece of thin deerskin and gathering edges together, although no thong was present (Plate 29, C). This held a small quantity of powdered, light cinnamon-brown ochre.

8. A paint bag of finely dressed deerskin, sewed with ocotillo fiber and bound around neck with a thong (Plate 29, D). It is very similar to that in Plate 29, B, but ragged at the top and torn or gnawed at the bottom. It contained remnants of powdered yellow ochre or limonite.

9. Part of the sleeve of calico dress (Plate 29, E). This could have been used as a pouch by tying both ends, but contained nothing when found.

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1. Dr. Stephen E. Clabaugh, Professor of Geology, University of Texas, has identified this peculiar aquamarine paint as a very finely powdered mixture of minute green needles of a silicate, possibly hornblende, and a small proportion of calcite crystals. He states that these materials could have been obtained in the mountainous areas of Trans-Pecos Texas.

10. A piece of very soft deerskin with edges twisted into several long extensions (Plate 29, F). This could also have served for carrying something by tying the extensions over a bundle, but was empty when found.

11. A pouch made by doubling a long rectangle of rather heavy bison skin, then sewing it with ocotillo fiber around three edges, except for a small opening at one corner (Plate 30, A). This was well filled with uniformly pulverized tobacco of the right consistency for smoking (see sample above letter "A").

12. A pouch of dressed but stiff and crinkled antelope skin, made by doubling an approximately square piece of skin, then sewing with ocotillo fiber along two sides and leaving most of the third side open (Plate 30, B). This was about half full of twist tobacco, the leaves being very tightly wadded together (see samples next to open end of pouch, above letter "B").

13. A pouch of bison skin (Plate 30, C), made as follows: A long rectangle of skin was folded so that one end reached only about two-thirds as far as the other. The edges were then sewed together along the sides, and part way across the place where the short end rested against the longer one, leaving a gap of unknown length as an opening into the pouch. The longer end was left extending beyond the transverse sewing, as a flap. Finally, a deerskin thong was fastened to the corners of the sewed part, as a sling for carrying the pouch. In the photograph, the original fold in the rectangle of skin forms the bottom of the pouch, the thong loop is arranged around the flap which extends beyond the transverse sewing, and a small part of the transverse sewing appears to the left of the thong fastening at the upper right corner. The triangular gap is the result of rodent gnawing, which probably began at the open corner of the pouch, destroying part of the two upper edges of the pouch, some of the transverse sewing, and part of the flap. This pouch was about half full of partly pulverized vegetal material which was thought to be "Indian tea" (see sample above letter

"C"). It has now been identified as consisting mainly of leaves and seeds of the ground cherry, an Indian medicinal plant.<sup>2</sup>

14. A split and beveled section of bison cannon bone, partly articulated with a foot bone, which probably served as a hide scraper (Plate 31, A). The scraping marks on some hides in the cache (Plate 32, A, B) may well have been done with such an implement.

15. Two lengths of deerskin rope, each consisting of two strips of skin twisted counter-clockwise (Plate 31, B shows one). Lengths 51 and 45 inches.

16. Part of a large skin bag, very soft and flexible, probably bison skin (Plate 31, C). Although much of this bag is torn or gnawed, two edges are still sewed with skin thongs. A neatly made, round patch may be seen at one place, and in the upper central part, a tear had been repaired with thong sewing. Although this bag is somewhat like the common Plains Indian *parfleche*, it has no signs of painted decoration.

17. A corner fragment of another bag, very similar in softness and flexibility to that in Plate 31, C, which was stuffed with hair (Plate 31, D). This also has remains of thong-sewed edges and a neat patch, but it must have been torn before the cache was made, as the hair just filled it. Most of this hair is from a black and white "paint" horse, cut into hanks with a knife. One handful, however, is considerably finer in texture, softer, black, and may be human hair (see mass to right of letter "D").

18. Two thick pieces of bison hide, both folded double and dried or hardened in that position (Plate 32, A, B). The straight edges have been cut; the irregular edges are gnawed. Both pieces were completely de-haired and bear numerous

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2. Information from Dr. B. L. Turner, Assistant Professor of Botany, University of Texas. The ground cherry is of the family *Solanaceae*, genus probably *Physalis*. There were also some grass blades in the sample studied by Dr. Turner.



parallel grooves across their surfaces, made by a scraping tool. These are particularly apparent on the lower half of Plate 32, B, and may have been caused by a bone tool such as that in Plate 31, A. Loops remain at the upper edges which were made when the hides were staked out for drying and scraping.

19. A large piece of bison hide, also thick, stiff, and folded double (Plate 32, C). The edges have been extensively gnawed, resulting in a long, narrow extension on one side which was twisted back when the photograph was made. A few hairs are left on this hide, but it bears scraping marks like those in Plate 32, A, B. A stake loop appears at the left edge, while possible wound holes appear near the center of the picture and at the upper right edge.

20. A large but very thin, soft bison skin with patches of dark brown hair remaining (Plate 33, A). Parts of this skin were folded under the main part when the photograph was made. Extended, it is about 67 by 35 inches, although the edges have been gnawed back extensively. While still covered with fur, such a skin would have made a good robe or blanket because of its thinness and light weight.

21. A very thick, stiff, and warped bison hide still bearing reddish hair (Plate 33, B). Although its thickness is about  $\frac{1}{2}$  inch, the reddish hair suggests it was a calf. Like the other pieces of hide, the edges have been gnawed considerably by rodents, but it now measures about 24 by 36 inches.

The following objects are not illustrated:

22. A piece of dressed bison skin so curled it was not possible to get a focus on it, about 55 by 20 inches.

23. Two pieces of bison skin with some hair remaining, about 20 by 6 inches and 12 by 11 inches.

24. Another bison calf skin with reddish hair, about 43 by 12 inches.

25. Four bison skins, approximately 18 by 21 inches, cut somewhat in the shape of saddles for burros, although their shape may be partly due to rodent gnawing.

26. Other pieces of dressed bison skin of various sizes.

27. A pair of grass shears about 20 inches long.

28. A bison skin pouch of gunpowder about 10 inches in diameter.

29. Lead for musket balls, several chunks about one-third the size of a teacup.

30. A deerskin pouch about 6 inches in diameter, with shell and stone ornaments, possibly charms.

There was no sign of a burial with this cache. Probably the objects had been stored with the intention of coming back to them sometime. The calico cloth belongs to the Civil War period and the cache may be supposed to date at about that time or a little later.

Both the Comanches and Lipan Apaches roamed this area in historic times. During the 19th century, however, the Comanches had forced the Lipans farther and farther south, toward the Big Bend and into northern Mexico, so that by the time of the Civil War the Comanches were probably the only Indians to occupy Pecos County. For this reason, the cache was likely deposited by a Comanche, although this cannot be proved.

Mendoza Trail Museum  
McCamey, Texas

# A PRELIMINARY REPORT ON THE ALBERT GEORGE SITE IN FORT BEND COUNTY

RAYMOND WALLEY

This article will deal with some of the more interesting findings at the Albert George Site, and particularly with a cache of bone artifacts found in probable association with two skeletons.

The Albert George Site is one of several known to the writer along Big Creek, a tributary of Brazos River, in southern Fort Bend County (Fig. 9). This general locality is on the coastal plain of Texas, about 35 to 40 miles inland from the Brazos River mouth, 50 miles due west of Galveston, and 25 miles southwest of Houston. Before clearing, the area was heavily wooded with such trees as elm, ash, hackberry, ironwood, and live oak mixed with shrubs and vines.

There was sporadic digging in the Albert George Site by early settlers looking for gold. Many years after these settlers had moved and the site forgotten, it was re-discovered by a hunter whose dog had scratched out a flint knife. The hunter then dug quite a lot in the area, but as he reported that "nothing but old Indian bones" had been found, interest was lost until I heard the story in 1951 and attempted to re-locate the site.

In December, 1951, the combination campsite, burial ground, and midden was found. Three burials were discovered at that time. One was that of a female about 16 years old, semi-flexed on the right side. On each side of the skull there was a small, pointed pendant made from the columnella of a conch shell. These pendants are a matched pair between 7 and 7.5 cm. long, each with a small hole at one end (Plate 36, I, J), and diameter of about 1.5 cm. They are similar to a shell pendant from the Crooks Site in east-central Louisiana.<sup>1</sup>

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1. James A. Ford and Gordon R. Willey: Crooks Site, A Marks-ville Period Burial Mound in LaSalle Parish, Louisiana (Fig. 50, E and p. 122). Anthropological Study No. 3, Department of Conservation, Louisiana Geological Survey. New Orleans, 1940.

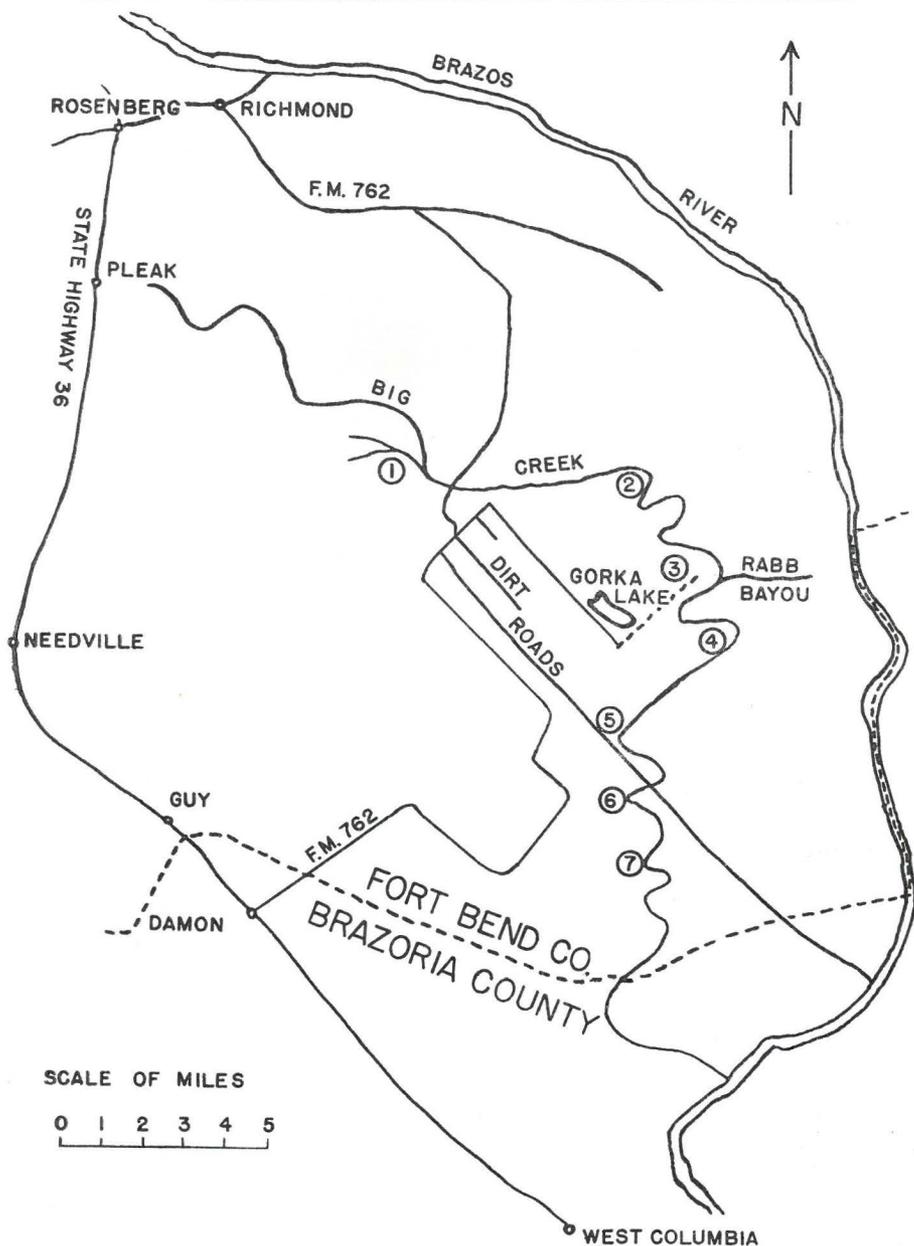


Fig. 9. Location of archeological sites along Big Creek in Fort Bend County. 1, C. H. Chernosky Site. 2, Don Terry Site. 3, Albert George Site. 4, Mike Baggett Site. 5, Lewis Cumings Site. 6, Kitchen Site. 7, Jordaski Site (Hale Ranch). Map drawn by T. R. Waller.

In 1954 a group of amateur archeologists from the Brazosport area again visited the site after it was learned that clearing of the creek banks on both sides by bulldozer had resulted in the trees and brush being pushed back at least 100 feet (Plate 34, A). It was impossible to find the exact location of the previous work, but an undisturbed area approximately 40 by 20 feet was found at the highest part of the site. At the center of this area, eight plots each 5 feet square were laid out and numbered from I to VIII (Plate 34, B).

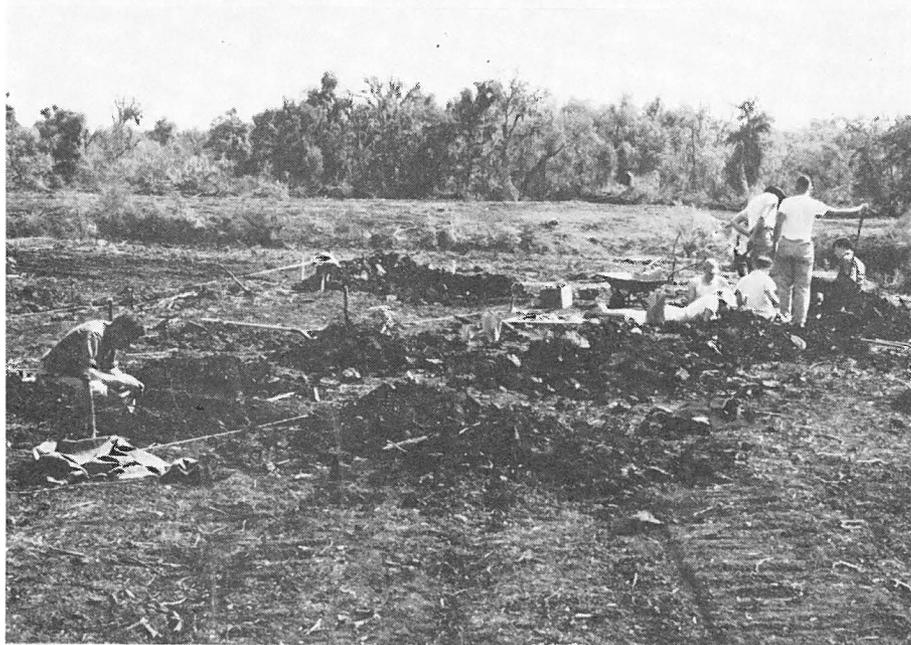
An east-west base line was run through the center of this area, and four plots were staked out to the north and to the south of the base line. The square at the southwest corner was called plot I and those running to the east called plots II, III, and IV. The square at the northwest corner was plot V and those running east from it became plots VI, VII, and VIII. Only two of these plots proved of little value. Plot I contained two deer cannon-bone awls and what was thought to be bison teeth. Plot V contained only deer bones, shells, and occasional potsherds.

Each of the other plots yielded at least two, and some as many as four, burials. It appears that in some instances, and possibly in all, some material was purposely buried with the dead. For example, in one case, six well made projectile points were found very near a skeleton. The skeletal material was very fragmentary in most cases, and difficult to excavate in the dense, hard black clay. In a nearby plot, Richard Worthington excavated two elliptical bone objects about 5 inches in diameter, along with bone awls and chipped-flint artifacts.

Plot VII contained at least four burials. One was extended with the legs crossed. In the same plot was found a "killed" boatstone or atlatl weight of green granite. The fragments fitted together to make a complete, beautifully shaped boatstone 96 mm. long (Plates 36, K; 37, C). It is well shaped and polished over the whole surface, including the deep trough in the upper side. The sides pinch together



A



B

PLATE 34

Views of Albert George Site, Fort Bend County. A, looking northwest at site across Big Creek, after site cleared of growth and excavation area staked out. B, excavation area with squares laid out. P. A. Justice at plot I at left; group at right at plot IV; plot VIII at rear center.





