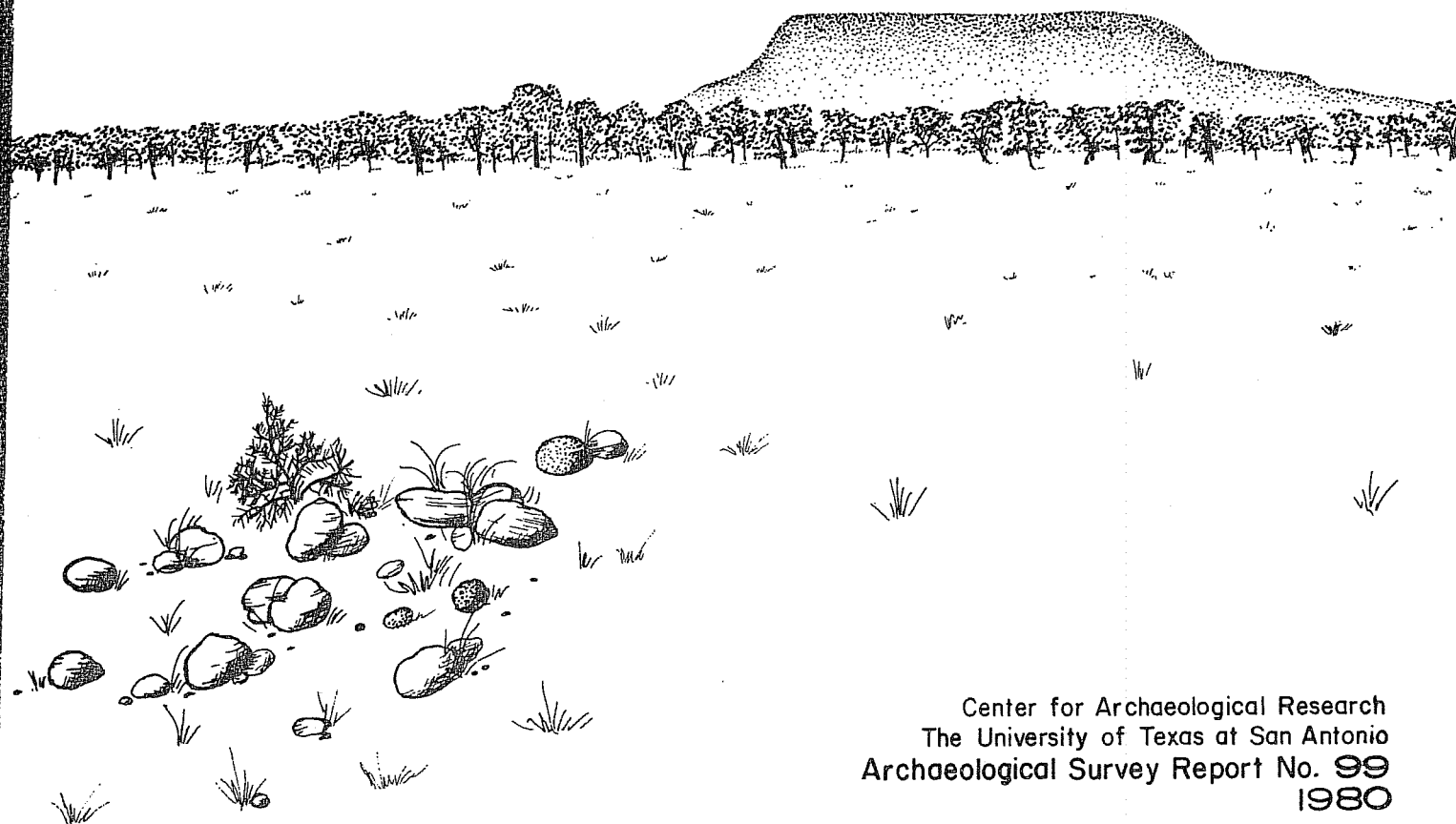


ARCHAEOLOGICAL INVESTIGATIONS AT ANGUS FLATS, PECOS COUNTY, TEXAS

ERIC C. GIBSON



Center for Archaeological Research
The University of Texas at San Antonio
Archaeological Survey Report No. 99
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INTRODUCTION

During July 1980, personnel from the Center for Archaeological Research (CAR), The University of Texas at San Antonio (UTSA), conducted archaeological investigations at Angus Flats (41 PC 393) in central Pecos County, Texas (Fig. 1). The project was conducted for the Rio Grande Electric Cooperative, Inc., under contract between the Center for Archaeological Research and Alexander Utility Engineering, Inc. (letter dated July 2, 1980). General supervision of the project was provided by Dr. Thomas R. Hester, Director, and Jack D. Eaton, Associate Director, Center for Archaeological Research. The field work was carried out by Eric Gibson and Curtis Dusek, staff archaeologists. Analysis and interpretations of the results were completed by Gibson.

Surface archaeological features were mapped and collected. Additionally, shovel-test excavations were conducted at two of these features. The Angus Flats site had previously been identified by Uecker (1980) as Site #1, Area 6, during an archaeological survey for the Rio Grande Electric Cooperative, Inc. The investigations in this report were carried out in order to describe and document this site because it was soon to be altered by a proposed powerline transmission corridor (Fig. 1). A total of 14 hearth features was mapped and collected. Subsurface testing was confined to features 9 and 13 (see Fig. 1). The distribution of lithic materials extended beyond the hearths and comprised the overall site area boundaries.

