

ARCHEOLOGICAL INVESTIGATIONS OF FOUR SITES IN SOUTHWESTERN COAHUILA, MEXICO

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ABSTRACT

Four surface sites in the Desierto de Charcos de Risa were investigated. Artifacts spanning late Paleo-Indian to modern times were recovered. Although this region is included in the overall archeological pattern in northern Mexico, many artifact styles are specific to a small area. Among these, are pottery and projectile point styles.

INTRODUCTION

In 1967, I excavated four sites in the Charcos de Risa Desert of southwestern Coahuila, Mexico (Fig. 1) (Greene 1971). The excavations were conducted under the auspices of the Northeast Mexico Archeological Project directed by Jeremiah F. Epstein, University of Texas at Austin. Funds were provided by the National Science Foundation.

GEOLOGICAL SETTING AND ENVIRONMENT

The four sites are located in the general region known as the Laguna or Comarca Lagunera. The Charcos de Risa basin is a narrow elongated desert oriented northwest by southeast. The southern mouth opens on the Laguna Mayran and the northern on the Lagunas La Leche and Palomas. The basin is bordered on the east by the Sierra del Sobaco and on the west by the Sierra Tlahualillo. The sites are located along the dry channel of the Rio Charcos de Risa at the southern end of the desert.

The Laguna lies slightly south of the Bolson de Mapami. Eardley (1951: Fig. 338) and Maldonado-Koerdell (1964: 5) include the area in the Western Sierra Province. Interior drainage characterizes this basin-and-range region, and following rains, the basins are frequently covered by water. Salts collect in the lower parts of the basins and are observable on the surface. Active dune fields are common.

According to Tamayo and West (1964: 115), water drained into the Laguna near San Pedro de las Colonias from the Rio Nazas before it was dammed, creating many lakes. The largest, the Laguna Mayran, had a diameter of more than a mile.

According to the Koeppen Classification (Escoto 1964: 205-208), Coahuila is a true desert. The mean annual ground temperature is greater than 77° F. The difference between day and night tem-

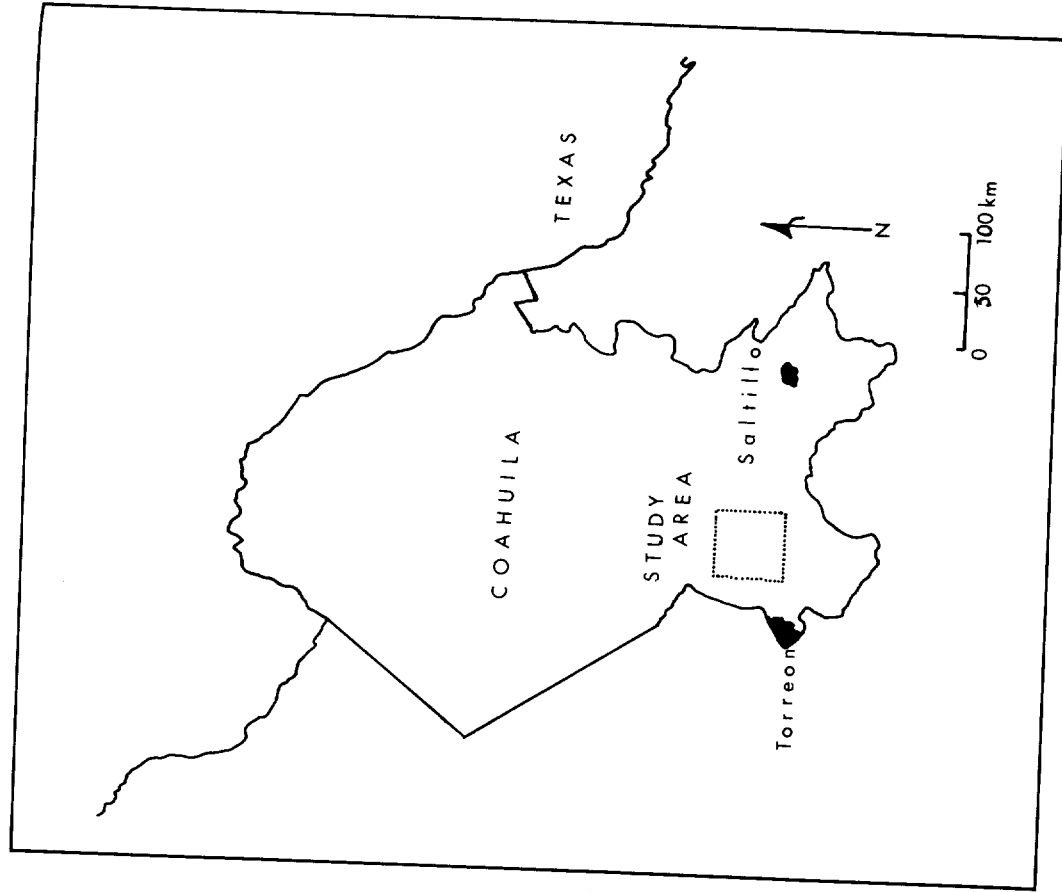


FIGURE 1. Location map of recent archeological excavations in Coahuila, Mexico.

peratures is extreme and cold winters are contrasted by hot summers. The mean annual precipitation is 25 cm. with greater than 40% variability. Thunderstorms occur most frequently during the summer (*Ibid.* 197-204).

FLORA AND FAUNA

Common flora in the Laguna includes Agave, *Opuntia*, *Cereus*, *Euphorbia*, *Larrea*, *Dasyllirion* and *Prosopis* (Aveleyra *et al* 1956: 41). Many mammals are common to the area. Among these are rodents, especially rabbits and carnivores. Birds are numerous but I observed no water fowl. According to local inhabitants, deer are rare.

Early Spanish reports (Griffen 1966: 114) indicate that the area was dry except near the lake margins. Fish, water fowl, fruits and nuts were reported in the wetter areas.

HISTORICAL BACKGROUND

Before Europeans reached the Laguna region the effects of the Spaniards were felt. Horses extended the range of indigenous groups in north central Mexico resulting in a rapid change in population distribution. Later, Indians from diverse cultural backgrounds united to harass the Spaniards, and many punitive expeditions were then mounted against the Indians. Also, missionization and its concomitant European diseases decimated the aboriginal population. Finally, deportation, assimilation and extinction obliterated the native inhabitants of the Laguna.

William B. Griffen (1966) has written an extensive study of the early historic period in north central Mexico. Readers are referred to this excellent report for greater detail.

ARCHEOLOGICAL BACKGROUND

Before 1967, only two major archeological investigations had been conducted in the study area. The first of these was in the central part of Coahuila, the Cuatro Ciénegas Basin. W. W. Taylor (1956, 1966) surveyed open sites and excavated several cave deposits. Subsequently he developed a cultural sequence based on artifact typology and radiocarbon dates from the cave materials.

Aveleyra *et al* (1956) described archeological materials from caves and open sites throughout the Laguna. The most spectacular site is a rich mortuary cave, Cueva de la Candelaria.

Many archeological investigations were conducted under the auspices of the Northeast Mexico Archeological Project. In 1960,

Jeremiah F. Epstein conducted archeological surveys in Nuevo Leon and Coahuila. This was followed by excavation of the San Isidro site in Nuevo Leon (Epstein 1969). Parts of Nuevo Leon and extreme Southeastern Coahuila were surveyed by Burney B. McClurken and Glen S. Greene in 1963. Both McClurken (1966) and Nance (1971) excavated sites in Nuevo Leon. The central part of Southern Coahuila from the Nuevo Leon border to Torreon was surveyed by Dudley M. Varner (1967). In 1966 an intensive survey was conducted near Torreon by Ronald W. Ralph and me. Also, in 1966, William Irwin located and excavated two large sites in the Laguna Mayran. Finally, in the spring of 1967 I returned to the Laguna and excavated the four sites that are the subject of this paper.

THE SITES AND EXCAVATION PROCEDURE

The sites C-189, C-190 and C-191 are adjacent to and almost contiguous with one another. Site C-190 lies between C-189 and the riverbed; site C-191 is slightly south of C-190. These three sites consist of from 100 by 100 to 100 by 200 meters of scattered debris; cracked basalt, hearths, burials, lithic and ceramic artifacts.

Site C-198 is located several kilometers northeast of the other sites. One edge of the site is adjacent to a large mesquite stand. The surface, 150 by 300 meters is littered with debris which includes stream-rolled cobbles. Milling stones are more prevalent on the surface than at the other sites.

The sites proved to be extremely shallow. It was hoped that some stratigraphic artifact distribution would be discovered, but there was little cultural material below 10 centimeters and no artifact differentiation existed from the surface to the lower limit of the deposit. Each site was mapped and excavation units were established. Placement of the units was based on high artifact concentration and an attempt to sample different parts of each site. It was hoped that the excavation units would indicate spatial differences among the artifact assemblages. Unfortunately, this was not the case.

The lack of spatial differences (both vertical and horizontal) among the artifact assemblages within each site is a function of the unconsolidated midden matrix and erosional factors. Wind deflation of the sites lowered the artifacts onto a common (present day) surface and destroyed the vertical record. Horizontal mixing of artifact assemblages is due to lateral movement caused by sheet erosion; all of the sites are subject to widespread vertical run-off of flood waters following heavy rains.

Intensive surface collections were made at each site. A dune area between C-190 and C-191 was sampled and all specimens are treated

as members of the collection of either C-190 or C-191. For provenience detail, see Greene (1971).

FEATURES

Burials

Three burials were removed from C-189. Skeletal remains at C-191 and C-198 were not removed due to extreme decomposition from exposure and because the field season was concluded prematurely. The terminology applied to the burial descriptions is adopted from Sprague (1968: 479-485).

The remains of the first burial, Feature 6, were badly deteriorated. The axis of the skeleton was east by west with the cranium in the east. The burial was a primary inhumation extended on the back. No artifacts or pit outline were associated with the burial. No age and sex determination could be made. However, the individual was probably a small child because only the central portions of the long bones remained. These long bone fragments were small.

Two additional burials (Features 7 and 8) were lying side by side. Both skeletons were partially scattered on the surface. The maximum depth of both burials was 10 cm. below the surface.

The long axis of one burial (Feature 7) was northwest by southeast with the cranium in the southeast. The burial was a primary inhumation, extended on the back with the hands along the sides. The skull, lower limb long bones, pelvis and all but three vertebra were missing or fragmented. The outline of an irregular burial pit was evident around the lower portion of the skeleton. No artifacts were associated with the burial. The individual is believed to have been an adolescent because the vertebral epiphysis were unfused. No sex determination was possible.

The long axis of the second burial (Feature 8) was east southeast by west northwest. The cranium was in the west northwest. The burial was a primary inhumation extended on the back with the hands along the sides and the left leg crossed over the right. The individual was an adult because all epiphysis were fused. No sex determination was made. There were no artifacts nor evidence of a burial pit.

Hearths

Three possible hearths were documented during excavation of site C-189. One possible hearth was excavated at site C-190.

Features 1 and 2 from C-189 are probably parts of a single hearth. Thirty-two small (diameters range between 5 and 10 cm.) basalt rocks were scattered across an area of 50 cm. diameter. There was no apparent orderly arrangement among the stones. No evidence of fire-hardened earth, charcoal or artifacts was associated with the features.

The second possible hearth at C-189 is Feature 3. Three basalt rocks (approximate diameters, 15 cm. each) and one smaller rock were scattered across an area of 25 cm. diameter. There was no orderly arrangement, associated charcoal or artifacts.

Features 4 and 5 represent the third possible hearth from C-189. A cluster of 7 stones (diameters of 15 cm. each) were scattered within an area 29 cm. in diameter. A large charcoal fragment was recovered from among the rocks. There was no fire-hardened earth nor were there artifacts associated with this possible hearth.

The single possible hearth from C-190 was excavated. This (Feature 1) consisted of 9 basalt rocks and charcoal fragments. Seven of the stones were located along an irregular north-south axis. The two remaining stones were 23 and 30 cm. west of these. No artifacts, charcoal, or fire-hardened earth was discovered.

ARTIFACTS

Analysis of artifacts from northern Mexico is hampered by the lack of detailed comparative information. Therefore, lengthy descriptions of all artifact categories are included and related to established, culturally significant types. Since categories have been established, from the 1971 report (Greene 1971) they are carefully referenced here. All unclassifiable fragments are omitted from this report.

Because analysis of the artifacts indicated that no vertical or horizontal significance could be demonstrated, artifacts are reported only by site. Refer to Tables I, II, III, and IV for proveniences not included in the text.

Projectile Points

Primary sorting criteria are dart and arrow point categories. Mean dart point weights are greater than 2.5 grams and mean arrow point weights are less than 2.5 grams (Fenega 1953).

The outlines of the proximal or basal portions of projectile points are used to define the primary categories. These are: contracting stemmed, straight stemmed, expanding stemmed, side-notched, miscellaneous stemmed, and unstemmed. These categories are based on the observation that stem or base treatment is significant:

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although obviously, not all sub-categories within a single stem treatment are contemporaneous. This is not unique. Johnson (1967) demonstrated the chronological significance of basal characteristics among projectile points from central and southwestern Texas. Stem characteristics are reflected in the typology of central Coahuila (Taylor 1966) and are significant among the projectile point changes in northern Mexico and adjacent Texas which are summarized by Epstein (1969).

The final sorting criterion is based on common typology. Projectile points are compared to known types when possible and provisional types are described. Many point forms from central and southwestern Coahuila have been briefly described by Aveleyra *et al* (1956) and Taylor (1966) but systematic description is lacking. In order to provide comparative data, detailed descriptive information about each projectile point type, provisional type and untyped category is included in the text of this paper.

DART POINTS

A total of 167 dart points was recovered from the four sites. These include: contracting stemmed (49 specimens), straight stemmed (3 specimens), expanding stemmed (80 specimens), side-notched (17 specimens), miscellaneous stemmed (4 specimens), unstemmed (14 specimens).

CONTRACTING STEMMED

Among the contracting stemmed dart points are three types defined by Taylor (1966), one provisional type and four untyped categories.

Acatita (Fig. 2, a-c)

There are seven specimens in this provisional type. The blades are triangular with recurved or convex edges. Alternate or unifacial beveling of the blade edges is common. With one exception the stems are short, narrow and strongly contracted to slightly expanded. The exception has a long stem. Stems may be asymmetrical to the medial axis of the blade with thinned or unthinned bases. The regularly barbed shoulders are equal to or slightly longer than the stems. One shoulder of a single specimen is descending. It may have been fractured. Dimensions: length, 2.6-3.8 cm.; length of stem, 0.8-1.0 cm. and exception, 1.4 cm.; width across shoulders, 2.1-2.9 cm.; width of base, 0.6-1.1 cm.; thickness 0.5-0.7 cm.; weight, 2.3-4.3 grams. Remarks: Greene (1971) Class I, Group 5; Class III, Group 7; pages 24, 25, 33; Plate 2, m-q and 44.

Duran (Fig. 2, d-f)

These thirty specimens conform to Taylor's *Duran* type (1966; Fig. 3, bottom row left). They are characterized by opposed blade notches, barbed or

straight shoulders and bulbous stems. Most are crude and thick although two have thin broad blades. Most specimens have two sets of opposed blade notches but one set or more than two sets does occur. Dimensions: length, 2.5-4.0 cm.; width across shoulders, greater than 1.2-2.3 cm.; thickness, 0.4-0.7 cm. Remarks: Similar specimens from Poza Salada are illustrated by Aveleyra *et al.* (1956: Lam. I h,i). Greene (1971) Class III, Group 13; pages 43-49; Plates 3, ii-yy and 4, a-k. Silva and Hester (1973: 151, Fig. 2,e-q) recovered comparable specimens from eastern Durango.