A



B

C

PLATE 35

Plot VIII, Albert George Site. A, two skulls exposed, with position of bone-implement cache marked by X at top of picture. B, limb bones exposed near cache. C, cache of bone implements in place.





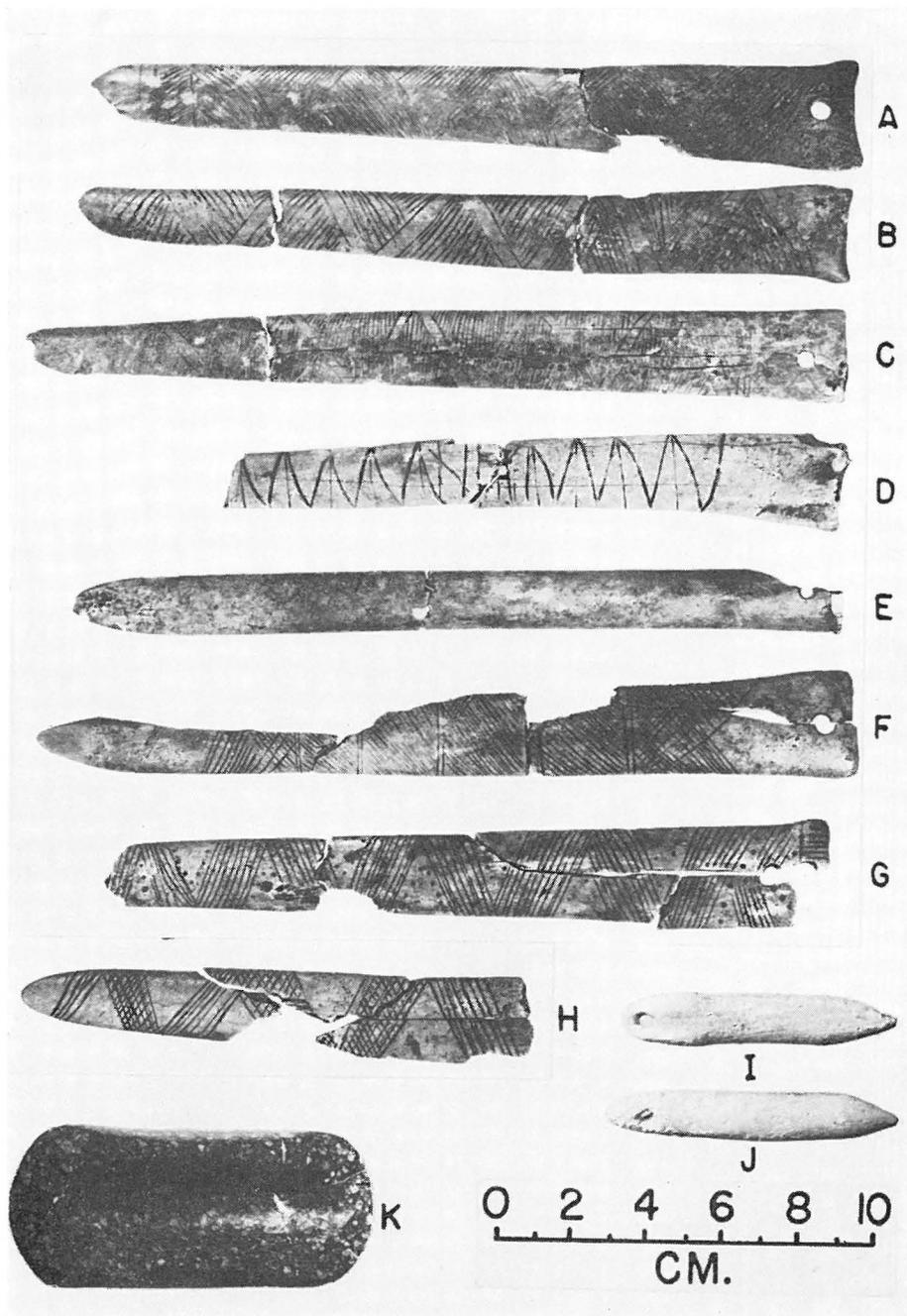


PLATE 36

A-H, eight of most complete implements from cache at Albert George Site. I, J, small pendants of conch-shell columnellae, found with burial in 1951. K, boatstone (atlatl weight) from plot VII.



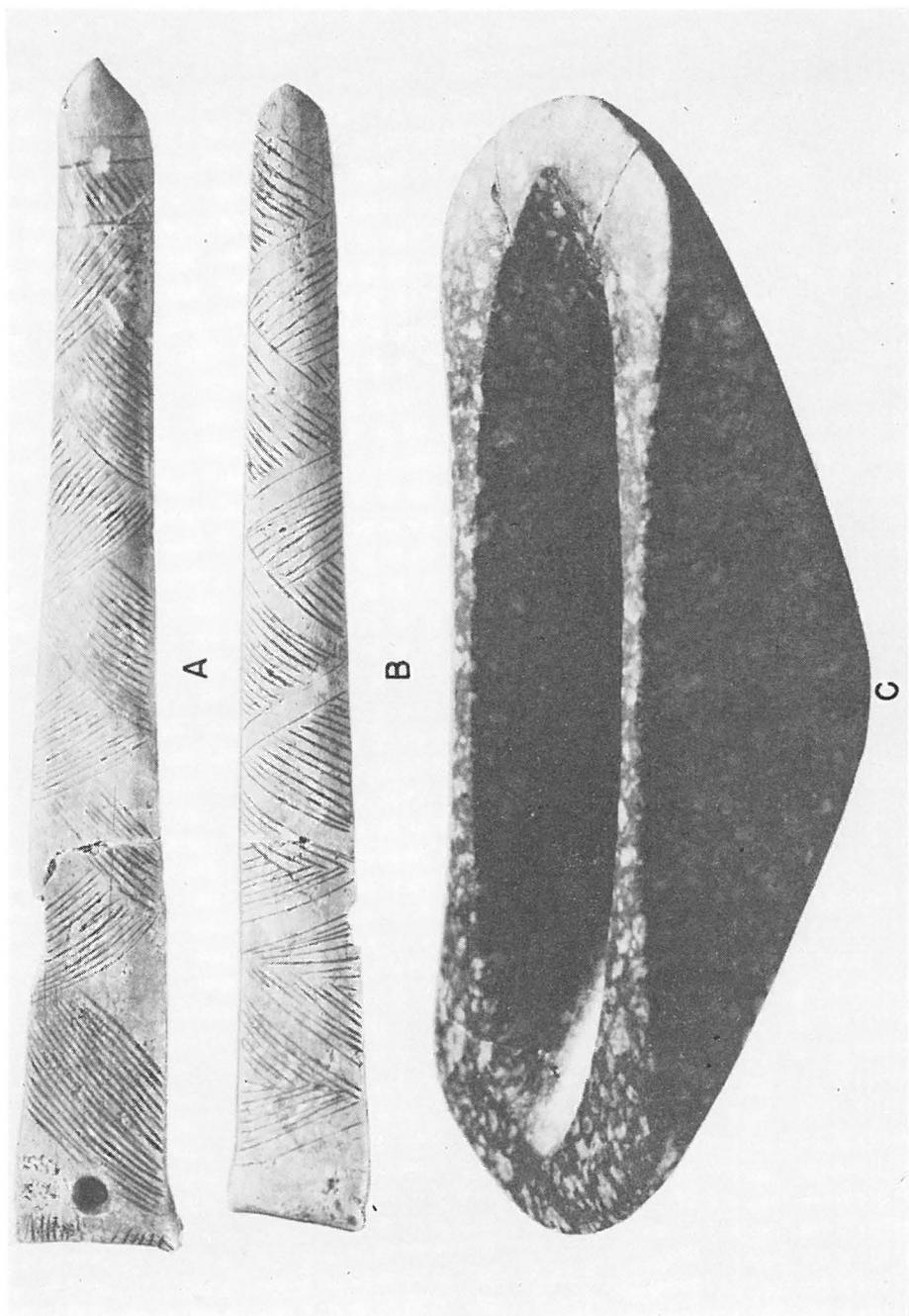


PLATE 37

A, B, enlargements of same bone implements shown in Plate 36, A, B. Lengths are 215 and 207 mm., respectively. C, enlargement of boatstone shown in Plate 36, K; length 96 mm. Note constricted mid-section. Actual size of boatstone in relation to bone implements may be seen in Plate 36.



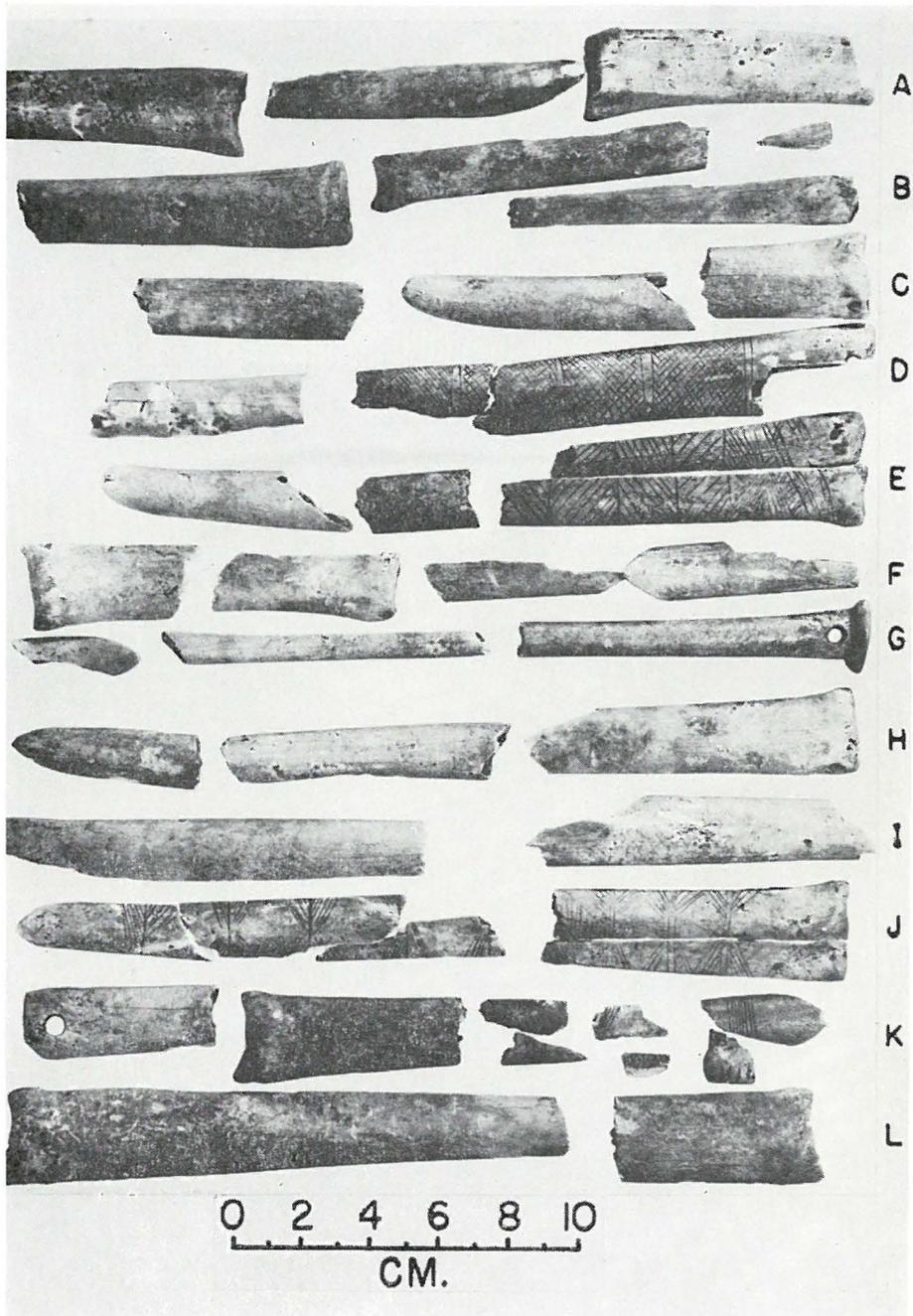


PLATE 38

A-L, most of remaining fragments of bone implements from cache at Albert George Site.



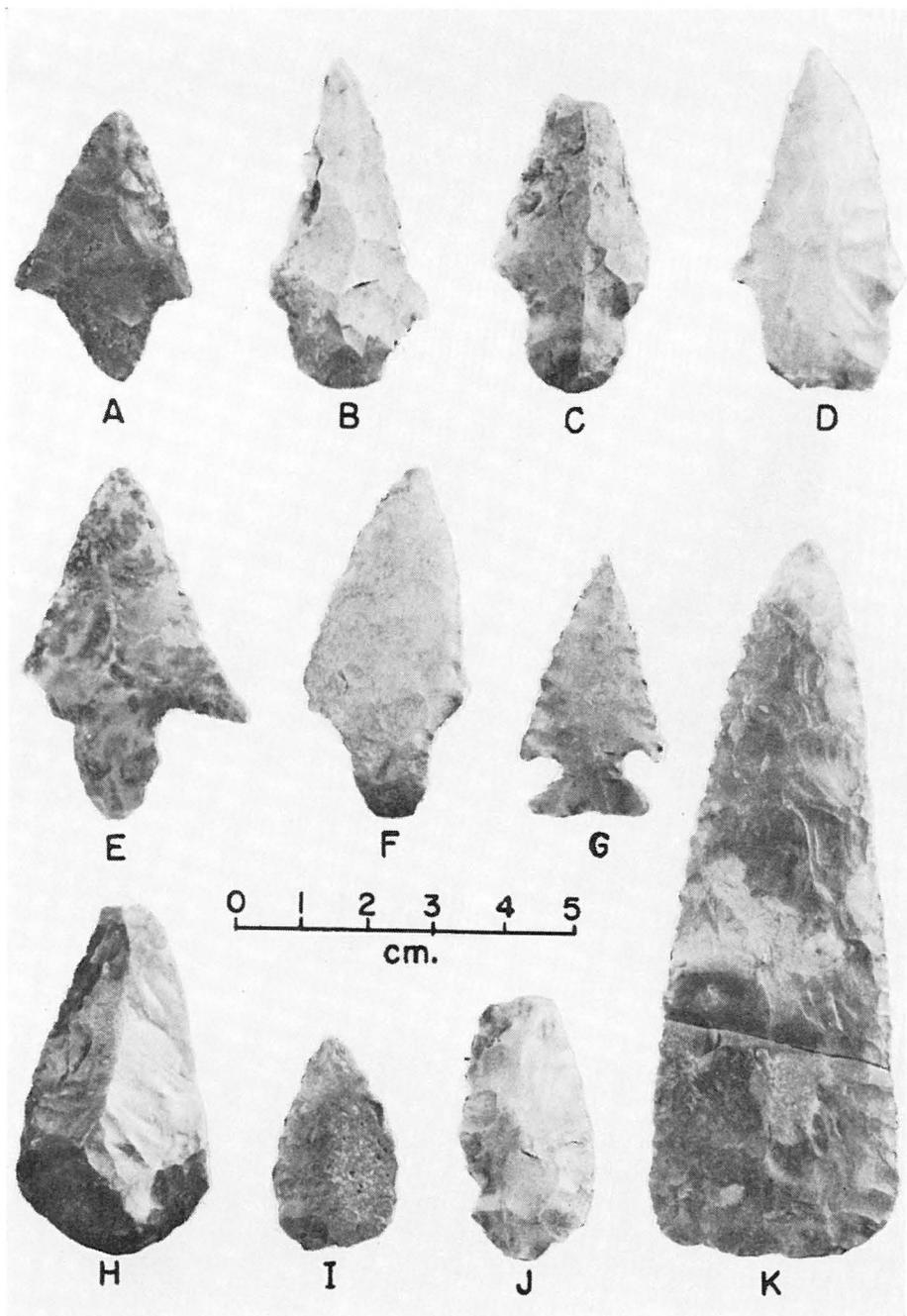


PLATE 39

Examples of chipped-stone artifacts from Albert George Site. A-G, projectile points. H, snub-nosed scraper. I, J, small leaf-shaped projectile points (?). K, knife.





toward the middle of the top or troughed side, so that the width of the top is greater at the ends than it is in the middle. In the same plot, a number of awl-like bone tools were found near the skull of the extended burial, although they could not positively be associated with it. Possibly these awl-like artifacts (not illustrated) were hair fasteners.