Mapping methodology was based upon the guidelines presented in *Field Methods in Archaeology* (Hester, Heizer, and Graham 1975). The collection of hearth features was derived from methods described by Varner (1968). The study of these surface features was directed toward: (1) describing their spatial distribution and possible relationships; (2) recovering artifacts that indicate function, activity, and chronological placement; and (3) assessing frequency, duration and intensity of prehistoric occupation of Angus Flats.

All information was recorded on standard feature report forms presently used by the Center for Archaeological Research. Black and white 35-mm photographs were taken of each feature and the general site area. Artifacts collected were placed in paper bags and labeled according to feature area, date, distance and direction from the center of the hearth, and collector's name. All of the artifacts within 16-m² of each hearth were collected and processed according to standard archaeological procedures. The interpretations presented in this report are based on examination of artifacts and data recorded in photographs, feature forms, and field notes.

ENVIRONMENTAL SETTING

Angus Flats is in the Stockton Plateau country of central Pecos County. The Stockton Plateau is an extension of the Edwards Plateau (Johnson 1931) and a subprovince of the Great Plains Physiographic Province (Fenneman 1931). A nearly level semidesertic plain, with gradients of less than 0.5 percent and dissected by the erosional gulleys of ephemeral streams, typifies the local area.

This page has been redacted because it contains restricted information.

Surface geology is characterized by outcrops of white to buff-colored limestone and chalky limestones of the Fredericksburg and Washita cretaceous groups (Sellards, Adkins, and Plummer 1958). The soil of the site area is a moderately permeable, gravelly, light brownish gray silty loam. Throughout Pecos County (though not in the Angus Flats vicinity), many rockshelters have eroded from these limestone beds. Some of these rockshelters show evidence of intensive prehistoric human occupation (Lehmer 1958). Many rockshelters also contain pictographs and petroglyphs (Walters 1971).

Pecos County forms part of the eastern boundary of the Chihuahuan Biotic Province (Blair 1950:98). The climate is semiarid; summers are hot and winters are usually mild.

In the Angus Flats vicinity the vegetation is sparse and primarily consists of desert shrubs and grasses. However, such plants as agarita, sotol, yucca, lechugilla, catclaw, screwbean, ocotillo, greasewood, allthorn bush, juniper, willow, mesquite, hackberry, Mexican persimmon, Mexican buckeye, various cacti, and liveoak are common in Pecos County (Walters 1971:10).

Fauna common to the area include deer, cottontail, jackrabbit, fox, raccoon, ringtail, skunk, armadillo, peccary, badger, rock squirrel, wild turkey, dove, and quail (*ibid.*).

THE CHRONOLOGY OF PREHISTORIC OCCUPATION

The following summary describes current concepts of the succession of cultures in eastern Trans-Pecos Texas and their characteristics. In this discussion all dates for cultural-historical periods are considered approximate. Use of the term cultural-historical period in this report designates a range of behavioral and cultural activities and their observed traits within a broad geographic and temporal setting.

Paleo-Indian (13,000 to 8000 B.C.)

The term Paleo-Indian has been assigned by some archaeologists to the earliest human inhabitants of North America. Although archaeological data suggests that humans entered the New World from eastern Asia as early as 30,000 years ago, firm evidence places their entrance within the terminal stages of the Wisconsin Glaciation, ca. 13,000 to 11,000 B.C. (Jennings 1974). A radiocarbon date of approximately 13,000 B.C. (Adovasio *et al.* 1978, 1980) was determined for Paleo-Indian cultural remains from Meadowcroft Rockshelter in western Pennsylvania. Although radiocarbon dates of nearly equivalent time depth exist, such as 11,300 B.C. for the earliest occupation of Fort Rock Cave in Oregon (Bedwell and Cressman 1970), the most reliable dates for Paleo-Indian occupation in North America fall between 10,500 B.C. and 6000 B.C. (Hester 1980).

During the greatest advance of the Wisconsin Glaciation, the ice reached as far south as the present location of St. Louis, Missouri. The land in west Texas at glacial maximum was primarily piñon pine parkland (Oldfield and Schoenwetter 1975).

In this region and the western plains, megafauna such as mammoth, giant bison, camel, and horse were hunted. In North American prehistory much emphasis has been placed on the "Big Game Hunters" of the Paleo-Indian period, even though many sites (Meadowcroft, Lindenmeier, Blackwater Draw No. 1) present evidence that smaller game and wild plants were also utilized (Jennings 1974; Adovasio *et al.* 1980).

Paleo-Indian occupation in Trans-Pecos Texas is demonstrated by surface finds of *Clovis*, *Plainview*, *Golondrina*, and *Meserve* projectile points in Big Bend National Park (Campbell 1970). Additionally, *Plainview*, *Golondrina*, and *Meserve* projectile points were found in the Davis Mountains (Marmaduke and Whitsett 1975) and at Bear Creek (Marmaduke 1978). Sites in the Amistad Reservoir region at the southeastern periphery of Trans-Pecos Texas have produced subsurface evidence of Paleo-Indian occupations. Bone Bed 2 at Bonfire Shelter contained *Folsom* and *Plainview* projectile points in direct association with extinct bison. The lowest level of the Devil's Mouth site contained *Lerma*, *Angostura*, *Plainview*, and *Golondrina* projectile points (Johnson 1964).

The Paleo-Indian period is not well understood throughout most of Trans-Pecos Texas. Further research in the region is needed to define these earliest occupations. Subsurface Paleo-Indian sites need to be located, properly excavated, and dated. Information on subsistence strategies, adaptations to local environments, and comparisons to adjacent regions is also needed.

Pre-Archaic (6000 to 3500 B.C.)