Gobernadora (Fig. 2.g)

This specimen conforms to the Gobernadora type as illustrated by Taylor (1966: third row right). The blade is triangular, edges straight and barbs are regular. The stem is bulb shaped, expands medially and constricts to a sharply pointed bifacially thinned base. Dimensions: length, 6.3 cm.; width across shoulders, 2.9 cm.; thickness, 0.6 cm. Remarks: Greene (1971) Class I, Group 1, Subgroup 1; page 19; Plate 2.a.

Jora (Fig. 2.h)

Three specimens are comparable to Jora points (Taylor 1966; Fig. 3, first row). The stem is broken from one dart point. The triangular blades have concave or convex edges. Shoulders are variable, being both regularly barbed or one regularly barbed and the other descending. Bases are bifacially thinned and convex. The base of each stemmed specimen has a shallow central notch, thus differing from Taylor's examples. One specimen has an alternately beveled blade and stem. The beveling on the blade and stem are opposed. Dimensions: length, 3.8-4.1 cm.; width across shoulders, 2.6-3.3 cm.; thickness, 0.5-0.7 cm. Remarks: Aveleyra *et al.* (1956: Lam II a) also illustrates this form. Greene (1971) Class I, Group 1, Subgroups 2 and 3; pages 19-20; Plate 2.b-c.

Untyped A (Fig. 2,i-i)

These four specimens have triangular blades with straight, convex or recurved edges. Shoulders are regularly barbed and shorter than the stems. Stems are straight or asymmetrical with bifacially thinned bases. On one specimen, one blade edge is unifacially notched from the tip to the shoulder. Dimensions: length, 2.8-3.9 cm.; width across shoulders, 1.8-2.2 cm.; thickness, 0.4-0.8 cm. Remarks: Greene (1971) Class I, Group 2, Subgroup 2 and Group 3; pages 20-22; Plate 2,d and i.

Untyped B (Fig. 2.k)

These are proximal fragments of two large dart points. The shoulders have small regular barbs. Stems are short, asymmetrical to the medial axis with straight edges and convex bases. The base of one is unifacially thinned. The other is unthinned. Dimensions: length, greater than 2.7 cm.; width across shoulders, slightly greater than 3.7 cm.; thickness, 0.7-0.8 cm. Remarks: Greene (1971) Class I, Group 4, Subgroup 1; page 23; Plate 2,j,k.

Untyped C (Fig. 2.l)

The thick triangular blade of this specimen has one straight and one convex edge. The convex edge is deeply notched distal to a descending shoulder. The opposite shoulder is regularly barbed. The stem edges are

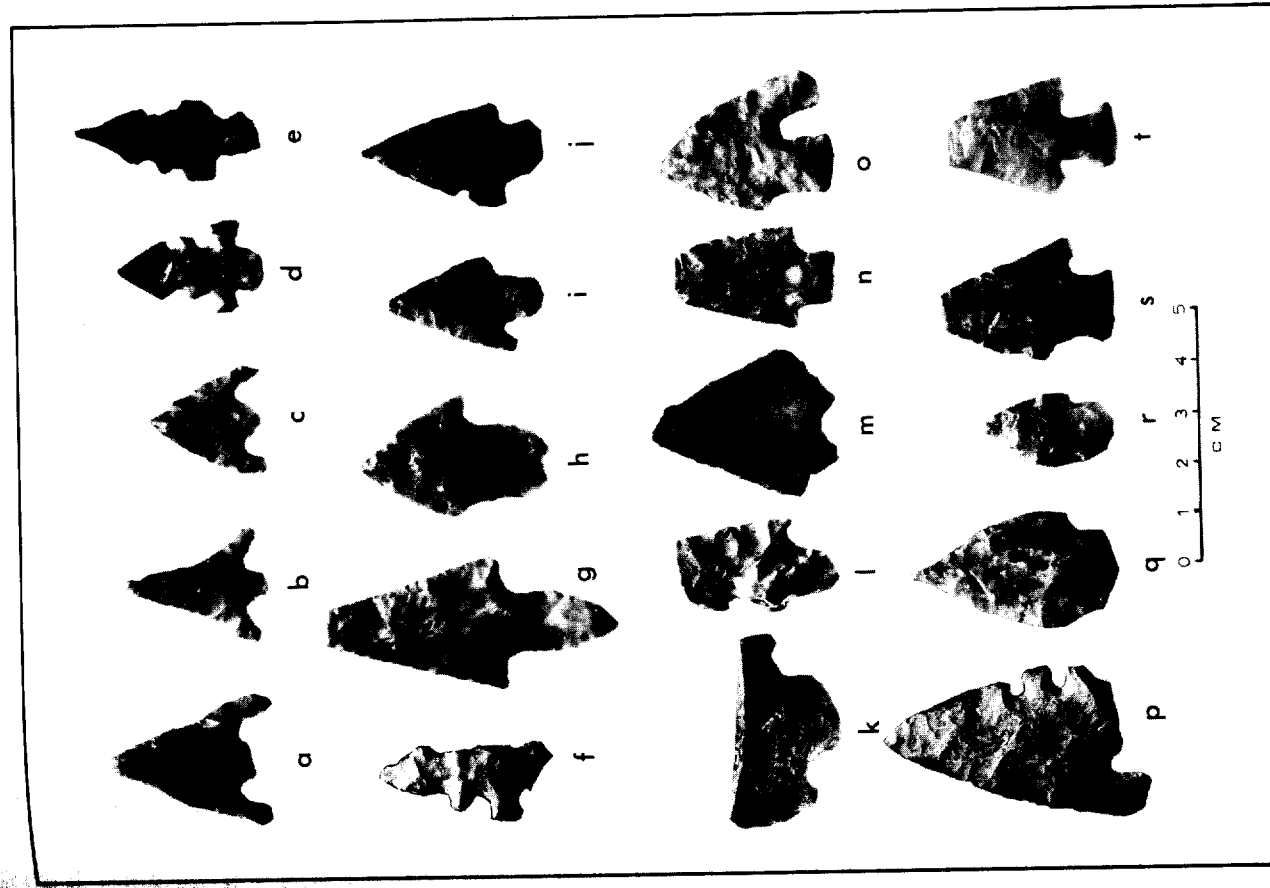


FIGURE 2. Dart Points. a-c, Acatita; d-f, Duran; g, Gobernadora; h, Jora) i-j, Untyped A; k, Untyped B; l, Untyped C; m, Untyped D; n, Untyped E; o-p, Charcos; q-r, Finesterre; s-t, Vertiente.

straight and the bifacially thinned base is convex. Dimensions: length, greater than 3.6 cm.; width across shoulders, 2.1 cm.; thickness, 0.8 cm. Remarks: Greene (1971) Class I, Group 6; page 25; Plate 2,r).

Untyped D (Fig. 2,m)

This unique specimen has a broad triangular blade with alternately beveled edges. The barbs of both shoulders are fractured. The short stem has straight edges. The base is a wide bifacially thinned notch. Dimensions: length, 4.0 cm.; width across shoulders, greater than 3.2 cm.; thickness, 0.6 cm. Remarks: Greene (1971) Class I, Group 8; page 26; Plate 2,t.

STRAIGHT STEMMED

Only three dart points have straight stems. None can be placed in a previously described or provisional type.

Untyped E (Fig. 2,n)

Of these three specimens only one is complete. Two specimens are stemless but the blade morphology is so similar that they are tentatively included in the description. All are symmetrical and well-made. Blades are long, triangular and have slightly convex edges. Shoulders are small and straight or slightly barbed. On the complete specimen the stem and base edges are straight. The base is bifacially thinned. Dimensions: length, greater than 3.5 cm.; width across shoulders, 2.4 cm.; thickness, 0.6 cm. Remarks: Greene (1971) Class II, Group I and possible Group 1; pages 26-27; Plate 2, u-w.

EXPANDING STEMMED

Among the expanding stemmed dart points are three provisional types and six untyped categories.

Charcos (Fig. 2, o-p)

Although the forty-nine artifacts in this category are considered members of a provisional type, research beyond the scope of this paper indicates that temporal and spatial bounds are definable (Greene 1971). Thus, a confirmed type is indicated. The specimens are divided into three varieties on the basis of a morphological feature: blade notching. The varieties may not be culturally significant and are presented here for descriptive purposes only. The varieties are: *Charcos* unnotched (7), single-notched (39), and double-notched (2).

Charcos dart points have triangular blades with irregular, straight or convex edges. Shoulders are asymmetrical; one undeveloped or descending, the opposite barbed. One specimen has two barbed shoulders but one is shorter than the other. The barbed shoulder ranges from short to long, narrow to wide and is usually hooked toward the stem. The blade edge distal to the weakest shoulder is straighter than the opposite edge. Bifacial or unifacial notches occur on this straighter edge. Stems vary from short to long with bifacially thinned concave, straight or convex bases. Dimensions:

length, 2.7-5.7 cm. with most between 3.0-4.5 cm.; length of stem, 0.7-1.3 cm.; width across shoulders, 1.8-3.2 cm.; width of base, 1.0-1.7 cm.; thickness 0.5-0.7 cm.; weight, 2.5-7.3 grams. Remarks: Avelleyra *et al* (1956: Lam. VIc, X a-c) illustrates a similar specimen from Poza Salada and the Bolson de las Delicias. Greene (1971) Class III, Group II, Subgroups 1-9; pages 35-41; Plates 2, vv-yy, 3, a-bb.

Finestere (Fig. 2, q-r)

There are five specimens in this provisional type. Blades are leaf-shaped or triangular with convex edges. The blade of one specimen is recurved near the tip. Shoulders are asymmetrical; one undeveloped or descending, the opposite straight or barbed. Stems are broad with convex or slightly concave bases. With one exception, bases are bifacially thinned. Dimensions: length, 1.9-4.2 cm.; length of stem, 0.7-1.0 cm.; width across shoulders, 1.7-2.5 cm.; width of base, 1.0-1.8 cm.; thickness, 0.3-0.7 cm.; weight, 1.3-6.0 grams. Remarks: Greene (1971) Class III, Group II, Subgroups 10-12; pages 41-42; Plate 3, cc-gg. A similar specimen is illustrated by Taylor (1966: Fig. 5, top row, fourth from right) which he assigns to the Middle and Late Coahuila Complex.

Vertiente (Fig. 2, s-t)

These five specimens comprise a provisional type. Blades are triangular with straight or concave/convex blade combinations. Shoulders are barbed and shorter than the stems. With one convex exception, stem edges are straight or concave. Bases are concave and bifacially thinned. Although stems are expanding, they are not bulbous. Dimensions: length, greater than 3.6-greater than 4.0 cm.; length of stem, 0.8-1.2 cm.; width across shoulder, 2.2-2.8 cm.; width of base, 1.2-1.6 cm.; thickness, 0.5-0.7 cm.; weight, greater than 2.1-greater than 6.1 grams. Remarks: Greene (1971) Class III, Group 2; page 29; Plate 2, aa-ee. These dart points are similar to some Middle and Late Coahuila Complex specimens (Taylor 1966: Fig. 5).

Untyped F (Fig. 3, a,b)

These thirteen specimens are all fragments and may be members of previously described types. All are irregularly shaped with long narrow stems and barbed shoulders. Stems of two specimens are bulbous. Dimensions: length, 2.2-3.5 cm.; width across shoulders, 1.6-greater than 2.9 cm.; thickness, 0.4-0.9 cm. Remarks: Greene (1971) Class III, Group 3, 5, and 6; page 29-33; Plate 2, ff-nn, pp, qq.

Untyped G (Fig. 3, c)

This specimen has a broad leaf-shaped blade with edges constricted near the tip. Shoulders are barbed and shorter than the stem. Stem edges are concave and the base unthinned. Dimensions: length, 3.2 cm.; width across shoulders, 2.5 cm.; thickness, 0.9 cm. Remarks: Greene (1971) Class III, Group 4; page 32; Plate 2, oo.

Untyped H (Fig. 3, d)

This is a proximal fragment of a large projectile point. The blade is broad and the shoulder barbed. The stem edge is concave and the bifacially thinned base convex. Dimensions: length, greater than 3.3 cm.;

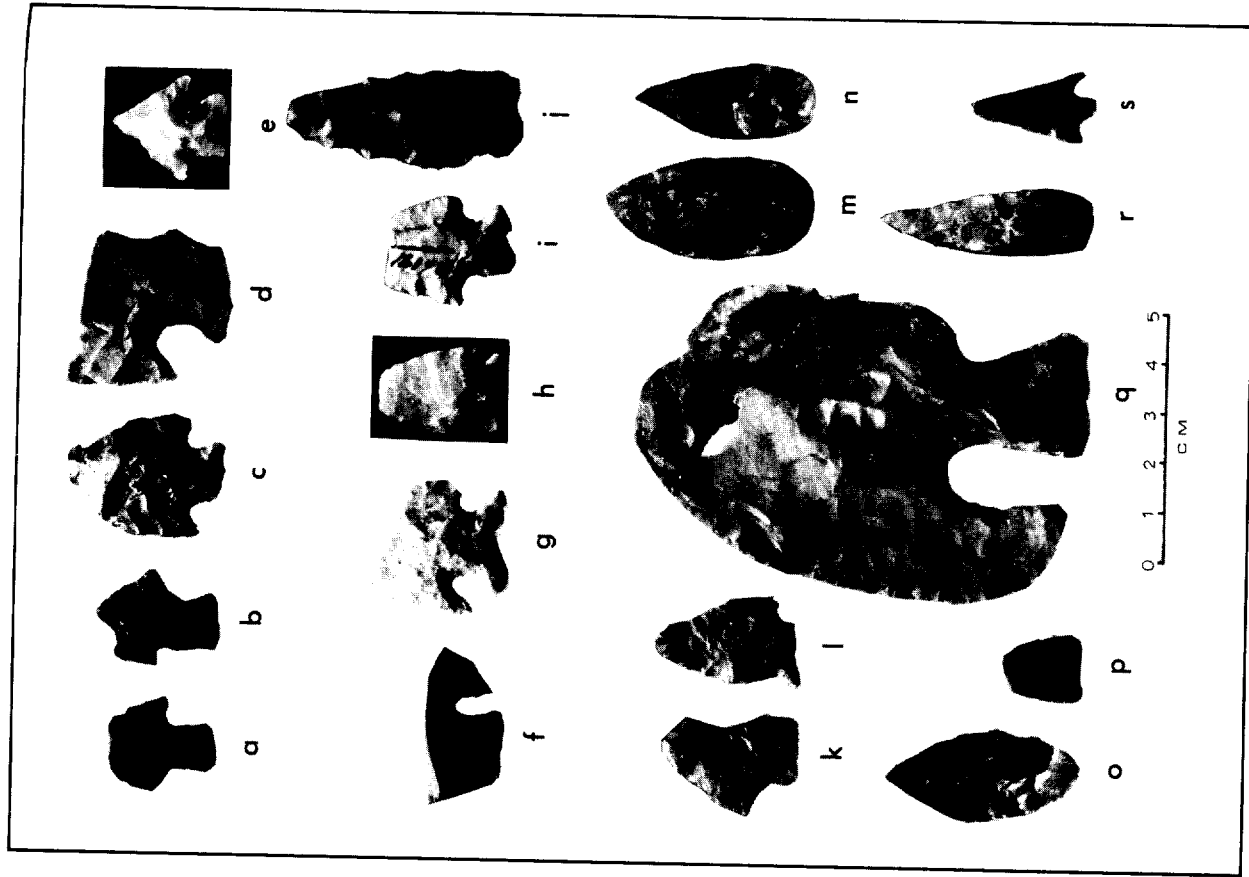


FIGURE 3. Dart and Arrow Points. a-b, Untyped F; c, Untyped G; d, Untyped H; e, Untyped I; f, Untyped J; g, Untyped K; h-i, Ensor-like; j, Untyped L; k, Untyped M; q, Charcos-like; l, Untyped N; m, Abasolo; n, Catan; o, Lerma; p, Matamoros; r, Untyped O; s, Untyped P.

thickness, 0.8 cm. Remarks: Greene (1971) Class III, Group 12; page 43; Plate 3, hh.