#### CACHE OF BONE IMPLEMENTS

In plot VIII a skull was uncovered 18 inches below the surface. In contact with it and slightly lower was a second skull (Plate 35, A). Limb bones were found nearby which probably belonged with one of these skulls (Plate 35, B). About one foot in front of the first skull was a cache of bone artifacts, most of them fragmentary, but a few complete or nearly so. These bones were criss-crossed and tightly matted together in the very hard clay, so that it was impossible to remove them all intact (Plate 35, C). Most of these objects had been badly broken by roots and we were fortunate in getting most of them out without further damage. The cache lay between 12 and 18 inches deep and its proximity to the two skulls suggested it was associated with at least one of them. Whether the two skulls belonged to a double burial, or to separate interments, could not be determined.

Plate 36, A-H shows the eight most complete implements from this cache. The first two specimens are shown enlarged in Plate 37, A, B. In Plate 38, most of the remaining fragmentary specimens are shown, laid in rows which are labeled A to L. The pieces in each row are not necessarily from the same implements, although in some cases they are. The 44 fragments in Plate 38, added to the eight specimens in Plate 36, gives a total of 52 bone objects from this cache. These 44 fragments appear to come from at least 18 different artifacts, which gives a minimum of 26 implements. possibly the actual total is between 30 and 35.

The great majority of these implements are probably made from bison cannon bone, split lengthwise. They are fairly flat, except for the gently convex outer surface of the bone, although a few are rather round in cross-section. It may be supposed that the flat implements (those in Plate

36, A-H, and some of those in Plate 38) were used as awls in weaving such things as plaited mats or baskets. Rounded tips, such as those in rows C, E, and H in Plate 38 suggest flaking tools. The slender pin with flanged head and round cross-section in row G, Plate 38, may have had a distinct function, perhaps that of a hair fastener. At any rate, a variety of uses is indicated by the cache as a whole.

It may be noted that the flat implements are both plain and neatly incised with geometric designs on the outer or convex surface. Eyes appear at the head of both plain and decorated implements, and on both flat and rounded forms, although the majority are not eyed. Plate 36, G has tiny dots alongside the sets of parallel diagonal lines. In a general way, the incised decorations, including dots, are similar to those found on the rim zone of pottery vessels of the type *Goose Creek Incised*.<sup>2</sup> Potsherds from this site also belong to Goose Creek ware, from which an affiliation with the Galveston Bay Focus may be assumed for at least part of the site.<sup>3</sup>

Examples of projectile points, a snub-nosed scraper, and a knife from this site are shown in Plate 39. Sandstone hones have also been found.

As all of our time after finding the cache was devoted to removing it, we decided to search for additional burials at a later date. Meanwhile, the creek bed was dug out and about 20 feet of dirt was piled on top of the site. This was leveled again, and about 3 feet of dirt now covers it. If sufficient interest justifies it, the original plots can be re-located by use of our many photographs which show their relation to the trees in the background.

All photographs used in this report were taken by Mr. E. J. Quinn of Lake Jackson, Texas.

145 Oak Drive,  
Lake Jackson, Texas.

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2. Dee Ann Suhm, Alex D. Krieger, and Edward B. Jelks: *An Introductory Handbook of Texas Archeology* (Plate 72 and pp. 380-382). *Bulletin, Texas Archeological Society*, Vol. 25, 1954.

3. *Idem.*, pp. 128-130.

## RESEARCH IN EAST TEXAS PROJECTILE POINTS

E. W. HAYNER

When the *Introductory Handbook of Texas Archeology* came out, a means was at hand whereby a person could go into the field, and with a reasonable degree of success, place different kinds of projectile points into recognized types.

With the limited amount of work that has been done in East Texas as a guide, and four years experience by the writer in a close study of native Indian artifacts, camp sites, village sites, and mounds, the need for a survey of projectile points in East Texas was clearly indicated.

When the decision to make a survey of projectile-point types was reached, various problems arose to show that a survey was both complicated and difficult. In order to get a truly representative group of points, it would be necessary to find a collection made within a given, limited area, either by one person or by one person with the help of his family, because different people have different ideas about what should and should not be collected. Also, such a group of artifacts must exclude specimens from other areas or states, and no collection should be used which has had any of the larger or more attractive specimens sold out of it.

Much thought and careful planning was given to the preparation of this survey. One purpose was to see if any particular types would prevail over East Texas. Then the area to be covered had to be defined. It was decided to begin the survey in Cass, Marion, Morris, Upshur, Gregg, Harrison, and Panola counties, as they lie in about the center of the Caddo Indian habitation area of East Texas. Also, it was thought that if one good collection could be found in each of these counties, which contained 100 or more projectile points, the percentages of these points could be cal-

culated. A suitable collection was found in each of the counties named, except Panola and Gregg, and two were found in Harrison County.

At the beginning of the survey, a time limit of one day was allowed for each county. This schedule proved to be way off in the time that was actually consumed. A whole day can be used up just in locating a collection, only to find that it has been sold, or that the best and most attractive specimens have been sold, stolen, or given away. It was patience-breaking at times to find so many fine artifacts that were completely useless for this survey. Many days, many dollars, and many hundreds of miles were consumed, but in all fairness, it must be said that the results were worth the cost.

Before beginning, a trip was made to Dallas to compare certain types with Wilson W. Crook, Jr. A few points of the *Carrollton* and *Elam* types are found in East Texas, and there was need to be sure that these are like those found in the Trinity River terraces. It was seen that specimens from East Texas and the Dallas area classified as *Carrollton* and *Elam* are indeed of the same shape, flaking, and stem grinding.

A trip was also made to Shreveport, Louisiana, to confer with Dr. Clarence H. Webb about the *Bulverde* type of point, and mutual agreement reached on how to identify it.

#### CANNON COLLECTION

The collection of A. D. Cannon of Atlanta, Texas, is from the vicinity of Atlanta in Cass County. Mr. Cannon is a farmer and most of his artifacts have been recovered on the surface while plowing, or exposed by rain erosion. He has four of the *Pogo* spear or lance points from a shallow

pottery-bearing grave near Marietta in Cass County. Points in his collection were identified as follows:

Gary .....	54	Fairland .....	3
Ellis .....	21	Morrill .....	3
Pogo .....	19	Paisano (?) .....	3
Edgewood .....	18	Desmuke (?) .....	2
Williams .....	14	Abasolo .....	1
Almagre (?) .....	11	Marshall .....	1
Bulverde .....	11	Pandora .....	1
Lange .....	6	Scottsbluff .....	1
Wells .....	5	Fresno (arrow) .....	1
Marcos .....	4		
		TOTAL .....	179

In addition, there were 14 points which could not be classified or were of unique design. The *Almagre* points in this and the other collections studied might be classified as *Gary* except for their crude workmanship and slight shoulders. The *Paisano* and *Desmuke* points may be of questionable identification because these types properly belong in western and southern Texas, respectively. According to the Handbook, the *San Patrice* type of East Texas and Louisiana may sometimes be confused with *Paisano*, and the *Desmuke* type may at times be hard to distinguish from *Abasolo*, which is much more general in Texas.

The presence of 14 *Williams*, 21 *Ellis*, and 18 *Edgewood* points in a collection this size is out of the ordinary. *Ellis* and *Edgewood* are similar except that *Edgewood* points are somewhat larger than *Ellis*, the bases are broader and concave, and they are usually made of different materials. In every collection examined, the *Ellis* points stand out in superior workmanship, as they are usually made of flint, while other types are of cherts, quartzite, novaculite, petrified wood, etc., as well as flint. The 11 *Bulverde* points in this collection are of a wide variety of materials and are rather crude in workmanship.

## HOWELL COLLECTION

The collection of Franklin Howell of Daingerfield, Texas, is from the area northwest of Daingerfield, in Morris County. All specimens were collected by Mr. Howell from the surface of farm land. The points that can be typed are as follows:

Gary .....	64	Alba (arrow) .....	3
Bulverde .....	30	Fresno (arrow) .....	2
Ellis .....	16	Paisano (?) .....	2
Yarbrough .....	13	San Patrice .....	2
Edgewood .....	12	Denton (Nub Stemmed) .....	1
Pogo .....	10	Darl .....	1
Morrill .....	5	Marshall .....	1
Palmillas .....	5	Meserve .....	1
Wells .....	5	Morhiss .....	1
Fairland .....	4	Tortugas .....	1
Williams .....	4		
		TOTAL .....	183

Several specimens were too indefinite to classify but none are unique. Of the 64 *Gary* points, 40 are small and very much alike. It is the writer's opinion that they could have been used as arrow points just as well as any of the small, thin types classified as "arrow points" in the Handbook. The 16 *Ellis* points would stand out in any collection, as they are so uniform in shape and size that if an outline was drawn for one of them, the others would all fit into the same outline. This group certainly looks like the work of one man.

The 30 *Bulverde* points form an outstanding group in design, material, and workmanship. Their stems are almost exactly alike, with edges parallel to slightly expanding and finely worked. The stems are wedge-shaped in the longitudinal cross-section, being brought to a sharp edge at the base by the removal of a flake on each face of the base. Removal of the basal flakes sometimes left the base slightly concave.

An outstanding feature of this collection is the considerable use made of novaculite for *Gary* and *Bulverde* points. Fully 90 per cent of the specimens in these two types are made of a dark brown novaculite which must have been brought into this area from western Arkansas or eastern Oklahoma, as it does not occur naturally in Texas.

The point identified as *Denton Nub Stemmed* in this collection is the only one encountered by the writer in East Texas.

### KENNEDY COLLECTION

The collection of W. C. Kennedy of Gladewater, Texas, was recovered from about the whole of Upshur County, with a few specimens from Camp County. Mr. Kennedy and his wife have collected for about 20 years, entirely from the surface of cultivated land. This collection contains 1,123 whole projectile points and several hundred fragments. Those typed by the writer gave the following totals:

Bulverde .....	303	Starr (arrow) .....	5
Gary .....	272	Hayes (arrow) .....	4
Lange or Bulverde .....	100	Scottsbluff .....	4
Gary or Almagre .....	50	Pandale .....	3
Pogo .....	35	Kinney .....	2
Ellis .....	34	Angostura .....	1
Yarbrough .....	27	Plainview .....	1
Alba (arrow) .....	9		
Bassett (arrow) .....	5	TOTAL .....	855

When this collection was first seen, so many points appeared to be of the *Bulverde* type that a trip was made to Shreveport to consult Dr. Webb, taking several of the points along. It was agreed that they are of the *Bulverde* type.

A trip was made to Jefferson, Texas, to have the lithic materials identified by Mr. David Flesh, who is a geologist and mineralogist. As in the Howell collection, it was found that large numbers of points of the *Gary* and *Bulverde* types in the Kennedy collection are made of novaculite. Thanks



are due to Mr. Flesh for making this identification under a microscope.

As the specimens in this collection were wired to display boards nailed to the walls of Mr. Kennedy's den, identification of types was very time-consuming. Therefore only the most distinctive types were tabulated and the others passed up. This collection will certainly bear closer investigation. It should be pointed out that about 450 points in this collection are very conspicuous for their rough workmanship, but this only adds to its interest, for it shows that Mr. Kennedy did not discard the more poorly-made objects in favor of the best, as so many other collectors do. It is important to note, too, that Mr. Kennedy has saved broken as well as whole artifacts.

#### LOOMIS COLLECTION

The collection of R. A. Loomis of Jefferson, Texas, was made in the vicinity of Kellyville, about six miles west of Jefferson, in Marion County. All points were recovered from farm land by negro farm hands, who sold or traded them to Mr. Loomis while he was a merchant in Kellyville. Those identified are as follows:

Gary .....	235	Williams .....	10
Bulverde .....	125	Meserve .....	8
Lange .....	76	Fairland .....	7
Palmillas .....	54	Marcos .....	7
Ellis .....	51	Kinney .....	6
Pogo .....	46	Edgewood .....	5
Wells .....	42	Fresno (arrow) .....	5
Ensor .....	30	Angostura .....	5
Scottsbluff .....	21	Clovis .....	3
Kent .....	18	Pedernales .....	2
Yarbrough .....	16	Harrell (arrow) .....	1
Alba (arrow) .....	14		
		TOTAL .....	787

There were about 250 more points in this collection that could not be definitely classified, due to poor material and workmanship. The *Clovis* and *Scottsbluff* points would be outstanding in any collection. The *Meserve* points all appear to have been rechipped from *Clovis* points, as the remains of previous flutings may be seen on them.

The *Gary*, *Lange*, *Ellis*, and *Wells* points are of generally poor workmanship, but the *Yarbrough* examples are of excellent quality. The *Bulverde* are about average. The collection also contains about 30 specimens of unique shapes and excellent pressure flaking.

#### LUTHER COLLECTION

The collection of Mrs. Charles Luther of Karnack, Texas, was made in an area between Karnack and Caddo Lake in Harrison County. It was collected from farm land by farm hands. The types identified are:

Gary .....	37	Carrollton .....	3
Alba (arrow) .....	18	Elam .....	3
Wells .....	14	Marshall .....	3
Ellis .....	10	Morrill .....	3
Almagre or Gary .....	7	Bulverde .....	2
Pogo .....	7	Refugio .....	2
Edgewood .....	5	San Patrice .....	2
Lange .....	5	Abasolo .....	1
Palmillas .....	5	Angostura .....	1
Williams .....	5	Morhiss .....	1
Scottsbluff .....	4		
Yarbrough .....	4	TOTAL .....	142

Many more specimens in this collection are of uncertain type. The three *Carrollton* points are the only ones of this type encountered in the survey. They were taken to Dallas for a comparison with *Carrollton* points recovered from terraces of the Trinity River by the Dallas Archeological Society. Mr. Wilson W. Crook, Jr., considered the points from near Caddo Lake to be the same type as those from the Dallas area.

## LENTZ COLLECTION

This collection was made by Mr. and Mrs. J. F. Lentz of Marshall, Texas, on their farm five miles northwest of Marshall, in Harrison County. All specimens were recovered from the surface by Mr. and Mrs. Lentz, with the help of farm hands. The types identified are as follows:

Gary .....	148	Scallorn (arrow) .....	10
Palmillas .....	73	Edgewood .....	7
Pogo .....	73	Ensor .....	6
Ellis .....	53	Hayes (arrow) .....	6
Bulverde .....	50	Fresno (arrow) .....	5
Lange .....	42	Clovis .....	5
Wells .....	35	Plainview .....	5
Kent .....	34	Scottsbluff .....	5
Bonham (arrow) .....	16	Montell .....	3
Yarbrough .....	16	Williams .....	3
Alba (arrow) .....	15	Morhiss .....	1
Meserve .....	15		
Talco (arrow) .....	12	TOTAL .....	638

One feature of interest in this collection is that it contains 30 points of Pleistocene types from one farm. The *Clovis*, *Plainview*, and *Scottsbluff* types are represented by five specimens each, and the 15 *Meserve* points seem to have been reworked from original *Clovis* and *Plainview* points.

Also, the *Gary*, *Kent*, and *Palmillas* points stand out in that they are almost all of brown chert, and they are the only types in this collection that are almost 100 per cent of this material. The *Palmillas* points present a problem in that their small, bulb-shaped stems grade off into stems like those of the *Kent* and *Gary* types. There is an Archaic site within 50 yards of the writer's camp on the shore of Caddo Lake, also in Harrison County. This site yields flakes, burned rock, a hammerstone, and three *Palmillas* points of brown chert which would fit with ease into the Lentz group. Of the 50 *Bulverde* points in this collection, four or five are

of the same material used for this type in Upshur, Camp, and Morris counties, and perhaps they were made by the same people that lived in that area.

The village site from which this collection was made covers several acres. On the surface there are many potsherds belonging to the Fulton Aspect. There is a real problem in deciding which of the projectile-point types should be associated with Caddo Indians of the Fulton Aspect and which are Archaic. The Pleistocene types must be older than any of the others.

### CONCLUSIONS

For the man who is fortunate enough to make a survey of this kind, there is much pleasure and it is an unforgettable experience. Most people are not able to envision, and will not have the chance to see, the wide variety of materials from which Indian projectile points were made. Also, few people realize what great variety of form and workmanship there is, or can be, within a certain type. This variety and overlapping is readily apparent when collections from different counties are inspected.