Early in this period the piñon pine parkland of Trans-Pecos Texas was gradually replaced by a grassland savanna (Bryant 1969). This change was caused by an increasingly semiarid climate that probably diminished the availability of ground water. This warmer climatic transition occurred throughout most of North America during the post-Pleistocene. The climate and the floral and faunal communities varied considerably from region to region. Cultural groups of the Pre-Archaic period throughout Texas reflected this diversity.

This period of transition between the Paleo-Indian and Archaic periods has not been systematically studied in Trans-Pecos Texas. However, as Pleistocene megafauna became extinct, more animals, such as bison, deer, rabbit, squirrel, and other small game were hunted (Marmaduke 1978).

During the Pre-Archaic period, the tool assemblages of the Texas regional cultures became more diversified (Hester 1976). This regional diversification can be illustrated by the distribution of a Pre-Archaic artifact known as the unifacial *Clear Fork* tool, commonly found in northeastern Mexico, southern Texas, and the Great Plains (Ray 1941; Hughes 1980; Hester 1980). This artifact is not common in other regions of North America (Northwest, Great Basin, Eastern Woodlands, etc.). Typical Pre-Archaic projectile points are triangular, corner-notched, and stemmed varieties. Important Pre-Archaic sites peripheral to Trans-Pecos Texas are Devil's Mouth, Devil's Rockshelter, and Baker Cave (Hester 1980:147-148).

In Trans-Pecos Texas, the Pre-Archaic period is not well understood. Further archaeological research is needed, particularly in investigations of local adaptive strategies and possible relationships with neighboring regions.

Archaic (3500 B.C. to A.D. 1000)

By the beginning of the Archaic period, the climate had changed from semiarid to arid. Desert shrubs such as creosote bush, catclaw, and mesquite began to predominate. On the savannas of Trans-Pecos Texas, agave, prosopis, and acacia also began to appear in significant numbers (Bryant 1969). Agave, sotol, and seed bearing plants became increasingly important for food to the local inhabitants. Coupled with plant gathering and processing, hunting continued to be focused on deer and small game during the Archaic period. Evidence of bison hunting in the region is present at Bonfire Shelter and is dated to approximately 3200 B.C. (Dibble and Lorrain 1968). However, evidence suggests that bison were absent for long intervals in Texas. A study by Dillehay (1974) indicates that bison were not present during two different periods, from approximately 5800 B.C. to 3200 B.C., and from 1000 B.C. to A.D. 200. Dillehay has suggested that warmer climatic fluctuations may have caused these absences.

The regional diversification that marked the Pre-Archaic became more pronounced during the Archaic period. Kelley (1959), in an overview, contended that the Texas Archaic (or Kelley's "Balcones Phase") linked the Eastern Midcontinent Archaic tradition and the Desert Archaic of western North America. Jennings (1974:152) has supported Kelley's viewpoint.

In general, the Archaic period in western Texas is characterized by such lithic artifacts as percussion-flaked stemmed projectile points, grinding stones, various manos and metates, bifacial and unifacial choppers, gouges, various large scrapers, drills, and utilized lithic debitage. Such "perishable" artifacts as basket types, mats, nets, fur and feather cloth, sandals, cordage, wooden darts, atlatls, and clubs have been reported from Archaic occupation levels in west Texas rockshelters (Kelley 1959:281).

Specific characteristics of Trans-Pecos Archaic occupations in the Fort Stockton area are not well documented. At present no stratified sites with a recognizable Archaic component have been reported in the area (Banks 1975:15).

Late Prehistoric Period (A.D. 1000 to A.D. 1530)

During this time the climate became more arid, and the occurrence of agave, prosopis, and acacia plants became more common (Bryant 1969). A technological change, the introduction of the bow and arrow, separates the Late Prehistoric from the Archaic period. Small, thin, and very light pressure-flaked projectile points of various types (*Perdiz*, *Garza*) are archaeological indicators of the Late Prehistoric period (Hester 1980:154). Other indicators are agriculture, ceramics, very small end scrapers and, in some areas, polyhedral blade cores and blades (*ibid.*:158).

Approximately 950 years ago, in far western Trans-Pecos Texas, the agricultural, ceramics-making Mogollon peoples from southern New Mexico moved down the Rio Grande River to near the present location of El Paso. They finally settled in the La Junta district south of El Paso (Marmaduke 1978:36). In the area around Fort Stockton, little change occurred, and ceramics have not been found. However, some Stockton Plateau groups may have participated in distant exchange contacts with the agricultural people of the Rio Grande and Llano Estacado (Collins 1971).

Historic Period (A.D. 1530-1900)

Initial contact between the Spanish explorers and the aboriginal occupants of Trans-Pecos Texas occurred during Cabeza de Vaca's journey through the area in the 1520s to 1530s. However, the Europeans had minimal impact on the natives until the advent of Spanish missions during the late 1600s and early 1700s (Hester 1980:160).

Although Cabeza de Vaca did not report a name for the Indian groups who helped him in the Trans-Pecos area, he described their tattooed faces. Newcomb (1961) states that tattooing was a cultural trait that distinguished the Jumanos of west Texas from other groups. During this era, Newcomb (*ibid.*:21) describes all of Texas south and west of the Pecos as the area of the nomadic Jumanos.

During 1583 to 1584 Luxan, the recorder of the Espejo expedition, described the houses of Jumano hunters they encountered on the Pecos River in Trans-Pecos Texas as "tents," possibly referring to skin tents. The Jumano were also described as bison hunters (Bolton 1911,1916; Collins 1971).