Untyped I (Fig. 3, e)

This short dart point has been reshaped. The broad blade has recurved edges. Shoulders are barbed. Stem edges are convex and the irregular base is thinned. Dimensions: length, 2.6 cm.; width across shoulders, 2.3 cm.; thickness, 0.6 cm. Remarks: Greene (1971) Class III, Group 8; page 34; Plate 2, ss.

Untyped J (Fig. 3, f)

These three specimens appear to have been fractured during manufacture. They are thin proximal fragments with broad stems, narrow notches and barbs that are the same length as the stem. Dimensions: length of stem, 0.5-1.1 cm.; thickness, 0.4-0.6 cm. Remarks: Greene (1971) Class III, Group 1; pages 27-28; Plate 2, x-z.

Untyped K (Fig. 3, g)

Both of these specimens have distinctive concave bases. Shoulders are barbed and stem edges convex. Dimensions: length, greater than 2.9 cm.; width across shoulders, greater than 1.2-slightly greater than 2.8 cm.; thickness, 0.5-0.6 cm. Remarks: Greene (1971) Class III, Groups 9 and 10; pages 34-35; Plate 2, tt-uu.

SIDE-NOTCHED

Side-notched dart points include specimens of one previously described type and two untyped categories.

Ensor-like (Fig. 3, h-i)

There are thirteen specimens in this type (Suhm and Jelks 1962). Blades are leaf-shaped and shoulders barbed. Bases are convex and slightly less than or equal to the width of the shoulders. The larger stems are slightly wedge-shaped. Ensor-like dart points are larger and more symmetrical than the *Scallorn*-like specimens. There is more variety among these than Ensor type specimens illustrated by Suhm and Jelks (*ibid.*). Dimensions: length, 2.7-4.1 cm.; length of stem, 0.8-1.6 cm.; width across shoulders, 1.6-2.4 cm.; width of base, 1.3-2.1 cm.; thickness, 0.4-0.8 cm.; weight, greater than 1.2-4.8 grams. Remarks: Greene (1971) Class IV, Groups 1, 2, and 4; Subgroups 1-3, pages 49, 50-52; Plate 4, 1, m-o, s-w. Suhm and Jelks (1962) describe the Ensor dart point type. Taylor (1966; Fig. 5, third row, fourth from right) illustrates a similar specimen among Middle and Late Coahuila Complex projectile points.

Untyped L (Fig. 3, j)

These three specimens are crude, asymmetrical and thick in cross-section. With one exception (unnotched), shoulder notches are shallow and shoulders descending. Bases are bifacially thinned. Dimensions: length, 4.3-4.8 cm.; width across shoulders, 1.8-1.9 cm.; thickness, 0.6-0.9 cm. Remarks: Greene (1971) Class IV, Groups 8 and 9; pages 60-66; Plate 4, xx-vv.

Untyped M (Fig. 3, k)

This dart point has a broad blade and stem. The blade is short. One shoulder and blade edge are broken. The other stem edge is straight and the shoulder barbed. One stem edge is straight and the other convex. The base is bifacially thinned. Dimensions: length, 2.8 cm.; thickness, 0.5 cm. Remarks: Greene (1971) Class IV, Group 5; page 55; Plate 4, gg.

MISCELLANEOUS STEMMED FORMS

There are only two categories of miscellaneous stemmed forms. Although one category includes a specimen that is comparable to specimens in a defined type, the others cannot be compared to known forms.

Charcos-like (Fig. 3, q)

This specimen is similar to the Charcos type but is extremely large. Dimensions: length, slightly greater than 9.1 cm.; width across shoulders, greater than 5.1 cm.; thickness, 1.0 cm. Remarks: Greene (1971) Eccentric Form Class II; page 120; Plate 11, g.

Untyped N (Fig. 3, l)

The three specimens in this category are unique. The first dart point has one descending shoulder and adjacent concave stem edge. The opposite shoulder is barbed with a short stem. It appears to be a tang jutting from the blade edge (Fig. 3, n). The second specimen has a triangular blade with one unnotched edge. The opposite edge is notched. The final specimen is a proximal fragment. One blade edge is straight with a small projection or tang near the basal junction. The opposite blade edge is concave and unnotched. The bifacially thinned base is notched near the junction with the concave blade edge. Dimensions (in order of description): length, 2.8, 2.9 cm.; width across shoulders, 1.9, 1.7 cm.; thickness, 0.6, 0.5, 0.7 cm. Remarks: Greene (1971) Class V; pages 62, 63; Plate 4, zz; Plate 5, a, b.

UNSTEMMED

Among the unstemmed projectile points are four previously defined types and one untyped category.

Abasolo (Fig. 3, m)

Four specimens conform to the Abasolo type as described by Suhm and Jelks (1962). Dimensions: length (one specimen), 4.5 cm.; width, 1.7-2.1 cm.; thickness, 0.6-0.9 cm. Remarks: Greene (1971) Class VI, Group 8, Subgroups 1 and 2; page 67; Plate 5, m-n. MacNeish includes similar specimens among the Abasolo Round Base category from the Sierra de Tamaulipas (1958: 62-64; Fig. 23, 15-21). Taylor (1966: Fig. 4, top row left) includes similar specimens among Espantosa points of the Early Coahuila Complex.

Catan (Fig. 3, n)

There are four specimens comparable to the Catan type (Suhm and Jelks 1962). None are beveled. Dimensions: length, 2.9-3.7 cm.; width, 1.4-1.7

cm.; thickness, 0.5-0.7 cm. Remarks: Epstein (1969: 18-20, Fig. 4, A-F) describes Catan points from Nuevo Leon. Greene (1971) Class VI, Group 8, Subgroups 4-6; pages 68-69; Plate 5, p-r. MacNeish (1958: 68-69) describes Catan Round Base specimens from Tamaulipas. Silva and Hester (1973: 150, Fig. 2, a-c) recovered Catan points from the Robles site in eastern Durango.

Lerma (Fig. 3, o)

Two specimens correspond to the Lerma type (Suhm and Jelks 1962). One specimen is extremely small. Dimensions: length, 4.0-6.3 cm.; width, 2.0-2.3 cm.; thickness, 0.9-1.5 cm. Remarks: Epstein (1969: 22-23, Fig. 4, P-S) reports Lerma points from Nuevo Leon. Greene (1971) Class VI, Group 7; page 66; Plate 5, k-l. MacNeish (1958: 62) describes Lerma points from Tamaulipas. Taylor (1966: 67; Fig. 3, row 2; Fig. 4, row 1 and 2 left) includes similarly shaped specimens among *Fragua* and *Espantosa* points and assigns them to the Early Coahuila Complex. Silva and Hester (1973: 150, Fig. 2, d-f) found Lerma type dart points on the Robles Site in eastern Durango. As part of a varied surface collection, the specimens can not be dated.

Matamoros (Fig. 3, p)

Three dart points are classified as Matamoros type (Suhm and Jelks 1962). Dimensions: length, 1.8 cm.-greater than 1.8 cm.; width, 1.4-1.5 cm.; thickness, 0.3-0.4 cm. Remarks: Epstein (1969: 23-24; Fig. 1-K) discusses Matamoros points from Nuevo Leon. Greene (1971) Class VI, Groups 1 and 6; pages 63, 65-66; Plate 5, c, d, j. MacNeish (1958: 68) reports Matamoros Triangular points from Tamaulipas.

Untyped O (Fig. 3, r)

This is a thick, crude elongate dart point. Edges are steep and concave. The bifacially thinned base is convex. Dimensions: length, greater than 1.7 cm.; width, 1.5 cm.; thickness, 0.3 cm. Remarks: A similar specimen is described by Epstein (1969: 35; Fig. 4, T) as Miscellaneous, C: Long, Narrow, Round Base. Greene (1971) Class VI, Group 8, Subgroup 3; page 6; Plate 5, o.

ARROW POINTS

A total of 49 arrow points were recovered from the four sites. These include: contracting stemmed (nine), side-notched (thirty-four specimens), unstemmed (six specimens).

CONTRACTING STEMMED

Among the contracting stemmed arrow points are three untyped categories. No specimens comparable to known or provisional types were recovered.

Untyped P (Fig. 3, s)

There are seven specimens in this category. Due to the morphological variety among these artifacts, I hesitate to classify all as members of a

single type. They may represent a hodgepodge of unfinished or rejected specimens of several types. All are crude and asymmetrical having been made by modifying only the flake edges. Five specimens have regularly barbed shoulders, two have one barbed and one descending shoulder. Four have a single unifacial notch on one blade edge. One has a unifacial notch on both blade edges. These specimens are comparable to some flake points attributed to the Coahuila or Jora Complexes by Taylor (1966; Fig. 6, first row left). Dimensions: length, 2.1-3.7 cm.; width across shoulders, 1.6-2.2 cm.; thickness, 0.2-0.7 cm. Remarks: Greene (1971) Class I, Group 2, Subgroup 2; page 21; Plate 2, e-h.

Untyped Q (Fig. 4, a)

This specimen is similar to the dart points described in category Untyped A. Dimensions: length, greater than 2.3 cm.; thickness, 0.7 cm. Remarks: Greene (1971) Class I, Group 4, Subgroup 2; page 23; Plate 2, 1. This specimen may be comparable to a Middle and Late Coahuila point illustrated by Taylor (1966; Fig. 5, fifth row left).

Untyped R (Fig. 4, b)

This specimen has a long narrow triangular blade with one straight and one recurved edge. Shoulders are asymmetrical and descending. The long stem has concave edges and an unthinned base. Dimensions: length, 3.9 cm.; width across shoulders, 1.5 cm.; thickness, 0.5 cm. Remarks: Greene (1971) Class I, Group 7; page 26; Plate 2, s.

SIDE-NOTCHED

Side-notched arrow points are comparable to three known types and one provisional type. One of the known types, *Scallorn*, has not previously been described in Coahuila.

Diaz (Fig. 4, c-e)

The three specimens in this provisional type are thick. Cross sections at mid-blade are almost circular. Blade edges are irregular and alternately beveled. Shoulders are descending. The stems are irregular with concave edges. Only one base is bifacially thinned. Dimensions: length, 2.7-2.9 cm.; length of stem, 0.7-1.1 cm.; width across shoulders, 1.3-1.8 cm.; width of base, 1.2-1.6 cm.; thickness 0.6-0.7 cm.; weight, 1.8-2.5 cm. Remarks: Greene (1971) Class IV, Group 3; pages 50-51; Plate 4, p-r.

Harrell (Fig. 4, f-g)

These three arrow points conform to the Harrell type as defined by Suhm and Jelks (1962). Dimensions: length, 2.4-2.9 cm.; width across shoulders, 1.0-1.2 cm.; thickness, 0.3 cm. Remarks: Greene (1971) Class IV, Group 7, Subgroup 8; page 59; Plate 4, ss-uu. These may be related to a *Sierra Madera* specimen illustrated by Taylor (1966; Fig. 27, first row center) and possibly related to *Toyah* arrow points.

Scallorn-like (Fig. 4, h-i)

These twenty-six specimens conform to the morphological characteristics described for *Scallorn* arrow points (Suhm and Jelks (1962).

SOUTHWESTERN COAHUILA

However, *Scallorn* points have not been previously reported in Coahuila. Dimensions: length, 1.9-3.0 cm.; width across shoulders, 1.4-1.7 cm.; thickness, 0.3-0.5 cm. Remarks: Greene (1971) Class IV, Group 4, Subgroups 4-9 and Groups 6-7; Subgroups 1-7; pages 52-59; Plate 4, x-z, aff, hh-rr Taylor (1966; Fig. 6, top row right and Fig. 27) illustrates similar specimens among Coahuila and Jora Complex projectile points.

Toyah or Sierra Madera (Fig. 4, j)

These two specimens are comparable to Toyah arrow points (Suhm and Jelks 1962) or Sierra Madera projectile points (Taylor 1966; Fig. 27, top row and second row left). They are thicker and cruder than the Harrell points with proportionately smaller blades and larger stems. Shoulders are descending. Dimensions: length, 2.7 cm.; width across shoulders, 1.4-1.5 cm.; thickness, 0.4-0.6 cm. Remarks: Similar projectile points from Poza Salada are illustrated by Aveleyra et al. (1956; Lam. IV, c-d; Lam. X, d). Greene (1971) Class IV, Group 7, Subgroup 9; page 60; Plate 4, vv-ww.

UNSTEMMED

Only two unstemmed categories of arrow points were found. Both are comparable to known types.

El Muerto or Fresno (Fig. 4, k)

Five arrow points are El Muerto type (Taylor 1966; Fig. 27, fourth row) which are assigned to the Jora Complex. Blades are thin and triangular with straight or concave bases. One long and narrow specimen has finely serrated blade edges. Bases are bifacially thinned. Dimensions: length, 1.8-2.9 cm.; width, 1.5-1.7 cm.; thickness, 0.3-0.4 cm. Remarks: These are similar to specimens from Poza Salada (Aveleyra et al 1956; Lam. IV, h-n). Greene (1971) Class VI, Groups 2, 4, 5; pages 64-65; Plate 5, e, f, h, i.

Garza (Fig. 4, l)

Only one specimen is a Garza arrow point (Runkles 1964). Dimensions: length, greater than 1.7 cm.; width 1.5 cm.; thickness, 0.3 cm.; Remarks: Greene (1971) Class VI, Group 3; page 64; Plate 5, g. Similar specimens described by Taylor (1966; Fig. 27, second row right) as Cienegas points have a notched concave base. The base of this specimen is notched but not concave. He assigns Cienegas points to the Jora Complex.

SUMMARY AND CHRONOLOGICAL PLACEMENT OF PROJECTILE POINTS

A total of 216 projectile points were recovered from the four sites in the Desierto de Charcos de Risa. Both dart and arrow point forms are represented and include specimens of thirteen previously defined types, five provisional types and eighteen untyped categories.