One of the original purposes of this survey was to see what types of projectile points predominate in East Texas counties. The tabulations above show that the *Gary* type is most frequent in five of the collections studied, but outside of that, the proportions between types vary greatly from one collection to another.

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**EDITOR'S NOTE:** One of the aims of the *Introductory Handbook of Texas Archeology* was to encourage amateur archeologists to identify types of projectile points and pottery, then tabulate their frequencies by sites or by limited areas. Although I have had no opportunity to see the specimens studied by Mr. Hayner, and would probably differ from him on some of the identifications, I feel that he is to be congratulated on being the first member of this Society to make and report on a survey of this kind. He plans to extend his studies in future articles. (ADK).

## ANOTHER PUEBLOAN TRADE SHERD IN EAST TEXAS

E. W. HAYNER

Five potsherds representing trade from the Puebloan Indians of the Southwest to the Caddo of East Texas have previously been described.<sup>1</sup> They were found in Lamar, Red River, Cass, Franklin, and Shelby counties. The one farthest east, a sherd of *Chupadero Black-on-white* originating in eastern New Mexico, was found in Shelby County, about 30 miles west of the Louisiana border. The other four were of types originating farther west, in the Upper Gila area of western New Mexico, although these types may have spread more widely over southern New Mexico before trade with the Caddo Indians began. In New Mexico, all five sherds would fall within the general period of 1200 to 1500 A. D. In East Texas, three of the five, including the *Chupadero*, came from sites assigned to the Titus Focus, Fulton Aspect, but the association of the other two was not determined. The Titus Focus has also been estimated to have existed during part or all of the time between 1200 and 1500 A. D.

This report deals with a sixth Puebloan trade sherd in the Caddo area. It was found in the spring of 1951, catalogued as No. 4-L.3, and placed in storage, where it remained until May, 1955, when Dr. Krieger briefly visited my base camp on Caddo Lake. He became very interested in this sherd, thinking it might be from the Pueblo culture, and that if so, it would be farther east than any of the others.

It was Krieger's suggestion that the sherd should be sent first to Dr. James B. Griffin, director of the Ceramic Repository of the University of Michigan, to see whether it might belong to any known type in the Eastern United States. However, Dr. Griffin was unable to identify it. Krieger then suggested I send it to Mr. Stanley Stubbs,

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1. Alex D. Krieger: *Culture Complexes and Chronology in Northern Texas*, pp. 207-208 and Plate 6, J-N. University of Texas Publication 4640. Austin, 1946.

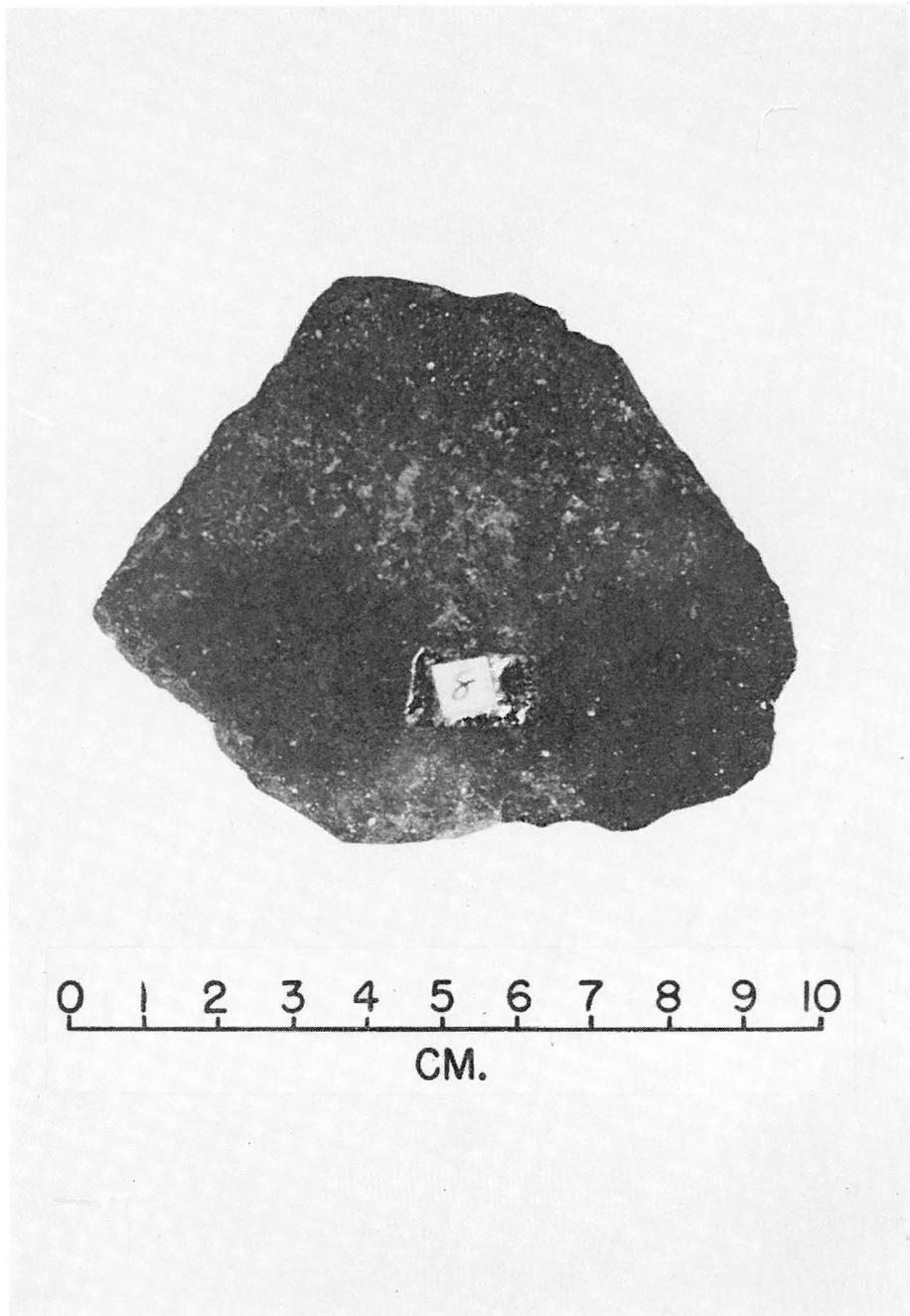


PLATE 40

Mogollon brownware sherd found in Harrison County, East Texas.



Laboratory of Anthropology, Santa Fe, New Mexico, a noted authority on Southwestern pottery types. Fortunately, Stubbs was able to report on it as follows:

“After comparing your sherd with many examples in our collections, I would be inclined to place it as coming from central Arizona in the general Salt River—Tonto Creek area. The type is variously named, but fits in the Mogollon brownware series, often called ‘undifferentiated brownware’. The only trouble is that the series covers a rather long time span—at least 500 years—and regional extensions. It would be difficult to pin it down to any exact date. Your sherd has a little better finish than the average from the Tonto area, but it is not extreme. It was finished by the paddle-and-anvil method, and the temper is also characteristic of many of the brownware specimens from that area. My guess is: this sherd is Mogollon brownware from the Tonto area of Arizona. Charlie Steen of the National Park Service office in Santa Fe, who has done considerable work in that region, also feels that the sherd is Mogollon.” (Letter received in October, 1955).

The sherd is shown full size in Plate 40. It measures 9.5 cm. long, 8 cm. wide, and 1.4 cm. thick. It was found on an archeological site on the south shore of Caddo Lake, on land formerly owned by the writer and now owned by Curtis Roark.

The site is in Harrison County, about two miles from the Louisiana border. The Mogollon sherd is therefore farther east than any of the five described by Krieger, and its source area is also farther west, in Arizona rather than New Mexico. The straight-line distance between Caddo Lake and the Tonto basin is between 950 and 1,000 miles, but any practicable route of travel between the two areas would have been at least 1,200 miles. This is a long way for Indian trade goods to travel. However, the writer has a celt found in East Texas which is made of basalt granite which occurs at



only two places in the United States: in Idaho and Massachusetts.

The site from which the Mogollon sherd came is a small sandy "pimple mound" about 150 yards from the present shore of the lake. It has so far yielded only five other artifacts: a pitstone of brown flint; a combined mano and pitstone of native sandstone; a mano of gray granite; and a small square block of native sandstone with a groove cut around it by which it could have been hafted and used as a weapon. The site has not yet produced any flint chips or other pottery, which indicates it might belong to the Archaic Stage. However, it has not been completely explored.

If this site is really Archaic, we may be wrong in supposing the Mogollon sherd was traded to the Caddo Indians, for Caddoan culture in East Texas can only be proved with the appearance of pottery and other distinctive artifacts of the Gibson and Fulton Aspects. It must be pointed out that only a quarter of a mile south of this site there is a large mound which does have Fulton Aspect pottery on its top. It may be possible that pre-Caddoan people brought trade material into East Texas from the Southwest, but as of this date this question cannot be definitely answered.

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# SURFACE POINTS FROM THE BADLANDS OF THE UPPER WESTERN CROSS TIMBERS OF TEXAS

ADOLPH HENRY WITTE

The Western Cross Timbers extend in a narrow belt from the Brazos River northward across Red River and into Oklahoma. The width is variable; it is less than 20 miles in the vicinity of Red River. The terrain, to a depth of several hundred feet is sandy with erratic clay seams and gravel concentrations. These are the well known Trinity Sands, named by Dr. R. T. Hill. They once were also known as the Dinosaur Sands. Wieland, the paleobotanist said in describing their Early Cretaceous Age: "The Trinity was a flat, subsident river and bayou, Cycad-Dinosaur-Conifer Forest land swept by the edges of the sea."

The following Texas counties lie more or less within the upper Western Cross Timbers: Clay, Jack, Montague, Cook, Wise, Parker, Hood, Somervell, and Palo Pinto. In the 1850's the region was covered by an open, scattered hardwood forest according to reports of the first American settlers. One informant was of the firm opinion that the Indians purposely set fire to the grass and underbrush at regular intervals and this accounted for the "open" condition of the timber.

The following historical notes from various apparently authentic sources establish some of the final dates when Indians were known to have been in the area. From one narrative, Henry Braden was perhaps the first white man to settle permanently. He built a log cabin on Denton Creek in 1854. It has been reported that other settlers arrived the same year.

The Butterfield Stage came along with the first passengers in 1858 and established a station near Queen's Peak. Sul Ross fought the Comanches in 1860 on Mule Creek, near the Pease River. Also in the same year, a wagon train under the direction of Dr. Albert Eldridge arrived in Montague village. This band of settlers was bound for the Little Wichita

River to the west and planned a settlement. They were warned positively not to continue. The Indians were exceedingly hostile to the west. Disregarding the information, they continued westward. Disaster soon followed as several members of the little party were murdered by Indians. The remnant of the party was forced to return eastward. In 1872, after the Civil War, Dr. Albert Eldridge and party returned and established residence within the area as planned in 1860. In 1866, Bianca Babb, age 13, her brother Dot Babb, 15, and Mrs. Luster were seized by the Comanches, 12 miles west of present-day Decatur. The mother, Mrs. John S. Babb was murdered on the spot. A Kiowa Chief, White Horse, was tried in the District Court in Henrietta by Judge Lindsey of Gainsville in 1874. White Horse was accused of murdering a settler by the name of Koozier and taking his wife and children to the Wichita Mountains in Oklahoma. The verdict of the court is not known to this writer. Years later, on April 13, 1879 a small wagon train was attacked in Hardeman County and Joseph Earle was murdered and scalped by a band of Kiowas. The Indians definitely did not leave this part of the state without a lot of resistance and bloodshed.

Here in brief is the next cycle of events involving the frontier settlers of the Upper Cross Timbers. Unrestricted hunting soon removed almost all of the vast herds of deer and other wildlife. The plow and overgrazing largely destroyed the lavish grasses and plantlife which protected the unstable soils from erosion. Soil conservation practices as we know them were not practiced and this speeded the terrible, creeping erosion. Geologically, the whole area is "wrong" and was never suitable for cultivation except in limited patches. During the less than one hundred years of cultivation, fantastic and unbelievable badlands formed across thousands of acres of cultivated lands. Gulleys with sheer vertical walls, 50 to 100 feet in depth became commonplace. The end result of the ever spreading, coalescing, badland topography was ruin and poverty for the settlers and their civilization. Wholesale abandonment of the farms came

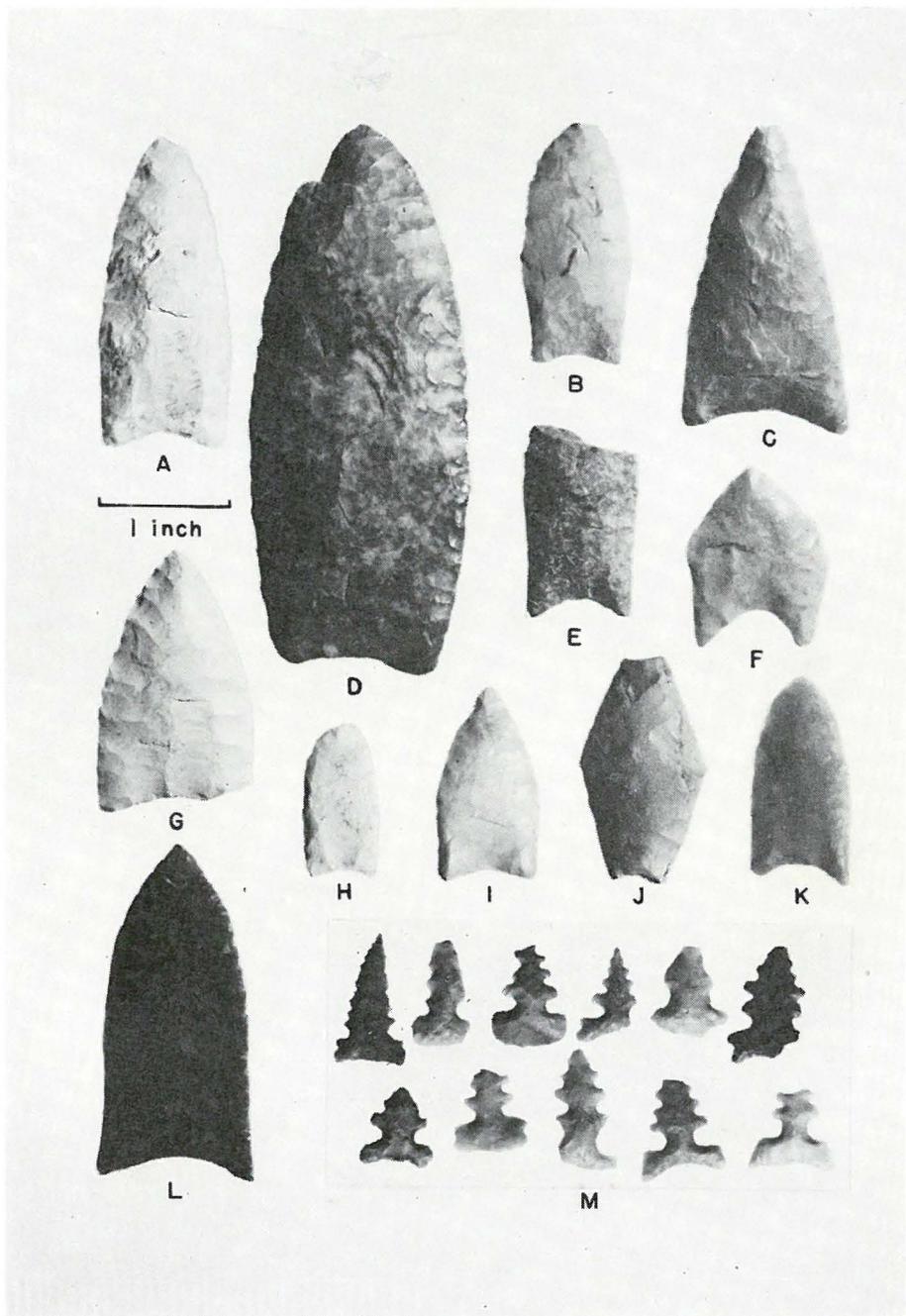


PLATE 41

A-L, examples of Paleo-American projectile points from upper Western Cross Timbers, fluted and unfluted. M, multiple-notched arrow points from site on Farmer's Creek.



next. At present abandoned homes, farms, and ghost towns are to be seen throughout the area.