In 1590, Gaspar Castaño de Sosa's party encountered a group of "Vaqueros" at the confluence of Live Oak Creek and the Pecos River. These probably were a group of Athapascan-speaking people that later became known as Lipan Apaches. It was noted that this nomadic group had the dog travois (Schroeder and Matson 1965:57; Gunnerson 1956:356; Collins 1971:93).

In 1684 Juan Dominguez de Mendoza, commander of a small garrison of soldiers, left El Paso to explore the area to the east (Bolton 1916). During the journey through the Fort Stockton area, they described the native vegetation as consisting of mesquite and reported killing six buffalo. In this region Mendoza reported warfare among, and displacement of, Indian groups. Groups identified by Mendoza as Jumanos, Cabezas, and Jediondos accompanied his entourage for protection from the "Salineros." These Salinero groups may have been either Mescalero or Lipan Apaches (Bolton 1916:320-343; Collins 1971:93). By 1715 these Jumanos had allied themselves with the Apache groups and were hostile to the Spanish. At about this time further mention of the Jumano people is absent from ethnohistorical accounts. They were probably assimilated into Apache groups (Forbes 1959; Collins 1971).

In the 1720s the Comanches arrived in west Texas and, through constant warfare, began to displace the Apaches in the region. By the late 1700s the Apaches were separated into four groups--the eastern group, known as the Kiowa; the Lipan of southwest Texas and northern Mexico; the Jicarillo of northern New Mexico; and the Mescalero of southeastern New Mexico and adjacent parts of Texas (Newcomb 1961:108-109; Sonnichsen 1958:38-55; Collins 1971:93).

Peace, in the form of a treaty between the Comanches and the Spanish "Ciboleros" of New Mexico, brought trade to the region in 1786. Early trade items were bison hides and meat for Spanish goods. Soon the Comanches were trading horses, mules, and captives for rifles, knives, and hoop-iron (for lance and arrow points). The Spanish traders (now called Comancheros) encouraged Comanche raids on Anglo settlements by providing a ready market for plunder from the Trans-Pecos Texas and New Mexico settlements (Grinnell 1923:354; Haley 1935:157-176; Smith 1962:32; Collins 1971:75). Many unsuccessful attempts were made to halt or control this illicit trade, but the Comancheros persisted in these activities until the 1870s, when there were no longer any Comanches left with whom to trade (Haley 1935; Collins 1971).

PREVIOUS ARCHAEOLOGICAL RESEARCH IN SOUTHEASTERN TRANS-PECOS TEXAS

This section is a brief review of archaeological research in southeastern Trans-Pecos Texas. A more detailed summary of archaeological research in the area is available in Lehmer (1958) and Marmaduke (1978). In the absence of published materials, some of these data came from the site files of the Texas Archeological Research Laboratory, Austin.

Archaeological investigations in the southeastern district of Trans-Pecos Texas have been intermittent from the earliest descriptions of Bartlett (1854) to the recent work by Uecker (1980). With the exception of the Amistad Reservoir Salvage Project on the periphery, the region has had few long-term research projects (Marmaduke 1978:22).

In the 1920s and 1930s, V. J. Smith of Sul Ross College studied the rockshelters in the Alpine area. His excavations, although crude by modern standards, marked the inception of scientific investigations in Trans-Pecos Texas (Lehmer 1958:114). He was soon followed by others (Smith 1932; Harrington 1928; Fletcher 1931).

By 1935, E. B. Sayles (1935) devised a chronology for the area. This chronology was based upon material from Trans-Pecos rockshelters and was separated into three cultural complexes--the Pecos River, Big Bend, and Hueco Cave Dwellers (Lehmer 1958:115).

In 1940 Kelley and Lehmer (in Kelley, Campbell, and Lehmer 1940) refined Sayles' chronology. Stratified sites from the valley floors around Alpine were cross referenced with alluvial sequences from Late Pleistocene to recent times, as established by Albritton and Bryan (1939). The Pecos River focus they established for the Middle Archaic is mentioned in detail here because of the perishable dry cave materials ascribed to it, such as nets, mats, baskets, fur cloth, cradleboards, cordage, square-toed sandals, cactus spine fishhooks, atlatls, darts with composite cane shafts, painted pebbles, stone pipes, and flexed burials (Marmaduke 1978:23). The validity of the Livermore focus that Kelley, Campbell, and Lehmer (1940) devised generated debate in the literature (see Suhm, Krieger, and Jelks 1954; Kelley 1957; Lehmer 1958; Marmaduke 1978), but the overall chronology was used widely in the area for many years (i.e., Kelly and Smith 1963).

In Pecos County very little archaeological research has been conducted, and even less has been published. W. C. Holden (1941) conducted limited excavations in a

few caves and open sites in the Tunis Canyon between Iraan and Fort Stockton. Eagleton (1955) reported a cache of historic Indian materials attributed to the Comanches from eastern Pecos County.

During 1966-1967, D. Lorrain, of the State Building Commission Archeological Program, conducted excavations and reconnaissance in northwestern Crockett County near its border with Pecos County (Lorrain 1968).