Although stratified deposits from the Charcos de Risa were not encountered, comparison of similar projectile point forms from surrounding areas enables the presentation of a chronologically ordered

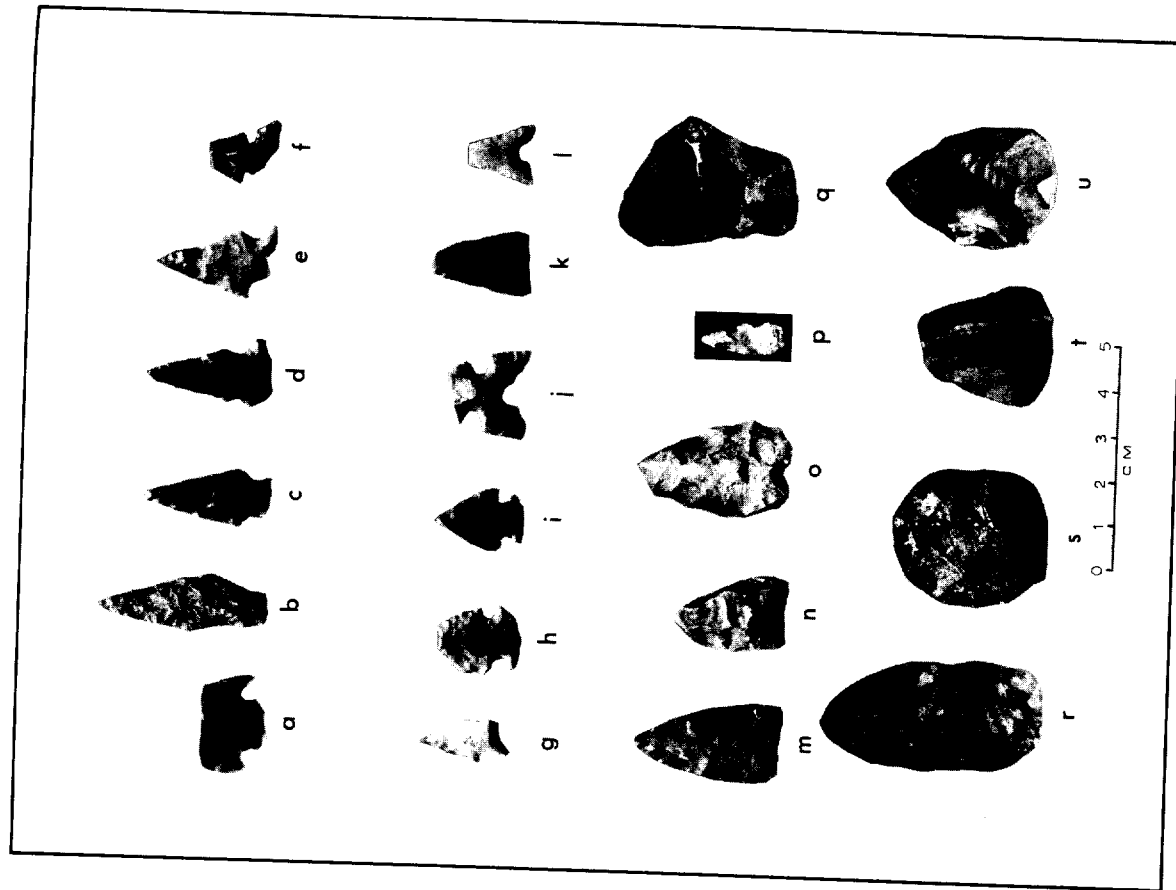


FIGURE 4. Arrow Points and Bifaces. a, Untyped Q; b, Untyped R; c, e, Diaz; f-g, Harrell; h-i, Scallorn-like; j, Toyah or Sierra Madera; k, El Muerto or Fresno; l, Garza; m, Symmetrical Gouge; n, Irregular Gouge; o, Notched Gouge; p, Narrow Elongate Implement; q, Asymmetrical Thin Biface; r, Elongate Thin Biface; s, Subcircular, Suboval and Teardrop Thin Biface; t-u, Leaf-shaped to Triangular Thin Bifaces.

TABLE 1. PROVENIENCES OF PROJECTILE POINTS

PROJECTILE POINTS	C-189	C-190	C-191	C-198	Total
Dart Points					
Contracting Stemmed (Total)	14	22	5	8	49
Acatita	1	2	2	2	7
Duran	9	15	2	4	30
Gobernadora	0	1	0	0	1
Jora	1	2	0	0	3
Untyped A	1	1	1	1	4
Untyped B	0	1	0	1	2
Untyped C	1	0	0	0	1
Untyped D	1	0	0	0	1
Straight Stemmed (Total)	0	2	1	0	3
Untyped E	0	2	1	0	3
Expanding Stemmed (Total)	16	16	14	34	80
Charcos	11	4	6	28	49
Finesterre	0	2	3	0	5
Vertiente	1	3	0	1	5
Untyped F	3	4	2	4	13
Untyped G	0	1	0	0	1
Untyped H	0	1	0	0	1
Untyped I	0	0	1	0	1
Untyped J	1	0	2	0	3
Untyped K	0	1	0	1	2
Side-Notched (Total)	1	8	6	2	17
Ensor-like	0	6	6	1	13
Untyped L	1	2	0	0	3
Untyped M	0	0	0	1	1
Miscellaneous Stemmed Forms (Total)	0	2	1	1	4
Charcos-like	0	1	0	0	1
Untyped N	0	1	1	1	3
Unstemmed (Total)	0	4	1	9	14
Abasolo	0	2	0	2	4
Catan	0	2	0	2	4
Lerma	0	0	0	2	2
Matamoros	0	0	1	2	3
Untyped O	0	0	0	1	1
Arrow Points					
Contracting Stemmed (Total)	0	6	2	1	9
Untyped P	0	6	1	0	7
Untyped Q	0	0	1	0	1
Untyped R	0	0	0	1	1
Side-Notched (Total)	1	18	8	7	34
Diaz	0	1	1	1	3
Harrell	0	2	0	1	3
Scallorn-like	1	13	7	5	26
Toyah or Sierra Madera	0	2	0	0	2
Unstemmed (Total)	0	4	2	0	6
El Muerto or Fresno	0	3	2	0	5
Garza	0	1	0	0	1

sequence. This sequence is based on projectile point stem and base characteristics discussed by Taylor (1966) for the Cuatro Ciénegas Basin in central Coahuila, Epstein (1969) for northern Mexico and adjacent Texas, and Johnson (1967) for central and southwest Texas. The southwest Texas sequence is further supported by Dibble (1967) and Story and Bryant (1966). Although the projectile point sequence is established, absolute chronological dates are difficult to confirm and should be regarded as estimates in this paper.

References to the Altithermal climatic period are based on Antevs (1955, 1962) but no effort is made to determine the applicability of the concept in northern Mexico. Nance (1972) regards Altithermal climatic conditions to have been a factor affecting cultural developments in northern Mexico. Bryant (1974) discusses the pollen record in the Amistad Reservoir of southwest Texas and considers the possibility that Post-Glacial climatic change was gradual and increasingly arid.

A lengthy cultural succession is indicated by projectile point comparisons. Points ranging from late Paleo-Indian to late prehistoric times are included among the sample recovered from the Charcos de Risa.

The earliest projectile points recognized are two *Lerma* and four *Abasolo* specimens. Both types are unstemmed dart points. *Lerma* dart points are associated with Late Paleo-Indian, pre-Altithermal times. Nance (1972: 171-175) notes that *Lerma* points have been dated between 7,500 B.C. and 5,000 B.C. The terminal date in northeastern Mexico is uncertain but the *Lerma* type probably does not persist after 5,000 B.C. *Abasolo* is more difficult to place temporally but appears to post-date *Lerma*. Epstein (1972:54) points out that in Tamaulipas and Nuevo Leon, *Abasolo* may post-date the Altithermal (5,000-2,500 B.C.). The major problem seems to be one of type recognition. Taylor (1966: Fig. 4, top row left) illustrates specimens of the *Espantosa* type which are comparable to the *Abasolo* points recovered from the Charcos de Risa. Taylor recovered these among Early Coahuila Complex materials indicating a pre-Altithermal association. Thus, if the four *Abasolo* specimens from the Charcos de Risa are related to Taylor's *Espantosa* points, a pre-Altithermal, pre-5000 B.C. time is indicated. If the *Abasolo* specimens are representative of the defined type, they postdate the Altithermal and 5,000 B.C. (Suhm and Jelks 1962:165).

Following late Paleo-Indian, pre-Altithermal times, there appears to be a gap in the cultural sequence in the Charcos de Risa. No Early Archaic (Altithermal) projectile points have been recognized in the sample. Johnson (1964: Table 1, Fig. 25) dates the Early Archaic in

southwestern Texas between 5,000 and 3,000 B.C. At Arenosa Shelter Early Barbed dart points were associated with a C-14 date of 3410 ± 170 B.C. (Dibble 1967). Story and Bryant (1966) place Early Barbed forms between 7,000-4,000 B.C. and Nolan and Pandale between 4,000-2,500 B.C. The hiatus in the dart point sequence reflected in the sample from the Charcos de Risa is not unexpected. Epstein (1972: 54, 55) discusses the apparent absence or recognition of occupation in northern Mexico during Altithermal times and Nance (1972) considers the problem in detail.

In the Charcos de Risa, the stemless Late Paleo-Indian projectile points are followed by typically Middle Archaic contracting stemmed dart point forms. A total of 49 contracting stemmed dart points are among the sample. Seventy percent (34) are comparable to types described by Taylor (1966) indicating similarity between the Charcos de Risa and Central Coahuila during the Middle Archaic part of the Coahuila Complex. These types are: Duran (30 specimens), Gobernadora (1 specimen), and Jora (3 specimens). The seven provisional type Acatita points and eight specimens from untyped categories A-D appear to be forms confined to the Charcos de Risa and are not represented in the sample Taylor recovered from the Cuatro Ciénegas Basin. It should be noted that arrow point form, untyped category Q is comparable to dart point form untyped category A. A larger sample is needed to determine the range of form and weight among similar dart and arrow points.

Concrete dates from the Middle Archaic in Coahuila are problematical. In Nuevo Leon, McClurkin (1966: 70) reports contracting stemmed Gary points are approximately 1,200 A.D. and *Shumla* points from A.D. 100 to A.D. 200. MacNeish includes Gary points in the artifact assemblage of Tamaulipas from 200 or 150 B.C. until A.D. 500 but did not find *Shumla* type points. Johnson (1964: Fig. 25) places contracting stemmed types *Almagre*, *Langtry*, and *Shumla* in the Texas cultural sequence between 3,000 B.C. and sometime after 2,000 B.C. Story and Bryant (1966: Table 1) place *Almagre*, *Langtry* and *Val Verde* types between 2,500 B.C. and 1,000 B.C. Absolute dates for the Middle Archaic in Coahuila will, of course, depend on excavation of stratified deposits and recovery of radiocarbon samples.

Contracting stemmed dart point forms are followed by expanding stemmed, corner notched dart points which probably mark the inception of the Late Archaic. A total of 80 dart points were recovered: three provisional types and six untyped categories are represented. Only 12 percent (5 provisional type Finesterra and five provisional type *Vertiente* specimens) are comparable to forms recovered by

Taylor in Central Coahuila. This indicates divergence of specific attributes but adherence to the overall projectile point form among the inhabitants of southwestern and central Coahuila during these times. The remaining corner notched specimens are provisional type Charcos (49 specimens) or Untyped categories F-K (21 specimens). One exceptionally large artifact may be associated with the Charcos point style. It is described as a Miscellaneous Stemmed Charcos-like specimen. Although confirmation is lacking the Charcos projectile point form may have persisted throughout the Late Archaic and possibly later.

During the Late Archaic, side-notched dart points appear later than the corner-notched forms (Johnson 1964: Fig. 25). In the Charcos de Risa this form is represented by thirteen Ensor-like and four Untyped categories L and M dart points. Taylor (1966) illustrates side-notched Ensor-like specimen among Middle and Late Coahuila Complex projectile point styles.

The Late Archaic is difficult to date by inference and no direct dates can be provided for Coahuila. In nearby Nuevo Leon, McClurkan (1966: 70) found no comparable expanding stemmed corner-notched forms. However, he has dated the side-notched Ensor type from A.D. 600 to A.D. 1,000 or later. In Texas, Johnson (1964: Fig. 25) indicates that corner-notched and side-notched dart points span the period from sometime before 1,000 B.C. until after 1,000 A.D.

Arrow points, commonly accepted as markers of Neo-Indian times are a complex assemblage in the Desierto de Charcos de Risa. They include: (1) corner-notched forms; three provisional type Diaz, three Harrell, twenty-six Scallorn-like, two Toyah or Sierra Madera type. (2) unstemmed forms; five El Muerto or Fresno type, one Garza type. Only the provisional type Diaz specimens are not comparable to Jora Complex points illustrated by Taylor (1966), suggesting widespread projectile point similarity throughout Coahuila during late times.

The problem of relating arrow point forms and late dart point forms in Coahuila is expressed by Taylor's (*Ibid.*) hesitancy to place a terminal date on the Coahuila Complex and a firm beginning for the Jora Complex. Apparently, the Jora Complex begins sometime after A.D. 1 (Taylor, 1966: Fig. 30). McClurkan dates arrow points in the NL92 deposits in Nuevo Leon by A.D. 800 (1966: 70). Story and Bryant (1966: Table 1) note the introduction of arrow points in southwestern Texas between A.D. 1000 and A.D. 1600.

Internal chronological divisions among arrow point forms is also problematical. McClurkan (1966: 70) found both stemmed and side-notched specimens at NL92 but could not stratigraphically separate

the types. It should be noted that the form most common among the Charcos de Risa Sample, Scallorn-like, was not recovered in Nuevo Leon.

According to Suhm and Jelks (1962) Scallorn arrow points slightly postdate (A.D. 500 to A.D. 1200) the Ensor type (100-200 B.C. to A.D. 500-1000). The relationship and dates of these two forms in Coahuila is an interesting problem. Also, in Texas (*Ibid.*) Scallorn apparently pre-dates Harrell, Toyah, Fresno and Garza types.

Two unstemmed dart point forms, *Catan* and *Matamoros* specimens were recovered. These can not be placed in the chronological scheme at this time. Epstein (1972: 55) notes that triangular points in northeastern Mexico span Archaic and early Neo-Indian times and can not be used as time markers. Taylor (1966) did not find these types in Coahuila but current research indicates that *Catan* and *Matamoros* are important among projectile point forms in Coahuila.

Bifaces

GOUGES

Symmetrical (Fig. 4, m)

This triangular specimen has convex sides, a pointed distal end and biconvex cross section. The concave proximal end is the result of flake removal from the central surface. Compared to the other gouges this specimen is well made. Dimensions: length, 3.4 cm.; width, 2.0 cm.; thickness, 0.6 cm. Remarks: Greene (1971) Thin Bifaces, Class II, Group 4, Subgroup 2; page 88; Plate 7, j.

Irregular (Fig. 4, n)

Both of these specimens are triangular with irregular edges. One specimen is bifacially thinned. The other is bifacially modified only on the proximal end, that is the end from which the ventral flake was removed. Dimensions (in order described): length, 3.8 and 4.6 cm.; width, 2.6 and 2.4 cm.; thickness, 1.0-1.3 cm. Remarks: These specimens are similar in shape, but smaller than the Clear Fork Gouges described by Epstein (1969: 39-42, Fig. A-1). Greene (1971) Thinned Bifaces Class III, Group 4, Subgroup 2 and Group 8; pages 89-90; Plate 7, k, o.

Notched (Fig. 4, o)

The distinguishing feature of these three thick, triangular specimens is a notched concave proximal end. Dimensions: length, greater than 2.8-5.9 cm.; width, 2.5-3.5 cm.; thickness, 0.6-1.6 cm. Remarks: Greene (1971) Thinned Bifaces Class III, Groups 1 and 2; pages 96-97; Plate 7, p-r.

NARROW ELONGATE (Fig. 4, p)

There are five shaft-shaped implements. One end of each specimen is pointed; the opposite is irregular or convex. Dimensions: length, 2.0-4.8

cm.; width, 0.8-2.0 cm.; thickness, 0.3-0.9 cm. Remarks: Greene (1971) Narrow Elongate Implements: page 119; Plate 11, c-f.

THIN BIFACES

With the exception of the asymmetrical bifaces, all of the forms grade into the succeeding category. Divisions are an attempt to minimize variation among specimens of each category.