As could be expected, many, many archeological resources were destroyed and uncovered by this enormous erosional cycle. The writer has long been interested in just what might be salvaged from these badlands. Intermittent explorations for a number of years resulted in a considerable collection of flint artifacts. An analysis of types found include about 50 points belonging to the Paleo-American Stage (Plate 41, A-L). These possibly are Clovis, Folsom, Plainview, Angostura, and some obviously reworked specimens which seem to fall into the Meserve category.<sup>1</sup>

The highly eroded ridges between valleys seem to be the best place to search for Paleo-American artifacts. Dissected stream terraces are the next best bet. All the points found were on the surface and no concentrations were observed. Fluted points, largely incomplete, are fairly common. Some of these have only short lengthwise flakes removed from each face. In my past experience, short flutes are not typical of the High Plains Folsom points, but rather of the larger Clovis type. Poor grades of chert and even quartzite were utilized at times in the Trinity Sand area. This might be the explanation rather than lack of skill, as some archeologists have suggested. A number of fossil elephant remains were found. In the future, *in situ* finds in association with typical fauna of the Clovis or Folsom periods can be expected.

Complete Scottsbluff points are rare. Some incomplete fragments might well belong.

Where sand dunes of appreciable geological age have been examined, they usually contain traces of Indian occupation. No complete artifacts were found in these ancient dunes.

One large sandy stream terrace on Farmer's Creek proved

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1. Culture stages and projectile-point type names coincide, as far as could be determined, with those used by Suhm, Krieger, and Jelks (1954).

of interest. The elevation is above the present flood level in the valley. A series of dart points and arrowheads was collected from the plowed surface. Certain artifacts are of common types found elsewhere in Texas. Especially common are Gary, Darl, Ellis, Elam, Carrollton, and a Pedernales point or two. One incomplete fluted point comes from this Farmer's Creek terrace. Another fluted point was reworked into a Pedernales.

Projectile-point types of the Henrietta Focus are common: Harrell, Hayes, Fresno, Bonham and overlapping forms. No pottery has been found. However, Nocona Plain invariably is found in Henrietta Focus sites. No doubt it was overlooked here. Gary points usually show up on the surface of middens where Henrietta Focus items are concentrated. While the association is persistent, they are not found in large numbers. Gary points also have been found in considerable numbers on the surface of sites within the Trinity River drainage in Wise and Montague Counties. Henrietta Focus items are almost nonexistent in that immediate area.

Returning to the Farmer's Creek terrace in the Red River drainage pattern, near the west end of the site a handful of extremely small arrowheads was picked up. These little creations in stone represent about the extreme that could be accomplished in flaking and notching (Plate 41, M). They may be reworked Harrell points. Items of this type have been collected in certain sites in the Little Wichita River drainage. Likely, in this area, they are traces of a small group of Indians who briefly occupied in late times some of the same sites as did the Henrietta Focus people.

Various types of core tools have been noted. These include choppers, large and small, turtleback scrapers, gouges, and scrapers of many other shapes and sizes. Thick, leaf-shaped points without notches, and numerous utilized flakes, spalls, etc., have also been found.

Flint resources were ample in the Trinity Sand region. They include a fine white sugar-like conglomerate from the base of the sands, also chalcedony ledges and pebbles. These

highly polished pebbles are apparently re-worked siliceous items from the Paleozoic.

In the Historic Stage, the highly interesting Spanish Fort site lies on the edge of the Cross Timbers area under discussion. Suhm, Krieger, and Jelks (1954, pp. 92-98) have recently traced the history of this site and given an outline of the kinds of material found there.

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Henrietta, Texas



## AN HISTORIC INDIAN CACHE IN CLAY COUNTY

DELEVAN WORSHAM OZEE

In September 1949 my two brothers Will and John, and I, were exploring an eroded badland area 6 miles west of Henrietta and ½ mile north of Turkey Creek. Will observed a concentration of glass and shell beads eroding from a spot about 4 feet above the base of a 50-foot escarpment. There were fragments of cloth and bits of animal pelt with brown hair which suggested a buffalo robe or garment. A round silver buckle was found, 2½ inches in diameter, and nine brass or copper buttons, badly corroded but perhaps round in shape originally (Plate 42). Cloth impressions indicate that the buttons may once have been cloth-covered. There was also one ounce of powdered cinnabar and some small cinnabar ore fragments.

On subsequent visits we were able to collect additional quantities of loose beads in the soil. The final tally was as follows: six tubular shell beads made from conch-shell columnellae, about 4 inches long; 12 extra large blue glass beads; 700 medium-size glass beads, blue, white, and variegated; 3,396 small round glass beads, mostly white, with some blue and a few red; several faceted glass beads (Plate 42).

No bones of any sort were discovered. No stones were near this particular spot. If our find was once a stone-covered grave, the stones had slumped far down the slope.

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Henrietta, Texas

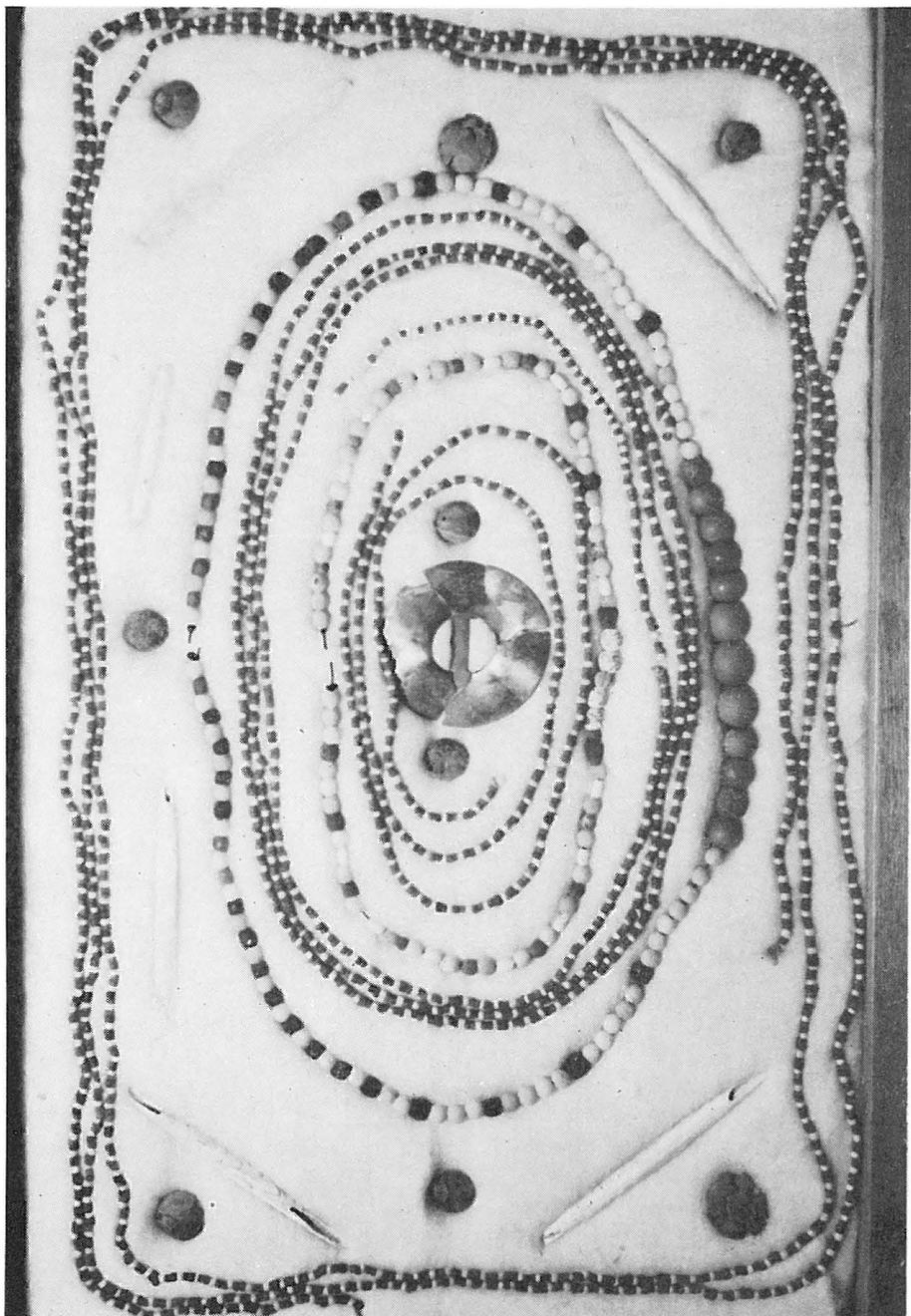


PLATE 42

Objects from historic cache in Clay County. The silver buckle,  $2\frac{1}{2}$  inches in diameter, is in center. Nine brass or copper buttons are dispersed as follows: three near left edge, three near right edge, one at top center, and two adjacent to buckle. Six tubular shell beads appear: four set diagonally inside the four corners, and two horizontally at top. Twelve extra large blue glass beads appear in lower center, while dark, faceted, beads are interspaced between plain white ones on the same string.



# COMMENTS CONCERNING THE EAST TEXAS SECTION OF "AN INTRODUCTORY HAND- BOOK OF TEXAS ARCHEOLOGY"<sup>1</sup>

CLARENCE H. WEBB

The usefulness of this volume to present and future students of archeology should repay, many times over, the hard work and headaches associated with its compilation and the patience of the Society's members in awaiting its publication. If it sets a pattern for similar handbooks in other areas, as the authors hopefully anticipate, its values will be multiplied. The members of the Texas Archeological Society should feel proud that the Society's editor and members have produced this badly-needed summary of culture complexes and artifact types presently recognized in the state, with the full realization that incomplete information and differences of opinion may precipitate some adverse criticism. The authors anticipate this by regarding the Handbook as introductory; they invite critical comparisons and the reporting of local artifact analyses. In the light of this invitation and at the specific request of the editor, these comments are offered.

East Texas, stated by the authors to be a uniform geographic province which is distinct from other sections of the state, is closely related in its physiography and archeology to those portions of Louisiana, Arkansas and Oklahoma which are included in the "Caddoan Area". This area is transected by the Red River, with its fertile valley and numerous tributaries, the historic center of the Caddoan Confederation and the chief nucleus of Caddoan prehistoric development. As the details of cultural development in this nuclear zone are more completely defined, the peripheral zones and secondary nuclei will fall into clearer perspective.

It has been my good fortune to work in this zone along Red River for 20 years, to study Caddoan culture from

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1. Volume 25, Bulletin of the Texas Archeological Society, 1954 (issued August, 1955).

Gahagan Focus, late Alto and Haley Foci, through Bossier, Belcher and finally the historic Glendora Focus; to visit all of the "Caddoan Area", maintaining contact with professional and amateur archeologists; and to see all of the major Caddoan collections. The authors of the Handbook were kind in referring to my efforts, but credit should also go to the dozens of amateurs in the four-state area who know their localities, who keep good records, and who make their collections freely available to all who are interested: Neild, Williamson, Todd, Fulton, Beckman and Dodd in Louisiana; Lemley, Miroir, Dr. and Mrs. Hodges, Soday, Proctor and Huddleston in Arkansas; Harris and his associates in Dallas, to mention only a few whom I have known. All of these would join me in expressing the appreciation of the amateur in Texas and the Caddoan Area to the professional archeologists for the splendid working relationship which exists, which has given vitality to the Texas Archeological Society and the Caddoan Conferences, and which is reflected in this Handbook by the masses of data and artifacts out of which the authors have produced a masterful ordering of cultures and types.

As one of these amateurs, I ask forgiveness of the reader for taking this time and space to thank the Anthropology staffs of the four state universities, and the other archeologists who have worked in this area, for helping to make our avocation a search for truth as well as an enduring pleasure; especially would I express gratitude to Alex Krieger for the stimulating experience of cooperative endeavor and friendly discussion (whether or not we agreed) through many years. Major differences of opinion or observation exhibited herein have been discussed with him and he has urged that they be expressed, particularly the clarification about mound-building along the Red River.

Discussion will follow the sequence of publication in the Handbook section on East Texas and the subsequent related typologies. Page and plate numbers refer to those in the Handbook.

## ADDITIONAL NOTES ON STAGES

**PALEO-AMERICAN STAGE:** In Northwest Louisiana, as in East Texas, this stage is known by scattered occurrences of specific projectile-point types, mainly in certain upland areas, but no real sites have been identified. The *Scottsbluff* type outnumbers all others combined, with probably 100 of these in various collections. *Plainview*, *Meserve* and *Clovis* points are represented and a few small fluted points which seem to meet the criteria of *Folsom* projectiles are known.

**ARCHAIC STAGE:** The authors mention our brief review of this stage in North Louisiana; the important Poverty Point culture has been clarified by recent excavations of Ford and his co-workers in Mississippi and at the type site in Louisiana. A more comprehensive report of Poverty Point will be published shortly; the presence of a dozen fiber-tempered pottery sherds in the excavations demonstrates the late Archaic to Transitional position of this culture and three Carbon-14 datings range between 400 and 800 B. C. This has some bearing on the Texas Archaic Stage in that some of the East Texas artifact types are represented at Poverty Point.

Apart from plummet stones, stone beads, pendants and two-hole gorgets at Poverty Point, polished-stone artifacts are infrequent in North Louisiana, seemingly less numerous than in southern Arkansas but more numerous than in East Texas. This suggests a southwestward movement of these traits, with Northwest Louisiana and East Texas remaining fringe areas.

Projectile and scraper types which are presumed to be Archaic occur in the Bellevue and early Caddoan pottery horizons in Northwest Louisiana, appearing as late as Bossier Focus in sufficient numbers to suggest the same kind of late Archaic survival which is assumed to have occurred in East Texas. The most numerous dart points in Northwest Louisiana are the *Gary* and *Ellis* types, with some representation of others mentioned for East Texas: *Yarborough*,

*Wells, Kent, Morrill, Trinity, Carrollton, Elam, Palmillas, Bulverde, Williams, Lange and Ensor* points have been recognized. Stemmed projectiles with notched or concave bases, as seen in the *Uvalde, Pedernales, Martindale* and *Montell* types are practically non-existent. It has been established that *San Patrice* type extends into Arkansas as far north as the Arkansas River.

The authors' suggestion that the tentative *Pogo* spear-point type may have to be subdivided is borne out at the Poverty Point site, where many large projectiles occur. Typical *Gary* points occur there in respectable numbers, with an unbroken range of length from 3 to 11 cm. Those above 8 cm. in length show no features other than size which differentiate them from the smaller. The large sampling of over 1,000 projectiles from this site in local collections shows the same tendency to extend the limits of size in several other types to 10-12 cm.; any limitation of type size appears arbitrary rather than factual.

**NEO-AMERICAN STAGE:** Northwest Louisiana seems to differ from East Texas in having a burial-mound and pottery-making horizon on a pre-Caddoan time level, apparently contemporaneous with the Marksville period. First recognized by Fulton at the Bellevue site (Volume 24 of this Bulletin, 1953), this complex has been extended by subsequent excavations in two similar hilltop mounds in Bossier Parish and is thought to cover a wider range of territory. Search for this cultural expression in East Texas along the Sabine drainage might be productive.

Krieger's concept (in 1943) of grouping Caddoan Area foci into Gibson and Fulton Aspects has held up remarkably well throughout the area, with addition of the other foci mentioned in the Handbook. In the Red River culture nucleus, however, the dichotomy between these Aspects is not as sharp and the most striking contrast occurs within the Fulton Aspect itself—that is, between Belcher-Texas-McCurtain and the historic contact foci (Glendora and the possible Hunt Focus mentioned by Krieger). The

latter possibly represent the beginnings of what would have been a third "Aspect", differing from Fulton in the full advent of shell tempering, increased frequency of effigy forms and red slip, distinctive changes in pottery types, complete loss of the mound building trait, disappearance of cultism and dropping off of evidences of a strong caste system, sacrifice burials and burial ceremonialism.

Little direct evidence concerning temporal alignment of Caddoan foci with the lower Mississippi sequence is available until the Plaquemine period in Louisiana, when trade relationships equate this period with the Bossier and Belcher Foci. Small pointed-stem projectiles very similar to the *Bassett* and *Perdiz* types were found with Plaquemine burials at the Sanson site, as were sherds of *Cowhide Stamped* pottery. The pottery type *Maddox Engraved* is common to Bossier and Plaquemine and a sherd of *Evangeline Interior Engraved* was found on a Belcher Focus house floor at the Belcher site.