In 1970-1971 D. D. Crawford (1973) of the Texas Highway Department conducted an archaeological survey in areas to be affected by the construction of Interstate Highway 10 in Crockett and Pecos Counties. In 1971, E. Walters (1971) reported on a study of pictographs and petroglyph sites in Pecos and Crockett Counties. Also in 1971 H. J. Shafer of the Texas Archeological Salvage Project conducted an archaeological reconnaissance of the Sanderson Canyon Watershed, approximately 60 miles south of Angus Flats in Pecos, Terrell, and Brewster Counties. Concentrated hearth sites similar to those at Angus Flats were reported by Shafer (1971:8). Further reconnaissance and testing in the Sanderson Canyon Watershed were carried out by the Texas Archeological Survey in 1976 (Brown, Prewitt, and Dibble 1976). The final archaeological salvage and mitigation work in Sanderson Canyon was done by Environmental Consultants, Inc. in 1978 (Anderson 1980). The sites in the project area were determined to be Mid-Archaic, Late Archaic, and Late Prehistoric. The sites were primarily rockshelters, ring middens, and hearth fields (which were very similar to Angus Flats). Among the interpretive conclusions of this research was the detection of a technological change during the Late Prehistoric period. Apparently there was a shift away from large central oven (ring midden) food processing to dispersed, smaller hearths. This trend was interpreted as being a possible result of: (1) a shift in the seasonal exploitation of the xeric uplands; (2) a change in band social structure/group composition; and (3) a shift in food procurement and processing technology (Anderson 1980:618).

Recently, from 1977 to 1980, J. W. Greer conducted an archaeological reconnaissance at the Cannon Ranch in Pecos County for the Texas Division of Natural Resources. Furthermore, in 1979 G. Bronitsky of the University of Texas-Permian Basin directed a survey of the Skyscraper Peak area in Pecos County. The results of Greer and Bronitsky's research have not yet been published (Carolyn Spock, personal communication).

The most recent archaeological research in the project area was done by the Center for Archaeological Research in May 1980 (Uecker 1980). Included among the archaeological sites recorded during this survey is Angus Flats, subsequently investigated during the project described in this report.

INVESTIGATIONS AT ANGUS FLATS

Uecker (1980:2) described the site as follows:

Approximately at the mid-point along the 19.3 km tie-line route, and directly in the path of the route, a scatter of individual burned rock surface, hearth-like features was discovered adjacent to an inactive tributary. Each hearth is ca. 1 to 2 m in diameter and consists of 20

to 30 exposed burned rocks, containing and surrounded by a light scatter of chipping debris and tool fragments which are of prehistoric human origin. These hearth-like features are scattered over an area approximately 300 m in diameter; however, they appear to be fairly well preserved, having been affected only by natural sheet erosion which occurs on the floodplain. An examination of the tributary cut bank walls provided no evidence of stratigraphy or depth of cultural deposits; however, the general topography suggests the possibility that additional hearths or other features could be buried in this area beneath the floodplain alluvium.

The cultural materials recovered at Angus Flats are discussed in two sections. First, the hearth features and the distribution of artifacts probably associated with these features are described. Second, a discussion of possible relationships among these hearths is presented. The following consideration is important and renders all interpretations tentative: although these artifacts were found very near the hearths, since they were collected from an eroded surface, their direct association with the hearths cannot be assumed. Artifact categories and descriptive terms are presented below in alphabetical order (see also Table 1).

Description of Artifacts

Bifaces: These are tools which have had flake removals from both the dorsal and ventral surfaces and also along at least one edge of the implement (see Fig. 2).

Cores: Cores are pieces of siliceous stone or raw material which have at least one flat surface from which flakes have been removed.

Core Tools: These exhibit attributes of cores, but additionally show marginal retouch, modification, or wear (observable alteration caused by use) along portions of edges (see Fig. 2).

Cortex: A stone's weathered surface.

Flake: A piece of stone that has been removed from a core through the introduction of force into the core. In this report flakes are considered only to be the result of human flintworking activities. Diagnostic attributes of a flake are: a striking platform, ripples, fissures, and a bulb of percussion.

Flakes with Converging Edge Modification: These are flake tools that are very similar to unifaces, with the exception that modification occurs on both sides of an edge. In every other way these tools resemble unifaces (see uniface definition below).

Gouge (Clear Fork Tool): This is a formal tool category, generally with Archaic associations (Ray 1941; Shiner 1975). The *Clear Fork* tool found during this project is bifacially worked (see Fig. 2), but unifacial varieties are common (Ray 1941; Hester, Gilbow, and Albee 1973; Shiner 1975). *Clear Fork* tools usually have triangular or subtriangular outlines, with a steeply beveled working edge or bit. Secondary cortex on the dorsal surface is also common. The form of the working bit is usually straight, mildly convex, or markedly convex (see Hester, Gilbow, and