Asymmetrical (Fig. 4, q)

These forty-six specimens are the thickest of the thin bifaces. They were shaped by percussion. Cortex remains on the surfaces of some specimens. Two specimens have one pointed end. Two have short wide stems. Dimensions: length, 1.9-8.3 cm.; width, 2.0-5.1 cm.; thickness, 0.8-2.7 cm. Remarks: Greene (1971) Thin Bifaces Class I, Groups 1-3; pages 80-82; Plate 5, x-z, aa-bb, 6, a.

Elongate (Fig. 4, r)

There are twenty-four artifacts in this category. Shapes range from specimens with convex ends, one slightly narrower than the other two specimens with one convex end and one pointed end. Some are unthinned and others well thinned. Cortex is evident on some surfaces. Dimensions: length, 3.2-7.0 cm.; width, 2.8-5.2 cm.; thickness, 0.5-3.2 cm. Remarks: Greene (1971) Thin Bifaces Class II Group 1; pages 82-84; Plate 6, b-l.

Subcircular, Suboval and Teardrop (Fig. 4, s)

The outlines of these eleven specimens range from subcircular to suboval to almost teardrop shaped. All are thick and crude with irregular edges. Cortex remains on some specimens. Dimensions: diameter, 4.0-4.3-4.9 X 5.9 cm.; thickness, 1.1-2.2 cm. Remarks: Greene (1971) Thin Bifaces Class II Group 2; pages 84-85; Plate 6, m-o)

Leaf-shaped to Triangular (Fig. 4, t-u)

These fifty-four specimens range from leaf-shaped to slightly teardrop shaped to triangular. Proximal ends are straight, irregular or convex. Cortex remains on some surfaces. Only fifteen specimens are thinned. Dimensions: length, 3.3-6.9 cm.; width, 2.4-4.0 cm.; thickness, 0.6-1.7 cm. Remarks: Greene (1971) Thin Bifaces Class II Group 3; pages 85-88; Plate 6, p-v, 7, a-i.

THICK BIFACES

Eight specimens are heavy implements made from cobbles or large flakes. They are characterized by bifacial edges struck by percussion from around a portion of the circumference. The side opposite the bifacial edge is blunt. All have semicircular outlines. Three are fragments. Dimensions: circumference, 7.0 X 7.9-10.7 X 12.3 cm.; thickness, 2.8-3.7 cm. Remarks: These specimens seem to correspond closely with Epstein's continuous edge bifaces, group A and B (1969, pages 48-50, Fig. 8). Greene (1971) Thick Bifaces Class I; pages 98-99. McClurkan (1966, Fig. 17, p. 49) reports heavy choppers but they tend to have a rectangular outline. MacNeish also reports sub-rectangular choppers (1958: 85; Fig. 29, 13-14).

Unifaces

SERRATED

One specimen has a symmetrical leaf-shaped blade with convex edges. One edge is irregularly serrated. One shoulder is straight. The opposite shoulder and the base are fractured. Dimensions: length, equal to or greater than 3.4 cm.; width across shoulders, greater than 2.7 cm.; thickness, 0.3 cm. Remarks: Greene (1971) Eccentric Form Class I; page 120.

STEMMED (Fig. 5, a)

This is a proximal fragment of a stemmed uniface. It is side notched with a concave, bifacially thinned base. The edges of the ventral face are slightly modified. Dimensions: length, greater than 3.0 cm.; width across shoulders, greater than 2.5 cm. Remarks: Aveleyra *et al* (1956: 75-77; 172-172; Lam III) illustrates and describes similar specimens. Greene (1971) Thin Unifaces Class V; page 116; Plate 10, g.

SUBTRIANGULAR

Large (Fig. 5, b)

These five specimens were shaped by percussion with pressure flaking confined to the edges. Three specimens have ventrally thinned striking platforms at the broad end. The pointed ends of two specimens are striking platforms. Two specimens were made from cortex flakes and three from secondary flakes. Dimensions: length, 4.6-5.4 cm.; width, 2.6-3.4 cm.; thickness, 1.0-1.1 cm. Remarks: Greene (1971) Thin Unifaces Class I Group 1; Subgroup 1; page 101; Plate 8, a-c.

Small (Fig. 5, c-d)

Twenty-one specimens have a subtriangular outline. Most were shaped by percussion with little or no ventral edge modification. Bulbs of percussion and striking platforms are present on both broad and pointed ends. Dimensions: length, 2.4-5.4 cm.; width, 1.7-3.4 cm.; thickness, 0.4-1.3 cm. Remarks: Greene (1971) Thin Unifaces Class I Group 1, Subgroups 2 and 3, Groups 2 and 3, Fragments; pages 101-104; Plate 8, d-p.

SUBCIRCULAR AND SUBOVAL (Fig. 5, e)

Fifty-nine specimens are made from cortex or secondary cortex flakes. The outlines of some specimens are not modified. Some have steep edges. Many specimens have minimal ventral modification. All were chipped by percussion. Dimensions: circumference: 2.1 X 3.3-7.7 X 8.2 cm.; thickness, 0.9-2.4 cm. Remarks: Greene (1971) Thin Unifaces Class II; Plates 8, r-v, 9, a-k.

THICK

These six thick heavy implements were made from cobbles or large flakes. Each is characterized by a predominately unifacial edge around the entire circumference or a portion thereof. Dimensions: circumference, 8.5 X 9.0 cm.; thickness, 2.8-4.3 cm. Remarks: Greene (1971) Thick Unifaces: pages 117-118; Plate 10, h-i, 11, a-b.

MODIFIED FLAKES

Two hundred and thirty-five flakes exhibit one or more modified edges. Dimensions: length, 1.5-10.0 cm.; width, 1.8-7.0 cm.; thickness, 0.4-2.6 cm. Remarks: Greene (1971) Thin Unifaces Classes III and IV; pages 111-115; Plates 9, 1-n, 10, a-f.

Cores

Three categories of cores were recovered from the sites. Because additional flake removal from the cores would be impractical or yield exceptionally small flakes, all of the cores are considered exhausted. Therefore, flake scars on the cores are reminiscent of flakes which were least desirable. Specimens from two categories have been secondarily modified.

ROUND-OVAL (Fig. 5, f)

These twelve cores were fashioned from round or oval cobbles as well as large primary flakes. They are subcircular in outline with biconvex cross sections. Cores from which flakes were struck in regular succession around the circumference tend to have a dorsal and ventral apex. On the other hand, cores from which flakes were struck from two opposing edges of the circumference tend to have a dorsal and ventral longitudinal ridge. Cortex remnants are sometimes evident on the apexes or as blunt obstructions at right angles to the edge. These cores are bifaces. One specimen is limestone. Dimensions: circumference, 5.6 X 8.7 cm.; thickness, 3.2-5.6 cm. Remarks: Greene (1971) Cores Class I; page 122-125; Plate 11, i-l.

SUBCYLINDRICAL (Fig. 5, g-h)

The twenty-four cores in this category are made from cobbles or large initial flakes. They are subcylindrical to subconical in longitudinal cross section. The central faces are either natural or prepared striking platforms with slightly convex, flat or concave surfaces. Scars of the flakes struck from these platforms taper toward the dorsal ends. As a result, the dorsal surface of a core is either a sharp apex or an irregular face smaller in diameter than the ventral platform. The sides are long and essentially straight, bearing the scars of the removed flakes. Some specimens are battered. Dimensions: length, 2.6-5.3 cm.; ventral diameter, 2.2 X 2.9-7.2 X 7.9 cm.; dorsal diameter, not measurable-2.2 X 5.9 cm. Remarks: Greene (1971) Cores Class II; pages 125-130; Plates 12, a-j.

IRREGULAR (Fig. 5, i-j)

The eleven specimens in this category consist of asymmetrical pebbles and one large flake from which flakes have been removed in a non-patterned fashion. There are cortex remnants on ten specimens. Irregular edges on each specimen indicate attempts to prepare a platform or shape an artifact. Thus, additional evidence is needed to determine if these specimens are cores or pebbles discarded after initial efforts to shape them failed. Three specimens are battered. Dimensions: length, width and

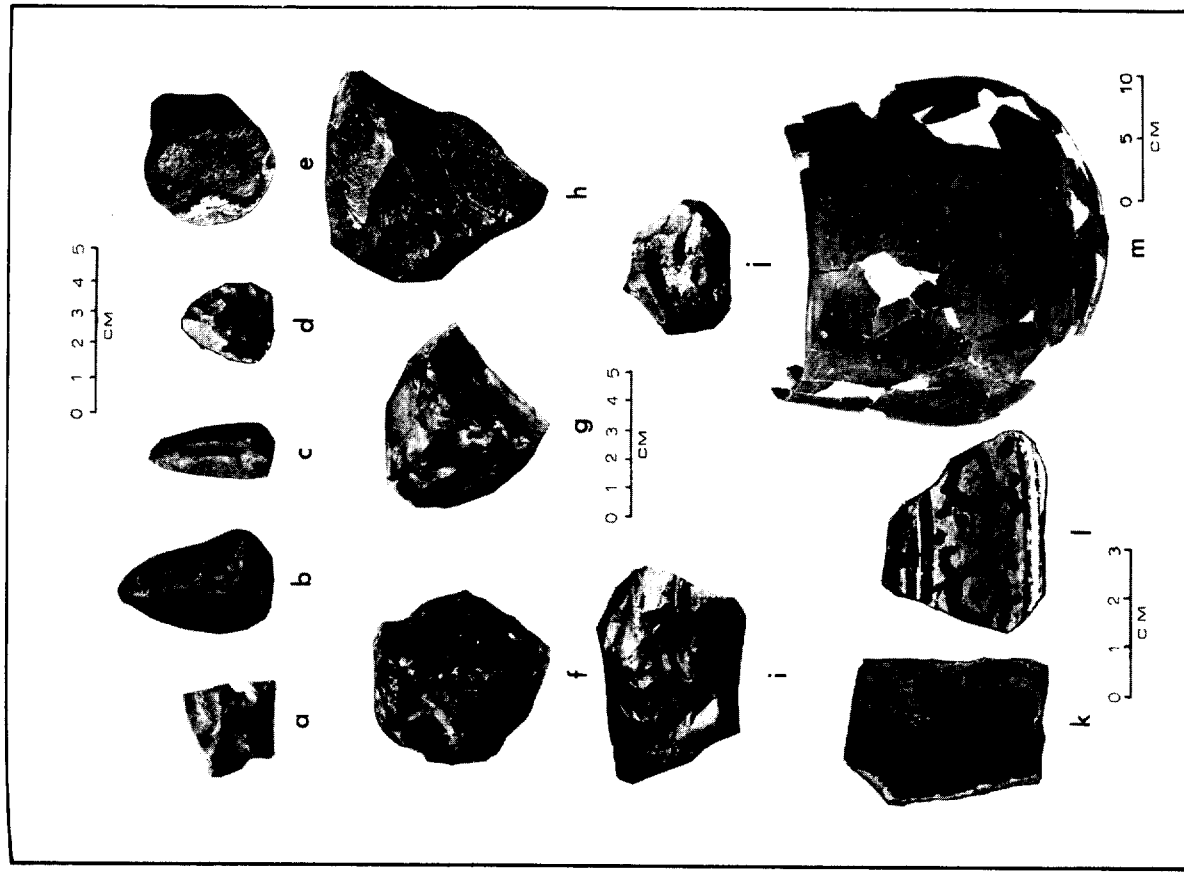


FIGURE 5. Unifaces, Cores and Pottery. a, Stemmed Uniface; b, Large Subtriangular Uniface; c-d, Small Subtriangular Uniface; e, Subcircular and Suboval Uniface; f, Round-Oval Core; g-h, Subcylindrical Cores; i-j, Irregular Cores; k-l, Chalchihuites-like Pottery; m, Arenal Red Washed Jar.

thickness, 4.2 X 3.8 X 2.5 cm. and 3.7 X 3.0 X 2.2 cm. Remarks: Possibly these can be compared to Epstein's Core-like Pebble Bifaces and Core-like Angular Bifaces (1969: 52-53; Fig. 9, D, E). Greene (1971) Cores Class III; pages 130-131; Plate 12, k-l.

Special Features on Chipped Stone Artifacts

BEAK LIKE PROJECTIONS

The twenty-eight beak like projections or gravers were formed: (1) on the pointed end, (2) on a corner, (3) on the side at the junction of two flake scars. All were made on thin unifaces. Remarks: Greene (1971) Special Features on Chipped Stone Artifacts Class I; pages 132-134; Plate 10, c.

SEMI-LUNATE CONCAVITIES

Twenty-eight specimens have semi-lunate concavities cut into a continuous edge. Three have two concavities. Two also have beak like projections. With the exception of a single thin biface, all are on thin unifaces. Remarks: Greene (1971) Special Features on Chipped Stone Class II; pages 134-135; Plate 13, a.

Ground and Pecked Stone

BOWL SHAPED MORTAR

This is an irregularly circular limestone bowl with a flat base and restricted rim. The lip is flush with the rim. The interior is conical with the wider end at the mouth. Interior and exterior surfaces were shaped by pecking. The interior surface is smoother than the exterior. The incised rim pattern includes a single irregular horizontal line 1.8 cm. below the lip. The enclosed zone between the lip and line is filled with adjacent alternate point-up/point-down triangles. A faint remnant of red paint is visible on the body. Dimensions: maximum diameter, 14.6 X 16 cm.; height, 10.4 cm.; diameter of mouth, 8.6 X 8.7 cm.; depth of interior, 5.3 cm. Remarks: Greene (1971) Bowl Shaped Mortar; page 137.

MILLING STONES

Of the four milling stones, three are large slabs of rock and one is a flat cobble. None shows evidence of intentional shaping. One specimen has an elongate ground depression, another has a circular depression. Three are limestone and three are vesicular basalt. The entire surface of two specimens is slightly ground. Dimensions: length and width, 21.7 X 27.0 cm.-31.1 X 35.2 cm. thickness, 5.6-11.2 cm. Remarks: Greene (1971) Milling Stones; page 137.

HANDSTONES

Single Grinding Surface

There are eight specimens in this category. Six are limestone, one vesicular basalt and one is of unidentified lithology. All have a single flattened grinding surface. Some have been shaped by pecking, others are unshaped cobbles. Dimensions: length and width, 9.9 X 12.8 cm.-10.4 X 10.6

cm.; thickness, 4.2-6.2 cm. Remarks: Greene (1971) Handstones, Class I; pages 137-139; Plate 13, b-c.

Double Grinding Surface

This subrectangular, tabular cobble has two parallel grinding surfaces. Corners are rounded. One grinding surface is smoother than the other. It is possible that one surface was flattened for shape and not for an additional grinding surface. The material is unidentified. Dimensions: length and width, greater than 12.8 X greater than 8.2 cm.; thickness, 5.2 cm. Remarks: Greene (1971) Handstones Class II; page 139; Plate 13, d.

STONE MAUL OR PESTLE

One end is wider than the other on this ovate limestone specimen. The surfaces are convex with gently rounded edges. All surfaces are pecked, the wider end being smooth with large pits. Dimensions: diameter, 8.3 X 10.6 cm.; height, 6.7 cm. Remarks: Greene (1971) Possible Stone Maul or Pestle; page 139; Plate 13, e.

BEADS

All of the seven stone beads are disc shaped. With one oval exception all are circular. Each specimen has a single perforation drilled from one or two sides. Dimensions: diameter, 0.7-1.4 cm.; diameter of perforation, 0.4-1.0 cm.; thickness, 0.2-0.7 cm. Remarks: Stone beads similar to these specimens are common in the Laguna region (Aveleyra *et al.* 1956, p. 124). Greene (1971) Beads; pages 141-142.