Haley Focus house patterns at the Belcher site include a rectangular house with wall trenches, projecting entrance and no roof supports; also a small circular house with eight roof supports and an extended entrance. Large decorated pottery platform pipes (also at Haley site, illustrated by Moore) and a bone gorget from the Haley level at Belcher should be included in the Haley Focus trait list (pp. 171-175).

Bossier Focus sites in Louisiana are found also in Bossier, Webster, Claiborne, Bienville and Lincoln Parishes. Surface surveys indicate that this focus extends into southern Arkansas, as far as the Ouachita River. The hilltop mounds quoted by the authors from my prior publication as a Bossier trait are now thought to belong to the Bellevue complex, although some occur near or adjacent to Bossier sites. Subject to further clarification, they should be removed from Bossier trait lists (pp. 196-199).



## BELCHER FOCUS TRAIT LIST

The Belcher Focus trait list (pp. 199-203) is expanded by excavations at the type site, completed this year and not made available to the Handbook authors. Complete information will be available in the report, now submitted for publication, but the following changes or additions to the traits listed in the Handbook should be noted:

## HOUSES:

Regularly spaced roof supports, eight per house.

Multiple fire beds in spaces between roof supports.

Whole vessels and numerous sherds, up to 4,000, on house floors.

Destruction of houses by burning.

## EARTHWORKS:

Single or multiple mounds (present on most known sites of this Focus in Louisiana and Arkansas).

Mound construction and accretion to previous mounds.

Mound accretion often in stages, following covering of burned structures.

Mounds combine platform and burial purposes.

Mounds circular or elongate in shape, often with terraces.

## LIVELIHOOD:

Add aquatic foods—fish, turtle.

## CERAMIC TRAITS:

Pottery types: add *Karnack Brushed* and *Keno Trail-ed* as minor types; change name *Belcher Plain* to *Briarfield Plain*.

Temper: Bone temper in 1 to 3% of vessels and sherds. Shell temper frequent in *Karnack Brushed*.

Features: vessels relatively thin-walled; dark surface color very frequent; compound vessels and varying

combinations of decorative technics or motifs; tendency to cover most of vessel surface with decoration; plain vessels infrequent; miniature vessels frequent, especially with children's burials; selectivity in choice of burial vessels.

ARTIFACTS OF SHELL:

Mussel shells with serrated or notched edges.  
Small mussel shells, perforated (ornaments?).  
Olivella shell bead.

ARTIFACTS OF BONE AND ANTLER:

Deer ulna awls.  
Bone chisel.  
Deer mandibles, used as corn shellers (?).  
Antler drift.  
"Napkin-ring" bone ear ornaments.  
Decorated bone discs.

MISCELLANEOUS TRAITS:

Pearl beads.

BURIAL CUSTOMS:

Burials in pits dug through ruins of burned houses.  
Possible immolation: evidence of paramount individual in each burial group.  
Parallel placement of burial pits.  
Heads of burials directed south or southeast.  
Bundle burial.  
Yellow or white sand on some burial-pit floors.  
Separate or "trophy" skull with burial.  
Food evidences frequent in burial pits.  
Masses of green pigment in vessels or near bodies.  
Smearing of burial vessels with green or white pigment.  
Groups of inlays and ceremonial or "cult" objects with burials.

## RELATIONS:

*Belcher Ridged, Pease Brushed-Incised, Maddox and Glassell Engraved* pottery types shared with Bossier Focus.

*Simms Engraved* as trade from Texarkana Focus.

*Wilder Engraved* as trade from Titus Focus.

*Evangeline Interior Engraved* from Plaquemine complex.

Polychrome vessels (Foster site) probably Mississippian; *Ranch Incised* and *Parkin Punctated* sherds at Belcher site.

*Belcher Engraved* type in McCurtain Focus.

*Cowhide Stamped* sherds and projectiles similar to *Bassett* type in Plaquemine (Sanson site).

Large *Hempstead* type bottles shared with Texarkana Focus; possibly a survival from Haley Focus.

## MOUND BUILDING IN FULTON ASPECT

Further explanation of mound-building versus mound-using in Belcher Focus times is in order. Our discussions had given Krieger the impression that initial mound building at the Belcher site occurred during the Haley occupation, with increments during Bossier and Belcher periods, comparable with the situation at the Hatchel site in Bowie County, Texas, where an initial Haley mound was enlarged during the Texarkana occupation. At Belcher the Haley occupation was pre-mound and ended with burning of two structures which we found *beneath* Mounds A and B. The ruins of these buildings were then covered with irregular masses of soil. Layers of water-laid sand and thin occupation debris layers indicated that some time passed before the ruins were covered with more soil, which was levelled off after about 2 feet high, and houses built. In the instance of Mound B, two houses were constructed and used by Bossier people; the house on the primary mound of Mound A was used by Belcher Focus people and all subsequent construction of both mounds, which finally produced an elon-

gate mound with Mound A reaching a total of 10-12 feet in height and the platform B 8 feet in height, was by Belcher Focus people. Two occupation levels of Belcher Focus were found in each mound above the primary stages.

Mounds were present at the Foster, Friday, McClure, Jones and Moore sites in Southwest Arkansas from which Moore illustrated typical Belcher pottery, much of which came from mound burials. His report indicates in several instances that these mounds were similar to the Belcher mound, but evidence as to antecedent Haley occupation is lacking. At the Battle and Crenshaw mound sites, Haley occupation preceded that of Belcher and Texarkana Focus and there is doubt that any mound construction at Crenshaw can be attributed to these later people. The Battle excavations have not been reported, but apparently initial mound construction occurred during Haley times, with considerable portions of the huge mound added by Bossier and Belcher peoples.

It therefore appears that the Red River nuclear zone affords an exception to the general rule that mound building in the Caddoan Area ceased after Gibson times. The peoples of Belcher Focus carried on the tradition of mound building and usage for temple substructures, just as they carried on in some degree the traditions of deep and multiple burials, placement of multiple offerings, possible immolation, ceremonial temple burning, various items of cultism and other "high church" traits. There is evidence that a lesser degree of mound construction and ceremonialism also existed in Texarkana and McCurtain Foci, but the Belcher Focus people were the chief and almost sole heirs of the intense ceremonialism which prevailed during Gibson Aspect times.

#### POTTERY TYPES

*Belcher Engraved.* Moore suggested cosmic symbolism in these designs, including the 4-node quadration, presence of the cross or swastika or triskele centering the concentric circles, and possible sun-and-ray symbols. No flower or

plant patterns have been recognized in Caddoan decorations, hence it may be preferable to substitute "cosmic symbols" for the words "flower or star-like elements" in the design description. Quadrating nodes appear on the lip of small vessels like Plate 5E, only on the angulated shoulders of flat bowls like B, F-I.

*Cowhide Stamped.* Plate 13, L has stamped instead of incised cross lines filling the rim bands. Plate 20, K has similarly stamped bands and should be included in *Cowhide Stamped* type. Plates 13 and 20 show the close relationship between *Cowhide Stamped* and *Foster* types.

*Fulton Aspect Rattle Bowls and Noded Bowls.* The type name *Moore Noded* has been applied to clay-tempered noded bowls by Howard in Arkansas and is used in our Belcher manuscript. This contrasts with type *Fortune Noded* of Phillips, Ford and Griffin, which is shell-tempered.

*Glassell Engraved.* This should be considered a tentative type which needs more definition. I have applied it at Belcher only to bowls like Plate 25, E, G, H, J-M, which show rectilinear designs which may be derived from Krieger's "stepped designs" of the Davis site report. The rectilinear "stepped design" concept occurs in the Southwest, in the Plaquemine complex (type *L'Eau Noir*), in Moundville pottery and on the rims of *Natchitoches Engraved* bowls in Glendora Focus. Krieger and I agree that Plate 25, N is an atypical *Natchitoches Engraved* bowl. The eventual correct placement of bottles A-C, I is uncertain.

*Hempstead Engraved.* By mutual agreement, some very large bottles found in Texarkana, Belcher and Haley Foci, decorated only with encircling engraved line and pendant triangles at the base of the spout, are to be added to this type.

*Hodges Engraved.* Red filming of this type also occurs rarely at the Belcher site in Louisiana.

*Military Road Incised.* The original type was set up by Dr. and Mrs. Hodges and myself to incorporate only vessels like Plate 48, A-C, E which had fields of incising or

brushing separated by meandering or undulating bands of punctations or dentate stamping. This made a characteristic type, found abundantly in Mid-Ouachita Focus. Vessels with decorations like Plate 48, D, F-I occur also in Bossier Focus and the Plaquemine complex in Louisiana and have been considered variants of *Dunkin* or *Manchac Incised*. In a recent letter, Krieger has agreed to exclude Plate 48, D, F-I from *Military Road Incised*, limiting the latter to the original conception.

*Pease Brushed-Incised*. In Haley and Bossier Focus pottery in Arkansas, and in the Plaquemine of Louisiana at the Sanson site, the panels of *Pease* vessels are nearly always outlined by horizontal rows of punctates, as seen on the high rims of several vessels in Plate 53. The panels are nearly always vertical on Bossier vessels or sherds from Louisiana, as in Plate 53, J. Either arrangement should be acceptable for the type, with recognition of local variations.

*Taylor Engraved*. The vessels shown in Plate 65, M and 66 D, E must have been placed in this type from photographs, because of the scroll motif similar to that of *Taylor*. These are from the Belcher site and, with a fourth small jar which is decorated with arcs or "fish hook" figures similar to 66 E, are classified in our report as *Keno Trailed type*. This type is infrequent in Belcher Focus and we examined these vessels very carefully; since publication of the Handbook they have been re-examined. There is no question about the technique; they are not engraved but are "trailed" with the same smooth drag-incising of a blunt tool which is seen in *Keno Trailed* from Glendora, Keno, Mid-Ouachita and Natchitoches sites. Jar and bottle forms, extended bases, and short necks are seen in both *Keno* and *Taylor* types; scrolls, volutes and spirals may be seen in both types; and therefore it would appear that the decisive criterion between them must be the decoration technique, for which reason the vessels in Plates 65, M and 66 D, E have been placed in *Keno Trailed* in our report. As sometimes happens, they represent a combination of features from two distinct types.

*Smithport Plain.* Also includes plain vessels from Louisiana Alto Focus sites, with tapered-spout bottles somewhat resembling those of *Holly* and *Hickory Fine Engraved* in shape, although thicker-walled and made of lighter colored wares.

*Wilkinson Punctated.* Continues to be a useful type in Louisiana, since whole vessels and rim sherds are found from many sites which have fingernail punctations extending to the rim as the sole decoration. However, pottery should not be classed as *Wilkinson* unless large enough parts are present to prove that both rim and body were covered with fingernail punctates. Plate 70, H, I, illustrates vessels which we would so classify.

#### PROJECTILE-POINT TYPES

*Alba* Points. Confusion has arisen in that Ford and Cotter, in publications concerning Coles Creek and Plaquemine sites, have included in *Alba* type those projectiles with blades like *Alba* but with expanded stems — projectiles which Ford originally described as “fir-tree” in shape. Krieger and I have confined the *Alba* type to those projectiles which have a rectangular stem, as shown in Plate 126, A-C. Both types occur in Louisiana and were found together in Gahagan burial pits, where the rectangular-stemmed *Alba* points exceeded all other projectiles combined. In Central Louisiana, the expanded stem becomes more frequent. A similar type, the *Scallorn* point (Plate 132, A-C) is common in Central Texas and some of them are identical to the Louisiana points Ford originally described as “fir-tree” in shape. Krieger states that this form is rare in the intervening area of East Texas. It would seem desirable, with these differences in distribution, to confine the *Alba* type to those with more or less rectangular stems; to use the name *Scallorn* for the majority of examples in Plate 132 which have expanded stems and sufficient side notching to produce straight shoulders (rare or non-existent in Louisiana); and to set up a new type for those with expanded stems, long barbs and tendency to

concave or recurved blade edges. Related types would be the *Hayes* points of Haley Focus, which have diamond or lozenge-shaped stems, and another projectile of Central and Northern Louisiana, which has wide shoulders, long and wide barbs, convex bases and basal notching.

It has been a pleasure to read and review this Handbook; it has already been and will continue to be a useful tool. Congratulations are herewith extended to the authors for completion of a fine volume and to the printers for their part in producing this superbly illustrated book.

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COMMENTS CONCERNING SOME TYPE  
NAMES IN "AN INTRODUCTORY  
HANDBOOK OF TEXAS  
ARCHEOLOGY"

CYRUS N. RAY

This cloth-bound volume of 582 pages and 134 plates is well edited, well printed and proof-read, and the pictures are well done. This is the largest and evidently the most expensive volume so far issued by the Texas Archeological Society.

The introduction by Alex Krieger is excellent, the reasoning logical, and the quality of his writing is far above that of the usual professional archeologists, who frequently lack clarity and sometimes forthrightness of expression. We consider the introduction to be the best-written part of the book.

The most unfortunate feature of the book is that so many of the classifications adopt Kelley's re-namings of the work of others who had spent many years in making the basic discoveries. Thus, many of the Handbook plates and type descriptions show an absence of citations directing attention to the fact that they show dart-point types under new names. This will be quite confusing to careful researchers who have read the original literature.

The writer will only discuss the stone artifact section of the Handbook, especially the types of ancient man. Our knowledge of pottery is not sufficient for comments on that section. Apparently the person quoted most often as the namer of ancient dart points, previously well known under the names given them 15 or 20 years earlier, is one J. Charles Kelley. Evidently this gentleman must have decided that the names given these dart points by those who discovered them, and who did the original research and publication on them, lacked euphony or something and needed his last-minute attentions; but he should not have forgotten to mention their well-known, prior designations.

On Plate 80, under the name of *Angostura* points, we see darts of a type first found near Abilene in ancient Clear Fork Silts, and described and illustrated in the Bulletin of the Texas Archeological and Paleontological Society (1929; 1934, Plate 18, Nos. 93, 94, 95). Why the compilers of the Handbook went to South Dakota for a name for these points, first pictured in the literature as a very ancient Texas type, we know not.

On Plate 81 of the Handbook we have *Bulverde* points, and of the 25 examples shown as the same type, there seem to be 11 different kinds.

On Plate 86 we have *Darl* points, and there seem to be some different types included here also, but most of the darts shown are of the earliest phase of the Valley Creek Culture, which were used just before small arrow heads superseded dart heads. They usually are found with undecorated potsherds of two types, both tempered with fossil bone. In the late phase of Valley Creek Culture, we have incised potsherds, and arrow heads of the pine tree and side-notched triangular forms supersede the dart heads. The four-edged beveled knife occurs in both the early and the late phase. All these features are markers of Valley Creek Culture.

The Handbook lists the Valley Creek Culture arrow heads on Plates 129 and 131 as *Harrell* and *Perdiz* points, with no reference to previous terminology or descriptions. The components of the Valley Creek Culture were first shown in the 1935 Bulletin of this Society as being found at Pottery Site 17. Later, E. B. Sayles and the writer agreed on the name Valley Creek Culture, with these beveled dart heads, pine-tree arrow head, side-notched triangular arrow head, and four-edged beveled knife as the markers for this culture. Obsidian from New Mexico and Rio Grande potsherds from Valley Creek Culture sites were identified as such by Dr. H. P. Mera of the Laboratory of Anthropology in Santa Fe, and the findings published in the 1935 Bulletin. The late

phase of Valley Creek Culture was the last flint culture in Central Texas.

On Plate 108 of the Handbook are shown some so-called "Nolan points", but why *Nolan* is a mystery, as they seldom occur in Nolan County but are common in Taylor County to the east of it. This type was described as Clear Fork Dart 2 in an article on the Clear Fork Culture Complex in the 1938 Bulletin, and 25 specimens were shown on Plate 25 of that Bulletin. On page 458 of the Handbook, we read that "Kelley, 1947a, p. 99 and Plate 10, D refers to this type as 'Nolan Beveled Stem' and considers it as the diagnostic trait of his 'Clear Fork Focus' although it occurs throughout the Edwards Plateau; he includes C. N. Ray's 'Clear Fork Dart Points 1 and 2' within it."