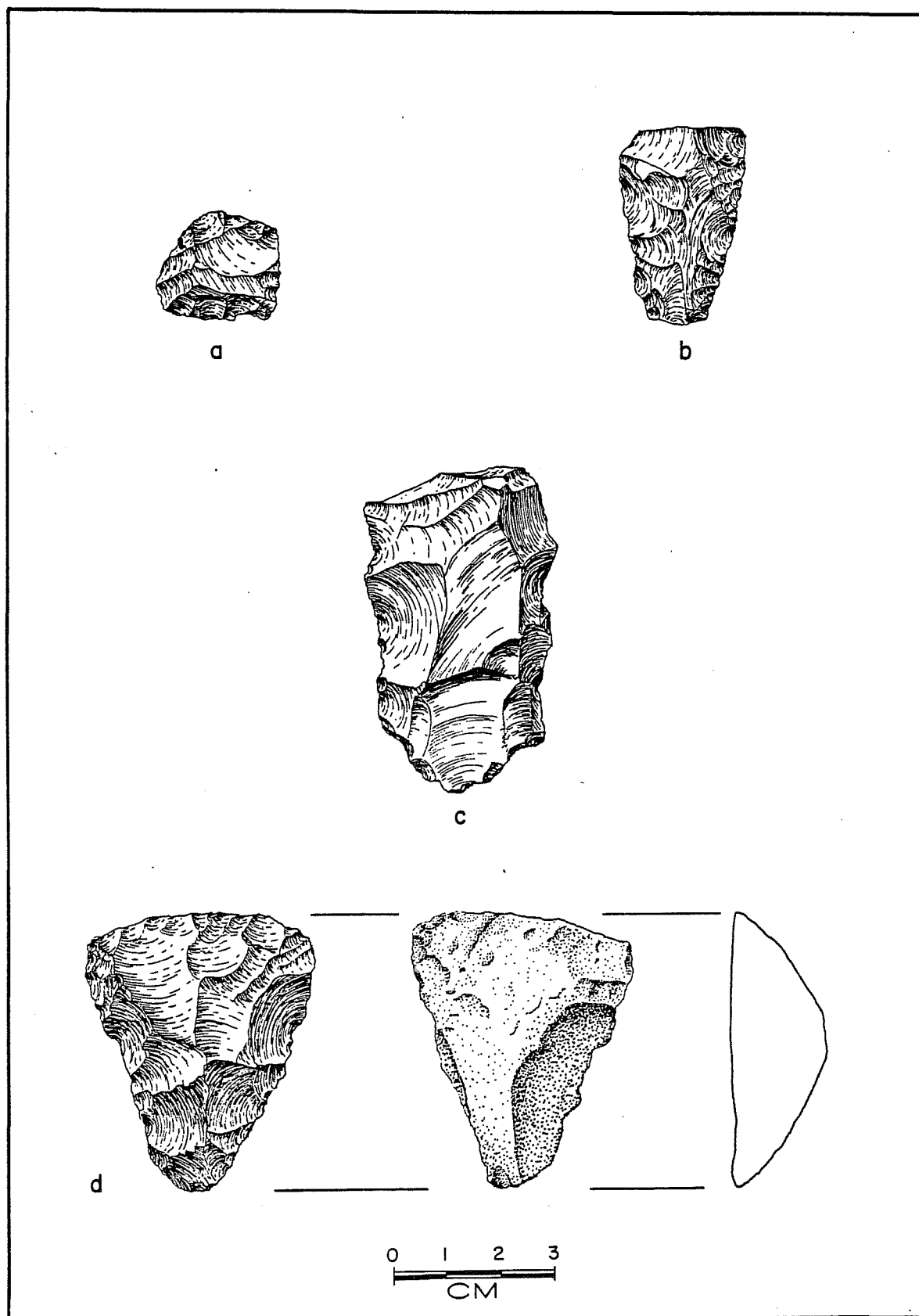


Figure 2. *Selected Artifacts from Angus Flats.* a, scraper from Feature 1; b, thin biface (probably a projectile point fragment) from Feature 5; c, thick biface from Feature 2; d, *Clear Fork* tool from Feature 9.

TABLE 1. DISTRIBUTION OF ARTIFACTS BY CATEGORIES IN FEATURES 1 THROUGH 14 AT ANGUS FLATS.

Feature	Bifaces	Cores	Core Tools*	End Scrapers	Unifaces	Clear Fork Tool	Flakes				Total Artifacts for Feature
							Converging Edge Modification	Unmodified Primary Cortex	Unmodified Secondary Cortex	Unmodified Interior	
F1	3		1	1	2		2				9
F2	3		1						1		5
F3			2		5		1				8
F4	2				1						3
F5	2				1						3
F6							1				1
F7	1				1		2				4
F8	1										1
F9	2		2		2	1				1	8
F10	1	1	1		3						6
F11	1				3		1			2	7
F12											0
F13	2			1	2		3			2	10
F14	—	—	—	—	2	—	—	—	—	—	2
Total N	18	1	7	2	22	1	10	0	1	5	67

* Includes fragments

Albee 1973:92). The specimen recovered has a triangular outline, secondary cortex on the dorsal surface, a mildly convex working bit (see Fig. 2), and technologically resembles *Clear Fork* tools from south Texas (Chandler 1974). As far as the author knows, this specimen constitutes the first *Clear Fork* tool reported from Trans-Pecos Texas. The primary distribution for these artifacts is considered to stretch from just north of Monterrey, Mexico to southern Oklahoma (Shiner 1975; Hughes 1980).

Interior Flake: A flake lacking cortex, usually the most common flake form found at a site. Interior flakes are flintworking debitage produced from a core, another flake, or a tool which has had all cortex detached from previous flake removals.

Primary Cortex Flake: A flake characterized by a cortex dorsal surface. Presence of these flakes at a site indicates core preparation (or initial flintworking activities).

Secondary Cortex Flake: A flake characterized by some cortex remaining on the dorsal surface. These flakes are indicative of flintworking activities.

Scrapers: These formalized tools show either unifacial or bifacial modification. They may also have steep edge angles. Wear patterns are often common along edges in the form of damage and/or polish.

Unifaces: Unifaces are tools which have been modified on only one surface and one edge of a flake. Edge modification may be the result of intentional retouch and/or use. The uniface category applies to any non-formalized unifacially worked tool.

Description of Hearth Features

In this report, hearths are defined as compact (usually less than 1.5 m in diameter) clusters of fire-cracked and/or burned rocks. Additionally, hearths are considered to be the location of activity areas. These are spatially restricted areas where a specific task or related tasks occurred (cooking, tool manufacturing and/or replacement, hide working, etc.). Activity areas are generally characterized by waste products, a scatter of tools, and/or raw materials (Flannery 1976: 34). Fourteen prehistoric hearths were mapped and collected during the project. The location of these features is shown in Fig. 1. Field procedures consisted of mapping the centers of the hearths, measuring in all artifacts within 16-m² of each hearth center, and collecting the artifacts (see page 1, this report).