SPHERICAL GROUND STONE FRAGMENT

The outer surface of this specimen is ground smooth and engraved with a design of diagonal lines. A portion of the design has been rubbed or ground smooth. The color is light green and the type of stone undetermined. Dimensions: diameter, 3.2-3.3 cm. Remarks: Greene (1971) Possible Spherical Ground Stone Fragment; page 143.

TUBULAR PIPE FRAGMENT

Both ends of this cylindrical limestone artifact are fractured. It is slightly cone shaped. The outer surface is rough and pitted and longitudinal striations are visible on the surface of the perforation. Dimensions: length, 4.9 cm.; diameter, 3.9 and 3.0 cm.; diameter of perforation, 1.4 cm. Remarks: Greene (1971) Tubular Pipe Fragment; page 143; Plate 13, g. McClurkan (1966, p. 56, Fig. 21, c) reports two cylindrical pipe fragments from Cueva de la Zona de Derrumbes in Nuevo Leon.

Pottery

ARENAL

Temper and Paste

These specimens comprise a provisional type. The temper consists of clear and vein quartz. Occasional mica and feldspar particles occur. Particle shape ranges from subangular to subrounded; and size from small to

TABLE II. PROVENIENCES OF OTHER LITHIC CATEGORIES

BIFACES	C-189 C-190 C-191 C-198				Total
	C-189	C-190	C-191	C-198	
Gouges (Total)	2	1	1	2	6
Symmetrical	0	0	0	1	1
Irregular	1	1	0	0	2
Notched	1	0	1	1	3
Narrow Elongate	1	3	1	0	5
Thin Bifaces (Total)	21	37	25	52	135
Asymmetrical	14	9	9	14	46
Elongate	2	9	3	10	24
Subcircular	2	1	5	3	11
Triangular	3	18	8	25	54
Thick Bifaces	2	1	1	4	8
UNIFACES					
Serrated	0	1	0	0	1
Stemmed	0	0	0	1	1
Subtriangular (Total)	2	7	8	9	26
Large	1	1	2	1	5
Small	1	6	6	8	21
Subcircular and Suboval	18	22	8	11	59
Thick	1	2	1	2	6
Modified Flakes	81	52	25	77	235
CORES					
Round-Oval	1	4	5	2	12
Subcylindrical	2	11	5	6	24
Irregular	5	3	3	0	11
SPECIAL FEATURES ON CHIPPED STONE					
(Total)	16	18	8	14	56
Beak-like	8	9	5	6	28
Semi-Lunate	8	9	3	8	28
GROUND AND PECKED STONE					
Bowl Shaped Mortar	0	0	0	1	1
Milling Stones	1	0	0	3	4
Hand Stones (Total)	2	0	0	7	9
Single Grinding	1	0	0	7	8
Double Grinding	1	0	0	0	1
Stone Maul	0	0	1	0	1
Beads	2	1	3	1	7
Spherical Fragment	1	0	0	0	1
Tubular Pipe	0	1	0	0	1

large with medium to large particles most abundant. Although the concentration of temper ranges from sparse to abundant, abundant is by far the most common. In most sherds the paste is nearly obscured by the vast number of temper particles. The paste is fine and soft.

Texture: Compact to very friable depending on the amount of temper present. Friable sherds are the most common.

Color: Various shades of buff, brown, black and red are represented. Considerable variation on a single sherd is common.

Core: Cores vary from darker in the center than on the edges to light or dark throughout.

Wall thickness: 9.4-1.6 cm.

Lip and rim: Inverted, straight, everted with thinned, unthinned and thickened lips.

Method of manufacture: Coiling.

Special features: Sherds have perforations or mending holes.

Remarks: Greene (1971) Pottery Class I; pages 144-148; Plates 13, h, 14, a-d, Fig. 8; Tables 2-7.

Arenal Plain

Number of specimens: Total 3,022. C-189: body, 1,480; lip, 181; total, 1,661. C-190: body, 231; lip, 31; total, 262. C-191: body, 184; lip, 29; total, 213. C-198: body, 814; lip, 72; total, 886.

Shape and size of vessels: A portion of a small vessel with a globular body and constricted rim was recovered from the dune surface between sites C-190 and C-191. Height is approximately 18.8 cm. and the wall thickness ranges from 0.6-0.9 cm. Three fragments of a possible open spout were recovered from the surface of site C-190. One conical leg fragment was recovered from the surface of C-189.

Arenal Red Washed

Number of specimens: Total 337. C-189: body, 10; lip, 8; total, 18. C-190: body, 184; lip, 9; total, 193. C-191: body, 106; lip 4; total, 110. C-198: body, 13; lip, 3; total, 16.

Shape and size of vessels: Portions of four vessels, two large jars and two bowls were found. The first jar (Fig. 5, m) includes 85 sherds from the surface of C-190. The vessel has a globular body, slightly thickened base, constricted neck and a straight thinned rim. Interior and exterior surfaces are smeared with red wash. Dimensions are: body diameter, 29.3 cm.; neck diameter, 25.2 cm.; diameter of mouth, 22.6 cm.; height, 28.3 cm.; wall thickness, 0.7-1.0 cm. Thirty eight sherds of a jar were recovered from the dune surface between C-190 and C-191. The lip is thinned and the neck strongly inverted. Four opposed pairs of perforations apparently were made to mend a fracture. The vessel diameter is approximated between 35 and 40 cm. and the wall thickness ranges between 0.6-0.8 cm. Red wash is visible on exterior and interior surfaces. A portion of one bowl recovered from C-191 indicates a globular body and constricted neck. Red wash occurs on interior and exterior surfaces. Diameter of the mouth is in excess of 37.0 cm. and the wall thickness ranges between 0.5 and 0.7 cm. A second bowl was recovered from the dune surface between C-190 and C-191. Twenty-three sherds revealed a globular body and slightly thickened base. The lip is thinned and the rim inverted. The diameter exceeds 33.0 cm. The

wall thickness is between 0.7 and 1.9 cm. Decoration: Red wash applied to interior and/or exterior surfaces. It appears to have been smeared with a cloth or handful of weeds for red wash occurs in broad bands or covers an entire portion of a vessel. It is frequently difficult to distinguish between sherds washed red or fired red. The frequency of red wash on interior surfaces indicated bowls or jars with large orifices. The large size of some vessels of this type is confirmed by the partially restorable vessels described.

Arenal Incised and Punctated

Number of specimens: Total, 529. C-189: body or body and plain lip, 338; decorated lip, 67; appendages, 1; total, 406. C-190: body or body and plain lip, 26; decorated lip, 3, total, 29. C-191: body or body and plain lip, 5; decorated lip, 1; total, 6. C-198: body or body and plain lip, 52; decorated lip, 36; total 88. Decoration: Sherds are incised and/or punctated. The body sherds are described among six categories: (1) circular punctations (Fig. 6, a); (2) double rings of circular punctations (Fig. 6, b); (3) diagonally opposed rows of parallel incised lines (Fig. 6, c); (4) irregular linear punctations, usually in rows as if made with a comb (Fig. 6, d); (5) combination of linear punctations and incised lines as in categories 3 and 4 (Fig. 6, e); (6) combination of circular punctations and incised lines as in categories 1 and 3 (Fig. 6, f). There are six incised lip designs: (1) alternating rows of parallel lines (Fig. 6, g); (2) diagonally placed rows of parallel lines, may be fragments of category 1 (Fig. 6, h); (3) simple zig zags (Fig. 6, i); (4) chevrons (Fig. 6, j); (5) single horizontal line bifurcating the lip (Fig. 6, k); (6) bifurcated chevrons (Fig. 6, l).

There is a total of 528 sherds (omit the appendage); of these, 120 are lip sherds. Of the lip sherds, 107 are decorated and 13 are plain. The body portions of 437 sherds are decorated. Among the lips occurring with decorated bodies, 13 of the lip surfaces are plain and 16 are decorated.

Arenal Variant

These sherds are distinctively more compact than the Arenal sherds previously described. Plain, red washed and incised sherds occur.

The plain sherd numbers are: Total, 48. C-189: Body, 10; lip, 0; total, 10. C-190: body, 4; lip, 1; total, 5. C-191: body, 24; lip, 3; total, 27. C-198: body, 5; lip, 1; total, 6. Lips and rim occur as straight or everted and thinned or unthinned.

The red washed sherd numbers are: Total, 13. C-190: body, 9; lip, 2; total, 11. C-191: body, 1; lip, 1; total, 2. Thinned lips with everted and inverted rims occur. The red wash is present on interior and/or exterior surfaces.

The incised sherd numbers are: Total, 8. C-190: body, 1; lip, 0; total, 1. C-191: body, 5; lip, 0; total, 5. C-198: body, 1; lip, 0; total, 2. Design category 3, parallel incised lines that are diagonally opposed, and category 4, irregular and slightly linear punctations are represented. Shape and size of vessels: No restorable vessels were recovered. A single vessel leg was found which is a horse shoe-shaped projection modeled from the side of a vessel. The open end is almost flush with the vessel wall and the closed end of the horse shoe is raised. The vessel wall adjoining the appendage is incised with irregular lines. The pattern is too fragmentary to be defined.

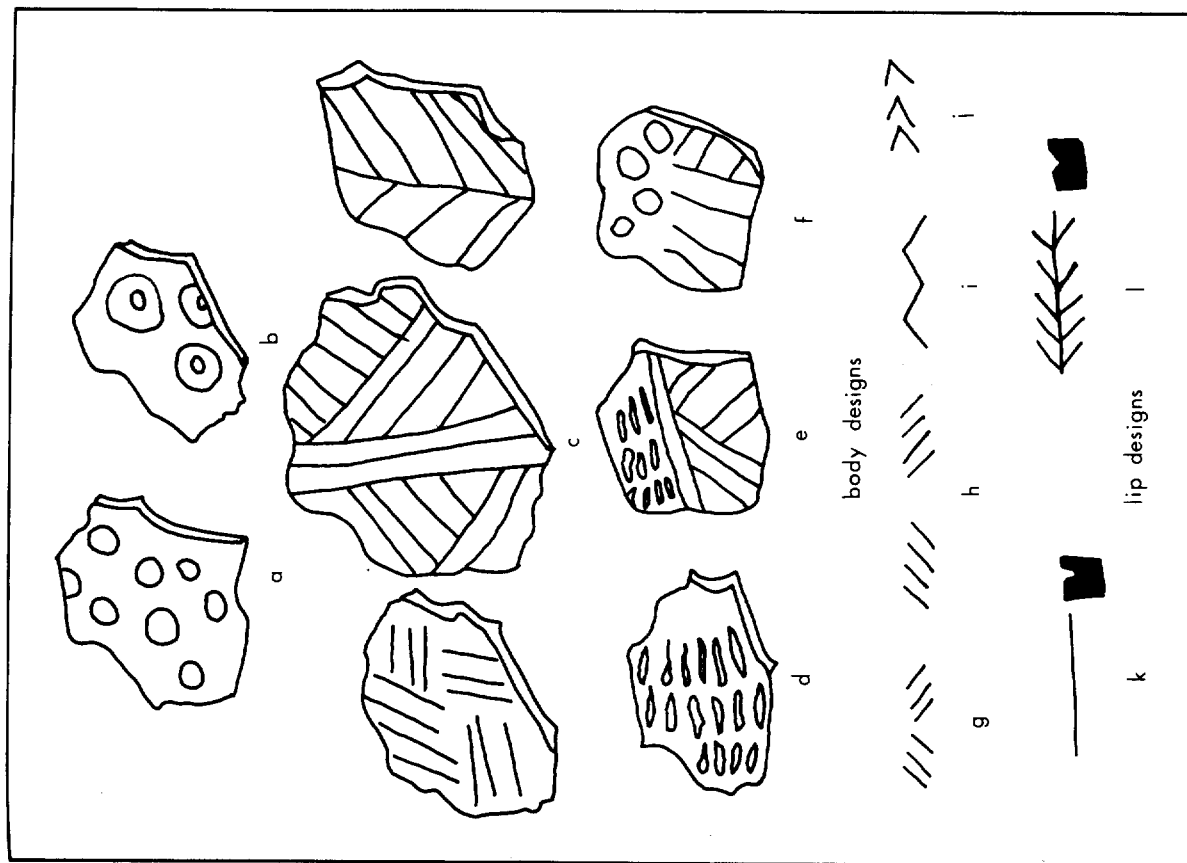


FIGURE 6. Decorative Motifs of Arenal Incised and Punctated Pottery. a-f, Body Designs; g-l, Lip Designs.

CHALCHIHUITES-LIKE POTTERY

These five sherds are definitely intrusive and are comparable to Chalchihuites wares. Chalchihuites ceramics span A.D. 300 or 500 to A.D. 1350 (Kelley 1966: 102, 109).

One sherd, suggestive of a bowl with smoothed interior, has an unthickened base that sharply undercuts the vessel side. One subconical leg extends from the base at the junction of base and side. Wear on the bottom of the leg indicates that the appendage was angled away from the body of the vessel. A single dark red line encircles the vessel at the junction of base and side; the upper margin is sinuous and the lower, straight. On the side above the line a fragment of red paint remains. The leg is smeared with red paint. Interior and exterior surfaces are smoothed and slightly lustrous. Unpainted areas are buff and gray.

Another sherd is a base and body fragment or a base and rim fragment. It is sharply angular in cross section. The sherd is buff or orange with two red horizontal lines on the lower part of the sherd. An irregular fragment of a pattern occurs on the upper portion.

Two buff colored sherds have fragments of red designs on the interior surfaces. One of these is illustrated in (Fig. 5, k).

One sherd (Fig. 5, l) has an everted thin lip and appears to be a fragment of a short vessel. The lip and exterior surface are painted with a red design. There is a thick line around the lip. Just below the lip there are two horizontal lines. The upper has a single tick mark extending towards the lip. The lower has tick extending down. Two unticked horizontal lines occur below the first set. The panel between this lower set contains an irregular scroll pattern and scattered circular dots. There is a thin shallow groove on the exterior surface. The sherd was snapped but the fracture did not follow the groove. Number of specimens: Total, 5. C-190: body, 3; total, 3. C-198: body, 1. Remarks: Greene (1971) Pottery Class X.

CONCHOS PLAIN

Temper and paste: Although large and medium sized white particles are visible on the surface and throughout the interior of each sherd, they are less frequent and smaller than those in *El Paso Brown* and *El Paso Polychrome*-wares. Clear and vein quartz are the most frequent temper particles. Mica and feldspar are present. Particle shape ranges from subrounded to subangular. Particle size range is from small to large with large particles slightly smaller than those of the *El Paso* pottery. Medium and small particles are the most abundant. The paste is platy, fine or granular.

Texture: The texture range includes compact to slightly friable specimens. No sherds are as friable as some of the *Arenal* specimens.

Color: Color is one of the most consistent and striking features of these sherds. They are dark buff to reddish brown.

Core: Cores are very distinct in this type. They are thick and dark grey.

Wall thickness: 0.5 to 0.8 cm.

Lip and rim: One everted rim has an unthinned lip, another straight rim sherd has a thickened lip.

Method of manufacture: Not determined.

Special features: None.

Decorations: The dark red on the surfaces of some sherds may be red wash or paint.

Number of specimens: Total, 73. C-189: body, 6; lip, 2; total, 8. C-190: body, 65; lip, 0; total, 65.

Remarks: Greene (1971) Pottery Class III; pages 151-152. These sherds were compared to *Conchos Plain* sherds collected by J.C. Kelley and stored in the Texas Archeological Research Laboratory, Austin, Texas. Schackelford (1955) assigns *Conchos* pottery to the time between A.D. 1200 to A.D. 1800.