To the writer as the one who named and first described the Clear Fork Culture in the literature, the above reference about reaches the limit. In my opinion, the term "Kelley's 'Clear Fork Focus'" was designed to imply that someone other than the writer discovered and first described the Clear Fork artifacts.

On Plates 113-115 of the Handbook there is another collection of dart heads whose only common point of similarity is a bifurcated base, but from there on they are divergent. Thomas Wilson, in the 1897 Annual Report of the United States National Museum, Plate 38, shows ten bifurcated points, two of them from Texas. Several others were shown by the writer in an article published in *Scientific American* in January, 1928. One form of the bifurcated point has been well known for many years as the *Pinto Point*, named by the Campbells of Twentynine Palms, California. The Campbells visited the writer several years ago and identified some *Pinto Points* in his collections. The so-called *Pedernales* points in the Handbook seem to include seven or more different types, unrelated in time. On Plate 113, we think that at least six points (E, F, K, O, R, S) are definitely *Pinto Points*.

On Plate 113, too, the point shown as A is the most unrelated to all the others in type and greatly resembles what the writer named and described as the *Gibson Point* in the 1940 Bulletin of this Society. It was found in place in the Gibson site in Lower Clear Fork Silt, 25 feet below the present surface, where it was witnessed by Dr. Otto O. Watts of Hardin-Simmons University and E. J. Gardiner of the University of Texas. The same type of dart had previously been found on the surface of ancient gravel at the McLean site (1940 Bulletin, Plates 41, Nos. 2, 3, and 42, No. 15).

Dr. J. E. Pearce of the University of Texas illustrated bifurcated points in his article on "The Present Status of Texas Archeology" in the 1932 volume of this Bulletin (p. 44 and Plate 10). He illustrated the later and larger forms which he found in the middle section of his "Old Burnt-Rock Mounds".

Perhaps we should begin to use the scientific methods of priority in discovery and printed description as a basis for terminology, instead of changing the names of artifacts every time a new crop of students arrives on the scene. Wilson's term "bifurcate" has age and distinction back of it, and could be used as the general term for the points on Plates 113-115. Then, if anyone can give data on the location and age of any special variety, let him name it unless someone else has already done the work.

Plate 120 shows 25 triangular dart points of the Clear Fork Dart 3 and 4 types, which were first fully described in an article by the writer entitled "The Clear Fork Culture Complex" in the 1938 Bulletin of this Society. On Plate 25 of this article, 28 of these darts are illustrated. In the Handbook, they are listed as *Tortugas* points—why, we do not know, as they do not resemble tortoises. The Clear Fork Dart 3 and 4 types which are classed with *Tortugas* points in the Handbook are quite distinct in the flint-knapping techniques, and only resemble the others in having a general triangular shape.

Clear Fork Dart types 3 and 4 were probably used much later than types 1 and 2 during the thousands of years of duration of the Clear Fork Culture, but the main marker of this culture is the Clear Fork gouge, which has always been found with all four types of these darts where they occur in pure culture deposits.

The authors of the Handbook did a vast amount of hard work in producing this book. The effort was worthwhile, as it is something which had long needed doing. Only those who have burned the midnight oil for years in similar endeavors are in a position to appreciate how much work has been done. The text needs revision by scholars and scientists who will ruthlessly cull out some mistakes and omissions in terminology and credits which should not go unchallenged.

609 Orange St.  
Abilene, Texas

*Editor's Note:* Most of the "mistakes and omissions" in terminology which Dr. Ray has pointed out did not arise from any wish to ignore his well-known researches for many years in the Abilene area. Rather, they were simply the result of divergent opinions on what constitutes a *type* of artifact. Dr. Ray's published types were the result of his observations and studies in that particular part of Texas. On the other hand, in preparing the Handbook, we were trying to create valid types from great numbers of specimens from many parts of Texas, which gave rise to many very difficult problems in determining the *range of variation* which could be included in each type, and in determining where to make the divisions between forms that overlapped in every possible way.

Certainly we made no claim that any of the Handbook types were better than those described in print by Dr. Ray, or should supercede them: *they are simply different because they were formulated in a different way.* Thus, if Dr. Ray thinks there are really 11 different types in what we illustrated as *Bulverde*, seven or more types in the *Pedernales*

photographs, etc., he is certainly entitled to think so, but he should also present the detailed type descriptions needed for others to understand his reasoning.

I believe now, that to be consistent, we should not have used any of the type names coined by Kelley, for he has never published any detailed descriptions or adequate illustrations of any projectile-point types; in fact, far less than Dr. Ray has. In any case, we could have made our position clearer at some points in the Handbook and avoided such misunderstandings. I apologize to Dr. Ray for not specifically stating that some Handbook types were not supposed to agree with his conceptions, even though there is some overlapping in regard to individual specimens.

In such cases as "side-notched triangular", "pine-tree", and "bifurcated", these are not type names in the modern sense, but only roughly descriptive names for basic shapes. In North America as a whole there are several distinct types which could each be called "pine-tree", etc., so that when we applied a name such as *Perdiz*, we had in mind a much more specific form. As to *Pinto* points in Texas, it is true that *some* of the Texas "bifurcated" points are practically identical to *some* of the California *Pintos*, but what about all the rest of them? Almost any type will inevitably overlap in some degree with another type in the same area or another area; so how can the typological problems be solved without a great deal of comparative work over large areas? Artifact typology requires continual change and adjustment as more is learned about the ranges of variation and how they are distributed. Thus there are no types, in my opinion, which can be set up once and remain valid forever; and when different workers conflict in their conceptions, I know of no method for determining who is closest to the truth except that everyone interested should keep testing the suggested types against facts of distribution in time, space, and cultural association.

As to the question of who first discovered and named the Clear Fork *Culture*, of course there is not the slightest doubt

in anyone's mind that it was Dr. Ray. He seems to have missed the significance of our enclosing "Clear Fork Focus" in quotation marks when referring to Kelley. We did this deliberately to distinguish such a "Focus" from Dr. Ray's Clear Fork *Culture*. On pages 106-107 of the text, we clearly stated that we did not know what the evidence was for distinguishing this "Focus" from the others grouped by Kelley under Edwards Plateau Aspect, and therefore would lump them all under the general term of Edwards Plateau Aspect. I realize now that the use of quotation marks did not really explain anything and repeat that this positively was not meant to deprive Dr. Ray of any credit in priority for the Clear Fork *Culture*.

It is fortunate that Dr. Ray has taken this opportunity to set the record straight on priority of terminology, and perhaps this brief explanation will clear the air somewhat.

(ADK)

NEWS AND NOTES  
THE 1954 ANNUAL MEETING OF THE  
TEXAS ARCHEOLOGICAL SOCIETY

The 25th annual meeting of the Texas Archeological Society was held on November 5, 1954, at Sul Ross College, Alpine, Texas. A record attendance of 104 persons registered Saturday morning for the meeting. The meeting, held in the Fine Arts Auditorium, was opened with an address of welcome by Dr. Bryant Wildenthal, President of Sul Ross College. Dr. W. C. Holden, President of the Society, presided over the program. The following papers were presented:

"Indian Artifacts of the Lower Big Bend," Mrs. Hallie Stilwell.

"A Cache of Indian Leatherwork," Miss Ethie Eagleton.

"The Archeological Program of the New Mexico Department of Highways," Fred Wendorf, Laboratory of Anthropology, Santa Fe, New Mexico.

"A Distinctive Artifact: The Carrollton Ax," Wilson W. Crook, Jr., and R. K. Harris.

"Excavation of a Pithouse near Gran Quivira, New Mexico," Earl Green (read by W. C. Holden), Texas Tech College.

"Excavations of the University of Oklahoma Field School near Lake Texhoma," Robert E. Bell, University of Oklahoma.

"Excavations by University of Texas Students at the Collins Site Near Austin," Dee Ann Suhm, University of Texas.

"New Problems Presented by the Kincaid Cave Excavations in Uvalde County," T. N. Campbell, University of Texas.

"The Pleistocene Human Skull Recently Found near Midland, Texas," Alex D. Krieger, University of Texas.

"Sandia, Clovis, and Other Early Types of Points from



the Estancia Valley, Central New Mexico," William B. Roosa.

After a brief discussion period, the meeting was adjourned. A barbecue, arranged by Dr. Wildenthal, was given that evening. Two field trips, one to the Big Bend National Park and another to the Scharbauer Site near Midland, were attended by many of the members on Sunday.

The business meeting, held at 2:00 p. m., November 5, was opened by the President of the Society, W. C. Holden. Minutes were read by Dee Ann Suhm, acting as Secretary-Treasurer in the absence of Edward B. Jelks, and approved by a voice vote. The acting Secretary-Treasurer then initiated new business by reporting on the financial conditions of the Society and status of membership. As no auditing committee had been appointed to examine the Society's books, it was agreed by voice vote to accept the financial report published on page 566, Volume 25 of the Bulletin.

The Editor of Publications, Alex D. Krieger, gave his report, stating plans for Volume 25 and the reason for its delay in publication. He also discussed means of increasing the Society's income, emphasizing the need for selling more back issues of the Bulletin. Cyrus N. Ray suggested that Volume I, which is out of print, be reproduced. It was agreed that this should be investigated and that a final decision should be postponed until the cost of reproduction could be determined.

The Nominating Committee, headed by O. L. Sims, presented a slate of nominees for the various offices. This was adopted by voice vote in lieu of formal balloting. The new officers are listed in the front of this Bulletin.

It was decided that the Executive Committee should select the location of the 1955 meeting. Following a vote of thanks to Sul Ross College, and to Dr. Wildenthal and Victor J. Smith for providing such excellent facilities for this meeting, the formal business was concluded.

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THE 1955 ANNUAL MEETING OF THE  
TEXAS ARCHEOLOGICAL SOCIETY

The 26th annual meeting of the Society was held in the Museum of Texas Technological College in Lubbock, on November 11-13, 1955. A short field trip to the Lubbock Lake Site was conducted on Friday afternoon, November 11th, followed by a barbecue supper at the Museum. At 7:45 P. M., President Floyd V. Studer called to order a business meeting with an address of welcome and expression of thanks to Dr. and Mrs. W. C. Holden and the Museum for providing facilities for the Society's annual meeting.

The minutes of last year's meeting were read by the Secretary-Treasurer, Dee Ann Suhm. These were adopted by a voice vote. The Secretary-Treasurer then reported that:

- (1) Receipts up to November 1, 1955 (including a loan of \$3,500 from the Texas State Bank) totaled \$7,678.87;
- (2) expenditures amounted to \$6,578.95, leaving a total balance of \$1,099.92;
- (3) the first note on the loan from the Texas State Bank in Austin will be due April 15, 1956;
- (4) that membership had increased to over 400 members;
- (5) that all back issues of the *Bulletin* will sell for \$5.00 each (Volumes 2 and 4 through 21 had been selling for \$3.00 each); and
- (6) one copy of the *Bulletin*, the issue to be selected by the Secretary-Treasurer, will be awarded to a member for every three new members solicited.

Judge O. L. Sims, Chairman of the Nominating Committee, then presented a slate of nominees for the 1955-56

officers. The entire ballot was adopted by voice vote in lieu of formal balloting. The new officers are as follows:

President: Charlie R. Steen (Santa Fe, N. M.).

Active Vice-President: R. B. Worthington (Houston).

Secretary-Treasurer: Dee Ann Suhm (Austin).

Editor of Publications: Alex D. Krieger (Austin).

Directors: Victor J. Smith (Alpine), O. L. Sims (San Angelo), J. Henry Ray (Vernon).

Regional Vice-Presidents: T. N. Campbell (Austin), Dudley R. Dobie (Alpine), C. D. Drennan (Hobbs, N. M.), R. K. Harris (Dallas), Jack T. Hughes (Canyon), E. B. Sayles (Tucson, Ariz.), Joe Ben Wheat (Boulder, Colo.).

Trustees: Robert E. Bell (Norman, Okla.), W. B. Collins (Midland), Wilson W. Crook (Dallas), Albert Field (Lampasas), Richard E. Johnson (Fort Worth), Harry E. Weaver (San Angelo), Clarence H. Webb (Shreveport, La.), Fred Wendorf (Santa Fe, N. M.).

Victor J. Smith, Chairman of the Resolutions Committee, recommended that Otto O. Watts, Ernest Wallace, and William C. Watts be elected honorary members for their service to the Society, and that Alex D. Krieger be elected a fellow of the Society for his outstanding services to Texas Archeology. These recommendations were unanimously approved.

The proposed revisions of the Constitution and By-Laws, made by W. C. Holden, O. L. Sims, and Harry E. Weaver of the Constitution Committee, were read. After a brief discussion, the revised Constitution and By-Laws (see below) were unanimously approved.

The Editor of Publications, Alex D. Krieger, presented his report, explaining the cost and delay in publication of Volume 25. Dr. Krieger explained that the financial burden incurred by Volume 25 could be alleviated by selling all copies of this *Bulletin* for \$7.50 in the future, by encouraging the sale of back copies of the *Bulletin*, and actively

recruiting new members to the Society. The Editor then gave a progress report on Volume 26, stating that it would total about 300 pages and that it would contain 18 or more articles.

Charlie R. Steen then recommended that the Society adopt a formal policy to encourage the formation of local chapters. His suggestions, which were approved by a voice vote were:

- a. These chapters shall be composed of members of a community who are interested in the study of archeological remains in Texas and adjacent regions.
- b. Three or more members of the chapter must be *bona fide* active members of the Texas Archeological Society.
- c. Each chapter shall pay to the Texas Archeological Society \$10.00 per annum for a charter.
- d. In return the Society shall give each chapter one copy of the annual *Bulletin* and,
- e. Furnish aid, assistance, and guidance in carrying on a program of studies which will be of benefit to the members of the local chapter and to the Texas Archeological Society.

The second day of the meeting, November 12th, was devoted to a program of papers and discussion. It was also held in the Texas Technological College Museum auditorium. The following papers were presented:

"The Peggy Lake Sites in Eastern Harris County," R. B. Worthington.

"The Smith Rockshelter Near Austin," Dee Ann Suhm.

"A Basket-Maker III Site Near Yellow Jacket, Colorado," Joe Ben Wheat.

"Review of Some Parts of the Handbook of Texas Archeology," C. N. Ray.

- "New Work at the Midland Site," Fred Wendorf.
- "Further Developments at the Lucy Site, Central New Mexico," William Roosa.
- "Observations on the Llano Complex," E. H. Sellards.
- "From Elephants to Pottery: 10,000 years of Southwestern History," E. B. Sayles.
- "The Tule Springs Site, Southern Nevada," Ruth Simpson.
- "What Can the Amateur Archeologist Observe and Report?" Jack T. Hughes.
- "How can the Amateur Analyze his Collections?," Alex D. Krieger.
- "Amateur Archeologists and the Federal Salvage Program," Charlie R. Steen.

The 1955 annual meeting was brought to a close by Dr. W. C. Holden, who presided over the afternoon presentation of papers. Field trips were made on Sunday, November 13th, to the Blackwater Draw (Clovis) Site in eastern New Mexico, led by Glen L. Evans, and to the Brazos River valley in Kent County, led by Antonio Andretta.

# TEXAS ARCHEOLOGICAL SOCIETY

## CONSTITUTION

(REVISED)

### ARTICLE I.

1. NAME. The name of this association shall be: THE TEXAS ARCHEOLOGICAL SOCIETY.
2. PLACE. The place where the business of the association is to be transacted shall be the place of residence of the Editor of Publications.

### ARTICLE II.

1. PURPOSE OF THE SOCIETY. The purposes of the Society are to (1) promote scientific archeological exploration and excavation, (2) preservation of archeological materials, (3) the interpretation and publication of reports concerning the same, and (4) encourage the establishment of local archeological groups under the auspices of the Society, the leaders of such groups to be carefully selected and instructed in scientific archeological procedure.

### ARTICLE III.

#### 1. MEMBERSHIP AND DUES.

- (1) Active members. Any interested person or institution may become a member by payment of annual dues.
- (2) Honorary Life Member. A person may be elected for outstanding service to the Society.
- (3) Fellow. A person may be elected a fellow for meritorious contributions to archeology. Fellows will be nominated by the Board of Directors and elected by three-fourths of the membership present at any annual meeting of the Society.
- (4) Dues. Annual dues shall be determined by the By-Laws.