Feature 1

Shape:	Irregular.
Elevation:	1,058.3 m above sea level (see Fig. 1).
Dimensions:	1.25 m (north to south) by 40 cm (east to west).
Degree of Disturbance/ Erosion:	Deflated by wind and eroded by cattle trampling and sheetwash.

Artifacts Recovered: 3 bifaces, 1 core tool, 1 end scraper, 2 unifaces, 2 flakes with bifacial edge modification (see Table 2).

Additional Remarks: All of these artifacts were located within 4 m of the hearth center. No artifacts were found in the southeast quadrant.

Feature 2

Shape: Ovoid.

Elevation: 1,058.6 m above sea level.

Dimensions: 90 cm (north to south) by 1 m (east to west).

Degree of Disturbance/
Erosion: Very disturbed by adjacent cattle path; heavily deflated by wind and sheetwash.

Artifacts Recovered: 3 bifaces, 1 core tool, 1 unmodified secondary cortex flake.

Additional Remarks: All of these artifacts were located within 16 m of the hearth center.

Feature 3

Shape: Roughly circular.

Elevation: 1,058.6 m above sea level.

Dimensions: 85 cm (north to south) by 1.1 m (east to west).

Degree of Disturbance/
Erosion: Disturbed, deflated and eroded by cattle path, wind, sheetwash, and rodent burrow.

Artifacts Recovered: 2 core tools, 5 unifaces, 1 flake with bifacial edge modification.

Additional Remarks: All artifacts were found within 4 m of the hearth center. No artifacts were located in the southwest quadrant.

Feature 4

Shape: Ovoid.

Elevation: 1,058.8 m above sea level.

Dimensions: 1.4 m (north to south) by 1.45 m (east to west).

Degree of Disturbance/
Erosion: North half of hearth heavily eroded and deflated. South half less eroded.

Artifacts Recovered: 2 bifaces, 1 uniface.

Additional Remarks: All of these artifacts were found within 16 m of the hearth center. No artifacts were located in the northwest or southwest quadrants.

Feature 5

Shape: Indeterminate.

Elevation: 1,058.9 m above sea level.

Dimensions: 88 cm (north to south) by 1.4 m (east to west).

Degree of Disturbance/
Erosion: Hearth is not badly deflated but has been heavily trampled by cattle.

Artifacts Recovered: 2 bifaces and 1 flake with bifacial edge modification.

Additional Remarks: All artifacts were found within 4 m of the hearth center. No artifacts were located in the southeast or southwest quadrants.

Feature 6

Shape: Indeterminate.

Elevation: 1,058.9 m above sea level.

Dimensions: 82 cm (north to south) by 94 cm (east to west).

Degree of Disturbance/
Erosion: Heavily disturbed and eroded. Soil surface is very loose.

Artifacts Recovered: 1 flake with bifacial edge modification.

Additional Remarks: None.

Feature 7

Shape: Indeterminate.

Elevation: 1,058.7 m above sea level.

Dimensions: 1.37 m (north to south) by 1.13 m (east to west).

Degree of Disturbance/
Erosion: Heavily eroded and disturbed.

Artifacts Recovered: 1 biface, 1 uniface, and 2 flakes with bifacial edge modification.

Additional Remarks: All of these artifacts were located within 16 m of the hearth center. No artifacts were found in the southeast quadrant.

Feature 8

Shape: Ovoid.

Elevation: 1,058.9 m above sea level.

Dimensions: 1 m (north to south) by 94 cm (east to west).

Degree of Disturbance/
Erosion: Slightly disturbed by cattle trampling; not as badly eroded as Features 1 through 7.

Artifacts Recovered: 1 biface in the northeast quadrant, approximately 1 m from the hearth center.

Additional Remarks: None.

Feature 9

Shape: Circular.

Elevation: 1,059.0 m above sea level.

Dimensions: 82 cm (north to south) by 74 cm (east to west).

Degree of Disturbance/
Erosion: Very little apparent disturbance or erosion.

Artifacts Recovered: 1 *Clear Fork* tool, 2 bifaces, 2 core tools, 2 unifaces, 1 unmodified interior flake.

Additional Remarks: The *Clear Fork* tool was located exactly 60 cm southwest of the hearth center. The interior flake and one of the unifaces were recovered from a shovel test approximately 10 cm below surface. All of the other artifacts were located within 4 m of the hearth center. No artifacts were found in the northwest or southeast quadrants.

Feature 10

Shape: Irregular.

Elevation: 1,059.0 m above sea level.

Dimensions: 1.2 m (north to south) by 1.0 m (east to west).

Degree of Disturbance/
Erosion: Badly deflated and heavily disturbed by cattle trampling.

Artifacts Recovered: 1 biface, 1 core, 1 core tool, 3 unifaces.

Additional Remarks: All artifacts were located within 16 m of the hearth center.

Feature 11

Shape: Circular.

Elevation: 1,058.6 m above sea level.

Dimensions: 1.2 m (north to south) by 1.4 m (east to west).

Degree of Disturbance/
Erosion: This hearth is nearly intact, with very little apparent disturbance or erosion.

Artifacts Recovered: 3 unifaces, 1 flake with bifacial edge modification, 2 unmodified interior flakes.

Additional Remarks: All of these artifacts were located within 4 m of the hearth surface.

Feature 12

Shape: Indeterminate.

Elevation: 1,059.6 m above sea level.

Dimensions: 70 cm (north to south) by 64 cm (east to west).

Degree of Disturbance/
Erosion: Has been disturbed primarily by cattle trampling and some sheetwash erosion.

Artifacts Recovered: None.

Additional Remarks: None.