EL PASO BROWN AND EL PASO POLYCHROME WARES

Temper and paste: The most distinctive feature of this class is the temper. Large white particles are evident on the surface and throughout the paste of each sherd. Clear and vein quartz, the most abundant temper particles, range from subangular to angular. Some of the temper may have been crushed. The paste ranges from platy to granular.

Texture: Ranges from compact to slightly friable. No specimens are as friable as *Arenal* pottery.

Color: Shades of brown, red, buff and black occur.

Core: Most cores are dark gray or black but some sherds are light throughout.

Wall thickness: 0.3 to 0.8 cm.

Lip and rim: Rims are everted with thinned or thickened lips.

Method of manufacture: Not determined.

Special features: One specimen has a possible circular perforation. Another specimen has a ground and snapped edge.

Shape and size of vessels: No indication.

Decoration: 105 sherds are plain; 4 have a possible red wash; 11 are brushed; 1 is incised and 1 is covered with black paint.

Number of specimens: Total, 123. C-189: body, 7; lip, 0; total, 7. C-190: body, 17; lip, 3; total 20. C-191: body, 68; lip, 9; total 77. C-198: body, 16; lip, 3; total, 19.

Remarks: Greene (1971) Pottery Class II; pages 148-150. These specimens were compared to *El Paso* sherds from near Samalayuca, Mexico and loaned by Vernon R. Brook. *El Paso* ware is commonly reported from adjacent areas of southeastern New Mexico, Texas and northern Mexico (Vernon Brook, 1971: personal communication). Hester and Hill (1969) report similar sherds from south Texas. Taylor (1966: 63, 83) reports *El Paso Brown* sherds probably associated with Jora Complex and Late Coahuila Complex. McGregor (1965: 359-360) places *El Paso Brown* and *El Paso Polychrome* pottery between A.D. 900 and A.D. 1400 and associates them with Mesilla, Dona Ana and *El Paso* phases of the Jornada Branch of the Mogollon.

SANTIAGO

Temper and Paste: The specimens in this provisional type have a temper of assorted minerals, primarily clear and vein quartz. Particle shape ranges from subangular to subrounded; size, from small to large with medium sized particles most abundant. The amount of temper ranges from moderate to abundant with moderate most common. The paste is granular or occasionally platy.

Texture: Ranges from slightly compact to friable. Most sherds are slightly friable.

Color: Shades of buff, brown, red and black are common.
 Core: Cores may be light or dark throughout or darker in the center.
 Wall thickness: 0.5 to 0.9 cm.
 Lip and rim: With one exception, all have everted rims with thinned, unthinned or thickened lips. The exception is thinned and straight.
 Method of manufacture: Coiled.

Special features: One sherd has been ground to a disc shape. There is no perforation.

Shape and size of vessels: No indication.

Decoration: Body sherds are plain or red washed on either or both surfaces. The lips and rims of some sherds are red washed. On the exterior of one sherd two verticle stripes extend from a red lip.

Number of specimens: Total, 660. C-189: body, 270; lip, 16; total, 286. C-190: body, 181; lip, 12; total, 193. C-191: body, 87; lip, 10; total, 97. C-198: body, 73; lip, 11; total, 84.

Remarks: Greene (1971) Pottery Class IV; pages 152-153. Although some of the sherds grade into *Arenal* on one extreme and *Conchos* on the other, I feel that they are separable on the basis of temper, texture and core characteristics.

SUMMARY AND DISCUSSION OF POTTERY TYPES

A total of 4,818 potsherds was recovered from the four sites in the Charcos de Risa. They include intrusive as well as locally manufactured ceramics.

The most numerous pottery category is 3,957 sherds of provisional type *Arenal*. Four varieties are included: undecorated, 3,022; red washed, 337; incised and punctated, 529; variant, 59. On the basis of numbers and wide distribution, this provisional type is considered indigenous. Seriation studies beyond the scope of this paper indicate that *Arenal* pottery may be the earliest in the sample and the varieties may be temporally significant. Undecorated vessels are common throughout the sequence. Incised designs appear to be overlapped or replaced by punctated designs and in later times, only undecorated and red washed varieties persist. *Arenal* variant is a compact variety that includes undecorated, red washed and incised and punctated sherds. The compactness may be a result of increased firing temperature and reflect refined technique.

The other provisional type, *Santiago*, also appears to be locally manufactured. A total of 660 sherds (undecorated and red washed) were recovered. Seriation indicates that this type did not appear until after linear incised pottery of the *Arenal* provisional type disappeared.

The termination of provisional types *Arenal* and *Santiago* is unknown but correlation with dated intrusive types indicate that both types survived until after A.D. 1200-1300.

SOUTHWESTERN COAHUILA

Among the intrusive pottery are five sherds comparable to Chalchihuites wares. Chalchihuites types occur between A.D. 300 or 500 and A.D. 1350 (Kelley 1966: 102, 109).

Seventy three *Conchos Plain* sherds were recovered. These date between A.D. 1200 and A.D. 1800 (Schackelford 1955). *Conchos Plain* is considered an intrusive type but future research may extend its range into southwestern Coahuila.

Intrusive, *El Paso Brown* and *El Paso Polychrome* wares were also found. The sample includes 123 specimens; 105 undecorated, 4 possible red washed, 1 black painted and 11 brushed. These occur in far west Texas, adjacent New Mexico and Mexico between A.D. 900 and A.D. 1400.

The combined time span of the three intrusive ceramic categories are from as early as A.D. 300 or 500 (Chalchihuites-like) to A.D. 1800 (*Conchos*). However, the three wares overlap temporally between A.D. 900 and A.D. 1350. There is no evidence that all of the intrusive types reached the Charcos de Risa during this brief span.

Other Ceramic Artifacts

PIPE FRAGMENTS

Three cylindrical pipe stems and one bowl fragment were recovered. The paste of the stem fragments is hard and smooth. Temper is sparse and consists of small sand grains. The paste and temper of the bowl fragment is comparable to *Arenal* pottery. Greene (1971) Pipe Stems and Possible Pipe Bowl Fragment; page 162. Mason (1937: 134-141; Figs. 2, a, 3) reports 1 pipe stem from Puebla, 5 km. south of Durango City, and another from Arroyo Quelito near Zape. MacNeish (1958: 130) reports a pipe stem fragment from Tamaulipas and attributes it to the Los Angeles Component.

CLAY BALLS AND HEMISPHERES

There are a total of 40 specimens. Thirty-seven are clay balls shaped by rolling the clay between the palms. There is considerable range in size (diameters of 1.9-3.6 cm.) and degree of roundness. Surface finishes range from smooth to rough. The surfaces of three specimens are scratched. One specimen has a single groove incised around the circumference. One other specimen has several deep furrows on the surface made while the clay was wet. Three specimens are hemispheres. Apparently, these were made by cutting clay balls in half and grinding the flat side smooth. Thirty four specimens are comparable to *Arenal* pottery. Five others are comparable with *Arenal* Variant and one with the temper and paste of the pipe stems. Greene (1971) Clay Balls and Hemispheres; pages 162-164. MacNeish (1958: Fig. 43, e) illustrates an incised and punctated clay ball.

SPINDLE WHORLS

Biconical

Sixteen specimens were recovered. One is so small that it may be a bead. All are biconically shaped with a single perforation through the ver-

tical axis. They are crude and surfaces are eroded. The surfaces of three specimens are scratched. One specimen was mashed while wet. The temper and paste of 13 specimens corresponds to Arenal pottery. Two are comparable to the temper and paste of the pipe stems. The height and width ranges from 1.8 X 2.3-2.2 X 3.8 cm. with one exception, 1.0 X 1.6 cm. Greene (1971) Spindle Whorls, Class I; pages 164-165; Fig. 15, c. Mason (1937, page 136, 138) reports biconical spindle whorls from a site located on the Nazas River near Hervideros, Durango.

Discs

There are seven perforated potsherd discs. All are irregularly circular with crudely ground edges. Four specimens were made from Arenal pottery, one from Arenal Variant and one from Santiago pottery. Greene (1971) Spindle Whorls, Class II; page 166.

FIGURINES

The sample consists of four cylindrically shaped figurines. The tops of the heads are flattened. Three specimens have no arms or legs. Two of these have lower ends larger in diameter than the upper or head ends. The nose of one specimen (Fig. 7, a, b) is a small vertical wedge. There are eyes on either side of the nose; two nostrils beneath the nose; and below the nostrils, a mouth. All are small circular punctations. The lower portion of the second specimen (Fig. 7, c, d) is divided into two distinct legs. Above the abdomen is a single, deep, circular perforation. There is a deep fracture on one side of the upper front. The wedge protruding from one side may represent an arm, a turned head, or a breast. There are no eyes, nostrils or mouth. The third specimen (Fig. 7, e) has punctated eyes, nostrils and mouth as well as a vertical wedge nose. The nose of the last specimen (Fig. 7, f) is a small beak. There is one eye (the other may be eroded); a fracture in the nostril region; and no mouth.

The temper of three specimens is sparse, fine sand and the paste is dense and fine. The temper and paste of two specimens is slightly finer than Arenal pottery. Greene (1971) Figurines; pages 166-167; Plate 15, d-i. Shafer (1975) discusses clay figurines recovered from southwestern Texas. These anthropomorphic forms may include males as well as females. They are associated with the Middle Archaic period. Association of the southwestern Texas forms with the Charcos de Risas specimens is unconfirmed.

CLAY CYLINDERS

Twenty-three irregularly shaped cylinders were recovered. All are fractured on at least one end. They may represent coil fragments, figurine parts and possibly vessel legs. None are decorated. Nineteen specimens have temper and paste identical to Arenal pottery. The paste of the remaining specimens is compact and fine and the temper is fine and sparse sand. Greene (1971) Miscellaneous Clay Cylinders, page 68.

DAUB

Fifty-one specimens appear to be daub. They are small amorphously shaped clay lumps with grass and stick impressions on the surfaces. These may be fragments from burned clay covered brush structures or clay lined hearths. Greene (1971) Daub; page 168.

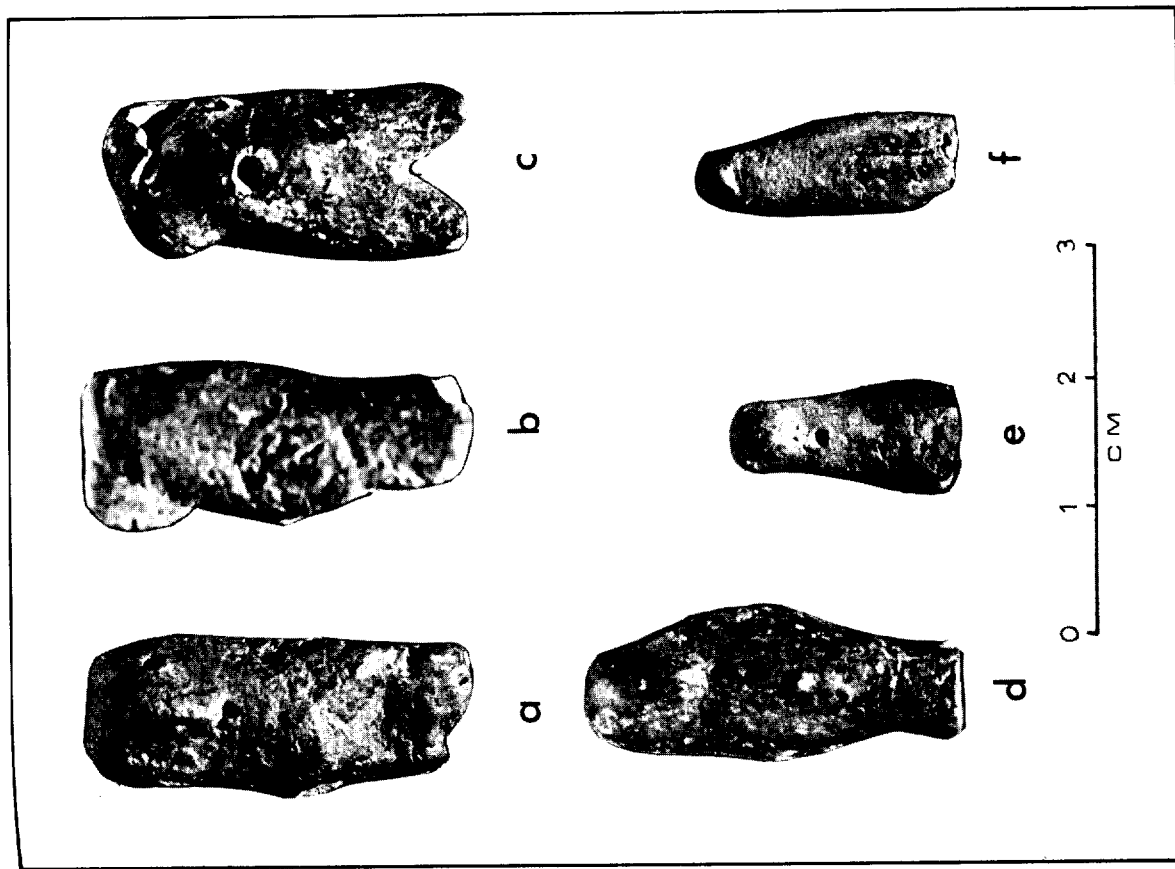


FIGURE 7. Figurines.

TABLE III. CERAMIC ARTIFACTS OTHER THAN POTTERY

	C-189	C-190	C-191	C-198	Total
Pipe Fragments	0	3	0	0	3
Clay Balls and Hemispheres	9	13	3	15	40
Spindle Whorls (Total)	1	15	2	5	23
Biconical	1	14	1	0	16
Discs	0	1	1	5	7
Figurines	0	4	0	0	4
Clay Cylinders	8	5	0	10	23
Daub	28	2	3	18	51

Shell and Bone

SHELL

Disc Beads

Eight of these beads are circular and one is rectangular. All have a single central perforation drilled from one or both sides. Seven are white and two are black. Greene (1971) Beads, Class I; pages 170-171.

Gastropod Beads

Six beads are *Marginella* and *Olivella* shells from which the apex was removed. The shells include: *Olivella undatella* Lamarck, 4 specimens; *Olivella* sp., 1 specimen; *Marginella* sp. of *M. apicina* Menke or *M. curta* Dowerby (Peter Rodda personal communication 1969). Four other specimens were fashioned from unidentifiable gastropod shells. Both apex and base were removed so that the beads consist of the cylindrical body whorl. Greene (1971) Beads Class II; pages 171-172.

Pelecypod Fragments

Five pelecypod valve fragments with one or two perforations were found classified as beads. Shape ranges from rectangular with rounded edges to irregular with dubious edge modification. Greene (1971) Miscellaneous perforated shells; pages 172-172.

Remarks on Beads

The shell and stone beads can be compared with those from Cueva de la Candelaria (Aveleyra et al. 1956: pp. 118-128 and Lam. 43-44). Beads were found strung on bracelets, necklaces, and in strings of eccentric patterns. Also, they were found on *flores* (rattle-like objects of fiber and wood), strung on a shaft of wood, and forming mosaic-like patterns on the base of *guardpuas*. The marine shell beads recovered from Candelaria are *Olivella sama*, a Pacific shell, and *Marginella apicina*, a Gulf of Mexico gastropod (*Ibid.*, p. 126).

BONE

An irregular-elongate, flat bone fragment has a single perforation. The perforation is located in the center of the flat surface and was drilled from both faces. The fragment is eroded and was broken when recovered. Greene (1971) Bone; page 173.