### ARTICLE IV.

1. GOVERNMENT. The government of the Society shall be vested in a Board of Directors of seven active members, who shall be elected by the membership in such manner as prescribed in the By-Laws. The Board of Directors shall determine the operation policy of the Society.

### ARTICLE V.

1. MEETINGS. An annual meeting shall be held each year in the fall before Thanksgiving. The time and place will be decided by the Board of Directors. The members will be notified by the Secretary concerning the meeting.

### ARTICLE VI.

1. AMENDMENTS. This constitution may be amended by a two-thirds vote of the active members present at any regular meeting.

## BY-LAWS

## ARTICLE I. MEMBERSHIP AND DUES.

1. Memberships will be as follows:
 

(1) Active .....	\$ 5.00
(2) Contributing annual .....	25.00
(3) Life .....	100.00
2. Privilege of membership consists of:
  - (1) Attending and participating in the meetings of the Society.
  - (2) Receiving the publications of the Society.

## ARTICLE II. ELECTION OF OFFICERS, DIRECTORS, AND TRUSTEES.

1. ELECTION. At each annual session of the Society, the membership shall elect officers, directors, and trustees for the ensuing year. The officers shall consist of a President, active Vice-President, Secretary-Treasurer, and Editor of Publications, also of five or more number of Regional Vice-Presidents, a Board of Directors and Trustees. These shall each year appoint a nominating committee of three members to present a list of nominations for the above officers. Also nominations may be made from the floor.
2. DUTIES. The duties of the officers shall be as their titles, by general usage, would indicate, and such as may be assigned to them respectively by the Board of Directors from time to time and as provided by the Constitution, By-Laws and Charter of this Society.
3. BOARD OF DIRECTORS. A Board of Directors shall be elected of seven active members, including the hereinafter named officers, President, active Vice-President, Secretary-Treasurer, and Editor of Publications. The board is to serve for a period of one year. The election of elective members of the board shall be governed by the rule governing the election of all officers.
4. TRUSTEES. The Board of Trustees shall have the care, control, and custody of any museum property and real estate acquired by the Society.
5. VACANCIES IN BOARD OF DIRECTORS OR TRUSTEES. Vacancies by resignation or otherwise, on the Board of Trustees or Board of Directors, shall be filled by the Board of Directors until the next regular meeting of the Society, at which time the membership shall elect a director or directors, trustee or trustees for the remainder of the unexpired term or terms, and they shall also fill any vacancies among any of the officers of the Society.
6. MEETINGS OF THE DIRECTORS. The Board of Directors shall meet at such periods as may be determined by the Board.
7. ADMINISTERING THE FINANCES. The Board of Directors shall administer the finances of the Society.

## ARTICLE III. COMMITTEES.

1. The President shall appoint all Committees, except those herewith provided for.
2. Committees shall have such duties and functions as may be assigned to them by the President.
3. PROGRAM COMMITTEE: The Program Committee shall automatically consist of the President, Secretary-Treasurer, and the Editor of Publications, whose duty it will be to encourage archeological investigation and preparation of papers for an annual meeting and for publication.
4. MEMBERSHIP COMMITTEE: It shall be the duty of the Membership Committee to build up the membership of the Society.
5. OTHER STANDING COMMITTEES: Other standing committees may be named by the President from time to time, at his own instance and instance of the Board of Directors, or at the instance of a majority of the membership, present and voting.

## ARTICLE IV. EDITOR OF PUBLICATIONS.

1. The Editor of Publications shall act as editor-in-chief of the *Bulletin* and such other publications as the Society may issue.
2. The Editor of Publications may select a Board of Assistant Editors whose duty it will be to advise in regard to editorial policy, select manuscripts for the publications, and assist in the editorial work of the Society.

## ARTICLE V. FISCAL YEAR.

The fiscal year of the Society shall begin on the adjournment of each annual session.

## ARTICLE VI. RULES OF ORDER.

Roberts' Rules of Order, the latest edition, shall be recognized as the authority governing the meetings of the Society, Board of Directors, and Committees, where not in conflict with the Constitution or By-Laws.

## ARTICLE VII. AMENDMENTS.

These By-Laws may be amended by a majority of the vote of the active members in good standing present at any regular membership meeting or at any special meeting called for that purpose, provided that the nature of a called meeting is plainly stated in the notice of meeting.



REPORT OF THE SECRETARY-TREASURER  
OF THE  
TEXAS ARCHEOLOGICAL SOCIETY

Report for the twenty-seventh year from October 31, 1954 to  
October 31, 1955

RECEIPTS

Balance on October 31, 1954 .....	\$1,932.86
1952 dues, 1 @ \$5.00 .....	5.00
1953 dues, 4 @ \$5.00 .....	20.00
1954 dues, 209 @ \$5.00 .....	1,045.00
1955 dues, 96 @ \$5.00 .....	480.00
1956 dues, 2 @ \$5.00 .....	10.00
Sale of Bulletins: 88 @ \$3.00; 47 @ \$5.00; 19 @ \$7.50 .....	641.50
Sales of Indexes: 6 @ \$2.00 .....	12.00
Interest accrued to savings account, First Federal Savings and Loan Association of Austin .....	30.76
Contributed toward cost of postage .....	1.75
Loan from Texas State Bank, Austin, October 17, 1955 (first note due April 17, 1956) .....	3,500.00
TOTAL RECEIPTS .....	\$7,678.87

DISBURSEMENTS

Abilene Printing and Stationery Co., 1000 copies Volume 25 .....	\$5,653.48
Abilene Printing and Stationery Co., 500 copies Table of Contents, Volumes 1-25 .....	67.81
H. V. Chapman and Sons, Abilene, binding 1000 copies Volume 25 .....	490.00
Postage and freight (Sunset Motor Lines) .....	150.35
Best Printing Co., Austin, for stationery supplies .....	67.35
Materials used in preparation of Volume 25 .....	123.94
Shoppers Guide Press, for name plates used at 1954 annual meeting .....	8.88
Pollock Paper Corp., 300 Jiffy Book Bags for mailing Volume 25 .....	17.14
TOTAL DISBURSEMENTS .....	\$6,578.95

Balance on deposit, Austin National Bank, Austin,  
on October 31, 1955 .....

	\$ 551.60
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Balance on deposit, First Federal Savings and Loan  
Association of Austin, on October 31, 1955 .....

	548.32
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TOTAL ASSETS as of October 31, 1955 .....

	\$1,099.92
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DEE ANN SUHM,  
Secretary-Treasurer.

## BOOK REVIEW

*The Midland Discovery: A Report on the Pleistocene Human Remains from Midland, Texas.* By Fred Wendorf, Alex D. Krieger, and Claude C. Albritton. With a description of the skull by T. D. Stewart. University of Texas Press, Austin, 1955. Pp. viii, 139, 36 figures, bibliography, index. \$3.50.

Anyone who attempts to evaluate this book should know certain facts about its publication. In the first place, additional field work was done at Midland by E. H. Sellards after the manuscript of the book had already been substantially completed. Second, actual printing of the book was delayed pending receipt of radiocarbon dates, which failed to support some of the authors' interpretations. Third, still more excavation was done by Fred Wendorf after the book was released. As a result the report is somewhat lacking in unity and economy of presentation, and it also contains certain conclusions that the authors will want to modify because of post-publication discoveries. It is too bad that they were trapped by press commitments and were unable to delay publication a few months longer. The main thesis of the book is that Midland man is pre-Folsom in date, whereas the most recent field work suggests that Midland man may actually be Folsom man. It would be better if reviews of this book could be postponed until the authors have had an opportunity to re-examine their data in the light of the latest field investigations at Midland.

*The Midland Discovery* synthesizes the field and laboratory contributions of an impressive number of individuals. In addition to the work of the four co-authors, eight other specialists prepared technical reports that appear in a series of seven appendices, and the Introduction acknowledges at least a dozen additional individuals who made significant contributions to the project. Wendorf and his associates seem to have exploited their data to the fullest extent possible, and they are to be congratulated for producing a clear exposition of a very complex problem.

The Midland skeleton was found at the Scharbauer site, which consists of five blowout localities in a sand-dune area at the southern end of the Llano Estacado. Extensive excavation was done at Locality 1, where the skeletal remains were found, and surface collections of archeological materials were made at Localities 2-5.

The stratigraphic sequence established by excavation at Locality 1 consists of five units or strata of sand separated by disconformities. The lower three units, which contain extinct faunal remains, constitute the Judkins formation; the upper two, with modern faunal remains, the Monahans formation. In order of age (from oldest to youngest) these units are:

Unit 1, the Judkins white sand, is an indurated lake-bed deposit which yielded bones of mammoth, bison, horse, camel, four-horned antelope, peccary, wolf, and possibly sloth; a horse femur showing cuts believed to have been made by a flint tool; and a single fragment of chipped flint. It is suggested that the white sand may be contemporaneous with the lower lake-bed deposit at the Clovis site, a stratum which has yielded Clovis points. Three small samples of unburned bone were combined to provide a radiocarbon date of 6715 B. C. (plus or minus 600 years). The authors do not accept this relatively late date as valid.

Unit 2, the Judkins gray sand, is a dune accumulation that yielded bones of horse, bison, and possibly mammoth, as well as fire-fractured rocks, charred bones, three flint scrapers, and 13 flint flakes. From a wind-eroded surface of the gray sand three projectile points were collected—an “unfluted Folsom” point, a basal fragment of a similar point (which to me looks like a Plainview point), and a lanceolate point with deeply concave base. The authors accept “unfluted Folsom” points as part of the Folsom complex. The bones of Midland man lay on this same eroded surface, and two of the three projectile points also lay nearby. Because the human bones are mineralized and appear to have had Judkins gray sand adhering to them, and also because the fluorine content of the human bones agrees with that of the animal bones from the Judkins formation as a whole, the Midland skeletal remains are assigned to the gray sand. A very small sample of carbon derived from unburned bone collected from the gray sand yielded two radiocarbon dates: the first, based on the standard 48-hour count, was between 3000 and 2000 B. C.; the second, based on a two-week count, was 5145 B. C. (plus or minus 1,000 years). The age determinations for the white sand and the gray sand agree with the stratigraphic sequence, but the authors think that both dates are too recent and reject them. Recent field work has resulted in the discovery of a single “unfluted Folsom” point in the gray sand. If the “unfluted Folsom” point was made by the makers of Folsom points—and this has yet to be proved—then the Midland skeleton may be an example of Folsom man, not pre-Folsom man, as argued in the book.

Unit 3, the Judkins red sand, is a dune deposit capped by a soil zone. This unit yielded bones of horse, antelope, deer or elk, and possibly mammoth. From the present wind-deflated surface of this unit two projectile points were collected, a medial fragment of what appears to be an “unfluted Folsom” point and a basal fragment from a small lanceolate point. The authors think that all of the “unfluted Folsom” points at Locality 1 came from the soil zone capping this red sand, and it is suggested that this soil zone may be correlated with the diatomite layer at Clovis and at Lubbock (Folsom points occur in the diatomite at both of these sites). The whole Judkins formation (Units 1-3) is placed in the Wisconsin glacial period, and the soil zone at the top of Unit 3 is specifically correlated with the last major Wisconsin glacial advance. Since the “unfluted Folsom” point has been found in the Judkins gray sand (Unit 2), a correlational realignment appears to be in order.

Unit 4, the Monahans light-brown sand, represents more recent dunes stabilized by vegetation; and Unit 5, the Monahans tan sand, represents present-day active dunes. These units contain a modern fauna, but no artifacts are reported from them.

At Localities 2-5, a total of 75 artifacts was collected from the surface—seven Folsom points, 20 “unfluted Folsom” points, one Milnesand point, one Meserve point, 24 points that are not identified by type but which include a number of stemmed points, 19 scrapers or knives, and two manos. In all localities these were collected from the exposed surface of the Judkins red sand, and it is argued that the red sand cannot be more recent than the Folsom points found on its wind-eroded surface, an opinion which the authors may now want to suppress. Little interest is shown

in the stemmed projectile points from several of these blowout localities. These are dismissed with the statement that they are probably later than the Folsom material in the same blowouts. Some of these stemmed forms resemble points from relatively late cultures of the Trans-Pecos area to the southwest, and this might have been cited in support of the statement about their probable chronological position.

The Midland skeletal remains are briefly described by Stewart. These consist of an incomplete skull, parts of two metacarpals, the mid-section of a first rib, and an unspecified number of small fragments that probably represent arm bones. All of these bones are attributed to the same individual, a female who died at about the age of thirty. The skull is very long and narrow and has a closely estimated cranial index of 68.8. According to Stewart, no other American skull with a fair claim to antiquity exhibits such low dolichocrany, but he points out that at a number of places in Texas (Abilene region, Big Bend, and Texas coast) similar long, narrow skulls have been reported, some of which may be rather early in date. Citing the fragmentary nature of the single Midland skull, as well as the paucity of female crania for proper comparison, Stewart states that "detailed comparisons with other putatively ancient American skulls would not be profitable." If Midland man is as early as it seems to be, then the same physical type survived and was well represented in the Texas population for thousands of years.

At this time certain salient facts about the Midland discovery need emphasis. The human remains were not found in place, and their assignment to the gray sand is based on indirect evidence. No Folsom points were found in place, and none was found on the surface at Locality 1, where the human bones were collected. The presence of an "unfluted Folsom" point in the gray sand does not necessarily prove that the Midland skeletal remains are those of Folsom man. Although it appears likely that both Folsom and "unfluted Folsom" points were made at the same time by the same people, this has yet to be demonstrated by excavation data. The case for Midland man is a good one, but it cannot be regarded as closed. More excavation should be done at Locality 1, and the stratigraphy at this locality needs verification by excavation at other localities in the dune area. In the meantime some attention should be given to the typology of the "unfluted Folsom" point, now that it has been found in place. We need more criteria for distinguishing it from the Plainview point, especially in cases where points are represented by basal fragments only.

I would like to register one minor complaint about the illustrations in this volume. The artifacts from the various localities are well illustrated in 15 figures, but the system of identifying artifacts in these figures leaves something to be desired. The artifacts are serially numbered from 1 in Fig. 12 to 89 in Fig. 25. This makes sense, but why, in Fig. 18, for instance, should the top row of specimens be arranged (from left to right) in the following sequence: 45, 51, 42, 39, 40, and 38? This arrangement, which is also found in eight additional figures, makes it unnecessarily difficult to find illustrations of specimens described in the text.

T. N. Campbell  
The University of Texas.

## COL. M. L. CRIMMINS

With the death of Col. Crimmins, the Texas Archeological Society lost one of its most esteemed members. Col. Crimmins had been an active member since the Society was chartered in 1929, had served as Regional Vice-President, Director, and Trustee at various times, was President in 1948-1949, and a Fellow from 1952 until his death. His wide range of interests, keen mind, gentle manners and unfailing courtesy will be remembered for a long time to come.

Mr. Chris Emmett of San Antonio, who is writing a biography of Col. Crimmins, has supplied the following data.

Colonel Martin Lalor Crimmins, United States Army retired, died at San Antonio from a heart attack on February 5, 1955, after a few days illness. Born in New York in 1875, one of 14 children of John Daniel and Lily Lalor Crimmins, he had not quite attained his 80th birthday at the time of his passing. Colonel Crimmins' grandfather immigrated from Ireland at about the time Sam Houston was fighting the battle of San Jacinto.

Martin Lalor Crimmins' early education at Georgetown College, and later at the University of Virginia, qualified him for what were to be his hobbies in later years, the sciences. His career as a medical doctor was interrupted by a personal invitation from Col. Theodore Roosevelt to join the Rough Riders. Finding adventure in the Army so appealing, he made the Army his career, serving in the Philippines, in Alaska, and with General Pershing in the Mexican Punitive Expedition.

After World War I, he was retired for disability. He then applied himself industriously to his avocations, gaining international renown and the Walter Reed Award for distinguished service to humanity by causing rattlesnake poison to be injected into his body, so as to make anti-venom serum. He gave many of his later years to writing. More than 200 articles of scientific and historical nature appeared in publications in the United States and England.

Much of the last year of his life was devoted to collaborating with Chris Emmett in recording the experiences which had taken him into many countries as a participant in world history-making events.

Surviving Colonel Crimmins are his widow, Josephine Y. Crimmins, two sons, Lalor and Curtis, of San Francisco and New York, respectively, as well as four sisters and one brother, all of New York.



COL. M. L. CRIMMINS



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