Feature 13

Shape: Circular.

Elevation: 1,059.7 m above sea level.

Dimensions: 71 cm (north to south) by 62 cm (east to west).

Degree of Disturbance/
Erosion: Deflated on the south edge; also disturbed by cattle trampling.

Artifacts Recovered: 2 bifaces, 1 end scraper, 2 unifaces, 3 flakes with bifacial edge modification, 2 unmodified interior flakes.

Additional Remarks: This feature was shovel tested to 35 cm below surface, where limestone caprock was encountered. One uniface and one interior flake was found ca. 10 cm below surface. All of the other artifacts were located within 4 m of the hearth center. No artifacts were found in the southeast quadrant.

Feature 14

Shape: Circular.

Elevation: 1,059.7 m above sea level.

Dimensions: 95 cm (north to south) by 1.12 m (east to west).

Degree of Disturbance/
Erosion: Somewhat eroded by sheetwash; otherwise not badly disturbed.

Artifacts Recovered: 2 unifaces.

Additional Remarks: Both of these artifacts were located approximately 1 m northwest of the hearth center.

SITE DISCUSSION

The recovery of cultural materials at Angus Flats appears to represent an occurrence of artifacts in association with prehistoric hearths. The archaeological evidence indicates that this site was used frequently as a camp or short occupation site by prehistoric hunters and gatherers. It should be kept in mind that the site is in an area containing eroded sediments and that some of the artifacts had obviously become displaced by wind and water erosion, and by cattle grazing. There is a possibility that some of the artifacts and hearths became fortuitously associated as a result of these processes. Furthermore, 100 years of cattle grazing on the site could have resulted in artifact modifications that appear to be cultural.

Other factors that limit discussion are: (1) not all behavior results in the patterned deposition of cultural materials (see Binford 1978, 1980); (2) of that behavior which does result in the patterned deposition of cultural materials, not all will be preserved at an exposed site like Angus Flats; (3) the only artifact that indicates an approximate time period for prehistoric occupation is the *Clear Fork* tool, which has Archaic associations. These considerations frame the following discussion.

Features 8, 12, and 6 (see Table 1) have so little cultural material that occupations around these hearths were probably very brief (possibly overnight). MacNeish (1958), in Tamaulipas, and Varner (1968), in northeastern Mexico, have postulated brief occupancy for similar archaeological features.

Whether or not each hearth represents a single or repeated occupations is problematic. However, the proximity (see Fig. 1) and similar cultural material

inventory (see Table 1) suggest that the following hearths may have resulted from roughly contemporaneous occupations: (1) Features 4, 5, and possibly 6; (2) Features 9 and 10; and (3) Features 13 and 14. Given these possible occupational associations the compactness of all of these hearths suggest they were used by people who built fires for small groups. These hearths were possibly camp sites for microbands or groups engaged in a specific task, such as hunting. These interpretations are consistent with the historic social organization of aboriginal inhabitants in southern Texas and northeastern Mexico. These groups were characterized as exogamous, patrilocal microbands (Ruecking 1955).

Another explanation for the proximity of certain hearths, other than contemporaneous occupations, has been offered by Varner (1968:61):

The presence of numerous adjacent hearths is probably due to each having been buried soon after use. Later hearths would be built on a slightly higher level of the sediments. Eventually, with the change to erosional activity, deflation of all hearths resulted in their common placement on the present ground surface.

The absence of certain cultural materials around hearths suggests additional interpretations.

1. None of these hearths have evidence that represents a toolmaking activity area. No primary cortex flakes, hammerstones, or concentrated flake accumulations were found around the hearths. Although there is a moderate flake scatter around part of the site (see Fig. 1), it does not exceed one flake per 4-m² area. Also, there is no evidence anywhere on the site surface of a lithic working area. This suggests that most core preparation and tool manufacturing occurred elsewhere. A possible location for these activities is the dry creek bed (see Fig. 1) where chert pebbles are relatively common. If this was where toolmaking occurred, traces of such activities would have been destroyed by subsequent flash floods.
2. The absence of ground stone artifacts, such as manos and metates, indicates that extensive preparation of plant foods that require grinding or pounding did not occur on the site.

SUMMARY AND RECOMMENDATIONS

The cultural materials (including the hearths) at Angus Flats can be attributed to temporary occupations by small nomadic groups, perhaps occurring seasonally or infrequently over a number of years. Many of the hearths have tools manufactured from non-local chert (see Table 2), and this supports the idea of far ranging nomadic groups passing through the site area and camping for brief intervals. Possibly they were exploiting specific game or plant resources, but there are no surviving organic remains to support such interpretations.

While the results of the project described here are inconclusive, it is felt that the site has been adequately documented. No further work is necessary to protect Angus Flats from the construction of the proposed powerline transmission corridor.

TABLE 2. TYPES AND DISTRIBUTION OF RAW MATERIALS IN FEATURES 1 THROUGH 14 AT ANGUS FLATS.

	<u>Local Chert</u>	<u>Non-Local Chert</u>	<u>Non-Local Petrified Wood</u>
Feature 1	X	X	
Feature 2	X	X	
Feature 3	X		
Feature 4	X		
Feature 5	X		
Feature 6	X		
Feature 7	X	X	
Feature 8	X		
Feature 9	X	X	X
Feature 10	X	X	
Feature 11	X	X	
Feature 12			
Feature 13	X	X	
Feature 14	X	X	

In contrast to other Texas areas, the archaeology of the Fort Stockton region is not well documented or understood. Further studies may use the data from Angus Flats for comparisons, and it is hoped, therefore, that this new information will constitute a contribution to archaeological research in Pecos County.

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