Historic Artifacts

Fragments of modern bottles, pottery, metal and plastic were recovered from the surfaces of sites C-189 and C-198. Cartridge cases and a spent bullet are among the artifacts from C-198. C-190 and the dune surface near C-190. None date earlier than 1895.

Sixty-four of the pottery specimens are indistinguishable from pottery used today. However, much of that pottery was used in the area during early historic times. It is notable that all but ten sherds were recovered from C-198.

Two sherds of tin-enamelled earthenware of probable nineteenth century origin (Tunnell 1966) were recovered from C-198. Both have green exteriors and cream white interiors. The glaze of both surfaces has bubble holes. Greene (1971) Historic Artifacts, pages 174-180.

TABLE IV. SHELL AND BONE

Shell (Total)	5	7	6	6	24
Disc Beads	2	2	4	1	9
Gastropod Beads	2	1	2	5	10
Pelecypod Fragments	1	4	0	0	5
Bone	1	0	0	0	1

FAUNAL REMAINS

Gastropods (John Clark: personal communication, 1969) include *Heliosoma trivolis* (Say), *Rabdotus alternatur mariae* (Albers), *Rabdotus* sp. and *Pseudosuccinea columella* (Say). The pelecypod *Uniomorus tetralasmus* (Say) was identified by Henry Van der Schalie (personal communication: 1969). All live in ponds, sloughs or lakes. Van der Schalie suggests that the pelecypods may represent the southernmost range of the species.

Vertebrate remains include: *Canis latrans*, *Citellus spilosoma*, *Lepus californicus*, *Odocoileus virginianus*, *Sigmodon hispidus* and *Sylvilagus floridanus* (James E. Corbin: personal communication, 1969). Medium and large bird bone fragments were recovered.

DISCUSSION AND CONCLUSIONS

Comparison and internal analysis has revealed much about the cultural sequence and artifact associations in the Desierto de Char-

cos de Risa, Coahuila, Mexico. In the following sections, discussion of the artifact sequence and conclusions are presented. These include brief summaries of the projectile point and pottery sequences presented within the text of the artifact descriptions as well as; lithics other than projectile points, ceramics other than pottery, shell and bone artifacts, historic artifacts and faunal remains. Comments on cultural processes in the Charcos de Risa concludes this section. A statement of major problems and concluding remarks close the paper. Hopefully, the brief problem section will help the reader understand the difficulties facing researchers concerned with the prehistory of northern Mexico.

Summaries and Comments

THE PROJECTILE POINT SEQUENCE

The projectile point sequence will be briefly recounted in this section. It is based primarily on comparisons with established sequences in surrounding areas discussed by Epstein (1969), Johnson (1964 and 1967), Taylor (1966), Dibble (1967) and Story and Bryant (1966).

The earliest projectile point forms recovered in the Charcos de Risa are stemless, leaf shaped dart points: *Lerma* and possibly *Abasolo*. Similar dart point forms were found (Taylor 1966) in the Cuatro Ciénegas Basin and related to the Early Coahuila Complex. *Lerma*, a late Paleo-Indian form, has been dated in northern Mexico as early as 7,000 B.C. and probably persisted no later than 5,000 B.C. (Nance 1972). Thus, it appears to be confined to the time of the pre-Altitheal climatic interval.

As expected, no expanding stemmed Early Barbed dart points were recognized in the sample. These are dated during the Early Archaic period in Southwestern Texas from 5,000 B.C. to 3,000 B.C. (Johnson 1964 and 1967) or 7,000 B.C. or 4,000 B.C. (Story and Bryant 1966). Slightly later dart point types, *Nolan* and *Pandale* were not found. Epstein (1972) and Nance (1972) consider the absence of Early Archaic dart point forms to be an apparent gap in the cultural sequence during Altitheal times.

Late Paleo-Indian stemless dart points are followed by typically Middle Archaic, post Altitheal, contracting stemmed dart point types. Seventy percent of these forms are comparable to projectile point types recovered by Taylor (1966) in the Cuatro Ciénegas Basin of Central Coahuila. Dates for the Middle Archaic in Texas are inferred and should be regarded as estimates. Johnson (1964) dates the Middle Archaic in Texas between 3,000 B.C. until sometime after 2,000 B.C. In Nuevo Leon, McClurkan (1966: 70) dated *Shumla* type

dart points from A.D. 100 to A.D. 200 and Gary points at approximately A.D. 1200. Story and Bryant (1966: Table 1) place Middle Archaic dart point types between 2,500 B.C. and 1,000 B.C.

Expanding stemmed, corner notched dart points are evidence of Late Archaic occupations in the Desierto de Charcos de Risa. Only 12 percent of the specimens are comparable to forms recovered by Taylor (1966) in Central Coahuila indicating less homogeneity between the two regions during the Late Archaic (Middle and Late Coahuila Complex). This speculation is further supported by the large number of provisional type Charcos points, a well developed, but regionally confined dart point style.

In Texas, the later part of the Late Archaic is marked by the appearance of side notched dart point forms (Johnson 1964). The sample from the four sites in the Charcos de Risa includes *Ensor*-like and 4 untyped categories of side notched dart point forms. Taylor (1966) includes an *Ensor*-like form among Middle and Late Coahuila Complex points.

Dates for the Late Archaic are uncertain. In southwestern Texas, the Late Archaic began before 2,000 B.C. and persisted later than 1,000 B.C. (Johnson 1964). In Nuevo Leon, McClurkan (1966) found no comparable corner notched forms but the slightly later side-notched *Ensor* type was recovered and dated from A.D. 600 to A.D. 1000.

Arrow points, representing late prehistoric times, include both side notched and stemless forms. With the exception of provisional type *Diaz*, all are comparable to forms recovered from Central Coahuila (Taylor 1966). Efforts to place arrow point stem or base attributes into a sequence are premature. Although *Scallorn* type appears to pre-date *Harrell*, *Toyah*, *Fresno* and *Garza* types in Texas (Suhm and Jelks, 1962) McClurkan was unable to stratigraphically discriminate among arrow point forms recovered from NL92 in Nuevo Leon.

Both *Catan* and *Matamoros* dart points were recovered from the Charcos de Risa. These stemless forms can not be placed in a temporal framework. Epstein (1972) discusses the uncertain position of triangular points within the northern Mexican chronological scheme.

OTHER LITHIC ARTIFACTS

Both bifacial and unifacial chipped stone artifacts were recovered and several forms are comparable to specimens from nearby regions. Many of the bifacial and unifacial categories probably represent blanks and preforms; stages within the tool manufacturing sequence.

Among the bifaces are symmetrical, irregular and notched gouges. The irregular specimens are similar in form but smaller than *Clear Fork* gouges recovered from the San Isidro Site in Nuevo Leon (Ep-

stein 1969). *Clear Fork* gouges have been associated with Paleo-Indian projectile point forms, but because the sample from the Charcos de Risa is small (2 specimens) and divergent in size it should not be considered evidence of these early times in southwestern Coahuila. Eight thick bifaces were recovered. They may be comparable to forms in Nuevo Leon (Epstein 1969; McClurkan 1966) and Tamaulipas (MacNeish 1958). No chronological associations are evident. The only unifacial form comparable to examples elsewhere is a single stemmed specimen. Similar artifacts were recovered from the adjacent Laguna region by Aveleyra *et al.* (1956).

It is difficult to place bifacial and unifacial artifacts within a temporal framework at this time. However, Taylor (1966: 67) suggests that, in Central Coahuila, bifacial implements occurred earliest, then gave way to both bifacial and unifacial forms which were later replaced by a predominance of unifacial forms. Finally, retouched flakes replaced unifacial forms in frequency. Portions of this sequence are supported by finds at the San Isidro Site in Nuevo Leon (Epstein 1969: 119-120).

Three categories of cores were recovered from the four sites. Most appear to be exhausted. These remains indicate that chipped stone tools were manufactured on the sites. None of the cores can be placed within a chronological framework and the location of the stone quarries is undetermined.

Among the ground and pecked stone artifacts are: a bowl shaped mortar, unshaped milling stones, hand stones, and a stone maul or pestle. All are evidence of plant food preparation on the sites. None of the artifacts can be dated.

Disc-shaped stone beads are similar to undated specimens recovered from the adjacent Laguna (Avellyera *et al.* 1956). Other stone artifacts include a tubular stone pipe and a spherical ground stone fragment. Tubular stone pipe fragments were recovered from NL92 in Nuevo Leon (McClurkan 1966) but no spherical ground stone objects have been reported from nearby sites.

THE POTTERY SEQUENCE

Apparently, two types of pottery were manufactured by the prehistoric inhabitants of the Charcos de Risa. The earliest, provisional type Arenal, includes several varieties which may be temporally significant: (1) Plain vessels were probably manufactured throughout the sequence. (2) Incised designs may be temporally overlapped or replaced by punctated design elements. (3) Although the inception of red washed decoration is undetermined, this technique persisted un-

til the end of the Arenal sequence. The compact variety, Arenal Variant, may be the result of more intensive firing techniques. The temporal significance is undetermined.

A slightly later, locally manufactured pottery is provisional type Santiago. It appears that this pottery was not manufactured until after linear incised pottery of provisional type Arenal was no longer made.

Although no absolute dates can be associated with Arenal and Santiago pottery, correlation with intrusive types suggests that both provisional types persisted later than A.D. 1200-1300.

The intrusive pottery includes Chalchihuites-like, Conchos, and El Paso Brown and El Paso Polychrome ceramics. A lengthy time span is covered by these wares: A.D. 300 or 500 to A.D. 1800. The intrusive pottery overlaps chronologically between A.D. 900 and A.D. 1350 but there is no evidence that all three were introduced into the Charcos de Risa during this time.

OTHER CERAMIC ARTIFACTS

Cylindrical pipe stems and a bowl fragment were found. Although pipe stems have been reported from Durango (Mason 1937) and Tamaulipas (MacNeish 1958) it is impossible to make cultural or temporal associations.

Other clay artifacts difficult to place within an absolute temporal span are: clay balls and hemispheres, biconical spindle whorls, and circular discs fashioned from potsherds. The paste of most of these artifacts is comparable to the paste of Arenal pottery and probably contemporaneous. One potsherd disc was made from a Santiago sherd.

Four cylindrical clay figurines were found. Three specimens have recognizable heads with facial features. One specimen has two legs, no recognizable face and a possible arm, nose or breast. Based on examples from southwestern Texas (Shafer 1975), the Charcos de Risa specimens may represent three male and one female forms. By association with dated projectile points, Shafer correlates several southwestern Texas figurines with the Middle Archaic. Although similar to the Texas specimens, none of the Charcos de Risa specimens are identical and none have been found in the region between Texas and southwestern Coahuila. Thus, on the basis of the small sample and lack of supportive comparisons, I am hesitant to place the anthropomorphic figurines from the four sites within a specific time period.

Numerous clay cylinders appear to be remnants of coils, figurines or vessel legs. The paste of most specimens is identical to Arenal pot-

tery paste. This is additional evidence that Arenal pottery was manufactured on the sites.

Daub specimens are the only evidence of constructed features such as living structures or hearths. No associated pit or floor outlines were found.

SHELL ARTIFACTS

Two categories of shell beads were recovered; circular and rectangular disc shaped, *Marginella* and *Olivella* shells with removed apices. Similar specimens were found in nearby Cueva de la Candelaria (Aveleyra et al., 1956). Taylor (1966: 83-84) attributes these and other elaborate materials from the Laguna region to the Mayran Complex. He states that these artifacts may have some time depth and persisted until approximately A.D. 1500.

The *Marginella* and *Olivella* shells include Pacific and Gulf of Mexico species. These, considered with intrusive pottery indicate widespread external contacts.

HISTORIC ARTIFACTS

Most of the historic artifacts are indistinguishable from articles commonly used in the region today. However, two sherds of tin-enamelled ware are probably of 19th century origin. These may be earlier because a mission was established in the Laguna during the 16th century (Griffen 1966).

FAUNAL REMAINS

Few faunal remains were recovered. These include gastropods, species usually associated with standing water. Small mammals, deer and bird skeletal material was also found. Little can be concluded but, damper climatic conditions during parts of the past may be indicated.

Cultural Processes in the Charcos de Risa

On the basis of the materials recovered from the four sites, the Desierto de Charcos de Risa was occupied by prehistoric peoples throughout a long time span extending from Late Paleo-Indian to historic times. Undoubtedly, climatic conditions fluctuated through time but analysis of these changes is beyond the realm of this report. The continuity of occupation of the four sites is undetermined. With the exception of the Early Archaic Period there is no evidence that the sites were or were not abandoned seasonally or for long periods of time. During the Early Archaic the area may have been abandoned or

suffered severe population depletion. The gap in the cultural sequence is based on negative evidence; lack of radiocarbon dates and the absence of Early Barbed points which are markers of the Early Archaic in southwestern Texas. We must not neglect the possibility that other projectile point forms such as leaf-shaped stemless or contracting stemmed dart points occurred in southwestern Coahuila during the Early Archaic or Altithermal times and that there is no gap in the cultural sequence.

The archeological evidence indicates that during Archaic times the inhabitants of the Desierto de Charcos de Risa were mobile hunters and gatherers with no permanent settlements. The lifestyle was comparable to the lifestyle of Archaic peoples throughout arid northern Mexico and adjacent Texas. Some of the inhabitants of the region may have maintained an Archaic-like economy during post-Archaic times. Locally manufactured pottery, spindle whorls, and inferences from the historic records are evidence that some form of agriculture may have been practiced during post-Archaic times. There is no evidence of permanent settlements which suggests that dependence on planted foodstuffs was marginal.

Outside contact is indicated by the presence of intrusive pottery from the north, south and west although these items may have reached the Charcos de Risa through a complex trade network. The intrusive ceramics date the time of exterior contact between A.D. 300 or 500 to A.D. 1800.

Problems

There are numerous problems in Coahuila archeology today. Nearly all can be attributed to two factors: (1) There are few written reports and these contain little descriptive detail; (2) Few stratified cultural deposits have been excavated.

1. It may be difficult or impossible to locate stratified deposits in the future. Most cave deposits have been looted or mined. Surface sites are subject to wind deflation and sheet erosion.
2. Climatic regimes are not well defined in this vast region. Geochronological, paleobotanical and faunal analysis are needed.
3. There are discrepancies in the absolute dates between Texas and northern Mexico although general artifact sequences seem consistent.
4. There is no confirmed evidence of man or his activities during the Middle Archaic (Altithermal) period.
5. The projectile point sequence is not confirmed by stratigraphic evidence. Major considerations are: the place of triangular points in

the temporal and spatial framework, the local development and intrusion of arrow points, and development of a model of lithic implement production and function reflecting changes in time and space.

6. Lithic associations are restricted to projectile points. Little is known about the other items in the lithic assemblage.

7. Although intrusive ceramics can be dated in a general manner, specific dates and associations with local ceramics and other artifacts is conjectural.

8. Most artifact comparisons have been made with materials recovered from Tamaulipas, Nuevo Leon and adjacent Texas. Western and southern affiliations (Zacatecas, Durango, Chihuahua, and southern Texas) have rarely been considered.

9. Several internal problems are specific to Coahuila. Burial practices are not conclusive; association between open site burial and mortuary caves (such as Candelaria) are unknown. The sparse evidence of Spanish influence is unsettling. Projectile point form diversity between southwestern and central Coahuila is not adequately described.

Closing Remarks

A general model of the cultural sequence in the Desierto de Charcos de Risa has been presented. A list of problems is included. These are not all of the problems but they indicate the vast amount of research still to be done. Hopefully, future investigations will answer many of the questions posed and add much needed detail to the model of prehistoric settlement in southwestern Coahuila.

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